

ADVANCED ENERGY INDUSTRIES INC

FORM 424A

(Prospectus filed pursuant to Rule 424(a))

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CIK	0000927003
Industry	Electronic Instr. & Controls
Sector	Technology
Fiscal Year	12/31

SUBJECT TO COMPLETION. DATED OCTOBER 11, 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 October 11, 1999, was \$36.50 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 11 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 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.

ARTWORK

[Artwork depicting equipment and building with the following text: Power conversion and control system solutions, ion-based sources and plasma abatement systems]

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 believe 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.

RECENT DEVELOPMENTS

On October 11, 1999, we reported financial results for the third quarter and nine-month period ended September 30, 1999.

Our revenues for the third quarter of 1999 were \$51.1 million, up 95% compared to revenues of \$26.3 million for the third quarter of 1998. Our third quarter 1999 revenues were up 23% compared to revenues of \$41.5 million for the second quarter of 1999. Gross margin for the third quarter of 1999 was 44.1%, compared to 30.3% for the third quarter of 1998 and 44.1% for the second quarter of 1999.

Our net income for the third quarter of 1999 was \$5.5 million, compared to a net loss in the third quarter of 1998 of \$3.5 million. Our third quarter 1999 net income was up 98% compared to net income of \$2.8 million for the second quarter of 1999. Earnings per diluted share were 20 cents for the third quarter of 1999, compared to a loss of 13 cents per diluted share in the third quarter of 1998 and earnings of 10 cents per diluted share in the second quarter of 1999.

For the first nine months of 1999, our revenues were \$125.4 million, up 23% compared to revenues of \$102.1 million for the first nine months of 1998. Gross margin for the nine-month period was 43.0%, compared to 29.5% for the same period in 1998.

Net income for the 1999 nine-month period was \$8.8 million, compared to a net loss of \$5.7 million for the same period in 1998. Earnings per diluted share were 31 cents for the 1999 nine-month period, compared to a loss per diluted share of 22 cents for the same period in 1998.



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..... 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.

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".

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 September 30, 1999, our senior debt and indebtedness of our subsidiaries totalled approximately \$816,000. 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 62 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 11, 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 October 11, 1999, there were 27,091,223 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 October 11, 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".

(1) Excludes 1,978,752 shares of common stock issuable upon exercise of options outstanding as of October 11, 1999, at a weighted average exercise price of \$13.42, 3,112,615 shares reserved for issuance under our 1995 Stock Option Plan, 102,395 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 132,725 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. Stand-alone financial statements for Advanced Energy Voorhees 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 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 ADJUSTED (4) (5)
					(UNAUDITED)	
BALANCE SHEET DATA:						
Cash and cash equivalents/marketable securities.....	\$ 11,778	\$ 32,215	\$ 28,134	\$ 25,498	\$ 122,088	\$ 156,353
Working capital.....	41,638	74,342	62,059	66,964	163,554	197,819
Total assets.....	68,078	130,064	101,035	113,383	213,383	247,648
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	127,654

(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 \$96,590,000 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 \$34,265,000 from our sale of 1,000,000 shares of common stock in the concurrent common stock offering (assuming an offering price of \$36.50 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 51% 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 44.07% of our common stock, and Mr. Backman owns approximately 7.81% 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 October 11, 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 September 30, 1999, our senior debt and indebtedness of our subsidiaries totalled approximately \$816,000. 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 55.81% of our common stock outstanding as of October 11, 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 46.85% of our outstanding common stock. Douglas S. Schatz, our Chairman and Chief Executive Officer, owns approximately 44.07% of our common stock outstanding as of October 11, 1999 and, assuming the sale of common stock in the common stock offering, will own 39.39% 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 \$96,590,000 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 \$111,140,000 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 \$34,265,000 (based upon an assumed offering price of \$36.50 per share). We will not receive any of the proceeds from the sale of common stock by the selling stockholders.

We intend to use our net proceeds from these offerings of approximately \$130,855,000 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.....	43 3/8	30 1/4
Fourth quarter (through October 11, 1999).....	37 1/2	30 3/8

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 \$36.50 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 FURTHER 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 outstanding.....	--	--	--
Common stock, 40,000 shares authorized; 26,969 issued and outstanding (actual and as adjusted); 27,969 issued and outstanding (as further adjusted).....	27	27	28
Additional paid-in capital.....	62,193	62,193	96,457
Retained earnings.....	32,443	32,443	32,443
Cumulative translation adjustment.....	(1,274)	(1,274)	(1,274)
Total stockholders' equity.....	93,389	93,389	127,654
Total capitalization.....	\$ 95,155	\$ 195,155	\$ 229,420

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. Stand-alone financial statements for Advanced Energy Voorhees 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 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	\$ 122,088	\$ 156,353
Working capital.....	41,638	74,342	62,059	66,964	163,554	197,819
Total assets.....	68,078	130,064	101,035	113,383	213,383	247,648
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	127,654

(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 \$96,590,000 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 \$34,265,000 from our sale of 1,000,000 shares of common stock in the concurrent common stock offering, (assuming an offering price of \$36.50 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 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 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 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 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 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, 1997	DEC. 31, 1997	MAR. 31, 1998	JUNE 30, 1998	SEPT. 30, 1998	DEC. 31, 1998	MAR. 31, 1999	JUNE 30, 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 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 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 taxes.....	3,835	8,807	1,446	(4,030)	(4,569)	(5,264)	1,032	4,524
Provision (benefit) for income 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 share.....	\$ 0.05	\$ 0.24	\$ 0.03	\$ (0.12)	\$ (0.13)	\$ (0.14)	\$ 0.02	\$ 0.10
Diluted weighted-average number of shares and share equivalents.....	26,401	27,143	27,170	26,531	26,585	26,681	28,027	28,169

