

# ADVANCED ENERGY INDUSTRIES INC

## FORM S-3

(Securities Registration Statement (simplified form))

Filed 9/21/1999

|             |   |
|-------------|---|
| Address     | 1625 SHARP POINT DR<br>FT COLLINS, Colorado 80525 |
| Telephone   | 970-221-4670                                      |
| CIK         | 0000927003  |
| Industry    | Electronic Instr. & Controls                      |
| Sector      | Technology  |
| Fiscal Year | 12/31   |

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**SECURITIES AND EXCHANGE COMMISSION**  
WASHINGTON, D.C. 20549

**FORM S-3**  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933

**ADVANCED ENERGY INDUSTRIES, INC.**

(Exact name of registrant as specified in its charter)

DELAWARE  
(State or other jurisdiction of  
incorporation or organization)

84-0846841  
(IRS Employer  
Identification Number)

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**1625 SHARP POINT DRIVE**  
**FORT COLLINS, COLORADO 80525**  
(970) 221-4670

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**RICHARD P. BECK**  
**ADVANCED ENERGY INDUSTRIES, INC.**  
**1625 SHARP POINT DRIVE**  
**FORT COLLINS, COLORADO 80525**  
(970) 221-4670

(Name, address, including zip code, and telephone number, including area code, of agent for service)

**WITH COPIES TO:**

MICHELLE L. JOHNSON  
CARISSA C. W. COZE  
THELEN REID & PRIEST LLP  
TWO EMBARCADERO CENTER, SUITE 2100  
SAN FRANCISCO, CALIFORNIA 94111-3995

BARRY L. DASTIN  
RUSS A. CASHDAN  
KAYE, SCHOLER, FIERMAN, HAYS & HANDLER, LLP  
1999 AVENUE OF THE STARS, SUITE 1600  
LOS ANGELES, CALIFORNIA 90067

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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this Registration Statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. //

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. //

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. //

If this Form is a post-effective amendment pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. // \_\_\_\_\_ If the delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. //

**CALCULATION OF REGISTRATION FEE**

| TITLE OF EACH CLASS OF<br>SECURITIES TO BE REGISTERED | AMOUNT TO BE<br>REGISTERED | PROPOSED MAXIMUM<br>OFFERING PRICE<br>PER UNIT | PROPOSED MAXIMUM<br>AGGREGATE OFFERING<br>PRICE (1) | AMOUNT OF<br>REGISTRATION FEE |
|---|----------------------------|--|---|-------------------------------|
| % Convertible Subordinated Notes due 2006.....        | \$115,000,000              | 100%   | \$115,000,000                                       | \$31,970                      |
| Common Stock, \$0.001 par value.....                  | (2)                        | 0  | 0   | (3)                           |

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(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(a) under the Securities Act of 1933, as amended.

(2) Includes the shares of common stock initially issuable upon conversion of the convertible notes at the rate of shares of common stock per \$1,000 principal amount of convertible notes. Pursuant to Rule 416 under the Securities Act, such number of shares of common stock registered hereby shall also include an indeterminate number of additional shares of common stock that may be issued from time to time upon conversion of the convertible notes by reason of adjustment of the conversion price in certain circumstances.

(3) Pursuant to Rule 457(i) under the Securities Act, there is no filing fee with respect to the shares of common stock issuable upon conversion of the convertible notes, because no additional consideration will be received in connection with the exercise of the conversion privilege.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OF 1933 OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

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SUBJECT TO COMPLETION. DATED SEPTEMBER 20, 1999. THE INFORMATION IN THIS PRELIMINARY PROSPECTUS IS NOT COMPLETE AND MAY BE CHANGED. WE MAY NOT SELL THESE SECURITIES UNTIL THE REGISTRATION STATEMENT FILED WITH THE SECURITIES AND EXCHANGE COMMISSION IS EFFECTIVE. THIS PRELIMINARY PROSPECTUS IS NOT AN OFFER TO SELL THESE SECURITIES AND IT IS NOT SOLICITING AN OFFER TO BUY THESE SECURITIES IN ANY JURISDICTION WHERE THE OFFER OR SALE IS NOT PERMITTED.

\$100,000,000

[LOGO]

**% Convertible Subordinated Notes due 2006**

Advanced Energy Industries, Inc. is offering \$100,000,000 of % convertible subordinated notes due 2006. You may convert your convertible notes into shares of common stock of Advanced Energy at any time prior to maturity or their redemption by Advanced Energy. The convertible notes will mature on , 2006. The conversion rate is shares per each \$1,000 principal amount of convertible notes, subject to adjustment in certain circumstances. This is equivalent to a conversion price of \$ per share. The common stock is quoted on the Nasdaq National Market under the symbol "AEIS". The last reported bid price for the common stock on September 17, 1999, was \$38.00 per share.

Advanced Energy will pay interest on the convertible notes on and of each year. The first interest payment will be made on , 2000. The convertible notes are subordinated in right of payment to all senior debt of Advanced Energy and indebtedness of its subsidiaries. The convertible notes will be issued only in denominations of \$1,000 and integral multiples of \$1,000.

On or after , 2002, Advanced Energy has the option to redeem all or a portion of the convertible notes which have not previously been converted at the redemption prices set forth in this prospectus. You have the option, subject to certain conditions, to require Advanced Energy to repurchase any convertible notes held by you in the event of a "change in control", as described in this prospectus, at a price equal to 100% of the principal amount of the convertible notes plus accrued interest to the date of repurchase.

Concurrently with this convertible notes offering and by a separate prospectus, Advanced Energy is offering 1,000,000 shares of common stock, and six of its stockholders are offering an additional 2,000,000 shares of their common stock. The selling stockholders also may sell up to an additional 450,000 shares of their common stock to the underwriters for that offering to cover over-allotments. The completion of this convertible notes offering and the common stock offering are not dependent on one another.

**SEE "RISK FACTORS" BEGINNING ON PAGE 12 OF THIS PROSPECTUS TO READ ABOUT IMPORTANT FACTORS YOU SHOULD CONSIDER BEFORE PURCHASING THE CONVERTIBLE NOTES.**

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY OTHER REGULATORY BODY HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

|  | Per<br>Convertible Note | Total |
|--|-------------------------|-------|
| Initial public offering price.....                 | %                       | \$    |
| Underwriting discount.....                         | %                       | \$    |
| Proceeds, before expenses, to Advanced Energy..... | %                       | \$    |

The initial public offering price set forth above does not include accrued interest, if any. Interest on the convertible notes will accrue from , 1999 and must be paid by the purchaser if the convertible notes are delivered after , 1999.

To the extent that the underwriters sell more than \$100,000,000 principal amount of convertible notes, the underwriters have the option to purchase up to an additional \$15,000,000 principal amount of convertible notes from Advanced Energy at the initial public offering price less the underwriting discount.

The underwriters expect to deliver the convertible notes in book-entry form only through the facilities of The Depository Trust Company against payment in New York, New York, on , 1999.

**GOLDMAN, SACHS & CO.**

**MERRILL LYNCH & CO.**

**BANC OF AMERICA SECURITIES LLC**

Prospectus dated , 1999.

## **PROSPECTUS SUMMARY**

THIS SUMMARY MAY NOT CONTAIN ALL THE INFORMATION THAT MAY BE IMPORTANT TO YOU. YOU SHOULD READ THE ENTIRE PROSPECTUS AS WELL AS THE INFORMATION INCORPORATED BY REFERENCE IN THIS PROSPECTUS BEFORE MAKING AN INVESTMENT DECISION. REFERENCES IN THE PROSPECTUS TO "WE", "US", "OUR" OR "ADVANCED ENERGY" ARE TO ADVANCED ENERGY INDUSTRIES, INC. AND ITS SUBSIDIARIES, UNLESS THE CONTEXT REQUIRES OTHERWISE. ALL INFORMATION IN THIS PROSPECTUS ASSUMES THE UNDERWRITERS' OVER-ALLOTMENT OPTIONS WITH RESPECT TO THE CONVERTIBLE NOTES OFFERING AND THE COMMON STOCK OFFERING ARE NOT EXERCISED, UNLESS OTHERWISE STATED.

## **ABOUT ADVANCED ENERGY**

### **OVERVIEW**

We design, manufacture and support power conversion and control systems. These systems are important components of industrial manufacturing equipment that modifies surfaces or deposits or etches thin film layers on computer chips, CDs, flat panel displays such as computer screens, DVDs, windows, eyeglasses, solar panels and other products. Our systems refine, modify and control the raw electrical power from a utility and convert it into power that is uniform and predictable. This allows manufacturing equipment to produce and deposit very thin films at an even thickness on a mass scale.

The ongoing demand for improvements in the performance, capacity and speed of computer chips, flat panel displays and other products drives manufacturers to develop more advanced technology to produce thinner, more consistent and more precise layers of film. Thin film production processes enable manufacturers to control and alter the electrical, magnetic, optical and mechanical characteristics of materials. Our systems are used primarily in plasma-based thin film production processes. Plasma is commonly created by applying enough electrical force to a gas at reduced pressure to separate electrons from their parent atoms. Plasma-based process technology was developed to address the limitations of wet chemistry and thermal process technologies and to enable new applications. Plasma-based processes are inherently more controllable and more accurate for many applications than other thin film production processes because of the electrical characteristics of plasma.

We market and sell our systems primarily to large, global original equipment manufacturers of semiconductor, flat panel display, data storage and other industrial thin film manufacturing equipment. We have sold our systems worldwide to more than 100 OEMs and directly to more than 500 end-users. Our principal customers include Applied Materials, Balzers, Eaton, Lam Research, Novellus, Singulus and ULVAC. The semiconductor capital equipment industry accounted for approximately 59% of our total sales in 1997, 49% in 1998 and 59% in the first six months of 1999.

### **STRATEGY**

We have achieved a market leadership position by applying our large base of expertise in the interaction between plasma-based processes and power conversion and control systems to design highly precise, customized power conversion and control systems that provide a wide range of power frequencies for plasma-based thin film processes. Our strategy is to continue to build upon our leadership positions in the semiconductor capital equipment, flat panel display and data storage industries while exploring other emerging markets. We believe our five key growth opportunities are:

**EXPANDING LEADERSHIP IN OUR CORE MARKETS.** We are the market share leader in the semiconductor capital equipment, data storage and flat panel display markets. We plan to continue to increase our penetration in these three markets by introducing new products and solutions for our existing customers and targeting new customers, but our primary focus will continue to be on

the semiconductor capital equipment market. For example, in the semiconductor capital equipment market we believe that significant opportunities exist for us to introduce new products for processes or applications such as:

- etch applications using radio frequency power;
- gas abatement;
- on-line measurement of power characteristics; and
- copper electroplating.

**PROVIDING INTEGRATED SOLUTIONS FOR CUSTOMERS.** We believe that customers want solutions that improve process control and yield, and decrease their total cost and time to market. We are developing integrated systems to provide more complete solutions that meet our customers' plasma-based process requirements. We are identifying currently fragmented applications of technology involving significant power, measurement and control content, and developing integrated, high performance, robust and cost-effective solutions for these applications.

**TARGETING EMERGING APPLICATIONS.** We are targeting emerging applications that have the potential to benefit from more efficient and reliable use of power in manufacturing processes for telecommunications networking equipment, automotive parts, tools, architectural glass and other industrial products.

**PURSUING ACQUISITIONS TO FUEL GROWTH.** We actively seek complementary technologies and companies as a means to expand our presence in existing and emerging markets and to provide integrated solutions for customers and potential customers. We have acquired and integrated four companies in the last two years. We continually evaluate companies whose products and technologies could enhance our system level capabilities.

**CAPITALIZING ON WORLDWIDE INFRASTRUCTURE.** Our principal customers are large, global OEMs that require that their suppliers have a well-developed worldwide infrastructure. We plan to continue to take advantage of and expand our established global infrastructure, operating skills and comprehensive product portfolio to better serve these customers and to attract new customers with international support needs.

## **SALES AND MARKETING**

We sell our systems primarily through direct sales personnel to customers in the United States, Europe and Asia, and through distributors in China, France, Israel, Italy, Singapore, Sweden and Taiwan. Sales outside the United States represented 23% of our total sales during 1997, 28% in 1998 and 28% in the first six months of 1999. We maintain sales and service offices across the United States in California, Colorado, Massachusetts, New Jersey and Texas. We maintain sales and service offices outside the United States in Germany, Japan, South Korea and the United Kingdom.

## **RF POWER PRODUCTS ACQUISITION**

In October 1998, we acquired RF Power Products, which designs, manufactures and supports radio frequency (RF) power conversion and control systems consisting of generators and matching networks. Generators provide RF power and matching networks provide control over power flow to the customers' equipment. We believe our ability to offer an expanded line of RF systems to our existing customer base has strengthened those relationships. We sell these products principally to semiconductor capital equipment manufacturers. We also sell similar systems to capital equipment

manufacturers in the thin film data storage and flat panel display industries and are exploring applications for these systems in other industries.

We incorporated in Colorado in 1981 and reincorporated in Delaware in 1995. Our main offices are located at 1625 Sharp Point Drive, Fort Collins, Colorado 80525, and our telephone number is 970-221-4670.

## THE OFFERING

|                         |   |
|-------------------------|---|
| Securities offered..... | \$100,000,000 principal amount of     % convertible subordinated notes due 2006. We also have granted the underwriters an over-allotment option to purchase up to an additional \$15,000,000 principal amount of convertible notes.   |
| Offering price.....     | % of the principal amount of the convertible notes plus accrued interest, if any, from                     , 1999.  |
| Interest.....           | Interest on the convertible notes is payable semiannually on                     , and                     of each year, starting                     , 2000.   |
| Conversion.....         | <p>You may convert your convertible notes into shares of common stock at the rate of             shares of common stock per \$1,000 principal amount of convertible notes. This is equivalent to a conversion price of \$       per share. The conversion rate may be adjusted in certain events.</p> <p>You will be able to convert the convertible notes at any time before the close of business on                     , 2006, unless we have previously repurchased the convertible notes from you. If we notify you that we intend to repurchase your convertible notes, you will still be able to convert your convertible notes up to the close of business on the day immediately preceding the date fixed for repurchase. See "Description of Convertible Notes-- Conversion Rights".</p> |
| Subordination.....      | The convertible notes are subordinated to any present and future senior debt that we may incur. The convertible notes are also effectively subordinated to all indebtedness and other liabilities of our subsidiaries. As of August 31, 1999, our senior debt and indebtedness of our subsidiaries totalled \$1.4 million. The indenture under which the convertible notes will be issued will not prevent us from incurring senior debt nor will it prevent our subsidiaries from incurring any indebtedness or liabilities. See "Description of Convertible Notes--Subordination".  |



Global note; Book-entry system.... We will issue the convertible notes only in fully registered form without coupons and in minimum denominations of \$1,000. Purchasers will not receive individually certificated notes. Instead, the convertible notes will be evidenced only by a global note, in fully registered form and without coupons, deposited with the trustee for the convertible notes, as custodian for DTC. Your interest in the global note will be shown on, and transfers of your interest will be effected only through, records maintained by DTC and its participants and indirect participants. See "Description of Convertible Notes--Form, Denomination, Transfer, Exchange and Book-Entry Procedures".

Optional repurchase by us..... Starting , 2002, we have the right at any time to repurchase some or all of your convertible notes at the prices listed on page 63 plus accrued and unpaid interest, unless you have previously converted your convertible notes.

Repurchase at your option if we have a change in control..... If we experience a change in control, you will have the right, subject to certain conditions and restrictions, to require us to repurchase some or all of your convertible notes at a price equal to 100% of the principal amount, plus accrued and unpaid interest to the repurchase date. The repurchase price is payable in cash or, at our choice but subject to certain conditions, in shares of common stock, valued at 95% of the average closing sales prices of the common stock for the five trading days preceding and including the third trading day prior to the repurchase date. See "Description of Convertible Notes--Repurchase at Option of Holders Upon a Change in Control".

Use of proceeds..... For general corporate purposes, including acquisitions, and working capital requirements. See "Use of Proceeds".

Events of default..... Events of default include:

- (1) we fail for any reason to pay principal or any premium on any convertible note when due, even if we are prohibited from making the payment by the subordination provisions of the convertible notes and the indenture;
- (2) we fail for any reason to pay any interest on any convertible note within 30 days after the interest payment becomes due, even if we are prohibited from making the payment by the subordination provisions of the convertible notes and the indenture;
- (3) we fail to act in accordance with any other covenant in the indenture and we do not cure the failure within 60 days after we are provided notice of such failure;

(4) we or one of our subsidiaries fail to pay when due, or the acceleration of the due date of, more than \$10 million of indebtedness under any bonds, debentures, notes or other borrowings, and the failure continues for 30 days after we receive notice as provided in the indenture;

(5) we or one of our subsidiaries are party to certain bankruptcy, insolvency or reorganization proceedings; and

(6) we fail to provide the required notice of any change in control, whether or not prohibited by the subordination provisions of the convertible notes and the indenture.

See "Description of Convertible Notes--Events of Default".

|                                       |  |
|---------------------------------------|--|
| Listing of convertible notes.....     | The convertible notes will not be listed on any securities exchange or quoted on the Nasdaq National Market. The underwriters have advised us that they currently intend to make a market in the convertible notes. However, the underwriters are not obligated to do so, and any such market making may be discontinued at any time at the sole discretion of the underwriters without notice. See "Underwriting".  |
| Governing law.....                    | The indenture and the convertible notes are governed by the laws of the State of New York.   |
| Risk factors.....                     | You should read the "Risk Factors" section, beginning on page 12, as well as the other cautionary statements, risks and uncertainties described in this prospectus and in the documents incorporated by reference, so that you understand the risks associated with an investment in the convertible notes.  |
| Concurrent common stock offering..... | Concurrently with this convertible notes offering and by means of a separate prospectus, we are offering to sell 1,000,000 shares of common stock and six of our officers and directors are offering to sell 2,000,000 shares of common stock. The selling stockholders also have granted the underwriters of the common stock offering an over-allotment option to purchase up to an additional 450,000 shares of common stock. The proceeds we receive from our sale of shares will be used for general corporate purposes, including acquisitions, and working capital requirements. The proceeds from the sale of shares by the selling stockholders will go only to the selling stockholders. The completion of this convertible notes offering and the common stock offering are not dependent on one another. |

DESCRIPTION OF COMMON STOCK

Shares outstanding (1)..... As of September 16, 1999, there were 27,065,355 shares of common stock outstanding.

Shares outstanding if all convertible notes are converted (1)..... If all of the convertible notes were converted into common stock as of September 16, 1999, there would be shares of common stock outstanding ( shares, assuming that the concurrent common stock offering is completed).

Listing of common stock..... The common stock is traded on the Nasdaq National Market under the symbol "AEIS".

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(1) Excludes 1,993,961 shares of common stock issuable upon exercise of options outstanding as of September 16, 1999, at a weighted average exercise price of \$13.32, 3,135,257 shares reserved for issuance under our 1995 Stock Option Plan, 102,461 shares reserved for issuance under the RF Power stock option plans we assumed in connection with our acquisition of RF Power in October 1998, 94,500 shares reserved for issuance under our 1995 Non-Employee Director Stock Option Plan and 171,550 shares reserved for issuance under our Employee Stock Purchase Plan.

**SUMMARY CONSOLIDATED FINANCIAL DATA**  
(IN THOUSANDS, EXCEPT PER SHARE DATA)

The summary consolidated financial data in this chart for the years ended December 31, 1994 to 1998 and as of December 31 of those years are derived from our audited financial statements.

The summary consolidated statement of operations data for the year ended December 31, 1998 and the related consolidated balance sheet and other data as of and for the year ended December 31, 1998 were derived from consolidated financial statements audited by Arthur Andersen LLP, independent accountants, whose related audit report is included in our annual report on Form 10-K.

The summary consolidated statement of operations data for the years ended December 31, 1996 and 1997 and the related consolidated balance sheet and other data as of and for the year ended December 31, 1997 were derived from consolidated financial statements audited in part by Arthur Andersen LLP and in part by KPMG LLP, whose audit reports are included in our annual report on Form 10-K. KPMG LLP's audit report pertains to Advanced Energy Voorhees, Inc., formerly named RF Power Products, Inc., whose fiscal year end was November 30. As such, the balance sheet and other data and the statement of operations data of the Company for fiscal 1996 and 1997 includes the balance sheet of Advanced Energy Voorhees, Inc. as of November 30, 1996 and 1997, and the statement of operations for each of the two years in the period ended November 30, 1997, respectively.

The summary consolidated statements of operations data for the years ended December 31, 1994 and 1995, and the related consolidated balance sheet and other data as of December 31, 1996 were restated from our audited consolidated financial statements and from audited consolidated financial statements of Advanced Energy Voorhees. The Advanced Energy Voorhees financial statements are not included in our annual reports on Form 10-K.

The summary consolidated financial data in this chart for the six months ended June 30, 1998 and 1999 and as of June 30, 1999 are derived from our unaudited financial statements, which are included in our quarterly report on Form 10-Q for the quarter ended June 30, 1999. The unaudited financial data has been prepared on the same basis as the audited financial data and, in our opinion, includes all normal recurring adjustments necessary for a fair statement of the results for the periods covered.

The following data should be read in conjunction with the financial statements and related notes incorporated by reference in this prospectus and "Management's Discussion and Analysis of Financial Condition and Results of Operation".

|  | YEAR ENDED DECEMBER 31, |           |           |           |            | SIX MONTHS ENDED<br>JUNE 30, |           |
|--|-------------------------|-----------|-----------|-----------|------------|------------------------------|-----------|
|  | 1994                    | 1995      | 1996      | 1997      | 1998       | 1998                         | 1999      |
|  | -----                   | -----     | -----     | -----     | -----      | -----                        | -----     |
|  |                         |           |           |           |            | (UNAUDITED)                  |           |
| STATEMENT OF OPERATIONS DATA:            |                         |           |           |           |            |                              |           |
| Sales.....                               | \$68,159                | \$121,075 | \$129,931 | \$175,758 | \$124,698  | \$75,850                     | \$ 74,243 |
| Cost of sales.....                       | 36,183                  | 65,003    | 82,685    | 108,802   | 87,985     | 53,729                       | 42,852    |
| Gross profit.....                        | 31,976                  | 56,072    | 47,246    | 66,956    | 36,713     | 22,121                       | 31,391    |
| Operating expenses                       |                         |           |           |           |            |                              |           |
| Research and development.....            | 7,190                   | 12,865    | 17,288    | 19,336    | 23,849     | 12,229                       | 12,610    |
| Sales and marketing.....                 | 5,982                   | 8,256     | 10,723    | 11,646    | 13,531     | 7,076                        | 7,284     |
| General and administrative.....          | 6,989                   | 10,612    | 8,865     | 10,480    | 9,483      | 5,627                        | 5,958     |
| Other expenses (1).....                  | --                      | --        | --        | 5,780     | 2,625      | --                           | --        |
| Total operating expenses.....            | 20,161                  | 31,733    | 36,876    | 47,242    | 49,488     | 24,932                       | 25,852    |
| Income (loss) from operations.....       | 11,815                  | 24,339    | 10,370    | 19,714    | (12,775)   | (2,811)                      | 5,539     |
| Other (expense) income.....              | (96)                    | (452)     | (39)      | (191)     | 358        | 227                          | 17        |
| Net income (loss) before income taxes... | 11,719                  | 23,887    | 10,331    | 19,523    | (12,417)   | (2,584)                      | 5,556     |
| Provision (benefit) for income taxes.... | 4,386                   | 9,089     | 3,960     | 7,467     | (2,900)    | (333)                        | 2,252     |
| Net income (loss).....                   | \$ 7,333                | \$ 14,798 | \$ 6,371  | \$ 12,056 | \$ (9,517) | \$ (2,251)                   | \$ 3,304  |
| Basic earnings (loss) per share.....     | \$ 0.36                 | \$ 0.67   | \$ 0.25   | \$ 0.47   | \$ (0.36)  | \$ (0.08)                    | \$ 0.12   |
| Diluted earnings (loss) per share.....   | \$ 0.32                 | \$ 0.63   | \$ 0.25   | \$ 0.46   | \$ (0.36)  | \$ (0.08)                    | \$ 0.12   |
| OTHER DATA:                              |                         |           |           |           |            |                              |           |
| Ratio of earnings to fixed charges       |                         |           |           |           |            |                              |           |
| (2).....                                 | 17.4x                   | 36.5x     | 37.4x     | 41.6x     | -- (3)     | -- (3)                       | 155.3x    |

|  | DECEMBER 31, |           |           | JUNE 30, 1999 |                 |                                |
|--|--------------|-----------|-----------|---------------|-----------------|--------------------------------|
|  | 1996         | 1997      | 1998      | ACTUAL        | AS ADJUSTED (4) | AS FURTHER<br>ADJUSTED (4) (5) |
|  |              |           |           |               | (UNAUDITED)     |                                |
| BALANCE SHEET DATA:                                  |              |           |           |               |                 |                                |
| Cash and cash equivalents/marketable securities..... | \$ 11,778    | \$ 32,215 | \$ 28,134 | \$ 25,498     | \$ 122,223      | \$ 158,048                     |
| Working capital.....                                 | 41,638       | 74,342    | 62,059    | 66,964        | 163,689         | 199,514                        |
| Total assets.....                                    | 68,078       | 130,064   | 101,035   | 113,383       | 213,383         | 249,208                        |
| Total debt.....                                      | 3,741        | 6,518     | 537       | 1,766         | 101,766         | 101,766                        |
| Stockholders' equity.....                            | 54,927       | 97,527    | 89,133    | 93,389        | 93,389          | 129,214                        |

### Notes:

(1) Other operating expenses represent a restructuring charge, merger costs, storm damages and recoveries and a write-off of purchased in-process research and development expenses.

(2) The ratio of earnings to fixed charges represents, on a pre-tax basis, the number of times earnings cover fixed charges. Earnings consist of net income to which has been added interest expense on capital leases and long-term debt. Fixed charges consist of interest expense on capital leases and long-term debt.

(3) The losses for 1998 and the six months ended June 30, 1998 are not sufficient to cover fixed charges by a total of approximately \$12.2 million for 1998 and \$2.5 million for the six months ended June 30, 1998. As a result, the ratio of earnings to fixed charges has not been computed for either 1998 or the six months ended June 30, 1998.

(4) Reflects net proceeds of approximately \$96,725,000 from the sale of the convertible notes (assuming an offering price of 100% of the principal amount), after deducting underwriters' discounts and commissions and estimated offering expenses relating to the convertible notes offering.

(5) Reflects net proceeds of approximately \$35,825,000 from our sale of 1,000,000 shares of common stock in the concurrent common stock offering (assuming an offering price of \$38.00 per share), after deducting underwriters' discounts and commissions and estimated offering expenses relating to the common stock offering.

## **RISK FACTORS**

INVESTING IN OUR SECURITIES INVOLVES A HIGH DEGREE OF RISK. YOU SHOULD CAREFULLY CONSIDER THE RISKS AND UNCERTAINTIES DESCRIBED BELOW AND THE OTHER

INFORMATION IN THIS PROSPECTUS AND IN THE DOCUMENTS INCORPORATED BY REFERENCE BEFORE DECIDING WHETHER TO PURCHASE OUR SECURITIES.

### **RISKS RELATED TO OUR BUSINESS**

OUR QUARTERLY OPERATING RESULTS ARE SUBJECT TO SIGNIFICANT FLUCTUATIONS, WHICH COULD NEGATIVELY IMPACT OUR FINANCIAL CONDITION, RESULTS OF OPERATIONS AND STOCK PRICE.

Our quarterly operating results have fluctuated significantly and we expect them to continue to experience significant fluctuations. Downward fluctuations in our quarterly results have historically resulted in decreases in the price of our common stock. Quarterly operating results are affected by a variety of factors, many of which are beyond our control. These factors include:

- changes or slowdowns in economic conditions in the semiconductor and semiconductor capital equipment industries and other industries in which our customers operate;
- the timing and nature of orders placed by major customers;
- customer cancellations of previously placed orders and shipment delays;
- pricing competition from our competitors;
- component shortages resulting in manufacturing delays;
- changes in customers' inventory management practices;
- the introduction of new products by us or our competitors; and
- costs incurred by responding to specific feature requests by customers.

In addition, companies in the semiconductor capital equipment industry and other electronics companies experience pressure to reduce costs. Our customers exert pressure on us to reduce our prices, shorten delivery times and extend payment terms. These pressures could lead to significant changes in our operating results from quarter to quarter.

In the past, we have incurred charges and costs related to events such as acquisitions, restructuring and storm damages. The occurrence of similar events in the future could adversely affect our operating results in the applicable quarter.

Our operating results in one or more future quarters may fall below the expectations of analysts and investors. In those circumstances, the trading price of our common stock would likely decrease and, as a result, any trading price of the convertible notes may decrease.

THE SEMICONDUCTOR AND SEMICONDUCTOR CAPITAL EQUIPMENT INDUSTRIES ARE HIGHLY VOLATILE AND OUR OPERATING RESULTS ARE AFFECTED TO A LARGE EXTENT BY EVENTS IN THOSE INDUSTRIES.

The semiconductor industry historically has been highly volatile and has experienced periods of oversupply resulting in significantly reduced demand for semiconductor fabrication equipment, which includes our systems. During downturns, some of our customers have drastically reduced their orders to us and have implemented substantial cost reduction programs. Sales to customers in the semiconductor capital equipment industry accounted for 59% of our total sales in 1997, 49% in 1998 and 59% in the first six months of 1999. We expect that we will continue to depend significantly on the semiconductor and semiconductor capital equipment industries for the foreseeable future.

A rapid decrease in demand for our products can occur with limited advance notice because we supply subsystems to equipment manufacturers and make a substantial and increasing

proportion of our shipments on a just-in-time basis. This decrease in demand can adversely impact our business and financial results disproportionately because of its unanticipated nature.

### **A SIGNIFICANT PORTION OF OUR SALES ARE CONCENTRATED AMONG A FEW CUSTOMERS.**

Our four largest customers accounted for 54% of our total sales in 1997, 47% in 1998 and 52% in the first six months of 1999. Our largest customer accounted for 31% of our total sales in 1997, 23% in 1998 and 31% in the first six months of 1999. The loss of any of these customers or a material reduction in any of their purchase orders would have a material adverse effect on our business, financial condition and results of operations.

### **THE MARKETS IN WHICH WE OPERATE ARE HIGHLY COMPETITIVE.**

We face substantial competition, primarily from established companies, some of which have greater financial, marketing and technical resources than we do. Our primary competitors are ENI, a subsidiary of Astec (BSR) plc, Applied Science and Technology (ASTeX), Huettinger, Shindingen, Kyosan, Comdel and Daihen. We expect that our competitors will continue to develop new products in direct competition with ours, improve the design and performance of their systems and introduce new systems with enhanced performance characteristics.

To remain competitive, we need to continue to improve and expand our systems and system offerings. In addition, we need to maintain a high level of investment in research and development and expand our sales and marketing efforts, particularly outside of the United States. We may not be able to make the technological advances and investments necessary to remain competitive.

New products developed by competitors or more efficient production of their products could increase pressure on the pricing of our systems. In addition, electronics companies, including companies in the semiconductor capital equipment industry, have been facing pressure to reduce costs. Either of these factors may require us to make significant price reductions to avoid losing orders. Further, our current and prospective customers consistently exert pressure on us to lower prices, shorten delivery times and improve the capability of our systems. Failure to respond adequately to such pressures could result in a loss of customers or orders.

### **WE MAY NOT BE ABLE TO INTEGRATE OUR ACQUISITIONS.**

We have experienced significant growth through acquisitions and continue to actively pursue acquisition opportunities. Our acquisitions to date generally have been in markets in which we have limited experience. We may not be able to compete successfully in these markets or might not be able to operate the acquired businesses efficiently. Our business and results of operations could be adversely affected if integrating these acquisitions results in substantial costs, delays or other operational or financial problems.

Future acquisitions could place additional strain on our operations and management. Our ability to manage future acquisitions will depend on our success in:

- evaluating new markets and investments;
- monitoring operations;
- controlling costs;
- integrating acquired operations and personnel;
- maintaining effective quality controls; and
- expanding our internal management, technical and accounting systems.

Also, in connection with future acquisitions we may issue equity securities which could be dilutive, incur debt, recognize substantial one-time expenses or create goodwill or other intangible assets that could result in significant amortization expense.

## **WE ARE GROWING AND MAY BE UNABLE TO MANAGE OUR GROWTH EFFECTIVELY.**

We have been experiencing a period of growth and expansion. This growth and expansion is placing significant demands on our management and our operating systems. We need to continue to improve and expand our management, operational and financial systems, procedures and controls, including accounting and other internal management systems, quality control, delivery and service capabilities.

In order to manage our growth, we may also need to spend significant amounts of cash to:

- fund increases in expenses;
- take advantage of unanticipated opportunities, such as major strategic alliances or other special marketing opportunities, acquisitions of complementary businesses or assets, or the development of new products; or
- otherwise respond to unanticipated developments or competitive pressures.

If we do not have enough cash on hand, cash generated from our operations or cash available under our credit facility to meet these cash requirements, we will need to seek alternative sources of financing to carry out our growth and operating strategies. We may not be able to raise needed cash on terms acceptable to us, or at all. Financings may be on terms that are dilutive or potentially dilutive. If alternative sources of financing are required but are insufficient or unavailable, we will be required to modify our growth and operating plans to the extent of available funding.

## **SHORTAGES OF COMPONENTS NECESSARY FOR OUR PRODUCT ASSEMBLY CAN DELAY OUR SHIPMENTS.**

Manufacturing our power conversion and control systems requires numerous electronic components. Dramatic growth in the electronics industry has significantly increased demand for these components. This demand has resulted in periodic shortages and allocations of needed components, and we expect to experience additional shortages and allocations from time to time. Shortages and allocations could cause shipping delays for our systems, adversely affecting our results of operations. Shipping delays also could damage our relationships with current and prospective customers.

We consider the inability to obtain electronic components from our suppliers to be our most reasonably likely worst case year 2000 scenario. See "--The year 2000 issue could have an adverse impact on our business".

## **OUR DEPENDENCE ON SOLE AND LIMITED SOURCE SUPPLIERS COULD AFFECT OUR ABILITY TO MANUFACTURE PRODUCTS AND SYSTEMS.**

We rely on sole and limited source suppliers for some of our components and subassemblies that are critical to the manufacturing of our systems. This reliance involves several risks, including the following:

- the potential inability to obtain an adequate supply of required components;
- reduced control over pricing and timing of delivery of components; and
- the potential inability of our suppliers to develop technologically advanced products to support our growth and development of new systems.

We believe that in time we could obtain and qualify alternative sources for most sole and limited source parts or could manufacture the parts ourselves. Seeking alternative sources or commencing internal manufacture of the parts could require us to redesign our systems, resulting in increased costs and likely shipping delays. We may be unable to manufacture the parts internally or redesign our systems, which could result in further costs and shipping delays. These increased costs would decrease our profit margins if we could not pass the costs to our customers. Further,



shipping delays could damage our relationships with current and potential customers and have a material adverse effect on our business and results of operations.

### **WE ARE HIGHLY DEPENDENT ON OUR INTELLECTUAL PROPERTY BUT MAY NOT BE ABLE TO PROTECT IT ADEQUATELY.**

Our success depends in part on our proprietary technology. We attempt to protect our intellectual property rights through patents and non-disclosure agreements. However, we might not be able to protect our technology, and competitors might be able to develop similar technology independently. In addition, the laws of certain foreign countries might not afford our intellectual property the same protection as do the laws of the United States. For example, our intellectual property is not protected by patents in several countries in which we do business, and we have limited patent protection in certain other countries. The costs of applying for patents in foreign countries and translating the applications into foreign languages require us to select carefully the inventions for which we apply for patent protection and the countries in which we seek such protection. Generally, we have concentrated our efforts to obtain international patents in the United Kingdom, Germany, France, Italy and Japan because there are other manufacturers and developers of power conversion and control systems in those countries, as well as customers for those systems. Our inability or failure to obtain adequate patent protection in a particular country could have a material adverse effect on our ability to compete effectively in that country.

Our patents also might not be sufficiently broad to protect our technology, and any existing or future patents might be challenged, invalidated or circumvented. Additionally, our rights under our patents may not provide meaningful competitive advantages.

We do not believe that any of our products are infringing any patents or proprietary rights of others, although infringements may exist or might occur in the future. Litigation may be necessary to enforce patents issued to us, to protect our trade secrets or know-how, to defend ourselves against claimed infringement of the rights of others or to determine the scope and validity of the proprietary rights of others. Litigation could result in substantial cost and diversion of our efforts. Moreover, an adverse determination in any litigation could cause us to lose proprietary rights, subject us to significant liabilities to third parties, require us to seek licenses or alternative technologies from third parties or prevent us from manufacturing or selling our products. Any of these events could have a material adverse effect on our business, financial condition and results of operations.

### **WE MUST CONSTANTLY DEVELOP AND SELL NEW SYSTEMS IN ORDER TO KEEP UP WITH RAPID TECHNOLOGICAL CHANGES.**

The markets for our systems and the markets in which our customers compete are characterized by ongoing technological developments and changing customer requirements. We must continue to improve existing systems and to develop new systems that keep pace with technological advances and meet the needs of our customers in order to succeed. We might not be able to continue to improve our systems or develop new systems. The systems we do develop might not be cost-effective or introduced in a timely manner. Developing and introducing new systems may involve significant and uncertain costs. Our business, financial condition and results of operations, as well as our customer relationships, could be adversely affected if we fail to develop or introduce improved systems and new systems in a timely manner.

### **WE MUST ACHIEVE DESIGN WINS TO RETAIN OUR EXISTING CUSTOMERS AND TO OBTAIN NEW CUSTOMERS.**

The constantly changing nature of semiconductor fabrication technology causes equipment manufacturers to continually design new systems. We often must work with these manufacturers early in their design cycles to modify our equipment to meet the requirements of the new systems. Manufacturers typically choose one or two vendors to provide the power conversion equipment for

use with the early system shipments. Selection as one of these vendors is called a design win. It is critical that we achieve these design wins in order to retain existing customers and to obtain new customers.

We typically must customize our systems for particular customers to use in their equipment to achieve design wins. This customization increases our research and development expenses and can strain our engineering and management resources. These investments do not always result in design wins.

Once a manufacturer chooses a power conversion and control system for use in a particular product, it is likely to retain that system for the life of that product. Our sales and growth could experience material and prolonged adverse effects if we fail to achieve design wins. In addition, design wins do not always result in substantial sales or profits.

We believe that equipment manufacturers often select their suppliers based on factors such as long-term relationships. Accordingly, we may have difficulty achieving design wins from equipment manufacturers who are not currently customers. In addition, we must compete for design wins for new systems and products of our existing customers, including those with whom we have had long-term relationships.

#### **OUR EFFORTS TO BE RESPONSIVE TO CUSTOMERS MAY LEAD TO THE INCURRENCE OF COSTS THAT ARE NOT READILY RECOVERABLE.**

We may incur manufacturing overhead and other costs, many of which are fixed, to meet anticipated customer demand. Accordingly, operating results could be adversely affected if orders or revenues in a particular period or for a particular system do not meet expectations.

We often require long lead times for development of our systems during which times we must expend substantial funds and management effort. We may incur significant development and other expenses as we develop our systems without realizing corresponding revenue in the same period, or at all.

#### **OUR SUCCESS DEPENDS UPON OUR ABILITY TO ATTRACT AND RETAIN KEY PERSONNEL.**

Our success depends upon the continued efforts of our senior management team and our technical, marketing and sales personnel. These employees may voluntarily terminate their employment with us at any time. Our success also depends on our ability to attract and retain additional highly qualified management, technical, marketing and sales personnel. The process of hiring employees with the combination of skills and attributes required to carry out our strategy can be extremely competitive and time-consuming. We may not be able to successfully retain existing personnel or identify, hire and integrate new personnel. If we lose the services of key personnel for any reason, including retirement, or are unable to attract additional qualified personnel, our business, financial condition and results of operations could be materially and adversely affected.

#### **WE CONDUCT MANUFACTURING AT ONLY A FEW SITES.**

We conduct the majority of our manufacturing at our facilities in Fort Collins, Colorado and in Voorhees, New Jersey. We also conduct manufacturing for one customer in Austin, Texas. Tower Electronics, a subsidiary, conducts manufacturing only at its facility in Fridley, Minnesota. Each facility generally manufactures different systems. In July 1997, a severe rainstorm in Fort Collins caused substantial damage to our Fort Collins facilities and to some equipment and inventory. The damage caused us to stop manufacturing at that facility temporarily and prevented us from resuming full production there until mid-September 1997. Our insurance policies did not cover all of the costs that we incurred in connection with the rainstorm. Future natural or other uncontrollable occurrences at any of our primary manufacturing facilities that negatively impact our manufacturing

processes may not be fully covered by insurance and could have a material adverse effect on our operations and results of operations.

#### **WE HAVE LIMITED EXPERIENCE IN MAINTAINING MULTIPLE MANUFACTURING FACILITIES.**

The acquisitions of Tower Electronics in 1997 and RF Power Products in 1998 provided us with manufacturing facilities located outside of our facilities in Fort Collins, Colorado. Accordingly, we have limited experience in maintaining multiple manufacturing locations. Substantial costs and delays could result if we fail to effectively manage and integrate our geographically separate facilities.

#### **WE MIGHT NOT BE ABLE TO COMPETE SUCCESSFULLY IN INTERNATIONAL MARKETS OR TO MEET THE SERVICE AND SUPPORT NEEDS OF OUR INTERNATIONAL CUSTOMERS.**

Our customers increasingly require service and support on a worldwide basis as the markets in which we compete become increasingly globalized. We maintain sales and service offices in Germany, Japan, South Korea and the United Kingdom.

Sales to customers outside the United States accounted for 23% of our total sales in 1997, 28% in 1998 and 28% in the first six months of 1999, and we expect international sales to continue to represent a significant portion of our future sales. International sales are subject to various risks, including:

- currency fluctuations;
- governmental controls;
- political and economic instability;
- barriers to entry;
- trade restrictions;
- changes in tariffs and taxes; and
- longer payment cycles.

In particular, the Japanese market has historically been difficult for non-Japanese companies, including us, to penetrate.

Providing support services for our systems on a worldwide basis also is subject to various risks, including:

- our ability to hire qualified support personnel;
- maintenance of our standard level of support; and
- differences in local customers and practices.

Our international activities are also subject to the difficulties of managing overseas distributors and representatives and managing foreign subsidiary operations.

We cannot assure you that we will be successful in addressing any of these risks.

#### **FLUCTUATIONS IN THE CURRENCY EXCHANGE RATE BETWEEN THE U.S. DOLLAR AND FOREIGN CURRENCIES COULD ADVERSELY AFFECT OUR OPERATING RESULTS.**

A portion of our sales is subject to currency exchange risks as a result of our international operations. We have experienced fluctuations in foreign currency exchange rates, particularly against the Japanese yen. Beginning in 1997, we entered into various forward foreign exchange contracts as a hedge against currency fluctuations in the yen. We have not employed hedging techniques with respect to any other currencies. Our current or any future hedging techniques might not protect us adequately against substantial currency fluctuations.

## **WE MUST MAINTAIN MINIMUM LEVELS OF CUSTOMIZED INVENTORY TO SUPPORT CERTAIN CUSTOMER DELIVERY REQUIREMENTS.**

We must keep a relatively large number and variety of customized systems in our inventory to meet client delivery requirements because a substantial proportion of our business involves the just-in-time shipment of systems. Our inventory may become obsolete as we develop new systems and as our customers develop new systems. Inventory obsolescence could have a material adverse effect on our financial condition and results of operations.

## **WE ARE SUBJECT TO NUMEROUS GOVERNMENTAL REGULATIONS.**

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our power conversion and control systems. We must ensure that our systems meet certain safety and emissions standards, many of which vary across the states and countries in which our systems are used. For example, the European Union has published directives specifically relating to power supplies. We must comply with these directives in order to ship our systems into countries that are members of the European Union. In the past, we have invested significant resources to redesign our systems to comply with these directives. We believe we are in compliance with current applicable regulations, directives and standards and have obtained all necessary permits, approvals and authorizations to conduct our business. However, compliance with future regulations, directives and standards could require us to modify or redesign certain systems, make capital expenditures or incur substantial costs. If we do not comply with current or future regulations, directives and standards:

- we could be subject to fines;
- our production could be suspended; or
- we could be prohibited from offering particular systems in specified markets.

## **WE MAY INVEST IN START-UP COMPANIES AND COULD LOSE OUR ENTIRE INVESTMENT.**

We have a majority interest in a start-up company and may invest in other start-up companies that develop products and technologies which we believe may provide us with future benefits. These investments may not provide us with any benefit, and we may not achieve any economic return on any of these investments. Our investments in these start-up companies are subject to all of the risks inherent in investing in companies that are not established. We could lose all or any part of our investments in these companies.

## **WE LEASE OUR FORT COLLINS, COLORADO FACILITIES AND A CONDOMINIUM FROM ENTITIES IN WHICH TWO INDIVIDUALS WHO ARE INSIDERS AND MAJOR STOCKHOLDERS HAVE FINANCIAL INTERESTS.**

We lease our executive offices and manufacturing facilities in Fort Collins, Colorado from Prospect Park East Partnership and from Sharp Point Properties, LLC. Douglas S. Schatz, our Chairman and Chief Executive Officer, holds a 26.7% interest in each of the leasing entities. G. Brent Backman, a member of our board of directors, holds a 6.6% interest in each of the leasing entities. Aggregate rental payments under such leases for 1998 totaled approximately \$1.4 million. We also lease a condominium in Breckenridge, Colorado to provide rewards and incentives to our customers, suppliers and employees. We lease the condominium from AEI Properties, a partnership in which Mr. Schatz holds a 60% interest and Mr. Backman holds a 40% interest. Aggregate rental payments under the condominium lease for 1998 totaled approximately \$36,000. Mr. Schatz owns approximately 45.0% of our common stock, and Mr. Backman owns approximately 7.8% of our common stock. Each of Messrs. Schatz and Backman is offering to sell 875,000 shares in the concurrent common stock offering and has granted the underwriters of that offering an over-allotment option to purchase an additional 131,250 shares.

## **THE YEAR 2000 ISSUE COULD HAVE AN ADVERSE IMPACT ON OUR BUSINESS.**

The year 2000 issue is the result of computer programs that rely on two-digit date codes, instead of four-digit date codes, to indicate the year. Computer programs which are unable to interpret the date code "00" as the year 2000 may not be able to perform computations and decision-making functions after December 31, 1999 and could cause computer systems to malfunction. We have developed a multi-phase program for year 2000 information systems compliance. In what we believe to be the most reasonably likely worst case year 2000 scenario, we would be unable to obtain electronic components from one or more of our suppliers because of the suppliers' failure to timely become year 2000 compliant, and we would be unable to obtain the necessary components from another source, manufacture the necessary components internally or to redesign our systems to accommodate different components without substantial costs or delays, or at all. We may not be able to respond fully and efficiently to those concerns.

We estimate that the costs to remedy and test the year 2000 matters will be immaterial. Our cost estimates do not include costs and time that may be incurred as a result of any vendor's or customer's failures to become year 2000 compliant on a timely basis. In addition, we cannot predict whether any litigation will be brought against us as a result of any supplier's or customer's failure to become year 2000 compliant on a timely basis or claiming that our products are not year 2000 compliant or otherwise.

## **RISKS RELATED TO THE CONVERTIBLE NOTES**

### **THE MARKET PRICE OF OUR STOCK HAS BEEN AND WILL LIKELY CONTINUE TO BE HIGHLY VOLATILE.**

The stock market generally and the market for technology stocks in particular have experienced significant price and volume fluctuations, which often have been unrelated or disproportionate to the operating performance of such companies. From our IPO in November 1995 through September 17, 1999, the closing prices of our common stock on the Nasdaq National Market have ranged from \$3.50 to \$44.97. The market for our common stock likely will continue to be subject to similar fluctuations. Many factors could cause the trading price of our common stock to fluctuate substantially, including the following:

- future announcements concerning our business, our customers or our competitors;
- variations in our operating results;
- announcements of technological innovations;
- the introduction of new products or changes in product pricing policies by us, our competitors or our customers;
- changes in earnings estimates by securities analysts or announcements of operating results that are not aligned with the expectations of analysts and investors;
- the economic and competitive conditions in the industries in which our customers operate; and
- general stock market trends.

### **THERE MAY BE NO PUBLIC MARKET FOR THE CONVERTIBLE NOTES.**

The convertible notes will be a new issue of securities with no established trading market. Although the underwriters for this convertible notes offering have advised us that they currently intend to make a market in the convertible notes, they have no obligation to do so and may discontinue any market making at any time and without notice. In addition, any market making activity will be subject to the limits imposed by the Securities Act of 1933 and the Securities Exchange Act of 1934. Accordingly, we cannot assure you that any market for the convertible notes will develop or, if it does develop, that it will be maintained. Various factors could have a material

adverse effect on the trading price of the convertible notes, if any, including the failure of an active market to develop, fluctuations in the prevailing interest rates, changes in the market for convertible securities and changes in the market price of our common stock.

#### **WE MAY BE UNABLE TO REPAY OR REPURCHASE THE CONVERTIBLE NOTES.**

There is no sinking fund with respect to the convertible notes, and at maturity the entire outstanding principal amount of the convertible notes will become due and payable. If we experience a change in control you may require us to repurchase all or a portion of your convertible notes prior to maturity. See "Description of Convertible Notes". We cannot assure you that we will have sufficient funds or will be able to arrange for additional financing to repay the convertible notes at maturity or to repurchase convertible notes tendered to us following a change in control. Under the terms of the convertible notes indenture, we may elect, subject to certain conditions, to pay the repurchase price with shares of common stock.

Borrowing arrangements or agreements relating to senior debt to which we become a party, including any refinancings of our existing credit facility, may contain restrictions on or prohibitions against our repurchase of the convertible notes. If we are prohibited from repurchasing the convertible notes and cannot obtain the necessary waivers or refinance the applicable borrowings, we will be unable to repurchase the convertible notes. Our failure to repurchase any tendered convertible notes or convertible notes due upon maturity would constitute an event of default of the convertible notes and, upon acceleration of the convertible notes in accordance with the indenture, would cause a default under the terms of our credit facility. In this type of situation, the subordination provisions of the convertible notes indenture would prohibit any repurchase of the convertible notes until we pay in full the senior debt.

#### **THE CONVERTIBLE NOTES WILL BE SUBORDINATED TO OTHER DEBT.**

We may be required to repay our present and any future senior debt and indebtedness of our subsidiaries before we can repay the convertible notes. As of August 31, 1999, our senior debt and indebtedness of our subsidiaries totalled \$1.4 million. The indenture under which the convertible notes will be issued will not prevent us or our subsidiaries from incurring additional debt. If we are party to a bankruptcy, liquidation or reorganization, or if we default on any senior debt, our assets will be used to satisfy the holders of our senior debt before we will be able to make additional payments on the convertible notes. Further, the assets of each of our subsidiaries must be used to satisfy the holders of the subsidiary's indebtedness before we can use the subsidiary's assets to make payments on the convertible notes.

#### **OUR MANAGEMENT HAS BROAD DISCRETION TO DETERMINE HOW TO USE THE FUNDS RAISED FROM THE SALE OF THE CONVERTIBLE NOTES AND THE COMMON STOCK, AND MAY USE THOSE FUNDS IN WAYS THAT MAY NOT INCREASE OUR OPERATING RESULTS OR MARKET VALUE.**

The net proceeds from the sale of the convertible notes and our net proceeds from the sale of shares in the concurrent common stock offering have not been allocated for a particular purpose. We intend to use the net proceeds for general corporate purposes, including acquisitions, and working capital requirements. We may use some or all of the net proceeds for acquisitions, although no agreement or understanding with respect to any future acquisition has been reached. Our management will have significant discretion as to the use of the net proceeds of the offerings and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. The net proceeds from this offering and our net proceeds from the concurrent common stock offering may be applied to uses that ultimately may not increase our operating results or our market value.

**OUR EXECUTIVE OFFICERS AND DIRECTORS OWN A MAJORITY OF OUR OUTSTANDING COMMON STOCK, WHICH COULD ENABLE THEM TO CONTROL OUR BUSINESS AND AFFAIRS.**

Our executive officers and directors own approximately 55.84% of our common stock outstanding as of September 16, 1999. Assuming the sale of common stock in the concurrent common stock offering, and without giving effect to conversion of any convertible notes, our executive officers and directors will own approximately 46.87% of our outstanding common stock. Douglas S. Schatz, our Chairman and Chief Executive Officer, owns approximately 44.11% of our common stock outstanding as of September 16, 1999 and, assuming the sale of common stock in the common stock offering, will own 39.42% of our outstanding common stock. These stockholdings give our executive officers and directors collectively, and Mr. Schatz individually significant voting power. Depending on the number of shares that abstain or otherwise are not voted, our executive officers collectively, and Mr. Schatz individually, may be able to elect all of the members of our board of directors and to control our business and affairs for the foreseeable future.

**ANTITAKEOVER PROVISIONS LIMIT THE ABILITY OF A PERSON OR ENTITY TO ACQUIRE CONTROL OF US.**

Our certificate of incorporation and bylaws include provisions which:

- allow the board of directors to issue preferred stock with rights senior to those of the common stock without any vote or other action by the holders of the common stock;
- limit the right of our stockholders to call a special meeting of stockholders; and
- impose procedural and other requirements that could make it difficult for stockholders to effect certain corporate actions.

In addition, we are subject to the anti-takeover provisions of the Delaware General Corporation Law. Any of these provisions could delay or prevent a person or entity from acquiring control of us. The effect of these provisions may be to limit the price that investors are willing to pay in the future for our securities. These provisions might also discourage potential acquisition proposals or could diminish the opportunities for our stockholders to participate in a tender offer, even if the acquisition proposal or tender offer is at a price above the then current market price for our common stock.

**CAUTIONARY NOTE ON FORWARD-LOOKING STATEMENTS**

Some of the statements contained in or incorporated by reference in this prospectus discuss our plans and strategies for our business or make other forward-looking statements, as this term is defined in the Private Securities Litigation Reform Act. The words "anticipates", "believes", "estimates", "expects", "plans", "intends" and similar expressions are intended to identify these forward-looking statements, but are not the exclusive means of identifying them. These forward-looking statements reflect the current views of our management. However, various risks, uncertainties and contingencies could cause our actual results, performance or achievements to differ materially from those expressed in, or implied by, these statements, including the following:

- the success or failure of our efforts to implement our business strategy; and
- the other risks and uncertainties discussed under the heading "Risk Factors" and elsewhere in this prospectus and in the documents incorporated by reference.

We do not have any obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise. You should carefully consider the information set forth under the caption "Risk Factors" and elsewhere in this prospectus and in the documents incorporated by reference. In light of these risks, uncertainties and assumptions, the forward-looking events discussed in, implied by or incorporated by reference in this prospectus might not occur.

## USE OF PROCEEDS

We are offering \$100,000,000 of convertible notes. After deducting the underwriters' discounts and commissions and estimated offering expenses, we anticipate retaining approximately \$96,725,000 of the proceeds from the sale of the convertible notes (assuming a sale of the convertible notes at 100% of the principal amount). We anticipate retaining approximately \$111,275,000 if the underwriters exercise their over-allotment option in full.

Concurrently with our convertible notes offering, we are offering to sell 1,000,000 shares of common stock and six of our stockholders are offering to sell 2,000,000 shares of common stock. After deducting the underwriters' discounts and commissions and estimated offering expenses, we anticipate retaining proceeds from that offering of approximately \$35,825,000 (based upon an assumed offering price of \$38.00 per share). We will not receive any of the proceeds from the sale of common stock by the selling stockholders.

We intend to use the net proceeds from these offerings of approximately \$132,550,000 for general corporate purposes, including possible acquisitions, and working capital requirements. Although we actively seek acquisition opportunities, no agreement or understanding with respect to any future acquisition has been reached. Pending their ultimate use, we intend to invest the net proceeds from these offerings in short-term, investment grade, interest bearing securities, certificates of deposit or direct or guaranteed obligations of the United States.

## PRICE RANGE OF COMMON STOCK

Our common stock is quoted on the Nasdaq National Market under the symbol "AEIS". The following table sets forth the range of high and low bid prices for the common stock on the Nasdaq National Market for the periods indicated.

|   | HIGH    | LOW    |
|---|---------|--------|
|   | -----   | -----  |
| 1997  |         |        |
| First quarter.....                              | 7 7/8   | 5 1/4  |
| Second quarter.....                             | 14 3/8  | 7 1/8  |
| Third quarter.....                              | 31 1/8  | 14 1/2 |
| Fourth quarter.....                             | 34 1/8  | 12 1/4 |
| 1998  |         |        |
| First quarter.....                              | 17 5/8  | 10     |
| Second quarter.....                             | 15 1/16 | 11     |
| Third quarter.....                              | 12 3/8  | 6      |
| Fourth quarter.....                             | 22 7/8  | 5 5/8  |
| 1999  |         |        |
| First quarter.....                              | 29 1/2  | 19 1/4 |
| Second quarter.....                             | 36 5/8  | 23 1/2 |
| Third quarter (through September 17, 1999)..... | 43 3/8  | 30 1/4 |

## DIVIDEND POLICY

We have not declared or paid any cash dividends on the common stock since prior to 1994 when we were an S corporation for tax purposes. We currently intend to retain all of our future earnings to finance our business. In addition, our revolving credit facility prohibits us from declaring or paying cash dividends on the common stock. As a result, we do not anticipate paying any cash or other dividends on the common stock in the foreseeable future.



## CAPITALIZATION

The following table sets forth our capitalization as of June 30, 1999, (1) on a historical basis, (2) as adjusted to reflect the sale of \$100,000,000 of convertible notes at an assumed offering price of 100% of principal amount, and (3) as further adjusted to reflect the sale of 1,000,000 shares of our common stock at an assumed offering price of \$38.00 per share and the application of the estimated proceeds, in each case net of our estimated offering expenses and the underwriters' discounts and commissions. You should read this table together with our financial statements and notes thereto and other financial and operating data included elsewhere in this prospectus or incorporated by reference into this prospectus. See "Management's Discussion and Analysis of Financial Condition and Results of Operations".

| JUNE 30, 1999  |                |             |                           |
|--|----------------|-------------|---------------------------|
|  | ACTUAL         | AS ADJUSTED | AS<br>FURTHER<br>ADJUSTED |
|  | -----          | -----       | -----                     |
|  | (IN THOUSANDS) |             |                           |
| Long-term debt and capital lease obligations.....  | \$ 1,766       | \$ 1,766    | \$ 1,766                  |
| Convertible notes.....   | --             | 100,000     | 100,000                   |
| Stockholders' equity   |                |             |                           |
| Preferred stock, 1,000 shares authorized; none issued and<br>outstanding.....  | --             | --          | --                        |
| Common stock, 40,000 shares authorized; 26,969 issued and<br>outstanding (actual and as adjusted); 27,969 issued and<br>outstanding (as further adjusted)..... | 27             | 27          | 28                        |
| Additional paid-in capital.....  | 62,193         | 62,193      | 98,017                    |
| Retained earnings.....   | 32,443         | 32,443      | 32,443                    |
| Cumulative translation adjustment.....   | (1,274)        | (1,274)     | (1,274)                   |
|  | -----          | -----       | -----                     |
| Total stockholders' equity.....  | 93,389         | 93,389      | 129,214                   |
|  | -----          | -----       | -----                     |
| Total capitalization.....  | \$ 95,155      | \$ 195,155  | \$ 230,980                |
|  | -----          | -----       | -----                     |

**SELECTED CONSOLIDATED FINANCIAL DATA**  
(IN THOUSANDS, EXCEPT PER SHARE DATA)

The selected consolidated financial data in this chart for the years ended December 31, 1994 to 1998 and as of December 31 of those years are derived from our audited financial statements.

The selected consolidated statement of operations data for the year ended December 31, 1998 and the related consolidated balance sheet and other data as of and for the year ended December 31, 1998 were derived from consolidated financial statements audited by Arthur Andersen LLP, independent accountants, whose related audit report is included in our annual report on Form 10-K.

The selected consolidated statement of operations data for the years ended December 31, 1996 and 1997 and the related consolidated balance sheet and other data as of and for the year ended December 31, 1997 were derived from consolidated financial statements audited in part by Arthur Andersen LLP and in part by KPMG LLP, whose audit reports are included in our annual report on Form 10-K. KPMG LLP's audit report pertains to Advanced Energy Voorhees, Inc., formerly named RF Power Products, Inc., whose fiscal year end was November 30. As such, the balance sheet and other data and the statement of operations data of the Company for fiscal 1996 and 1997 includes the balance sheet of Advanced Energy Voorhees, Inc. as of November 30, 1996 and 1997, and the statement of operations for each of the two years in the period ended November 30, 1997, respectively.

