



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

Mail Stop 0306

June 2, 2005

By U.S. Mail and facsimile to (970) 407-5243

Mr. Michael EI-Hillow
Chief Financial Officer
Advanced Energy Industries, Inc
1625 Sharp Point Drive
Fort Collins, CO 80525

**RE: Advanced Energy Industries, Inc.
 Form 10-K for the year ended December 31, 2004
 Form 10-Q for the quarter ended March 31, 2005
 File No. 000-26966**

Dear Mr. EI-Hillow:

We have reviewed your filing and have the following comments. We have limited our review to only your financial statements and related disclosures and will make no further review of your documents. Where indicated, we think you should revise your document in future filings in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K for the year ended December 31, 2004

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations – Page 23

Results of Operations – Page 24

1. We see that you have significant revenues from foreign operations and an increasing presence outside of the United States. In future filings, where significant, please quantify and discuss the impact of changes in exchange rates on reported revenues and expenses.
2. We see inventory write-downs of \$11.3 million, \$3 million and \$5.8 million in 2004, 2003 and 2002, respectively. Please expand future filings to disclose more details about these write-downs, including disclosure about the specific circumstances responsible for the impairment for each period. In addition, disclose whether impaired inventory was sold, discarded or otherwise disposed. Unless insignificant, you should also address the impact of any sales of impaired inventory on margins.

Selling, General and Administrative – Page 28

3. With respect to demonstration equipment, we see that you now expense the cost of such equipment when placed with a potential customer while the cost of such equipment was previously amortized over two years. In a supplemental response, tell us why you changed the accounting method for this equipment and explain why the new method is preferable. Expand future filings to identify and describe reasons for the change in more detail. How did your plan for current and future use of demonstration equipment change?

Goodwill and Other Intangibles Assets Impairment – Page 29

4. We note that you recorded impairment charges for intangible assets of \$3.3 million, \$1.2 million and \$1.9 million in fiscal 2004, 2003 and 2002, respectively. With respect to impairment charges, please expand MD&A in future filings to include the following:
 - a. A reasonably detailed description of the facts and circumstances leading to impairment;
 - b. A description of the method and significant assumptions used to determine fair value;
 - c. A discussion of the timing of the charge. That is, what specific events drove the impairment and when did those events occur?

Financial Statements

Reports of Independent Registered Public Accounting Firm – Pages 40 and 41

5. We see that the auditors' reports do not express an opinion on the effectiveness of internal control over financial reporting or management's assessment thereof. The audit report on internal controls should express a clear opinion and should not be qualified for scope. In a supplemental response, identify the expected timing for completion of the audit of internal control over financial reporting and management's assessment thereof. Tell us when you plan to provide an amended filing containing unqualified reports from your auditor.

Note 3, Restructuring Costs – Page 55

6. With respect to the tabular analysis, future filings should disaggregate the item "payments and other settlements" to separately present payments from other settlements. The facts and circumstances leading to non-cash adjustments to exit cost liabilities should be addressed in the accompanying narrative. That is, you should make substantive disclosure about reasons for changes in estimates.
7. Please expand MD&A in future filings to present detailed disclosures about expected and actual cost savings from restructuring activities. Refer to the disclosure guidance from SAB Topic 5-P. Show us how you intend to implement this comment.

Note 15, Foreign Operations and Major Customers – Page 66

8. Please expand future filings to also present the long-lived asset disclosure specified by paragraph 38b to SFAS 131.

Note 19, Fair Value of Financial Instruments – Page 70

9. Expand future filings to disclose how you measured the fair values of the convertible subordinated notes. We see the risk factor regarding repayment on page 11. Clarify whether and how repayment risk is considered in your estimate of fair value. Refer to SFAS 107 for guidance.

Form 10-Q for the Period Ended March 31, 2005

Management's Discussion and Analysis - Page 18

Gross Margin – Page 28

10. We see that gross margin in the first quarter of 2005 was positively impacted by cost re-allocations. Please expand future filings to disclose why you re-allocated

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costs from costs of sales to selling, general and administrative expense. Also clarify the nature of those costs and explain why comparable reclassifications were not made to prior periods. Also respond supplementally.

Form 8-K Dated April 21, 2005

11. You present non-GAAP measures in the form of a pro forma statement of operations. That format presents numerous non-GAAP measures, including both balances and subtotals. With respect to earnings releases furnished on Form 8-K, you must provide all of the disclosures required by Item 10(e)(1)(i) of Regulation S-K for each non-GAAP measure presented. In that regard, for each measure you should provide statements about how you use the measure in conducting and evaluating your business, statements about why that measure provides useful information to investors, and a quantified reconciliation to the most directly comparable GAAP measure. Those disclosures should also address the economic substance behind management's decision to use each non-GAAP measure, the material limitations associated with use of each non-GAAP financial measure as compared to the use of the most directly comparable GAAP financial measure, and the manner in which management compensates for those limitations. Either delete the non-GAAP income statements from future press releases or expand to fully comply with the requirement. Show us how you intend to implement this comment.

* * * *

As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter with your response that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please file your cover letter on EDGAR. Please understand that we may have additional comments after reviewing your responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings reviewed by the staff to be certain that they have provided all information investors require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that

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- the company is responsible for the adequacy and accuracy of the disclosure in the filings;
- staff comments or changes to disclosure in response to staff comments in the filings reviewed by the staff do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact Patrick Enunwaonye, Staff Accountant, at (202) 551-3645 or me, at (202) 551-3605 if you have questions regarding comments on the financial statements and related matters. In this regard, do not hesitate to contact Brian Cascio, Accounting Branch Chief, at (202) 551-3676 with any other concerns.

Sincerely,



Gary Todd
Review Accountant