	QUARTER ENDED			
	SEPT. 30, 1997	DEC. 31, 1997	MAR. 31, 1998	JUNE 30, 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 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, 1998	DEC. 31, 1998	MAR. 31, 1999	JUNE 30, 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 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 \$4.0 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 30, 1999) minus 1.25% or the LIBOR 360-day rate (6.035% at September 30, 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 believe 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 PLATFORM	DESCRIPTION	POWER/CURRENT LEVEL	MAJOR PROCESS APPLICATIONS
Direct Current Products	MDX	Power control and conversion system	500W-80kW	PVD - Metal sputtering - Reactive sputtering
	MDX-II	Power control and conversion system	15kW-120kW	PVD - Metal sputtering - Reactive sputtering
	Pinnacle	Power control and conversion system	6kW-120kW	PVD - Metal sputtering - 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 Frequency Products	HFV	Power control and conversion system	3kW-8kW	PVD Etch
	RFX	Power control and conversion system	600W	General R&D
	RFG	Power control and conversion system	600W-5.5kW	Etch CVD
	RFXII	Power control and conversion system	600W-5.5kW	Etch CVD
	APEX	Power control and conversion system	1000W-10kW	Etch CVD
	AZX, VZX, SwitchMatch	Tuner	100W-5kW	Impedance matching network
	RF	Power control and conversion system	500W-3kW	Etch 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- Frequency Products	FTMS	Tuner	2kW-5kW	Impedance matching network
	PE and PE-II	Low-frequency power control and conversion system	1.25kW-30kW	CVD PVD - Reactive sputtering Surface modification
	PD	Mid-frequency power control and conversion system	1.25kW-8kW	CVD PVD - Reactive sputtering Surface modification
	LF	Low-frequency power control and conversion system	500W-1kW	Etch PVD

	PRODUCT PLATFORM	DESCRIPTION	POWER/CURRENT LEVEL	MAJOR PROCESS APPLICATIONS
High-Power Products	Astral-20	Pulsed DC power system	20kW	PVD - Metal sputtering - Reactive sputtering
	Astral-120	Pulsed DC power system	120kW	PVD - Reactive sputtering
	Crystal	Multizone induction heating power system	180kW	Semiconductor epitaxy
Other 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 Ion implantation 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
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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 September 30, 1999, we had a total of 1,066 employees, of whom 920 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.....	61	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	44.07	875,000	11,064,500	39.39
G. Brent Backman (4).....	2,116,500	7.81	875,000	1,241,500	4.42
Franklin Resources, Inc. (5).....	1,756,100	6.48	--	1,756,100	6.25
Richard P. Beck (6).....	171,864	*	50,000	121,864	*
Hollis Caswell (7).....	274,201	1.00	50,000	224,201	*
Richard Scholl (8).....	398,940	1.47	100,000	298,940	1.06
Joseph Stach (9).....	352,258	1.29	50,000	302,258	1.07
All executive officers and directors as a group (10 persons) (10).....	15,374,272	55.81	2,000,000	13,374,272	46.85

* Less than one percent (1.0%)

(1) The numbers in the table reflect the stockholders' beneficial ownership of common stock as of October 11, 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 27,091,223 shares outstanding as of October 11, 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 December 10, 1999, 60 days following October 11, 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 December 10, 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 December 10, 1999, his options will be exercisable as to 16,563 shares. The numbers in the table include:

- the 16,563 shares issuable upon the exercise of options on or before December 10, 1999; and
- 200 shares owned by Mr. Beck's wife and a person unrelated to Mr. Beck, even though Mr. Beck disclaims beneficial ownership of these shares.

(7) Dr. Caswell has options to purchase 318,438 shares. By December 10, 1999, his options will be exercisable as to 259,844 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 December 10, 1999. Mr. Scholl's wife, who is one of our business unit managers, has options to purchase 23,874 shares. By December 10, 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 December 10, 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 December 10, 1999, his options will be exercisable as to 113,930 shares, which shares are included in the numbers in the table.

(10) The numbers in the table include:

- an aggregate of 438,554 shares that the executive officers and directors can purchase under their stock options on or before December 10, 1999;
- 546,000 shares owned by Mrs. Backman;
- 200 shares owned by Mrs. Beck and a person unrelated to Mr. Beck.
- 300 shares owned by Mrs. Scholl and 18,468 shares issuable upon the exercise of options owned by Mrs. Scholl on or before December 10, 1999; 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 October 11, 1999, 27,091,223 shares of common stock were outstanding, held by 883 holders of record, and no shares of preferred stock were outstanding. In addition, 3,112,615 shares were reserved for issuance under our 1995 Stock Option Plan, 102,395 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 132,725 shares were reserved for issuance under our Employee Stock Purchase Plan. As of October 11, 1999, options to purchase an aggregate of 1,978,752 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 September 30, 1999, our senior debt and indebtedness of our subsidiaries totalled approximately \$816,000.

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 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 of Notes
-----	-----
Goldman, Sachs & Co.....	
Merrill Lynch, Pierce, Fenner & Smith 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 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 the underwriters. 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 \$410,000.

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

End of Filing