The selected consolidated statements of operations data for the years ended December 31, 1994 and 1995, and the related consolidated balance sheet and other data as of December 31, 1996 were restated from our audited consolidated financial statements and from audited consolidated financial statements of Advanced Energy Voorhees. The Advanced Energy Voorhees financial statements are not included in our annual reports on Form 10-K.

The selected consolidated financial data in this chart for the six months ended June 30, 1998 and 1999 and as of June 30, 1999 are derived from our unaudited financial statements, which are included in our quarterly report on Form 10-Q for the quarter ended June 30, 1999. The unaudited financial data has been prepared on the same basis as the audited financial data and, in our opinion, includes all normal recurring adjustments necessary for a fair statement of the results for the periods covered.

The following data should be read in conjunction with the financial statements and related notes incorporated by reference in this prospectus and "Management's Discussion and Analysis of Financial Condition and Results of Operation".

|  | YEAR ENDED DECEMBER 31, |           |           |           |            | SIX MONTHS ENDED<br>JUNE 30, |           |
|--|-------------------------|-----------|-----------|-----------|------------|------------------------------|-----------|
|  | 1994                    | 1995      | 1996      | 1997      | 1998       | 1998                         | 1999      |
|  | -----                   | -----     | -----     | -----     | -----      | -----                        | -----     |
| STATEMENT OF OPERATIONS DATA:            |                         |           |           |           |            | (UNAUDITED)                  |           |
| Sales.....                               | \$68,159                | \$121,075 | \$129,931 | \$175,758 | \$124,698  | \$75,850                     | \$ 74,243 |
| Cost of sales.....                       | 36,183                  | 65,003    | 82,685    | 108,802   | 87,985     | 53,729                       | 42,852    |
| Gross profit.....                        | 31,976                  | 56,072    | 47,246    | 66,956    | 36,713     | 22,121                       | 31,391    |
| Operating expenses                       |                         |           |           |           |            |                              |           |
| Research and development.....            | 7,190                   | 12,865    | 17,288    | 19,336    | 23,849     | 12,229                       | 12,610    |
| Sales and marketing.....                 | 5,982                   | 8,256     | 10,723    | 11,646    | 13,531     | 7,076                        | 7,284     |
| General and administrative.....          | 6,989                   | 10,612    | 8,865     | 10,480    | 9,483      | 5,627                        | 5,958     |
| Other expenses(1).....                   | --                      | --        | --        | 5,780     | 2,625      | --                           | --        |
| Total operating expenses.....            | 20,161                  | 31,733    | 36,876    | 47,242    | 49,488     | 24,932                       | 25,852    |
| Income (loss) from operations.....       | 11,815                  | 24,339    | 10,370    | 19,714    | (12,775)   | (2,811)                      | 5,539     |
| Other (expense) income.....              | (96)                    | (452)     | (39)      | (191)     | 358        | 227                          | 17        |
| Net income (loss) before income taxes... | 11,719                  | 23,887    | 10,331    | 19,523    | (12,417)   | (2,584)                      | 5,556     |
| Provision (benefit) for income taxes.... | 4,386                   | 9,089     | 3,960     | 7,467     | (2,900)    | (333)                        | 2,252     |
| Net income (loss).....                   | \$ 7,333                | \$ 14,798 | \$ 6,371  | \$ 12,056 | \$ (9,517) | \$ (2,251)                   | \$ 3,304  |
| Basic earnings (loss) per share.....     | \$ 0.36                 | \$ 0.67   | \$ 0.25   | \$ 0.47   | \$ (0.36)  | \$ (0.08)                    | \$ 0.12   |
| Diluted earnings (loss) per share.....   | \$ 0.32                 | \$ 0.63   | \$ 0.25   | \$ 0.46   | \$ (0.36)  | \$ (0.08)                    | \$ 0.12   |
| OTHER DATA:                              |                         |           |           |           |            |                              |           |
| Ratio of earnings to fixed charges       |                         |           |           |           |            |                              |           |
| (2).....                                 | 17.4x                   | 36.5x     | 37.4x     | 41.6x     | -- (3)     | -- (3)                       | 155.3x    |

|  | DECEMBER 31, |           |           | JUNE 30, 1999 |                 |                             |
|--|--------------|-----------|-----------|---------------|-----------------|-----------------------------|
|  | 1996         | 1997      | 1998      | ACTUAL        | AS ADJUSTED (4) | AS FURTHER ADJUSTED (4) (5) |
|  |              |           |           |               | (UNAUDITED)     |                             |
| BALANCE SHEET DATA:                                  |              |           |           |               |                 |                             |
| Cash and cash equivalents/marketable securities..... | \$ 11,778    | \$ 32,215 | \$ 28,134 | \$ 25,498     | \$ 122,223      | \$ 158,048                  |
| Working capital.....                                 | 41,638       | 74,342    | 62,059    | 66,964        | 163,689         | 199,514                     |
| Total assets.....                                    | 68,078       | 130,064   | 101,035   | 113,383       | 213,383         | 249,208                     |
| Total debt.....                                      | 3,741        | 6,518     | 537       | 1,766         | 101,766         | 101,766                     |
| Stockholders' equity.....                            | 54,927       | 97,527    | 89,133    | 93,389        | 93,389          | 129,214                     |

### Notes:

(1) Other operating expenses represent a restructuring charge, merger costs, storm damages and recoveries and a write-off of purchased in-process research and development expenses.

(2) The ratio of earnings to fixed charges represents, on a pre-tax basis, the number of times earnings cover fixed charges. Earnings consist of net income to which has been added interest expense on capital leases and long-term debt. Fixed charges consist of interest expense on capital leases and long-term debt.

(3) The losses for 1998 and the six months ended June 30, 1998 are not sufficient to cover fixed charges by a total of approximately \$12.2 million for 1998 and \$2.5 million for the six months ended June 30, 1998. As a result, the ratio of earnings to fixed charges has not been computed for either 1998 or the six months ended June 30, 1998.

(4) Reflects net proceeds of approximately \$96,725,000 from the sale of the convertible notes (assuming an offering price of 100% of the principal amount), after deducting underwriters' discounts and commissions and estimated offering expenses relating to the convertible notes offering.

(5) Reflects net proceeds of approximately \$35,825,000 from our sale of 1,000,000 shares of common stock in the concurrent common stock offering, (assuming an offering price of \$38.00 per share), after deducting underwriters' discounts and commissions and estimated offering expenses relating to the common stock offering.

## **MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

### **OVERVIEW**

We design, manufacture and support power conversion and control systems. These systems are important components of industrial manufacturing equipment that modifies surfaces or deposits or etches thin film layers on computer chips, CDs, flat panel displays such as computer screens, DVDs, windows, eyeglasses, solar panels and other products. We market and sell our systems primarily to large, global OEMs of semiconductor, data storage, flat panel display and other industrial thin film manufacturing equipment. A substantial and increasing proportion of our sales are made on a just-in-time basis in which the shipment of systems occurs within a few days or hours after an order is received. Our revenues are recognized upon shipment of our systems. Since inception, we have sold over 150,000 power conversion and control systems.

The semiconductor capital equipment industry accounted for approximately 59% of our total sales in 1997, 49% in 1998 and 59% in the first six months of 1999. We have been successful in achieving a number of design wins which have resulted in our obtaining new customers and solidifying relationships with our existing customers. We believe our ability to continue to achieve design wins with existing and potential customers will be critical to our future success.

We continuously seek to expand our product offerings and customer base through internal development and acquisitions.

In May 1997, we acquired the assets of MIK Physics, Inc. This acquisition provided the base technology for our Astral products, which are high power direct current (DC) systems used in PVD equipment.

In August 1997, we acquired Tower Electronics. This acquisition expanded our technology and customer base, and provided us with the capability to design and manufacture power conversion systems for use in modems, non-impact printers, night vision goggles and laser devices.

We took another step towards achieving further market diversification in September 1998 when we acquired the assets of Fourth State Technology. This acquisition enhanced our capability to design and manufacture RF power-related process control systems used to monitor and analyze data in thin film processes.

In October 1998, we acquired RF Power Products, which designs, manufactures and supports RF power conversion and control systems consisting of generators and matching networks. Generators provide radio frequency power and matching networks provide control over power flow to the customers' equipment. We believe our ability to offer an expanded line of RF systems to our existing customer base has strengthened those relationships. We sell these products principally to semiconductor capital equipment manufacturers. We also sell similar systems to capital equipment manufacturers in the flat panel display and thin film data storage industries, and are exploring applications for these products in other industries.

In August 1999, we acquired a majority interest in LITMAS, a start-up company that designs and manufactures plasma abatement systems and high-density plasma sources. LITMAS' first product, "Litmas Blue", reduces "greenhouse gas" (PFC and HFC) emissions from tools used in the etch process in the fabrication of semiconductors. We believe that Litmas Blue and LITMAS' future products will expand our product offerings to our existing and potential customers in the semiconductor capital equipment industry.

## RESULTS OF OPERATIONS

The following table summarizes certain data as a percentage of sales extracted from our statements of operations for the periods presented:

|  | YEAR ENDED DECEMBER 31, |        | SIX MONTHS ENDED<br>JUNE 30, |        |
|--|-------------------------|--------|------------------------------|--------|
|  | 1997                    | 1998   | 1998                         | 1999   |
|  |                         |        | (UNAUDITED)                  |        |
| Sales.....                                 | 100.0%                  | 100.0% | 100.0%                       | 100.0% |
| Cost of sales.....                         | 61.9                    | 70.6   | 70.8                         | 57.7   |
| Gross margin.....                          | 38.1                    | 29.4   | 29.2                         | 42.3   |
| Operating expenses:                        |                         |        |                              |        |
| Research and development.....              | 11.0                    | 19.1   | 16.1                         | 17.0   |
| Sales and marketing.....                   | 6.6                     | 10.9   | 9.3                          | 9.8    |
| General and administrative.....            | 6.0                     | 7.5    | 7.4                          | 8.0    |
| Other expenses.....                        | 3.3                     | 2.1    | --                           | --     |
| Total operating expenses.....              | 26.9                    | 39.6   | 32.9                         | 34.8   |
| Income (loss) from operations.....         | 11.2                    | (10.2) | (3.7)                        | 7.5    |
| Other (expense) income.....                | (0.1)                   | 0.2    | 0.3                          | 0.0    |
| Net income (loss) before income taxes..... | 11.1                    | (10.0) | (3.4)                        | 7.5    |
| Provision (benefit) for income taxes.....  | 4.2                     | (2.4)  | (0.4)                        | 3.0    |
| Net income (loss).....                     | 6.9%                    | (7.6)% | (3.0)%                       | 4.5%   |

### SIX MONTHS ENDED JUNE 30, 1998 COMPARED TO SIX MONTHS ENDED JUNE 30, 1999

**SALES.** We sell power conversion and control systems primarily to the semiconductor capital equipment, data storage and industrial markets in the United States, to the flat panel display and data storage markets in Japan, and to the data storage and industrial markets in Europe. We also sell spare parts and repair services worldwide through our global support organization.

Sales for the first six months of 1999 were \$74.2 million, a decrease of 2% from sales of \$75.8 million in the first six months of 1998. The decrease was attributable mostly to decreases in sales to industrial markets, which were partially offset by increases in sales to customers in the semiconductor capital equipment industry.

The following tables summarize net sales and percentages of net sales by customer type for the six-month periods ended June 30, 1998 and 1999:

|   | SIX MONTHS ENDED<br>JUNE 30, |           |
|---|------------------------------|-----------|
|   | 1998                         | 1999      |
|   | (IN THOUSANDS)               |           |
| Semiconductor capital equipment.....    | \$ 40,820                    | \$ 43,854 |
| Data storage.....                       | 9,160                        | 9,040     |
| Flat panel display.....                 | 3,769                        | 3,559     |
| Industrial.....                         | 18,881                       | 13,745    |
| Customer service technical support..... | 3,220                        | 4,045     |
|   | \$ 75,850                    | \$ 74,243 |
|   |                              |           |
|   |                              |           |
|   | SIX MONTHS ENDED<br>JUNE 30, |           |
|   | 1998                         | 1999      |
| Semiconductor capital equipment.....    | 53.8%                        | 59.1%     |
| Data storage.....                       | 12.1                         | 12.2      |
| Flat panel display.....                 | 5.0                          | 4.8       |
| Industrial.....                         | 24.9                         | 18.5      |
| Customer service technical support..... | 4.2                          | 5.4       |
|   | 100.0%                       | 100.0%    |
|   |                              |           |
|   |                              |           |

The following tables summarize net sales and percentages of net sales by geographic region for the six-month periods ended June 30, 1998 and 1999:

|                               | SIX MONTHS ENDED<br>JUNE 30, |           |
|-------------------------------|------------------------------|-----------|
|                               | 1998                         | 1999      |
|                               | (IN THOUSANDS)               |           |
| United States and Canada..... | \$ 57,081                    | \$ 53,453 |
| Europe.....                   | 12,835                       | 11,971    |
| Asia Pacific.....             | 5,714                        | 8,457     |
| Rest of world.....            | 220                          | 362       |
|                               | \$ 75,850                    | \$ 74,243 |
|                               |                              |           |
|                               |                              |           |
|                               | SIX MONTHS ENDED<br>JUNE 30, |           |
|                               | 1998                         | 1999      |
| United States and Canada..... | 75.3%                        | 72.0%     |
| Europe.....                   | 16.9                         | 16.1      |
| Asia Pacific.....             | 7.5                          | 11.4      |
| Rest of world.....            | 0.3                          | 0.5       |
|                               | 100.0%                       | 100.0%    |
|                               |                              |           |
|                               |                              |           |

**GROSS MARGIN.** Our gross margin for the first six months of 1999 was 42.3%, up from 29.2% in the first six months of 1998. The improvement in gross margin was primarily a result of our efforts to reduce material and manufacturing overhead costs, including implementation of our restructuring plan in the third quarter of 1998.

We provide warranty coverage for our systems ranging from 12 to 24 months. We estimate the anticipated costs of repairing systems under such warranties based on the historical average costs of repairs. To date, we have not experienced significant warranty costs in excess of our recorded reserves.

**RESEARCH AND DEVELOPMENT.** Our research and development expenses are incurred researching new technologies, developing new systems and improving existing system designs. Research and development expenses for the first six months of 1999 were \$12.6 million, up from \$12.2 million in the first six months of 1998, representing an increase of 3%. The increase was attributable to higher spending for materials and supplies. As a percentage of sales, research and development expenses increased to 17.0% in the first six months of 1999 from 16.1% in the first six months of 1998.

We believe continued research and development investment for development of new systems is critical to our ability to serve new and existing markets. Since our inception, research and development costs generally have been internally funded and all have been expensed as incurred.

**SALES AND MARKETING.** Sales and marketing expenses support domestic and international sales and marketing activities which include personnel, trade shows, advertising and other marketing activities. Sales and marketing expenses for the first six months of 1999 were \$7.3 million, up slightly from \$7.1 million in the first six months of 1998, representing an increase of 3%. As a percentage of sales, sales and marketing expenses increased to 9.8% in the first six months of 1999 from 9.3% in the first six months of 1998.

**GENERAL AND ADMINISTRATIVE.** General and administrative expenses support our worldwide financial, administrative, information systems and human resources functions. General and administrative expenses for the first six months of 1999 were \$6.0 million, up from \$5.6 million in the first six months of 1998, representing an increase of 7%. As a percentage of sales, general and administrative expenses increased to 8.0% in the first six months of 1999 from 7.4% in the first six months of 1998.

**OTHER INCOME.** Other income consists primarily of interest income and expense, foreign exchange gains and losses, and other non-operating expenses. Other income for the first six months of 1999 was \$17,000, compared to \$227,000 in the first six months of 1998, representing a decrease of 93%.

Interest expense consists principally of borrowings under our bank credit and capital lease facilities and a state government loan.

We have experienced fluctuations in foreign currency exchange rates, particularly against the Japanese yen. Beginning in 1997, we entered into various forward foreign exchange contracts as a hedge against currency fluctuations in the yen. We continue to evaluate various methods to minimize the effects of currency fluctuations.

**PROVISION FOR INCOME TAXES.** The income tax provision was \$2.3 million for the first six months of 1999, compared to an income tax benefit of \$333,000 for the first six months of 1998. The estimated effective rate was 40.5% for the first six months of 1999, compared to an effective income tax benefit rate of 12.9% for the first six months of 1998. The higher effective consolidated tax rate for the first six months of 1999 is attributable to losses recorded at our Advanced Energy Voorhees subsidiary in the second quarter of 1998 for which no tax benefit had been recorded and a shift in the mix of our taxable income toward a greater share from countries with higher effective tax rates. Changes in the relative earnings of our U.S. and foreign operations affect our consolidated effective tax rate. To the extent that a larger percentage of taxable earnings are derived from our foreign subsidiaries whose tax rates are higher than domestic tax rates, we could experience a higher consolidated effective tax rate than the historical rates we have experienced. We adjust our

provision for income taxes periodically based upon the anticipated tax status of all of our foreign and domestic entities.

## **YEAR ENDED DECEMBER 31, 1997 COMPARED TO YEAR ENDED DECEMBER 31, 1998**

**SALES.** Sales for 1998 were \$124.7 million, a decrease of 29% from sales of \$175.8 million for 1997. The decrease was due to decreased unit sales. The semiconductor capital equipment industry, affected primarily by the Asian financial crisis, experienced a severe downturn from the end of 1997 through 1998. This caused a 41% decrease in our sales to this industry in 1998 compared to 1997, primarily in the United States and the Asia Pacific region. Sales to the data storage industry decreased 27%, although sales to our largest customer in that industry grew significantly from 1997 to 1998, resulting in higher sales in Europe. Sales to industrial markets were slightly higher, but would have been lower if not for the full-year effect of sales by Tower Electronics in 1998.

**GROSS MARGIN.** Our gross margin for 1998 was 29.4%, down from 38.1% in 1997. The decrease in gross margin was primarily due to unfavorable absorption of manufacturing overhead as a result of significant capacity expansion in 1997 and the reduced level of sales in 1998.

**RESEARCH AND DEVELOPMENT.** Research and development expenses for 1998 were \$23.8 million, up from \$19.3 million in 1997, representing an increase of 23%. As a percentage of sales, research and development expenses increased to 19.1% in 1998 from 11.0% in 1997 as a result of the lower sales base. The increase in expenses from 1997 to 1998 is primarily due to increases in payroll, materials and supplies, purchased services, and higher infrastructure costs for new product development.

We recorded a one-time charge of \$3.1 million in 1997 for the portion of the Tower Electronics purchase price attributable to in-process research and development. This one-time charge is not included in the \$19.3 million reported for research and development expense in 1997.

**SALES AND MARKETING.** Sales and marketing expenses for 1998 were \$13.5 million, up from \$11.6 million in 1997, representing an increase of 16%. The increase is attributable to higher payroll costs incurred as we continue to increase our sales management and product management capabilities. Additionally, we increased spending in 1998 to develop worldwide applications engineering capabilities. As a percentage of sales, sales and marketing expenses increased to 10.9% in 1998 from 6.6% in 1997 as a result of the lower sales base.

**GENERAL AND ADMINISTRATIVE.** General and administrative expenses for 1998 were \$9.5 million, down from \$10.5 million in 1997, representing a decrease of 10%. This decrease is primarily attributable to implementation of our 1998 restructuring plan. As a percentage of sales, general and administrative expenses increased to 7.5% in 1998 from 6.0% in 1997. This increase was due to the lower sales base.

**OTHER EXPENSES.** We took one-time charges totaling \$5.8 million in 1997. We took a net charge of \$2.7 million for storm damage to our headquarters and main manufacturing facilities that resulted from heavy rains in the Fort Collins area in July 1997. We settled with our insurance carrier in 1998, and recorded a \$1.1 million recovery in the fourth quarter of 1998.

As discussed above in "--Research and Development", our acquisition of Tower Electronics resulted in a write-off of \$3.1 million in 1997 for purchased in-process research and development, which is nondeductible for income tax purposes.

We took one-time charges totaling \$3.7 million in 1998. In August 1998, we announced a restructuring plan to respond to the downturn in the semiconductor capital equipment market. The plan included a reduction of workforce of 128 people, the closure of one facility in our Fort Collins,



Colorado campus, and the abandonment of plans to construct a new manufacturing facility in Fort Collins. Other reductions in workforce at the Voorhees facility were effected during 1998. We took a one-time charge of \$1.0 million for the restructuring in the third quarter of 1998.

On October 8, 1998, we acquired RF Power Products in a pooling of interests that involved the exchange of four million shares of our common stock for the publicly held common stock of RF Power Products. We incurred as part of the business combination \$2.7 million of acquisition expenses recorded in the fourth quarter of 1998, which is non-capitalizable and generally nondeductible for income tax purposes.

**OTHER (EXPENSE) INCOME.** Other (expense) income consists primarily of interest income and expense, foreign exchange gains and losses and other non-operating expenses. Interest income for 1998 was \$1.1 million, up from \$0.6 million in 1997, representing an increase of 83%. Interest income was due primarily to earnings on investments made from the proceeds of our IPO in November 1995 and our underwritten public offering in October 1997.

Interest expense decreased to approximately \$0.2 million for 1998 from \$0.5 million for 1997.

**PROVISION (BENEFIT) FOR INCOME TAXES.** The income tax benefit was \$2.9 million for 1998 compared to an income tax provision of \$7.5 million in 1997. The estimated effective rate was 23.4% for 1998, compared to an effective rate of 38.2% for 1997. The lower rate of the tax benefit in 1998 was due to nondeductible costs associated with our acquisition of RF Power Products, and foreign operating losses for which no benefit was recorded.

## QUARTERLY RESULTS OF OPERATIONS

The following tables present quarterly results in dollars and as a percentage of sales for each of the eight quarters in the period ended June 30, 1999. We believe that all necessary adjustments, consisting only of normal recurring adjustments, have been included in the amounts stated below to present fairly such quarterly information. The operating results for any quarter are not necessarily indicative of results for any subsequent period.

|  | QUARTER ENDED                                     |                  |                  |                  |                   |                  |                  |                  |
|--|---|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|
|  | SEPT. 30,<br>1997                                 | DEC. 31,<br>1997 | MAR. 31,<br>1998 | JUNE 30,<br>1998 | SEPT. 30,<br>1998 | DEC. 31,<br>1998 | MAR. 31,<br>1999 | JUNE 30,<br>1999 |
|  | (UNAUDITED) (IN THOUSANDS, EXCEPT PER SHARE DATA) |                  |                  |                  |                   |                  |                  |                  |
| Sales.....   | \$ 52,688   | \$ 56,059        | \$ 43,869        | \$ 31,981        | \$ 26,292         | \$ 22,556        | \$ 32,728        | \$ 41,515        |
| Cost of sales.....   | 31,658  | 34,878           | 30,263           | 23,466           | 18,317            | 15,939           | 19,630           | 23,222           |
| Gross profit.....  | 21,030  | 21,181           | 13,606           | 8,515            | 7,975             | 6,617            | 13,098           | 18,293           |
| Operating expenses:  |   |                  |                  |                  |                   |                  |                  |                  |
| Research and development.....  | 5,484   | 5,656            | 5,835            | 6,394            | 5,722             | 5,898            | 5,852            | 6,758            |
| Sales and marketing.....   | 2,829   | 3,684            | 3,564            | 3,512            | 3,255             | 3,200            | 3,305            | 3,979            |
| General and administrative...  | 2,780   | 3,371            | 2,859            | 2,768            | 2,353             | 1,503            | 2,870            | 3,088            |
| Restructuring charge.....  | --  | --               | --               | --               | 1,000             | --               | --               | --               |
| Merger costs.....  | --  | --               | --               | --               | --                | 2,742            | --               | --               |
| Storm damages (recoveries)...  | 3,000   | (300)            | --               | --               | --                | (1,117)          | --               | --               |
| Purchased in-process research<br>and development.....                      | 3,080   | --               | --               | --               | --                | --               | --               | --               |
| Total operating expenses.....  | 17,173  | 12,411           | 12,258           | 12,674           | 12,330            | 12,226           | 12,027           | 13,825           |
| Income (loss) from<br>operations.....                                      | 3,857   | 8,770            | 1,348            | (4,159)          | (4,355)           | (5,609)          | 1,071            | 4,468            |
| Other (expense) income.....  | (22)  | 37               | 98               | 129              | (214)             | 345              | (39)             | 56               |
| Net income (loss) before income<br>taxes.....                              | 3,835   | 8,807            | 1,446            | (4,030)          | (4,569)           | (5,264)          | 1,032            | 4,524            |
| Provision (benefit) for income<br>taxes.....                               | 2,544   | 2,305            | 552              | (885)            | (1,089)           | (1,478)          | 498              | 1,754            |
| Net income (loss).....   | \$ 1,291  | \$ 6,502         | \$ 894           | \$ (3,145)       | \$ (3,480)        | \$ (3,786)       | \$ 534           | \$ 2,770         |
| Diluted earnings (loss) per<br>share.....                                  | \$ 0.05   | \$ 0.24          | \$ 0.03          | \$ (0.12)        | \$ (0.13)         | \$ (0.14)        | \$ 0.02          | \$ 0.10          |
| Diluted weighted-average number<br>of shares and share<br>equivalents..... | 26,401  | 27,143           | 27,170           | 26,531           | 26,585            | 26,681           | 28,027           | 28,169           |

|   | QUARTER ENDED     |                  |                  |                  |
|---|-------------------|------------------|------------------|------------------|
|   | SEPT. 30,<br>1997 | DEC. 31,<br>1997 | MAR. 31,<br>1998 | JUNE 30,<br>1998 |
|   | (UNAUDITED)       |                  |                  |                  |
| Percentage of Sales:                                  |                   |                  |                  |                  |
| Sales.....  | 100.0%            | 100.0%           | 100.0%           | 100.0%           |
| Cost of sales.....                                    | 60.1              | 62.2             | 69.0             | 73.4             |
| Gross margin.....                                     | 39.9              | 37.8             | 31.0             | 26.6             |
| Operating expenses:                                   |                   |                  |                  |                  |
| Research and development.....                         | 10.4              | 10.1             | 13.3             | 19.9             |
| Sales and marketing.....                              | 5.4               | 6.6              | 8.1              | 11.0             |
| General and administrative.....                       | 5.3               | 6.0              | 6.5              | 8.7              |
| Restructuring charge.....                             | --                | --               | --               | --               |
| Merger costs.....                                     | --                | --               | --               | --               |
| Storm damages (recoveries).....                       | 5.7               | (0.5)            | --               | --               |
| Purchased in-process research and<br>development..... | 5.8               | --               | --               | --               |
| Total operating expenses.....                         | 32.6              | 22.2             | 27.9             | 39.6             |
| Income (loss) from operations.....                    | 7.3               | 15.6             | 3.1              | (13.0)           |
| Other income (expense).....                           | 0.0               | 0.1              | 0.2              | 0.4              |
| Net income (loss) before income taxes.....            | 7.3               | 15.7             | 3.3              | (12.6)           |
| Provision (benefit) for income taxes.....             | 4.8               | 4.1              | 1.3              | (2.8)            |
| Net income (loss).....                                | 2.5%              | 11.6%            | 2.0%             | (9.8)%           |
|   | SEPT. 30,<br>1998 | DEC. 31,<br>1998 | MAR. 31,<br>1999 | JUNE 30,<br>1999 |
| Percentage of Sales:                                  |                   |                  |                  |                  |
| Sales.....  | 100.0%            | 100.0%           | 100.0%           | 100.0%           |
| Cost of sales.....                                    | 69.7              | 70.7             | 60.0             | 55.9             |
| Gross margin.....                                     | 30.3              | 29.3             | 40.0             | 44.1             |
| Operating expenses:                                   |                   |                  |                  |                  |
| Research and development.....                         | 21.8              | 26.1             | 17.9             | 16.3             |
| Sales and marketing.....                              | 12.4              | 14.2             | 10.1             | 9.6              |
| General and administrative.....                       | 8.9               | 6.7              | 8.8              | 7.4              |
| Restructuring charge.....                             | 3.8               | --               | --               | --               |
| Merger costs.....                                     | --                | 12.2             | --               | --               |
| Storm damages (recoveries).....                       | --                | (5.0)            | --               | --               |
| Purchased in-process research and<br>development..... | --                | --               | --               | --               |
| Total operating expenses.....                         | 46.9              | 54.2             | 36.7             | 33.3             |
| Income (loss) from operations.....                    | (16.6)            | (24.9)           | 3.3              | 10.8             |
| Other income (expense).....                           | (0.8)             | 1.6              | (0.1)            | 0.1              |
| Net income (loss) before income taxes.....            | (17.4)            | (23.3)           | 3.2              | 10.9             |
| Provision (benefit) for income taxes.....             | (4.2)             | (6.5)            | 1.5              | 4.2              |
| Net income (loss).....                                | (13.2)%           | (16.8)%          | 1.6%             | 6.7%             |

Our quarterly operating results have fluctuated significantly and we expect them to continue to experience significant fluctuations. Quarterly results are affected by a variety of factors, many of which are beyond our control, including:

- changes or slowdowns in economic conditions in the semiconductor and semiconductor capital equipment industries and other industries in which our customers operate;
- the timing and nature of orders placed by major customers;
- customer cancellations of previously placed orders and shipment delays;
- pricing competition from our competitors;

- component shortages resulting in manufacturing delays;
- changes in customers' inventory management practices;
- the introduction of new products by us or our competitors; and
- costs incurred by responding to specific feature requests by customers.

A substantial portion of our shipments are made on a "just-in-time" basis in which shipment of systems occurs within a few days or hours after an order is received. Our backlog is not meaningful because of the importance of "just-in-time" shipments. We are dependent on obtaining orders for shipment in a particular quarter to achieve our revenue objectives for that quarter. Accordingly, it is difficult for us to predict accurately the timing and level of sales in a particular quarter. Due to our "just-in-time" program, we anticipate quarterly fluctuations in sales to continue to occur.

Sales fluctuated significantly during the periods presented, reflecting changing demand. Demand for our systems is affected primarily by changes in the semiconductor capital equipment market. The semiconductor capital equipment market experienced a major but short-lived recovery in the second half of 1997, but then a severe downturn began at the end of 1997 and continued through 1998 until the market began to recover in early 1999. Our quarterly sales generally mirrored the market. To a lesser extent, sales are affected by events in the data storage, flat panel display and other industrial markets.

Our gross margin fluctuated significantly, primarily reflecting the level at which we utilized our manufacturing capacity. Successive decreases in gross margin to 31.0% in the first quarter of 1998 and 26.6% in the second quarter of 1998 were due to decreased utilization of capacity resulting from two successive quarterly decreases in sales to the semiconductor capital equipment industry. Gross margin improved to 30.3% in the third quarter of 1998, despite continued decreased utilization of capacity, due to lower material costs obtained through supplier contract negotiations and cost improvements realized from our restructuring. Gross margin declined to 29.3% in the fourth quarter of 1998, due primarily to further decreased utilization of capacity resulting from another decrease in sales to the semiconductor capital equipment industry. Gross margin increased significantly to 40.0% in the first quarter of 1999, primarily as result of our efforts to reduce material costs and, to a lesser extent, the higher sales base. Gross margin increased again in the second quarter of 1999 to 44.1% due to the higher sales base.

Operating expenses have been affected by non-recurring charges and credits and our responses to changes in demand for our product, particularly from the semiconductor capital equipment industry. For example, in the third quarter of 1997, we recorded a \$3.0 million charge in connection with storm damage we experienced and wrote off \$3.1 million of purchased in-process research and development associated with the Tower Electronics acquisition. Due to the downturn in the semiconductor capital equipment industry in 1998, our operating expenses were held relatively flat during the first half of 1998 in anticipation of an early recovery. With the extent and duration of the downturn still uncertain, in the second half of 1998 we reduced operating expenses while maintaining a minimum level of resources necessary to address an upturn in the semiconductor capital equipment industry that began to occur in the first half of 1999. Operating expenses in the third and fourth quarters of 1998 were also affected by non-recurring charges and credits. Operating expenses increased in the first two quarters of 1999, reflecting expenditures to support the significant growth in sales during those periods. As a percentage of sales, operating expenses have declined during periods of rapid sales growth, when sales increased at a rate faster than our ability to add personnel and facilities to support the growth, and increased during periods of flat or decreased sales, when our infrastructure is retained to support anticipated future growth.

Our provision (benefit) for income taxes fluctuated significantly from the third quarter of 1997 through the second quarter of 1999, primarily due to the effect of non-recurring charges and credits. For example, an effective income tax rate of 66.3% in the third quarter of 1997 was due primarily to the \$3.1 million write-off associated with the acquisition of Tower Electronics. An effective income tax benefit rate of 28.1% for the fourth quarter of 1998 was due primarily to nondeductible merger costs offset by tax benefits recorded for operating losses incurred during the quarter.

## **LIQUIDITY AND CAPITAL RESOURCES**

Since our inception, we have financed our operations, acquired equipment and met our working capital requirements through borrowings under our revolving line of credit, long-term loans secured by property and equipment, cash flow from operations and proceeds from equity offerings.

Operating activities used cash of \$2.1 million in the first six months of 1999, primarily a result of increases in accounts receivable and inventories, partially offset by net income, increases in accounts payable and increased accruals for payroll, employee benefits and income taxes.

Operating activities provided cash of \$4.7 million in the first six months of 1998, primarily as a result of decreases in accounts receivable and inventories, offset by the net loss, decreases in accounts payable and decreased accruals for income taxes. We expect future receivable and inventory balances to fluctuate with net sales. We provide just-in-time deliveries to certain of our customers and may be required, under certain contracts or agreements, to maintain minimum levels of inventory to satisfy our customers' delivery requirements. Any increase of our inventory levels will require the use of cash to finance the inventory.

Investing activities used cash of \$1.1 million in the first six months of 1999 and included the purchase of property and equipment for \$3.0 million, offset by sales of \$1.9 million of marketable securities. Investing activities used cash of \$3.2 million in the first six months of 1998 and included the purchase of property and equipment for \$4.0 million and the purchase of a stock investment in a start-up company for \$0.75 million, offset by sales of \$1.5 million of marketable securities.

Financing activities in the first six months of 1999 provided cash of \$3.0 million and consisted primarily of proceeds of \$1.8 million from the exercise of employee stock options and net increases in notes payable and capital lease obligations of \$1.2 million. Financing activities in the first six months of 1998 used cash of \$1.6 million and consisted primarily of payment of notes payable and capital lease obligations of \$1.9 million, partially offset by proceeds of \$0.3 million from the exercise of employee stock options.

We plan to spend approximately \$7.0 million through the remainder of 1999 and the first six months of 2000 for the acquisition of manufacturing and test equipment and furnishings. Further, we continue to implement our management system software, including the replacement of existing systems in our domestic and foreign locations. We expect to incur aggregate costs of approximately \$0.3 million related to training and implementation of the software through the year 2000.

As of June 30, 1999, we had working capital of \$67.0 million. Our sources of available funds as of June 30, 1999 consisted of \$11.3 million of cash and cash equivalents, \$14.2 million of marketable securities, and a credit facility consisting of a \$30.0 million revolving line of credit, of which none was outstanding as of June 30, 1999. Advances under the revolving line of credit bear interest at either the prime rate (8.25% at September 16, 1999) minus 1.25% or the LIBOR 360-day rate (6.0425% at September 16, 1999) plus 150 basis points, at our option. All advances under the revolving line of credit will be due and payable on December 7, 2000, unless up to \$10 million of indebtedness is converted into a 3-year term loan prior to that date.

We believe that our cash and cash equivalents, marketable securities, cash flow from operations and available borrowings will be sufficient to meet our working capital needs for the next twelve months. From time to time, we may raise capital through additional equity or debt financing in order to take advantage of favorable market conditions or to fund material capital equipment purchases or desired expansion. We have considered, and will continue to consider, possible acquisitions of businesses or entities, which we believe could create synergies or opportunities for us. If we were to undertake one or more acquisitions, we may require additional funds which may be provided by the sale of equity or debt securities. The requisite funding might not be available when required or it might not be available on terms acceptable to us.

### OVERVIEW

We design, manufacture and support power conversion and control systems. These systems are important components of industrial manufacturing equipment that modifies surfaces or deposits or etches thin film layers on computer chips, CDs, flat panel displays such as computer screens, DVDs, windows, eyeglasses, solar panels and other products. Our systems refine, modify and control the raw electrical power from a utility and convert it into power that is uniform and predictable. This allows manufacturing equipment to produce and deposit very thin films at an even thickness on a mass scale. We market and sell our systems primarily to large, global OEMs of semiconductor, flat panel display, data storage and other industrial thin film manufacturing equipment.

We have sold our systems worldwide to more than 100 OEMs and directly to more than 500 end-users. Since inception, we have sold more than 150,000 power conversion and control systems. Our principal customers include Applied Materials, Balzers, Eaton, Lam Research, Novellus, Singulus and ULVAC.

### BACKGROUND

#### THE MARKET FOR PLASMA-BASED THIN FILM PRODUCTION PROCESSES

Manufacturing processes in use today employ thin film technology to modify surfaces or to deposit or etch thin layers of materials on substrates such as silicon, glass and metals. In recent years, significant technological advances in thin film processes have permitted materials to be manipulated on an atomic and molecular level. Manufacturers can now both deposit and etch layers of materials that are less than one hundredth of a micron in thickness. Thin film production processes enable manufacturers to control and alter the electrical, magnetic, optical and mechanical characteristics of materials. Products produced by thin film processing include integrated circuits, flat panel displays and magnetic media. The ongoing demand for improvements in the performance, capacity and speed of these products drives manufacturers to develop more advanced technology to produce increasingly thinner, more consistent and more precise layers of film.

Thin film production processes are now used in a broad and rapidly growing range of industrial manufacturing processes. Thin film processes have been employed most extensively in the semiconductor industry. In the fabrication of integrated circuits, multiple thin film layers of insulating or conductive materials are deposited on a wafer or substrate. Each thin film layer becomes an integral part of microscopic device and circuitry features. For example, the current generation dynamic random access memory chips (DRAMs) are manufactured with ten to thirty layers of film and an overall thickness of no more than 0.5 microns. Thin film manufacturing processes similar to those employed in the semiconductor industry are increasingly being used in the production of flat panel displays such as the monitors in portable computers. These processes are also used extensively in the data storage industry in the production of CDs, DVDs and computer hard disks. Thin film processes for data storage products are used to create the optical and magnetic storage mediums and to deposit protective wear surfaces on the finished products. In addition, industrial manufacturers have begun to use thin film processes to apply coatings or films to a wide range of products, including solar panels, architectural glass, eyeglasses, tools, bar-code readers, lenses, automotive parts, front surface mirrors, razor blades, decorative wrappings and food product packaging.

The primary applications for thin film manufacturing include deposition, in which a layer of material is deposited on a surface, and etch, in which unneeded portions of a layer are removed. Thin film production was initially accomplished with liquid chemicals, known as wet chemistry processing, or thermal processes. Over time, those processes became inadequate for many

applications as the demand for products requiring thinner, more precise films increased. Plasma-based process technology was developed to address the limitations of wet chemistry and thermal technologies and to enable new applications.

Today plasma-based processing is broadly used by thin film manufacturers. Plasma is commonly created by applying enough electrical force to a gas at reduced pressure to separate electrons from their parent atoms. The atom is transformed to a highly energetic state. In plasma-based thin film processing, the material to be altered, known as the substrate, and one or more specific gases are inserted into a vacuum chamber. The plasma created from the gases is then manipulated by electrical forces to alter the molecular characteristics of the substrate surface. Plasma-based processes are inherently more controllable and more accurate for many applications than other thin film production processes because of the electrical characteristics of plasma. It is possible to more precisely control the arrival rate, angle and energy of molecules at the surface being modified using electrical forces. Plasma-based process technology is expected to continue evolving to meet the worldwide growth in demand for smaller, more versatile electronics, finer visual resolution products and denser data storage mediums because of the precision provided by plasma's electrical characteristics.

Below is an illustration of a plasma-based production process:

[Illustration titled "Plasma Process Illustration" depicting in diagram form the flow of utility power to a power conversion and control system, with arrows identifying the plasma, ions, electric field and substrate in the vacuum process system.]

## **POWER CONVERSION AND CONTROL SYSTEM REQUIREMENTS**

The effectiveness of plasma-based production processes depends in large part on the quality of the electrical power used to ignite and manipulate the plasma. A power conversion and control system used in a plasma-based process must refine, modify and control the raw electrical power from a utility and convert it into power that is uniform, predictable and precisely repeatable, which permits the production of identical thin films of unvarying thickness on a mass scale. Instability of electrical forces in the plasma may damage or destroy the substrate under production, as well as the power conversion and control system. A power conversion and control system must react within microseconds, or millionths of a second, to changes in the level of the utility supplied power, the electrical characteristics of the plasma and the process control settings in order to avoid instabilities. The key requirements for plasma processing power conversion and control systems are:

**CONVERSION AND CONTROL OF HIGH POWER.** Plasma-based production requires the generation of extremely high levels of electrical power, usually in the range of 500 to 25,000 watts. In contrast, the power level required to operate most home and office electrical equipment is generally far below 500 watts. A power conversion and control system must include the ability to properly convert the externally supplied power, and must also make accurate and fast measurements so the system can be dynamically controlled. These measurements are difficult because of the strong electrical fields



and electrical noise that result from the high power concentration and the nature of the plasma itself. Additionally, a power conversion and control system must meet the small footprint requirements of a clean room environment while minimizing the impact of the concentration of electrical radiation and heat caused by tightly packed high power circuitry.

**CONTROL OVER A WIDE RANGE OF POWER LEVELS.** Power conversion and control systems for plasma-based processes must operate over a wide range of power levels in order to support a variety of plasma-based processes and applications. For example, a power conversion and control system may need to operate at power levels that vary by a factor of one thousand. In contrast, the power supplies used in most home and office electrical equipment generally only need to operate at power levels that vary by no more than a factor of two. One of the most challenging requirements for plasma-based process power conversion and control systems is the need for system instrumentation to make rapid measurements of many electrical characteristics, including current, voltage, power and impedance levels. The measurements must be made with precision, speed and accuracy at both low and high levels of power.

**CONTROL OF UTILITY INSTABILITIES.** Incoming power from a utility supplier is subject to brownouts, surges, voltage transients and general voltage variations. A power conversion and control system must serve as a buffer from the variability of raw utility power sources. Under normal operating conditions, excluding brownouts, voltage from the utility source may vary by as much as 10%. In comparison, even a 1% variance in the power supply to a plasma chamber may cause significant defects in the film under production.

**CONTROL OF ARCS.** One of the most critical problems that arises from a failure to control power in a plasma-based process is arcing, which is characterized by intense localized electrical discharges which act like lightning. Arcs often cause serious damage to both the substrate and the power conversion and control equipment. A power conversion and control system must not only be rugged enough to withstand the impact of abrupt electrical changes in the plasma, but must also contain circuitry to extinguish arcs as they occur. The power system must act to control the power levels within less than a microsecond in order to effectively control arcs.

**CONTROL OF SYSTEM INSTABILITIES.** The current and voltage in the plasma may fluctuate in some advanced plasma-based processes using exotic gases and electrode arrangements, causing system instabilities. The power conversion and control system must promptly detect the changing electrical characteristics of the plasma and adjust the power supply to prevent instabilities. If these system instabilities are not properly controlled, the thin films will lack uniformity, which may seriously impair the yield and performance of the products being manufactured.

## **CHARACTERISTICS OF THE POWER CONVERSION AND CONTROL SYSTEM MARKET**

The plasma-based processing industry requires a wide range of power frequencies for plasma-based thin film processes, from zero frequency direct current (DC) to alternating current (AC) at frequencies of several gigahertz. Frequency influences the type of physical and chemical activity that will occur in the plasma. Power conversion and control systems change the frequency of raw utility power as required for particular applications. For example, DC is typically used in PVD processes, while high frequency AC such as RF are typically used in etch and chemical vapor deposition (CVD) processes.

Power conversion and control systems for plasma-based processes often need to be highly customized to meet application and customer requirements. This customization involves developing unique design and component configurations to permit specific variations in power, voltage, current and frequency levels, modifications for interfacing with customer equipment, and adjustments to controls and external packaging requirements. The long-term challenge facing manufacturers of power conversion and control systems is to efficiently produce these complex, highly customized

systems in a cost effective manner. Moreover, power conversion and control systems must be continuously adapted to address the requirements of the growing number of applications using thin film production processes. The customers for these types of systems are generally large, global OEMs in the semiconductor capital equipment, flat panel display and data storage markets. They require a global infrastructure from the manufacturers of power control and conversion systems.

## **THE ADVANCED ENERGY SOLUTION**

We have been and continue to be a pioneer in the development of power conversion and control systems for advanced plasma-based production processes.

Key elements of the Advanced Energy solution include:

**KNOWLEDGE OF PLASMA-BASED PROCESSES.** Since our inception, we have built a large base of expertise in the interaction between plasma-based processes and power conversion and control systems. This knowledge allows us to develop systems that optimize our customers' plasma-based processes and applications, and to assist customers and potential customers in developing new process applications. One of our core competencies is our ability to advise customers of design advantages that may be achieved in plasma-based production processes for specific applications and in the related power conversion and control systems. We regularly place our scientists and engineers at customer sites to support customers in their process development. We believe this application of knowledge and resources is unique in the industry and represents a key competitive strength.

**UTILIZATION OF SWITCHMODE TECHNOLOGY.** We believe that we developed the first switchmode power conversion and control systems for plasma-based processing. Switchmode power conversion is a digitally based solution to power conversion that represents an improvement over previously employed alternatives. Switchmode based systems are smaller, lighter and faster due to their use of high speed switching. Switchmode technology also enables rapid control of the high power required in plasma-based production processes and improves the response time to random variables in the system. In addition, switchmode has the benefit of significantly reducing the stored energy in a system, a major cause of arcing. The MDX system, which we introduced in 1983, was the first switchmode power supply available for PVD applications. It reduced the amount of stored energy by a factor of 100 to 1,000 times compared to the technology then in use and fostered the development and widespread use of PVD processes. We utilize switchmode technology in the majority of our systems. We believe our expertise with switchmode-based systems provides us with a competitive advantage.

**MEASUREMENT AND CONTROL SOLUTIONS.** We have designed our systems to incorporate high speed, highly precise electronic measurement and system controls. Multiple sensors continually measure current, voltage and other electrical properties of the plasma. These measurements are converted into signals, processed with digital signal processors, and the results then converted to input signals for the power conversion and control systems. Our power conversion and control systems thus dynamically control the flow of power delivered, minimize stored energy, make precise system adjustments, compensate for random variabilities and notify the user of out-of-range conditions. These dynamic in-system controls enable our systems to prevent or eliminate arcs and other system or utility related instabilities.

**REUSABLE ENGINEERING AND MODULAR DESIGN.** We provide customers with fast time-to-market solutions by designing our components using:

- reusable engineering, in which the core technology of a component can be incorporated in a similar component of a new system or a new product platform; and
- modular design, in which the same component used in systems of one product platform can be used in systems of another product platform.

Reusable engineering and programmable software-based architectures enable us to modify our basic platforms to create solutions that are tailored for specific applications and customer requirements. We achieve efficiencies by designing our products to have an open architecture, common features and standard components and interfaces across a variety of processes. As a result, we believe we have the capability to deliver a broad range of customized products with short lead times and on a competitively priced basis.

## STRATEGY

We have achieved a market leadership position by applying our large base of expertise in the interaction between plasma-based processes and power conversion and control systems to design highly precise, customized power conversion and control systems that provide a wide range of power frequencies for plasma-based thin film processes. Our strategy is to continue to build upon our leadership positions in the semiconductor capital equipment, flat panel display and data storage industries while exploring other emerging markets. We believe our five key growth opportunities are:

**EXPANDING LEADERSHIP IN OUR CORE MARKETS.** We are the market share leader in the semiconductor capital equipment, data storage and flat panel display markets. We plan to continue to increase our penetration in these three markets by introducing new products and solutions for our existing customers and targeting new customers, but our primary focus will continue to be on the semiconductor capital equipment market. For example, in the semiconductor capital equipment market, we believe that significant opportunities exist for us to introduce new products for processes or applications such as:

- etch applications using RF power;
- gas abatement;
- on-line measurement of power characteristics; and
- copper electroplating.

**PROVIDING INTEGRATED SOLUTIONS FOR CUSTOMERS.** We believe that customers want solutions that improve process control and yield, and decrease their total cost and time to market. We are developing integrated systems to provide more complete solutions that meet our customers' plasma-based process requirements. We are identifying currently fragmented applications of technology involving significant power, measurement and control content, and developing integrated, high performance, robust and cost-effective solutions for these applications.

**TARGETING EMERGING APPLICATIONS.** We are targeting emerging applications that have the potential to benefit from more efficient and reliable use of power in manufacturing processes for telecommunications networking equipment, automotive parts, tools, architectural glass and other industrial products.

**PURSUING ACQUISITIONS TO FUEL GROWTH.** We actively seek complementary technologies and companies as a means to expand our presence in existing and emerging markets and to provide integrated solutions for customers and potential customers. We have acquired and integrated four companies in the last two years. We continually evaluate companies whose products and technologies could enhance our system level capabilities.

**CAPITALIZING ON WORLDWIDE INFRASTRUCTURE.** Our principal customers are large, global OEMs that require that their suppliers have a well-developed worldwide infrastructure. We plan to continue to take advantage of and expand our established global infrastructure, operating skills and comprehensive product portfolio to better serve these customers and to attract new customers with international support needs.

## PRODUCTS

Our switchmode power conversion and control systems have enabled our customers to develop new plasma-based processing applications. In 1982, we introduced our first low-frequency switchmode power conversion and control system specifically designed for use in plasma processes. In 1983, we introduced our first DC system designed for use in PVD applications. This DC system is a compact, cost-effective power solution which greatly reduces stored energy, a major limitation in PVD systems. In 1989, we introduced tuners used to match the characteristics of the plasma with the RF generators. This theme was carried further with the introduction of the Pinnacle series of DC systems in 1995. In 1990, we introduced the first switchmode RF power conversion and control systems for use in semiconductor etch applications. This product line achieved significant design wins because of its smaller size and its ability to provide more precise control. In 1998, we developed the APEX series of RF systems which use new technology to further reduce size and extend the frequency and power range of our RF product line. We introduced a family of accessories for the DC product line in 1993. These pulsed DC products provided major improvements in arc prevention and suppression. We are currently extending the power range of our systems to much higher power levels to enable us to supply products for emerging industrial applications. The products in these product families range in price from \$1,500 to \$150,000, with an average selling price of approximately \$9,200.

The acquisition of the assets of MIK Physics, Inc. provided the base technology for our recently introduced Astral products, which are high-power DC systems used in PVD equipment.

The acquisition of Tower Electronics in August 1997 expanded our product line to include low-power DC power conversion systems for use in telecommunications and other industrial applications. These power conversion systems range in power from 50 watts to 600 watts and have an average selling price of approximately \$500.

The acquisition of RF Power Products in October 1998 expanded our product line of RF generators and matching networks. Solid-state generators are presently available for power requirements of up to 5,000 watts and are sold primarily to capital equipment manufacturers in the semiconductor, flat panel display, thin film, and analytical equipment markets. Tube-type generators are available at power levels from 10,000 to 30,000 watts and are primarily sold to capital equipment manufacturers in the thin film head manufacturing market. RF matching networks are systems composed primarily of variable inductors and capacitors with application-specific circuits that can be designed to a customer's specific power requirements. Our RF generators and matching networks have average selling prices similar to our DC products.

The acquisition of Fourth State Technology in September 1998 enhanced our capability to design and manufacture RF power-related process control systems used to monitor and analyze data in thin film processes. Fourth State's technology also is enabling us to develop power conversion and control systems that incorporate advanced measurement and control systems.

The acquisition of a majority interest in LITMAS in August 1999 is expected to expand our product line to include plasma abatement systems and high-density plasma sources. These products will be marketed to semiconductor capital equipment manufacturers.

The following chart sets forth our principal product lines and related basic information:

|                                       | PRODUCT<br>PLATFORM      | DESCRIPTION                                       | POWER/CURRENT<br>LEVEL | MAJOR PROCESS<br>APPLICATIONS  |
|---------------------------------------|--------------------------|---|------------------------|--|
| Direct<br>Current<br>Products         | MDX                      | Power control and conversion system               | 500W-80kW              | PVD<br>- Metal sputtering<br>- Reactive sputtering   |
|                                       | MDX-II                   | Power control and conversion system               | 15kW-120kW             | PVD<br>- Metal sputtering<br>- Reactive sputtering   |
|                                       | Pinnacle                 | Power control and conversion system               | 6kW-120kW              | PVD<br>- Metal sputtering<br>- Reactive sputtering   |
|                                       | Sparc-LE                 | Arc management accessory                          | 1kW-60kW               | For use with MDX systems--permits precise control of reactive sputtering of insulating films |
|                                       | E-Chuck                  | Electrostatic chuck power system                  | less than 100W         | General wafer handling in semiconductor PVD, CVD and etch applications                       |
| Radio<br>Frequency<br>Products        | HFV                      | Power control and conversion system               | 3kW-8kW                | PVD<br>Etch  |
|                                       | RFX                      | Power control and conversion system               | 600W                   | General R&D  |
|                                       | RFG                      | Power control and conversion system               | 600W-5.5kW             | Etch<br>CVD  |
|                                       | RFXII                    | Power control and conversion system               | 600W-5.5kW             | Etch<br>CVD  |
|                                       | APEX                     | Power control and conversion system               | 1000W-10kW             | Etch<br>CVD  |
|                                       | AZX, VZX,<br>SwitchMatch | Tuner   | 100W-5kW               | Impedance matching network   |
|                                       | RF                       | Power control and conversion system               | 500W-3kW               | Etch<br>CVD  |
|                                       | Hercules                 | Power control and conversion system               | 10kW-30kW              | PVD  |
|                                       | Atlas                    | Power control and conversion system               | 1.5kW-5kW              | Etch   |
|                                       | Mercury                  | Tuner   | 500W-10kW              | Impedance matching network   |
| Low and Mid-<br>Frequency<br>Products | FTMS                     | Tuner   | 2kW-5kW                | Impedance matching network   |
|                                       | PE and PE-II             | Low-frequency power control and conversion system | 1.25kW-30kW            | CVD<br>PVD<br>- Reactive sputtering<br>Surface modification                                  |
|                                       | PD                       | Mid-frequency power control and conversion system | 1.25kW-8kW             | CVD<br>PVD<br>- Reactive sputtering<br>Surface modification                                  |
|                                       | LF                       | Low-frequency power control and conversion system | 500W-1kW               | Etch<br>PVD  |
|                                       |                          |   |                        |  |

|                        | PRODUCT<br>PLATFORM | DESCRIPTION                              | POWER/CURRENT<br>LEVEL | MAJOR PROCESS<br>APPLICATIONS                                       |
|------------------------|---------------------|--|------------------------|---|
| High-Power<br>Products | Astral-20           | Pulsed DC power system                   | 20kW                   | PVD<br>- Metal sputtering<br>- Reactive sputtering                  |
|                        | Astral-120          | Pulsed DC power system                   | 120kW                  | PVD<br>- Reactive sputtering  |
|                        | Crystal             | Multizone induction heating power system | 180kW                  | Semiconductor epitaxy   |
| Other<br>Products      | Gen-Cal             | RF power measurement                     | 50W-3kW                | Generator diagnostic tool   |
|                        | RF-EP               | RF probe                                 | 50W-5kW                | End-point detection system  |
|                        | Z-Scan              | RP probe                                 | 50W-5kW                | Impedance measurement tool  |
|                        | RF-MS               | RF metrology system                      | 5W-5kW                 | Plasma diagnostic tool  |
|                        | ID                  | Ion-beam conversion and control system   | 500W-5kW               | Ion-beam deposition<br>Ion implantation<br>Ion-beam etching/milling |
|                        | E 'Wave             | Bi-polar electroplating                  | 400W-8kW               | Electroplating copper onto a wafer                                  |

## MARKETS, APPLICATIONS AND CUSTOMERS

### MARKETS

Most of our sales historically have been made to customers in the semiconductor capital equipment industry. Sales to customers in this industry represented 59% of our sales in 1997, 49% in 1998 and 59% in the first six months of 1999. Our power conversion and control systems are also used in the flat panel display, data storage and other industrial markets. Following is a discussion of the major markets for our systems:

**SEMICONDUCTOR CAPITAL EQUIPMENT MANUFACTURING MARKET.** We sell our products primarily to semiconductor capital equipment manufacturers for incorporation into equipment used to make integrated circuits. Our products are currently used in a variety of applications including deposition, etch, ion implantation and megasonic cleaning. The precise control over plasma-based processes that use our power conversion and control systems enables the production of integrated circuits with reduced feature sizes and increased speed and performance. We anticipate that the semiconductor capital equipment industry will continue to be a significant part of our business for the foreseeable future.

**FLAT PANEL DISPLAY MANUFACTURING EQUIPMENT MARKET.** We also sell our systems to manufacturers of flat panel displays and flat panel projection devices, which have fabrication processes similar to those employed in manufacturing integrated circuits. Flat panel technology produces bright, sharp, large, color-rich images on flat screens for products ranging from hand-held computer games to laptop computer monitors to large-screen televisions. There are three major types of flat panel displays, liquid crystal displays, field emitter displays and gas plasma displays. There are two types of flat panel projection devices, liquid crystal projection and digital micro-mirror displays. We sell our products to all five of these markets.

**DATA STORAGE MANUFACTURING EQUIPMENT MARKETS.** Our products are sold to data storage equipment manufacturers and to data storage device manufacturers for use in producing a variety

of products, including CDs, computer hard disks, both media and thin film heads, CD-ROMs and DVDs. These products use a PVD process to produce optical and magnetic thin film layers, as well as a protective wear layer. In this market the trend towards higher recording densities is driving the demand for increasingly dense, thinner and more precise films. The use of equipment incorporating magnetic media to store analog and digital data continues to expand with the growth of the laptop, desktop, and workstation computer markets.

**OTHER INDUSTRIAL MARKETS.** We sell our products to OEMs and producers of end products in a variety of industrial markets. Thin film optical coatings are used in the manufacture of many industrial products including solar panels, architectural glass, eyeglasses, lenses, bar-code readers and front surface mirrors. Thin films of diamond-like coatings and other materials are currently applied to products in plasma-based processes to strengthen and harden surfaces on such diverse products as tools, razor blades, automotive parts and hip joint replacements. Other thin film processes that use our products also enable a variety of industrial packaging applications, such as decorative wrapping and food packaging. The advanced thin film production processes allow precise control of various optical and physical properties, including color, transparency and electrical and thermal conductivity. The improved adhesion and high film quality resulting from plasma-based processing make it the preferred method of applying the thin films. Many of these thin film industrial applications require power levels substantially greater than those used in our other markets.

We sell low-wattage power supplies to OEMs in the telecommunications, non-impact printing and laser markets through Tower Electronics. For example, Tower Electronics provides products to the largest manufacturer of non-impact printers used for printing date codes and lot information on beverage cans.

### APPLICATIONS

Our products have been sold for use in connection with the following processes and applications:

| SEMICONDUCTOR   | DATA STORAGE                   | FLAT PANEL DISPLAY        | INDUSTRIAL/RESEARCH                       |
|---|--------------------------------|---------------------------|---|
| -----   | -----                          | -----                     | -----                                     |
| Chemical vapor deposition (CVD)(metal and dielectric) | CD-ROMs                        | Active matrix LCDs        | Automobile coatings                       |
| Etch  | CDs                            | Digital micro-mirror      | Chemical, physical and materials research |
| High density plasma CVD                               | DVDs                           | Field emission displays   | Circuit board etch-back and de-smear      |
| Ion implantation                                      | Hard disk carbon wear coatings | Large flat panel displays | Consumer product coatings                 |
| Magnet field controls                                 | Hard disk magnetic media       | LCD projection            | Diamond-like coatings                     |
| Megasonic cleaning                                    | Magneto-optic CDs              | Liquid crystal displays   | Food package                              |
| Photo-resist stripping                                | Recordable CDs                 | Medical applications      | Glass coatings                            |
| Physical vapor deposition                             | Thin film heads                | Plasma displays           | Non-impact printing                       |
| Plasma-enhanced CVD                                   |                                |                           | Optical coatings                          |
|   |                                |                           | Photovoltaics                             |
|   |                                |                           | Superconductors                           |
|   |                                |                           | Telecommunications                        |

## CUSTOMERS

We have sold our systems worldwide to more than 100 OEMs and directly to more than 500 end-users. Since inception, we have sold more than 150,000 power conversion and control systems. Our principal customers include Applied Materials, Balzers, Eaton, Lam Research, Novellus, Singulus and ULVAC.

