

Mail Stop 3561

December 27, 2006

Richard E. Kessel
President and Chief Executive Officer
Environmental Power Corporation
One Cate Street, 4th Floor
Portsmouth, N.H. 03801

**Re: Environmental Power Corporation
Registration Statement on Form S-3
Filed November 29, 2006
File No. 333-138999
Form 10-K for Fiscal Year Ended December 31, 2005
Form 10-Q for Fiscal Quarter Ended September 30, 2006
File No. 1-32393**

Dear Mr. Kessel:

We have limited our review of your filing to those issues we have addressed in our comments. Where indicated, we think you should revise your document 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 information so we may better understand your disclosure. After reviewing this information, we may 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 any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Registration Statement on Form S-3

1. We note that you are registering a total of 4,387,360 shares of common stock in this offering and that you have a total of 9,731,259 shares of common stock outstanding. Given the nature and size of the transaction, please advise us of the basis for determining that the

transaction is appropriately characterized as a transaction that is eligible to be made on a shelf basis under Rule 415(a)(1)(i) of the Securities Act.

License Agreement with Danish Biogas Technology A/S, page 7

2. You indicate that Microgy licenses the anaerobic digestion portion of its technology from Danish Biogas Technology A/S, referred to as DBT. Please disclose the amount of the license fee per project. It appears from your disclosure that such fee is fixed per project, if so, than please state the percentage in future filings.

Buzzard, page 10

3. We note your lease interest in the Scrubgrass Generating Company. We also see your market risk disclosure on page 44 which specifically indicates that as lessee you are required to fund the lessor's variable rate debt obligations, which appear to be material at approximately \$130 million. Please explain to us how you evaluated this variable interest as lessee under FIN 46R. Please provide any quantitative analysis you may have performed in your accounting evaluation.
4. It is unclear from your disclosure what happens in the event of an unanticipated shut down of the Scrubgrass Generating Plant, other than for routine maintenance. Please enhance future disclosure and explain to us the specific operating and financial ramifications of such an event. Also, it is unclear who has responsibility for providing insurance on the property. Please enhance your disclosure accordingly.

Incorporation of Certain Documents by Reference, page 28

5. Please revise to incorporate by reference the Item 1.01 Form 8-K that was filed on December 15, 2006. Please consider including the language discussed in Telephone Interpretation H.69, Securities Act Section, Manual of Publicly Available Telephone Interpretations (July 1997).

Revenue Recognition, page 31

6. Your disclosure indicates that when the estimate on a contract indicates a loss, your policy is to record the entire loss during the accounting period in which it is estimated, which is appropriate under GAAP. Your Form 10-Q for the period ended September 30, 2006 discloses negative margins for the three and nine month period ended September 30, 2005, and positive margins on product sales for the comparative periods ended September 30,

2006. Please provide to us a summary analysis which highlights how you calculated such revenues and expenses for each period. Also, to the extent you had recorded *entire* losses on contracts in costs of goods sold, please disclose such losses in the notes to your financial statements.

Goodwill and Intangible Assets, page F-9

7. In your response letter dated October 26, 2004 to our review of your 2003 Form 10-K you highlighted in response number 40 some very specific assumptions used to support the carrying value of Microgy's goodwill. It appears that such assumptions have not materialized; in particular with respect to the revenue figure previously estimated of approximately \$50 million for the year 2005. Furthermore, you disclose on page 5 of your Form S-3, "Microgy has a history of losses. For the nine months ended September 30, 2006, we incurred a net loss of \$7.8 million. For the years ended December 31, 2005 and 2004, we incurred net losses of \$11.4 million and \$4.0 million, respectively. We expect our Microgy subsidiary to continue to incur losses, reduce our earnings or, as the case may be, add to our earnings deficit as we seek to further develop its business. These ongoing losses will adversely affect our financial condition *into at least 2007*." Therefore, please submit to us the most recent goodwill impairment test which supports the carrying value of your recorded goodwill, or revise your financial statements. For each specific variable mentioned under your DCF analysis in your prior response letter, please explain how such statements compare to actual results to date. Similarly, please provide your analysis used to support the carrying value your licensed technology rights with DBT. We may have further comment upon review of your response.

Undertakings, II-2

8. Please revise to include the undertakings required by Item 512(a)(5)(ii) of Regulation S-K.

Form 10-K for the Fiscal Year Ended December 31, 2005

Controls and Procedures, page 44

9. We note your statement that a "control system, no matter how well conceived and operated, can provide only reasonable assurance of achieving their objectives ..." Please confirm, and in future filings revise to state, if true, that your disclosure controls and procedures are also *designed to* provide reasonable assurance of achieving their objectives. Please refer to Section II.F.4 of Management's Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports, SEC Release No. 33-8238, available on our website at <<http://www.sec.gov/rules/final/33-8238.htm>>.

Form 10-Q for the Fiscal Quarter Ended September 30, 2006

10. Please explain to us how you have accounted for the \$15 million private placement offering of convertible preferred stock with detachable warrants. Please be detailed in your response referencing the accounting literature used. Furthermore, please describe to us how you allocated the proceeds to your convertible preferred stock and the detachable warrants. Lastly, please explain to us if a beneficial conversion feature exists with respect to your preferred stock.

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities Act of 1933 and that they have provided all information investors require for an informed investment decision. 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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness 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 connection with our review of your filing or in response to our comments on your filing.

Richard E. Kessel
Environmental Power Corporation
December 27, 2006
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We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Robert Babula, Staff Accountant, at (202) 551-3339 or Michael Moran, Accounting Branch Chief, at (202) 551-3841 if you have any questions regarding comments on the financial statements and related matters. Please contact Scott Anderegg, Staff Attorney, at (202) 551-3342 or Peggy Kim, Senior Staff Attorney, at (202) 551-3411 or me at (202) 551-3720 with any other questions.

Sincerely,

H. Christopher Owings
Assistant Director

cc: Scott Pueschel, Esq.
Pierce Atwood LLP