Sales to our top ten customers accounted in the aggregate for 67% of our total sales in 1997, 62% in 1998 and 67% in the first six months of 1999. We expect that sales of our products to these customers will continue to account for a high percentage of our sales in the foreseeable future. Our customers include:

|                                      |                             |
|--------------------------------------|-----------------------------|
| Alcatel Comptech                     | Mattson Technologies        |
| Applied Materials                    | Motorola                    |
| Balzers                              | Novellus                    |
| CVC Products                         | Optical Coatings Laboratory |
| Eaton                                | PlasmaTherm                 |
| First Light Technology               | Singulus                    |
| Fujitsu                              | Sony                        |
| Hewlett-Packard                      | Sputtered Films             |
| IBM                                  | Texas Instruments           |
| Intevac                              | 3Com                        |
| Komag                                | ULVAC                       |
| Lam Research                         | Verteq                      |
| Materials Research Division of Tokyo | Videojet International      |
| Electron, Ltd.                       |                             |

## MARKETING, SALES AND SERVICE

We sell our systems primarily through direct sales personnel to customers in the United States, Europe and Asia, and through distributors and sales representatives in China, France, Israel, Italy, Singapore, Sweden and Taiwan. Our domestic sales personnel are located in our headquarters in Fort Collins, Colorado, and in regional sales offices in:

- Voorhees, New Jersey;
- Austin, Texas
- Milpitas, California; and
- Concord, Massachusetts.

We also have international offices in:

- Tokyo, Japan;
- Filderstadt, Germany;
- Bicester, United Kingdom; and
- Seoul, South Korea.

Each of the international offices has primary responsibility for sales in its respective market.

We sell our Tower Electronics products through manufacturers' representatives.

We believe that customer service and technical support are important competitive factors and are essential to building and maintaining close, long-term relationships with our customers.



Sales outside the United States represented approximately 23% of our total sales during 1997, 28% in 1998 and 28% in the first six months of 1999. We expect sales outside the United States to continue to represent a significant portion of future sales. For a discussion of risks involved in international sales, see "Risk Factors--We might not be able to compete successfully in international markets or to meet the service and support needs of our international customers".

We offer warranty coverage for our systems for periods ranging from 12 to 24 months after shipment against defects in design, materials and workmanship.

## **MANUFACTURING**

We conduct the majority of our manufacturing at our facilities in Fort Collins, Colorado and Voorhees, New Jersey. We also conduct manufacturing for one customer in Austin, Texas. Tower Electronics conducts manufacturing at its facility in Fridley, Minnesota. We generally manufacture different systems at each facility. Our manufacturing activities consist of the assembly and testing of components and subassemblies which our customers then integrate into their equipment. Once final testing of all electrical and electro-mechanical subassemblies is completed, the final system is subjected to a series of reliability enhancing operations prior to shipment to customers. We purchase a wide range of electronic, mechanical and electrical components, some of which are custom products designed to our specifications. We also outsource some of our subassembly work.

## **INTELLECTUAL PROPERTY**

We have a policy of seeking patents on inventions governing new products or technologies as part of our ongoing research, development and manufacturing activities. We currently hold eighteen United States patents and four foreign patents covering various aspects of our systems. We also have 47 patent applications pending in the United States, Europe and Japan. We believe the duration of our patents generally exceeds the life cycles of the technologies disclosed and claimed in the patents.

For a discussion of risks involved in our intellectual property, see "Risk Factors--We are highly dependent on our intellectual property but may not be able to protect it adequately".

## **COMPETITION**

The markets we serve are highly competitive and characterized by ongoing technological developments and changing customer requirements. Significant competitive factors in our markets include product performance, price, quality and reliability and level of customer service and support. We believe that we currently compete effectively with respect to these factors, although we might not be able to compete effectively in the future.

The markets in which we compete have seen an increase in global competition, especially from Japanese- and European-based equipment vendors. We have several foreign and domestic competitors for each of our lines of products. Some of our competitors are larger and have greater resources than we do. Our ability to continue to compete successfully in these markets depends on our ability to introduce system enhancements and new systems on a timely basis. Our primary competitors are ENI, a subsidiary of Astec (BSR) plc, Applied Science and Technology (ASTeX), Huettinger, Shindigen, Kyosan, Comdel and Daihen. Our competitors are expected to continue to improve the design and performance of their systems and to introduce new systems with competitive performance characteristics. We believe we will be required to maintain a high level of investment in research and development and sales and marketing in order to remain competitive.

## **RESEARCH AND DEVELOPMENT**

The market for power conversion and control systems and related accessories is characterized by ongoing technological changes. We believe that continued and timely development of new systems and enhancements to existing systems to support OEM requirements is necessary for us to maintain a competitive position in the markets we serve. Accordingly, we devote a significant portion of our personnel and financial resources to research and development projects and seek to maintain close relationships with our customers and other industry leaders to remain responsive to their product requirements.

Research and development expenses were \$19.3 million in 1997, \$23.8 million in 1998 and \$12.6 million in the first six months of 1999. These expenses represented 11% of our total sales in 1997, 19% in 1998 and 17% in the first six months of 1999. We believe that continued research and development investment and ongoing development of new products are essential to the expansion of our markets. We expect to continue to make significant investments in our research and development activities.

## **EMPLOYEES**

At June 30, 1999, we had a total of 1,018 employees, of whom 950 were full-time employees. There is no union representation of our employees, and we have never experienced an employee work stoppage. We utilize temporary employees as a means to provide additional staff while reviewing the performance of the temporary employee. We consider our employee relations to be good.

## MANAGEMENT

The following table sets forth certain information with respect to our directors and executive officers.

| NAME                       | AGE | POSITION WITH COMPANY                                       |
|----------------------------|-----|---|
| Douglas S. Schatz.....     | 53  | Chief Executive Officer and Chairman of the Board           |
| Hollis L. Caswell.....     | 68  | President, Chief Operating Officer and Director             |
| Richard P. Beck.....       | 66  | Senior Vice President, Chief Financial Officer and Director |
| Richard Scholl.....        | 60  | Senior Vice President and Chief Technology Officer          |
| Joseph Stach.....          | 60  | Senior Vice President                                       |
| G. Brent Backman.....      | 59  | Director  |
| Arthur A. Noeth.....       | 63  | Director  |
| Elwood Spedden.....        | 62  | Director  |
| Gerald M. Starek.....      | 58  | Director  |
| Arthur W. Zafiropoulo..... | 60  | Director  |

DOUGLAS S. SCHATZ is a co-founder and has been our Chief Executive Officer and Chairman of the Board since our incorporation in 1981. From our incorporation to July 1997, Mr. Schatz also served as our President. Mr. Schatz co-founded Energy Research Associates, Inc., a designer of custom power supplies, and served as its Vice President of Engineering from 1977 through 1980.

HOLLIS L. CASWELL joined our board of directors in February 1997 and served on the Audit and Compensation Committees from that time until June 1997. Dr. Caswell became our Chief Operating Officer in June 1997. He also became our President in July 1999. From 1990 to 1994, Dr. Caswell was Chairman of the Board and Chief Executive Officer of HYPRES, Inc., a manufacturer of superconducting electronics. Prior to that time, Dr. Caswell served as Senior Vice President of Unisys Corporation, an information technology company, and President of its Computer Systems Group.

RICHARD P. BECK joined us in March 1992 as Vice President and Chief Financial Officer and became a Senior Vice President in April 1998. He joined our board of directors in September 1995. From 1987 to 1992, Mr. Beck served as Executive Vice President and Chief Financial Officer of Cimage Corporation, a computer software company. Mr. Beck is a director, and serves on the Audit and Compensation Committees, of Applied Films Corporation, a publicly held manufacturer of flat panel display equipment.

RICHARD A. SCHOLL joined us in 1988 as Vice President, Engineering. Mr. Scholl became our Chief Technology Officer in September 1995. Prior to joining us, Mr. Scholl was General Manager, Vacuum Products Division at Varian Associates, Inc., a publicly held manufacturer of high-technology systems and components.

JOSEPH STACH joined us in October 1998 as a Senior Vice President. Dr. Stach had been the Chairman, President and Chief Executive Officer of RF Power Products from 1992 until October 1998 when we acquired RF Power Products, which we re-named Advanced Energy Voorhees, Inc. Dr. Stach continues to serve as President of Advanced Energy Voorhees.

G. BRENT BACKMAN is a co-founder and has been on our board of directors since our incorporation in 1981. Mr. Backman had been one of our Vice Presidents from our incorporation until April 1998, when he became our Senior Vice President, Special Projects. Mr. Backman served in this position until he retired in January 1999. Prior to co-founding Advanced Energy,

Mr. Backman was a Business Manager at Ion Tech, Inc., a manufacturer of ion beam systems, sources, electronics and components.

ARTHUR A. NOETH joined our board of directors in July 1997 and has served on the Audit and Compensation Committees since that time. From 1993 to 1998, Mr. Noeth was President of the Implant Center, a provider of ion implant services to the electronics industry. From April 1987 to September 1993, he was President of A.N. Services, a business consulting service.

ELWOOD SPEDDEN joined our board of directors in August 1995 and has served on the Audit and Compensation Committees since that time. Mr. Spedden was a Senior Vice President of KLA Tencor, a manufacturer of automatic test equipment used in the fabrication of semiconductors, from July 1996 to June 1997. From 1990 through March 1996, Mr. Spedden was with Credence Systems Corporation, a manufacturer of automatic test equipment used in the fabrication of semiconductors, in various senior management positions including President, Chief Executive Officer and Vice-Chairman of the Board. Mr. Spedden is also a director of Insight Objects, a privately held software company.

GERALD M. STAREK joined our board of directors in October 1998, following our acquisition of RF Power Products and has served on the Audit Committee since that time. Mr. Starek had been a non-employee director of RF Power Products since February 1994. Mr. Starek was the founder of Silicon Valley Group, Inc., a supplier of automated wafer processing equipment for the semiconductor industry. He served as Silicon Valley Group's Chairman from September 1984 to September 1991 and as Vice Chairman from September 1991 to April 1993. Mr. Starek also is a director of AML Communications Inc., a manufacturer of amplifiers for telecommunications equipment.

ARTHUR W. ZAFIROPOULO joined our board of directors in October 1998, following our acquisition of RF Power Products and has served on the Compensation Committee since that time. Mr. Zafiropoulo had been a non-employee director of RF Power Products since July 1992. Mr. Zafiropoulo is the founder of Ultratech Stepper, Inc., a company that develops and manufactures photolithography equipment for the semiconductor industry. Mr. Zafiropoulo has been Chief Executive Officer and Chairman of the Board of Ultratech Stepper since March 1993. Mr. Zafiropoulo also served as President of Ultratech Stepper from May 1997 to April 1999 and from March 1993 to March 1996. Mr. Zafiropoulo is a director of Semi/Sematech, an association of U.S.-owned suppliers of equipment, materials and services to the semiconductor industry and Semiconductor and Equipment Materials International (SEMI), an international trade association.

## PRINCIPAL AND SELLING STOCKHOLDERS

The following table provides information as to the common stock beneficially owned and to be offered in the concurrent common stock offering by the following persons:

- each person known to us to own more than 5% of the common stock outstanding;
- each selling stockholder; and
- all of the current executive officers and directors as a group.

The table assumes that the underwriters' over-allotment option is not exercised. If the underwriters' over-allotment option is exercised, each selling stockholder will sell an additional 15% of the "Shares to be Sold" listed opposite his name.

| NAME   | SHARES BENEFICIALLY OWNED PRIOR TO THE OFFERING (1) |         | SHARES TO BE SOLD | SHARES BENEFICIALLY OWNED AFTER THE OFFERING (1) |             |
|--|---|---------|-------------------|--|-------------|
|  | NUMBER  | PERCENT |                   | NUMBER   | PERCENT (2) |
| Douglas S. Schatz (3).....   | 11,939,500  | 44.11   | 875,000           | 11,064,500                                       | 39.42       |
| G. Brent Backman (4).....  | 2,116,500   | 7.82    | 875,000           | 1,241,500  | 4.42        |
| Franklin Resources, Inc. (5).....                                      | 1,756,100   | 6.49    | --                | 1,756,100  | 6.16        |
| Richard P. Beck (6).....   | 170,614   | *       | 50,000            | 120,614  | *           |
| Hollis Caswell (7).....  | 271,858   | *       | 50,000            | 221,858  | *           |
| Richard Scholl (8).....  | 398,840   | 1.47    | 100,000           | 298,840  | 1.05        |
| Joseph Stach (9).....  | 348,508   | 1.27    | 50,000            | 298,508  | 1.05        |
| All executive officers and directors as a group (10 persons) (10)..... | 15,364,584  | 55.84   | 2,000,000         | 13,364,584                                       | 46.87       |

\* Less than one percent (1.0%)

(1) The numbers in the table reflect the stockholders' beneficial ownership of common stock as of September 16, 1999. A stockholder is considered to beneficially own shares that:

- the stockholder actually holds;
- are held by persons related to the stockholder;
- are held by companies or trusts in which the stockholder has a significant interest; and
- the stockholder has the right to acquire within 60 days, such as by exercising a stock option.

(2) The percentage is based on 27,065,355 shares outstanding as of September 16, 1999 plus the 1,000,000 shares we are offering to sell in the concurrent common stock offering.

(3) Mr. Schatz' business address is 1625 Sharp Point Drive, Fort Collins, Colorado 80525.

(4) Mr. Backman has an option to purchase 7,500 shares. By November 15, 1999, 60 days following September 16, 1999, his option will be exercisable as to 2,500 of those shares. Consistent with footnote (1), the numbers in the table include:

- 2,500 shares issuable upon the exercise of his option on or before November 15, 1999; and
- 546,000 shares owned by Mr. Backman's wife, even though Mr. Backman disclaims beneficial ownership of these shares.

Mr. Backman's address is 946 Lochland Court, Fort Collins, Colorado 80524.



(5) This information is based on the Schedule 13G that Franklin Resources, Inc., Charles B. Johnson, Rupert H. Johnson, Jr. and Franklin Advisers, Inc. filed with the Securities and Exchange Commission on January 26, 1999. The Schedule 13G indicates that these shares are held by one or more open- or closed-end investment companies or other managed accounts that are advised by investment advisory subsidiaries of Franklin Resources. Charles B. Johnson and Rupert H. Johnson, Jr. are the principal shareholders of Franklin Resources, and Franklin Advisers is a subsidiary of Franklin Resources. The address for each of these persons is reported as 777 Mariners Island Boulevard, San Mateo, California 94404.

(6) Mr. Beck has options to purchase 40,000 shares. By November 15, 1999, his options will be exercisable as to 15,313 shares, which shares are included in the numbers in the table.

(7) Dr. Caswell has options to purchase 318,438 shares. By November 15, 1999, his options will be exercisable as to 257,500 shares, which shares are included in the numbers in the table.

(8) Mr. Scholl has options to purchase 10,000 shares. None of these options will be exercisable by November 15, 1999. Mr. Scholl's wife, who is one of our business unit managers, has options to purchase 23,874 shares. By November 15, 1999, her options will be exercisable as to 18,468 of those shares. The numbers in the table include:

- the 18,468 shares issuable upon the exercise of Mrs. Scholl's options on or before November 15, 1999; and
- 300 shares owned by Mrs. Scholl.

(9) Dr. Stach has options to purchase 241,430 shares of our common stock. RF Power Products had granted options to Dr. Stach prior to the time that we acquired RF Power Products. We assumed those options and also granted new options to Dr. Stach. By November 15, 1999, his options will be exercisable as to 110,180 shares, which shares are included in the numbers in the table.

(10) The numbers in the table include:

- an aggregate of 431,121 shares that the executive officers and directors can purchase under their stock options on or before November 15, 1999;
- 546,000 shares owned by Mrs. Backman;
- 300 shares owned by Mrs. Scholl and 18,468 shares issuable upon the exercise of options owned by Mrs. Scholl; and
- 6,292 shares owned by the wife of one of our other directors.

## **DESCRIPTION OF CAPITAL STOCK**

Our authorized capital stock consists of 40,000,000 shares of common stock, \$0.001 par value, and 1,000,000 shares of preferred stock, \$0.001 par value. As of September 16, 1999, 27,065,355 shares of common stock were outstanding, held by 901 holders of record, and no shares of preferred stock were outstanding. In addition, 3,135,257 shares were reserved for issuance under our 1995 Stock Option Plan, 102,461 shares were reserved for issuance under the RF Power stock option plans we assumed in connection with our acquisition of RF Power in October 1998, 94,500 shares were reserved for issuance under our 1995 Non-Employee Director Stock Option Plan and 171,550 shares were reserved for issuance under our Employee Stock Purchase Plan. As of September 16, 1999, options to purchase an aggregate of 1,993,961 shares of common stock were outstanding under these plans.

### **COMMON STOCK**

The holders of common stock are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders. Subject to preferences that may be applicable to any outstanding shares of preferred stock that may be issued, the holders of common stock are entitled to receive ratably any dividends that may be declared from time to time by the board of directors out of funds legally available for the payment of dividends. See "Dividend Policy". The holders of our common stock are entitled to share ratably in all assets remaining after payment of liabilities and liquidation preferences of any outstanding shares of preferred stock in the event of our liquidation, dissolution or winding up. Holders of common stock have no preemptive rights or rights to convert their common stock into any other securities. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable.

### **PREFERRED STOCK**

Our board of directors has the authority, without action by the stockholders, to designate and issue up to 1,000,000 shares of preferred stock in one or more series and to designate the dividend rate, voting rights and other rights, preferences and restrictions of each series any or all of which may be greater than the rights of the common stock. The actual effects of the issuance of any shares of preferred stock upon the rights of holders of the common stock might include:

- restricting dividends on the common stock;
- diluting the voting power of the common stock;
- impairing the liquidation rights of the common stock; and
- delaying or preventing a change in control.

We have no present plans to issue any shares of preferred stock.

### **DELAWARE LAW AND CERTAIN CHARTER PROVISIONS**

Our certificate of incorporation and bylaws include provisions which:

- allow the board of directors to issue preferred stock with rights senior to those of the common stock without any further vote or action by the stockholders;
- limit the right of the stockholders to call a special meeting of stockholders; and
- allow us to impose various procedural and other requirements that could make it more difficult for stockholders to effect certain corporate actions. Such provisions could have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from attempting to acquire, control of Advanced Energy. Such provisions could limit the price that certain investors might be willing to pay in the future for shares of our common stock.



We also are subject to provisions of the Delaware General Corporation Law, including Section 203 which prohibits a publicly-held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless upon consummation of such transaction the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced or unless the business combination is, or the transaction in which such person became an interested stockholder was, approved in a prescribed manner. A "business combination" includes a merger, an asset sale and any other transaction resulting in a financial benefit to the interested stockholder. An "interested stockholder" is a person who, together with affiliates and associates, owns 15% or more of the corporation's voting stock.

## **TRANSFER AGENT**

The transfer agent and registrar for our common stock is Boston Equiserve.

## **DESCRIPTION OF CONVERTIBLE NOTES**

The convertible notes will be issued under an indenture between Advanced Energy and State Street Bank and Trust Company of California, N.A., as trustee, a copy of which is filed as an exhibit to the registration statement of which this prospectus forms a part. The following summaries of certain provisions of the indenture do not purport to be complete and are subject to, and are qualified in their entirety by reference to, the detailed provisions of the convertible notes and the indenture, including the definitions therein of certain terms.

## **OVERVIEW**

The convertible notes will be unsecured, direct, general, subordinated obligations of Advanced Energy and will mature on , 2006. Payment in full of the principal amount of the convertible notes will be due on , 2006 at a price of 100% of the principal amount.

The convertible notes will bear interest at the annual rate shown on the front cover of this prospectus from , 1999 or from the most recent date to which interest has been paid or provided for, payable on and of each year, commencing , 2000 until the principal is paid or made available for payment, to the person in whose name the convertible note is registered at the close of business on the preceding or , as the case may be.

The convertible notes will be convertible into shares of our common stock initially at the conversion rate stated on the front cover of this prospectus at any time following the initial issue date of the convertible notes and before the close of business on the business day immediately preceding , 2006, unless previously redeemed or repurchased. The conversion rate will be subject to adjustment upon the occurrence of certain events described under "--Conversion Rights".

The convertible notes are redeemable at our option at any time on or after , 2002, in whole or in part, at the redemption prices set forth below under "--Optional Redemption by Advanced Energy", plus accrued and unpaid interest to the date of redemption. The convertible notes also are subject to repurchase by us at the option of the holders upon a change of control as described below under "--Repurchase at Option of Holders Upon a Change in Control".

The principal of, premium, if any, and interest on the convertible notes will be payable, and the convertible notes may be surrendered for registration of transfer, exchange and conversion, at the office or agency of the trustee in Manhattan, New York. See "--Payment and Conversion". Payments, transfers, exchanges and conversions relating to beneficial interests in convertible notes

issued in book-entry form will be subject to the procedures applicable to global notes described below.

We will initially appoint the trustee as paying agent, transfer agent, registrar and conversion agent for the convertible notes. In these capacities, the trustee will be responsible for:

- maintaining a record of the aggregate holdings of convertible notes represented by the global note described below, and accepting convertible notes for exchange and registration of transfer,
- ensuring that payments of principal, premium, if any, and interest received by the trustee from us in respect of the convertible notes are duly paid to The Depository Trust Company (DTC) or its nominees,
- transmitting to us any notices from holders of the convertible notes,
- accepting conversion notices and related documents and transmitting the relevant items to us, and
- delivering certificates for common stock issued upon conversion of the convertible notes.

We will cause each transfer agent to act as a registrar and will cause each transfer agent to keep a register at their office in which, subject to any reasonable regulations we may prescribe, we will provide for registration of transfers of the convertible notes. We may vary or terminate the appointment of any paying agent, transfer agent or conversion agent, or appoint additional or other agents or approve any change in the office through which any agent acts. However, we will at all times maintain a paying agent, a transfer agent and a conversion agent in Manhattan, New York. We will cause notice of any resignation, termination or appointment of the trustee or any paying agent, transfer agent or conversion agent, and of any change in the office through which any agent will act, to be provided to holders of the convertible notes.

No service charge will be made for any registration of transfer or exchange of convertible notes, but we may require payment of a sum sufficient to cover any applicable tax or other governmental charges.

#### **FORM, DENOMINATION, TRANSFER, EXCHANGE AND BOOK-ENTRY PROCEDURES**

The convertible notes will be issued only in fully registered form, without interest coupons, in minimum denominations of \$1,000 and integral multiples in excess of \$1,000. The convertible notes sold in this offering will be issued only against payment in immediately available funds.

The convertible notes initially will be represented by one or more notes in registered, global form, referred to as global notes. The global notes will be deposited upon issuance with the trustee as custodian for DTC, in New York, New York, and registered in the name of DTC or its nominee, for credit to an account of a direct or indirect participant in DTC as described below.

Transfers of beneficial interests in the global notes will be subject to the applicable rules and procedures of DTC and its direct or indirect participants, which may change from time to time.

Except as set forth below, the global notes may be transferred, in whole and not in part, only to another nominee of DTC or to a successor of DTC or its nominee. Beneficial interests in the global notes may not be exchanged for notes in certificated form except in the limited circumstances described below under "--Exchanges of Book-Entry Notes for Certificated Notes".

## **EXCHANGES OF BOOK-ENTRY NOTES FOR CERTIFICATED NOTES**

A beneficial interest in a global note may not be exchanged for a note in certificated form unless:

### **- DTC**

- notifies us that it is unwilling or unable to continue as depositary for the global note, or
- has ceased to be a clearing agency registered under the Securities Exchange Act,
- and in either case we fail to appoint a successor depositary within 90 days after we are notified or become aware of either of the events described above,
- at our option, we notify the trustee in writing that we elect to cause the issuance of all of the convertible notes in certificated form, or
- there shall have occurred and be continuing an event of default or any event which after notice or lapse of time or both would be an event of default with respect to the convertible notes.

In all cases, certificated notes delivered in exchange for any global note or beneficial interests in any global note will be registered in the names, and issued in any approved denominations, requested by or on behalf of the depositary, in accordance with its customary procedures.

## **CERTAIN BOOK-ENTRY PROCEDURES FOR GLOBAL NOTES**

The descriptions of the operations and procedures of DTC that follow are provided solely as a matter of convenience. These operations and procedures are solely within the control of DTC and are subject to changes by DTC from time to time. We take no responsibility for these operations and procedures and urge investors to contact DTC or its participants directly to discuss these matters.

DTC has advised us as follows:

- DTC is a:
  - limited purpose trust company organized under the laws of the State of New York,
  - member of the Federal Reserve System,
  - "clearing corporation" within the meaning of the Uniform Commercial Code, and
  - "clearing agency" registered under the provisions of Section 17A of the Securities Exchange Act.
- DTC was created to hold securities for its participants and to facilitate the clearance and settlement of securities transactions between participants using electronic book-entry changes in accounts of its participants, thereby eliminating the need for physical transfer and delivery of certificates.
- Participants include securities brokers and dealers, banks, trust companies and clearing corporations and may include certain other organizations.
- Certain participants, or their representatives, together with other entities, own DTC.
- Indirect access to the DTC system is available to other entities such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a participant, either directly or indirectly.

DTC has advised us that its current practice, upon the issuance of a global note, is to credit the respective principal amount of the individual beneficial interests represented by a global note to the accounts with DTC of the participants through which interests are to be held. Ownership of beneficial interests in the global note will be shown on, and the transfer of that ownership will be effected only through records maintained by DTC or its nominees, with respect to interests of participants. With respect to the interests of persons other than participants, ownership and transfers of ownership interests will be shown on and effected through the records of participants and indirect participants.

As long as DTC, or its nominee, is the registered holder of a global note, DTC or such nominee, will be considered the sole owner and holder of the convertible notes represented by such global note for all purposes under the indenture and the convertible notes. Except in the limited circumstances described above under "--Exchanges of Book-Entry Notes for Certificated Notes", owners of beneficial interests in a global note:

- will not be entitled to have any portion of that global note registered in their names,
- will not receive or be entitled to receive physical delivery of notes in definitive form, and
- will not be considered the owners or holders of the global note, or any convertible notes represented by the global note, under the indenture or the convertible notes.

Accordingly, each person owning a beneficial interest in the global note must rely on the procedures of DTC and, if such person is not a participant, those of the participant through which that person owns its interest, in order to exercise any rights of a holder under the indenture or the convertible note.

Investors may hold their interests in the global note directly through DTC if they are participants in such system, or indirectly through organizations that are participants in such system. All interests in a global note will be subject to the procedures and requirements of DTC.

The laws of some states require that certain persons take physical delivery of securities that they own in definitive form. The ability to transfer beneficial interests in a global note to those persons may be limited because global notes are not represented by physical certificates. Since DTC can act only on behalf of its participants, which in turn act on behalf of indirect participants and certain banks, the lack of a physical certificate may also adversely affect the ability of a person owning a beneficial interest in a global note to pledge their interest to persons or entities that do not participate in the DTC system, or otherwise take actions in respect of those interests.

Cash payment of the principal of, premium on, interest on, or the redemption or repurchase of the global note will be made to DTC or its nominee, as the case may be, as the registered owner of the global note by wire transfer of immediately available funds on each relevant payment date. Neither we, the trustee nor any of our or their respective agents will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests in a global note including any delay by DTC or any participant or indirect participant in identifying the beneficial ownership interests. We and the trustee may conclusively rely on, and shall be protected in relying on, instructions from DTC for all purposes.

We expect that DTC or its nominee will immediately credit participants' accounts upon receipt of any cash payment of principal, premium, interest or the redemption or repurchase price in respect of a global note representing any convertible notes, in amounts proportionate to their respective beneficial interests in the principal amount of the global note as shown on the records of DTC or its nominee. We expect that adjustments will be made as necessary so that such payments are made with respect of whole notes only, unless DTC has reason to believe that it will not receive payment on the payment date. We also expect that payments by participants to the owners of

beneficial interests in the global note held through the participants will be governed by standing instructions and customary practices, as is now the case with securities held for the accounts of customers registered in "street name". These payments will be the responsibility of those participants.

Redemption notices will be sent to DTC or its nominee. If less than all the convertible notes are being redeemed, DTC's practice is to determine by lot the amount of the holdings of each participant in the issue to be redeemed.

Neither DTC nor its nominee will consent or vote with respect to the convertible notes. Under its usual procedures, DTC mails an omnibus proxy to the issuer as soon as possible after the record date. The omnibus proxy assigns DTC's, or its nominee's, consenting or voting rights to those participants to whose accounts the convertible notes are credited on the record date. Those participants are identified in a listing attached to the omnibus proxy.

Interests in the global notes will trade in DTC's Same-Day Funds Settlement System, and secondary market trading activity in those interests will therefore settle in immediately available funds, subject in all cases to the rules and procedures of DTC and its participants. Transfers between participants in DTC will be effected in accordance with DTC's procedures, and will be settled in same-day funds.

DTC has advised us that it will take any action permitted to be taken by a holder of convertible notes, including the presentation of convertible notes for exchange as described below and the conversion of convertible notes:

- only at the direction of one or more participants to whose account with DTC interests in the global notes are credited, and
- only in respect of the portion of the aggregate principal amount of the convertible notes as to which the participant or participants has or have given that direction.

However, if there is an event of default under the convertible notes, DTC reserves the right to exchange the global notes for convertible notes in certificated form, and to distribute the convertible notes to its participants.

Although DTC has agreed to the foregoing procedures in order to facilitate transfers of beneficial ownership interests in the global note among participants, it is under no obligation to perform or continue to perform those procedures, and those procedures may be discontinued at any time.

None of us, the trustee nor any of our or their respective agents will have any responsibility for the performance by DTC, its participants or indirect participants of their respective obligations under the rules and procedures governing its operations, including maintaining, supervising or reviewing the records relating to, or payments made on account of, beneficial ownership interests in global notes.

## **PAYMENT AND CONVERSION**

The principal of the convertible notes will be payable in U.S. dollars, against surrender of the convertible notes at the office or agency of the trustee in Manhattan, New York, by dollar check or by transfer to a dollar account maintained by the holder with a bank in New York City. Payment of interest on a convertible note may be made by dollar check mailed to the person entitled to the interest at their address as it appears in our security register, or, upon written application by the holder to the security registrar not later than the relevant record date, by transfer to a dollar account maintained by the holder with a bank in the United States. Transfers to dollar accounts will be

made only to holders of an aggregate principal amount of convertible notes in excess of \$2,000,000.

Payments in respect of the principal of, and premium, if any, and interest on any global note registered in the name of DTC or its nominee will be payable by the trustee to DTC or its nominee in its capacity as the registered holder under the indenture. Under the terms of the indenture, we and the trustee will treat the persons in whose names the convertible notes, including the global notes, are registered as the owners of those notes for the purpose of receiving payments and for any and all other purposes. Consequently, neither we, the trustee nor any agent of ours or the trustee's has or will have any responsibility or liability for:

- any aspect of DTC's records or any participant's or indirect participant's records relating to, or payments made on account of, beneficial ownership interests in the global notes,
- maintaining, supervising or reviewing any of DTC's records or any participant's or indirect participant's records relating to the beneficial ownership interests in the global notes, or
- any other matter relating to the actions and practices of DTC or any of its participants or indirect participants.

Any payment on a convertible note due on any day that is not a business day may be made on the next succeeding business day with the same force and effect as if made on the due date, and no interest will accrue on the payment for the period from and after that date.

Convertible notes may be surrendered for conversion at the office or agency of the trustee in Manhattan, New York. In the case of global notes, conversion will be effected by DTC upon notice from the holder of a beneficial interest in a global note in accordance with its rules and procedures. Convertible notes surrendered for conversion must be accompanied by a conversion notice and any payments in respect of interest, as applicable, as described below under "--Conversion Rights".

All money for the payment of principal of, and premium, if any, or interest on any convertible note that is deposited with the trustee or any paying agent or then held by us in trust which remains unclaimed at the end of two years after the payment has become due and payable may be repaid to us. Thereafter, the holder of such convertible note will look only to us for payment and no interest will accrue on the amount that we hold.

## **CONVERSION RIGHTS**

The holder of any outstanding convertible note will have the option to convert all or any portion of the principal amount of a convertible note that is an integral multiple of \$1,000 into shares of our common stock at any time following the original issue date of the convertible notes and prior to the close of business on the business day immediately preceding the maturity date. The conversion rate will be equal to the number of shares per \$1,000 principal amount of convertible notes shown on the front cover of this prospectus. The conversion rate is subject to adjustment in certain events as described below. The right to convert a convertible note called for redemption or delivered for repurchase will terminate at the close of business on the business day immediately preceding the redemption date or repurchase date for such note, unless we default in making the payment due upon redemption or repurchase.

The right of conversion attaching to any convertible note may be exercised by the holder by delivering the convertible note at the office or agency of the trustee in Manhattan, New York, accompanied by a duly signed and completed notice of conversion, a copy of which may be obtained from the trustee. A holder of a convertible note will cease to have any further rights as a holder of a convertible note at the time of conversion. The conversion date will be the date on

which the convertible note and the duly signed and completed notice of conversion are so delivered. As promptly as practicable on or after the conversion date, we will issue and deliver to the trustee a certificate or certificates for the number of full shares of our common stock issuable upon conversion, together with payment in lieu of any fraction of a share. This certificate will be sent by the trustee to the conversion agent for delivery to the holder. Shares of our common stock issuable upon conversion of the convertible notes, in accordance with the provisions of the indenture, will be fully paid and nonassessable and will also rank equally with the other shares of our common stock outstanding from time to time.

Holders that surrender convertible notes for conversion on a date that is not an interest payment date under the indenture are not entitled to receive any interest for the period from the next preceding interest payment date to the date of conversion, except as described below. However, holders of convertible notes on a regular record date, including convertible notes surrendered for conversion after the regular record date, will receive the interest payable on the convertible notes on the next succeeding interest payment date. Accordingly, any convertible note surrendered for conversion during the period from the close of business on a regular record date to the opening of business on the next succeeding interest payment date must be accompanied by payment of an amount equal to the interest payable on that interest payment date on the principal amount of convertible notes being surrendered for conversion. However, no payment will be required upon the conversion of any convertible note, or portion thereof, that has been called for redemption or that is eligible to be delivered for repurchase if, as a result, the right to convert such convertible note would terminate during the period between the regular record date and the close of business on the next succeeding interest payment date.

No other payment or adjustment for interest will be made upon conversion. Holders of our common stock issued upon conversion will not be entitled to receive any dividends payable to holders of our common stock as of any record date before the close of business on the conversion date. No fractional shares will be issued upon conversion but, instead, we will pay an appropriate amount in cash based on the market price of our common stock at the close of business on the date of conversion.

A holder delivering a convertible note for conversion will not be required to pay any taxes or duties in respect of the issue or delivery of our common stock on conversion. However, we will not be required to pay any tax or duty that may be payable in respect of any transfer involved in the issue or delivery of our common stock in a name other than that of the holder of the convertible note. Certificates representing shares of our common stock will not be issued or delivered unless the person requesting such issue has paid to us the amount of any tax or duty or has established to our satisfaction that any tax or duty has been paid.

The conversion rate may be adjusted in certain events, including:

- dividends, and other distributions payable in common stock on shares of our capital stock,
- the issuance of rights, options or warrants to all holders of our common stock entitling them to subscribe for or purchase shares of our common stock at less than the then current market price of our common stock. However if those rights, options or warrants are only exercisable upon the occurrence of certain triggering events, then the conversion rate will not be adjusted until those triggering events occur,
- subdivisions, combinations and reclassifications of our common stock,

- distributions to all holders of our common stock of evidences of our debt, shares of our capital stock, cash or other assets, including securities, but excluding:

-- those dividends, rights, options, warrants and distributions referred to in the first two bullet points above,

-- dividends and distributions paid exclusively in cash, and

-- distributions upon mergers or consolidations to which the next bullet point applies,

- distributions consisting exclusively of cash, excluding any cash portion of distributions referred to in the bullet point immediately above or cash distributed upon a merger or consolidation to which the next bullet point applies, to all holders of our common stock in an aggregate amount that, combined together with

-- other all-cash distributions made within the preceding 12 months from the date of the payment in respect of which no adjustment has been made, and

-- any cash and the fair market value of other consideration payable in respect of any tender offer by us or any of our subsidiaries for common stock concluded within the preceding 12 months in respect of which no adjustment has been made,

exceeds 10% of our market capitalization, being the product of the current market price per share of our common stock on the record date for that distribution and the number of shares of our common stock then outstanding,

- the successful completion of a tender offer made by us or any of our subsidiaries for our common stock which involves an aggregate consideration that, together with

-- any cash and other consideration payable in a tender offer by us or any of our subsidiaries for common stock expiring within the 12 months preceding the expiration of that tender offer in respect of which no adjustment has been made, and

-- the aggregate amount of any all-cash distributions referred to in the immediately preceding bullet point to all holders of our common stock within the 12 months preceding the expiration of that tender offer in respect of which no adjustments have been made,

exceeds 10% of our market capitalization on the expiration of such tender offer, and

- payment in respect of a tender offer or exchange offer by a person other than us or any of our subsidiaries in which, as the closing of the offer, our board of directors is not recommending rejection of the offer.

The adjustment referred to in the immediately preceding bullet point will only be made if:

- the tender offer or exchange offer is for an amount which increases that person's ownership of our common stock to more than 25% of the total shares of our common stock outstanding, and

- the cash and value of any other consideration included in that payment per share of our common stock exceeds the then current market price per share of our common stock on the business day next succeeding the last date on which tenders or exchanges may be made under such tender or exchange.

The adjustment referred to in the immediately preceding bullet point will not be made, however, if, as of the closing of the offer, the related offering documents disclose a plan or an intention to cause us to engage in any transaction described below in "--Mergers and Sales of Assets by Advanced Energy". We reserve the right to increase the conversion rate as we consider to be advisable in order that any event treated for United States federal income tax purposes as a



dividend of stock or stock rights will not be taxable to the recipients. No adjustment of the conversion rate will be required until the cumulative adjustments amount to 1.0% or more of the conversion rate. We will compute any adjustments to the conversion rate under the indenture and will give notice to the holders of any adjustments.

In the case of any consolidation or merger of Advanced Energy with or into another person or any merger of another person into Advanced Energy or upon the sale or other transfer of all or substantially all of our assets, each convertible note then outstanding will become convertible only into the kind and amount of securities, cash and other property receivable upon such consolidation, merger, sale or transfer by a holder of the number of shares of common stock into which the convertible note was convertible immediately prior thereto, assuming such holder of common stock failed to exercise any rights of election and that such convertible note was then convertible. The preceding sentence will not apply to a merger which does not result in any reclassification, conversion, exchange or cancellation of the common stock.

We may from time to time increase the conversion rate for any period of at least 20 days if our board of directors determines that an increase would be in our best interests, which determination will be conclusive. We will give at least 15 days' prior notice of the increase to the holders of the convertible notes. No increase shall be taken into account for purposes of determining whether the closing price of the common stock exceeds the conversion price by 105% in connection with an event which otherwise would be a change in control.

If we make a distribution of property to our stockholders that would be taxable to them as a dividend for United States federal income tax purposes, and, under the anti-dilution provisions of the indenture, the number of shares into which convertible notes are convertible is increased, that increase will be deemed for United States federal income tax purposes to be the payment of a taxable dividend to holders of convertible notes. This might occur with distributions of our evidences of indebtedness or assets, but generally would not occur with stock dividends on common stock or rights to subscribe for common stock. See "Material United States Federal Income Tax Consequences--United States Holders".

## **SUBORDINATION**

The payment of the principal of, premium, if any, and interest on the convertible notes, including amounts payable on any redemption or repurchase, will be subordinated in right of payment to the extent set forth in the indenture to the prior full and final cash payment of all of our "senior debt". Our "senior debt" includes the principal of, and premium, if any, and interest, including all interest accruing subsequent to the commencement of any bankruptcy or similar proceeding, whether or not a claim for post-petition interest is allowable in any such proceeding, on, and all fees and other amounts payable in connection with, the following, whether absolute or contingent, secured or unsecured, due or to become due, outstanding on the date of the indenture or thereafter created, incurred or assumed:

- our indebtedness evidenced by a credit or loan agreement, note, bond, debenture or other written obligation,
- all of our obligations for money borrowed,
- all of our obligations evidenced by a note or similar instrument given in connection with the acquisition of any businesses, properties or assets of any kind,
- our obligations
- as lessee under leases required to be capitalized on our balance sheet under generally accepted accounting principles and

- as lessee under other leases for facilities, capital equipment or related assets, whether or not capitalized, entered into or leased for financing purposes,
- all of our obligations under interest rate and currency swaps, caps, floors, collars, hedge agreements, forward contracts or similar agreements or arrangements,
- all of our obligations with respect to letters of credit, bankers' acceptances and similar facilities, including reimbursement obligations with respect to the foregoing,
- all of our obligations issued or assumed as the deferred purchase price of property or services, but excluding trade accounts payable and accrued liabilities,
- all obligations referred to in the bullet points above of another person or entity, the payment of which we have assumed or guaranteed, or for which we are responsible or liable, directly or indirectly, jointly or severally, as obligor, guarantor or otherwise, or which is secured by a lien on our property, and
- renewals, extensions, modifications, replacements, restatements and refundings of, or any indebtedness or obligation issued in exchange for, any indebtedness or obligation described in the bullet points above.

However, "senior debt" does not include

- the convertible notes or any indebtedness or obligation if the terms of that indebtedness or obligation, or the terms of the instrument under which it is issued expressly provide that it is not superior in right of payment to the convertible notes or
- any particular indebtedness or obligation that we owe to any of our direct or indirect subsidiaries.

We may not make any payment on account of principal of or premium, if any, or interest on, or redemption or repurchase of, the convertible notes if:

- we default in the payment of principal, premium, if any, or interest, including a default under any repurchase or redemption obligation, or other amounts with respect to senior debt, and that default continues beyond the applicable grace period or
- we default and that default continues with respect to "designated senior debt" that permits the holders of designated senior debt to accelerate its maturity. Designated senior debt includes our obligations under
- our credit facility, as it may be amended, modified or supplemented, including all extensions, replacements, refinancings and substitutions, and
- any particular senior debt that is specifically designated as "designated senior debt" under the indenture, although limitations and conditions may be placed on that senior debt to exercise the rights of "designated senior debt".

and, in either case, the trustee receives a notice of our default from a holder of designated senior debt or other person entitled to give notice of our default under the indenture.

We may resume payments on the convertible notes:

- in the case of a payment default, upon the date the default is cured, waived or ceases to exist, and
- in the case of a nonpayment default, the earlier of the date the nonpayment default is cured or waived or 179 days after the date on which the trustee receives the notice of default, if the maturity of the designated senior debt has not been accelerated.

No new payment blockage period may be commenced unless and until:

- 365 days have elapsed since the effectiveness of the immediately prior notice received by the trustee, and
- all scheduled payments of principal, premium, if any, and interest on the convertible notes that have come due have been paid in full in cash.

No nonpayment default that existed or was continuing on the date of delivery of any notice to the trustee may be the basis for any subsequent notice of default to be delivered to the trustee.

In addition, all principal, premium, if any, interest and other amounts due on all senior debt must be paid in full in cash before the holders of the convertible notes are entitled to receive any payment otherwise due upon any acceleration of the principal on the convertible notes as a result of:

- an event of default of the convertible notes, or
- payment or distribution of our assets to creditors upon any dissolution, winding up, liquidation or reorganization, whether voluntary or involuntary, marshaling of assets, assignment for the benefit of creditors, or in bankruptcy, insolvency, receivership or other similar proceedings.

In the event of insolvency, creditors who are holders of senior debt may recover more, ratably, than the holders of the convertible notes because of this subordination. The subordination may result in a reduction or elimination of payments to the holders of the notes. In addition, the convertible notes will be structurally subordinated to all of our subsidiaries' indebtedness and other liabilities, including trade payables and lease obligations. Any of our rights to receive any assets of our subsidiaries upon their liquidation or reorganization, and the resulting right of the holders of the convertible notes to participate in those assets, will be effectively subordinated to the claims of that subsidiary's creditors, including trade creditors, except to the extent that we are recognized as a creditor of that subsidiary. If we are recognized as a creditor of that subsidiary, our claims would still be subordinate to any security interest in the assets of that subsidiary and any senior debt of that subsidiary. As of August 31, 1999, our senior debt and indebtedness of our subsidiaries totalled \$1.4 million.

The indenture does not limit our ability or the ability of any of our subsidiaries to incur indebtedness, including senior debt.

**OPTIONAL REDEMPTION BY ADVANCED ENERGY**

On and after , 2002, the convertible notes may be redeemed, in whole or in part, at our option, at the redemption prices specified below, upon not less than 30 nor more than 60 days' prior notice. The redemption price, expressed as a percentage of principal amount, is as follows for the 12-month periods beginning on of the following years:

| YEAR      | REDEMPTION<br>PRICE |
|-----------|---------------------|
| 2002..... | -----               |
| 2003..... |                     |
| 2004..... |                     |
| 2005..... |                     |

and 100% of the principal amount beginning on , 2006, in each case together with accrued and unpaid interest to the redemption date.

No sinking fund is provided for the convertible notes.

## REPURCHASE AT OPTION OF HOLDERS UPON A CHANGE IN CONTROL

If a change in control occurs, each holder of convertible notes will have the option to require us to repurchase all of its convertible notes not previously called for redemption, or any portion of the principal amount of the convertible notes that is equal to \$1,000 or an integral multiple of \$1,000. This option may be exercised 45 days after the date on which we notify the holders of any change in control. The repurchase price would be equal to 100% of the principal amount of the notes to be repurchased, together with interest accrued to that date.

A change in control will be deemed to have occurred if at any time after the original issuance of the convertible notes any of the following occurs:

- the acquisition by any person of beneficial ownership of shares of our capital stock entitling that person to exercise 50% or more of the total voting power of all shares of our capital stock entitled to vote generally in elections of directors. Beneficial ownership may be acquired directly or indirectly, through a purchase, merger or other acquisition transaction or series of transactions, other than any acquisition by us, any of our subsidiaries or any of our employee benefit plans; or
- our consolidation or merger with or into any other entity, any merger of another entity into us, or any conveyance, transfer, sale, lease or other disposition of all or substantially all of our properties and assets to another person or entity, other than:
  - any transaction (x) that does not result in any reclassification, conversion, exchange or cancellation of our outstanding shares of capital stock and (y) pursuant to which holders of our common stock immediately prior to such transaction are entitled to exercise, directly or indirectly, 50% or more of the total voting power of all shares of our capital stock entitled to vote generally in the election of directors of the continuing or surviving entity immediately after such transaction, and
  - any merger which is effected solely to change our jurisdiction of incorporation and results in a reclassification, conversion or exchange of outstanding shares of common stock solely into shares of common stock of the surviving entity.

"Beneficial owner" will be determined in accordance with Rule 13d-3 promulgated by the SEC under the Securities Exchange Act. "Person" includes any syndicate or group which would be deemed to be a "person" under Section 13(d)(3) of the Securities Exchange Act.

However, a change in control will not be deemed to have occurred if the closing sales price per share of our common stock for any five trading days within the period of 10 consecutive trading days ending immediately after the later of the change in control or the public announcement of the change in control, in a change of control under the first bullet point above, or the period of 10 consecutive trading days ending immediately before the change in control, in a change in control under the second bullet point above, equals or exceeds 105% of the conversion price in effect on each such trading day. The conversion price is equal to \$1,000 divided by the conversion rate.

We may, at our option, in lieu of paying that amount in cash, pay it in common stock valued at 95% of the average of the closing sales prices of the common stock for the five trading days immediately preceding and including the third trading day prior to the date of repurchase. However, payment may not be made in common stock unless we satisfy certain conditions prior to the repurchase date as provided in the indenture.

Within 30 days after the occurrence of a change in control, we are obligated to give to all holders of the convertible notes notice of the change in control and of the resulting repurchase right. We must also deliver a copy of this notice to the trustee. To exercise the repurchase right, a holder of convertible notes must deliver irrevocable written notice to the trustee of the holder's

exercise of this right, together with the respective convertible notes, on or before the 30th day after the date of this notice.

Rule 13e-4 under the Securities Exchange Act requires that we disseminate certain information to security holders in the event of an issuer tender offer and this requirement may apply in the event that the repurchase option becomes available to holders of the convertible notes. We will comply with this rule to the extent applicable at that time.

We may purchase convertible notes at any time in the open market or by tender at any price or by private agreement, to the extent permitted by applicable law. Any note so purchased by us may, to the extent permitted by applicable law, be reissued or resold or may, at our option, be surrendered to the trustee for cancellation. Any convertible notes surrendered may not be reissued or resold and will be canceled promptly.

The foregoing provisions would not necessarily protect holders of the convertible notes in the event of highly leveraged or other transactions that may adversely affect holders.

Our ability to repurchase convertible notes on a change in control is limited. A change in control could cause an event of default under, or be prohibited or limited by, senior debt that we acquire in the future. As a result, any repurchase of the convertible notes would, absent a waiver, be prohibited under the subordination provisions of the indenture until the senior debt is paid in full. Further, we cannot guarantee that we would be able to pay the repurchase price for all the convertible notes that might be delivered by holders of convertible notes seeking to exercise the repurchase right. Our ability to repurchase notes with cash may also be limited by our subsidiaries' future borrowing arrangements due to dividend restrictions. Our failure to repurchase the convertible notes when required following a change in control would result in an event of default under the indenture whether or not such repurchase is permitted by the subordination provisions of the indenture. Any such default may, in turn, cause a default under our senior debt. See "-- Subordination".

## **MERGERS AND SALES OF ASSETS BY ADVANCED ENERGY**

We may not consolidate with or merge into any other entity or transfer or sell substantially all our properties and assets to any person or entity, and we may not permit any entity to consolidate with or merge into us or transfer or sell all or substantially all their properties and assets to us, unless:

- the entity formed by such consolidation or merger or the person or entity to which our properties and assets are transferred or sold, is a corporation, limited liability company, partnership or trust organized and existing under the laws of the United States, any State thereof or the District of Columbia and, if other than us, shall expressly assume the due and punctual payment of the principal of and, premium, if any, and interest on the convertible notes and the performance of our other covenants under the indenture;
- immediately after such transaction, no event of default, and no event which, after notice or lapse of time or both, would become an event of default, shall have occurred and be continuing; and
- an officer's certificate and legal opinion relating to the conditions described in the previous two bullet points above is delivered to the trustee.

## EVENTS OF DEFAULT

The following will be events of default under the indenture:

- failure to pay principal of or premium, if any, on any convertible note when due, whether or not payment is prohibited by the subordination provisions of the indenture;
- failure to pay any interest on any convertible note when due, continuing for 30 days, whether or not payment is prohibited by the subordination provisions of the indenture;
- failure to perform any other of our covenants in the indenture, continuing for 60 days after written notice to us by the trustee or the holders of at least 25% in aggregate principal amount of outstanding convertible notes;
- failure to pay when due the principal of, or acceleration of, any debt for money borrowed by us or any subsidiary in excess of \$10 million if such debt is not discharged, or such acceleration is not annulled, within 30 days after written notice to us by the trustee or the holders of at least 25% in aggregate principal amount of outstanding convertible notes;
- certain events of bankruptcy, insolvency or reorganization; and
- failure to provide a notice to note holders in the event of a change in control, whether or not notice is prohibited by the subordination provisions of the indenture.

The trustee is not required to exercise any of its rights or powers at the request or direction of any of the holders, unless those holders have offered to the trustee reasonable indemnity, except when an event of default occurs and continues. If the trustee is adequately indemnified, the holders of a majority in aggregate principal amount of the outstanding convertible notes will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee.

If an event of default, other than an event of default specified in the second to the last bullet point above, occurs and is continuing, either the trustee or the holders of at least 25% in principal amount of the outstanding convertible notes may accelerate the maturity of all notes. However, after such acceleration, but before a judgment or decree based on acceleration, the holders of a majority of the outstanding convertible notes may, under certain circumstances, rescind and annul the acceleration if all events of default, other than the nonpayment of principal of the convertible notes which have become due solely by such declaration of acceleration, have been cured or waived as provided in the indenture. If an event of default specified in the last bullet point above occurs and is continuing, then the principal of, and accrued interest on, all of the convertible notes will automatically become immediately due and payable. For information on waivers of defaults, see "-- Modification, Waiver and Meetings" below.

No holder of any convertible note may institute any proceeding with respect to the indenture or for any remedy thereunder, unless:

- that holder has previously given to the trustee written notice of a continuing event of default;
- the holders of at least 25% of the outstanding notes have made written request, and offered reasonable indemnity, to the trustee to institute that proceeding as trustee;
- the trustee shall not have received from the holders of a majority of the outstanding notes a direction inconsistent with such request; and
- and the trustee shall have failed to institute such proceeding within 60 days of the written request.

However, these limitations do not apply to a suit for the enforcement of payment of the principal of or premium, if any, or interest on a convertible note on or after the respective due dates or of the right to convert that convertible note.

We must furnish to the trustee an annual statement concerning performance (or default of performance) of certain of our obligations under the indenture.

## **MODIFICATION, WAIVER AND MEETINGS**

Certain limited modifications of the indenture may be made without the consent of the holders of the convertible notes. Other modifications and amendments of the indenture may be made, and certain past defaults by us may be waived, either

- with the written consent of the holders of not less than a majority in aggregate principal amount of the convertible notes at the time outstanding or
- by a resolution adopted at a meeting of holders of the convertible notes at which a quorum is present, by the holders of at least 66 2/3% in aggregate principal amount of the convertible notes represented at such meeting.

However, no modification or amendment may be made without the consent of every holder of outstanding notes affected that would:

- change the stated maturity of the principal of, premium, if any, on, or any installment of interest on, any convertible note,
- reduce the principal amount of, or the premium, if any, or interest on, any convertible note,
- reduce the amount payable on a redemption or mandatory repurchase,
- modify the provisions with respect to the repurchase right of the holders in a manner adverse to the holders,
- change the city of any place of payment or the currency of payment of principal of, premium, if any, or interest on, any convertible note, including any payment of the repurchase price in respect of that convertible note,
- impair the right to institute suit for the enforcement of any payment on or with respect to any convertible note,
- modify our obligation to maintain an office or agency in New York City,
- adversely affect the right of holders to convert or to require us to repurchase any convertible note other than as provided in the indenture, except as otherwise allowed or contemplated by provisions concerning consolidation, merger, conveyance, transfer, sale or lease of all or substantially all of our property and assets,
- modify the subordination provisions in a manner adverse to the holders of the convertible notes,
- reduce the percentage of outstanding convertible notes necessary to modify or amend the indenture,
- reduce the percentage of outstanding convertible notes necessary to waive compliance with certain provisions of the indenture or to waive certain defaults, or
- reduce the percentage of outstanding convertible notes required for the adoption of a resolution or the quorum required at any meeting of holders of convertible notes at which a resolution is adopted.

The quorum at any meeting called to adopt a resolution will be persons holding or representing a majority in aggregate principal amount of the convertible notes at the time outstanding and, at any reconvened meeting adjourned for lack of a quorum, 25% of such aggregate principal amount. In certain circumstances, therefore, we can make certain changes with the consent of holders of approximately 17% of the aggregate principal amount of convertible notes.

The holders of a majority in aggregate principal amount of the outstanding convertible notes may waive our compliance with certain restrictive provisions of the indenture by written consent or by the adoption of a resolution at a meeting. The holders of a majority in aggregate principal amount of the outstanding convertible notes also may waive any past default under the indenture, except a default in the payment of principal, premium, if any, or interest, by written consent.

The indenture contains provisions for convening meetings of holders of convertible notes.

## **NOTICES**

Notice to holders of the convertible notes will be given by mail to their addresses as they appear in the security register. These notices will be deemed to have been given on the date they are mailed.

Notice of a redemption of convertible notes will be given at least once not less than 30 nor more than 60 days prior to the redemption date. A redemption notice will be irrevocable and will specify the redemption date.

## **REPLACEMENT OF CONVERTIBLE NOTES**

We will replace convertible notes that become mutilated, destroyed, stolen or lost at the expense of the holder upon delivery to the trustee of the mutilated convertible notes or evidence of the loss, theft or destruction of the convertible notes satisfactory to us and the trustee. In the case of a lost, stolen or destroyed convertible note, indemnity satisfactory to the trustee and us may be required at the expense of the holder of such convertible note before a replacement convertible note will be issued.

## **PAYMENT OF STAMP AND OTHER TAXES**

We will pay all stamp and similar duties, if any, imposed by the United States or any of its political subdivisions or taxing authorities with respect to the issuance of the convertible notes. We will not be required to pay any other tax, assessment or governmental charge imposed by any government or any political subdivision or taxing authority.

## **GOVERNING LAW**

The indenture and the convertible notes will be governed by and construed in accordance with the laws of the State of New York.

## **THE TRUSTEE**

The trustee for the holders of the convertible notes issued under the indenture will be State Street Bank and Trust Company of California, N.A. If an event of default occurs and is not cured, the trustee will be required to use the degree of care of a prudent person in the conduct of its own affairs in the exercise of its powers. Subject to such provisions, the trustee will be under no obligation to exercise any of its rights or powers under the indenture at the request of any of the holders of convertible notes, unless they shall have offered to the trustee reasonable security or indemnity.



Except with respect to a trustee appointed by the owners of the convertible notes, the trustee will be deemed to have resigned and its successor will be deemed to have been appointed as trustee in accordance with the indenture if:

- no event of default under the indenture or event that, after notice or lapse of time, or both, would become an event of default under the indenture exists, and
- we delivered to the trustee a resolution of our board appointing a successor trustee and that successor trustee has accepted that appointment in accordance with the terms of the indenture.

If the trustee becomes our creditor, the indenture and the Trust Indenture Act limit the rights of the trustee to obtain payments of claims in certain cases or to realize on certain property received in respect of any such claim as security or otherwise. Subject to the Trust Indenture Act, the trustee may engage in other transactions with us or any of our affiliates or any affiliate of Advanced Energy. However, if the trustee acquires any conflicting interest as described in the Trust Indenture Act, it must eliminate that conflict or resign.

## **MATERIAL UNITED STATES FEDERAL INCOME TAX CONSEQUENCES**

The following is a summary of material United States federal income tax consequences relating to the purchase, ownership and disposition of the convertible notes and of the common stock issuable on conversion of the convertible notes. For purposes of this summary (1) the Internal Revenue Code of 1986, as amended, is referred to as "the Code" and (2) the Internal Revenue Service is referred to as "the IRS". The following is not a complete discussion of all of the possible tax consequences of the occurrence of the contingent events described below. You should contact your own tax advisor with respect to the application of the United States federal income and estate tax laws to your particular situation as well as any tax consequences arising under the laws of any state, local or foreign taxing jurisdiction or under any applicable tax treaty.

This summary:

- does not purport to be a complete analysis of all the potential tax considerations that may be relevant to holders in light of their particular circumstances;
- is based on laws, rulings and decisions now in effect, all of which are subject to change, possibly on a retroactive basis;
- deals only with holders that will hold convertible notes and common stock as "capital assets" within the meaning of Section 1221 of the Code;
- does not address tax considerations applicable to investors that may be subject to special tax rules, such as banks (other than as set forth below), tax-exempt organizations, insurance companies, dealers in securities or currencies, or persons that will hold convertible notes as a position in a hedging transaction, "straddle", or "conversion transaction" for tax purposes, or persons deemed to sell convertible notes or common stock under the constructive sale provisions of the Code; and
- discusses only the tax considerations applicable to the initial purchasers of the convertible notes who purchase the convertible notes at their "issue price" as defined in Section 1273 of the Code and does not discuss the tax considerations applicable to subsequent purchasers of the convertible notes.

Advanced Energy has not sought any ruling from the IRS with respect to the statements made and the conclusions reached in the following summary, and we cannot assure you that the IRS will agree with the statements and conclusions expressed in this summary. In addition, the IRS is not precluded from successfully adopting a contrary position. This summary does not consider the effect of any applicable foreign, state, local, or other tax laws.

**INVESTORS CONSIDERING THE PURCHASE OF CONVERTIBLE NOTES SHOULD CONSULT THEIR OWN TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE UNITED STATES FEDERAL INCOME AND ESTATE TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER THE LAWS OF ANY STATE, LOCAL OR FOREIGN TAXING JURISDICTION OR UNDER ANY APPLICABLE TAX TREATY.**

As used herein, the term "United States Holder" means a beneficial owner of a convertible note or common stock that is, for United States federal income tax purposes,

- a citizen or resident, as defined in Section 7701 (b) of the Code, of the United States;
- a corporation, partnership or other entity created or organized under the laws of the United States or political subdivision thereof;
- an estate the income of which is subject to federal income taxation regardless of its source; or

- in general, a trust subject to the primary supervision of a United States court and the control of one or more United States persons, or a trust in existence on August 20, 1996, which has made an election to continue to be taxed as a United States person.

A "Foreign Holder" is a beneficial owner of convertible notes or common stock that is not a United States Holder.

## **UNITED STATES HOLDERS**

### **PAYMENT OF INTEREST**

Interest on a convertible note generally will be includable in the income of a United States Holder as ordinary income at the time such interest is received or accrued, in accordance with such United States Holder's regular method of accounting for United States federal income tax purposes.

### **SALE, EXCHANGE OR REDEMPTION OF A CONVERTIBLE NOTE**

Upon the sale, exchange or redemption of a convertible note, a United States Holder generally will recognize capital gain or loss equal to the difference between (1) the amount of cash proceeds and the fair market value of any property received on the sale, exchange or redemption, except to the extent such amount is attributable to accrued interest not previously included in income, which is taxable as ordinary income, and (2) such United States Holder's adjusted tax basis in the convertible note. A United States Holder's adjusted tax basis in a convertible note generally will equal the cost of the convertible note to such United States Holder, less any principal payments received by such United States Holder.

For certain non-corporate taxpayers, including individuals, the rate of taxation of capital gains will depend upon:

- (1) the taxpayer's holding period in the capital asset, with preferential rates available for capital assets held for more than 12 months, and
- (2) the taxpayer's marginal tax rate for ordinary income.

The deductibility of capital losses is subject to limitations.

United States Holders are urged to consult their own tax advisors with respect to the rate of taxation of capital gains and the ability to deduct capital losses.

### **CONVERSION OF THE CONVERTIBLE NOTES**

A United States Holder generally will not recognize any income, gain or loss upon conversion of a convertible note into common stock except to the extent the common stock is considered attributable to accrued interest not previously included in income, which is taxable as ordinary income, or with respect to cash received in lieu of a fractional share of common stock. A United States Holder's tax basis in the common stock received on conversion of a convertible note will be the same as such United States Holder's adjusted tax basis in the convertible note at the time of conversion, reduced by any basis allocable to a fractional share interest, and the holding period for the common stock received on conversion will generally include the holding period of the convertible note converted. However, a United States Holder's tax basis in shares of common stock considered attributable to accrued interest as described above generally will equal the amount of such accrued interest included in income, and the holding period for such shares shall begin on the date of conversion.

Cash received in lieu of a fractional share of common stock upon conversion will be treated as a payment in exchange for the fractional share of common stock. Accordingly, the receipt of cash in lieu of a fractional share of common stock generally will result in capital gain or loss, measured by

the difference between the cash received for the fractional share and the United States Holder's adjusted tax basis in the fractional share.

## **DIVIDENDS, ADJUSTMENTS TO CONVERSION RATE**

Any dividends paid on the common stock generally will be includable in the income of a United States Holder as ordinary income to the extent of our current or accumulated earnings and profits. Dividends paid to holders that are United States corporations may qualify for the dividends received deduction. To the extent, if any, that a United States Holder receives distributions on shares of common stock that would otherwise constitute dividends for United States federal income tax purposes but that exceed our current and accumulated earnings and profits, such distributions will be treated first as non-taxable return of capital reducing the holder's basis in the shares of common stock. Any such distributions in excess of the holder's basis in the shares of common stock generally will be treated as capital gain realized on the disposition of common stock.

If at any time

- we distribute cash or property to our stockholders or purchases common stock and such distribution or purchase would be taxable for such stockholders as a dividend for United States federal Income tax purposes--for example, distributions of evidences of our indebtedness or our assets, but generally not stock dividends or rights to subscribe for common stock--and, pursuant to the antidilution provisions of the convertible notes indenture, the conversion rate of the convertible notes is increased; or

- the conversion rate of the convertible notes is increased at our discretion,

the increase in the conversion rate may be deemed to be the payment of a taxable dividend to holders of convertible notes under Section 305 of the Code. Holders of convertible notes could therefore have taxable income as a result of an event pursuant to which they received no cash or property, and such income would increase their tax bases in their convertible notes.

## **SALE OR EXCHANGE OF COMMON STOCK**

Upon the sale or exchange of common stock, a United States Holder generally will recognize capital gain or loss equal to the difference between (1) the amount of cash and the fair market value of any property received upon the sale or exchange and (2) such United States Holder's adjusted tax basis in the common stock.

For certain non-corporate taxpayers (including individuals), the rate of taxation of capital gains will depend upon (1) the taxpayer's holding period in the capital asset (with preferential rates available for capital assets held for more than 12 months) and (2) the taxpayer's marginal tax rate for ordinary income. The deductibility of capital losses is subject to limitations.

## **FOREIGN HOLDERS**

### **STATED INTEREST**

Payments of principal and interest on a convertible note to a Foreign Holder will not be subject to United States federal withholding tax provided that

- the holder does not actually or constructively own 10% or more of the total combined voting power of all classes of our stock entitled to vote;
- the holder is not a controlled foreign corporation that is related to Advanced Energy through stock ownership;

- either (A) the beneficial owner of the convertible note, under penalties of perjury, provides us or our agent with its name and address and certifies that it is not a United States person or (B) a securities clearing organization, bank, or other financial institution that holds customers' securities in the ordinary course of its trade or business (a "financial institution") certifies to us or our agent, under penalties of perjury, that such a statement has been received from the beneficial owner by it or another financial institution and furnishes to us or our agent a copy thereof; and

- the holder is not a bank receiving interest described in Section 881(c)(3)(A) of the Code (i.e., interest on an extension of credit made pursuant to a loan entered into in the ordinary course of its trade or business).

For purposes of this summary, we refer to this exemption from United States federal withholding tax as the "Portfolio Interest Exemption". Under United States Treasury regulations, which generally are effective for payments made after December 31, 2000, subject to certain transition rules, (i) the certification statements of the beneficial owner described above must be provided on a validly executed Form W-8 (or an acceptable variation thereof), and (ii) the certification described in clause (B) of the third bullet point above may also be provided by a qualified intermediary on behalf of one or more beneficial owners or other intermediaries, provided that such intermediary has entered into a withholding agreement with the IRS and certain other conditions are met.

The gross amount of payments to a Foreign Holder of interest that does not qualify for the Portfolio Interest Exemption and that is not effectively connected with a United States trade or business will be subject to United States federal withholding tax at the rate of 30%, unless a United States income tax treaty applies to reduce or eliminate withholding.

A Foreign Holder will generally be subject to tax in the same manner as a United States corporation or resident with respect to payments of interest if such payments are effectively connected with the conduct of trade or business in the United States. Such effectively connected income received by a Foreign Holder which is a corporation may in certain circumstances be subject to an additional "branch profits tax" at a 30% rate or, if applicable, a lower treaty rate.

Foreign Holders should consult their own tax advisors regarding applicable income tax treaties, which may provide different rules.

To claim the benefit of a tax treaty or to claim exemption from withholding because the income is effectively connected with a U.S. trade or business, the Foreign Holder must provide a properly executed Form 1001 or 4224, as applicable, or an acceptable alternative to those forms, prior to the payment of interest. These forms must be periodically updated. United States Treasury regulations, which generally are effective for payments made after December 31, 2000, subject to certain transition rules, require Foreign Holders or, under certain circumstances, a qualified intermediary to file a validly executed withholding certificate on Form W-8 (or an acceptable variation thereof) with the Company's withholding agent to obtain the benefit of an applicable tax treaty providing for a lower rate of withholding tax. Such certificate must contain, among other information, the name and address of the Foreign Holder, and may have to be provided prior to the date on which a current certificate would otherwise have expired.

### **SALE, EXCHANGE OR REDEMPTION OF A CONVERTIBLE NOTE**

A Foreign Holder generally will not be subject to United States federal income tax or withholding tax on gain realized on the sale or exchange of convertible notes unless (1) the holder is an individual who was present in the United States for 183 days or more during the taxable year, such gain is U.S. source and certain other conditions are met, or (2) the gain is effectively connected with the conduct of a trade or business of the holder in the United States and, if a treaty

applies, such gain is attributable to an office or other fixed place of business maintained in the United States by such holder.

In general, no United States federal income tax or withholding tax will be imposed upon the conversion of a convertible note into common stock by a Foreign Holder except (1) to the extent the common stock is considered attributable to accrued interest not previously included in income, which may be taxable under the rules set forth in "Foreign Holders--Stated Interest", (2) with respect to the receipt of cash in lieu of fractional shares by Foreign Holders upon conversion of a convertible note, in each case where either the conditions described in (1) or (2) above, under "Foreign Holders--Sale, Exchange or Redemption of a Convertible Note" is satisfied or (3) if we are deemed to be a United States real property holding corporation as discussed below.

### **SALE OR EXCHANGE OF COMMON STOCK**

A Foreign Holder will generally not be subject to United States federal income tax or withholding tax on the sale or exchange of common stock unless either of the conditions described in (1) or (2) above under "Foreign Holders--Sale, Exchange or Redemption of a Convertible Note" is satisfied or we are or have been deemed to be a United States real property holding corporation for United States federal income tax purposes within the meaning of Section 897 of the Code (a "USRPHC") at any time within the shorter of the five year period preceding such disposition or such Foreign Holder's holding period. We do not believe we are, nor do we believe we have ever been a USRPHC. Further, we do not expect in the foreseeable future to become a USRPHC. If we are, have been or become a USRPHC, so long as the common stock continues to be regularly traded on an established securities market within the meaning of Section 897(c)(3) of the Code, only a Foreign Holder who holds or held, at any time during the shorter of the five-year period preceding the date of disposition or the holder's holding period, more than 5% of the common stock will be subject to U.S. federal income tax on the disposition of the common stock.

### **DIVIDENDS**

Distributions by us with respect to the common stock that are treated as dividends paid or deemed paid, as described above under "United States Holders--Dividends, Adjustments to Conversion Rate", to a Foreign Holder, excluding dividends that are effectively connected with the conduct of a trade or business in the United States by such Holder which are taxable as described below, will be subject to United States federal withholding tax at a 30% rate, or lower rate provided under any applicable income tax treaty. Except to the extent that an applicable tax treaty otherwise provides, a Foreign Holder will be subject to tax in the same manner as a United States Holder on dividends paid or deemed paid that are effectively connected with the conduct of a trade or business in the United States by the Foreign Holder. If such Foreign Holder is a foreign corporation, it may also be subject to a United States "branch profits tax" on such effectively connected income at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. Even though such effectively connected dividends are subject to income tax, and may be subject to the branch profits tax, they will not be subject to U.S. withholding tax if the Foreign Holder delivers IRS Form 4224 (or appropriate successor form) to the payer.

Under current United States Treasury regulations, dividends paid to an address in a foreign country are presumed to be paid to a resident of that country, unless the payer has knowledge to the contrary, for purposes of the withholding discussed above, and under the current interpretation of United States Treasury regulations, for purposes of determining the applicability of a tax treaty rate. However, under United States Treasury regulations which generally are effective for payments made after December 31, 2000, subject to certain transition rules, a Foreign Holder of common stock who wishes to claim the benefit of an applicable treaty rate would be required to satisfy applicable certification requirements.

## **DEATH OF A FOREIGN HOLDER**

A convertible note held by an individual who is not a citizen or resident of the United States at the time of death will not be includable in the decedent's gross estate for United States estate tax purposes, provided that such holder or beneficial owner did not at the time of death actually or constructively own 10% or more of the combined voting power of all classes of our stock entitled to vote, and provided that, at the time of death, payments with respect to the convertible note would not have been effectively connected with the conduct by such Foreign Holder of a trade or business within the United States.

Common stock actually or beneficially held, other than through a foreign corporation, by an individual who is not a citizen or resident of the United States at the time of his or her death, or previously transferred subject to certain retained rights or powers, will be subject to United States federal estate tax unless otherwise provided by an applicable estate tax treaty.

## **INFORMATION REPORTING AND BACKUP WITHHOLDING**

In general, information reporting requirements will apply to payments of principal, premium, if any, and interest on a convertible note, dividends on common stock, and payments of the proceeds of the sale of a convertible note or common stock to certain non-corporate United States Holders, and a 31% backup withholding tax may apply to such payment if the United States Holder (1) fails to furnish or certify his correct taxpayer identification number and other required information to the payer in the manner required, (2) is notified by the IRS that he has failed to report payments of interest or dividends properly or (3) under certain circumstances, fails to certify that he has not been notified by the IRS that he is subject to backup withholding for failure to report interest or dividend payments.

Information reporting requirements will apply to payments of interest or dividends to Foreign Holders where such interest or dividends are (i) subject to withholding, (ii) with respect to payments of dividends or interest made before January 1, 2001, exempt from United States withholding tax pursuant to a tax treaty, (iii) exempt from United States tax under the Portfolio Interest Exemption, or (iv) with respect to payments of dividends or interest made after December 31, 2000, effectively connected with the conduct of a United States trade or business. Copies of these information returns may also be made available under the provisions of a specific treaty or agreement to the tax authorities of the country in which the Foreign Holder resides.

United States Treasury regulations provide that backup withholding and information reporting will not, however, apply to our payments of principal on the convertible notes to a Foreign Holder if the Foreign Holder certifies as to its status as a Foreign Holder under penalties of perjury or otherwise establishes an exemption (provided that neither we nor our paying agent has actual knowledge that the holder is a United States person or that the conditions of any other exemption are not, in fact, satisfied.)

The payment of the proceeds from the disposition of convertible notes or common stock to or through the United States office of any broker, United States or foreign, will be subject to information reporting and possible backup withholding unless the owner certifies as to its non-United States status under penalty of perjury or otherwise establishes an exemption, provided that the broker does not have actual knowledge that the holder is a United States person or that the conditions of any other exemption are not, in fact, satisfied. The payment of the proceeds from the disposition of a convertible note or common stock to or through a non-United States office of a

non-United States broker that is not a United States related person will not be subject to information reporting or backup withholding. For this purpose, a "United States related person" is

- a "controlled foreign corporation" for United States federal income tax purposes; or

- a foreign person 50% or more of whose gross income from all sources for the three-year period ending with the close of its taxable year preceding the payment, or for such part of the period that the broker has been in existence, is derived from activities that are effectively connected with the conduct of a United States trade or business.

In the case of the payment of proceeds from the disposition of convertible notes or common stock to or through a non-United States office of a broker that is either a United States person or a United States related person, United States Treasury regulations require information reporting on the payment unless the broker has appropriate documentary evidence in its files that the owner is a Foreign Holder, the broker has no knowledge to the contrary, and certain other conditions are met.

Any amounts withheld under the backup withholding rules will be allowed as a refund or a credit against such holder's United States federal income tax liability provided the required information is furnished to the IRS.

United States Treasury regulations, which generally are effective for payments made after December 31, 2000, subject to certain transition rules, will generally expand the circumstances under which information reporting and backup withholding may apply. Holders of convertible notes should consult their tax advisors regarding the application of the information and reporting and backup withholding rules, including such Treasury regulations.

The preceding discussion of certain United States federal income tax consequences is for general information only and is not tax advice. Accordingly, holders of the convertible notes should consult their own tax advisers as to particular tax consequences to them or purchasing, holding and disposing of the convertible notes and the common stock, including the applicability and effect of any state, local or foreign tax laws, and of any proposed changes in applicable law.

## **WHERE YOU CAN FIND MORE INFORMATION**

We have filed with the Securities and Exchange Commission a Registration Statement on Form S-3 under the Securities Act of 1933, relating to the convertible notes being offered. This prospectus is filed as part of the registration statement. Other parts of the registration statement are omitted from this prospectus. Statements made in this prospectus concerning the contents of any contract or other document are not necessarily complete. For a more complete description of the matter involved, you should read the entire contract or other document, which has been filed as an exhibit to the registration statement.

We are required by the Securities Exchange Act of 1934 to file reports, proxy statements and other information with the SEC. You may read and copy such reports, proxy statements and other information at the SEC's public reference facilities:

WASHINGTON, D.C.  
Judiciary Plaza  
450 Fifth Street, N.W.  
Room 1024  
Washington, D.C. 20549

NEW YORK  
Seven World Trade Center  
Suite 1300  
New York, NY 10048

CHICAGO  
Citicorp Center  
500 West Madison Street  
Suite 1400  
Chicago, IL 60661-2511

You may call 1-800-SEC-0330 for further information about the public reference facilities. For a fee, the SEC will send copies of any of our filings to you. In addition, our filed reports, proxy statements and other information are contained in the Internet web site maintained by the SEC. The address is <http://www.sec.gov>.



Our common stock is quoted on the Nasdaq National Market under the symbol "AEIS", and our SEC filings can also be read at the following Nasdaq address:

Nasdaq Operations 1735 K Street, N.W.

Washington, D.C. 20006

The SEC allows us to incorporate by reference the information we file with it, which means we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus, and later information that we file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until we sell all of the securities:

- our annual report on Form 10-K for the year ended December 31, 1998;
- our quarterly reports on Form 10-Q for the quarters ended March 31, 1999 and June 30, 1999; and
- the description of our common stock contained in our Registration Statement on Form 8-A filed October 12, 1995, and any amendment or report filed for the purpose of updating such description.

You may request a copy of these filings, at no cost, by writing us at the following address:

Advanced Energy Industries, Inc. 1625 Sharp Point Drive Fort Collins, Colorado 80525 Attention: Richard P. Beck

or by calling Investor Relations at (970) 221-4670.

## **LEGAL MATTERS**

The validity of the convertible notes and the common stock issuable on conversion of the convertible notes will be passed upon for us by Thelen Reid & Priest LLP, San Francisco, California, who have acted as counsel to Advanced Energy in connection with this offering. Certain legal matters will be passed upon for the underwriters by Kaye, Scholer, Fierman, Hays & Handler, LLP, Los Angeles, California.

## **EXPERTS**

The financial statements and schedules included in this prospectus and elsewhere in the registration statement have been audited by Arthur Andersen LLP, independent public accountants, as set forth in their reports. In those reports, that firm states that with respect to a certain subsidiary its opinion is based on the reports of other independent public accountants. The financial statements and supporting schedules referred to above have been included herein in reliance upon the authority of those firms as experts in giving said reports.

## UNDERWRITING

Advanced Energy and the underwriters for the offering named below have entered into an underwriting agreement with respect to the convertible notes being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the principal amount of convertible notes indicated in the following table.

| Underwriters   | Principal Amount<br>of Notes |
|--|------------------------------|
| -----  | -----                        |
| Goldman, Sachs & Co.....                                   |                              |
| Merrill Lynch, Pierce, Fenner & Smith<br>Incorporated..... |                              |
| Banc of America Securities LLC.....                        |                              |
| Total.....   | \$ 100,000,000               |
|  | -----                        |

If the underwriters sell more convertible notes than the total principal amount set forth in the table above, the underwriters have an option to buy up to an additional \$15,000,000 principal amount of convertible notes from Advanced Energy to cover such sales. They may exercise that option for 30 days. If any convertible notes are purchased pursuant to this option, the underwriters will severally purchase convertible notes in approximately the same proportion as set forth in the table above.

The following table shows the per convertible note and total underwriting discounts and commissions to be paid to the underwriters by Advanced Energy. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional convertible notes.

|                           | Paid by Advanced Energy |                  |
|---------------------------|-------------------------|------------------|
|                           | No Exercise             | Full<br>Exercise |
|                           | -----                   | -----            |
| Per Convertible Note..... | %                       | %                |
| Total.....                | \$                      | \$               |
|                           | -----                   | -----            |

Convertible notes sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus. Any convertible notes sold by the underwriters to securities dealers may be sold at a discount from the initial public offering price of up to % of the principal amount of the convertible notes. Any such securities dealers may resell any convertible notes purchased from the underwriters to certain other brokers or dealers at a discount from the initial public offering price of up to % of the principal amount of the convertible notes. If all the convertible notes are not sold at the initial public offering price to public, the underwriters may change the offering price and the other selling terms.

Advanced Energy has agreed with the underwriters not to dispose of or hedge any of its common stock or securities convertible into or exchangeable for shares of common stock during the period from the date of this prospectus continuing through the date 90 days after the date of this prospectus, except with the prior written consent of Goldman, Sachs & Co. This agreement does not apply to any existing employee benefit plans.

The convertible notes are a new issue of securities with no established trading market. Advanced Energy has been advised by the underwriters that the underwriters intend to make a market in the convertible notes but are not obligated to do so and may discontinue market making

at any time without notice. No assurance can be given as to the liquidity of the trading market for the convertible notes.

In connection with this offering, the underwriters may purchase and sell convertible notes and common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater principal amount of convertible notes than they are required to purchase in this offering. Stabilizing transactions consist of certain bids or purchases made for the purpose of preventing or retarding a decline in the market price of the convertible notes or the common stock while the offering is in progress.

The underwriters also may impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the underwriters have repurchased convertible notes sold by or for the account of such underwriter in stabilizing or short covering transactions.

These activities by the underwriters may stabilize, maintain or otherwise affect the market price of the convertible notes and the common stock. As a result, the price of the convertible notes or the common stock may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued by the underwriters at any time. These transactions may be effected in the over-the-counter market or otherwise.

Advanced Energy estimates that its share of the total expenses of this offering, excluding underwriting discounts and commissions, will be approximately \$ .

Advanced Energy has agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

Concurrently with this convertible notes offering and by means of a separate prospectus Advanced Energy and six of Advanced Energy's stockholders are offering a total of 3,000,000 shares of common stock, plus an additional 450,000 shares (to be offered by the selling stockholders) to cover over-allotments by the underwriters for that offering. The completion of this convertible notes offering and the common stock offering are not dependent on one another. The underwriters for the common stock offering, of which Goldman, Sachs & Co. is one, will receive customary compensation in connection with the common stock offering.

No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus. You must not rely on any unauthorized information or representations. This prospectus is an offer to sell only the convertible notes offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date.

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\$100,000,000

ADVANCED ENERGY  
INDUSTRIES, INC.

% Convertible Subordinated Notes due 2006

[LOGO]

GOLDMAN, SACHS & CO.  
MERRILL LYNCH & CO.  
BANC OF AMERICA  
SECURITIES LLC

**PART II**  
**INFORMATION NOT REQUIRED IN PROSPECTUS**

**ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION**

The following table sets forth the costs and expenses, other than underwriting discounts and commissions, payable by Advanced Energy and the selling stockholders in connection with the sale of the convertible notes and common stock being registered. All amounts are estimates except the SEC registration fee, the NASD filing fee and the Nasdaq listing fee.

|  | AMOUNT<br>TO BE PAID |
|--|----------------------|
| SEC Registration Fee.....              | \$ 31,970            |
| NASD Filing Fee.....                   | 12,000               |
| Nasdaq Listing Fee.....                | 8,750                |
| Printing.....                          | 75,000               |
| Legal Fees and Expenses.....           | 100,000              |
| Accounting Fees and Expenses.....      | 18,000               |
| Blue Sky Fees and Expenses.....        | 10,000               |
| Transfer Agent and Registrar Fees..... | 5,000                |
| Miscellaneous.....                     | 14,280               |
|  | -----                |
| Total.....                             | \$ 275,000           |
|  | -----                |

**ITEM 15. INDEMNIFICATION OF DIRECTORS AND OFFICERS**

As permitted by the Delaware General Corporation Law ("DGCL"), Advanced Energy's Certificate of Incorporation, as amended (the "AE Certificate"), provides that no director shall be personally liable to Advanced Energy or any stockholder for monetary damages for breach of fiduciary duty as a director, except for liability: (i) for any breach of the duty of loyalty to Advanced Energy or its stockholders; (ii) for acts or omissions not in good faith or involving intentional misconduct or a knowing violation of the law; (iii) under Section 174 of the DGCL; or (iv) for any transaction from which the director derived an improper personal benefit. While the AE Certificate provides protection from awards for monetary damages for breaches of fiduciary duty, it does not eliminate the director's duty of care. Accordingly, the AE Certificate will not affect the availability of equitable remedies, such as an injunction, based on a director's breach of the duty of care. The provisions of the AE Certificate described above apply to officers of Advanced Energy only if they are directors of Advanced Energy and are acting in their capacity as directors, and does not apply to officers of Advanced Energy who are not directors.

In addition, Advanced Energy's Bylaws provide that Advanced Energy shall indemnify its Executive Officers (as defined in Rule 3b-7 promulgated under the Exchange Act) and directors, and any employee who serves as an Executive Officer or director of any corporation at Advanced Energy's request, to the fullest extent permitted under and in accordance with the DGCL; provided, however, that Advanced Energy may modify the extent of such indemnification by individual contracts with its Executive Officers and directors; and, provided further, that Advanced Energy shall not be required to indemnify any Executive Officer or director in connection with any proceeding (or part thereof) initiated by such person unless: (i) such indemnification is expressly required to be made by law; (ii) the proceeding was authorized by the directors of Advanced Energy; (iii) such indemnification is provided by Advanced Energy, in its sole discretion, pursuant to the powers vested in Advanced Energy under the DGCL; or (iv) such indemnification is required to be made under Article XI, Section 43, Subsection (d) of Advanced Energy's Bylaws. Under the DGCL,

directors and officers as well as employees and individuals may be indemnified against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement in connection with specified actions, suits or proceedings, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation as a derivative action) if they acted in good faith and in a manner they reasonably believed to be in or not opposed to the best interests of the corporation, and with respect to any criminal action or proceeding, had no reasonable cause to believe their conduct was unlawful.

Advanced Energy maintains a policy of directors' and officers' liability insurance that insures Advanced Energy's directors and officers against the costs of defense, settlement or payment of a judgment under certain circumstances.

In addition, the underwriters for this offering, and the underwriters and selling stockholders for the concurrent common stock offering, have agreed to indemnify Advanced Energy's officers, directors and controlling persons against certain civil liabilities, including liabilities under the Securities Act of 1933.

ITEM 16. EXHIBITS

| EXHIBIT | DESCRIPTION  |
|---------|--|
| 1.1     | Form of Underwriting Agreement between the Underwriters and Advanced Energy Industries, Inc.   |
| 4.1     | Restated Certificate of Incorporation (1)  |
| 4.2     | Bylaws (1)   |
| 4.3     | Specimen Certificate for the Common Stock (2)  |
| 4.4     | Form of Indenture between State Street Bank and Trust Company of California, N.A., as trustee, and Advanced Energy Industries, Inc. (including form of % Convertible Subordinated Note due 2006) |
| 4.5     | Undertaking re Other Long-Term Debt  |
| *5.1    | Opinion of Thelen Reid & Priest LLP re Legality of the Notes   |
| *8.1    | Opinion of Thelen Reid & Priest LLP re Tax Matters   |
| *23.1   | Consents of Thelen Reid & Priest LLP (3)   |
| 23.2    | Consent of Arthur Andersen LLP   |
| 23.3    | Consent of KPMG LLP  |
| 24.1    | Power of Attorney (4)  |
| 25.1    | Statement re Eligibility of Trustee  |

(1) Incorporated by reference from Advanced Energy's Quarterly Report on Form 10-Q for the quarter ended June 30, 1999, filed July 28, 1999 (File No. 000-26966).

(2) Incorporated by reference from Advanced Energy's Registration Statement on Form S-1, filed September 20, 1995, as amended (File No. 33-97188).

(3) Included in Exhibits 5.1 and 8.1.

(4) Included on the signature pages to this Registration Statement.

\* To Be Filed By Amendment.

## ITEM 17. UNDERTAKINGS

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(h) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

(i) The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b) (1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(j) The undersigned registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Act.

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Fort Collins, State of Colorado, on September 17, 1999.

ADVANCED ENERGY INDUSTRIES, INC.

By: /s/ DOUGLAS S. SCHATZ

Name: Douglas S. Schatz

Title: Chief Executive Officer and Chairman of  
the Board



POWER OF ATTORNEY

Each person whose signature appears below hereby appoints Douglas S. Schatz, Hollis L. Caswell and Richard P. Beck, and each of them severally, acting alone and without the other, his true and lawful attorney-in-fact with authority to execute in the name of each such person, and to file with the Securities and Exchange Commission, together with any exhibits thereto and other documents therewith, any and all amendments (including without limitation post-effective amendments) to this registration statement, and to sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act, necessary or advisable to enable the Registrant to comply with the Securities Act and any rules, regulations and requirements of the Securities and Exchange Commission in respect thereof, which amendments may make such changes in this registration statement as the aforesaid attorney-in-fact deems appropriate.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the date indicated.

|                          |   |
|--------------------------|---|
| Date: September 17, 1999 | /s/ DOUGLAS S. SCHATZ<br>-----<br>Douglas S. Schatz<br>Chief Executive Officer and Chairman of the Board<br>(Principal Executive Officer)                         |
| Date: September 17, 1999 | /s/ HOLLIS L. CASWELL<br>-----<br>Hollis L. Caswell<br>President, Chief Operating Officer and Director  |
| Date: September 17, 1999 | /s/ RICHARD P. BECK<br>-----<br>Richard P. Beck<br>Senior Vice President and Chief Financial Officer and Director<br>(Principal Financial and Accounting Officer) |
| Date: September 17, 1999 | /s/ G. BRENT BACKMAN<br>-----<br>G. Brent Backman<br>Director   |
| Date: September 17, 1999 | /s/ ARTHUR A. NOETH<br>-----<br>Arthur A. Noeth<br>Director   |
| Date: September 17, 1999 | /s/ ELWOOD SPEDDEN<br>-----<br>Elwood Spedden<br>Director   |
| Date: September 17, 1999 | /s/ GERALD STAREK<br>-----<br>Gerald Starek<br>Director   |
| Date: September 17, 1999 | /s/ ARTHUR ZAFIROPOULO<br>-----<br>Arthur Zafiropoulo<br>Director   |

## EXHIBIT INDEX

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(4) Included on the signature pages to this Registration Statement.

\* To Be Filed By Amendment.

ADVANCED ENERGY INDUSTRIES, INC.

\_\_\_% CONVERTIBLE SUBORDINATED NOTES DUE 2006

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UNDERWRITING AGREEMENT

September \_\_, 1999

Goldman, Sachs & Co.,  
Merrill Lynch, Pierce, Fenner  
& Smith Incorporated and Banc  
of America Securities LLC  
c/o Goldman, Sachs & Co.  
85 Broad Street,  
New York, New York 10004

Ladies and Gentlemen:

Advanced Energy Industries, Inc., a Delaware corporation (the "Company"), proposes, subject to the terms and conditions stated herein, to issue and sell to Goldman, Sachs & Co., Merrill Lynch, Pierce, Fenner & Smith Incorporated and Banc America Securities LLC (the "Underwriters") an aggregate of \$\_\_\_\_\_ principal amount of the Convertible Notes, convertible into Common Stock, \$0.001 par value ("Stock") of the Company, specified above (the "Firm Securities") and, at the election of the Underwriters, up to an aggregate of \$\_\_\_\_\_ additional aggregate principal amount (the "Optional Securities") (the Firm Securities and the Optional Securities which the Underwriters elect to purchase pursuant to Section 2 hereof are herein collectively called the "Securities").

1. The Company represents and warrants to, and agrees with, each of the Underwriters that:

(a) A registration statement on Form S-3 (File No. 33-\_\_\_\_\_) (the "Initial Registration Statement") in respect of the Securities and shares of the Stock issuable upon conversion thereof has been filed with the Securities and Exchange Commission (the "Commission"); the Initial Registration Statement and any post-effective amendment

thereto, excluding exhibits thereto but including all documents incorporated by reference in the prospectus contained therein, each in the form heretofore delivered to you and for each of the other Underwriters, have been declared effective by the Commission in such form; other than a registration statement, if any, increasing the size of the offering (a "Rule 462(b) Registration Statement"), filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the "Act"), which became effective upon filing, no other document with respect to the Initial Registration Statement or document incorporated by reference therein has been filed with the Commission; and no stop order suspending the effectiveness of the Initial Registration Statement, any post-effective amendment thereto or the Rule 462(b) Registration Statement, if any, has been issued and no proceeding for that purpose has been initiated or threatened by the Commission (any preliminary prospectus included in the Initial Registration Statement or filed with the Commission pursuant to Rule 424(a) of the rules and regulations of the Commission under the Act, is hereinafter called a "Preliminary Prospectus"); the various parts of the Initial Registration Statement and the Rule 462(b) Registration Statement, if any, including all exhibits thereto but excluding Form T-1 and including (i) the information contained in the form of final prospectus filed with the Commission pursuant to Rule 424(b) under the Act in accordance with Section 5(a) hereof and deemed by virtue of Rule 430A under the Act to be part of the Initial Registration Statement at the time it was declared effective and (ii) the documents incorporated by reference in the prospectus contained in the Initial Registration Statement at the time such part of the Initial Registration Statement became effective, each as amended at the time such part of the Initial Registration Statement became effective or such part of the Rule 462(b) Registration Statement, if any, became or hereafter becomes effective, are hereinafter collectively called the "Registration Statement"; such final prospectus, in the form first filed pursuant to Rule 424(b) under the Act, is hereinafter called the "Prospectus"; any reference herein to any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-3 under the Act, as of the date of such Preliminary Prospectus or Prospectus, as the case may be; any reference to any amendment or supplement to any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include any documents filed after the date of such Preliminary Prospectus or Prospectus, as the case may be, under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and incorporated by reference in such Preliminary Prospectus or Prospectus, as the case may be; and any reference to any amendment to the Registration Statement shall be deemed to refer to and include any annual report of the Company filed pursuant to Section 13(a) or 15(d) of the Exchange Act after the effective date of the Initial Registration Statement that is incorporated by reference in the Registration Statement;

(b) No order preventing or suspending the use of any Preliminary Prospectus has been issued by the Commission, and each Preliminary Prospectus, at the time of filing thereof, conformed in all material respects to the requirements of the Act and the Trust Indenture Act of 1939, as amended (the "Trust Indenture Act"), and the rules and regulations of the Commission thereunder, and did not contain an untrue statement of a

material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; PROVIDED, HOWEVER, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through Goldman, Sachs & Co. expressly for use therein;

(c) The documents incorporated by reference in the Prospectus, when they became effective or were filed with the Commission, as the case may be, conformed in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder, and none of such documents contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading; and any further documents so filed and incorporated by reference in the Prospectus or any further amendment or supplement thereto, when such documents become effective or are filed with the Commission, as the case may be, will conform in all material respects to the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder and will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; PROVIDED, HOWEVER, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through Goldman, Sachs & Co. expressly for use therein;

(d) The Registration Statement conforms, and the Prospectus and any further amendments or supplements to the Registration Statement or the Prospectus will conform, in all material respects to the requirements of the Act and the Trust Indenture Act and the rules and regulations of the Commission thereunder and do not and will not, as of the applicable effective date of the Registration Statement and any amendment thereto and as of the applicable filing date of the Prospectus and any amendment or supplement thereto, contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading; PROVIDED, HOWEVER, that this representation and warranty shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by an Underwriter through Goldman, Sachs & Co. expressly for use therein;

(e) Neither the Company nor any of its subsidiaries has sustained since the date of the latest audited financial statements included or incorporated by reference in the Prospectus any loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, except as set forth or contemplated in the Prospectus or as would not have, individually or in the aggregate, a material adverse effect on the

current or future consolidated financial position, business, prospects, stockholders' equity or results of operations of the Company and its subsidiaries, taken as a whole (a "Material Adverse Effect"); and, since the respective dates as of which information is given in the Registration Statement and the Prospectus, there has not been any change in the capital stock, capital lease obligations or long-term debt of the Company or any of its subsidiaries or any material adverse change, or any development involving a prospective material adverse change, in or affecting the general affairs, management, financial position, stockholders' equity or results of operations of the Company and its subsidiaries, taken as a whole, otherwise than as set forth or contemplated in the Prospectus;

(f) The Company and its subsidiaries have good and marketable title in fee simple to all real property and good and marketable title to all personal property owned by them, in each case free and clear of all liens, encumbrances and defects except such as are described in the Prospectus or such as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and its subsidiaries; and any real property and buildings held under lease by the Company and its subsidiaries are held by them under valid, subsisting and enforceable leases with such exceptions as are not material and do not materially interfere with the use made and proposed to be made of such property and buildings by the Company and its subsidiaries;

(g) The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with the corporate power and authority to own its properties and conduct its business as described in the Prospectus, and has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of each other jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification, or is subject to no material liability or disability by reason of the failure to be so qualified or in good standing in any such jurisdiction; and each subsidiary of the Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation and has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of each other jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification, or is subject to no material liability or disability by reason of the failure to be so qualified or in good standing in any such jurisdiction;

(h) The Company has an authorized capitalization as set forth in the Prospectus, and all of the issued shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable; the shares of Stock initially issuable upon conversion of the Securities have been duly and validly authorized and reserved for issuance and, when issued and delivered in accordance with the provisions of the Securities and the Indenture referred to below, will be duly and validly issued, fully paid and non-assessable and will conform to the description of the Stock contained in the

Prospectus; and all of the issued shares of capital stock of each subsidiary of the Company have been duly and validly authorized and issued, are fully paid and non-assessable and are owned directly or indirectly by the Company, free and clear of all liens, encumbrances, equities or claims;

(i) The Securities have been duly authorized and, when issued and delivered pursuant to this Agreement, will have been duly executed, authenticated, issued and delivered and will constitute valid and legally binding obligations of the Company entitled to the benefits provided by the indenture to be dated as of September \_\_, 1999 (the "Indenture") between the Company and State Street Bank and Trust, as Trustee (the "Trustee"), under which they are to be issued, which will be substantially in the form filed as an exhibit to the Registration Statement; the Indenture has been duly authorized and duly qualified under the Trust Indenture Act and, when executed and delivered by the Company and the Trustee, will constitute a valid and legally binding instrument, enforceable in accordance with its terms, subject, as to enforcement, to bankruptcy, insolvency, reorganization and other laws of general applicability relating to or affecting creditors' rights and to general equity principles; and the Securities and the Indenture will conform to the descriptions thereof in the Prospectus;

(j) The issue and sale of the Securities and the compliance by the Company with all of the provisions of the Securities, the Indenture and this Agreement and the consummation of the transactions herein and therein contemplated will not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject, except , in each case, (i) breaches, violations or defaults which, individually or in the aggregate, would not have a Material Adverse Effect and (ii) would not have an adverse effect on the Company's ability to consummate the transactions contemplated hereby; nor will such actions result in any violation of the provisions of the Certificate of Incorporation or By-laws of the Company or any statute or any order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties; and no consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body is required for the issue and sale of the Securities or the consummation by the Company of the transactions contemplated by this Agreement or the Indenture, except the registration under the Act of the Securities and the shares of Stock issuable upon conversion thereof, such as have been obtained under the Trust Indenture Act and such consents, approvals, authorizations, registrations or qualifications as may be required under state securities or Blue Sky laws in connection with the purchase and distribution of the Securities by the Underwriters;

(k) Neither the Company nor any of its subsidiaries (i) is in violation of its Certificate of Incorporation or By-laws or (ii) in default in the performance or observance of any obligation, agreement, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement, lease or other agreement or instrument to which it is a party or by which it or any of its properties may be bound, except in the case of (ii) above where such default would not have a Material Adverse Effect and would not have an adverse effect on the Company's ability to consummate the transactions contemplated hereby;

(l) The statements set forth in the Prospectus under the captions "Description of Notes" and "Description of Capital Stock", insofar as they purport to constitute a summary of the terms of the Securities and the Stock, under the caption "Material United States Federal Income Tax Consequences", and under the caption "Underwriting", insofar as they purport to describe the provisions of the laws and documents referred to therein, are accurate, complete and fair;

(m) Other than as set forth in the Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is a party or of which any property of the Company or any of its subsidiaries is the subject which, if determined adversely to the Company or any of its subsidiaries, would individually or in the aggregate have a Material Adverse Effect; and, to the best of the Company's knowledge, no such proceedings are threatened or contemplated by governmental authorities or threatened by others;

(n) The Company is not and, after giving effect to the offering and sale of the Securities, will not be an "investment company" or an entity "controlled" by an "investment company", as such terms are defined in the Investment Company Act of 1940, as amended (the "Investment Company Act");

(o) Neither the Company nor any of its affiliates does business with the government of Cuba or with any person or affiliate located in Cuba within the meaning of Section 517.075, Florida Statutes;

(p) Arthur Andersen LLP, who has opined as to certain financial statements of the Company and its subsidiaries, and KPMG LLP, who has opined as to certain financial statements of RF Power Products, Inc., are each independent public accountants as required by the Act and the rules and regulations of the Commission thereunder;

(q) The Company has reviewed its operations and that of its subsidiaries and has made reasonable inquiries of any third parties with which the Company or any of its subsidiaries has a material relationship to evaluate the extent to which the business or operations of the Company or any of its subsidiaries will be affected by the Year 2000 Problem. As a result of such review, except as specifically described in the Prospectus, the Company has no reason to believe, and does not believe, that the Year 2000 Problem will



have a material adverse effect on the general affairs, management, the current or future consolidated financial position, business, prospects, stockholders' equity or results of operations of the Company and its subsidiaries or result in any material loss or interference with the Company's business or operations. The "Year 2000 Problem" as used herein means any significant risk that computer hardware, firmware or software used in the receipt, transmission, processing, manipulation, storage, retrieval, retransmission or other utilization of data or in the operation of mechanical or electrical systems of any kind will not, in the case of dates or time periods occurring after December 31, 1999, function at least as effectively as in the case of dates or time periods occurring prior to January 1, 2000; and

(r) Neither the Company nor any of its subsidiaries own any real property.

2. Subject to the terms and conditions herein set forth, (a) the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at a purchase price of \_\_\_\_% of the principal amount thereof, plus accrued interest, if any, from \_\_\_\_\_, 1999 to the First Time of Delivery hereunder, the principal amount of Firm Securities set forth opposite the name of such Underwriter in Schedule I hereto, and (b) in the event and to the extent that the Underwriters shall exercise the election to purchase Optional Securities as provided below, the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at the same purchase price set forth in clause (a) of this Section 2, that portion of the aggregate principal amount of the Optional Securities as to which such election shall have been exercised (to be adjusted by you so as to eliminate fractions of \$ \_\_\_\_\_), determined by multiplying such aggregate principal amount of Optional Securities by a fraction, the numerator of which is the maximum aggregate principal amount of Optional Securities which such Underwriter is entitled to purchase as set forth opposite the name of such Underwriter in Schedule I hereto and the denominator of which is the maximum aggregate principal amount of Optional Securities which all of the Underwriters are entitled to purchase hereunder.

The Company hereby grants to the Underwriters the right to purchase at their election up to \$ \_\_\_\_\_ aggregate principal amount of Optional Securities, at the purchase price set forth in clause (a) of the first paragraph of this Section 2, for the sole purpose of covering sale of Securities in excess of the number of Firm Securities. Any such election to purchase Optional Securities may be exercised by written notice from you to the Company, given within a period of 30 calendar days after the date of this Agreement, setting forth the aggregate principal amount of Optional Securities to be purchased and the date on which such Optional Securities are to be delivered, as determined by you but in no event earlier than the First Time of Delivery (as defined in Section 4 hereof) or, unless you and the Company otherwise agree in writing, earlier than two or later than ten business days after the date of such notice.

3. Upon the authorization by you of the release of the Firm Securities, the several Underwriters propose to offer the Firm Securities for sale upon the terms and conditions set forth in the Prospectus.

4. (a) The Securities to be purchased by each Underwriter hereunder will be represented by one or more definitive global Securities in book-entry form which will be deposited by or on behalf of the Company with The Depository Trust Company ("DTC") or its designated custodian. The Company will deliver the Securities to Goldman, Sachs & Co., for the account of each Underwriter, against payment by or on behalf of such Underwriter of the purchase price therefor by wire transfer of Federal (same-day) funds to the account specified by the Company to Goldman, Sachs & Co. at least forty-eight hours in advance, by causing DTC to credit the Securities to the account of Goldman, Sachs & Co. at DTC. The Company will cause the certificates representing the Securities to be made available to Goldman, Sachs & Co. for checking at least twenty-four hours prior to the Time of Delivery (as defined below) at the office of DTC or its designated custodian (the "Designated Office"). The time and date of such delivery and payment shall be, with respect to the Firm Securities, 9:30 a.m., New York City time, on \_\_\_\_\_, 1999 or such other time and date as Goldman, Sachs & Co. and the Company may agree upon in writing, and, with respect to the Optional Securities, 9:30 a.m., New York City time, on the date specified by Goldman, Sachs & Co. in the written notice given by Goldman, Sachs & Co. of the Underwriters' election to purchase such Optional Securities, or such other time and date as Goldman, Sachs & Co. and the Company may agree upon in writing. Such time and date for delivery of the Firm Securities is herein called the "First Time of Delivery", such time and date for delivery of the Optional Securities, if not the First Time of Delivery, is herein called the "Second Time of Delivery", and each such time and date for delivery is herein called a "Time of Delivery".

(b) The documents to be delivered at each Time of Delivery by or on behalf of the parties hereto pursuant to Section 7 hereof, including the cross-receipt for the Securities and any additional documents requested by the Underwriters pursuant to Section 7(k) hereof, will be delivered at the offices of [Kaye, Scholer, Fierman, Hays & Handler, LLP, 1999 Avenue of the Stars, Suite 1600, Los Angeles, California 90067] (the "Closing Location"), and the Securities will be delivered at the Designated Office, all at such Time of Delivery. A meeting will be held at the Closing Location at \_\_\_\_\_ p.m., New York City time, on the New York Business Day next preceding such Time of Delivery, at which meeting the final drafts of the documents to be delivered pursuant to the preceding sentence will be available for review by the parties hereto. For the purposes of this Section 4, "New York Business Day" shall mean each Monday, Tuesday, Wednesday, Thursday and Friday which is not a day on which banking institutions in New York City are generally authorized or obligated by law or executive order to close.

5. The Company agrees with each of the Underwriters:

(a) To prepare the Prospectus in a form approved by you and to file such Prospectus pursuant to Rule 424(b) under the Act not later than the Commission's close of business on the second business day following the execution and delivery of this Agreement, or, if applicable, such earlier time as may be required by Rule 430A(a)(3) under the Act; to make no further amendment or any supplement to the Registration Statement or Prospectus prior to such Time of Delivery which shall be disapproved by you promptly after reasonable notice thereof; to advise you, promptly after it receives notice thereof, of the time when any amendment to the Registration Statement has been filed or becomes effective or any supplement to the Prospectus or any amended Prospectus has been filed and to furnish you with copies thereof; to file timely all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act subsequent to the date of the Prospectus and for so long as the delivery of a prospectus is required in connection with the offering or sale of the Securities; to advise you, promptly after it receives notice thereof, of the issuance by the Commission of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or prospectus, of the suspension of the qualification of the Securities or the shares of Stock issuable upon conversion of the Securities for offering or sale in any jurisdiction, of the initiation or threatening of any proceeding for any such purpose, or of any request by the Commission for the amending or supplementing of the Registration Statement or Prospectus or for additional information; and, in the event of the issuance of any stop order or of any order preventing or suspending the use of any Preliminary Prospectus or prospectus or suspending any such qualification, promptly to use its best efforts to obtain the withdrawal of such order;

(b) Promptly from time to time to take such action as you may reasonably request to qualify the Securities and the shares of Stock issuable upon conversion of the Securities for offering and sale under the securities laws of such jurisdictions as you may request and to comply with such laws so as to permit the continuance of sales and dealings therein in such jurisdictions for as long as may be necessary to complete the distribution of the Securities, provided that in connection therewith the Company shall not be required to qualify as a foreign corporation or to file a general consent to service of process in any jurisdiction;

(c) Prior to 10:00 a.m., New York City time, on the New York Business Day next succeeding the date of this Agreement and from time to time, to furnish the Underwriters with copies of the Prospectus in New York City in such quantities as you may reasonably request, and, if the delivery of a prospectus is required at any time prior to the expiration of nine months after the time of issue of the Prospectus in connection with the offering or sale of the Securities and the shares of Stock issuable upon conversion of the Securities and if at such time any event shall have occurred as a result of which the

Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in light of the circumstances under which they were made when such Prospectus is delivered, not misleading, or, if for any other reason it shall be necessary during such period to amend or supplement the Prospectus or to file under the Exchange Act any document incorporated by reference in the Prospectus in order to comply with the Act, the Exchange Act or the Trust Indenture Act, to notify you and upon your request to file such document and to prepare and furnish without charge to each Underwriter and to any dealer in securities as many copies as you may from time to time reasonably request of an amended Prospectus or a supplement to the Prospectus which will correct such statement or omission or effect such compliance; and in case any Underwriter is required to deliver a prospectus in connection with sales of any of the Securities and the shares of Stock issuable upon conversion of the Securities at any time nine months or more after the time of issue of the Prospectus, upon your request but at the expense of such Underwriter, to prepare and deliver to such Underwriter as many copies as you may request of an amended or supplemented Prospectus complying with Section 10(a)(3) of the Act;

(d) To make generally available to its securityholders as soon as practicable, but in any event not later than eighteen months after the effective date of the Registration Statement (as defined in Rule 158(c) under the Act), an earnings statement of the Company and its subsidiaries (which need not be audited) complying with Section 11(a) of the Act and the rules and regulations of the Commission thereunder (including, at the option of the Company, Rule 158);

(e) During the period beginning from the date of the Prospectus and continuing to and including the date 90 days after the date of the Prospectus, not to offer, sell, contract to sell or otherwise dispose of, except as provided hereunder any securities of the Company that are substantially similar to the Securities or the Stock, including but not limited to any securities that are convertible into or exchangeable for, or that represent the right to receive, Stock or any such substantially similar securities (other than pursuant to employee stock option plans existing on, or upon the conversion or exchange of convertible or exchangeable securities outstanding as of, the date of this Agreement) and other than the shares of Stock sold to the Underwriters pursuant to that certain Underwriting Agreement, dated the date hereof, among the Company, the Selling Stockholders and Goldman, Sachs & Co., BancBoston Robertson Stephens and CIBC World Markets, without your prior written consent;

(f) To furnish to the holders of the Securities as soon as practicable after the end of each fiscal year an annual report (including a balance sheet and statements of income, stockholders' equity and cash flows of the Company and its consolidated subsidiaries certified by independent public accountants) and, as soon as practicable after the end of each of the first three quarters of each fiscal year (beginning with the fiscal quarter ending after the effective date of the Registration Statement), to make available to the holders of the

Securities consolidated summary financial information of the Company and its subsidiaries for such quarter in reasonable detail;

(g) During a period of five years from the effective date of the Registration Statement, to furnish to you copies of all reports or other communications (financial or other) furnished to stockholders, and to deliver to you (i) as soon as they are available, copies of any reports and financial statements furnished to or filed with the Commission or any national securities exchange on which the Securities or any class of securities of the Company is listed; and (ii) such additional information concerning the business and financial condition of the Company as you may from time to time reasonably request (such financial statements to be on a consolidated basis to the extent the accounts of the Company and its subsidiaries are consolidated in reports furnished to its stockholders generally or to the Commission);

(h) To use the net proceeds received by it from the sale of the Securities pursuant to this Agreement in the manner specified in the Prospectus under the caption "Use of Proceeds";

(i) If the Company elects to rely upon Rule 462(b), the Company shall file a Rule 462(b) Registration Statement with the Commission in compliance with Rule 462(b) by 10:00 P.M., Washington, D.C. time, on the date of this Agreement, and the Company shall at the time of filing either pay to the Commission the filing fee for the Rule 462(b) Registration Statement or give irrevocable instructions for the payment of such fee pursuant to Rule 111(b) under the Act;

(j) To reserve and keep available at all times, free of preemptive rights, shares of Stock for the purpose of enabling the Company to satisfy any obligations to issue shares of its Stock upon conversion of the Securities; and

(k) To use its best efforts to list for quotation, subject to notice of issuance, the shares of Stock issuable upon conversion of the Securities on the Nasdaq National Market ("NASDAQ").

6. The Company covenants and agrees with the several Underwriters that the Company will pay or cause to be paid the following: (i) the fees, disbursements and expenses of the Company's counsel and accountants in connection with the registration of the Securities and the shares of Stock issuable upon conversion of the Securities under the Act and all other expenses in connection with the preparation, printing and filing of the Registration Statement, any Preliminary Prospectus and the Prospectus and amendments and supplements thereto and the mailing and delivering of copies thereof to the Underwriters and dealers; (ii) the cost of printing or producing any Agreement among Underwriters, this Agreement, the Indenture, the Blue Sky Memorandum, closing documents (including any compilations thereof) and any other documents in connection with the

offering, purchase, sale and delivery of the Securities; (iii) all expenses in connection with the qualification of the Securities and the shares of Stock issuable upon conversion of the Securities for offering and sale under state securities laws as provided in Section 5(b) hereof, including the fees and disbursements of counsel for the Underwriters in connection with such qualification and in connection with the Blue Sky and legal investment surveys; (iv) any fees charged by securities rating services for rating the Securities; (v) the filing fees incident to, and the fees and disbursements of counsel for the Underwriters in connection with, any required review by NASD Regulations, Inc. of the terms of the sale of the Securities; (vi) the cost of preparing the Securities; (vii) the fees and expenses of the Trustee and any agent of the Trustee and the fees and disbursements of counsel for the Trustee in connection with the Indenture and the Securities; and (viii) all other costs and expenses incident to the performance of its obligations hereunder which are not otherwise specifically provided for in this Section. It is understood, however, that, except as provided in this Section, and Sections 8 and 11 hereof, the Underwriters will pay all of their own costs and expenses, including the fees of their counsel, transfer taxes on resale of any of the Securities by them, and any advertising expenses connected with any offers they may make.

7. The obligations of the Underwriters hereunder, as to the Securities to be delivered at each Time of Delivery, shall be subject, in their discretion, to the condition that all representations and warranties and other statements of the Company herein are, at and as of such Time of Delivery, true and correct, the condition that the Company shall have performed all of its obligations hereunder theretofore to be performed, and the following additional conditions:

(a) The Prospectus shall have been filed with the Commission pursuant to Rule 424(b) within the applicable time period prescribed for such filing by the rules and regulations under the Act and in accordance with Section 5(a) hereof; if the Company has elected to rely upon Rule 462(b), the Rule 462(b) Registration Statement shall have become effective by 10:00 P.M., Washington, D.C. time, on the date of this Agreement; no stop order suspending the effectiveness of the Registration Statement or any part thereof shall have been issued and no proceeding for that purpose shall have been initiated or threatened by the Commission; and all requests for additional information on the part of the Commission shall have been complied with to your reasonable satisfaction;

(b) Kaye, Scholer, Fierman, Hays & Handler, LLP, counsel for the Underwriters, shall have furnished to you such written opinion or opinions (a draft of each such opinion is attached as Annex II(a) hereto), dated such Time of Delivery, with respect to the matters covered in paragraphs (i), (ii), (vii), (viii), (ix) and (xvi) of subsection (c) below as well as such other related matters as you may reasonably request, and such counsel shall have received such papers and information as they may reasonably request to enable them to pass upon such matters;

(c) Thelen Reid & Priest LLP, counsel for the Company, shall have furnished to you their written opinion (a draft of such opinion is attached as Annex II(b) hereto), dated such Time of Delivery, in form and substance satisfactory to you, to the effect that:

(i) The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware. The Company has the corporate power and authority to own its properties and conduct its business as described in the Prospectus;

(ii) The Company has an authorized capitalization as set forth in the Prospectus, and all of the issued shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable; and the shares of Stock initially issuable upon conversion of the Securities have been duly and validly authorized and reserved for issuance and, when issued and delivered in accordance with the provisions of the Securities and the Indenture, will be duly and validly issued and fully paid and non-assessable, and will conform, in all material respects, to the description of the Stock contained in the Prospectus;

(iii) The Company is duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of each jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification except where the failure to be so qualified or in good standing would not, individually or in the aggregate, have a Material Adverse Effect (such counsel being entitled to rely in respect of the opinion in this clause upon opinions of local counsel and in respect of matters of fact upon certificates of officers of the Company, provided that such counsel shall state that they believe that both you and they are justified in relying upon such opinions and certificates);

(iv) Each subsidiary of the Company organized under the laws of the United States, any state of the United States or the District of Columbia (a "Domestic Subsidiary") has been duly incorporated and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation; and all of the issued shares of capital stock of each Domestic Subsidiary have been duly and validly authorized and issued, are fully paid and non-assessable, and are owned directly or indirectly by the Company, free and clear of all liens, encumbrances, equities or claims (such counsel being entitled to rely in respect of the opinion in this clause upon opinions of local counsel and in respect of matters of fact upon certificates of officers of the Company or its subsidiaries, provided that such counsel shall state that they believe that both you and they are justified in relying upon such opinions and certificates);

(v) To such counsel's knowledge, the manufacturing facilities located at 1625 Sharp Point Drive, Fort Collins, Colorado and 1007 Laurel Oak Drive, Voorhees, New Jersey held under lease by the Company and RF Power Products, Inc. (the "Principal

Subsidiary") are held by them under valid, subsisting and enforceable leases, except as such enforcement may be limited by bankruptcy and with such exceptions as are not material and do not interfere with the use made and proposed to be made of such property and buildings by the Company and the Principal Subsidiary (in giving the opinion in this clause, such counsel may state that no examination of record titles for the purpose of such opinion has been made, and that they are relying upon a general review of the titles of the Company and the Principal Subsidiary, upon opinions of local counsel and abstracts, reports and policies of title companies rendered or issued at or subsequent to the time of acquisition of such property by the Company or the Principal Subsidiary, upon opinions of counsel to the lessors of such property and, in respect of matters of fact, upon certificates of officers of the Company or its subsidiaries, provided that such counsel shall state that they believe that both you and they are justified in relying upon such opinions, abstracts, reports, policies and certificates);

(vi) To the best of such counsel's knowledge and other than as set forth in the Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is a party or of which any property of the Company or any of its subsidiaries is the subject which, if determined adversely to the Company or any of its subsidiaries, would, individually or in the aggregate, have a Material Adverse Effect; and, to the best of such counsel's knowledge, no such proceedings are threatened or contemplated by governmental authorities or threatened by others;

(vii) This Agreement has been duly authorized, executed and delivered by the Company;

(viii) The Securities have been duly authorized, executed, authenticated, issued and delivered and constitute valid and legally binding obligations of the Company entitled to the benefits provided by the Indenture; and the Securities and the Indenture conform to the descriptions thereof in the Prospectus;

(ix) The Indenture has been duly authorized, executed and delivered by the parties thereto and constitutes a valid and legally binding instrument, enforceable in accordance with its terms, subject, as to enforcement, to bankruptcy, insolvency, reorganization and other laws of general applicability relating to or affecting creditors' rights and to general equity principles; and the Indenture has been duly qualified under the Trust Indenture Act;

(x) The issue and sale of the Securities being issued and sold at such Time of Delivery and the compliance by the Company with all of the



provisions of the Securities, the Indenture and this Agreement and the consummation of the transactions herein and therein contemplated will not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument known to such counsel to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject, except in each case, breaches, violations or defaults which, individually or in the aggregate, would not have a Material Adverse Effect and would not have an adverse effect on the Company's ability to consummate the transactions contemplated hereby, nor will such actions result in any violation of the provisions of the Certificate of Incorporation or By-laws of the Company or any statute or any order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties;

(xi) No consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body is required for the issue and sale of the Securities being issued at such Time of Delivery or the consummation by the Company of the transactions contemplated by this Agreement or the Indenture, except such as have been obtained under the Act and the Trust Indenture Act, such as have been obtained under the Act in connection with the shares of Stock issuable upon conversion of the Securities and such consents, approvals, authorizations, registrations or qualifications as may be required under state securities or Blue Sky laws in connection with the purchase and distribution of the Securities by the Underwriters;

(xii) Neither the Company nor any of its Domestic Subsidiaries is (A) in violation of its Certificate of Incorporation or By-laws or (B) in default in the performance or observance of any obligation, agreement, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement, lease or other agreement or instrument known to such counsel to which it is a party or by which it or any of its properties may be bound, except in the case of (B) where such default (1) would not have a Material Adverse Effect and (2) would not have an adverse effect on the Company's ability to consummate the transactions contemplated hereby (such counsel being entitled to rely in respect of the opinion in this clause upon opinions of local counsel and in respect of matters of fact upon certificates of officers of the Company or its Domestic Subsidiaries, provided that such counsel shall

state that they believe that both you and they are justified in relying upon such opinions and certificates);

(xiii) The statements set forth in the Prospectus under the captions "Description of Convertible Notes" and "Description of Capital Stock", insofar as they purport to constitute a summary of the terms of the Securities and the Stock, under the caption "Material United States Federal Income Tax Consequences", and under the caption "Underwriting", insofar as they purport to describe the provisions of the laws and documents referred to therein, are accurate, complete and fair in all material respects;

(xiv) The Company is not an "investment company" or an entity "controlled" by an "investment company", as such terms are defined in the Investment Company Act;

(xv) The documents incorporated by reference in the Prospectus or any further amendment or supplement thereto made by the Company prior to the Time of Delivery (other than the financial statements and related schedules therein, as to which such counsel need express no opinion), when they became effective or were filed with the Commission, as the case may be, complied as to form in all material respects with the requirements of the Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder; and they have no reason to believe that any of such documents, when such documents became effective or were so filed, as the case may be, contained, in the case of a registration statement which became effective under the Act, an untrue statement of a material fact, or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading, or, in the case of other documents which were filed under the Act or the Exchange Act with the Commission, an untrue statement of a material fact or omitted to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made when such documents were so filed, not misleading; and

(xvi) The Registration Statement and the Prospectus and any further amendments and supplements thereto made by the Company prior to such Time of Delivery (other than the financial statements and related schedules therein, as to which such counsel need express no opinion) comply as to form in all material respects with the requirements of the Act and the Trust Indenture Act and the rules and regulations thereunder; although they do not assume any responsibility for the accuracy, completeness or fairness of the statements contained in the Registration Statement or the Prospectus, except for those referred to in the opinion in subsection (xiii) of this Section 7(c),

they have no reason to believe that, as of its effective date, the Registration Statement or any further amendment thereto made by the Company prior to such Time of Delivery (other than the financial statements and related schedules therein, as to which such counsel need express no opinion) contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading or that, as of its date, the Prospectus or any further amendment or supplement thereto made by the Company prior to such Time of Delivery (other than the financial statements and related schedules therein, as to which such counsel need express no opinion) contained an untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading or that, as of such Time of Delivery, either the Registration Statement or the Prospectus or any further amendment or supplement thereto made by the Company prior to such Time of Delivery (other than the financial statements and related schedules therein, as to which such counsel need express no opinion) contains an untrue statement of a material fact or omits to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; and they do not know of any amendment to the Registration Statement required to be filed or of any contracts or other documents of a character required to be filed as an exhibit to the Registration Statement or required to be incorporated by reference into the Prospectus or required to be described in the Registration Statement or the Prospectus which are not filed or incorporated by reference or described as required;

(d) [(i)] On the date of the Prospectus at a time prior to the execution of this Agreement, at 9:30 a.m., New York City time, on the effective date of any post-effective amendment to the Registration Statement filed subsequent to the date of this Agreement and also at each Time of Delivery, Arthur Andersen LLP shall have furnished to you a letter or letters, dated the respective dates of delivery thereof, in form and substance satisfactory to you, to the effect set forth in Annex I hereto (the executed copy of the letter delivered prior to the execution of this Agreement is attached as Annex I(a) hereto and a draft of the form of letter to be delivered on the effective date of any post-effective amendment to the Registration Statement and as of each Time of Delivery is attached as Annex I(b) hereto);

[(ii)] On the date of the Prospectus at a time prior to the execution of this Agreement, at 9:30 a.m., New York City time, on the effective date of any post-effective amendment to the Registration Statement filed subsequent to the date of this Agreement and also at each Time of Delivery, KPMG LLP

shall have furnished to you a letter or letters, dated the respective dates of delivery thereof, in form and substance satisfactory to you, to the effect set forth in Annex II hereto (the executed copy of the letter delivered prior to the execution of this Agreement is attached as Annex II(a) hereto and a draft of the form of letter to be delivered on the effective date of any post-effective amendment to the Registration Statement and as of each Time of Delivery is attached as Annex II(b) hereto;]

(e) (i) Neither the Company nor any of its subsidiaries shall have sustained since the date of the latest audited financial statements included or incorporated by reference in the Prospectus any loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth or contemplated in the Prospectus, and (ii) since the respective dates as of which information is given in the Prospectus there shall not have been any change in the capital stock, capital lease obligations or long-term debt of the Company or any of its subsidiaries or any change, or any development involving a prospective change, in or affecting the general affairs, management, financial position, stockholders' equity or results of operations of the Company and its subsidiaries, taken as a whole, otherwise than as set forth or contemplated in the Prospectus, the effect of which, in any such case described in clause (i) or (ii), is in the judgment of Goldman, Sachs & Co., as representatives of the Underwriters, so material (to the Company and its subsidiaries taken as a whole) and adverse as to make it impracticable or inadvisable to proceed with the public offering or the delivery of the Securities being issued at such Time of Delivery on the terms and in the manner contemplated in the Prospectus;

(f) On or after the date hereof (i) no downgrading shall have occurred in the rating accorded the Company's debt securities by any "nationally recognized statistical rating organization", as that term is defined by the Commission for purposes of Rule 436(g)(2) under the Act, and (ii) no such organization shall have publicly announced that it has under surveillance or review, with possible negative implications, its rating of any of the Company's debt securities;

(g) On or after the date hereof there shall not have occurred any of the following: (i) a suspension or material limitation in trading in securities generally on the New York Stock Exchange or on NASDAQ; (ii) a suspension or material limitation in trading in the Company's securities on NASDAQ; (iii) a general moratorium on commercial banking activities declared by either Federal or New York State authorities; or (iv) the outbreak or escalation of hostilities involving the United States or the declaration by the United States of a national emergency or war, if the effect of any such event specified in this clause (iv) in the judgment of Goldman, Sachs & Co. makes it impracticable or inadvisable to proceed with the public offering or the delivery of the Securities being issued at such Time of Delivery on the terms and in the manner contemplated in the Prospectus;

(h) The shares of Stock issuable upon conversion of the Securities shall have been duly listed for quotation, subject to notice of issuance, on NASDAQ;

(i) The Company has obtained and delivered to the Underwriters executed copies of an agreement from each of the officers and directors of the Company, substantially to the effect set forth in Exhibit A attached hereto and incorporated herein by this reference;

(j) The Company shall have complied with the provisions of Section 5(c) hereof with respect to the furnishing of prospectuses on the New York Business Day next succeeding the date of this Agreement; and

(k) The Company shall have furnished or caused to be furnished to you at such Time of Delivery certificates of officers of the Company satisfactory to you as to the accuracy of the representations and warranties of the Company herein at and as of such Time of Delivery, as to the performance by the Company of all of its obligations hereunder to be performed at or prior to such Time of Delivery, as to the matters set forth in subsections (a) and

(e) of this Section and as to such other matters as you may reasonably request.

8 (a) The Company will indemnify and hold harmless each Underwriter against any losses, claims, damages or liabilities, joint or several, to which such Underwriter may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in any Preliminary Prospectus, the Registration Statement or the Prospectus, or any amendment or supplement thereto, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and will reimburse each Underwriter for any legal or other expenses reasonably incurred by such Underwriter in connection with investigating or defending any such action or claim as such expenses are incurred; PROVIDED, HOWEVER, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage or liability arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in any Preliminary Prospectus, the Registration Statement or the Prospectus or any such amendment or supplement in reliance upon and in conformity with written information furnished to the Company by any Underwriter through Goldman, Sachs & Co. expressly for use therein.

(b) Each Underwriter will indemnify and hold harmless the Company against any losses, claims, damages or liabilities to which the Company may become subject, under the Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in any Preliminary Prospectus, the Registration Statement or the Prospectus, or any amendment or supplement thereto, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or

necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in any Preliminary Prospectus, the Registration Statement or the Prospectus or any such amendment or supplement in reliance upon and in conformity with written information furnished to the Company by such Underwriter through Goldman, Sachs & Co. expressly for use therein; and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with investigating or defending any such action or claim as such expenses are incurred.

(c) Promptly after receipt by an indemnified party under subsection (a) or (b) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; but the omission so to notify the indemnifying party shall not relieve it from any liability which it may have to any indemnified party otherwise than under such subsection. In case any such action shall be brought against any indemnified party and it shall notify the indemnifying party of the commencement thereof, the indemnifying party shall be entitled to participate therein and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel satisfactory to such indemnified party (who shall not, except with the consent of the indemnified party, be counsel to the indemnifying party), and, after notice from the indemnifying party to such indemnified party of its election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal expenses of other counsel or any other expenses, in each case subsequently incurred by such indemnified party, in connection with the defense thereof other than reasonable costs of investigation. No indemnifying party shall, without the written consent of the indemnified party, effect the settlement or compromise of, or consent to the entry of any judgment with respect to, any pending or threatened action or claim in respect of which indemnification or contribution may be sought hereunder (whether or not the indemnified party is an actual or potential party to such action or claim) unless such settlement, compromise or judgment (i) includes an unconditional release of the indemnified party from all liability arising out of such action or claim and (ii) does not include a statement as to or an admission of fault, culpability or a failure to act, by or on behalf of any indemnified party.

(d) If the indemnification provided for in this Section 8 is unavailable to or insufficient to hold harmless an indemnified party under subsection (a) or (b) above in respect of any losses, claims, damages or liabilities (or actions in respect thereof) referred to therein, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of such losses, claims, damages or liabilities (or actions in respect thereof) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Securities. If, however, the allocation provided by the immediately preceding sentence is not permitted by applicable law or if the indemnified party failed to give the notice required

under subsection (c) above, then each indemnifying party shall contribute to such amount paid or payable by such indemnified party in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions which resulted in such losses, claims, damages or liabilities (or actions in respect thereof), as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company on the one hand or the Underwriters on the other and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this subsection

(d) were determined by PRO RATA allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to above in this subsection (d). The amount paid or payable by an indemnified party as a result of the losses, claims, damages or liabilities (or actions in respect thereof) referred to above in this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this subsection (d), no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Securities underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages which such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this subsection (d) to contribute are several in proportion to their respective underwriting obligations and not joint.

(e) The obligations of the Company under this Section 8 shall be in addition to any liability which the Company may otherwise have and shall extend, upon the same terms and conditions, to each person, if any, who controls any Underwriter within the meaning of the Act; and the obligations of the Underwriters under this Section 8 shall be in addition to any liability which the respective Underwriters may otherwise have and shall extend, upon the same terms and conditions, to each officer and director of the Company and to each person, if any, who controls the Company within the meaning of the Act.

9 (a) If any Underwriter shall default in its obligation to purchase the Securities which it has agreed to purchase hereunder at a Time of Delivery, you may in your discretion arrange for you or another party or other parties to purchase such Securities on the terms contained herein. If within thirty-six hours after such default by any Underwriter you do not arrange for the purchase of such Securities, then the Company shall be entitled to a further period of thirty-six hours within which to procure another party or other parties satisfactory to you to purchase such Securities on such terms. In the event that, within the respective prescribed periods, you notify the Company that you have so arranged for the purchase of such Securities, or the Company notifies you that it has so arranged for the purchase of such Securities, you or the Company shall have the right to postpone such Time of Delivery for a period of not more than seven days, in order to effect whatever changes may thereby be made necessary in the Registration Statement or the Prospectus, or in any other documents or arrangements, and the Company agrees to file promptly any amendments to the Registration Statement or the Prospectus which in your opinion may thereby be made necessary. The term "Underwriter" as used in this Agreement shall include any person substituted under this Section with like effect as if such person had originally been a party to this Agreement with respect to such Securities.

(b) If, after giving effect to any arrangements for the purchase of the Securities of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (a) above, the aggregate principal amount of such Securities which remains unpurchased does not exceed one-eleventh of the aggregate principal amount of all the Securities to be purchased at such Time of Delivery, then the Company shall have the right to require each non-defaulting Underwriter to purchase the principal amount of Securities which such Underwriter agreed to purchase hereunder at such Time of Delivery and, in addition, to require each non-defaulting Underwriter to purchase its pro rata share (based on the principal amount of Securities which such Underwriter agreed to purchase hereunder) of the Securities of such defaulting Underwriter or Underwriters for which such arrangements have not been made; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

(c) If, after giving effect to any arrangements for the purchase of the Securities of a defaulting Underwriter or Underwriters by you and the Company as provided in subsection (a) above, the aggregate principal amount of such Securities which remains unpurchased exceeds one-eleventh of the aggregate principal amount of all of the Securities to be purchased at such Time of Delivery, or if the Company shall not exercise the right described in subsection (b) above to require non-defaulting Underwriters to purchase Securities of a defaulting Underwriter or Underwriters, then this Agreement (or, with respect to the Second Time of Delivery, the obligations of the Underwriters to purchase and of the Company to sell the Optional Securities) shall thereupon terminate, without liability on the part of any non-defaulting Underwriter or the Company, except for the expenses to be borne by the Company and the Underwriters as provided in Section 6 hereof and the indemnity and



contribution agreements in Section 8 hereof; but nothing herein shall relieve a defaulting Underwriter from liability for its default.

10 The respective indemnities, agreements, representations, warranties and other statements of the Company and the several Underwriters, as set forth in this Agreement or made by or on behalf of them, respectively, pursuant to this Agreement, shall remain in full force and effect, regardless of any investigation (or any statement as to the results thereof) made by or on behalf of any Underwriter or any controlling person of any Underwriter, or the Company, or any officer or director or controlling person of the Company, and shall survive delivery of and payment for the Securities.

11 If this Agreement shall be terminated pursuant to Section 9 hereof, the Company shall not then be under any liability to any Underwriter except as provided in Sections 6 and 8 hereof; but, if for any other reason, any Securities are not delivered by or on behalf of the Company as provided herein, the Company will reimburse the Underwriters through you for all out-of-pocket expenses approved in writing by you, including fees and disbursements of counsel, reasonably incurred by the Underwriters in making preparations for the purchase, sale and delivery of the Securities, but the Company shall then be under no further liability to any Underwriter except in respect of the Securities as provided in Sections 6 and 8 hereof.

12 In all dealings hereunder, you shall act on behalf of each of the Underwriters, and the parties hereto shall be entitled to act and rely upon any statement, request, notice or agreement on behalf of any Underwriter made or given by you.

All statements, requests, notices and agreements hereunder shall be in writing, and if to the Underwriters shall be delivered or sent by mail, telex or facsimile transmission to you as the representatives at 32 Old Slip, 21st Floor, New York, New York 10005, Attention: Registration Department; and if to the Company shall be delivered or sent by mail, telex or facsimile transmission to the address of the Company set forth in the Registration Statement, Attention: Secretary; provided, however, that any notice to an Underwriter pursuant to Section 8(c) hereof shall be delivered or sent by mail, telex or facsimile transmission to such Underwriter at its address set forth in its Underwriters' Questionnaire, or telex constituting such Questionnaire, which address will be supplied to the Company by you upon request. Any such statements, requests, notices or agreements shall take effect upon receipt thereof.

13 This Agreement shall be binding upon, and inure solely to the benefit of, the Underwriters, the Company and, to the extent provided in Sections 8 and 10 hereof, the officers and directors of the Company and each person who controls the Company or any Underwriter, and their respective heirs, executors, administrators, successors and assigns, and no other person shall acquire or have any right under or by virtue of this Agreement. No purchaser of any of the Securities from any Underwriter shall be deemed a successor or assign by reason merely of such purchase.

14 Time shall be of the essence of this Agreement. As used herein, the term "business day" shall mean any day when the Commission's office in Washington, D.C. is open for business.

15 THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK WITHOUT GIVING EFFECT TO ANY CHOICE OF LAW PROVISIONS THEREOF.

16 This Agreement may be executed by any one or more of the parties hereto in any number of counterparts, each of which shall be deemed to be an original, but all such counterparts shall together constitute one and the same instrument.

If the foregoing is in accordance with your understanding, please sign and return to us four counterparts hereof, and upon the acceptance hereof by you, on behalf of each of the Underwriters, this letter and such acceptance hereof shall constitute a binding agreement among each of the Underwriters and the Company. It is understood that your acceptance of this letter on behalf of each of the Underwriters is pursuant to the authority set forth in a form of Agreement among Underwriters, the form of which shall be submitted to the Company for examination upon request, but without warranty on your part as to the authority of the signers thereof.

Very truly yours,

**ADVANCED ENERGY INDUSTRIES, INC.**

By:

Name:

Title:

Accepted as of the date hereof:

**GOLDMAN, SACHS & CO.**

By:

Name:

Title:

SCHEDULE I

|       | UNDERWRITER<br>-----                               | PRINCIPAL<br>AMOUNT OF<br>FIRM SECURITIES<br>TO BE<br>PURCHASED<br>----- | PRINCIPAL<br>AMOUNT OF<br>OPTIONAL SECURITIES<br>TO BE PURCHASED<br>IF MAXIMUM OPTION<br>EXERCISED<br>----- |
|-------|--|--|---|
|       | Goldman, Sachs & Co.                               | \$   | \$  |
|       | Merrill Lynch, Pierce, Fenner & Smith Incorporated |  |   |
|       | Banc of America Securities LLC                     |  |   |
|       |  | -----  | -----   |
| Total |  | \$   | \$  |
|       |  | -----  | -----   |
|       |  | -----  | -----   |

ADVANCED ENERGY INDUSTRIES, INC.

and

STATE STREET BANK AND TRUST COMPANY OF CALIFORNIA, N.A.

AS TRUSTEE

\_\_\_\_\_

INDENTURE

DATED AS OF \_\_\_\_\_, 1999

\_\_\_\_\_

\_\_\_% CONVERTIBLE SUBORDINATED NOTES DUE 2006

\_\_\_\_\_

Reconciliation and tie between Trust Indenture Act of 1939 (the "Trust Indenture Act") and this Indenture, dated as of \_\_\_\_\_, \_\_\_\_.

| Trust Indenture Action Section | Indenture Section   |
|--------------------------------|---------------------|
| Section 310(a)(1)              | 6.7                 |
| (a)(2)                         | 6.7                 |
| (b)                            | 6.7, 6.8            |
| Section 311(a)                 | 6.13                |
| (b)                            | 6.13                |
| Section 312(a)                 | 7.4                 |
| (b)                            | 7.5                 |
| (c)                            | 7.1                 |
| Section 313(a)                 | 7.2                 |
| (b)                            | 7.2                 |
| (c)                            | 1.6, 7.2            |
| (d)                            | 7.2                 |
| Section 314(a)                 | 7.3                 |
| (a)(4)                         | 10.7                |
| (c)(1)                         | 1.2                 |
| (c)(2)                         | 1.2                 |
| (c)(3)                         | 13.3                |
| (e)                            | 1.2                 |
| Section 315(a)                 | 6.2                 |
| (b)                            | 6.1                 |
| (c)                            | 6.2                 |
| (d)                            | 6.2                 |
| (e)                            | 5.15                |
| Section 316(a) (last sentence) | 1.1 ("Outstanding") |
| (a)(1)(A)                      | 5.2, 5.12           |
| (a)(1)(B)                      | 5.13                |
| (b)                            | 5.8                 |
| (c)                            | 1.4                 |
| Section 317(a)(1)              | 5.3                 |
| (a)(2)                         | 5.4                 |
| (b)                            | 10.3                |
| Section 318(a)                 | 1.14                |
| (c)                            | 1.14                |

-----

NOTE: This reconciliation and tie shall not, for any purpose, be deemed to be a part of this Indenture. Attention should also be directed to Section 318(c) of the Trust Indenture Act, which provides that the provisions of Sections 310 to and including 317 of the Trust Indenture Act are a part of and govern every qualified indenture, whether or not physically contained therein.

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This Indenture (this "Indenture") is dated as of \_\_\_\_\_, 1999, by and between Advanced Energy Industries, Inc., a Delaware corporation (the "Company"), having its principal office at 1625 Sharp Point Drive, Fort Collins, Colorado 80525, and State Street Bank and Trust Company of California, N.A., a national banking association, as Trustee hereunder (the "Trustee"), having its Corporate Trust Office (as defined below) at 633 West 5th Street, 12th Floor, Los Angeles, California 90071.

## **RECITALS**

The Company deems it necessary and advisable to issue a series of debt securities designated as the [ ]% Convertible Subordinated Notes due 2006 (the "Securities") evidencing its unsecured subordinated indebtedness, and has duly authorized the execution and delivery of this Indenture to provide for the issuance of the Securities.

This Indenture is subject to the provisions of the Trust Indenture Act of 1939, as amended, that are deemed to be incorporated into this Indenture and shall, to the extent applicable, be governed by such provisions.

All things necessary to make the Securities, when executed by the Company and authenticated and delivered hereunder and duly issued by the Company, the valid obligation of the Company, and to make this Indenture a valid agreement of the Company, in accordance with their and its terms, have been done.

## **NOW, THEREFORE, THIS INDENTURE WITNESSETH:**

For and in consideration of the premises and the purchase of the Securities by the Holders thereof, it is mutually covenanted and agreed, for the equal and proportionate benefit of all Holders of the Securities, as follows:

## **ARTICLE I**

### **DEFINITIONS AND OTHER PROVISIONS OF GENERAL APPLICATION**

#### **SECTION I.1 Definitions.**

For all purposes of this Indenture, except as otherwise expressly provided or unless the context otherwise requires:

(1) the terms defined in this Article have the meanings assigned to them in this Article, and include the plural as well as the singular;

(2) all other terms used herein which are defined in the Trust Indenture Act, either directly or by reference therein, have the meanings assigned to them therein;

(3) all accounting terms not otherwise defined herein have the meanings assigned to them in accordance with GAAP;

(4) the words "herein," "hereof" and "hereunder" and other words of similar import refer to this Indenture as a whole and not to any particular Article, Section or other subdivision;

"Act," when used with respect to any Holder, has the meaning specified in Section 1.4.

"Affiliate" of any specified Person means any other Person directly or indirectly controlling or controlled by or under direct or indirect common control with such specified Person. For the purposes of this definition, "control" when used with respect to any specified Person means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms "controlling" and "controlled" have meanings correlative to the foregoing.

"Aggregate Cash Distribution Amount" has the meaning specified in Section 14.4(5).

"Authenticating Agent" means any Person authorized by the Trustee pursuant to Section 6.11 to act on behalf of the Trustee to authenticate Securities.

"Authorized Newspaper" means a newspaper, printed in the English language or in an official language of the place of publication, customarily published on each day that is a Business Day in the place of publication, whether or not published on days that are not Business Days in the place of publication, and of general circulation in each place in connection with which the term is used or in the financial community of each such place. Whenever successive publications are required to be made in Authorized Newspapers, the successive publications may be made in the same or in different Authorized Newspapers in the same city meeting the foregoing requirements and in each case on any day that is a Business Day in the place of publication.

"Board of Directors" means the board of directors of the Company or any committee of that board duly authorized to act hereunder, as the case may be.

"Board Resolution" means a copy of a resolution of the Company, certified by the Secretary or an Assistant Secretary of the Company to have been duly adopted by the Board of Directors and to be in full force and effect on the date of such certification, which is delivered to the Trustee.

"Business Day" when used with respect to any Place of Payment, Place of Conversion or any other location referred to in this Indenture or in the Securities, means any day, other than a Saturday, Sunday or other day on which banking institutions in that Place of Payment, Place of Conversion or location are authorized or obligated by law, regulation or executive order to close.

"Capital Stock" means with respect to any Person, any and all shares, interests, participations or other equivalents (however designated, whether voting or non-voting) in equity of such Person, whether now outstanding or issued after the Closing Date, including, without limitation, all common stock and preferred stock.

"Change in Control" has the meaning specified in Section 12.4.

"Closing Price Per Share" has the meaning specified in Section 12.4.

"Commission" means the United States Securities and Exchange Commission, as from time to time constituted, created under the Exchange Act, or, if at any time after execution of this Indenture such Commission is not existing and performing the duties now assigned to it under the Trust Indenture Act, then the body performing such duties on such date.

"Common Stock" means the Common Stock, par value \$0.001 per share, of the Company authorized at the date of this instrument as originally executed. Subject to the provisions of Section 14.11, shares issuable on conversion or repurchase of Securities shall include only shares of Common Stock or shares of any class or classes of common stock resulting from any reclassification or reclassifications thereof; provided, however, that if at any time there shall be more than one such resulting class, the shares so issuable on conversion of Securities shall include shares of all such classes, and the shares of each such class then so issuable shall be substantially in the proportion which the total number of shares of such class resulting from all such reclassifications bears to the total number of shares of all such classes resulting from all such reclassifications.

"Company" means the Person named as the "Company" in the first paragraph of this Indenture until a successor Company shall have become such pursuant to the applicable provisions of this Indenture, and thereafter "Company" shall mean such successor Company.

"Company Notice" has the meaning specified in Section 12.3.

"Company Request" and "Company Order" mean, respectively, a written request or order signed in the name of and on behalf of the Company by its Chairman of the Board, its President or a Vice President, and by its Chief Financial Officer, its Treasurer, an Assistant Treasurer, its Secretary or an Assistant Secretary of the Company, and which is delivered to the Trustee.

"Constituent Person" has the meaning specified in Section 14.11.

"Conversion Agent" means any Person authorized by the Company to convert Securities in accordance with Article XIV. The Company has initially appointed the Trustee as its Conversion Agent pursuant to Section 10.2 hereof.

"Conversion Price" shall equal \$1,000 divided by the Conversion Rate (rounded to the nearest cent).

"Conversion Rate" has the meaning specified in Section 14.1.

"Corporate Trust Office" means the corporate trust office of the Trustee at which, at any particular time, the trust created by this Indenture shall be administered, which office at the date hereof is located at 633 West 5th Street, 12th Floor, Los Angeles, California 90071, attention: Corporate Trust Department (Advanced Energy Industries, Inc.), except that for purposes of Section 10.2 and all other references to a Corporate Trust Office in the Borough of Manhattan, City of New York, such term shall mean the office or agency of the Trustee in the Borough of Manhattan, the City of New York, which office at the date hereof is located at State Street Bank and Trust Company, N.A., 61 Broadway, New York, New York 10006, attention: Corporate Trust Department (Advanced Energy Industries, Inc.)

"Corporation" includes corporations, limited liability companies, partnerships, joint stock companies, associations, companies and business and real estate investment trusts.

"Debt" of the Company or any Subsidiary means any indebtedness of the Company or any Subsidiary, whether or not contingent, in respect of (i) borrowed money or evidenced by bonds, notes, debentures or similar instruments, (ii) indebtedness secured by any mortgage, pledge, lien, charge, encumbrance or any security interest existing on property owned by the Company or any Subsidiary, (iii) letters of credit or amounts representing the balance deferred and unpaid of the purchase price of any property except any such balance that constitutes an accrued expense or trade payable or (iv) any lease of property by the Company or any Subsidiary as lessee which is reflected on the Company's consolidated balance sheet as a capitalized lease in accordance with GAAP, in the case of items of indebtedness under (i) through (iii) above to the extent that any such items (other than letters of credit) would appear as a liability on the Company's consolidated balance sheet in accordance with GAAP, and also includes, to the extent not otherwise included, any obligation by the Company or any Subsidiary to be liable for, or to pay, as obligor, guarantor or otherwise (other than for purposes of collection in the ordinary course of business), indebtedness of another person (other than the Company or any Subsidiary) and all renewals, extensions, refundings, deferrals, restructurings, amendments and modifications of any such indebtedness, obligation or guarantee (it being understood that "Debt" shall be deemed to be incurred by the Company and its Subsidiaries on a consolidated basis whenever the Company and its Subsidiaries on a consolidated basis shall create, assume, guarantee or otherwise become liable in respect thereof); Debt of a Subsidiary of the Company existing prior to the time it became a Subsidiary of the Company shall be deemed to be incurred upon such Subsidiary's becoming a Subsidiary of the Company; and Debt of a Person existing prior to a merger or consolidation of such Person with the Company or any Subsidiary of the Company in which such Person is the successor of the Company or such Subsidiary shall be deemed to be incurred upon the consummation of such merger or consolidation; provided, however, that the term "Debt" shall not include any indebtedness that has been the subject of an "in substance" defeasance in accordance with GAAP.

"Defaulted Interest" has the meaning specified in Section 3.7.

"Designated Senior Debt" means the Company's obligations under that certain Loan and Security Agreement dated December 8, 1997, as now in effect and as the same may be amended from time to time, by and among the Company as Borrower, Silicon Valley Bank, as Servicing Agent and a Bank, and Bank of Hawaii, as a Bank (such capitalized terms being understood to have the meanings ascribed thereto in the Credit Agreement), and any particular Senior Debt in which the instrument creating or evidencing the same or the assumption or guarantee thereof (or related agreements or documents to which the Company is a party) expressly provides that such indebtedness shall be "Designated Senior Debt" for purposes of the Indenture (provided that such instrument, agreement or other document may place limitations and conditions on the right of such Senior Debt to exercise the rights of Designated Senior Debt), in each case, including any amendments, replacements, supplements or other modifications thereto, or any refinancings or extensions thereof, in whole or in part.

"DTC" means The Depository Trust Company for so long as it shall be a clearing agency registered under the Exchange Act, or such successor as the Company shall designate from time to time in an Officers' Certificate delivered to the Trustee.

"Dollar" or "\$" means a dollar or other equivalent unit in such coin or currency of the United States of America as at the time shall be legal tender for the payment of public and private debts.

"Event of Default" has the meaning specified in Section 5.1.

"Excess Amount" has the meaning specified in Section 14.4(5).

"Exchange Act" means the Securities Exchange Act of 1934 and any successor statute thereto, in each case as amended from time to time, and the rules and regulations of the Commission thereunder.

"Expiration Time" has the meaning specified in Section 14.4(6).

"GAAP" means generally accepted accounting principles, as in effect from time to time, as used in the United States applied on a consistent basis; provided that, solely for purposes of any calculation required or permitted hereunder, "GAAP" shall mean generally accepted accounting principles as used in the United States on the date hereof, applied on a consistent basis.

"Global Security" means a Security that is registered in the Security Register in the name of DTC or a nominee thereof or a substitute depository or a nominee of such substitute depository.



"Government Obligations" means securities which are (i) direct obligations of the United States of America, for the payment of which its full faith and credit is pledged or (ii) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America, the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America, which, in either case, are not callable or redeemable at the option of the issuer thereof, and shall also include a depository receipt issued by a bank or trust company as custodian with respect to any such Government Obligation or a specific payment of interest on or principal of any such Government Obligation held by such custodian for the account of the holder of a depository receipt, provided that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the Government Obligation or the specific payment of interest on or principal of the Government Obligation evidenced by such depository receipt.

"Holder" means the Person in whose name such Security is registered in the Security Register.

"Indenture" means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more indentures supplemental hereto entered into pursuant to the applicable provisions hereof, including, for all purposes of this instrument and any supplemental indenture, the provisions of the Trust Indenture Act that are deemed to be a part of and govern this instrument and any such supplemental indenture, respectively.

"Interest Payment Date" means the Stated Maturity of an installment of interest on the Securities.

"Maturity" when used with respect to any Security, means the date on which the principal of (and premium, if any, on) such Security or an installment of principal or premium becomes due and payable as therein or herein provided, whether at the Stated Maturity or by declaration of acceleration, notice of redemption or repurchase, repurchase or otherwise, and includes the Redemption Date.

"Notes" has the meaning specified in Section 2.1.

"Notice of Default" has the meaning specified in Section 5.1.

"Officers' Certificate" means a certificate signed by the Chairman of the Board of Directors, the Chief Executive Officer, the President, the Chief Financial Officer of the Company or an Executive Vice President and by the Treasurer, an Assistant Treasurer, the Secretary or an Assistant Secretary of the Company, and which is delivered to the Trustee.

"Opinion of Counsel" means a written opinion of counsel, who may be counsel for the Company and who shall be acceptable to the Trustee.

"Outstanding" when used with respect to Securities, means, as of the date of determination, all Securities theretofore authenticated and delivered under this Indenture, except:

- (i) Securities theretofore canceled by the Trustee or the Security Registrar or delivered to the Trustee or Security Registrar for cancellation;
- (ii) Securities for whose payment, redemption or repurchase money in the necessary amount has been theretofore deposited with the Trustee or any Paying Agent (other than the Company) in trust or set aside and segregated in trust by the Company (if the Company shall act as its own Paying Agent) for the Holders of such Securities, provided that, if such Securities are to be redeemed, notice of such redemption has been duly given pursuant to this Indenture or provision therefor satisfactory to the Trustee has been made; and
- (iii) Securities which have been paid pursuant to Section 3.6 or in exchange for or in lieu of which other Securities have been authenticated and delivered pursuant to this Indenture, other than any such Securities in respect of which there shall have been presented to the Trustee proof satisfactory to it that such Securities are held by a bona fide purchaser in whose hands such Securities are valid obligations of the Company;

provided, however, that in determining whether the Holders of the requisite principal amount of the Outstanding Securities have given any request, demand, authorization, direction, notice, consent or waiver hereunder, and for the purpose of making the calculations required by Trust Indenture Act Section 313, Securities owned by the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor shall be disregarded and deemed not to be Outstanding, except that, in determining whether the Trustee shall be protected in making such determination or calculation or in relying upon any such request, demand, authorization, direction, notice, consent or waiver, only Securities which a Responsible Officer of the Trustee actually knows to be so owned shall be so disregarded. Securities so owned which have been pledged in good faith may be regarded as Outstanding if the pledgee establishes to the satisfaction of the Trustee the pledgee's right so to act with respect to such Securities and that the pledgee is not the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor.

"Paying Agent" means any Person authorized by the Company to pay the principal of (and premium, if any) or interest on any Securities on behalf of the Company.

"Payment Blockage Notice" has the meaning specified in Section 13.3.

"Person" means any individual, corporation, partnership, limited liability company, joint venture, association, joint-stock company, trust, unincorporated organization, real estate investment trust or government or any agency or political subdivision thereof or other entity of any kind.

"Place of Conversion" has the meaning specified in Section 3.1.

"Place of Payment" means the place or places where the principal of (and premium, if any) and interest on the Securities are payable as specified as contemplated by Sections 3.1 and 10.2. Such term shall include the Company if it shall act as its own Paying Agent.

"Predecessor Security" of any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such particular Security; and, for the purposes of this definition, any Security authenticated and delivered under Section 3.6 in exchange for or in lieu of a mutilated, destroyed, lost or stolen Security shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Security.

"Purchased Shares" has the meaning specified in Section 14.4(6).

"Purchasers" has the meaning specified in Section 11.9.

"Record Date" means any Regular Record Date on Special Record Date.

"Redemption Date" when used with respect to any Security to be redeemed, in whole or in part, means the date fixed for such redemption by or pursuant to this Indenture.

"Redemption Price" when used with respect to any Security to be redeemed, means the price at which it is to be redeemed pursuant to this Indenture.

"Regular Record Date" for the interest payable on any Interest Payment Date on the Securities means the date specified for that purpose as contemplated by Section 3.1, whether or not a Business Day.

"Representative" means the (a) indenture trustee or other trustee, agent or representative for any Senior Debt or (b) with respect to any Senior Debt that does not have any such trustee, agent or other representative, (i) in the case of such Senior Debt issued pursuant to an agreement providing for voting arrangements as among the holders or owners of such Senior Debt, any holder or owner of such Senior Debt acting with the consent of the required persons necessary to bind such holders or owners of such Senior Debt and (ii) in the case of all other such Senior Debt, the holder or owner of such Senior Debt.

"Repurchase Date" when used with respect to any Security to be repurchased at the option of the Holder, means the date fixed for such repurchase specified in Section 12.1.

"Repurchase Price" when used with respect to any Security to be repurchased at the option of the Holder, means the price at which it is to be repurchased specified in Section 12.1.

"Responsible Officer" when used with respect to the Trustee, means any officer in the Corporate Trust Office of the Trustee or any other officer of the Trustee customarily performing functions similar to those performed by any of the above designated officers and also means,

with respect to a particular corporate trust matter, any other officer to whom such matter is referred because of such officer's knowledge and familiarity with the particular subject.

"RF Power" means RF Power Products, Inc., a New Jersey corporation, or any other subsidiary of the Company who is the successor in interest to the assets of RF Power Products, Inc.

"Secured Debt" means, without duplication, Debt that is secured by a mortgage, trust deed, deed of trust, deed to secure Debt, security agreement, pledge, conditional sale or other title retention agreement, capitalized lease, or other like agreement granting or conveying security title to or a security interest in real property or other tangible assets.

"Securities Act" means the Securities Act of 1933 and any successor statute thereto, in each case as amended from time to time, and the rules and regulations of the Commission thereunder.

"Security" has the meaning stated in the first recital of this Indenture and, more particularly, means any Security or Securities authenticated and delivered under this Indenture.

"Security Register" and "Security Registrar" have the respective meanings specified in Section 3.5.

"Senior Debt" means the principal of (and premium, if any) and interest (including all interest accruing subsequent to the commencement of any bankruptcy or similar proceeding, whether or not a claim for post-petition interest is allowable as a claim in such proceeding) on, and all fees and other amounts payable in connection with, the following, whether absolute or contingent secured or unsecured, due or to become due, whether outstanding at the date of execution of this Indenture or thereafter incurred, created or assumed: (a) indebtedness of the Company evidenced by a credit or loan agreement, note, bond, debenture or other written obligation, (b) all obligations of the Company for money borrowed, (c) all obligations of the Company evidenced by a note or similar instrument given in connection with the acquisition of any businesses, properties or assets of any kind, (d) obligations of the Company (i) as lessee under leases required to be capitalized on the balance sheet of the lessee under GAAP and (ii) as lessee under other leases for facilities, capital equipment or related assets, whether or not capitalized, entered into or leased for financing purposes, (e) all obligations of the Company under interest rate and currency swaps, caps, floors, collars, hedge agreements, forward contracts or similar agreements or arrangements, (f) all obligations of the Company with respect to letters of credit, bankers' acceptances and similar facilities (including reimbursement obligations with respect to the foregoing), (g) all obligations of the Company issued or assumed as the deferred purchase price of property or services (but excluding trade accounts payable and accrued liabilities), (h) all obligations of the type referred to in clauses (a) through (g) above of another Person, the payment of which, in either case, the Company has assumed or guaranteed, or for which the Company is responsible or liable, directly or indirectly, jointly or severally, as obligor, guarantor or otherwise, or which is secured by a lien on the property of the Company, and

(i) renewals, extensions, modifications, replacements, restatements and refundings of, or any indebtedness or obligation issued in exchange for, any such indebtedness or obligation described in clauses (a) through (h) of this paragraph; provided, however, that Senior Debt shall not include the Securities or any such indebtedness or obligation if the terms of such indebtedness or obligation (or the terms of the instrument under which, or pursuant to which it is issued) expressly provide that such indebtedness or obligation is not superior in right of payment to the Securities.

"Significant Subsidiary" means any Subsidiary which is a "significant subsidiary" (as defined in Article I, Rule 1-02 of Regulation S-X, promulgated under the Securities Act) of the Company.

"Special Record Date" for the payment of any Defaulted Interest on the Securities means a date fixed by the Trustee pursuant to Section 3.7.

"Stated Maturity" when used with respect to any Security or any installment of principal thereof, premium thereon or interest thereon, means the date specified in such Security as the fixed date on which the principal of such Security or such installment of principal, premium or interest is due and payable.

"Subsidiary" means (a) a corporation at least a majority of the outstanding voting stock of which is owned, directly or indirectly, by the Company or by one or more other Subsidiaries of the Company or (b) a Person (other than a corporation) in which the Company or one or more other Subsidiaries, directly or indirectly, has at least a majority equity ownership. For the purposes of this definition, "voting stock" means stock having voting power for the election of directors, or persons performing similar functions, whether at all times or only so long as no senior class of stock has such voting power by reason of any contingency.

"Third Party Expiration Time" has the meaning specified in Section 14.4(8).

"Third Party Purchased Shares" has the meaning specified in Section 14.4(8).

"Trading Day" means (i) if the Common Stock is quoted on the Nasdaq National Market or any other system of automated dissemination of quotations of securities prices, days on which trades may be effected through such system, (ii) if the Common Stock is listed or admitted for trading on any national or regional securities exchange, days on which such national or regional securities exchange is open for business, or (iii) if the Common Stock is not listed on a national or regional securities exchange or quoted on the Nasdaq National Market or any other system of automated dissemination of quotation of securities prices, days on which the Common Stock is traded regular way in the over-the-counter market and for which a closing bid and a closing asked price for the Common Stock are available.

"Triggering Event" has the meaning specified in Section 14.4(9).

"Trust Indenture Act" means the Trust Indenture Act of 1939, and the rules and regulations thereunder, as in force at the date as of which this Indenture was executed, provided, however, that in the event the Trust Indenture Act of 1939 is amended after such date, "Trust Indenture Act" means, to the extent required by any such amendment, the Trust Indenture Act of 1939, and the rules and regulations thereunder, as so amended.

"Trustee" means the Person named as the "Trustee" in the first paragraph of this Indenture until a successor Trustee shall have become such pursuant to the applicable provisions of this Indenture, and thereafter "Trustee" shall mean or include each Person who is then a Trustee hereunder.

"United States" means the United States of America (including the states and the District of Columbia), its territories, its possessions and other areas subject to its jurisdiction.

#### SECTION 1.2 Compliance Certificates and Opinions.

Upon any application or request by the Company to the Trustee to take any action under any provision of this Indenture, the Company shall furnish to the Trustee an Officers' Certificate in form and substance satisfactory to the Trustee stating that all conditions precedent, if any, provided for in this Indenture relating to the proposed action have been complied with and an Opinion of Counsel in form and substance satisfactory to the Trustee stating that in the opinion of such counsel all such conditions precedent, if any, have been complied with, except that in the case of any such application or request as to which the furnishing of such documents is specifically required by any provision of this Indenture relating to such particular application or request, no additional certificate or opinion need be furnished.

Every certificate or opinion with respect to compliance with a condition or covenant provided for in this Indenture (including certificates delivered pursuant to Section 10.9) shall include:

- (1) a statement that each individual signing such certificate or opinion has read such condition or covenant and the definitions herein relating thereto;
- (2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based;
- (3) a statement that, in the opinion of each such individual, he or she has made such examination or investigation as is necessary to enable the individual to express an informed opinion as to whether or not such condition or covenant has been complied with; and
- (4) a statement as to whether, in the opinion of each such individual, such condition or covenant has been complied with.

### SECTION I.3 Form of Documents Delivered to Trustee.

In any case where several matters are required to be certified by, or covered by an opinion of, any specified Person, it is not necessary that all such matters be certified by, or covered by the opinion of, only one such Person, or that they be so certified or covered by only one document, but one such Person may certify or give an opinion as to some matters and one or more other such Persons as to other matters, and any such Person may certify or give an opinion as to such matters in one or several documents.

Any certificate or opinion of an officer of the Company may be based, insofar as it relates to legal matters, upon an Opinion of Counsel, or a certificate or representations by counsel, unless such officer knows, or in the exercise of reasonable care should know, that the Opinion of Counsel, certificate or representations with respect to the matters upon which his or her certificate or opinion is based are erroneous. Any such Opinion of Counsel, certificate or representations may be based, insofar as it relates to factual matters, upon a certificate or opinion of, or representations by, an officer or officers of the Company stating that the information as to such factual matters is in the possession of the Company, unless such counsel or officer knows, or in the exercise of reasonable care should know, that the certificate, opinion or representations as to such matters are erroneous.

Where any Person is required to make, give or execute two or more applications, requests, consents, certificates, statements, opinions or other instruments under this Indenture, they may, but need not, be consolidated and form one instrument.

### SECTION I.4 Acts of Holders; Record Dates.

(a) Any request, demand, authorization, direction, notice, consent, waiver or other action provided by this Indenture to be given or taken by Holders of the Outstanding Securities, may be embodied in and evidenced by (1) one or more instruments of substantially similar tenor signed by such Holders in person or by agents duly appointed in writing or (2) the record of Holders of Securities voting in favor thereof, either in person or by proxies duly appointed in writing, at any meeting of Holders of Securities duly called and held in accordance with the provisions of Article XV. Except as herein otherwise expressly provided, such action shall become effective when such instrument or instruments or record are delivered to the Trustee and, where it is hereby expressly required, to the Company. Such instrument or instruments and records (and the action embodied therein and evidenced thereby) are herein sometimes referred to as the "Act" of the Holders signing such instrument or instruments or so voting at such meeting. Proof of execution of any such instrument or of a writing appointing any such agent, or of the holding by any Person of a Security, shall be sufficient for any purpose of this Indenture and (subject to Section 6.14) conclusive in favor of the Trustee and the Company and any agent of the Trustee or the Company, if made in the manner provided in this Section. The record of any meeting of Holders of Securities shall be proved in the manner provided in Section 15.6.

(b) The fact and date of the execution by any Person of any such instrument or writing may be proved by the affidavit of a witness of such execution or by a certificate of a notary public or other officer authorized by law to take acknowledgments of deeds, certifying that the individual signing such instrument or writing acknowledged to him the execution thereof. Where such execution is by a signer acting in a capacity other than his or her individual capacity, such certificate or affidavit shall also constitute sufficient proof of his or her authority. The fact and date of the execution of any such instrument or writing, or the authority of the Person executing the same, may also be proved in any other reasonable manner which the Trustee deems sufficient.

(c) The ownership of Securities shall be proved by the Security Register.

(d) If the Company shall solicit from the Holders of Securities any request, demand, authorization, direction, notice, consent, waiver or other Act, the Company may, at its option, in or pursuant to an Officer's Certificate, fix in advance a record date for the determination of Holders entitled to give such request, demand, authorization, direction, notice, consent, waiver or other Act, but the Company shall have no obligation to do so. Notwithstanding the Trust Indenture Act, Section 316(c), such record date shall be the record date specified in or pursuant to such Board Resolution, which shall be a date not earlier than the date 30 days prior to the first solicitation of Holders generally in connection therewith and not later than the date such solicitation is completed. If such a record date is fixed, such request, demand, authorization, direction, notice, consent, waiver or other Act may be given before or after such record date, but only the Holders of record at the close of business on such record date shall be deemed to be Holders for the purposes of determining whether Holders of the requisite proportion of Outstanding Securities have authorized or agreed or consented to such request, demand, authorization, direction, notice, consent, waiver or other Act, and for that purpose the Outstanding Securities shall be computed as of such record date.

(e) Any request, demand, authorization, direction, notice, consent, waiver or other Act of the Holder of any Security shall bind every future Holder of the same Security and the Holder of every Security issued upon the registration of transfer thereof or in exchange therefor or in lieu thereof in respect of anything done, omitted or suffered to be done by the Trustee, any Security Registrar, any Paying Agent, any Authenticating Agent or the Company in reliance thereon, whether or not notation of such action is made upon such Security.

#### SECTION I.5 Notices, etc., to Trustee and Company.

Any request, demand, authorization, direction, notice, consent, waiver or Act of Holders or other document provided or permitted by this Indenture to be made upon, given or furnished to, or filed with,

(1) the Trustee by any Holder or by the Company shall be sufficient for every purpose hereunder if made, given, furnished or filed in writing to or with the Trustee at its Corporate Trust Office, or



(2) the Company by the Trustee or by any Holder shall be sufficient for every purpose hereunder (unless otherwise herein expressly provided) if in writing and mailed, first class postage prepaid, to the Company addressed to it at the address of its principal office specified in the first paragraph of this Indenture or at any other address previously furnished in writing to the Trustee by the Company.

#### SECTION I.6 Notice to Holders; Waiver.

Where this Indenture provides for notice of any event to Holders of Securities by the Company or the Trustee, such notice shall be sufficiently given (unless otherwise herein expressly provided) if in writing and mailed, first-class postage prepaid, to each such Holder affected by such event, at such Holder's address as it appears in the Security Register, not later than the latest date, and not earlier than the earliest date, prescribed for the giving of such notice. In any case where notice to Holders of Securities is given by mail, neither the failure to mail such notice, nor any defect in any notice so mailed, to any particular Holder shall affect the sufficiency of such notice with respect to other Holders of Securities. Any notice mailed to a Holder in the manner herein prescribed shall be deemed to have been given when such notice is mailed.

If by reason of the suspension of regular mail service or by reason of any other cause it shall be impracticable to give such notice by mail, then such notification to Holders of Securities as shall be made with the approval of the Trustee shall constitute a sufficient notification to such Holders for every purpose hereunder.

Where this Indenture provides for notice in any manner, such notice may be waived in writing by the Person entitled to receive such notice, either before or after the event, and such waiver shall be the equivalent of such notice. Waivers of notice by Holders shall be filed with the Trustee, but such filing shall not be a condition precedent to the validity of any action taken in reliance upon such waiver.

#### SECTION I.7 Effect of Headings and Table of Contents.

The Article and Section headings herein and the Table of Contents are for convenience only and shall not affect the construction hereof.

#### SECTION I.8 Successors and Assigns.

All covenants and agreements in this Indenture by the Company shall be binding on their successors and assigns, whether so expressed or not.

#### SECTION I.9 Separability Clause.

In case any provision in this Indenture or in any Security shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

#### SECTION I.10 Benefits of Indenture.

Nothing in this Indenture or in the Securities, express or implied, shall give to any Person, other than the Parties hereto, any Security Registrar, any Paying Agent, any Authenticating Agent and their successors hereunder and the Holders any benefit or any legal or equitable right, remedy or claim under this Indenture.

#### SECTION I.11 No Personal Liability.

No recourse under or upon any obligation, covenant or agreement contained in this Indenture, in any Security or because of any indebtedness evidenced thereby, shall be had against any incorporator, as such, or against any past, present or future stockholder, officer or director, as such, of the Company or of any successor, either directly or through the Company or any successor, under any rule of law, statute or constitutional provision or by the enforcement of any assessment or by any legal or equitable proceeding or otherwise, all such liability being expressly waived and released by the acceptance of the Securities by the Holders thereof and as part of the consideration for the issue of the Securities.

#### SECTION I.12 Governing Law.

This Indenture and the Securities shall be governed by and construed in accordance with the internal laws of the State of New York, without regard to the principles of conflict of law.

#### SECTION I.13 Legal Holidays.

In any case where any Interest Payment Date, Repurchase Date, Redemption Date, Stated Maturity or Maturity of any Security shall not be a Business Day at any Place of Payment or Place of Conversion, then (notwithstanding any other provision of this Indenture or any Security other than a provision in the Securities which specifically states that such provision shall apply in lieu hereof), payment of interest or principal (and premium, if any) need not be made at such Place of Payment or Place of Conversion on such date, but may be made on the next succeeding Business Day at such Place of Payment or Place of Conversion with the same force and effect as if made on the Interest Payment Date, Repurchase Date or Redemption Date, or at the Stated Maturity or Maturity, provided that no interest shall accrue on the amount so payable for the period from and after such Interest Payment Date, Repurchase Date, Redemption Date, Stated Maturity or Maturity, as the case may be, so long as payment is made on such succeeding Business Day.

#### SECTION I.14 Conflict with Trust Indenture Act.

If any provision hereof limits, qualifies or conflicts with a provision of the Trust Indenture Act that is required under the Trust Indenture Act to be a part of and govern this Indenture, the latter provision shall control. If any provision of this Indenture modifies or excludes any provision of the Trust Indenture Act that may be so modified or excluded, the latter provision shall be deemed to apply to this Indenture as so modified or to be excluded, as the case may be.

#### SECTION I.15 Counterparts.

This Indenture may be executed in any number of counterparts, each of which so executed shall be deemed to be an original, but all such counterparts shall together constitute but one and the same instrument.

### **ARTICLE II**

#### **SECURITIES FORM**

##### SECTION II.1 Designation of Securities; Form Generally.

Pursuant to the terms hereof, the Company hereby creates a series of its debt securities designated as the "[ ]% Convertible Subordinated Notes due 2006" (the "Notes"), which Notes shall be deemed "Securities" for all purposes hereunder.

The Securities shall be in substantially the form set forth in this Article, with such appropriate insertions, omissions, substitutions and other variations as are required or permitted by this Indenture, and may have such letters, numbers or other marks of identification and such legends or endorsements placed thereon as may be required to comply with the rules of any securities exchange, the Internal Revenue Code of 1986, as amended, and regulations thereunder (the "Code"), or as may, consistent herewith, be determined by the officers executing such Securities, as evidenced by their execution thereof. All Securities shall be in fully registered form, without coupon.

The Trustee's certificates of authentication shall be in substantially the form set forth in Section 2.3.

Conversion notices shall be substantially in the form set forth in Section 2.4.

Repurchase notices shall be substantially in the form set forth in Section 2.5.

Assignments shall be substantially in the form set forth in Section 2.6.

The Securities shall be printed, lithographed, typewritten or engraved or produced by any combination of these methods or may be produced in any other manner permitted by the rules of any automated quotation system or securities exchange (including on steel engraved borders if so required by any securities exchange upon which the Securities may be listed) on which the Securities may be quoted or listed, as the case may be, all as determined by the officers executing such Securities, as evidenced by their execution thereof.

SECTION II.2 Form of Security.

**[FORM OF NOTE FACE]**

**[THE FOLLOWING LEGEND SHALL APPEAR ON THE FACE OF EACH GLOBAL SECURITY:**

THIS NOTE IS A GLOBAL SECURITY WITHIN THE MEANING OF THE INDENTURE HEREINAFTER REFERRED TO AND IS REGISTERED IN THE NAME OF THE DEPOSITARY OR A NOMINEE OF THE DEPOSITARY, WHICH MAY BE TREATED BY THE COMPANY, THE TRUSTEE AND ANY AGENT THEREOF AS OWNER AND HOLDER OF THIS NOTE FOR ALL PURPOSES.

UNLESS THIS CERTIFICATE IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF THE DEPOSITORY TRUST COMPANY, A NEW YORK CORPORATION ("DTC"), TO THE COMPANY OR ITS AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE OR PAYMENT, AND ANY CERTIFICATE ISSUED IS REGISTERED IN THE NAME OF CEDE & CO. OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC (AND ANY PAYMENT IS MADE TO CEDE & CO. OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF DTC), ANY TRANSFER, PLEDGE OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, CEDE & CO., HAS AN INTEREST HEREIN.

UNLESS AND UNTIL IT IS EXCHANGED IN WHOLE OR IN PART FOR NOTES IN DEFINITIVE REGISTERED FORM IN THE LIMITED CIRCUMSTANCES REFERRED TO IN THE INDENTURE, THIS GLOBAL SECURITY MAY NOT BE TRANSFERRED EXCEPT AS A WHOLE BY THE DEPOSITARY TO A NOMINEE OF THE DEPOSITARY OR BY A NOMINEE OF THE DEPOSITARY TO THE DEPOSITARY OR ANOTHER NOMINEE OF THE DEPOSITARY OR BY THE DEPOSITARY OR ANY SUCH NOMINEE TO A SUCCESSOR DEPOSITARY OR A NOMINEE OF SUCH SUCCESSOR DEPOSITARY.]

**ADVANCED ENERGY INDUSTRIES, INC.**

**[ ]% CONVERTIBLE SUBORDINATED NOTE**

**DUE 2006**

No. \_\_\_\_\_ \$ \_\_\_\_\_

**CUSIP NO.**

ADVANCED ENERGY INDUSTRIES, INC., a corporation duly organized and existing under the laws of the State of Delaware (herein called the "Company", which term includes any successor Person under the Indenture referred to on the reverse hereof), for value received, hereby promises to pay to \_\_\_\_\_, the principal sum of \_\_\_\_\_ United States Dollars (\$\_\_\_\_\_) [if this Security is a Global Security, then insert - (which principal amount may from time to time be increased or decreased to such other principal amounts (which, taken together with the principal amounts of all other Outstanding Notes, shall not exceed [ ] in the aggregate at any time) by adjustments made on the records of the Trustee hereinafter referred to in accordance with the Indenture)] on [ ], 2006 and to pay interest thereon, from [ ], 1999, or from the most recent Interest Payment Date (as defined below) to which interest has been paid or duly provided for, semi-annually in arrears on [ ] and [ ] in each year (each, an "Interest Payment Date"), commencing [ ], 2000, at the rate of [ ]% per annum, until the principal hereof is due, and at the rate of [ ]% per annum on any overdue principal and premium, if any, and, to the extent permitted by law, on any overdue interest. The interest so payable, and punctually paid or duly provided for, on any Interest Payment Date will, as provided in the Indenture, be paid to the Person in whose name this Note (or one or more Predecessor Securities) is registered at the close of business on the Regular Record Date for such interest, which shall be the [ ] or [ ] (whether or not a Business Day), as the case may be, next preceding such Interest Payment Date. Except as otherwise provided in the Indenture, any such interest not so punctually paid or duly provided for will forthwith cease to be payable to the Holder on such Regular Record Date and may either be paid to the Person in whose name this Note (or one or more Predecessor Securities) is registered at the close of business on a Special Record Date for the payment of such Defaulted Interest to be fixed by the Company, notice whereof shall be given to Holders of Notes not less than 10 days prior to the Special Record Date, or be paid at any time in any other lawful manner not inconsistent with the requirements of any automated quotation system or securities exchange on which the Notes may be quoted or listed, and upon such notice as may be required by such exchange, all as more fully provided in the Indenture. Payments of principal shall be made upon the surrender of this Note at the Corporate Trust Office of the Trustee, or at such other office or agency of the Company as may be designated by the Company for such purpose, in the Borough of Manhattan, The City of New York, in such coin or currency of the United States of America as at the time of payment shall be legal tender for the payment of public and private debts, by Dollar check drawn on, or transfer to, a Dollar account. Payments of interest on this Note may be made by Dollar check, drawn on a Dollar account, mailed to the address of the Person entitled thereto as such address shall appear in the Security Register, or, upon written application by the Holder to the Security Registrar setting forth wire instructions not later than the relevant Record Date, by transfer to a Dollar account; provided however, that transfers to Dollar accounts will be made only to Holders of an aggregate principal amount of Notes in excess of \$2,000,000.

Except as specifically provided herein and in the Indenture, the Company shall not be required to make any payment with respect to any tax, assessment or other governmental charge imposed by any government or any political subdivision or taxing authority thereof or therein.

Reference is hereby made to the further provisions of this Note set forth on the reverse hereof, which further provisions shall for all purposes have the same effect as if set forth at this place.

Unless the certificate of authentication hereon has been executed by the Trustee referred to on the reverse hereof or an Authenticating Agent by the manual signature of one of their respective authorized signatories, this Note shall not be entitled to any benefit under the Indenture or be valid or obligatory for any purpose.

IN WITNESS WHEREOF, the Company has caused this Note to be duly executed and delivered under its corporate seal.

**Advance Energy Industries, Inc.**

[Corporate Seal]

By:

Name:

Title:

**Attest:**

Name:

Title:

(Trustee's Certificate of Authentication)

This is one of the [ ]% Convertible Subordinated Notes due 2006 referred to in the within-mentioned Indenture.

**STATE STREET BANK AND  
TRUST COMPANY OF CALIFORNIA, N.A.,  
as Trustee**

By:

**Authorized Signatory**

**[FORM OF REVERSE]**

This Note is one of a duly authorized issue of securities of the Company designated as its "[ ]% Convertible Subordinated Notes due 2006" (herein called the "Notes"), limited in aggregate principal amount to \$[ ], issued and to be issued under an Indenture, dated as of [ ], 1999 (herein called the "Indenture"), between the Company and

State Street Bank and Trust Company of California, N.A., as Trustee (herein called the "Trustee", which term includes any successor trustee under the Indenture), to which Indenture and all indentures supplemental thereto reference is hereby made for a statement of the respective rights, limitations of rights, duties and immunities thereunder of the Company, the Trustee, the holders of Senior Debt and the Holders of the Notes and of the terms upon which the Notes are, and are to be, authenticated and delivered. As provided in the Indenture and subject to certain limitations therein set forth, Notes are exchangeable for a like aggregate principal amount of Notes of any authorized denominations as requested by the Holder surrendering the same upon surrender of the Note or Notes to be exchanged, at the Corporate Trust Office of the Trustee. The Trustee upon such surrender by the Holder will issue the new Notes in the requested denominations.

No sinking fund is provided for the Notes.

The Notes are subject to redemption at the option of the Company at any time on or after [ ], 2002, in whole or in part, upon not less than 30 nor more than 60 days' notice to the Holders prior to the Redemption Date at the following Redemption Prices (expressed as percentages of the principal amount) for the twelve-month period beginning on [ ] of the following years:

| YEAR | REDEMPTION PRICE |
|------|------------------|
| ---- | -----            |
| 2002 | [ ]%             |
| 2003 | [ ]%             |
| 2004 | [ ]%             |
| 2005 | [ ]%             |
| 2006 | [ ]%             |

and thereafter at a Redemption Price equal to 100% of the principal amount, together, in each case, with accrued and unpaid interest to the Redemption Date; provided, however, that interest installments on Notes whose Stated Maturity is on or prior to such Redemption Date will be payable to the Holders of such Notes, or one or more Predecessor Securities, of record at the close of business on the relevant Record Dates referred to on the face hereof, all as provided in the Indenture.

In the event of a redemption of the Notes, the Company will not be required (a) to register the transfer or exchange of Notes for a period of 15 days immediately preceding the date notice is given identifying the serial numbers of the Notes called for such redemption or (b) to register the transfer or exchange of any Note, or portion thereof, called for redemption.



In any case where the due date for the payment of the principal of, premium, if any, or interest on any Note or the last day on which a Holder of a Note has a right to convert such Note shall be, at any Place of Payment or Place of Conversion as the case may be, a day on which banking institutions at such Place of Payment or Place of Conversion are authorized or obligated by law, regulation or executive order to close, then payment of principal, premium, if any, interest or delivery for conversion of such Note need not be made on or by such date at such place but may be made on or by the next succeeding day at such place which is not a day on which banking institutions are authorized or obligated by law, regulation or executive order to close, with the same force and effect as if made on the date for such payment or the date fixed for redemption or repurchase, or by such last day for conversion, and no interest shall accrue on the amount so payable for the period after such date.

Subject to and upon compliance with the provisions of the Indenture, the Holder of this Note is entitled, at such Holder's option, at any time following the original issue date of the Notes and on or before the close of business on the Business Day immediately preceding [ ], 2006, or in case this Note or a portion hereof is called for redemption or the Holder hereof has exercised his or her right to require the Company to repurchase this Note or such portion hereof, then in respect of this Note until but (unless the Company defaults in making the payment due upon redemption or repurchase, as the case may be) not after, the close of business on Business Day immediately preceding the Redemption Date or the Repurchase Date, as the case may be, to convert this Note (or any portion of the principal amount hereof that is an integral multiple of \$1,000, provided that the unconverted portion of such principal amount is \$1,000 or any integral multiple of \$1,000 in excess thereof) into fully paid and nonassessable shares of Common Stock of the Company at an initial Conversion Rate of [ ] shares of Common Stock for each \$1,000 principal amount of Notes (or at the current adjusted Conversion Rate if an adjustment has been made as provided in the Indenture, including pursuant to Section 14.4(2)) by surrender of this Note, duly endorsed or assigned to the Company or in blank and, in case such surrender shall be made during the period from the close of business on any Regular Record Date next preceding any Interest Payment Date to the opening of business on such Interest Payment Date (except if this Note or portion thereof has been called for redemption on a Redemption Date or is repurchasable on a Repurchase Date and the conversion rights of this Note, or such portion thereof, would terminate during the period between such Regular Record Date and the close of business on such Interest Payment Date), also accompanied by payment in New York Clearing House or other funds acceptable to the Company of an amount equal to the interest payable on such Interest Payment Date on the principal amount of this Note then being converted, and also the conversion notice hereon duly executed, to the Company at the Corporate Trust Office of the Trustee, or at such other office or agency of the Company, subject to any laws or regulations applicable thereto and subject to the right of the Company to terminate the appointment of any Conversion Agent (as defined below) as may be designated by it for such purpose, in the Borough of Manhattan, The City of New York, or at such other offices or agencies as the Company may designate (each a "Conversion Agent"), provided, however, that if this Note or portion hereof has been called for redemption on a Redemption Date or is repurchasable on a Repurchase Date and the conversion rights of this Note, or such portion

thereof, would terminate during the period between such Regular Record Date and the close of business on such Interest Payment Date, then the Holder of this Note on such Regular Record Date will be entitled to receive the interest accruing hereon from the Interest Payment Date next preceding the date of such conversion to such succeeding Interest Payment Date and the Holder of this Note who converts this Note or a portion hereof during such period shall not be required to pay such interest upon surrender of this Note for conversion. Subject to the provisions of the preceding sentence and, in the case of a conversion after the close of business on the Regular Record Date next preceding any Interest Payment Date and on or before the close of business on such Interest Payment Date, to the right of the Holder of this Note (or any Predecessor Security of record as of such Regular Record Date) to receive the related installment of interest to the extent and under the circumstances provided in the Indenture, no cash payment or adjustment is to be made on conversion for interest accrued hereon from the Interest Payment Date next preceding the day of conversion, or for dividends on the Common Stock issued on conversion hereof. The Company shall thereafter deliver to the Holder the fixed number of shares of Common Stock (together with any cash adjustment, as provided in the Indenture) into which this Note is convertible and such delivery will be deemed to satisfy the Company's obligation to pay the principal amount of this Note. No fractions of shares or scrip representing fractions of shares will be issued on conversion, but instead of any fractional interest (calculated to the nearest 1/100th of a share) the Company shall pay a cash adjustment as provided in the Indenture. The Conversion Rate is subject to adjustment as provided in the Indenture. In addition, the Indenture provides that in case of certain consolidations or mergers to which the Company is a party (other than a consolidation or merger that does not result in any reclassification, conversion, exchange or cancellation of the Common Stock) or the conveyance, transfer, sale or lease of all or substantially all of the property and assets of the Company, the Indenture shall be amended, without the consent of any Holders of Notes, so that this Note, if then Outstanding, will be convertible thereafter, during the period this Note shall be convertible as specified above, only into the kind and amount of securities, cash and other property receivable upon such consolidation, merger, conveyance, transfer, sale or lease by a holder of the number of shares of Common Stock of the Company into which this Note could have been converted immediately prior to such consolidation, merger, conveyance, transfer, sale or lease (assuming such holder of Common Stock is not a Constituent Person or an Affiliate of a Constituent Person, failed to exercise any rights of election and received per share the kind and amount received per share by a plurality of Non-electing Shares and further assuming, if such consolidation, merger, conveyance, transfer, sale or lease occurs prior to the original issue date of the Notes, that the Note was convertible at the time of such occurrence at the Conversion Rate specified above as adjusted from the issue date of such Note to such time as provided in the Indenture). No adjustment in the Conversion Rate will be made until such adjustment would require an increase or decrease of at least one percent of such price, provided that any adjustment that would otherwise be made, but for the application of the foregoing, will be carried forward and taken into account in the computation of any subsequent adjustment.

If a Change in Control occurs, the Holder of this Note, at the Holder's option, shall have the right, in accordance with the provisions of the Indenture, to require the Company to repurchase this Note (or any portion of the principal amount hereof that is equal to \$1,000 or an

integral multiple of \$1,000 in excess thereof) for cash at a Repurchase Price equal to 100% of the principal amount thereof plus interest accrued to the Repurchase Date. At the option of the Company, the Repurchase Price may be paid in cash or, subject to the conditions provided in the Indenture, by delivery of shares of Common Stock having a fair market value equal to the Repurchase Price. For purposes of this paragraph, the fair market value of shares of Common Stock shall be determined by the Company and shall be equal to 95% of the average of the Closing Prices Per Share for the five consecutive Trading Days immediately preceding and including the third Trading Day prior to the Repurchase Date. Whenever in this Note there is a reference, in any context, to the principal of any Note as of any time, such reference shall be deemed to include reference to the Repurchase Price payable in respect of such Note to the extent that such Repurchase Price is, was or would be so payable at such time, and express mention of the Repurchase Price in any provision of this Note shall not be construed as excluding the Repurchase Price so payable in those provisions of this Note when such express mention is not made; provided, however, that, for the purposes of the second succeeding paragraph, such reference shall be deemed to include reference to the Repurchase Price only to the extent the Repurchase Price is payable in cash.

[The following paragraph shall appear in each Global Security:

In the event of a deposit or withdrawal of an interest in this Note, including an exchange, transfer, redemption, repurchase or conversion of this Note in part only, the Trustee, as custodian of the Depositary, shall make an adjustment on its records to reflect such deposit or withdrawal in accordance with the rules and procedures of The Depositary Trust Company applicable to, and as in effect at the time of, such transaction.]

[The following paragraph shall appear in each Note that is not a Global Security:

In the event of redemption, repurchase or conversion of this Note in part only, a new Note or Notes for the unredeemed, unrepurchased or unconverted portion hereof will be issued in the name of the Holder hereof.]

The indebtedness evidenced by this Note is, to the extent and in the manner provided in the Indenture, subordinate and subject in right of payment to the prior payment in full in cash of all Senior Debt of the Company, and this Note is issued subject to such provisions of the Indenture with respect thereto. Each Holder of this Note, by accepting the same, (a) agrees to and shall be bound by such provisions, (b) authorizes and directs the Trustee on such Holder's behalf to take such action as may be necessary or appropriate to effectuate the subordination so provided and (c) appoints the Trustee such Holder's attorney-in-fact for any and all such purposes.

If an Event of Default shall occur and be continuing, the principal of all the Notes, together with accrued interest to the date of declaration, may be declared due and payable in the manner and with the effect provided in the Indenture. Upon payment (i) of the amount of principal so declared due and payable, together with accrued interest to the date of declaration,

and (ii) of interest on any overdue principal and, to the extent permitted by applicable law, overdue interest, all of the Company's obligations in respect of the payment of the principal of and interest on the Notes shall terminate.

The Indenture permits, with certain exceptions as therein provided, the amendment thereof and the modification of the rights and obligations of the Company and the rights of the Holders of the Notes under the Indenture at any time by the Company and the Trustee with either (a) the written consent of the Holders of not less than a majority in aggregate principal amount of the Outstanding Notes, or (b) by the adoption of a resolution, at a meeting of Holders of the Outstanding Notes at which a quorum is present, by the Holders of at least 66-2/3% in aggregate principal amount of the Outstanding Notes represented and entitled to vote at such meeting. The Indenture also contains provisions permitting the Holders of specified percentages in principal amount of the Outstanding Notes, on behalf of the Holders of all the Notes, to waive compliance by the Company with certain provisions of the Indenture and certain past defaults under the Indenture and their consequences. Any such consent or waiver by the Holder of this Note shall be conclusive and binding upon such Holder and upon all future Holders of this Note and of any Note issued in exchange therefor or in lieu hereof whether or not notation of such consent or waiver is made upon this Note or such other Note.

As provided in and subject to the provisions of the Indenture, the Holder of this Note shall not have the right to institute any proceeding with respect to the Indenture or for the appointment of a receiver or trustee or for any other remedy thereunder, unless such Holder shall have previously given the Trustee written notice of a continuing Event of Default, the Holders of not less than 25% in principal amount of the Outstanding Notes shall have made written request to the Trustee to institute proceedings in respect of such Event of Default as Trustee and offered the Trustee reasonable indemnity and the Trustee shall not have received from the Holders of a majority in principal amount of the Outstanding Notes a direction inconsistent with such request, and shall have failed to institute any such proceeding, for 60 days after receipt of such notice, request and offer of indemnity. The foregoing shall not apply to any suit instituted by the Holder of this Note for the enforcement of any payment of principal hereof, premiums if any, or interest hereon on or after the respective due dates expressed herein or for the enforcement of the right to convert this Note as provided in the Indenture.

No reference herein to the Indenture and no provision of this Note or of the Indenture shall alter or impair the obligation of the Company, which is absolute and unconditional, to pay the principal of, premium, if any, and interest on this Note at the times, places and rate, and in the coin or currency, herein prescribed or to convert this Note as provided in the Indenture.

As provided in the Indenture and subject to certain limitations therein set forth, the transfer of this Note is registrable on the Security Register upon surrender of this Note for registration of transfer at the Corporate Trust Office of the Trustee or at such other office or agency of the Company as may be designated by it for such purpose in the Borough of Manhattan, The City of New York (which shall initially be an office or agency of the Trustee), or at such other offices or agencies as the Company may designate, duly endorsed by, or

accompanied by a written instrument of transfer in form satisfactory to the Company and the Security Registrar duly executed by, the Holder thereof or such Holder's attorney duly authorized in writing, and thereupon one or more new Notes, of authorized denominations and for the same aggregate principal amount, will be issued to the designated transferee or transferees by the Security Registrar. No service charge shall be made for any such registration of transfer or exchange, but the Company may require payment of a sum sufficient to recover any tax or other governmental charge payable in connection therewith.

Prior to due presentation of this Note for registration of transfer, the Company, the Trustee and any agent of the Company or the Trustee may treat the Person in whose name Note is registered, as the owner thereof for all purposes, whether or not such Note be overdue, and neither the Company, the Trustee nor any such agent shall be affected by notice to the contrary.

No recourse for the payment of the principal (and premium, if any) or interest on this Note and no recourse under or upon any obligation, covenant or agreement of the Company in the Indenture or any indenture supplemental thereto or in any Note, or because of the creation of any indebtedness represented thereby, shall be had against any incorporator, stockholder, officer or director, as such, past, present or future, of the Company or of any successor corporation, either directly or through the Company or any successor corporation, whether by virtue of any rule of law, statute or constitutional provision or by the enforcement of any assessment or by any legal or equitable proceeding or otherwise, all such liability being expressly waived and released, by the acceptance hereof and as part of consideration for the issue hereof.

THE INDENTURE AND THIS NOTE SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK, UNITED STATES OF AMERICA WITHOUT REGARD TO THE PRINCIPLES OF CONFLICT OF LAW.

All terms used in this Note which are defined in the Indenture shall have the meanings assigned to them in the Indenture.

**ABBREVIATIONS**

The following abbreviations, when used in the inscription of the face of this Note, shall be construed as though they were written out in full according to applicable laws or regulations:

|                   |   |  |
|-------------------|---|--|
| TEN COM           | - | as tenants in common   |
| TEN ENT           | - | as tenants by the entirety (Cust)  |
| JT TEN            | - | as joint tenants with right of survivorship and not as tenants in common |
| UNIF GIFT MIN ACT | - | Custodian (Minor) under Uniform Gifts to Minors Act (State)              |

Additional abbreviations may also be used though not in the above list.

SECTION II.3 Form of Trustee's Certificate of Authentication.

Subject to Section 6.11, the Trustee's certificate of authentication shall be in substantially the following form:

This is one of the [\_\_\_\_]% Convertible Subordinated Notes due 2006 referred to in the within-mentioned Indenture.

Dated:\_\_\_\_\_

State Street Bank and Trust Company  
of California, N.A., as Trustee

By:\_\_\_\_\_  
Authorized Signatory

SECTION II.4 Form of Election of Holder to Require Repurchase.

(1 Pursuant to Article XII of the Indenture, the undersigned hereby elects to have this Note repurchased by the Company.

(2 The undersigned hereby directs the Trustee or the Company to pay to the undersigned an amount in cash or, at the Company's election, Common Stock valued as set forth in the Indenture, equal to 100% of the principal amount to be repurchased (as set forth below), plus interest accrued to the Repurchase Date, as provided in the Indenture.

Dated:

**Signature(s)**

Signature(s) must be  
guaranteed by an Eligible  
Guarantor Institution with  
membership in an approved  
signature guarantee program  
pursuant to Rule 17Ad-15  
under the Securities  
Exchange Act of 1934.

**Signature Guaranteed**

Principal amount to be repurchased (at least \$1,000 or an integral multiple \$1,000 in excess thereof): \_\_\_\_\_

Remaining principal amount following such repurchase (not less than \$1,000): \_\_\_\_\_

NOTICE: The signature to the foregoing Election must correspond to the Name as written upon the face of this Note in every particular, without alteration or any change whatsoever.

SECTION II.5 Form of Conversion Notice.

The undersigned Holder of this Note hereby irrevocably exercises the option to convert this Note, or any portion of the principal amount hereof (which is \$1,000 or an integral multiple of \$1,000 in excess thereof, PROVIDED that the unconverted portion of such principal amount is at least \$1,000 or any integral multiple of \$1,000 in excess thereof) below designated, into shares of Common Stock in accordance with the terms of the Indenture referred to in this Note, and directs that such shares, together with a check in payment for any fractional share and any Notes representing any unconverted principal amount hereof, be delivered to and be registered in the name of the undersigned unless a different name has been indicated below. If shares of Common Stock or Notes are to be registered in the name of a Person other than the undersigned, (a) the undersigned will pay all applicable transfer taxes payable with respect thereto and (b) signature(s) must be guaranteed by an Eligible Guarantor Institution with membership in an approved signature guarantee program pursuant to Rule 17Ad-15 under the Securities Exchange Act of 1934. Any amount required to be paid by the undersigned on account of interest accompanies this Note.

Dated: \_\_\_\_\_

**Signature(s)**

If shares or Notes are to be registered in the name of a Person other than the Holder, please print such Person's name and address:

**Name**

**Address**

Social Security or other Identification  
Number, if any

**Signature Guaranteed**

If only a portion of the Notes is to be converted, please indicate:

1. Principal amount to be converted: \$ \_\_\_\_\_

2. Principal amount and denomination of Notes representing unconverted principal amount to be issued: \$ \_\_\_\_\_

(\$1,000 or any integral multiple of \$1,000 in excess thereof, provided that the unconverted portion of such principal amount is at least \$1,000 or any integral multiple of \$1,000 in excess thereof)



## SECTION II.6 Form of Assignment.

For value received \_\_\_\_\_ hereby sell(s), assign(s) and transfer(s) unto \_\_\_\_\_ (Please insert social security or other identifying number of assignee) the within Note, and hereby irrevocably constitutes and appoints \_\_\_\_\_ as attorney to transfer the said Note on the books of the Company, with full power of substitution in the premises.

Dated:

### **Signature(s)**

Signature(s) must be  
guaranteed by an Eligible  
Guarantor Institution with  
membership in an approved  
signature guarantee program  
pursuant to Rule 17Ad-15  
under the Securities  
Exchange Act of 1934.

## SECTION II.7 Securities Issuable in Global Form.

The Securities initially will be represented by one or more notes in registered, global form without interest coupons, referred to as global notes. Any such Security shall represent Outstanding Securities and may provide that it shall represent the aggregate amount of Outstanding Securities and that the aggregate amount of Outstanding Securities may from time to time be increased or decreased to reflect exchanges. Any endorsement of a Security in global form to reflect the amount, or any increase or decrease in the amount, of Outstanding Securities represented thereby shall be made by the Trustee in such manner and upon instructions given by such Person or Persons as shall be specified therein or in the Company Order to be delivered to the Trustee pursuant to Section 3.3 or 3.4. Subject to the provisions of Section 3.3 and, if applicable, Section 3.4, the Trustee shall deliver and redeliver any Security in permanent global form in the manner and upon instructions given by the Person or Persons specified therein or in the applicable Company Order. If a Company Order pursuant to Section 3.3 or 3.4 has been, or simultaneously is, delivered, any instructions by the Company with respect to endorsement or delivery or redelivery of a Security in global form shall be in writing but need not comply with Section 1.2 and need not be accompanied by an Opinion of Counsel.

The provisions of the last sentence of Section 3.3 shall apply to any Security represented by a Security in global form if such Security was never issued and sold by the Company and the Company delivers to the Trustee the Security in global form together with written instructions (which need not comply with Section 1.2 and need not be accompanied by an Opinion of

Counsel) with regard to the reduction in the principal amount of Securities represented thereby, together with the written statement contemplated by the last sentence of Section 3.3.

Notwithstanding the provisions of Section 3.7, payment of principal of (and premium, if any) and interest on any Security in permanent global form shall be made to the Person or Persons specified therein.

### **ARTICLE III**

#### **THE SECURITIES**

##### **SECTION III.1 Title and Terms.**

The aggregate principal amount of Securities which may be authenticated and delivered under this Indenture is unlimited.

The Securities shall be known and designated as the "[ ] % Convertible Subordinated Notes due 2006" of the Company. Their Stated Maturity shall be [ ], 2006 and they shall bear interest on their principal amount from [ ], 1999, payable semi-annually in arrears on [ ] and [ ] in each year, commencing [ ], 2000, at the rate of [ ]% per annum until the principal thereof is due and at the rate of [ ]% per annum on any overdue principal and, to the extent permitted by law, on any overdue interest; provided, however, that payments shall only be made on a Business Day as provided in Section 1.13.

The principal of, premium, if any, and interest on the Securities shall be payable as provided in the form of Securities set forth in Section 2.2, and the Repurchase Price, whether payable in cash or in shares of Common Stock, shall be payable at such places as are identified in the Company Notice given pursuant to Section 12.3 (any city in which any Paying Agent is located being herein called a "Place of Payment").

The Securities shall be redeemable at the option of the Company at any time on or after [ ] 2002, in whole or in part, subject to the conditions and as otherwise provided in Article XI and in the form of Security set forth in Section 2.2.

The Securities shall be subject to repurchase by the Company at the option of the Holders as provided in Article XII.

The Securities shall be subordinated in right of payment to Senior Debt of the Company as provided in Article XIII.

The Securities shall be convertible as provided in Article XIV (any city in which any Conversion Agent is located being herein called a "Place of Conversion").

##### **SECTION III.2 Denominations.**

The Securities shall be issuable in minimum denominations of \$1,000 and any integral multiple thereof.

#### SECTION III.3 Execution, Authentication, Delivery and Dating.

The Securities shall be executed by the Company's Chairman of the Board, its Chief Executive Officer its President or one of its Executive Vice Presidents, and attested by its Chief Financial Officer or its Secretary. The signature of any of these officers on the Securities may be manual or facsimile signatures and may be imprinted or otherwise reproduced on the Securities.

Securities bearing the manual or facsimile signatures of individuals who were at any time the proper officers of the Company shall bind the Company, notwithstanding that such individuals or any of them have ceased to hold such offices prior to the authentication and delivery of such Securities did not hold such offices at the date of such Securities.

At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver the Securities, executed by the Company to the Trustee for authentication, together with a Company Order for the authentication and delivery of such Securities, and the Trustee in accordance with the Company Order shall authenticate and deliver such Securities.

Each Security shall be dated the date of its authentication.

No Security shall be entitled to any benefit under this Indenture or be valid or obligatory for any purpose unless there appears on such Security a certificate of authentication substantially in the form provided for herein duly executed by the Trustee by manual signature of an authorized signatory, and such certificate upon any Security shall be conclusive evidence, and the only evidence, that such Security has been duly authenticated and delivered hereunder and is entitled to the benefits of this Indenture. Notwithstanding the foregoing, if any Security shall have been authenticated and delivered hereunder but never issued and sold by the Company, and the Company shall deliver such Security to the Trustee for cancellation as provided in Section 3.9 together with a written statement (which need not comply with Section 1.2 and need not be accompanied by an Opinion of Counsel) stating that such Security has never been issued and sold by the Company, for all purposes of this Indenture such Security shall be deemed never to have been authenticated and delivered hereunder and shall never be entitled to the benefits of this Indenture.

#### SECTION III.4 Global Securities.

Any Global Security shall be exchangeable only as provided in this paragraph. If the depositary for any permanent Global Security is DTC, then, unless the terms of such Global Security expressly permit such Global Security to be exchanged in whole or in part for definitive Securities, a Global Security may be transferred, in whole but not in part, only to a nominee of DTC, or by a nominee of DTC to DTC, or to a successor to DTC for such Global Security

selected or approved by the Company or to a nominee of such successor to DTC. If at any time DTC notifies the Company that it is unwilling or unable to continue as depositary for the applicable Global Security or Securities or if at any time DTC ceases to be a clearing agency registered under the Exchange Act if so required by applicable law or regulation, the Company shall appoint a successor depositary with respect to such Global Security or Securities. If

(x) a successor depositary for such Global Security or Securities is not appointed by the Company within 90 days after the Company receives such notice or becomes aware of such unwillingness, inability or ineligibility,

(y) an Event of Default has occurred and is continuing or any event which after notice or lapse of time or both would be an Event of Default with respect to such Security or Securities, or (z) the Company, in its sole discretion, determines at any time that all Outstanding Securities (but not less than all) issued or issuable in the form of one or more Global Securities shall no longer be represented by such Global Security or Securities, then the Company shall execute, and the Trustee shall authenticate and deliver definitive Securities of like rank, tenor and terms in definitive form in an aggregate principal amount equal to the principal amount of such Global Security or Securities. If any beneficial owner of an interest in a Global Security is otherwise entitled to exchange such interest for Securities of like tenor and principal amount of another authorized form and denomination, as specified as contemplated by Section 3.1 and provided that any applicable notice provided in the Global Security shall have been given, then without unnecessary delay but in any event not later than the earliest date on which such interest may be so exchanged, the Company shall execute, and the Trustee shall authenticate and deliver definitive Securities in aggregate principal amount equal to the principal amount of such beneficial owner's interest in such Global Security. On or after the earliest date on which such interests may be so exchanged, such Global Security shall be surrendered for exchange by DTC or such other depositary as shall be specified in the Company Order with respect thereto to the Trustee, as the Company's agent for such purpose; provided, however, that no such exchanges may occur during a period beginning at the opening of business 15 days before selection of the Securities to be redeemed under Section 11.3 and ending at the close of business on the day of the mailing of the relevant notice of redemption. If a Security is issued in exchange for any portion of a Global Security after the close of business at the office or agency where such exchange occurs on (i) any Regular Record Date and before the opening of business at such office or agency on the relevant Interest Payment Date, or

(ii) any special Record Date and the opening of business at such office or agency on the related proposed date for payment of Defaulted Interest, interest or Defaulted Interest, as the case may be, will not be payable on such Interest Payment Date or proposed date for payment, as the case may be, in respect of such Security, but will be payable on such Interest Payment Date or proposed date for payment, as the case may be, only to the Person to whom interest in respect of such portion of such Global Security is payable in accordance with the provisions of this Indenture.

#### SECTION III.5 Registration, Registration of Transfer and Exchange.

The Company shall cause to be kept at the Corporate Trust Office of the Trustee or in any office or agency of the Company in a Place of Payment a register of the Securities (the register maintained in such office or in any such office or agency of the Company in a Place of Payment being herein sometimes referred to as the "Security Register") in which, subject to such

reasonable regulations as it may prescribe, the Company shall provide for the registration of Securities and of transfers of Securities. The Security Register shall be in written form or any other form capable of being converted into written form within a reasonable time. The Trustee, at its Corporate Trust Office, is hereby initially appointed "Security Registrar" for the purpose of registering Securities and transfers of Securities on such Security Register as herein provided. In the event that the Trustee shall cease to be Security Registrar, it shall have the right to examine the Security Register at all reasonable times.

Subject to the provisions of this Section 3.5, upon surrender for registration of transfer of any Security at any office or agency of the Company in a Place of Payment, the Company shall execute, and the Trustee shall authenticate and deliver, in the name of the designated transferee or transferees, one or more new Securities of any authorized denominations and of a like aggregate principal amount, bearing a number not contemporaneously outstanding, and containing identical terms and provisions.

Subject to the provisions of this Section 3.5, at the option of the Holder, Securities may be exchanged for other Securities, of any authorized denomination or denominations and of a like aggregate principal amount, containing identical terms and provisions, upon surrender of the Securities to be exchanged at any such office or agency. Whenever any such Securities are so surrendered for exchange, the Company shall execute, and the Trustee shall authenticate and deliver, the Securities which the Holder making the exchange is entitled to receive.

All Securities issued upon any registration of transfer or exchange of Securities shall be the valid obligations of the Company, evidencing the same debt, and entitled to the same benefits under this Indenture, as the Securities surrendered upon such registration of transfer or exchange.

Every Security presented or surrendered for registration of transfer or for exchange or redemption shall (if so required by the Company or the Security Registrar) be duly endorsed, or be accompanied by a written instrument of transfer in form satisfactory to the Company and the Security Registrar, duly executed by the Holder thereof or such Holder's attorney duly authorized in writing.

No service charge shall be made for any registration of transfer or exchange of Securities, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in connection with any registration of transfer or exchange of Securities, other than exchanges pursuant to Sections 9.6, 11.8, 12.3(e), or any supplemental indenture not involving any transfer and other than any stamp and similar duties, if any, which may be imposed in connection with any such transfer or exchange by the United States or any political subdivision thereof or taxing authority thereof or therein, which shall be paid by the Company.

The Company, or the Trustee, as applicable, shall not be required

(i) to issue, register the transfer of or exchange any Security if such Security may be among those selected for redemption during a period beginning at the opening of business 15 days before selection of the

Securities to be redeemed under Section 11.3 and ending at the close of business on the day of the mailing of the relevant notice of redemption, or

(ii) to register the transfer of or exchange any Security so selected for redemption in whole or in part, except, in the case of any Security to be redeemed in part, the portion thereof not to be redeemed, or (iii) to issue, register the transfer of or exchange any Security which has been surrendered for repurchase at the option of the Holder, except the portion, if any, of such Security not to be so repaid.

#### SECTION III.6 Mutilated, Destroyed, Lost and Stolen Securities.

If any mutilated Security is surrendered to the Trustee or the Company, together with, in proper cases, such security or indemnity as may be required by the Company or the Trustee to save each of them or any agent of either of them harmless, the Company shall execute and the Trustee shall authenticate and deliver in exchange therefor a new Security of the same principal amount, containing identical terms and provisions and bearing a number not contemporaneously outstanding.

If there shall be delivered to the Company and to the Trustee (i) evidence to their satisfaction of the destruction, loss or theft of any Security, and (ii) such security or indemnity as may be required by them to save each of them and any agent of either of them harmless, then, in the absence of notice to the Company or the Trustee that such Security has been acquired by a bona fide purchaser, the Company shall execute and upon its request the Trustee shall authenticate and deliver, in lieu of any such destroyed, lost or stolen Security, a new Security of the same principal amount, containing identical terms and provisions and bearing a number not contemporaneously outstanding.

Notwithstanding the provisions of the previous two paragraphs, in case any such mutilated, destroyed, lost or stolen Security has become or is about to become due and payable, the Company in its discretion may pay such Security, instead of issuing a new Security.

Upon the issuance of any new Security under this Section, the Company may require the payment of a sum sufficient to cover any tax or other governmental charge (other than any stamp and similar duties, if any, which may be imposed in connection therewith by the United States or any political subdivision thereof or taxing authority thereof or therein, which shall be paid by the Company) that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith.

Every new Security issued pursuant to this Section in lieu of any destroyed, lost or stolen Security, shall constitute an original additional contractual obligation of the Company, whether or not the destroyed, lost or stolen Security shall be at any time enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Securities duly issued hereunder.

The provisions of this Section are exclusive and shall preclude (to the extent lawful) all other rights and remedies with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities.

#### SECTION III.7 Payment of Interest; Interest Rights Preserved.

Interest on any Security that is payable, and is punctually paid or duly provided for, on any Interest Payment Date shall be paid to the Person in whose name that Security (or one or more Predecessor Securities) is registered at the close of business on the Regular Record Date for such interest at the office or agency of the Company maintained for such purpose pursuant to Section 10.2; provided, however, that, except as otherwise provided below with respect to Global Securities, each installment of interest on any Security may at the Company's option be paid by (i) mailing a check for such interest, payable to or upon the written order of the Person entitled thereto pursuant to Section 3.8, to the address of such Person as it appears on the Security Register or (ii) upon written order of the Person entitled thereto pursuant to Section 3.8 setting forth instructions not later than the Regular Record Date for such interest, by transfer to an account maintained by the payee located inside the United States.

Every Global Security will provide that interest, if any, payable on any Interest Payment Date will be paid to DTC for the purpose of permitting DTC to credit the interest received by it in respect of such Global Security to the accounts of the beneficial owners thereof and that all payments with respect to such Global Security shall be made by wire transfer of immediately available funds.

Any interest on any Security that is payable, but is not punctually paid or duly provided for, on any Interest Payment Date (herein called "Defaulted Interest") shall forthwith cease to be payable to the registered Holder thereof on the relevant Regular Record Date by virtue of having been such Holder, and such Defaulted Interest may be paid by the Company at its election in each case, as provided in clause (1) or (2) below:

(1 The Company may elect to make payment of any Defaulted Interest to the Persons in whose names the Securities (or their respective Predecessor Securities) are registered at the close of business on a special Record Date for the payment of such Defaulted Interest, which shall be fixed in the following manner. The Company shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each Security and the date of the proposed payment (which shall not be less than 20 days after such notice is received by the Trustee), and at the same time the Company shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit on or prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided. Thereupon the Trustee shall fix a Special Record Date for the payment of such Defaulted Interest which shall be not more than 15 days and not less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify

the Company of such Special Record Date and, in the name and at the expense of the Company, shall cause notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor to be mailed, first-class postage prepaid, to each Holder of Securities at such Holder's address as it appears in the Security Register not less than 10 days prior to such Special Record Date. If the sole registered Holder of the Securities is not DTC, then the Trustee may, in its discretion, in the name and at the expense of the Company, cause a similar notice to be published at least once in an Authorized Newspaper in each place of payment, but such publications shall not be a condition precedent to the establishment of such Special Record Date. Notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor having been mailed as aforesaid, such Defaulted Interest shall be paid to the Persons in whose names the Securities (or their respective Predecessor Securities) are registered at the close of business on such Special Record Date and shall no longer be payable pursuant to the following clause (2).

(2) The Company may make payment of any Defaulted Interest on the Securities in any other lawful manner not inconsistent with the requirements of any automated quotation system or securities exchange on which such Securities may be listed or quoted, and upon such notice as may be required by such quotation system or exchange, if, after notice given by the Company to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee.

Subject to the foregoing provisions of this Section and Section 3.5, each Security delivered under this Indenture upon registration of transfer of or in exchange for or in lieu of any other Security shall carry the rights to interest accrued and unpaid, and to accrue, which were carried by such other Security.

In the case of any Security which is converted after any Regular Record Date and prior to the next succeeding Interest Payment Date (other than any Security whose Maturity is prior to such Interest Payment Date), interest whose Stated Maturity is on such Interest Payment Date shall be payable on such Interest Payment Date notwithstanding such conversion, and such interest (whether or not punctually paid or duly provided for) shall be paid to the Person in whose name that Security (or one or more Predecessor Securities) is registered at the close of business on such Regular Record Date.

#### SECTION III.8 Persons Deemed Owners.

Prior to due presentment of a Security for registration of transfer, the Company, the Trustee and any agent of the Company or the Trustee may treat the Person in whose name such Security is registered as the owner of such Security for the purpose of receiving payment of principal of (and premium, if any), and (subject to Sections 3.5 and 3.7) interest on, such Security and for all other purposes whatsoever, whether or not such Security be overdue, and none of the Company, the Trustee or any agent of the Company or the Trustee shall be affected by notice to the contrary.



None of the Company, the Trustee, any Paying Agent or the Security Registrar will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests of a Global Security or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

Notwithstanding the foregoing, with respect to any Global Security, nothing herein shall (a) prevent the Company, the Trustee, or any agent of the Company, or the Trustee, from giving effect to any written certification or other authorization furnished by any depositary, as a Holder, with respect to such Global Security or (b) impair, as between such depositary and owners of beneficial interests in such Global Security, the operation of customary practices governing the exercise of the rights of such depositary (or its nominee) as Holder of such Global Security.

#### SECTION III.9 Cancellation.

All Securities surrendered for payment, redemption or repurchase at the option of the Holder, registration of transfer or exchange or conversion shall, if surrendered to any Person other than the Trustee, be delivered to the Trustee, and any such Securities and Securities surrendered directly to the Trustee for any such purpose shall be promptly canceled by it. The Company may at any time deliver to the Trustee for cancellation any Securities previously authenticated and delivered hereunder which the Company may have acquired in any manner whatsoever, and may deliver to the Trustee (or to any other Person for delivery to the Trustee) for cancellation any Securities previously authenticated hereunder which the Company has not issued and sold, and all Securities so delivered shall be promptly canceled by the Trustee. If the Company shall so acquire any of the Securities, however, such acquisition shall not operate as a redemption or satisfaction of the indebtedness represented by such Securities unless and until the same are surrendered to the Trustee for cancellation. No Securities shall be authenticated in lieu of or in exchange for any Securities canceled as provided in this Section, except as expressly permitted by this Indenture. All canceled Securities held by the Trustee shall be returned to the Company or disposed of by the Trustee in accordance with its customary practices as directed by a Company Order.

#### SECTION III.10 Computation of Interest.

Interest on the Securities (including, without limitation, any interest on overdue interest) shall be computed on the basis of a 360-day year consisting of twelve 30-day months.

#### SECTION III.11 CUSIP Numbers.

The Company in issuing the Securities may use CUSIP numbers (if then generally in use) in addition to serial numbers, and, if so, the Trustee shall use CUSIP numbers in addition to serial numbers in notices of redemption as a convenience to Holders; provided that any such notice may state that no representation is made as to the correctness of such numbers either as printed on the Securities or as contained in any notice of a redemption and that reliance may be placed only on the other identification numbers printed on the Securities, and any such

redemption shall not be affected by any defect in or omission of such numbers. The Company will promptly notify the Trustee of any change in the CUSIP numbers.

## ARTICLE IV

### SATISFACTION AND DISCHARGE

#### SECTION IV.1 Satisfaction and Discharge of Indenture.

This Indenture shall upon Company Request cease to be of further effect (except as to (i) rights of registration of transfer and exchange, right of conversion and the Company's right of optional redemption, (ii) substitution of apparently mutilated, destroyed, lost or stolen Securities, (iii) rights of Holders to receive payment of principal of and premium, if any, and interest (including, without limitation, interest on overdue interest) on the Securities, (iv) rights, obligations and immunities of the Trustee under this Indenture, (v) rights of the Holders as beneficiaries of this Indenture with respect to any property deposited with the Trustee payable to all or any of them) and the Trustee, upon receipt of a Company Order, and at the expense of the Company, shall execute proper instruments acknowledging satisfaction and discharge of this Indenture when,

(1) either

(A) all Securities of theretofore authenticated and delivered (other than (i) Securities which have been destroyed, lost or stolen and which have been replaced or paid as provided in Section 3.6, and  
(ii) Securities for whose payment money has theretofore been deposited in trust or segregated and held in trust by the Company and thereafter repaid to the Company or discharged from such trust, as provided in Section 10.3) have been delivered to the Trustee for cancellation; or

(B) all Securities not theretofore delivered to the Trustee for cancellation  
(i) have become due and payable, or  
(ii) will become due and payable at their Stated  
Maturity within one year, or  
(iii) if redeemable at the option of the

Company, are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption by the Trustee in the name, and at the expense of the Company,

and the Company, in the case of (i), (ii) or (iii) above, has irrevocably deposited or caused to be deposited with the Trustee as trust funds (immediately available to the Holders in the case of clause (a)) in trust for the purpose an amount in cash sufficient to pay and discharge the entire indebtedness on such Securities not theretofore delivered to the Trustee for cancellation, for

- principal (and premium, if any) and interest (including, without limitation, interest on overdue interest) to the date of such deposit (in the case of Securities which have become due and payable) or to the Stated Maturity or Redemption Date, as the case may be;
- (2) the Company has paid or caused to be paid all other sums payable hereunder by the Company, including, without limitation, the payment of all fees and expenses of the Trustee, its agents and counsel; and
- (3) the Company has delivered to the Trustee an Officers' Certificate and an Opinion of Counsel, each stating that all conditions precedent herein provided for relating to the satisfaction and discharge of this Indenture have been complied with; and
- (4) the Trustee shall have received such other documents and assurances as the Trustee shall have reasonably requested.

Notwithstanding the satisfaction and discharge of this Indenture, the obligations of the Company to the Trustee and any predecessor Trustee under Section 6.6, the obligations of the Company to any Authenticating Agent under Section 6.11 and, if money shall have been deposited with and held by the Trustee pursuant to subclause (B) of clause (1) of this Section, the obligations of the Trustee under Section 4.2 and the last paragraph of Section 10.3 shall survive such satisfaction and discharge.

#### SECTION IV.2 Application of Trust Funds.

Subject to the provisions of the last paragraph of Section 10.3, all money deposited with the Trustee pursuant to Section 4.1 shall be held in trust and applied by it, in accordance with the provisions of the Securities and this Indenture, to the payment, either directly or through any Paying Agent (including the Company acting as its own Paying Agent) as the Trustee may determine, to the Persons entitled thereto, of the principal (and premium, if any), and any interest for whose payment such money has deposited with or received by the Trustee, but such money need not be segregated from other funds except to the extent required by law.

### ARTICLE V

#### REMEDIES

##### SECTION V.1 Events of Default.

"Event of Default," wherever used herein, means any one of the following events (whatever the reason for such Event of Default and whether or not it shall be voluntary or involuntary or be effected by operation of law or pursuant to any judgment, decree or order of any court or any order, rule or regulation of any administrative or governmental body):

- (1) default in the payment of any interest on any Security when such interest becomes due and payable, and continuance of such default for a period of 30 days, whether or not such payment is prohibited by the subordination provisions contained in Article XIII hereof; or
- (2) default in the payment of the principal of (or premium, if any, on) any Security when it becomes due and payable at its Maturity, whether or not such payment is prohibited by the subordination provisions contained in Article XIII hereof; or
- (3) default in the performance, or breach, of any covenant or warranty of the Company in this Indenture (other than a covenant or warranty a default in whose performance or whose breach is elsewhere in this Section specifically dealt with), and continuance of such default or breach for a period of 60 days after there has been given, by registered or certified mail to the Company, by the Trustee or to the Company, and the Trustee by the Holders of at least 25% in principal amount of the Outstanding Securities a written notice specifying such default or breach and requiring it to be remedied and stating that such notice is a "Notice of Default" hereunder; or
- (4) (a) a default under any evidence of Debt of the Company or RF Power under any mortgage, indenture, agreement or other instrument of the Company or RF Power under which there may be issued or by which there may be secured any Debt of the Company or by any Subsidiary, whether such Debt now exists or shall hereafter be created, which default shall constitute a failure to pay an aggregate amount of principal, premium or interest exceeding \$10,000,000 when due and payable after the expiration of any applicable grace period with respect thereto and (b) any event of default as defined in any mortgage, indenture, agreement or other instrument of the Company or RF Power evidencing Debt in an aggregate amount of principal, premium or interest exceeding \$10,000,000 becoming or being declared due and payable before the date on which it would otherwise have become due and payable, without such Debt having been discharged, or such acceleration having been annulled, within 30 days after there has been given, by registered or certified mail to the Company, by the Trustee or to the Company and the Trustee by the Holders of at least 25% in principal amount of the Outstanding Securities, a written notice specifying such default or breach and requiring it to be remedied and stating that such notice is a "Notice of Default" hereunder; or
- (5) the entry by a court having jurisdiction in the premises of (a) a decree or order for relief in respect of the Company or RF Power in an involuntary case or proceeding under any applicable Federal or State bankruptcy, insolvency, reorganization or other similar law or (b) a decree or order adjudging the Company or RF Power a bankrupt or insolvent, or approving as properly filed a petition seeking reorganization, arrangement, adjustment or composition of or in respect of the Company or RF Power under any applicable Federal or State law, or appointing a custodian, receiver, liquidator, assignee, trustee, sequestrator or other similar official of the Company or RF Power or of any substantial part of the property of either, or ordering the winding up or liquidation of its affairs, and the continuance of any such decree or order for relief or any such other decree or order unstayed and in effect for a period of 60 consecutive days; or

(6) the commencement by the Company or RF Power of a voluntary case or proceeding under any applicable Federal or State bankruptcy, insolvency, reorganization or other similar law or of any other case or proceeding to be adjudicated a bankrupt or insolvent, or the consent by either to the entry of a decree or order for relief in respect of the Company or RF Power in an involuntary case or proceeding under any applicable Federal or State bankruptcy, insolvency, reorganization or other similar law or to the commencement of any bankruptcy or insolvency case or proceeding against either, or the filing by either of a petition or answer or consent seeking reorganization or similar relief under any applicable Federal or State law, or the consent by either to the filing of such petition or to the appointment of or taking possession by a custodian, receiver, liquidator, assignee, trustee, sequestrator or other similar official of the Company or RF Power or of any substantial part of the property of either, or the making by either of an assignment for the benefit of creditors, or the admission by either in writing of its inability to pay its debts generally as they become due, or the taking of corporate action by the Company or RF Power in furtherance of any such action; or

(7) failure by the Company to give a Company Notice in accordance within Article XII hereof, whether or not such notice is prohibited by the subordination provisions contained in Article XIII hereof.

#### SECTION V.2 Acceleration of Maturity; Rescission and Annulment.

If an Event of Default (other than an Event of Default specified in Sections 5.1(5) or 5.1(6)) occurs and is continuing, then and in every such case the Trustee or the Holders of not less than 25% in principal amount of the Outstanding Securities may declare the principal and premium (if any) of all the Securities to be due and payable immediately, by a notice in writing to the Company, (and to the Trustee if given by the Holders), and upon any such declaration such principal and premium (if any) or specified portion thereof shall become immediately due and payable. If an Event of Default specified in Sections 5.1(5) or 5.1(6) occurs, the principal of, and premium, if any, and accrued interest on all Securities shall, subject to the provisions of Article XIII or the subordination provisions of any supplemental indenture, ipso facto become immediately due and payable without any declaration or other Act of the Holders or any act on the part of the Trustee.

At any time after such a declaration of acceleration has been made and before a judgment or decree for payment of the money due has been obtained by the Trustee as hereinafter in this Article provided, the Holders of a majority in principal amount of the Outstanding Securities, by written notice to the Company and the Trustee, may rescind and annul such declaration and its consequences if:

(1) the Company has paid or deposited with the Trustee a sum sufficient to pay:

(a) all overdue interest on all Outstanding Securities,

(b) the principal of (and premium, if any, on) any Outstanding Securities which have become due otherwise than by such declaration of acceleration and interest thereon at the rate or rates borne by or provided for in such Securities,

(c) to the extent that payment of such interest is lawful, interest upon overdue interest at the rate or rates borne by or provided for in such Securities, and

(d) all sums paid or advanced by the Trustee hereunder and the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel;

(2) all Events of Default, other than the nonpayment of the principal of (or premium, if any, on) or interest on Securities which have become due solely by such declaration of acceleration, have been cured or waived as provided in Section 5.13; and

(3) such rescission and annulment would not conflict with any judgment or decree issued in appropriate judicial proceedings regarding the payment by the Trustee to the Holders of the amounts referred to in Section 5.2(1).

No such rescission and annulment shall affect any subsequent default or Event of Default or impair any right consequent thereon.

#### SECTION V.3 Collection of Indebtedness and Suits for Enforcement by Trustee.

The Company covenants that if:

(1) default is made in the payment of any installment of interest on any Security when such interest becomes due and payable and such default continues for a period of 30 days, or

(2) default is made in the payment of the principal of (or premium, if any, on) any Security at its Maturity, then the Company will, upon demand of the Trustee, pay to the Trustee, for the benefit of the Holders of such Securities, the whole amount then due and payable on such Securities for principal (and premium, if any) and interest, with interest upon any overdue principal (and premium, if any) and, to the extent that payment of such interest shall be legally enforceable, upon any overdue installments of interest, at the rate or rates borne by or provided for in such Securities, and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses of collection, including the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel.

If the Company fails to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, may institute a judicial proceeding for the collection of the sums so due and unpaid, and may prosecute such proceeding to judgment or final decree, and may enforce the same against the Company, or any other obligor upon such Securities and collect the moneys adjudged or decreed to be payable in the manner provided by law out of the property of the Company or any other obligor upon such Securities, wherever situated.

If an Event of Default occurs and is continuing, the Trustee may in its discretion proceed to protect and enforce its rights and the rights of the Holders of Securities by such appropriate judicial proceedings as the Trustee shall deem most effectual to protect and enforce any such rights, whether for the specific enforcement of any covenant or agreement in this Indenture or in aid of the exercise of any power granted herein, or to enforce any other proper remedy.

#### SECTION V.4 Trustee May File Proofs of Claim.

In case of the pendency of any receivership, insolvency, liquidation, bankruptcy, reorganization, arrangement, adjustment, composition or other judicial proceeding relative to the Company or any other obligor upon the Securities or the property of the Company or of such other obligor or their creditors, the Trustee (irrespective of whether the principal of the Securities shall then be due and payable as therein expressed or by declaration or otherwise and irrespective of whether the Trustee shall have made any demand on the Company for the payment of overdue principal or premium, if any, or interest) shall be entitled and empowered, by intervention in such proceeding or otherwise:

(i) to file and prove a claim for the whole amount, or such lesser amount as may be provided for in the Securities, of principal (and premium, if any) and interest owing and unpaid in respect of the Securities and take such other actions and to file such other papers or documents as may be necessary or advisable in order to have the claims of the Trustee (including any claim for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel) and of the Holders allowed in such judicial proceeding, and

(ii) to collect and receive any moneys or other property payable or deliverable on any such claims and to distribute the same; and any custodian, receiver, assignee, trustee, liquidator, sequestrator or other similar official in any such judicial proceeding is hereby authorized by each Holder of Securities to make such payments to the Trustee and, in the event that the Trustee shall consent to the making of such payments directly to the Holders, to pay to the Trustee any amount due to it for the reasonable compensation, expenses, disbursements and advances of the Trustee and any predecessor Trustee, their agents and counsel, and any other amounts due the Trustee or any predecessor Trustee under Section 6.6.

Nothing herein contained shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Holder of a Security any plan of reorganization, arrangement, adjustment or composition affecting the Securities or the rights of any Holder thereof, or to authorize the Trustee to vote in respect of the claim of any Holder of a Security in any such proceeding; provided, however, that the Trustee may, on behalf of such Holders, vote for the election of a trustee in bankruptcy or similar procedures.

#### SECTION V.5 Trustee May Enforce Claims Without Possession of Securities.

All rights of action and claims under this Indenture or any of the Securities may be prosecuted and enforced by the Trustee without the possession of any of the Securities or the production thereof in any proceeding relating thereto, and any such proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for the payment of the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel and any other amounts due the Trustee under Section 6.6, be for the ratable benefit of the Holders of the Securities in respect of which such judgment has been recovered.

#### SECTION V.6 Application of Money Collected.

Any money collected by the Trustee pursuant to this Article shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such money on account of principal (or premium, if any) or interest, upon presentation of the Securities, and the notation thereon of the payment if only partially paid and upon surrender thereof if fully paid:

- |         |  |
|---------|--|
| FIRST:  | To the payment of all amounts due the Trustee under Section 6.6; |
| SECOND: | To the payment of the amounts then due and unpaid                |

upon the Securities for principal (and premium, if any) and interest payable, in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the aggregate amounts due and payable on such Securities for principal (and premium, if any) and interest, respectively; and

THIRD: To the payment of the remainder, if any, to the Company or any other Person or Persons entitled thereto.

#### SECTION V.7 Limitation on Suits.

No Holder of any Security shall have any right to institute any proceeding, judicial or otherwise, with respect to this Indenture, or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless:

- (1) such Holder has previously given written notice to the Trustee of a continuing Event of Default;
- (2) the Holders of not less than 25% in principal amount of the Outstanding Securities shall have made written request to the Trustee to institute proceedings in respect of such Event of Default in its own name as Trustee hereunder;
- (3) such Holder or Holders have offered and, if requested, provided to the Trustee indemnity reasonably satisfactory to the Trustee against the costs, expenses and liabilities to be incurred in compliance with such request;



(4) the Trustee for 60 days after its receipt of such notice, request and offer and, if requested, the provision of indemnity, has failed to institute any such proceeding; and

(5) no direction inconsistent with such written request has been given to the Trustee during such 60-day period by the Holders of a majority in principal amount of the Outstanding Securities;

it being understood and intended that no one or more of such Holders shall have any right in any manner whatever by virtue of, or by availing of, any provision of this Indenture to affect, disturb or prejudice the rights of any other of such Holders, or to obtain or to seek to obtain priority or preference over any other of such Holders or to enforce any right under this Indenture, except in the manner herein provided and for the equal and ratable benefit of all such Holders.

#### SECTION V.8 Unconditional Right of Holders to Receive Principal (Premium, if any) and Interest.

Notwithstanding any other provision in this Indenture, the Holder of any Security shall have the right which is absolute and unconditional to receive payment of the principal of (and premium, if any) and (subject to Sections 3.5 and 3.7) interest on such Security or payment on the respective Stated Maturity expressed in such Security (or, in the case of redemption or repurchase, on the Redemption Date or Repurchase Date, as may be the case) and to institute suit for the enforcement of any such payment, and such rights shall not be impaired without the consent of such Holder.

#### SECTION V.9 Restoration of Rights and Remedies.

If the Trustee or any Holder of a Security has instituted any proceeding to enforce any right or remedy under this Indenture and such proceeding has been discontinued or abandoned for any reason, or has been determined adversely to the Trustee or to such Holder, then and in every such case, the Company, the Trustee and the Holders of Securities shall, subject to any determination in such proceeding, be restored severally and respectively to their former positions hereunder and thereafter all rights and remedies of the Trustee and the Holders shall continue as though no such proceeding had been instituted.

#### SECTION V.10 Rights and Remedies Cumulative.

Except as otherwise provided with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities in the last paragraph of Section 3.6, no right or remedy herein conferred upon or reserved to the Trustee or to the Holders of Securities is intended to be exclusive of any other right or remedy, and every right and remedy shall, to the extent permitted by law, be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or

remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other appropriate right or remedy.

#### SECTION V.11 Delay or Omission Not Waiver.

No delay or omission of the Trustee or of any Holder of any Security to exercise any right or remedy accruing upon any Event of Default shall impair any such right or remedy or constitute a waiver of any such Event of Default or an acquiescence therein. Every right and remedy given by this Article or by law to the Trustee or to the Holders may be exercised from time to time, and as often as may be deemed expedient, by the Trustee or by the Holders of Securities, as the case may be.

#### SECTION V.12 Control by Holders of Securities.

The Holders of not less than a majority in principal amount of the Outstanding Securities shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee, provided that

- (1) such direction shall not be in conflict with any rule of law or with this Indenture,
- (2) the Trustee may take any other action deemed proper by the Trustee which is not inconsistent with such direction, and
- (3) the Trustee need not take any action which might involve it in personal liability or be unduly prejudicial to the Holders of Securities not joining therein.

In the event that the Trustee takes any action or follows any direction pursuant to this Indenture, the Trustee shall be entitled to indemnity reasonably satisfactory to it against any loss or expense caused by taking such action or following such direction.

#### SECTION V.13 Waiver of Past Defaults.

The Holders of not less than a majority in aggregate principal amount of the Outstanding Securities may on behalf of the Holders of all the Securities waive any past default hereunder and its consequences, except a default:

- (1) in the payment of the principal of (or premium, if any) or interest on any Security, or
- (2) in respect of a covenant or provision hereof which under Article IX cannot be modified or amended without the consent of the Holder of each Outstanding Security.

The Company shall deliver to the Trustee an Officers' Certificate stating that the requisite percentage of Holders have consented to such waiver and attaching copies of such consents. Upon any such waiver, such default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured, for every purpose of this Indenture; but no such waiver shall extend to any subsequent or other default or Event of Default or impair any right consequent thereon.

#### SECTION V.14 Waiver of Usury, Stay or Extension Laws.

The Company covenants (to the extent that it may lawfully do so) that it will not at any time insist upon, or plead, or in any manner whatsoever claim or take the benefit or advantage of, any usury, stay or extension law wherever enacted, now or at any time hereafter in force, which may affect the covenants or the performance of this Indenture; and the Company (to the extent that it may lawfully do so) hereby expressly waives all benefit or advantage of any such law, and covenants that it will not hinder, delay or impede the execution of any power herein granted to the Trustee, but will suffer and permit the execution of every such power as though no such law had been enacted.

#### SECTION V.15 Undertaking for Costs.

All parties to this Indenture agree, and each Holder of any Security by such Holder's acceptance thereof shall be deemed to have agreed, that any court may in its discretion require, in any suit for the enforcement of any right or remedy under this Indenture, or in any suit against the Trustee for any action taken or omitted by it as Trustee, the filing by any party litigant in such suit of any undertaking to pay the costs of such suit, and that such court may in its discretion assess reasonable costs, including reasonable attorneys' fees and expenses, against any party litigant in such suit having due regard to the merits and good faith of the claims or defenses made by such party litigant; but the provisions of this Section shall not apply to any suit instituted by the Trustee, to any suit instituted by any Holder, or group of Holders, holding in the aggregate more than 10% in principal amount of the Outstanding Securities, or to any suit instituted by any Holder for the enforcement of the payment of the principal of (or premium, if any) or interest on any Security on or after the respective Stated Maturity expressed in such Security (or, in the case of redemption or repurchase, on or after the Redemption Date or Repurchase Date, as may be the case).

#### SECTION V.16 Notice of Default or Event of Default.

The Company shall deliver to the Trustee, as soon as possible and in any event within 10 days after an officer of the Company becomes aware of the occurrence of any Event of Default or any event which, with notice or the lapse of time or both, would constitute an Event of Default, an Officers' Certificate setting forth the details of such Event of Default or default and the action which the Company proposes to take with respect thereto.

### ARTICLE VI

## THE TRUSTEE

### SECTION VI.1 Notice of Defaults.

Within 90 days after the occurrence of any default hereunder, the Trustee shall transmit in the manner and to the extent provided in Trust Indenture Act Section 313(c) and Section 1.6 hereof, notice of such default hereunder actually known to a Responsible Officer of the Trustee, unless such default shall have been cured or waived; provided, however, that, except in the case of a default in the payment of the principal of (or premium, if any) or interest on any Security, the Trustee shall be protected in withholding such notice if and so long as Responsible Officers of the Trustee in good faith determine that the withholding of such notice is in the interests of the Holders of the Securities; and provided further that in the case of any default or breach of the character specified in Section 5.1(3), no such notice to Holders shall be given until at least 60 days after the occurrence thereof. For the purpose of this Section, the term "default" means any event which is, or after notice or lapse of time or both would become, an Event of Default.

### SECTION VI.2 Certain Duties and Responsibilities.

(a) If an Event of Default has occurred and is continuing, the Trustee will exercise such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in such exercise, as a prudent man would exercise or use under the circumstances in the conduct of his own affairs.

(b) Except during the continuance of an Event of Default:

(i) the Trustee need perform only those duties that are specifically set forth in this Indenture and no others, and no implied covenants or obligations will be read into this Indenture against the Trustee; and

(ii) in the absence of bad faith on its part, the Trustee may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions which are specifically required to be furnished to the Trustee by any of the provisions hereof, the Trustee will examine the certificates and opinions to determine whether or not, on their face, they appear to conform to the requirements of this Indenture.

(c) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own gross negligent action, its own gross negligent failure to act, or its own willful misconduct, except that:

(i) this paragraph (c) does not limit the effect of paragraph (b) of this Section 6.2;

(ii) the Trustee will not be liable for any error of judgment made in good faith by a Responsible Officer, unless it is proved that the Trustee was grossly negligent in ascertaining the pertinent facts;

(iii) the Trustee will not be liable with respect to any action it takes or omits to take in good faith in accordance with the direction received by it pursuant to Section 6.2 of the Holders of a majority in principal amount of the Outstanding Securities relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or when exercising any other trust or power conferred upon the Trustee under this Indenture; and

(iv) no provision of this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur any financial liability in the performance of any or its duties hereunder or in the exercise of any of its rights or powers hereunder if it has reasonable grounds for believing that repayment of such funds or adequate indemnity against such risk or liability is not reasonably assured to it.

(d) Whether or not herein expressly so provided, every provision of this Indenture that in any way relates to the Trustee is subject to clauses (i), (ii), (iii) and (iv) of paragraph (c) of this Section 6.2.

#### SECTION VI.3 Not Responsible for Recitals or Issuance of Securities.

The recitals contained herein and in the Securities, except the Trustee's certificate of authentication, shall be taken as the statements of the Company and neither the Trustee nor any Authenticating Agent assumes any responsibility for their correctness. The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities, except that the Trustee represents that it is duly authorized to execute and deliver this Indenture, authenticate the Securities and perform its obligations hereunder. Neither the Trustee nor any Authenticating Agent shall be accountable for the use or application by the Company of Securities or the proceeds thereof.

#### SECTION VI.4 May Hold Securities.

The Trustee, any Paying Agent, Conversion Agent, Security Registrar, Authenticating Agent or any other agent of the Company, in its individual or any other capacity, may become the owner or pledgee of Securities and, subject to Sections 6.12 and 6.13, may otherwise deal with the Company with the same rights it would have if it were not the Trustee, Paying Agent, Conversion Agent, Security Registrar, Authenticating Agent or such other agent.

#### SECTION VI.5 Money Held in Trust.

Money held by the Trustee in trust hereunder need not be segregated from other funds except to the extent required by law. The Trustee shall be under no liability for interest on any money received by it hereunder except as otherwise agreed with the Company in writing.

#### SECTION VI.6 Compensation and Reimbursement.

The Company agrees:

- (1) to pay to the Trustee from time to time reasonable compensation for all services rendered by it hereunder as agreed with the Company in writing (which compensation shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust);
- (2) except as otherwise expressly provided herein, to reimburse each of the Trustee and any predecessor Trustee upon its request for all reasonable expenses, disbursements and advances incurred or made by the Trustee in accordance with any provision of this Indenture (including the reasonable compensation and the expenses and disbursements of its agents and counsel), except any such expense, disbursement or advance as may be attributable to its negligence or bad faith; and
- (3) to indemnify each of the Trustee and any predecessor Trustee and their agents for, and to hold it harmless against, any loss, liability, claim, damage or expense (including reasonable attorneys' fees and expenses) incurred without negligence or bad faith on its own part, arising out of or in connection with the acceptance or administration of the trust or trusts hereunder, including the costs and expenses of enforcing this Indenture (including this Section 6.6), defending itself against any claim (whether asserted by a Holder, the Company or otherwise) or liability in connection with the exercise or performance of any of its powers or duties hereunder.

When the Trustee incurs expenses or renders services in connection with an Event of Default specified in Section 5.1(5) or Section 5.1(6), the expenses (including the reasonable charges and expenses of its counsel) and the compensation for the services are intended to constitute expenses of administration under any applicable Federal or State bankruptcy, insolvency or other similar law.

As security for the performance of the obligations of the Company under this Section, the Trustee shall have a lien prior to the Securities upon all property and funds held or collected by the Trustee as such, except funds held in trust for the payment of principal of (or premium, if any) or interest on particular Securities. The Trustee's right to receive payment of any amounts due under this Section 6.6 shall not be subordinate to any other liability or Debt of the Company (even though the Securities may be so subordinated).

The provisions of this Section shall survive the termination of this Indenture, the resignation and removal of any Trustee, the discharge of the Company's obligations hereunder

and any rejection or termination under any applicable Federal or State bankruptcy, insolvency or other similar laws.

#### SECTION VI.7 Corporate Trustee Required; Eligibility.

There shall at all times be a Trustee hereunder which shall be eligible to act as Trustee under the Trust Indenture Act and shall have (or, in the case of a subsidiary of a bank holding company, its corporate parent shall have) a combined capital and surplus of at least \$50,000,000, subject to supervision or examination by Federal or State authority and in good standing under the laws of the United States or of any State or the District of Columbia. If such corporation publishes reports of condition at least annually, pursuant to law or the requirements of Federal, State, Territorial or District of Columbia supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such corporation shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. Except as otherwise provided in Section 6.13, if at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, it shall resign immediately in the manner and with the effect hereinafter specified in this Article. The Trustee or an Affiliate of the Trustee shall maintain an established place of business in the Borough of Manhattan, the City of New York.

#### SECTION VI.8 Resignation and Removal; Appointment of Successor.

(a) No resignation or removal of the Trustee and no appointment of a successor Trustee pursuant to this Article shall become effective until the acceptance of appointment by the successor Trustee in accordance with the applicable requirements of Section 6.9.

(b) The Trustee may resign at any time by giving written notice thereof to the Company. If an instrument of acceptance by a successor Trustee shall not have been delivered to the Trustee within 30 days after the giving of such notice of resignation, the resigning Trustee may petition any court of competent jurisdiction for the appointment of a successor Trustee.

(c) The Trustee may be removed at any time by Act of the Holders of a majority in principal amount of the Outstanding Securities delivered to the Trustee and the Company. If an instrument of acceptance by a successor Trustee shall not have been delivered to the Trustee within 30 days after the giving of such notice of removal, the Trustee who is being removed may petition any court of competent jurisdiction for the appointment of a successor Trustee.

(d) If at any time:

(1) the Trustee shall fail to comply with the provisions of Section 6.13 after written request therefor by the Company or by any Holder of a Security who has been a bona fide Holder of a Security for at least six months, or

(2) the Trustee shall cease to be eligible under Section 6.7 and shall fail to resign after written request therefor by the Company or by any Holder of a Security who has been a bona fide Holder of a Security for at least six months, or

(3) the Trustee shall become incapable of acting or shall be adjudged a bankrupt or insolvent or a receiver of the Trustee or of its property shall be appointed or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation,

then, in any such case, (i) the Company by or pursuant to a Board Resolution may remove the Trustee and appoint a successor Trustee, or (ii) subject to

Section 5.15, any Holder of a Security who has been a bona fide Holder of a Security for at least six months may, on behalf of such Holder and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor Trustee.

(e) If the Trustee shall resign, be removed or become incapable of acting, or if a vacancy shall occur in the office of Trustee for any cause, the Company, by or pursuant to a Board Resolution, shall promptly appoint a successor Trustee. If, within one year after such resignation, removal or incapacity, or the occurrence of such vacancy, a successor Trustee shall be appointed by Act of the Holders of a majority in principal amount of the Outstanding Securities delivered to the Company and the retiring Trustee, the successor Trustee so appointed shall, forthwith upon its acceptance or such appointment, become the successor Trustee and to that extent supersede the successor Trustee appointed by the Company. If no successor Trustee shall have been so appointed by the Company or the Holders of Securities and accepted appointment in the manner hereinafter provided, any Holder of a Security who has been a bona fide Holder of a Security for at least six months may, on behalf of such Holder and all others similarly situated, petition any court of competent jurisdiction for the appointment of a successor Trustee.

(f) So long as no Event of Default or event which is, or after notice or lapse of time, or both, could become, an Event of Default shall have occurred and be continuing, and except with respect to a Trustee appointed by or at the request of the Holders of Securities pursuant to subsection (e) of this Section, if the Company shall have delivered to the Trustee (i) a Board Resolution appointing a successor Trustee, effective as of a date specified therein, and (ii) an instrument accepting such appointment, effective as of such date, by such successor Trustee in accordance with Section 6.9, the Trustee shall be deemed to have resigned as contemplated in subsection (b) of this Section, the successor Trustee shall be deemed to have been appointed by the Company pursuant to subsection (e) of this Section and such appointment shall be deemed to have been accepted as contemplated in Section 6.9, all as of the date specified in such Board Resolution, and all other provisions of this Section and Section 6.9 shall be applicable to such resignation, appointment and acceptance except to the extent inconsistent with this subsection (f).

(g) The Company shall give notice of each resignation and each removal of the Trustee and each appointment of a successor Trustee in the manner provided for notices to the



Holders of Securities in Section 1.6. Each notice shall include the name of the successor Trustee and the address of its Corporate Trust Office.

#### SECTION VI.9 Acceptance of Appointment by Successor.

(a) In case of the appointment hereunder of a successor Trustee, every such successor Trustee shall execute, acknowledge and deliver to the Company and the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor Trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on request of the Company or the successor Trustee, such retiring Trustee shall, upon payment of all sums then owing to the Trustee pursuant to Section 6.6, execute and deliver an instrument transferring to such successor Trustee all the rights, powers and trusts of the retiring Trustee, and shall duly assign, transfer and deliver to such successor Trustee all property and money held by such retiring Trustee hereunder, subject nevertheless to its claim, if any, provided for in Section 6.6.

(b) Upon request of any such successor Trustee, the Company shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor Trustee all such rights, powers and trusts referred to in paragraph (a) of this Section.

(c) No successor Trustee shall accept its appointment unless at the time of such acceptance such successor Trustee shall be qualified and eligible under this Article.

#### SECTION VI.10 Merger, Conversion, Consolidation or Succession to Business.

Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation succeeding to all or substantially all of the corporate trust business of the Trustee (including the administration of the trust created by this Indenture), shall be the successor of the Trustee hereunder, provided such corporation shall be otherwise qualified and eligible under this Article, without the execution or filing of any paper or any further act on the part of any of the parties hereto. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities. In case any Securities shall not have been authenticated by such predecessor Trustee, any such successor Trustee may authenticate and deliver such Securities, in either its own name or that of its predecessor Trustee, with the full force and effect which this Indenture provides for the certificate of authentication of the Trustee.

#### SECTION VI.11 Appointment of Authenticating Agent.

The Trustee may appoint an Authenticating Agent or Agents reasonably acceptable to the Company with respect to the Securities which shall be authorized to act on behalf of the Trustee to authenticate Securities issued upon exchange, registration of transfer or partial redemption or, repurchase thereof, and Securities so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. Any such appointment shall be evidenced by an instrument in writing signed by a Responsible Officer of the Trustee, a copy of which instrument shall be promptly furnished to the Company. Wherever reference is made in this Indenture to the authentication and delivery of Securities by the Trustee or the Trustee's certificate of authentication, such reference shall be deemed to include authentication and delivery on behalf of the Trustee by an Authenticating Agent and a certificate of authentication executed on behalf of the Trustee by an Authenticating Agent. Each Authenticating Agent shall be acceptable to the Company and shall at all times be a bank or trust company or corporation organized and doing business and in good standing under the laws of the United States or of any State or the District of Columbia, authorized under such laws to act as Authenticating Agent, having (or, in the case of a subsidiary of a bank holding company, its corporate parent shall have) a combined capital and surplus of at least \$50,000,000 and subject to supervision or examination by Federal or State authority. If such Authenticating Agent publishes reports of condition at least annually, pursuant to law or the requirements of Federal, State, Territorial or District of Columbia supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such Authenticating Agent shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time an Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section, such Authenticating Agent shall resign immediately in the manner and with the effect specified in this Section.

Any corporation into which an Authenticating Agent may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which such Authenticating Agent shall be a party, or any corporation succeeding to all or substantially all of the corporate agency or corporate trust business of an Authenticating Agent, shall continue to be an Authenticating Agent (including the authenticating agency contemplated by this Indenture), provided such corporation shall be otherwise eligible under this Section, without the execution or filing of any paper or further act on the part of the Trustee or the Authenticating Agent.

An Authenticating Agent may at any time resign by giving written notice of resignation to the Trustee and to the Company. The Trustee may at any time terminate the agency of an Authenticating Agent by giving written notice of termination to such Authenticating Agent and the Company. Upon receiving such a notice of resignation or upon such a termination, or in case at any time such Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section, the Trustee may appoint a successor Authenticating Agent which shall be reasonably acceptable to the Company and shall give notice of such appointment to all Holders of Securities in the manner set forth in Section 1.6. Any successor Authenticating Agent upon acceptance of its appointment hereunder shall become vested with all the rights, powers and duties of its predecessor hereunder, with like effect as if originally named as an Authenticating Agent herein. No successor Authenticating Agent shall be appointed unless eligible under the provisions of this Section.

The Company agrees to pay to each Authenticating Agent from time to time reasonable compensation including reimbursement of its reasonable expenses for its services under this Section.

If an appointment is made pursuant to this Section, the Securities may have endorsed thereon, in addition to or in lieu of the Trustee's certificate of authentication, an alternate certificate of authentication substantially in the following form:

This is one of the [ ]% Convertible Subordinated Notes due 2006 referred to in the within-mentioned Indenture.

Dated: \_\_\_\_\_

State Street Bank and Trust Company  
of California, N.A., as Trustee

By: \_\_\_\_\_  
as Authenticating Agent

By: \_\_\_\_\_  
Authorized Signatory

SECTION VI.12 Preferential Collection of Claims Against Company.

If and when the Trustee shall be or become a creditor of the Company (or any other obligor upon the Securities), the Trustee shall be subject to the provisions of the Trust Indenture Act regarding the collection of claims against the Company (or any such other obligor).

#### SECTION VI.13 Disqualification; Conflicting Interests.

If the Trustee has or shall acquire a conflicting interest within the meaning of the Trust Indenture Act, the Trustee shall either eliminate such interest or resign, to the extent and in the manner provided by, and subject to the provisions of, the Trust Indenture Act and this Indenture.

#### SECTION VI.14 Certain Rights of Trustee.

Subject to the provisions of Section 6.1:

- (1) the Trustee may conclusively rely and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note or other paper or document (whether in its original or facsimile form) believed by it to be genuine and to have been signed or presented by the proper party or parties;
- (2) any request or direction of the Company mentioned herein shall be sufficiently evidenced by a Company Request or Company Order (other than delivery of any Security to the Trustee for authentication and delivery pursuant to Section 3.3 which shall be sufficiently evidenced as provided therein) and any resolution of the Board of Directors may be sufficiently evidenced by a Board Resolution;
- (3) whenever in the administration of this Indenture the Trustee shall deem it desirable that a matter be proved or established prior to taking, suffering or omitting any action hereunder, the Trustee (unless other evidence be herein specifically prescribed) may, in the absence of bad faith on its part, conclusively rely upon an Officers' Certificate or an Opinion of Counsel;
- (4) the Trustee may consult with counsel of its selection and the advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken, suffered or omitted by it hereunder in good faith and in reliance thereon;
- (5) the Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request or direction of any of the Holders of Securities pursuant to this Indenture, unless such Holders shall have offered to the Trustee security or indemnity satisfactory to the Trustee against the costs, expenses and liabilities which might be incurred by it in compliance with such request or direction;
- (6) the Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, or other paper or document, but the Trustee, in its discretion, may make such further inquiry or investigation into such facts or matters as it may see fit, and, if the Trustee shall determine to make such further inquiry or investigation, it shall

be entitled to examine the books, records and premises of the Company personally or by agent or attorney;

(7) the Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee shall not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder; and

(8) the Trustee shall not be liable for any action taken, suffered or omitted by it in good faith and reasonably believed by it to be authorized or within the discretion or rights or powers conferred upon it by this Indenture.

## **ARTICLE VII**

### **HOLDERS' LISTS AND REPORTS BY TRUSTEE AND COMPANY**

#### **SECTION VII.1 The Company to Furnish Trustee Names and Addresses of Holders.**

The Company will furnish or cause to be furnished to the Trustee:

(a) semi-annually, not later than 15 days after the Regular Record Date, a list, in such form as the Trustee may reasonably require, of the names and addresses of the Holders of Securities as of such Regular Record Date, and

(b) at such other times as the Trustee may request in Writing, within 30 days after the receipt by the Company of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished,

provided, however, that, so long as the Trustee is the Security Registrar, no such list shall be required to be furnished.

#### **SECTION VII.2 Reports by Trustee.**

(a) The Trustee shall transmit to Holders such reports concerning the Trustee and its actions under this Indenture as may be required pursuant to the Trust Indenture Act at the times and in the manner provided by the Trust Indenture Act. Reports required pursuant to the Trust Indenture Act

Section 313(a), if any, will be transmitted annually.

(b) A copy of each such report shall, at the time of such transmission to Holder, be filed with the Commission and the Company. The Company will notify the Trustee, in writing, if and when the Securities are listed on any stock exchange.

#### **SECTION VII.3 Reports by Company.**

The Company shall file with the Trustee and the Commission, and transmit to Holders, such information, documents and other reports, if any, and such summaries thereof, as may be required pursuant to the Trust Indenture Act at the times and in the manner provided pursuant to such Act; provided that any such information, documents or reports required to be filed with the Commission pursuant to Section 13 or 15(d) of the Exchange Act shall be filed with the Trustee within 15 days after the same is so required to be filed with the Commission.

#### **SECTION VII.4 Preservation Of Information; Communications to Holders.**

(1) The Trustee shall preserve, in as current a form as is reasonably practicable, the names and addresses of Holders contained in the most recent list furnished to the Trustee as provided in Section 7.1 and the names and addresses of Holders received by the Trustee in its capacity as Security Registrar if the Trustee is acting in such capacity. The Trustee may destroy any list furnished to it as provided in Section 7.1 upon receipt of a new list so furnished.

(2) The rights of the Holders to communicate with other Holders with respect to their rights under this Indenture or under the Securities, and the corresponding rights and privileges of the Trustee, shall be as provided by the Trust Indenture Act and other applicable law.

(3) Every Holder of Securities, by receiving and holding the same, agrees with the Company and the Trustee that none of the Company, the Trustee or any agent of any of them shall be held accountable by reason of any disclosure of information as to names and addresses of Holders made pursuant to the Trust Indenture Act.

### **ARTICLE VIII**

#### **CONSOLIDATION, MERGER, SALE, LEASE OR CONVEYANCE**

##### **SECTION VIII.1 Company May Consolidate, Etc., Only on Certain Terms.**

The Company (1) shall not consolidate with or merge into any other Person or, directly or indirectly, convey, transfer, sell, lease or otherwise dispose of its properties and assets as an entirety or substantially as an entirety to any Person, and (2) shall not permit any Person to consolidate or merge with or into the Company or convey, transfer, sell, lease or otherwise dispose of such Person's properties and assets as an entirety or substantially as an entirety to the Company, unless:

(a) the Person formed by such consolidation or into or with which the Company is merged or the Person which acquires by conveyance, transfer or sale, or which leases or otherwise acquires, the properties and assets of the Company as an entirety or substantially as an entirety (i) shall be a corporation, limited liability company, partnership or trust, (ii) shall be organized and validly existing under the laws of the United States of America, any State thereof or the District of Columbia and (iii) shall expressly assume, by an indenture supplemental hereto,

executed and delivered to the Trustee, in form satisfactory to the Trustee, the due and punctual payment of the principal of (and premium, if any) and interest on all the Securities and the performance or observance of every covenant of this Indenture on the part of the Company to be performed or observed;

(b) immediately after giving effect to such transaction, no Event of Default, and no event which, after notice or lapse of time or both, would become an Event of Default, shall have happened and be continuing; and

(c) the Company has delivered to the Trustee an Officers' Certificate and an Opinion of Counsel, each stating that such consolidation, merger, conveyance, transfer, sale, lease or other disposition and, if a supplemental indenture is required in connection with such transaction, such supplemental indenture comply with this Article and that all conditions precedent herein provided for relating to such transaction have been complied with, together with any documents required by Section 9.3.

#### **SECTION VIII.2 Successor Substituted.**

Upon any consolidation by the Company with, or merger by the Company into, any other Person or any conveyance, transfer, sale, lease or other disposition of the properties and assets of the Company as an entirety or substantially as an entirety as described in Section 8.1, the Person resulting from such consolidation or into which the Company is merged or to which such conveyance, transfer, sale, lease or other disposition is made, will succeed to, and be substituted for, and may exercise every right and power of, the Company under this Indenture with the same effect as if such successor Person had been named as the Company herein, and thereafter, except in the case of a lease, the predecessor (if still in existence) will be released from its obligations and covenants under this Indenture and the Securities.

### **ARTICLE IX**

#### **SUPPLEMENTAL INDENTURES**

##### **SECTION IX.1 Supplemental Indentures Without Consent of Holders.**

Without the consent of any Holders of Securities, the Company, when authorized by or pursuant to a Board Resolution, and the Trustee, at any time and from time to time, may enter into one or more indentures supplemental hereto, in form satisfactory to the Trustee, for any of the following purposes:

(1) to evidence the succession of another Person to the Company and the assumption by any such successor of the covenants and obligations of the Company herein and in the Securities as permitted by Article VIII; or

(2) to add to the covenants of the Company for the benefit of the Holders of the Securities or to surrender any right or power herein conferred upon the Company; or

(3) to add any additional Events of Default for the benefit of the Holders of the Securities provided, however, that in respect of any such additional Events of Default such supplemental indenture may provide for a particular period of grace after default (which period may be shorter or longer than that allowed in the case of other defaults) or may provide for an immediate enforcement upon such default or may limit the remedies available to the Trustee upon such default or may limit the right of the Holders of a majority in aggregate principal amount of the Securities to waive such default; or

(4) to secure the Securities; or

(5) to evidence and provide for the acceptance of appointment hereunder by a successor Trustee; or

(6) to cure any ambiguity, to correct or supplement any provision herein which may be defective or inconsistent with any other provision herein, or to make any other provisions with respect to matters or questions arising under this Indenture which shall not be inconsistent with the provisions of this Indenture as the Company and the Trustee may deem necessary or desirable; provided that any such action shall not adversely affect the interests of the Holders of Securities in any material respect; or

(7) subject to Section 13.15, to make any change in Article XIII that would limit or terminate the benefits to any holder of Senior Debt under such Article; or

(8) to comply with the requirements of the Trust Indenture Act; or

(9) to make any change that does not adversely affect the legal rights under this Indenture of any Holder of Securities; or

(10) to change any Place of Payment to another location within the same city provided that the Company delivers notice of such change to the Holders prior to such change of Place of Payment; or

(11) to add a guarantor of the Securities.

#### SECTION IX.2 Supplemental Indentures with Consent of Holders.

With either (i) the consent of the Holders of not less than a majority in principal amount of all Outstanding Securities by the Act of said Holders delivered to the Company and the Trustee, or (ii) by the adoption of a resolution, at a meeting of Holders of the Outstanding Securities at which a quorum is present, by the Holders of at least 66-2/3% in aggregate principal amount of the Outstanding Securities represented at such meeting, the Company, when



authorized by or pursuant to a Board Resolution, and the Trustee may enter into an indenture or indentures supplemental hereto for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of modifying in any manner the rights of the Holders of Securities under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the Holder of each Outstanding Security affected thereby:

- (1) change the Stated Maturity of the principal of (or premium, if any, on) or any installment of principal of or interest on, any Security; or reduce the principal amount thereof or the rate or amount of interest thereon, or any premium payable upon the redemption or mandatory repurchase thereof, or adversely affect any right of repurchase at the option of the Holder of any Security, or change the city of any Place of Payment where, or the currency in which, the principal of or any premium or the interest on any Security is payable, including any payment of the Redemption Price or Repurchase Price in respect of such Security or impair the right to institute suit for the enforcement of any such payment on or after the Stated Maturity thereof, (or, in the case of redemption or repurchase at the option of the Holder, on or after the Redemption Date or the Repurchase Date, as the case may be), or
- (2) reduce the requirements of Section 15.4 for quorum or voting or the percentage in principal amount of the Outstanding Securities, the consent of whose Holders is required for any such supplemental indenture, or the consent of whose Holders is required for any waiver with respect to such Outstanding Securities (or compliance with certain provisions of this Indenture or certain defaults hereunder and their consequences) provided for in this Indenture, or
- (3) modify any of the provisions of this Section or Sections 5.13 or 10.8, except to increase the required percentage to effect such action or to provide that certain other provisions of this Indenture cannot be modified or waived without the consent of the Holder of each Outstanding Security affected thereby, or
- (4) release any guarantors from their guarantees of the Securities, or, except as contemplated in any supplemental indenture, make any change in a guarantee of a Security that would adversely affect the interests of the Holders, or
- (5) adversely affect the right of a Holder of a Security to require the Company to repurchase any Note other than as provided in Article XII, or
- (6) adversely affect the right of a Holder of a Security to require the Company to convert any Note other than as provided in Article XIV, or
- (7) modify the obligation of the Company to maintain an office or agency in the Borough of Manhattan, the City of New York, pursuant to Section 10.2.

It shall not be necessary for any Act of Holders under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such Act shall approve the substance thereof.

#### SECTION IX.3 Execution of Supplemental Indentures.

In executing, or accepting the additional trusts created by, any supplemental indenture permitted by this Article or the modification thereby of the trusts created by this Indenture, the Trustee shall be entitled to receive, and subject to Section 6.2 shall be fully protected in relying upon, an Officer's Certificate and an Opinion of Counsel, each stating that the execution of such supplemental indenture is authorized or permitted by this Indenture, is in compliance with Article IX, constitutes the legal, valid and binding obligation of the Company, enforceable in accordance with its terms (subject to customary exceptions) and that all conditions precedent to the execution of such supplemental indenture have been fulfilled. The Trustee may, but shall not be obligated to, enter into any such supplemental indenture which affects the Trustee's own rights, duties or immunities under this Indenture or otherwise.

#### SECTION IX.4 Effect of Supplemental Indentures.

Upon the execution of any supplemental indenture under this Article, this Indenture shall be modified in accordance therewith, and such supplemental indenture shall form a part of this Indenture for all purposes; and every Holder of Securities theretofore or thereafter authenticated and delivered hereunder shall be bound thereby.

#### SECTION IX.5 Conformity with Trust Indenture Act.

Every supplemental indenture executed pursuant to this Article shall conform to the requirements of the Trust Indenture Act as then in effect.

#### SECTION IX.6 Reference in Securities to Supplemental Indentures.

Securities authenticated and delivered after the execution of any supplemental indenture pursuant to this Article may, and shall, if required by the Trustee, bear a notation in form approved by the Trustee as to any matter provided for in such supplemental indenture. If the Company shall so determine, new Securities so modified as to conform, in the opinion of the Trustee and the Company, to any such supplemental indenture may be prepared and executed by the Company and authenticated and delivered by the Trustee in exchange for Outstanding Securities.

#### SECTION IX.7 Notice of Supplemental Indentures.

Promptly after the execution by the Company and the Trustee of any supplemental indenture pursuant to the provisions of Article IX, the Company shall give notice thereof to the

Holders of each Outstanding Security affected, in the manner provided for in Section 1.6, setting forth in general terms the substance of such supplemental indenture.

## **ARTICLE X**

### **COVENANTS**

#### **SECTION X.1 Payment of Principal, Premium and Interest.**

The Company covenants and agrees for the benefit of the Holders of Securities that it will duly and punctually pay the principal of (and premium, if any) and interest on the Securities in accordance with the terms thereof. The Company will deposit or cause to be deposited with the Trustee, no later than the opening of business on the date of the Stated Maturity of any Security or no later than the opening of business on the due date for any installment of interest, all payments so due, which payments shall be in immediately available funds on the date of such Stated Maturity or due date, as the case may be.

#### **SECTION X.2 Maintenance of Office or Agency.**

The Company shall maintain in each Place of Payment an office or agency where Securities may be presented or surrendered for payment or conversion, where Securities may be surrendered for registration of transfer or exchange and where notices and demands to or upon the Company in respect of the Securities and this Indenture may be served. The Company will give prompt written notice to the Trustee of the location, and any change in the location, of each such office or agency. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, surrenders, notices and demands may be made or served at the Corporate Trust Office of the Trustee, and the Company hereby appoints the Trustee its agent to receive all such presentations, surrenders, notices and demands.

The Company may from time to time designate one or more other offices or agencies where Securities may be presented or surrendered for any or all of such purposes, and may from time to time rescind such designations; provided, however, that no such designation or rescission shall in any manner relieve the Company of its obligation to maintain an office or agency in accordance with the requirements set forth above for Securities for such purposes. The Company will give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency. The Company hereby designates as a Place of Payment for Securities the office or agency of the Company in the Borough of Manhattan, The City of New York, and initially appoints State Street Bank and Trust Company, N.A., an Affiliate of the Trustee, at its Corporate Trust Office in such city as Paying Agent, Security Registrar and Conversion Agent and as its agent to receive all such presentations, surrenders, notices and demands.

### SECTION X.3 Money for Securities Payments to Be Held in Trust.

If the Company shall at any time act as its own Paying Agent, it will, on or before each due date of the principal of (and premium, if any) or interest on, the Securities, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay the principal (and premium, if any) or interest so becoming due until such sums shall be paid to such Persons or otherwise disposed of as herein provided, and will promptly notify the Trustee of its action or failure so to act.

Whenever the Company shall have one or more Paying Agents for the Securities, it will, no later than the opening of business on each due date of the principal of (and premium, if any) or interest on, any Securities, deposit with a Paying Agent a sum in immediately available funds sufficient to pay the principal (and premium, if any) or interest, so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal (and premium, if any) or interest and (unless such Paying Agent is the Trustee) the Company will promptly notify the Trustee of its action or failure so to act.

The Company will cause each Paying Agent other than the Trustee to execute and deliver to the Trustee an instrument satisfactory to the Trustee in which such Paying Agent shall agree with the Trustee, subject to the provisions of this Section, that such Paying Agent will

- (1) hold all sums held by it for the payment of principal of (and premium, if any) or interest on Securities in trust for the benefit of the Persons entitled thereto until such sums shall be paid to such Persons or otherwise disposed of as herein provided;
- (2) give the Trustee notice of any default by the Company (or any other obligor upon the Securities) in the making of any such payment of principal (and premium, if any) or interest;
- (3) at any time during the continuance of any such default upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such Paying Agent; and
- (4) acknowledge, accept and agree to comply in all respects with the provisions of this Indenture relating to the duties, rights and liabilities of such Paying Agent.

The Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or by Company Order direct any Paying Agent to pay, to the Trustee all sums held in trust by the Company or such Paying Agent, such sums to be held by the Trustee upon the same trusts as those upon which such sums were held by the Company or such Paying Agent; and, upon such payment by any Paying Agent to the Trustee, such Paying Agent shall be released from all further liability with respect to such sums.

Except as otherwise provided in the Securities, any money deposited with the Trustee or any Paying Agent, or then held by the Company, in trust for the payment of the principal of (and premium, if any) or interest on any Security and remaining unclaimed for two years after such

principal (and premium, if any) and interest has become due and payable shall be paid to the Company upon Company Request or (if then held by the Company) shall be discharged from such trust; and the Holder of such Security shall thereafter, as an unsecured general creditor, look only to the Company for payment of such principal of (and premium, if any) or interest on any Security, without interest thereon, and all liability of the Trustee or such Paying Agent with respect to such trust money, and all liability of the Company as trustee thereof, shall thereupon cease; provided, however, that the Trustee or such Paying Agent, before being required to make any such repayment, may at the expense of the Company cause to be published once, in an Authorized Newspaper, notice that such money remains unclaimed and that, after a date specified therein, which shall not be less than 30 days from the date of such publication, any unclaimed balance of such money then remaining will be repaid to the Company.

#### SECTION X.4 Existence.

Subject to Article VIII, the Company will do or cause to be done all things necessary to preserve and keep in full force and effect its existence, rights (charter and statutory) and franchises; provided, however, that the Company shall not be required to preserve any right or franchise if the Board of Directors determines that the preservation thereof is no longer desirable in the conduct of the business of the Company and the loss thereof is not disadvantageous in any material respect to the Holders.

#### SECTION X.5 Maintenance of Properties.

The Company will cause all of the properties of itself and of each Subsidiary used or useful in the conduct of its business or the business of any Subsidiary to be maintained and kept in good condition, repair and working order and supplied with all necessary equipment and will cause to be made all necessary repairs, renewals, replacements, betterments and improvements thereof, all as in the judgment of the Company may be necessary so that the business carried on in connection therewith may be properly and advantageously conducted at all times; provided, however, the Company and its Subsidiaries shall not be prevented from discontinuing the operation and maintenance of any of such properties if such discontinuance is, in the judgment of the Company, desirable in the conduct of its business and not disadvantageous in any material respect to the Holders.

#### SECTION X.6 Payment of Taxes and Other Claims.

The Company will pay or discharge or cause to be paid or discharged, before the same shall become delinquent, (1) all taxes, assessments and governmental charges levied or imposed upon it or any Subsidiary or upon the income, profits or property of the Company or any Subsidiary, (2) all lawful claims for labor, materials and supplies which, if unpaid, might by law become a lien upon the property of the Company or any Subsidiary; and (3) all stamps and similar duties, if any, which may be imposed by the United States or any political subdivision thereof or taxing authority thereof or therein in connection with the issuance, transfer, exchange or conversion of any Securities or with respect to this Indenture; provided, however, that, in the

case of clauses (1) and (2) that the Company shall not be required to pay or discharge or cause to be paid or discharged any such tax, assessment, charge or claim whose amount, applicability or validity is being contested in good faith by appropriate proceedings.

#### SECTION X.7 Statement as to Compliance.

The Company will deliver to the Trustee, within 120 days after the end of each fiscal year, a brief certificate in the form of an Officers' Certificate from its chief executive officer, chief operating officer, or principal accounting officer as to his or her best knowledge of the Company's compliance with all conditions and covenants under this Indenture and, in the event of any noncompliance, specifying such noncompliance and the nature and status thereof. For purposes of this Section 10.7, such compliance shall be determined without regard to any period of grace or requirement of notice under this Indenture.

#### SECTION X.8 Waiver of Certain Covenants.

The Company may omit in any particular instance to comply with any term, provision or condition set forth in Section 10.4 (other than with respect to the existence of the Company (subject to Article VII)), 10.5 and 10.6, inclusive (other than a covenant or condition which under Article IX cannot be modified or amended without the consent of the Holder of each Outstanding Security affected), if before or after the time for such compliance the Holders of at least a majority in principal amount of all outstanding Securities, by Act of such Holders, either waive such compliance in such instance or generally waive compliance with such covenant or condition, but no such waiver shall extend to or affect such covenant or condition except to the extent so expressly waived, and, until such waiver shall become effective, the obligations of the Company and the duties of the Trustee or any Paying Agent or Conversion Agent in respect of any such term, provision or condition shall remain in full force and effect.

#### SECTION X.9 Statement by Officers as to Default.

The Company shall deliver to the Trustee, as soon as possible and in any event within 10 days after an officer of Company becomes aware of the occurrence of any Event of Default or any event which, with notice or the lapse of time or both, would constitute an Event of Default, an Officers' Certificate setting forth the details of such Event of Default or Default and the action which the Company proposes to take with respect thereto.

### **ARTICLE XI**

#### **REDEMPTION OF SECURITIES**

##### SECTION XI.1 Right of Redemption.

The Securities may be redeemed in accordance with the provisions of the form of Securities set forth in Section 2.2.

## SECTION XI.2 Applicability of Article.

Redemption of Securities at the election of the Company or otherwise, as permitted or required by any provision of the Securities or this Indenture, shall be made in accordance with such provision and this Article XI.

## SECTION XI.3 Election to Redeem; Notice to Trustee.

The election of the Company to redeem any Securities shall be evidenced by or pursuant to a Board Resolution. In case of any redemption at the election of the Company of less than all of the Securities, the Company shall, at least 45 but not more than 60 days prior to the Redemption Date (unless a shorter notice shall be satisfactory to the Trustee), notify the Trustee of such Redemption Date and of the principal amount of the Securities to be redeemed.

## SECTION XI.4 Selection by Trustee of Securities to Be Redeemed.

If less than all the Securities are to be redeemed, the particular Securities to be redeemed shall be selected not more than 30 days prior to the Redemption Date by the Trustee, from the Outstanding Securities not previously called for redemption, by lot or by such other method as the Trustee shall deem fair and appropriate and which may provide for the selection for redemption of portions (equal to the minimum authorized denomination for Securities or any integral multiple thereof) of the principal amount of Securities of a denomination larger than the minimum authorized denomination therefor.

If any Security selected for partial redemption is converted in part before termination of the conversion right with respect to the portion of the Security so selected, the converted portion of such Security shall be deemed (so far as may be) to be the portion selected for redemption. Securities which have been converted during a selection of Securities to be redeemed may be treated by the Trustee as Outstanding for the purpose of such selection. The Trustee shall promptly notify the Company and the Security Registrar (if other than itself) in writing of the Securities selected for redemption and, in the case of any Securities selected for partial redemption, the principal amount thereof to be redeemed.

For all purposes of this Indenture, unless the context otherwise requires, all provisions relating to the redemption of Securities shall relate, in the case of any Security redeemed or to be redeemed only in part, to the portion of the principal amount of such Security which has been or is to be redeemed.

## SECTION XI.5 Notice of Redemption.

Notice of redemption shall be given in the manner provided in Section 1.6, not less than 30 days nor more than 60 days prior to the Redemption Date to each Holder of Securities to be redeemed at such Holder's address appearing in the Security Register and such notice shall be irrevocable.

All notices of redemption shall include a description of the Securities and shall state:

- (1) the Redemption Date,
- (2) the Redemption Price, accrued interest to the Redemption Date payable as provided in Section 11.7, if any,
- (3) if less than all Outstanding Securities are to be redeemed, the identification (and, in the case of partial redemption, the principal amount) of the particular Security or Securities to be redeemed,
- (4) in case any Security is to be redeemed in part only, the notice which relates to such Security shall state that on and after the Redemption Date, upon surrender of such Security, the holder will receive, without a charge, a new Security or Securities of authorized denominations for the principal amount thereof remaining unredeemed,
- (5) that on the Redemption Date the Redemption Price and accrued interest to the Redemption Date payable as provided in Section 11.7, if any, will become due and payable upon each such Security, or the portion thereof, to be redeemed and that interest thereon shall cease to accrue on and after said date,
- (6) the Place or Places of Payment where such Securities maturing after the Redemption Date, are to be surrendered for payment of the Redemption Price and accrued interest, if any, or for conversion,
- (7) the CUSIP number of such Security, if any, and
- (8) the then existing Conversion Rate, the date and time when the option to convert such Securities to be redeemed shall expire and the places where such Securities may be surrendered for conversion.

Notice of redemption of Securities to be redeemed shall be given by the Company or, at the Company's request, by the Trustee in the name and at the expense of the Company.

#### SECTION XI.6 Deposit of Redemption Price.

At least one Business Day prior to any Redemption Date, the Company shall deposit with the Trustee or with a Paying Agent (or, if the Company is acting as its own Paying Agent, segregate and hold in trust as provided in Section 10.3) an amount of money sufficient to pay on the Redemption Date the Redemption Price of, and (except if the Redemption Date shall be an Interest Payment Date) accrued interest on, all the Securities or portions thereof which are to be redeemed on that date other than any Securities called for redemption on that date which have been converted prior to the date of such deposit.



#### SECTION XI.7 Securities Payable on Redemption Date.

Notice of redemption having been given as aforesaid, the Securities so to be redeemed shall, on the Redemption Date, become due and payable at the Redemption Price therein specified, and from and after such date (unless the Company shall default in the payment of the Redemption Price and accrued interest in which case the Securities to be redeemed shall continue to bear interest at the default rate of interest, if any) such Securities shall cease to bear interest. Upon surrender of any such Security for redemption in accordance with said notice, such Security shall be paid by the Company at the Redemption Price, together with accrued interest, if any, to the Redemption Date; provided, however, that installments of interest on Securities whose Stated Maturity is on or prior to the Redemption Date shall be payable to the Holders of such Securities, or one or more Predecessor Securities, registered as such at the close of business on the relevant Record Dates according to their terms and the provisions of Section 3.7.

If any Security called for redemption shall not be so paid upon surrender thereof for redemption as a result of the failure by the Company to fund such redemption, the principal of (and premium, if any) and, to the extent permitted by applicable law, accrued interest on such Security shall, until paid, bear interest from the Redemption Date at a rate of [ ]% per annum and such Security shall remain convertible until the full Redemption Price and accrued interest shall have been paid or duly provided for.

#### SECTION XI.8 Securities Redeemed in Part.

Any Security which is to be redeemed only in part shall be surrendered at a Place of Payment therefor (with, if the Company or the Trustee so requires, due endorsement by, or a written instrument of transfer in form satisfactory to the Company and the Trustee duly executed by, the Holder thereof or such Holder's attorney duly authorized in writing) and the Company shall execute and the Trustee shall authenticate and deliver to the Holder of such Security without service charge a new Security or Securities of any authorized denomination as requested by such Holder in aggregate principal amount equal to and in exchange for the unredeemed portion of the principal of the Security so surrendered.

#### SECTION XI.9 Conversion Arrangement on Call For Redemption.

In connection with any redemption of the Securities, the Company may arrange for the purchase and conversion of any Securities by an agreement with one or more investment bankers or other purchasers (the "Purchasers") to purchase such Securities by paying to the Trustee in trust for the Holders, on or before the Redemption Date, an amount not less than the applicable Redemption Price, together with interest accrued and unpaid to the Redemption Date, of such Securities. Notwithstanding anything to the contrary contained in this Article XI, the obligation of the Company to pay the Redemption Price, together with interest accrued and unpaid to the Redemption Date, shall be deemed to be satisfied and discharged to the extent such amount is so paid by such Purchasers. If such an agreement is entered into (a copy of which shall be filed with the Trustee prior to the close of business on the Business Day immediately prior to the

Redemption Date), any Securities called for redemption that are not duly surrendered for conversion by the Holders thereof may, at the option of the Company, be deemed, to the fullest extent permitted by law, and consistent with any agreement or agreements with such Purchasers, to be acquired by such Purchasers from such Holders and (notwithstanding anything to the contrary contained in this Article XI) surrendered by such Purchasers for conversion, all as of immediately prior to the close of business on the Redemption Date (and the right to convert any such Securities shall be extended through such time), subject to payment of the above amount as aforesaid. At the direction of the Company, the Trustee shall hold and dispose of any such amount paid to it by the Purchasers to the Holders in the same manner as it would monies deposited with it by the Company for the redemption of Securities. Without the Trustee's prior written consent, no arrangement between the Company and such Purchasers for the purchase and conversion of any Securities shall increase or otherwise affect any of the powers, duties, responsibilities or obligations of the Trustee as set forth in this Indenture, and the Company agrees to indemnify the Trustee from, and hold it harmless against, any loss, liability or expense arising out of or in connection with any such arrangement for the purchase and conversion of any Securities between the Company and such Purchasers, including the costs and expenses, including reasonable legal fees, incurred by the Trustee in the defense of any claim or liability arising out of or in connection with the exercise or performance of any of its powers, duties, responsibilities or obligations under this Indenture.

## **ARTICLE XII**

### **REPURCHASE OF SECURITIES AT THE OPTION OF HOLDERS UPON THE CHANGE OF CONTROL**

#### **SECTION XII.1 Right to Require Repurchase.**

In the event that a Change in Control (as hereinafter defined) shall occur, then each Holder shall have the right, at the Holder's option, but subject to the provisions of Section 12.2., to require the Company to repurchase, and upon the exercise of such right the Company shall repurchase, all of such Holder's Securities not theretofore called for redemption, or any portion of the principal amount thereof that is equal to \$1,000 or any integral multiple of \$1,000 in excess thereof (provided that no single Securities may be repurchased in part unless the portion of the principal amount of such Securities to be Outstanding after such repurchase is equal to \$1,000 or integral multiples of \$1,000 in excess thereof), on the date (the "Repurchase Date") that is 45 days after the date of the Company Notice at a purchase price equal to 100% of the principal amount of the Securities to be repurchased plus interest accrued to the Repurchase Date (the "Repurchase Price"); provided, however, that installments of interest on Securities whose Stated Maturity is on or prior to the Repurchase Date shall be payable to the Holders of such Securities, or one or more Predecessor Securities, registered as such on the relevant Record Date according to their terms and the provisions of Section 3.7. Such right to require the repurchase of the Securities shall not continue after a discharge of the Company from its obligations with respect to the Securities in accordance with the provision of Article IV unless a Change in Control shall have occurred prior to such discharge. At the option of the Company, the

Repurchase Price may be paid in cash or, subject to the fulfillment by the Company of the conditions set forth Section 12.2, by delivery of shares of Common Stock having a fair market value equal to the Repurchase Price. Whenever in this Indenture (including Sections 2.2, 3.1, 5.1 (2) and 5.8) there is a reference, in any context, to the principal of any Securities as of any time, such reference shall be deemed to include reference to the Repurchase Price payable in respect of such Securities to the extent that such Repurchase Price is, was or would be so payable at such time, and express mention of the Repurchase Price in any provision of this Indenture shall not be construed as excluding the Repurchase Price in those provisions of this Indenture when such express mention is not made; provided, however, that for the purposes of Article XIV such reference shall be deemed to include reference to the Repurchase Price only to the extent the Repurchase Price is payable in cash.

#### SECTION XII.2 Conditions to The Company's Election to Pay the Repurchase Price in Common Stock.

The Company may elect to pay the Repurchase Price by delivery of shares of Common Stock pursuant to Section 12.1 if and only if the following conditions shall have been satisfied:

- (1) The shares of Common Stock deliverable in payment of the Repurchase Price shall have a fair market value as of the Repurchase Date of not less than the Repurchase Price. For purposes of Section 12.1 and this Section 12.2, the fair market value of shares of Common Stock shall be determined by the Company and shall be equal to 95% of the average of the Closing Prices Per Share of the Common Stock for the five consecutive Trading Days immediately preceding and including the third Trading Day prior to the Repurchase Date;
- (2) The shares of Common Stock to be issued upon repurchase of Securities hereunder (i) shall not require registration under any federal securities law before such shares may be freely transferable without being subject to any transfer restrictions under the Securities Act upon repurchase or, if such registration is required, such registration shall be completed and shall become effective prior to the Repurchase Date, and (ii) shall not require registration with or approval of any governmental authority under any state law or any other federal law before such shares may be validly issued or delivered upon repurchase or if such registration is required or such approval must be obtained, such registration shall be completed or such approval shall be obtained prior to the Repurchase Date;
- (3) The shares of Common Stock to be issued upon repurchase of Securities hereunder are, or shall have been, approved for quotation on the Nasdaq National Market or listed on a national securities exchange, in any case, prior to the Repurchase Date; and
- (4) All shares of Common Stock which may be issued upon repurchase of Securities will be issued out of the Company's authorized but unissued Common Stock and, will upon issue, be duly and validly issued and fully paid and non-assessable and free of any preemptive or similar rights.

If all of the conditions set forth in this Section 12.2 are not satisfied in accordance with the terms thereof, the Repurchase Price shall be paid by the Company only in cash.

#### SECTION XII.3 Notices; Method of Exercising Repurchase Right, Etc.

(a) Unless the Company shall have theretofore called for redemption all of the Outstanding Securities, on or before the 30th day after the occurrence of a Change in Control, the Company or, at the request and expense of the Company on or before the 30th day after such occurrence, the Trustee, shall give to all Holders of Securities, in the manner provided in Section 1.6 notice (the "Company Notice") of the occurrence of the Change of Control and of the repurchase right set forth herein arising as a result thereof. The Company shall also deliver a copy of such Company Notice to the Trustee.

Each notice of a repurchase right shall state:

- (i) the Repurchase Date,
- (ii) the date by which the repurchase right must be exercised pursuant to Section 12.3(b),
- (iii) the Repurchase Price, and whether the Repurchase Price shall be paid by the Company in cash or by delivery of shares of Common Stock,
- (iv) a description of the procedure which a Holder must follow to exercise a repurchase right, and the place or places where such Securities, are to be surrendered for payment of the Repurchase Price and accrued interest, if any, to the Repurchase Date,
- (v) that on the Repurchase Date the Repurchase Price, and accrued and unpaid interest, if any, will become due and payable upon each such Securities designated by the Holder to be repurchased, and that interest thereon shall cease to accrue on and after said date,
- (vi) the Conversion Rate then in effect, the date on which the right to convert the principal amount of the Securities to be repurchased will terminate and the place or places where such Securities may be surrendered for conversion, and
- (vii) the place or places that the Securities certificate with the Election of Holder to Require Repurchase as specified in Section 2.2 shall be delivered.

No failure of the Company to give the foregoing notices or defect therein shall limit any Holder's right to exercise a repurchase right or affect the validity of the proceedings for the repurchase of Securities.

If any of the foregoing provisions or other provisions of this Article VIII are inconsistent with applicable law, such law shall govern.

(b) To exercise a repurchase right, a Holder shall deliver to the Trustee on or before the 30th day after the date of the Company Notice (i) written notice of the Holder's exercise of such right, which notice shall set forth the name of the Holder, the principal amount of the Securities to be repurchased (and, if any Securities is to be repurchased in part, the serial number thereof, the portion of the principal amount thereof to be repurchased and the name of the Person in which the portion thereof to remain Outstanding after such repurchase is to be registered) and a statement that an election to exercise the repurchase right is being made thereby, and, in the event that the Repurchase Price shall be paid in shares of Common Stock, the name or names (with addresses) in which the certificate or certificates for shares of Common Stock shall be issued, and (ii) the Securities with respect to which the repurchase right is being exercised. Such written notice shall be irrevocable, except that the right of the Holder to convert the Securities with respect to which the repurchase right is being exercised shall continue until the close of business on the Repurchase Date.

(c) In the event a repurchase right shall be exercised in accordance with the terms hereof, the Company shall pay or cause to be paid to the Trustee the Repurchase Price in cash or shares of Common Stock, as provided above, for payment to the Holder on the Repurchase Date or, if shares of Common Stock are to be paid, as promptly after the Repurchase Date as practicable, together with accrued and unpaid interest to the Repurchase Date payable with respect to the Securities as to which the repurchase right has been exercised; provided, however, that installments of interest that mature on or prior to the Repurchase Date shall be payable in cash to the Holders of such Securities, or one or more Predecessor Securities, registered as such at the close of business on the relevant Regular Record Date. The Company covenants that, if the Repurchase Price is to be paid in cash, at least one Business Day prior to the Repayment Date it will deposit with the Trustee or with a Paying Agent (or, if the Company is acting as its own Paying Agent, segregate and hold in trust as provided in Section 10.3) an amount of money sufficient to pay the principal of, and (except if the Repayment Date shall be an Interest Payment Date) accrued interest on, all the Securities or portions thereof, as the case may be, to be repaid on such Repayment Date.

(d) If any Securities (or portion thereof) surrendered for repurchase shall not be so paid on the Repurchase Date, the principal amount of such Securities (or portion thereof, as the case may be) shall, until paid, bear interest to the extent permitted by applicable law from the Repurchase Date at the rate of [ ]% per annum, and each Securities shall remain convertible into Common Stock until the principal of such Securities (or portion thereof, as the case may be) shall have been paid or duly provided for.

(e) Any Securities which is to be repurchased only in part shall be surrendered to the Trustee (with, if the Company or the Trustee so requires, due endorsement by, or a written instrument of transfer in form satisfactory to the Company and the Trustee duly executed by, the Holder thereof or such Holder's attorney duly authorized in writing), and the Company shall execute, and the Trustee shall authenticate and make available for delivery to the Holder of such Securities without service charge, a new Security or Securities, containing identical terms and

conditions, each in an authorized denomination in aggregate principal amount equal to and in exchange for the unreurchased portion of the principal of the Securities so surrendered.

(f) Any issuance of shares of Common Stock in respect of the Repurchase Price shall be deemed to have been effected immediately prior to the close of business on the Repurchase Date and the Person or Persons in whose name or names any certificate or certificates for shares of Common Stock shall be issuable upon such repurchase shall be deemed to have become on the Repurchase Date the holder or holders of record of the shares represented thereby; provided, however, that any surrender for repurchase on a date when the stock transfer books of the Company shall be closed shall constitute the Person or Persons in whose name or names the certificate or certificates for such shares are to be issued as the record holder or holders thereof for all purposes at the opening of business on the next succeeding day on which such stock transfer books are open. No payment or adjustment shall be made for dividends or distributions on any Common Stock issued upon repurchase of any Securities declared prior to the Repurchase Date.

(g) No fractions of shares shall be issued upon repurchase of Securities. If more than one Security shall be repurchased from the same Holder and the Repurchase Price shall be payable in shares of Common Stock, the number of full shares which shall be issuable upon such repurchase shall be computed on the basis of the aggregate principal amount of the Securities so repurchased. Instead of any fractional share of Common Stock which would otherwise be issuable on the repurchase of any Securities or Securities, the Company will deliver to the applicable Holder its check for the current market value of such fractional share. The current market value of a fraction of a share is determined by multiplying the current market price of a full share by the fraction, and rounding the result to the nearest cent. For purposes of this Section, the current market price of a share of Common Stock is the Closing Price Per Share of the Common Stock on the Trading Day immediately preceding the Repurchase Date.

(h) Any issuance and delivery of certificates for shares of Common Stock on repurchase of Securities shall be made without charge to the Holder of Securities being repurchased for such certificates or for any tax or duty in respect of the issuance or delivery of such certificates or the Securities represented thereby; provided, however, that the Company shall not be required to pay any tax or duty which may be payable in respect of (i) income of the Holder or (ii) any transfer involved in the issuance or delivery of certificates for shares of Common Stock in a name other than that of the Holder of the Securities being repurchased, and no such issuance or delivery shall be made unless and until the Person requesting such issuance or delivery has paid to the Company the amount of any such tax or duty or has established, to the satisfaction of the Company, that such tax or duty has been paid.

(i) All Securities delivered for repurchase shall be delivered to the Trustee to be canceled at the direction of the Trustee, which shall dispose of the same as provided in Section 3.9.

#### SECTION XII.4 Certain Definitions.

For purposes of this Article XII,

(1) the term "beneficial owner" shall be determined in accordance with Rule 13d-3, as in effect on the date of the original execution of this Indenture, promulgated by the Commission pursuant to the Exchange Act;

(2) a "Change in Control" shall be deemed to have occurred at the time, after the original issuance of the Securities, of:

(i) the acquisition by any Person (including any syndicate or group deemed to be a "person" under Section 13(d)(3) of the Exchange Act as in effect on the date of the original execution of this Indenture) of beneficial ownership, directly or indirectly, through a purchase, merger or other acquisition transaction or series of transactions, of shares of Capital Stock of the Company entitling such person to exercise 50% or more of the total voting power of all shares of Capital Stock of the Company entitled to vote generally in the elections of directors (or persons holding a similar function), other than any such acquisition by the Company, any subsidiary of the Company or any employee benefit plan of the Company; or

(ii) any consolidation of the Company with, or merger of the Company into, any other Person, any merger of another Person into the Company, or any conveyance, sale, transfer, lease or other disposition of all or substantially all of the assets of the Company to another Person (other than (a) any such transaction (x) which does not result in any reclassification, conversion, exchange or cancellation of outstanding shares of Capital Stock of the Company and (y) pursuant to which the holders of the Common Stock immediately prior to such transaction have the entitlement to exercise, directly or indirectly, 50% or more of the total voting power of all shares of Capital Stock entitled to vote generally in the election of directors (or persons holding a similar function) of the continuing or surviving corporation immediately after such transaction and (b) any merger which is effected solely to change the jurisdiction of incorporation of the Company and results in a reclassification, conversion or exchange of outstanding shares of Common Stock into solely shares of common stock of the surviving entity);

provided, however, that a Change in Control shall not be deemed to have occurred if the Closing Sales Price Per Share of the Common Stock for any five Trading Days within the period of 10 consecutive Trading Days ending immediately after the later of the Change in Control or the public announcement of the Change in Control (in the case of a Change in Control under clause (i) above) or the period of 10 consecutive Trading Days ending immediately before the Change in Control (in the case of a Change in Control under clause (ii) above) shall equal or exceed 105% of the Conversion Price of the Securities in effect on each such Trading Day; and

(3) the term "Closing Price Per Share" means, with respect to the Common Stock, for any day, (i) the last reported sale price regular way on the Nasdaq National Market or, (ii) if the Common Stock is not listed on the Nasdaq National Market, the last reported sale price

regular way per share or, in case no such reported sale takes place on such day, the average of the reported closing bid and asked prices regular way, in either case, on the principal national securities exchange on which the Common Stock is listed or admitted to trading, or (iii) if the Common Stock is not quoted on the Nasdaq National Market or listed or admitted to trading on any national securities exchange, the average of the closing bid prices in the over-the-counter market as furnished by any Nasdaq National Market member firm selected from time to time by the Company for that purpose.

#### **SECTION XII.5 Consolidation, Merger, Etc.**

In the case of any consolidation, merger, conveyance, sale, transfer or lease of all or substantially all of the assets of the Company to which Section 14.11 applies, in which the Common Stock of the Company is changed or exchanged as a result into the right to receive shares of stock and other securities or property or assets (including cash) which includes shares of Common Stock of the Company or common stock of another Person that are, or upon issuance will be, traded on a United States national securities exchange or approved for trading on an established automated over-the-counter trading market in the United States and such shares constitute at the time such change or exchange becomes effective in excess of 50% of the aggregate fair market value of such shares of stock and other securities, property and assets (including cash) (as determined by the Company, which determination shall be conclusive and binding), then the Person formed by such consolidation or resulting from such merger or combination or which acquires the properties or assets (including cash) of the Company, as the case may be, shall execute and deliver to the Trustee a supplemental indenture (which shall comply with the Trust Indenture Act as in force at the date of execution of such supplemental indenture) modifying the provisions of this Indenture relating to the right of Holders to cause the Company to repurchase the Securities following a Change in Control, including without limitation the applicable provisions of this Article XII and the definitions of the Common Stock and Change in Control, as appropriate, and such other related definitions set forth herein and in the Indenture as determined in good faith by the Company (which determination shall be conclusive and binding), to make such provisions apply in the event of a subsequent Change of Control to the common stock and the issuer thereof if different from the Company and Common Stock of the Company (in lieu of the Company and the Common Stock of the Company).

### **ARTICLE XIII**

#### **SUBORDINATION**

##### **SECTION XIII.1 Agreement to Subordinate.**

The Company agrees, and each Holder by accepting a Security agrees, that the indebtedness evidenced by the Securities is subordinated in right of payment, to the extent and in the manner provided in this Article, to the prior payment in full in cash of all Senior Debt and that the subordination is for the benefit of the holders of Senior Debt.

##### **SECTION XIII.2 Liquidation; Dissolution; Bankruptcy.**



Upon any distribution to creditors of the Company in a liquidation or dissolution of the Company or in a bankruptcy, reorganization, insolvency, receivership or similar proceeding relating to the Company or its property:

(1) Senior Debt shall be entitled to receive payment in full in cash of the principal of (and premium, if any) and interest (including all interest accruing after the commencement of any such bankruptcy or similar proceeding) to the date of payment on the Senior Debt before Holders shall be entitled to receive any payment of principal of or interest on Securities;

(2) until the Senior Debt is paid in full in cash, any distribution to which Holders would be entitled but for this Article shall be made to holders of Senior Debt as their interests may appear, except that Holders may receive securities that are subordinated in right of payment to Senior Debt to at least the same extent as the Securities; and

(3) the Trustee is entitled to rely upon an order or decree of a court of competent jurisdiction or a certificate of a bankruptcy trustee or other similar official for the purpose of ascertaining the persons entitled to participate in such distribution, the holders of Senior Debt and other Company debt, the amount thereof or payable thereon and all other pertinent facts relating to the Trustee's obligations under this Article XIII.

The consolidation of the Company with, or the merger of the Company into, another Person or the liquidation or dissolution of the Company following the conveyance or transfer of its properties and assets substantially as an entirety to another Person upon the terms and conditions set forth in Article VIII shall not be deemed a dissolution, winding up, liquidation, reorganization, assignment for the benefit of creditors or marshaling of assets and liabilities of the Company for the purposes of this

Section if the Person formed by such consolidation or into which the Company is merged or which acquires by conveyance, transfer, lease, sale or other disposition such properties and assets as an entirety or substantially as an entirety, as the case may be, shall, as a part of such consolidation, merger, conveyance or transfer, comply with the conditions set forth in Article VIII.

#### SECTION XIII.3 No Payment in Certain Circumstances, Payment over of Proceeds

No payment shall be made with respect to the principal of, or premium, if any, or interest on the Securities (including, but not limited to, the Redemption Price with respect to the Securities to be called for redemption in accordance with Article XI or the Repurchase Price with respect to Securities submitted for repurchase in accordance with Article XII), except payments and distributions made by the Trustee as permitted by Section 13.11, if:

(i) a default in the payment of principal, premium, if any, or interest (including a default under any repurchase or redemption obligation) or other amounts with respect to any Senior Debt occurs and is continuing (or, in the case of Senior Debt for which there is a period of grace, in the event of such a default that continues beyond the period of grace,

if any, specified in the instrument, agreement or lease evidencing such Senior Debt) unless and until such default shall have been cured or waived or shall have ceased to exist; or

(ii) a default, other than a payment default, on any Designated Senior Debt occurs and is continuing that then permits holders of such Designated Senior Debt to accelerate its maturity and the Trustee receives a notice of the default (a "Payment Blockage Notice") from a holder of such Designated Senior Debt or any other person entitled to give such notice under this Indenture.

If the Trustee receives any Payment Blockage Notice pursuant to clause (ii) above, no subsequent Payment Blockage Notice shall be effective for purposes of this Section unless and until (A) at least 365 days shall have elapsed since the initial effectiveness of the immediately prior Payment Blockage Notice, and (B) all scheduled payments of principal, premium, if any, and interest on the Securities that have come due have been paid in full in cash. No nonpayment default that existed or was continuing on the date of delivery of any Payment Blockage Notice to the Trustee shall be, or be made, the basis for a subsequent Payment Blockage Notice.

The Company may and shall resume payments on and distributions in respect of the Securities upon the earlier of:

(1) In the case of default referred to in clause (i) above, the date upon which the default is cured or waived or ceases to exist, or

(2) in the case of a default referred to in clause (ii) above, the earlier of the date on which the nonpayment default is cured or waived or 179 days after the date on which the Trustee receives the Payment Blockage Notice, if the maturity of such Designated Senior Debt has not been accelerated,

unless this Article otherwise prohibits the payment or distribution at the time of such payment or distribution.

#### SECTION XIII.4 Prior Payment of Senior Debt Upon Acceleration of Securities.

In the event of the acceleration of the principal on the Securities because of an Event of Default, no payment or distribution shall be made to the Trustee or any holder of Securities in respect of the principal of, premium, if any, or interest on the Securities (including, but not limited to, the Redemption Price with respect to the Securities called for redemption in accordance with Article XI or the Repurchase Price with respect to the Securities submitted for repurchase in accordance with Article XII), except payments and distributions made by the Trustee as permitted by this Article, until all Senior Debt has been paid in full in cash or other payment satisfactory to the holders of Senior Debt or such acceleration is rescinded in accordance with the terms of this Indenture.

#### SECTION XIII.5 When Distribution Must Be Paid Over.

If a distribution is made to Holders that because of this Article should not have been made to them, the Holders who receive the distribution shall hold it in trust for holders of Senior Debt and pay it over to them as their interests may appear.

#### SECTION XIII.6 Reliance on Judicial Order or Certificate of Liquidating Agent.

Upon any payment or distribution of assets of the Company referred to in this Article, the Trustee, subject to the provisions of Section 6.2, and the Holders of the Securities shall be entitled to rely upon any order or decree entered by any court of competent jurisdiction in which such insolvency, bankruptcy, receivership, liquidation, reorganization, dissolution, winding up or similar case or proceeding is pending, or a certificate of the trustee in bankruptcy, receiver, liquidating trustee, custodian, assignee for the benefit of creditors, agent or other Person making such payment or distribution, delivered to the Trustee or to the Holders of Securities, for the purpose of ascertaining the Persons entitled to participate in such payment or distribution, the holders of the Senior Debt and other indebtedness of the Company, the amount thereof or payable thereon, the amount or amounts paid or distributed thereon and all other facts pertinent thereto or to this Article.

#### SECTION XIII.7 Subrogation.

Subject to the payment in full of all Senior Debt, the Holders of the Securities shall be subrogated to the extent of the payments or distributions made to the holders of such Senior Debt pursuant to the provisions of this Article to the rights of the holders of such Senior Debt to receive payments and distributions of cash, property and securities applicable to the Senior Debt until the principal of (and premium, if any) and interest on the Securities shall be paid in full. For purposes of such subrogation, no payments or distributions to the holders of the Senior Debt of any cash, property or securities to which the Holders of the Securities or the Trustee would be entitled except for the provisions of this Article, and no payments over pursuant to the provisions of this Article to the holders of Senior Debt by Holders of the Securities or the Trustee, shall, as among the Company, its creditors other than holders of Senior Debt and the Holders of the Securities, be deemed to be a payment or distribution by the Company to or on account of the Senior Debt.

#### SECTION XIII.8 Relative Rights.

This Article XIII defines, and is intended solely to define, the relative rights of Holders of Securities and holders of Senior Debt. Nothing contained in this Indenture or the Securities shall:

(1) impair, as between the Company and Holders of Securities, the obligation of the Company, which is absolute and unconditional, to pay principal of, premium, if any, and interest on the Securities as and when the same shall become due and payable in accordance with their terms;

(2) affect the relative rights against the Company of Holders of Securities and creditors of the Company other than holders of Senior Debt; or

(3) prevent the Trustee or any Holder of any Security from exercising its available remedies upon the occurrence of a default or an Event of Default, subject to the rights of holders of Senior Debt to receive cash, property and securities otherwise payable to Holders of Securities.

If the Company fails because of this Article to pay principal of, premium, if any, or interest on a Security as and when the same shall become due and payable, the failure is still a default.

#### SECTION XIII.9 Subordination May Not Be Impaired By Company.

No right of any holder of Senior Debt to enforce the subordination of the indebtedness evidenced by the Securities shall be impaired by any act or failure to act by the Company or by its failure to comply with this Indenture.

#### SECTION XIII.10 Distribution or Notice to Representative.

Whenever a distribution is to be made or a notice given to holders of Senior Debt, the distribution may be made and the notice given to their Representative.

#### SECTION XIII.11 Rights of Trustee and Paying Agent.

The Trustee or any Paying Agent may continue to make payments on the Securities until it receives written notice of facts that would cause a payment of principal of or interest on the Securities to violate the Article. Only the Company, a Representative or a Holder of an issue of Senior Debt that has no Representative may give the written notice.

The Trustee has no fiduciary duty to the holders of Senior Debt other than as created under this Indenture. The Trustee in its individual or any other capacity may hold Senior Debt with the same rights it would have if it were not Trustee.

The Company's obligation to pay, and the Company's payment of, the Trustee's fees pursuant to Section 6.6 are excluded from the operation of this Article XIII.

#### SECTION XIII.12 Notice to Trustee.

The Company shall give prompt written notice to the Trustee of any fact known to the Company which would prohibit the making of any payment to or by the Trustee in respect of the Securities. Notwithstanding the provisions of this Article or any other provision of this Indenture, the Trustee shall not be charged with knowledge of the existence of any facts which would prohibit the making of any payment to or by the Trustee in respect of the Securities,

unless and until a Responsible Officer of the Trustee shall have received written notice thereof from the Company or a Representative or a holder of Senior Debt (including, without limitation, a holder of Designated Senior Debt) and, prior to the receipt of any such written notice, the Trustee, subject to the provisions of Section 6.14, shall be entitled in all respects to assume that no such facts exist; provided, however, that if a Responsible Officer of the Trustee shall not have received the notice provided for in this Section 13.12 at least two Business Days prior to the date upon which by the terms hereof any money may become payable for any purpose (including, without limitation, the payment of the principal of (and premium, if any) or interest on any Security), then, anything herein contained to the contrary notwithstanding, the Trustee shall have full power and authority to receive such money and to apply the same to the purpose for which such money was received and shall not be affected by any notice to the contrary which may be received by a Responsible Offer of the Trustee less than two Business Days prior to such date.

Notwithstanding anything in this Article XIII to the contrary, nothing shall prevent any payment by the Trustee to the Holders of monies deposited with it pursuant to Section 4.1, and any such payment shall not be subject to the provisions of Sections 13.2, 13.3 and 13.4.

Subject to the provisions of Section 6.14, the Trustee shall be entitled to rely on the delivery to it of a written notice by a Person representing himself to be a Representative or a holder of Senior Debt (including, without limitation, a holder of Designated Senior Debt) to establish that such notice has been given by a Representative or a holder of Senior Debt (including, without limitation, a holder of Designated Senior Debt). In the event that the Trustee determines in good faith that further evidence is required with respect to the right of any Person as a holder of Senior Debt to participate in any payment or distribution pursuant to this Article, the Trustee may request such Person to furnish evidence to the reasonable satisfaction of the Trustee as to the amount of Senior Debt held by such Person, the extent to which such Person is entitled to participate in such payment or distribution and any other facts pertinent to the rights of such Person under this Article, and if such evidence is not furnished, the Trustee may defer any payment to such Person pending judicial determination as to the right of such Person to receive such payment.

#### SECTION XIII.13 Payment Permitted If No Default.

Nothing contained in this Article XIII or elsewhere in this Indenture or in the Securities shall prevent (a) the Company, at any time except during the pendency of any case, proceeding, dissolution, liquidation or in a bankruptcy, reorganization, insolvency, receivership or similar proceeding referred to in Section 13.2, during the circumstance referred to in the first paragraph of Section 13.3 or under the conditions described in

Section 13.4 hereof, from making payments at any time of principal of (and premium, if any) or interest on the Securities (including, but not limited to, the Redemption Price with respect to the Securities called for redemption in accordance with Article XI or the Repurchase Price with respect to the Securities submitted for repurchase in accordance with Article XII), or (b) the application by the Trustee of any money deposited with it hereunder to the payment of or on account of the principal of (and premium, if any) or interest on the Securities (including, but not limited to, the Redemption Price with respect

to the Securities called for redemption in accordance with Article XI or the Repurchase Price with respect to the Securities submitted for repurchase in accordance with Article XII) or the retention of such payment by the Holders, if, at the time of such application by the Trustee, it did not have knowledge that such payment would have been prohibited by the provisions of this Article.

#### SECTION XIII.14 Trustee to Effectuate Subordination.

Each Holder of a Securities by its acceptance thereof authorizes and directs the Trustee on its behalf to take such action as may be necessary or appropriate to effectuate the subordination provided in this Article and appoints the Trustee its attorney-in-fact for any and all such purposes.

#### SECTION XIII.15 Reliance by Holders of Senior Debt on Subordination Provisions.

Each Holder by accepting a Securities acknowledges and agrees that the foregoing subordination provisions are, and are intended to be, an inducement and a consideration to each holder of any Senior Debt, whether such Senior Debt was created or acquired before or after the issuance of the Securities, to acquire and continue to hold, or to continue to hold, such Senior Debt and such holder of Senior Debt shall be deemed conclusively to have relied on such subordination provisions in acquiring and continuing to hold, or in continuing to hold, such Senior Debt, and no amendment or modification of the provisions contained herein shall diminish the rights of such holders of Senior Debt unless such holders shall have agreed in writing thereto.

#### SECTION XIII.16 Rights of Trustee as Holder of Senior Debt; Preservation of Trustee's Rights.

The Trustee in its individual capacity shall be entitled to all the rights set forth in this Article with respect to any Senior Debt which may at any time be held by it, to the same extent as any other holder of Senior Debt, and nothing in this Indenture shall deprive the Trustee of any of its rights as such holder. Nothing in this Article shall apply to claims of, or payments to, the Trustee under or pursuant to Section 6.6 hereof.

#### SECTION XIII.17 Article Applicable to Paying Agents.

In case at any time any Paying Agent other than the Trustee shall have been appointed by the Company and be then acting hereunder, the term "Trustee" as used in this Article shall in such case (unless the context otherwise requires) be construed as extending to and including such Paying Agent within its meaning as fully for all intents and purposes as if such Paying Agent were named in this Article in addition to or in place of the Trustee; provided, however, that Section 13.16 shall not apply to the Company or any Affiliate of the Company if it or such Affiliate acts as Paying Agent.

#### SECTION XIII.18 Determination of Certain Conversions and Repurchases as Payments.

For the purposes of this Article only, (a) the issuance and delivery of junior securities upon (i) conversion of Securities in accordance with Article XIV or (ii) the repurchase of Securities in accordance with Article VIII, shall not be deemed to constitute a payment or distribution on account of the principal of, or premium or interest on, Securities or on account of the purchase or other acquisition of the Securities, and (b) the payment, issuance or delivery of cash (except in satisfaction of fractional shares pursuant to Section 14.3), property or securities (other than junior securities) upon conversion of a Securities shall be deemed to constitute payment on account of the principal of such Securities. For the purposes of this Section, the term "junior securities" means (i) shares of any stock of any class of the Company and securities into which the Securities are convertible pursuant to Article XIV or the terms of the Securities and (ii) securities of the Company which are subordinated in right of payment to all Senior Debt which may be outstanding at the time of issuance or delivery of such securities to substantially the same extent as, or to a greater extent than, the Securities are so subordinated as provided in this Article. Nothing contained in this Article or elsewhere in this Indenture or in the Securities is intended to or shall impair, as among the Company, its creditors other than holders of Senior Debt and the Holders of the Securities, the right, which is absolute and unconditional, of the Holder of any Securities to convert such Securities in accordance with Article XIV or to exchange such Securities for Common Stock in accordance with Article XII if the Company elects to satisfy the obligations under Article XII by the delivery of Common Stock.

## **ARTICLE XIV**

### **CONVERSION OF SECURITIES**

#### **SECTION XIV.1 Conversion Privilege And Conversion Rate.**

Subject to and upon compliance with the provisions of this Article, at the option of the Holder thereof, any Security or any portion of the principal amount thereof which is \$1,000 or an integral multiple of \$1,000 may be converted at the principal amount thereof, or of such portion thereof, into fully paid and nonassessable shares (calculated as to each conversion to the nearest 1/100 of a share) of Common Stock of the Company, at the Conversion Rate, determined as hereinafter provided, in effect at the time of conversion. Such conversion right shall commence at anytime following the original issue date of the Securities and expire at the close of business on the Business Day immediately preceding the date of Maturity of such Securities. In case a Security or portion thereof is called for redemption (or delivered for repurchase, if applicable), such conversion right in respect of the Security or portion so called shall expire at the close of business on the Business Day immediately preceding the Redemption Date or Repurchase Date, if applicable, unless the Company defaults in making the payment due upon redemption or repurchase, if applicable. The rate at which shares of Common Stock shall be delivered upon conversion (the "Conversion Rate") shall be initially \_\_\_\_\_ shares of Common Stock for each \$1,000 principal amount of the Securities. The Conversion Rate shall be adjusted in certain instances as provided in this Article XIV.

#### SECTION XIV.2 Exercise Of Conversion Privilege.

In order to exercise the conversion privilege, the Holder of any Security to be converted shall surrender such Security, duly endorsed in blank or assigned to the Company at any office or agency of the Company, maintained for that purpose pursuant to Section 10.2 accompanied by a duly signed notice of conversion substantially in the form set forth in Section 2.4 stating that the Holder elects to convert such Security or, if less than the entire principal amount thereof is to be converted, the portion thereof to be converted. Securities surrendered for conversion during the period from the close of business on any Regular Record Date next preceding any Interest Payment Date to the opening of business on such Interest Payment Date shall (except in the case of Securities or portions thereof which have been called for redemption or are eligible to be delivered for repurchase, the conversion rights of which would terminate between such Regular Record Date and the close of business on such Interest Payment Date) be accompanied by payment in New York Clearing House funds or other funds acceptable to the Company of an amount equal to the interest payable on such Interest Payment Date on the principal amount of Securities being surrendered for conversion. Except as provided in the preceding sentence and subject to the last paragraph of Section 3.7, no payment or adjustment shall be made upon any conversion on account of any interest accrued on the Securities surrendered for conversion or on account of any dividends on the Common Stock issued upon conversion.

Securities shall be deemed to have been converted immediately prior to the close of business on the day of surrender of such Securities for conversion in accordance with the foregoing provisions, and at such time the rights of the Holders of such Securities as Holders shall cease, and the Person or Persons entitled to receive the Common Stock issuable upon conversion shall be treated for all purposes as the record holder or holders of such Common Stock at such time. As promptly as practicable on or after the conversion date, the Company shall issue and shall deliver to the Trustee a certificate or certificates for the number of full shares of Common Stock issuable upon conversion, together with payment in lieu of any fraction of a share, as provided in Section 14.3. Such certificate or certificates shall be sent by the Trustee, if applicable, to the Conversion Agent for delivery to the Person or Persons entitled to receive the Common Stock. In the case of any Security which is converted in part only, upon such conversion the Company shall execute and the Trustee shall authenticate and deliver to the Holder thereof, at the expense of the Company, a new Security or Securities of authorized denominations in aggregate principal amount equal to the unconverted portion of the principal amount of such Security.

#### SECTION XIV.3 Fractions Of Shares.

No fractional shares of Common Stock shall be issued upon conversion of any Security or Securities. If more than one Security shall be surrendered for conversion at one time by the same Holder, the number of full shares which shall be issuable upon conversion thereof shall be computed on the basis of the aggregate principal amount of the Securities (or specified portions thereof) so surrendered. Instead of any fractional share of Common Stock which would otherwise be issuable upon conversion of any Security or Securities (or specified portions thereof), the



Company will deliver to the applicable Holder its check for the current market value of such fractional share. The current market value of a fraction of a share is determined by multiplying the current market price of a full share by the fraction, and rounding the result to the nearest cent. For purposes of this Section, the current market price of a share of Common Stock is the Closing Price Per Share of the Common Stock on the Trading Day immediately preceding the date of conversion.

#### SECTION XIV.4 Adjustment Of Conversion Rate.

The Conversion Rate shall be subject to adjustment from time to time as follows:

(1) In case the Company shall pay or make a dividend or other distribution on any class of Capital Stock of the Company payable in shares of Common Stock, the Conversion Rate in effect at the opening of business on the day following the date fixed for the determination of stockholders entitled to receive such dividend or other distribution shall be increased by dividing such Conversion Rate by a fraction of which the numerator shall be the number of shares of Common Stock outstanding at the close of business on the date fixed for such determination and the denominator shall be the sum of such number of shares and the total number of shares constituting such dividend or other distribution, such increase to become effective immediately prior to the opening of business on the day following the date fixed for such determination. For the purposes of this paragraph (1), the number of shares of Common Stock at any time outstanding shall not include shares held in the treasury of the Company but shall include shares issuable in respect of scrip certificates issued in lieu of fractions of shares of Common Stock. The Company will not pay any dividend or make any distribution on shares of Common Stock held in the treasury of the Company.

(2) Subject to paragraph 9 of this Section 14.4, in case the Company shall issue rights, options or warrants to all holders of its Common Stock (other than any rights, options or warrants that by their terms will also be issued to any Holder upon conversion of a Security into Common Stock without any action required by the Company or any other person) entitling them to subscribe for or purchase shares of Common Stock at a price per share less than the current market price per share (determined as provided in paragraph

(10) of this Section 14.4) of the Common Stock on the date fixed for the determination of stockholders entitled to receive such rights, options or warrants, the Conversion Rate in effect at the opening of business on the day following the date fixed for such determination shall be increased by dividing such Conversion Rate by a fraction of which the numerator shall be the number of shares of Common Stock outstanding at the close of business on the date fixed for such determination plus the number of shares of Common Stock which the aggregate of the offering price of the total number of shares of Common Stock so offered for subscription or purchase would purchase at such current market price per share and the denominator shall be the number of shares of Common Stock outstanding at the close of business on the date fixed for such determination plus the number of shares of Common Stock so offered for subscription or purchase, such increase to become effective immediately prior to the opening of business on the day following the date fixed for such determination. For the purposes of this paragraph (2), the number of shares of Common Stock at

any time outstanding shall not include shares held in the treasury of the Company but shall include shares issuable in respect of scrip certificates issued in lieu of fractions of shares of Common Stock. The Company will not issue any rights, options or warrants in respect of shares of Common Stock held in the treasury of the Company.

(3) In case outstanding shares of Common Stock shall be subdivided into a greater number of shares of Common Stock, the Conversion Rate in effect at the opening of business on the day following the day upon which such subdivision becomes effective shall be proportionately increased, and, conversely, in case outstanding shares of Common Stock shall be combined into a smaller number of shares of Common Stock, the Conversion Rate in effect at the opening of business on the day following the day upon which such combination becomes effective shall be proportionately reduced, such reduction or increase, as the case may be, to become effective immediately prior to the opening of business on the day following the day upon which such subdivision or combination becomes effective.

(4) In case the Company shall, by dividend or otherwise, distribute to all holders of its Common Stock, shares of any class of its Capital Stock, evidences of its indebtedness, cash or other assets (including securities, but excluding (a) any rights, options or warrants referred to in paragraph

(2) of this Section, (b) any dividend or distribution paid exclusively in cash, (c) any dividend or distribution referred to in paragraph (1) of this Section and (d) any distributions referred to in paragraph (5) of this Section), the Conversion Rate shall be adjusted so that the same shall equal the price determined by dividing the Conversion Rate in effect immediately prior to the close of business on the date fixed for the determination of stockholders entitled to receive such distribution by a fraction of which the numerator shall be the current market price per share (determined as provided in paragraph (10) of this Section) of the Common Stock on the date fixed for such determination less the then fair market value (as determined by the Board of Directors, whose determination shall be conclusive and described in a Board Resolution filed with the Trustee) of the portion of the assets, shares of Capital Stock or evidences of indebtedness so distributed applicable to one share of Common Stock and the denominator shall be such current market price per share of the Common Stock, such adjustment to become effective immediately prior to the opening of business on the day following the date fixed for the determination of stockholders entitled to receive such distribution.

(5) In case the Company shall, by dividend or otherwise, distribute to all holders of its Common Stock cash (excluding any cash that is distributed upon a merger or consolidation to which Section 14.11 applies or as part of a distribution referred to in paragraph (4) of this Section other than those referenced in the first parenthetical contained therein) in an aggregate amount that, combined together with:

(a) the aggregate amount of any other distributions to all holders of its Common Stock made exclusively in cash within the 12 months preceding the date of payment of such distribution and in respect of which no adjustment pursuant to this paragraph (5) has been made, and

(b) the aggregate of any cash plus the fair market value (as determined by the Board of Directors, whose determination shall be conclusive and described in a Board Resolution filed with the Trustee) of consideration payable in respect of any tender offer by the Company or any of its subsidiaries for all or any portion of the Common Stock concluded within the 12 months preceding the date of payment of such distribution and in respect of which no adjustment pursuant to paragraph (6) of this Section has been made (the amount of such cash distribution together with the amounts described in clauses (a) and (b) above being referred to herein as the "Aggregate Cash Distribution Amount"),

exceeds 10% of the product of (i) the current market price per share of the Common Stock on the date for the determination of holders of shares of Common Stock entitled to receive such distribution, times (ii) the number of shares of Common Stock outstanding on such date (the amount by which the Aggregate Cash Distribution Amount exceeds 10% of the product of the amounts described in clauses (i) and (ii) above being referred to herein as the "Excess Amount"), then, and in each such case, immediately after the close of business on such date for determination, the Conversion Rate shall be increased in accordance with the following formula:

**EA**

$AC = CR \times M - \frac{O}{M}$  Where:

AC = the adjusted Conversion Rate.

CR = the Conversion Rate in effect immediately prior to the close of business on the date fixed for determination of the stockholders entitled to receive the applicable distribution.

M = the current market price per share (determined as provided in paragraph (10) of this Section) of the Common Stock on the date fixed for determination of the stockholders entitled to receive the applicable distribution.

**EA = the Excess Amount.**

O = the number of shares of Common Stock outstanding on the date fixed for determination of the stockholders entitled to receive the distribution.

(6) In case a tender offer made by the Company or any Subsidiary for all or any portion of the Common Stock shall expire and such tender offer (as amended upon the expiration thereof) shall require the payment to stockholders (based on the acceptance (up to any maximum specified in the terms of the tender offer) of Purchased Shares (as defined below)) of an aggregate consideration having a fair market value (as determined by the Board of Directors, whose determination shall be conclusive and described in a Board Resolution filed with the Trustee) that combined together with:

(a) the aggregate of the cash plus the fair market value (as determined by the Board of Directors, whose determination shall be conclusive and described in a Board Resolution filed with the Trustee), as of the expiration of such tender offer, of consideration payable in respect of any other tender offer, by the Company or any Subsidiary for all or any portion of the Common Stock expiring within the 12 months preceding the expiration of such tender offer and in respect of which no adjustment pursuant to this paragraph (6) has been made, and

(b) the aggregate amount of any distributions to all holders of the Company's Common Stock made exclusively in cash within 12 months preceding the expiration of such tender offer and in respect of which no adjustment pursuant to paragraph (5) of this Section has been made,

exceeds 10% of the product of (i) the current market price per share of the Common Stock (determined as provided in paragraph (10) of this Section) as of the last time (the "Expiration Time") tenders could have been made pursuant to such tender offer (as it may be amended), times (ii) the number of shares of Common Stock outstanding (including any tendered shares) on the Expiration Time, then, and in each such case, immediately prior to the opening of business on the day after the date of the Expiration Time, the Conversion Rate shall be reduced in accordance with the following formula:

$$AC = CR \times (M \times O) - C \div M \times (O - TS)$$

**Where:**

AC = the adjusted Conversion Rate.

CR = the Conversion Rate immediately prior to close of business on the date of the Expiration Time.

M = the current market price per share of the Common Stock (determined as provided in paragraph (10) of this Section) on the date of the Expiration Time.

O = the number of shares of Common Stock outstanding (including any tendered shares) on the Expiration Time.

C = the amount of cash plus the fair market value (as determined by the Board of Directors, whose determination shall be conclusive and described in a Board Resolution filed with the Trustee) of the aggregate consideration payable to stockholders based on the acceptance (up to any maximum specified in the terms of the tender offer) of Purchased Shares.

TS = the number of all shares of Common Stock validly tendered and not withdrawn as of the Expiration Time (the shares deemed so accepted up to any such maximum, being referred to as the "Purchased Shares").

(7) The reclassification of Common Stock into securities including securities other than Common Stock (other than any reclassification upon a consolidation or merger to which Section 14.11 applies) shall be deemed to involve (a) a distribution of such securities other than Common Stock to all holders of Common Stock (and the effective date of such reclassification shall be deemed to be "the date fixed for the determination of stockholders entitled to receive such distribution" and "the date fixed for such determination" within the meaning of paragraph (4) of this Section), and (b) a subdivision or combination, as the case may be, of the number of shares of Common Stock outstanding immediately prior to such reclassification into the number of shares of Common Stock outstanding immediately thereafter (and the effective date of such reclassification shall be deemed to be "the day upon which such subdivision becomes effective" or "the day upon which such combination becomes effective", as the case may be, and "the day upon which such subdivision or combination becomes effective" within the meaning of paragraph (3) of this Section).

(8) In case a tender offer made by a Person other than the Company, any Subsidiary of the Company for an amount which increases the offeror's ownership of Common Stock to more than 25% of the Common Stock outstanding and shall involve payment by such Person of consideration per share of Common Stock having a fair market value (as determined by the Board of Directors, whose determination shall be conclusive and described in a Board Resolution as filed with the Trustee) as of the last time (the "Third Party Expiration Time") tenders could have been made pursuant to such tender offer (as it may be amended) that exceeds the current market price of the Common Stock on the Trading Day next succeeding the Third Party Expiration Time, and in which, as of the Third Party Expiration Time, the Board of Directors is not recommending rejection of the offer, the Conversion Rate shall be adjusted in accordance with the following formula:

$$AC = CR ) (M1 \times O) // C + (O1 \times M1) //$$

**Where:**

AC = the adjusted Conversion Rate.

CR = the Conversion Rate immediately prior to close of business on the date of the Third Party Expiration Time.

M1 = the current market price per share of the Common Stock (determined as provided in paragraph (10) of this Section) on the date next succeeding the Third Party Expiration Time.

O = the number of shares of Common Stock outstanding (including any tendered shares) on the Third Party Expiration Time.

O1 = the number of shares of Common Stock outstanding (less any Third Party Purchased Shares, as defined below) outstanding on the Third Party Expiration Time.

C = the amount of cash plus the fair market value (as determined by the Board of Directors, whose determination shall be conclusive and described in a Board Resolution as filed with the Trustee) of the aggregate consideration payable to stockholders based on the acceptance (up to any maximum specified in the terms of the tender offer) of Third Party Purchased Shares.

The number of all shares of Common Stock validly tendered and not withdrawn as of the Third Party Expiration Time and deemed accepted up to any such maximum, is herein referred to as the "Third Party Purchased Shares." In the event that such Person is obligated to purchase shares pursuant to any such tender or exchange offer, but such Person is permanently prevented by applicable law from effecting any such purchases or all such purchases are rescinded, the Conversion Rate shall again be adjusted to be the Conversion Rate which would then be in effect if such tender or exchange offer had not been made. Notwithstanding the foregoing, the adjustment described in this Section 14.4(8) shall not be made if, as of the Expiration Time, the offering documents with respect to such offer disclose a plan or intention to cause the Company to engage in any transaction described in Article VIII.

(9) In case the Company shall issue rights, options or warrants to all holders of the Common Stock entitling the holders thereof to subscribe for or purchase shares of Common Stock (either initially or under certain circumstances), which rights, options or warrants (i) are deemed to be transferred with such shares of Common Stock, (ii) are not exercisable and (iii) are also issued in respect of future issuances of Common Stock, in each case in clauses (i) through (iii) until the occurrence of a specified event or events ("Trigger Event"), shall for purposes of this Section 14.4 not be deemed issued or distributed until the occurrence of the earliest Trigger Event, whereupon such rights, options and warrants shall be deemed to have been distributed and an appropriate adjustment (if any is required) to the Conversion Rate shall be made under this Section 14.4. If any such rights, options or warrants, including any such existing rights, options or warrants distributed prior to the date of this Indenture are subject to subsequent events, upon the occurrence of each of which such rights, options or warrants shall become exercisable to purchase different securities, evidences of indebtedness or other assets, then the occurrence of each such event shall be deemed to be such date of distribution and record date with respect to new rights, options or warrants (and a termination or expiration of the existing rights, options or warrants without exercise by the holder thereof). In addition, in the event of any distribution (or deemed distribution) of rights, options or warrants, or any Trigger Event with respect thereto, that was counted for purposes of calculating a distribution amount for which an adjustment to the Conversion Rate under this Section 14.4 was made, (a) in the case of any such rights, options or warrant which shall all have been redeemed or repurchased without exercise by any holders

thereof, the Conversion Rate shall be readjusted upon such final redemption or repurchase to give effect to such distribution or Trigger Event, as the case may be, as though it were a cash distribution, equal to the per share redemption or repurchase price received by a holder or holders of Common Stock with respect to such rights, options or warrants (assuming such holder had retained such rights, options or warrants), made to all holders of Common Stock as of the date of such redemption or repurchase, and (b) in the case of such rights, options or warrants which shall have expired or been terminated without exercise by any holders thereof, the Conversion Rate shall be readjusted as if such rights, options and warrants had not been issued.

(10) For the purpose of any computation under paragraphs (2), (4), (5), (6) and (8) of this Section, the current market price per share of Common Stock on any date shall be deemed to be the average of the daily closing prices for the five consecutive Trading Days selected by the Company commencing not more than 10 Trading Days before, and ending not later than the earlier of the day in question and the day before the "ex" date with request to the issuance or distribution requiring such computation. The closing price for each day shall be the last reported sales price regular way or, in case no such reported sale takes place on such day, the average of the reported closing bid and asked prices regular way, in either case on the Nasdaq National Market Exchange or, if the Common Stock is not quoted on the Nasdaq National Market, on the principal national securities exchange on which the Common Stock is listed or admitted to trading or, if the Common Stock is not listed or admitted to trading on any national securities exchange or quoted on the Nasdaq National Market, the average of the closing bid and asked prices in the over-the-counter market as furnished by any New York Stock Exchange member firm selected from time to time by the Company for that purpose. For purposes of this paragraph, the term ">ex= date", when used with respect to any issuance or distribution, means the first date on which the Common Stock trades regular way on such exchange or in such market without the right to receive such issuance or distribution.

(11) No adjustment in the Conversion Rate shall be required unless such adjustment (plus any adjustments not previously made by reason of this paragraph (11)) would require an increase or decrease of at least 1% in such rate; provided, however, that any adjustments which by reason of this paragraph (11) are not required to be made shall be carried forward and taken into account in any subsequent adjustment. All calculations under this paragraph (11) shall be made to the nearest cent or to the nearest one-hundredth of a share, as the case may be.

(12) The Company may make such increases in the Conversion Rate, in addition to those required by this Section, as it considers to be advisable in order to avoid or diminish any income tax to any holders of shares of Common Stock resulting from any dividend or distribution of stock or issuance of rights or warrants to purchase or subscribe for stock or from any event treated as such for income tax purposes or for any other reasons. The Company shall have the power to resolve any ambiguity or correct any error in this paragraph (12) and its actions in so doing shall, absent manifest error, be final and conclusive.

(13) To the extent permitted by applicable law, the Company from time to time may increase the Conversion Rate by any amount for any period of time if the period is at least 20

days, the increase is irrevocable during such period, and the Board of Directors shall have made a determination that such increase would be in the best interests of the Company, which determination shall be conclusive; provided, however, that no such increase shall be taken into account for purposes of determining whether the Closing Price Per Share of the Common Stock exceeds the Conversion Price by 105% in connection with an event which would otherwise be a Change of Control. Whenever the Conversion Rate is increased pursuant to the preceding sentence, the Company shall give notice of the increase to the Holders in the manner provided in Section 1.6 at least 15 days prior to the date the increased Conversion Rate takes effect, and such notice shall state the increased Conversion Rate and the period during which it will be in effect.

#### SECTION XIV.5 Notice Of Adjustments Of Conversion Rate.

Whenever the Conversion Rate is adjusted as herein provided:

(1) the Company shall compute the adjusted Conversion Rate in accordance with Section 14.4 and shall prepare an Officers' Certificate, one of the signatories of which shall be the Treasurer or Chief Financial Officer of the Company, setting forth the adjusted Conversion Rate and showing in reasonable detail the calculation of the adjusted Conversion Rate and the facts upon which such adjustment is based, and such certificate shall promptly be filed with the Trustee and with each Conversion Agent and at each office or agency maintained for the purpose of conversion of Securities pursuant to Section 10.2; and

(2) a notice stating that the Conversion Rate has been adjusted and setting forth the adjusted Conversion Rate shall forthwith be prepared, and as soon as practicable after it is prepared, such notice shall be mailed by the Company to all Holders in accordance with Section 1.6.

Unless and until a Responsible Officer of the Trustee shall receive an Officers' Certificate setting forth an adjusted Conversion Rate, the Trustee may assume without inquiry that no adjustment has been made and that the last Conversion Rate of which it has notice remains in effect.

#### SECTION XIV.6 Notice Of Certain Corporate Action.

In case:

(1) the Company shall declare a dividend (or any other distribution) on its Common Stock payable (a) otherwise than exclusively in cash or (b) exclusively in cash in an amount that would require any adjustment pursuant to Section 14.4;

(2) the Company shall authorize the granting to the holders of its Common Stock of rights, options or warrants to subscribe for or purchase any shares of Capital Stock of any class or of any other rights;



(3) of any reclassification of the Common Stock of the Company, or of any consolidation, merger or share exchange to which the Company is a party and for which approval of any stockholders of the Company is required, or of the conveyance, lease, sale, transfer or other disposition of all or substantially all of the assets of the Company; or

(4) of the voluntary or involuntary dissolution, liquidation or winding up of the Company;

then the Company shall cause to be filed at each office or agency maintained for the purpose of conversion of Securities pursuant to Section 10.2, and shall cause to be mailed to all Holders in accordance with Section 1.6, at least 20 days (or 10 days in any case specified in clause (1) or (2) above) prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, rights, options or warrants, or, if a record is not to be taken, the date as of which the holders of Common Stock of record to be entitled to such dividend, distribution, rights, options or warrants are to be determined, or (y) the date on which such reclassification, consolidation, merger, share exchange, conveyance, lease, sale, transfer, disposition, dissolution, liquidation or winding up is expected to become effective, and the date as of which it is expected that holders of Common Stock of record shall be entitled to exchange their shares of Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, share exchange, conveyance, lease, sale, transfer, disposition, dissolution, liquidation or winding up. Neither the failure to give such notice nor any defect therein shall affect the legality or validity of the proceedings described in clauses (1) through (4) of this Section 14.6. If at the time the Trustee shall not be the Conversion Agent, a copy of such notice shall also forthwith be filed by the Company with the Trustee.

The Company shall cause to be filed at the Corporate Trust Office and each office or agency maintained for the purpose of conversion of Securities pursuant to Section 10.2, and shall cause to be provided to all Holders in accordance with Section 1.6, notice of any tender offer by the Company or any Subsidiary for all or any portion of the Common Stock at or about the time that such notice of tender offer is provided to the public generally.

#### SECTION XIV.7 Company To Reserve Common Stock.

The Company shall at all times reserve and keep available, free from preemptive or similar rights, out of its authorized but unissued Common Stock, for the purpose of effecting the conversion of Securities, the full number of shares of Common Stock then issuable upon the conversion of all Outstanding Securities.

#### SECTION XIV.8 Taxes On Conversions.

Except as provided in the next sentence, the Company will pay any and all taxes or duties that may be payable in respect of the issue or delivery of shares of Common Stock on conversion of Securities pursuant hereto. The Company shall not, however, be required to pay any tax or

duty which may be payable in respect of any transfer involved in the issue or delivery of shares of Common Stock in a name other than that of the Holder of the Security or Securities to be converted, and no such issue or delivery shall be made unless and until the Person requesting such issue has paid to the Company the amount of any such tax or duty, or has established to the satisfaction of the Company that such tax or duty has been paid.

#### SECTION XIV.9 Covenant As To Common Stock.

The Company agrees that all shares of Common Stock which may be issued upon conversion of Securities will, upon issuance, have been duly authorized and validly issued and will be fully paid and nonassessable and, except as provided in Section 14.8, the Company will pay all taxes, liens and charges with respect to the issue thereof.

#### SECTION XIV.10 Cancellation Of Converted Securities.

All Securities delivered for conversion shall be delivered to the Trustee or its agent to be canceled by or at the direction of the Trustee, which shall dispose of the same as provided in Section 3.9.

#### SECTION XIV.11 Provisions In Case Of Consolidation, Merger Or Sale Of Assets.

In case of any consolidation of the Company with, or merger of the Company into, any other Person, any merger of another Person into the Company (other than a merger which does not result in any reclassification, conversion, exchange or cancellation of outstanding shares of Common Stock of the Company) or any conveyance, lease, sale, transfer or other disposition of all or substantially all of the assets of the Company, the Person formed by such consolidation or resulting from such merger or to which acquires such assets, as the case may be, shall execute and deliver to the Trustee a supplemental indenture providing that the Holder of each Security then Outstanding shall, without the consent of the Holders, have the right thereafter, to convert each Security into the kind and amount of securities, cash and other property receivable upon such consolidation, merger, conveyance, lease, sale, transfer or other disposition by a holder of the number of shares of Common Stock of the Company into which such Security might have been converted immediately prior to such consolidation, merger, conveyance, lease, sale, transfer or other disposition, assuming such holder of Common Stock of the Company (i) is not a Person with which the Company consolidated or into which the Company merged or which merged into the Company or to which such sale, conveyance, lease, transfer or other disposition was made, as the case may be ("Constituent Person"), or an Affiliate of a Constituent Person and (ii) failed to exercise his or her rights of election, if any, as to the kind or amount of securities, cash and other property receivable upon such consolidation, merger, conveyance, lease, sale, transfer or other disposition (provided that if the kind or amount of securities, cash and other property receivable upon such consolidation, merger, conveyance, lease, sale, transfer or other disposition is not the same for each share of Common Stock of the Company held immediately prior to such consolidation, merger, conveyance, lease, sale, transfer or other disposition by other than a Constituent Person or an Affiliate thereof and in respect of which such rights of election shall not

have been exercised ("Non-electing Share"), then for the purpose of this

Section the kind and amount of securities, cash and other property receivable upon such consolidation, merger, conveyance, lease, sale, transfer or other disposition by the holder of each Non-electing Share shall be deemed to be the kind and amount so receivable per share by a plurality of the holders of the Non-electing Shares), and assuming, if such consolidation, merger, conveyance, lease, sale, transfer or other disposition is prior to the date upon which the Securities first become convertible, that the Securities were convertible at the time of such consolidation, merger, conveyance, lease, sale, transfer or other disposition at the initial Conversion Rate specified in Section 14.1 as adjusted from the date of the issuance of the applicable Securities to such time pursuant to Section 14.4. Such supplemental indenture shall provide for adjustments which, for events subsequent to the effective date of such supplemental indenture, shall be as nearly equivalent as may be practicable to the adjustments provided for in this Article. The above provisions of this Section shall similarly apply to successive consolidations, mergers, conveyances, leases, sales, transfers or other dispositions.

Neither the Trustee nor any Conversion Agent shall be under any duty or responsibility with respect to any such certificate or the information and calculations contained therein, except to exhibit the same to any Holder of Securities desiring inspection thereof at its office during normal business hours, and shall not be deemed to have knowledge of any adjustment in the Conversion Rate unless and until a Responsible Officer of the Trustee shall have received such a certificate. Until a Responsible Officer of the Trustee receives such a certificate, the Trustee and each Conversion Agent may assume without inquiry that the last Conversion Rate of which the Trustee has knowledge of remains in effect.

#### SECTION XIV.12 Responsibility of Trustee for Conversion Provisions.

The Trustee, subject to the provisions of Section 6.2, and any Conversion Agent shall not at any time be under any duty or responsibility to any Holder of Securities to determine whether any facts exist which may require any adjustment of the Conversion Rate, or with respect to the nature or extent of any such adjustment when made, or with respect to the method employed, herein or in any supplemental indenture provided to be employed, in making the same, or whether a supplemental indenture need be entered into. Neither the Trustee, subject to the provisions of Section 6.2, nor any Conversion Agent shall be accountable with respect to the validity or value (or the kind or amount) of any Common Stock, or of any other securities or property or cash, which may at any time be issued or delivered upon the conversion of any Security; and it or they do not make any representation with respect thereto. Neither the Trustee, subject to the provisions of Section 6.2, nor any Conversion Agent shall be responsible for any failure of the Company to make or calculate any cash payment or to issue, transfer or deliver any shares of Common Stock or share certificates or other securities or property or cash upon the surrender of any Security for the purpose of conversion; and the Trustee, subject to the provisions of Section 6.2, and any Conversion Agent shall not be responsible for any failure of the Company to comply with any of the covenants of the Company contained in this Article.

## **ARTICLE XV**

### **MEETINGS OF HOLDERS OF SECURITIES**

#### **SECTION XV.1 Purposes For Which Meetings May Be Called.**

A meeting of Holders of Securities may be called at any time and from time to time pursuant to this Article to make, give or take any request, demand, authorization, direction, notice, consent, waiver or other action provided by this Indenture to be made, given or taken by Holders of Securities.

#### **SECTION XV.2 Call, Notice And Place Of Meetings.**

(a) The Trustee may at any time call a meeting of Holders of Securities for any purpose specified in Section 15.1, to be held at such time and at such place in the Borough of Manhattan, The City of New York, as the Trustee shall determine. Notice of every meeting of Holders of Securities, setting forth the time and the place of such meeting and in general terms the action proposed to be taken at such meeting, shall be given, in the manner provided in Section 1.6, not less than 21 nor more than 180 days prior to the date fixed for the meeting.

(b) In case at any time the Company, pursuant to a Board Resolution, or the Holders of at least 10% in principal amount of the Outstanding Securities shall have requested the Trustee to call a meeting of the Holders of Securities for any purpose specified in Section 15.1, by written request setting forth in reasonable detail the action proposed to be taken at the meeting, and the Trustee shall not have mailed the notice of such meeting within 21 days after receipt of such request or shall not thereafter proceed to cause the meeting to be held as provided herein, then the Company or the Holders of Securities in the amount specified, as the case may be, may determine the time and the place in the Borough of Manhattan, The City of New York, for such meeting and may call such meeting for such purposes by giving notice thereof as provided in paragraph (a) of this Section.

#### **SECTION XV.3 Persons Entitled To Vote At Meetings.**

To be entitled to vote at any meeting of Holders of Securities, a Person shall be (i) a Holder of one or more Outstanding Securities, or (ii) a Person appointed by an instrument in writing as proxy for a Holder or Holders of one or more Outstanding Securities by such Holder or Holders. The only Persons who shall be entitled to be present or to speak at any meeting of Holders shall be the Persons entitled to vote at such meeting and their counsel, any representatives of the Trustee and its counsel and any representatives of the Company and its counsel.

#### **SECTION XV.4 Quorum; Action.**

The Persons entitled to vote a majority in aggregate principal amount of the Outstanding Securities shall constitute a quorum. In the absence of a quorum within 30 minutes of the time appointed for any such meeting, the meeting shall, if convened at the request of Holders of Securities, be dissolved. In any other case, the meeting may be adjourned for a period of not less than 10 days as determined by the chairman of the meeting prior to the adjournment of such meeting. In the absence of a quorum at any such adjourned meeting, such adjourned meeting may be further adjourned for a period not less than 10 days as determined by the chairman of the meeting prior to the adjournment of such adjourned meeting (subject to repeated applications of this sentence). Notice of the reconvening of any adjourned meeting shall be given as provided in Section 15.2(a), except that such notice need be given only once not less than five days prior to the date on which the meeting is scheduled to be reconvened. Notice of the reconvening of an adjourned meeting shall state expressly the percentage of the principal amount of the Outstanding Securities which shall constitute a quorum.

Subject to the foregoing, at the reconvening of any meeting adjourned for a lack of a quorum, the Persons entitled to vote 25% in principal amount of the Outstanding Securities at the time shall constitute a quorum for the taking of any action set forth in the notice of the original meeting.

At a meeting or an adjourned meeting duly reconvened and at which a quorum is present as aforesaid, any resolution and all matters (except as limited by the proviso to Section 9.2 and except to the extent Section 10.8 requires a different vote) shall be effectively passed and decided if passed or decided by the lesser of (i) the Holders of not less than a majority in principal amount of Outstanding Securities and (ii) the Persons entitled to vote not less than 66-2/3% in principal amount of Outstanding Securities represented and entitled to vote at such meeting.

Any resolution passed or decisions taken at any meeting of Holders of Securities duly held in accordance with this Section shall be binding on all the Holders of Securities whether or not present or represented at the meeting. The Trustee shall, in the name and at the expense of the Company, notify all the Holders of Securities of any such resolutions or decisions pursuant to Section 1.6.

#### SECTION XV.5 Determination Of Voting Rights; Conduct And Adjournment Of Meetings.

(a) Notwithstanding any other provisions of this Indenture, the Trustee may make such reasonable regulations as it may deem advisable for any meeting of Holders of Securities in regard to proof of the holding of Securities and of the appointment of proxies and in regard to the appointment and duties of inspectors of votes, the submission and examination of proxies, certificates and other evidence of the right to vote, and such other matters concerning the conduct of the meeting as it shall deem appropriate. Except as otherwise permitted or required by any such regulations, the holding of Securities shall be proved in the manner specified in Section 1.4 and the appointment of any proxy shall be proved in the manner specified in Section 1.4 or by having the signature of the Person executing the proxy guaranteed by any bank, broker or other eligible institution participating in a recognized medallion signature guarantee program.

(b) The Trustee shall, by an instrument in writing, appoint a temporary chairman (which may be the Trustee) of the meeting, unless the meeting shall have been called by the Company or by Holders of Securities as provided in Section 15.2(a), in which case the Company or the Holders of Securities calling the meeting, as the case may be, shall in like manner appoint a temporary chairman. A permanent chairman and a permanent secretary of the meeting shall be elected by vote of the Persons entitled to vote a majority in principal amount of the Outstanding Securities represented at the meeting.

(c) At any meeting, each Holder of a Security or proxy shall be entitled to one vote for each \$1,000 principal amount of Securities held or represented by such Holder; provided, however, that no vote shall be cast or counted at any meeting in respect of any Security challenged as not Outstanding and ruled by the chairman of the meeting to be not Outstanding. The chairman of the meeting shall have no right to vote, except as a Holder of a Security or proxy.

(d) Any meeting of Holders of Securities duly called pursuant to Section 15.2 at which a quorum is present may be adjourned from time to time by Persons entitled to vote a majority in principal amount of the Outstanding Securities represented at the meeting, and the meeting may be held as so adjourned without further notice.

#### SECTION XV.6 Counting Votes And Recording Action Of Meetings.

The vote upon any resolution submitted to any meeting of Holders of Securities shall be by written ballots on which shall be subscribed the signatures of the Holders of Securities or of their representatives by proxy and the principal amounts at Stated Maturity and serial numbers of the Outstanding Securities held or represented by them. The permanent chairman of the meeting shall appoint two inspectors of votes who shall count all votes cast at the meeting for or against any resolution and who shall make and file with the secretary of the meeting their verified written reports in duplicate of all votes cast at the meeting. A record, at least in duplicate, of the proceedings of each meeting of Holders of Securities shall be prepared by the secretary of the meeting and there shall be attached to said record the original reports of the inspectors of votes on any vote by ballot taken thereat and affidavits by one or more Persons having knowledge of the facts setting forth a copy of the notice of the meeting and showing that said notice was given as provided in Section 15.2 and, if applicable, Section 15.4. Each copy shall be signed and verified by the affidavits of the permanent chairman and secretary of the meeting and one such copy shall be delivered to the Company and another to the Trustee to be preserved by the Trustee, the latter to have attached thereto the ballots voted at the meeting. Any record so signed and verified shall be conclusive evidence of the matters therein stated.

\*\*\*\*\*

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed, and their respective corporate seals to be hereunto affixed and attested, all as of the day and year first above written.

**ADVANCED ENERGY INDUSTRIES, INC.**

By: \_\_\_\_\_  
Name:  
Title: Chief Executive Officer, President or  
Executive Vice President

[SEAL]

**Attest:**

By:  
Name:  
Title:

**STATE STREET BANK AND TRUST  
COMPANY OF CALIFORNIA, N.A., as Trustee**

By: \_\_\_\_\_  
Name:  
Title:

[SEAL]

**Attest:**

By:

We hereby agree to furnish to the SEC, upon request, a copy of the instruments which define the rights of holders of our long-term debt. None of such instruments not included as exhibits in this Form S-3 represents

long-term debt in excess of 10% of our consolidated total assets.



**ARTHUR ANDERSEN LLP**

**EXHIBIT 23.2**

**CONSENT OF INDEPENDENT PUBLIC ACCOUNTS**

As independent public accountants, we hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated February 5, 1999 included in Advanced Energy Industries, Inc.'s Form 10-K for the year ended December 31, 1998 and to all references to our Firm included in this Registration Statement (File No. 333- ).

*/S/ ARTHUR ANDERSEN LLP*

*Denver, Colorado,*

*September 20, 1999.*

## EXHIBIT 23.3

### CONSENT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

To the Board of Directors  
Advanced Energy Industries, Inc.:

We consent to the incorporation by reference in the Registration Statement on Form S-3 of Advanced Energy Industries, Inc. of our report dated January 16, 1998 with respect to the consolidated balance sheets of RF Power Products, Inc. as of November 30, 1997 and 1996 and the related consolidated statements of income, changes in shareholders' equity and cash flows for the years then ended and related schedule (not separately presented herein), which report appears in the annual report on Form 10-K of Advanced Energy Industries, Inc. for the year ended December 31, 1998.

*/S/ KPMG LLP*

*Philadelphia, Pennsylvania*

*September 17, 1999*

**EXHIBIT 25.1**

**SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

**FORM T-1**

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**STATEMENT OF ELIGIBILITY UNDER THE  
TRUST INDENTURE ACT OF 1939 OF A  
CORPORATION DESIGNATED TO ACT AS TRUSTEE**

**CHECK IF AN APPLICATION TO DETERMINE ELIGIBILITY  
OF A TRUSTEE PURSUANT TO SECTION 305(b)(2) /X/**

**STATE STREET BANK AND TRUST COMPANY OF CALIFORNIA, NATIONAL ASSOCIATION**  
(EXACT NAME OF TRUSTEE AS SPECIFIED IN ITS CHARTER)

United States  
(JURISDICTION OF INCORPORATION OR  
ORGANIZATION IF NOT A U.S. NATIONAL BANK)

06-1143380  
(I.R.S. EMPLOYER  
IDENTIFICATION NO.)

633 West 5th Street, 12th Floor, Los Angeles, California 90071

(ADDRESS OF PRINCIPAL EXECUTIVE OFFICES) (ZIP CODE)

Lynda A. Vogel, Senior Vice President and Managing Director 633 West 5th Street, 12th Floor, Los Angeles, California 90071 (213) 362-7399

(NAME, ADDRESS AND TELEPHONE NUMBER OF AGENT FOR SERVICE)

**ADVANCED ENERGY INDUSTRIES, INC.**  
(EXACT NAME OF OBLIGOR AS SPECIFIED IN ITS CHARTER)

DELAWARE  
(STATE OR OTHER JURISDICTION OF  
INCORPORATION OR ORGANIZATION)

84-0846841  
(I.R.S. EMPLOYER  
IDENTIFICATION NO.)

**1625 SHARP POINT DRIVE, FORT COLLINS, CO 80525**  
(Address of principal executive offices) (Zip Code)

**\_\_\_% CONVERTIBLE SUBORDINATED NOTES DUE 2006**  
(TYPE OF SECURITIES)

## **GENERAL**

### **ITEM 1. GENERAL INFORMATION.**

#### **FURNISH THE FOLLOWING INFORMATION AS TO THE TRUSTEE:**

(a) NAME AND ADDRESS OF EACH EXAMINING OR SUPERVISORY AUTHORITY TO WHICH IT IS SUBJECT.

Comptroller of the Currency, Western District Office, 50 Fremont Street, Suite 3900, San Francisco, California, 94105-2292

(b) WHETHER IT IS AUTHORIZED TO EXERCISE CORPORATE TRUST POWERS.

Trustee is authorized to exercise corporate trust powers.

### **ITEM 2. AFFILIATIONS WITH OBLIGOR.**

#### **IF THE OBLIGOR IS AN AFFILIATE OF THE TRUSTEE, DESCRIBE EACH SUCH AFFILIATION.**

The obligor is not an affiliate of the trustee or of its parent, State Street Bank and Trust Company.

(See notes on page 2.)

### **ITEM 3. THROUGH ITEM 15. NOT APPLICABLE.**

### **ITEM 16. LIST OF EXHIBITS.**

#### **LIST BELOW ALL EXHIBITS FILED AS PART OF THIS STATEMENT OF ELIGIBILITY.**

1. A COPY OF THE ARTICLES OF ASSOCIATION OF THE TRUSTEE AS NOW IN EFFECT.

A copy of the Articles of Association of the trustee, as now in effect, is on file with the Securities and Exchange Commission as an Exhibit with corresponding exhibit number to the Form T-1 of Western Digital Corporation, filed pursuant to Section 305(b)(2) of the Trust Indenture Act of 1939, as amended (the "Act"), on May 12, 1998 (Registration No. 333-52463), and is incorporated herein by reference.

2. A COPY OF THE CERTIFICATE OF AUTHORITY OF THE TRUSTEE TO COMMENCE BUSINESS, IF NOT CONTAINED IN THE ARTICLES OF ASSOCIATION.

A Certificate of Corporate Existence (with fiduciary powers) from the Comptroller of the Currency, Administrator of National Banks is on file with the Securities and Exchange Commission as an Exhibit with corresponding exhibit number to the Form T-1 of Western Digital Corporation, filed pursuant to Section 305(b)(2) of the Act, on May 12, 1998 (Registration No. 333-52463), and is incorporated herein by reference.

3. A COPY OF THE AUTHORIZATION OF THE TRUSTEE TO EXERCISE CORPORATE TRUST POWERS, IF SUCH AUTHORIZATION IS NOT CONTAINED IN THE DOCUMENTS SPECIFIED IN PARAGRAPH (1) OR (2), ABOVE.

Authorization of the Trustee to exercise fiduciary powers (included in Exhibits 1 and 2; no separate instrument).

4. A COPY OF THE EXISTING BY-LAWS OF THE TRUSTEE, OR INSTRUMENTS CORRESPONDING THERETO.

A copy of the by-laws of the trustee, as now in effect, is on file with the Securities and Exchange Commission as an Exhibit with corresponding exhibit number to the Form T-1 of Western Digital Corporation, filed pursuant to Section 305(b)(2) of the Act, on May 12, 1998 (Registration No. 333-52463), and is incorporated herein by reference.

5. A COPY OF EACH INDENTURE REFERRED TO IN ITEM 4. IF THE OBLIGOR IS IN DEFAULT.

Not applicable.

6. THE CONSENTS OF UNITED STATES INSTITUTIONAL TRUSTEES REQUIRED BY SECTION 321(b) OF THE ACT.

The consent of the trustee required by Section 321(b) of the Act is annexed hereto as Exhibit 6 and made a part hereof.

7. A COPY OF THE LATEST REPORT OF CONDITION OF THE TRUSTEE PUBLISHED PURSUANT TO LAW OR THE REQUIREMENTS OF ITS SUPERVISING OR EXAMINING AUTHORITY.

A copy of the latest report of condition of the trustee published pursuant to law or the requirements of its supervising or examining authority is annexed hereto as Exhibit 7 and made a part hereof.

**NOTES**

In answering any item of this Statement of Eligibility which relates to matters peculiarly within the knowledge of the obligor or any underwriter for the obligor, the trustee has relied upon information furnished to it by the obligor and the underwriters, and the trustee disclaims responsibility for the accuracy or completeness of such information.

The answer furnished to Item 2. of this statement will be amended, if necessary, to reflect any facts which differ from those stated and which would have been required to be stated if known at the date hereof.

**SIGNATURE**

Pursuant to the requirements of the Trust Indenture Act of 1939, as amended, the trustee, State Street Bank and Trust Company of California, National Association, a national banking association organized and existing under the laws of the United States of America, has duly caused this statement of eligibility to be signed on its behalf by the undersigned, thereunto duly authorized, all in the City of Los Angeles, and State of California, on the 20th day of September, 1999.

**STATE STREET BANK AND TRUST COMPANY  
OF CALIFORNIA, NATIONAL ASSOCIATION**

By: */S/ Mark Henson*

-----  
*MARK HENSON  
ASSISTANT VICE PRESIDENT*

## EXHIBIT 6

### CONSENT OF THE TRUSTEE

Pursuant to the requirements of Section 321(b) of the Trust Indenture Act of 1939, as amended, in connection with the proposed issuance by Advanced Energy Industries, Inc., of its \_\_\_% Convertible Subordinated Notes due 2006, we hereby consent that reports of examination by Federal, State, Territorial or District authorities may be furnished by such authorities to the Securities and Exchange Commission upon request therefor.

#### STATE STREET BANK AND TRUST COMPANY OF CALIFORNIA, NATIONAL ASSOCIATION

By: /S/ Mark Henson

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MARK HENSON

ASSISTANT VICE PRESIDENT

DATED: SEPTEMBER 20, 1999

# EXHIBIT 7

Consolidated Report of Condition and Income for A Bank With Domestic Offices Only and Total Assets of Less Than \$100 Million of State Street Bank and Trust Company of California, a national banking association duly organized and existing under and by virtue of the laws of the United States of America, at the close of business JUNE 30, 1999, published in accordance with a call made by the Federal Deposit Insurance Corporation pursuant to the required law: 12 U.S.C. Section 324 (State member banks); 12 U.S.C. Section 1817 (State nonmember banks); and 12 U.S.C. Section 161 (National banks).

|  | Thousands<br>of Dollars |
|--|-------------------------|
| <b>ASSETS</b>  |                         |
| Cash and balances due from depository institutions:  |                         |
| Noninterest-bearing balances and currency and coin.....  | 5,576                   |
| Interest-bearing balances.....   | 0                       |
| Securities.....  | 38                      |
| Federal funds sold and securities purchased<br>under agreements to resell in domestic offices<br>of the bank and its Edge subsidiary.....        | 0                       |
| Loans and lease financing receivables:   |                         |
| Loans and leases, net of unearned income .....   | 0                       |
| Allowance for loan and lease losses .....  | 0                       |
| Allocated transfer risk reserve.....   | 0                       |
| Loans and leases, net of unearned income and allowances.....   | 0                       |
| Assets held in trading accounts.....   | 0                       |
| Premises and fixed assets.....   | 42                      |
| Other real estate owned.....   | 0                       |
| Investments in unconsolidated subsidiaries.....  | 0                       |
| Customers' liability to this bank on acceptances outstanding.....  | 0                       |
| Intangible assets.....   | 0                       |
| Other assets.....  | 748                     |
| Total assets.....  | 6,404                   |
| <b>LIABILITIES</b>   |                         |
| Deposits:  |                         |
| In domestic offices.....   | 0                       |
| Noninterest-bearing.....   | 0                       |
| Interest-bearing.....  | 0                       |
| In foreign offices and Edge subsidiary.....  | 0                       |
| Noninterest-bearing.....   | 0                       |
| Interest-bearing.....  | 0                       |
| Federal funds purchased and securities sold under<br>agreements to repurchase in domestic offices of<br>the bank and of its Edge subsidiary..... | 0                       |
| Demand notes issued to the U.S. Treasury and Trading Liabilities.....  | 0                       |
| Other borrowed money.....  | 0                       |
| Subordinated notes and debentures.....   | 0                       |
| Bank's liability on acceptances executed and outstanding.....  | 0                       |
| Other liabilities.....   | 2,460                   |
| Total liabilities.....   | 2,460                   |
| <b>EQUITY CAPITAL</b>  |                         |
| Perpetual preferred stock and related surplus.....   | 0                       |
| Common stock.....  | 500                     |
| Surplus.....   | 750                     |
| Undivided profits and capital reserves/Net unrealized holding<br>gains (losses).....   | 2,694                   |
| Cumulative foreign currency translation adjustments.....   | 0                       |
| Total equity capital.....  | 3,944                   |
| Total liabilities and equity capital.....  | 6,404                   |

I, John J. Saniuk, Vice President and Comptroller of the above named bank do hereby declare that this Report of Condition and Income for this report date have been prepared in conformance with the instructions issued by the appropriate Federal regulatory authority and is true to the best of my knowledge and belief.

/S/ John J. Saniuk

*We, the undersigned directors, attest to the correctness of this Report of Condition and declare that it has been examined by us and to the best of our knowledge and belief has been prepared in conformance with the instructions issued by the appropriate Federal regulatory authority and is true and correct.*

/S/ Alan D. Greene

/S/ Bryan R. Calder

/S/ Lynda A. Vogel

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**End of Filing**

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