



DIVISION OF
CORPORATION FINANCE

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

July 26, 2011

Via E-mail

Teodor Klowan, Jr.
Chief Financial Officer
ThermoEnergy Corporation
10 New Bond Street
Worcester, MA 01606

**Re: ThermoEnergy Corporation
Registration Statement on Form S-1
Filed June 29, 2011
File No. 333-175227
Form 10-K/A for the Fiscal Year Ended December 31, 2010
Filed May 2, 2011
Form 10-Q for the Fiscal Quarter Ended March 31, 2011
Filed May 11, 2011
File No. 033-46104-FW**

Dear Mr. Klowan:

We have reviewed your filings and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your filings and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your filings and the information you provide in response to these comments, we may have additional comments.

Form S-1 Filed on June 29, 2011

General

1. We note that you currently appear to have 56,867,098 shares of common stock outstanding and that you are registering 54,166,684 shares for resale by the selling shareholders. We further note that each of the five selling shareholders is an affiliate of Security Investors, LLC, which appears to be an affiliate of your company. Because of the size of the transaction being registered relative to the number of shares outstanding and the nature of the selling shareholders, we are concerned that the transaction might be an indirect primary offering. Therefore, please advise us of the company's basis for

determining that the transaction is appropriately characterized as a transaction that is eligible to be made under Rule 415(a)(1)(i). To assist you in preparing your response, you may wish to refer to Question 612.09 of the Division's Compliance & Disclosure Interpretations for Securities Act Rules, which can be found on our website.

Prospectus Cover Page

2. Please revise your disclosure to indicate the correct page on which the Risk Factors section begins.

Table of Contents, page 2

3. Please tell us why you believe it necessary to include the second paragraph under the heading About This Prospectus. Please note that you are responsible for the entire content of the registration statement and you may not use language that could be interpreted as a disclaimer of the information contained in the filing.

Prospectus Summary, page 3

4. On page four, we note that you estimate the industrial and municipal tertiary wastewater removal and recovery market in the USA into which your CAST wastewater technologies are sold to be approximately \$12 billion over the next five years and that you estimate the market for your ZEBS power generation technology to be \$1 trillion once fully commercialized. Please provide us with supplemental support for these statements.
5. We note that you name certain blue chip customers on page four. Please advise us as to the basis for the inclusion of these particular customers as compared to other customers and whether such companies are representative of your typical customers.

Summary of the Offering, page 5

6. We note your disclosure that you will have 111,023,782 shares outstanding after the offering. We are unable to reconcile this statement with footnote (1) to the statement. Please provide us with a detailed analysis as to how you calculated this number.

Risk Factors, page 7

7. We note the third and fourth sentences in the paragraph immediately following the heading Risk Factors. Please note that all known material risks should be described. If risks are not deemed material they should not be described. Please revise your disclosure accordingly.

We will require additional capital to continue to fund our operations. If we need but do not obtain additional capital, we may be required to substantially limit operations, page 7

8. We note that your independent registered public accountant, in its report for the fiscal year ended December 31, 2010, issued an emphasis of matter paragraph regarding the substantial doubt about your ability to continue as a going concern. Please revise your risk disclosure to make this going concern issue a separate risk factor.

Material weaknesses in our internal controls over financial reporting . . . , page 8

9. In your Form 10-K/A for the fiscal year ended December 31, 2010, we note that you did not document or test your key controls over financial reporting or your disclosure controls and procedures in accordance with Section 404 of the Sarbanes-Oxley Act. Please disclose these facts in this risk factor. Additionally, we note that material weaknesses existed during 2009 and 2010. In this risk factor, please describe each material weakness, disclose who discovered it and when it was discovered, and disclose how you plan to remediate the material weakness and when you anticipate full remediation.

Business, page 13

10. Please revise your disclosure to address the following issues in accordance with Item 101(h)(4) of Regulation S-K:
 - the sources and availability of raw materials and the names of your principal suppliers;
 - the amount spent during each of the last two fiscal years on research and development activities; and
 - the costs and effects of compliance with environmental laws.

Customers, page 17

11. We note that the majority of your revenues in 2009 and 2010 were generated by a single customer. Please identify this customer and disclose the percentage of revenues it generated.

Management's Discussion and Analysis of Financial Condition . . . , page 21

12. We note your statement in the introductory paragraph that "[you] assume no obligation to update the forward-looking statements or such risk factors." Please revise this statement to reflect that in certain circumstances applicable law may require you to update such disclosures.

13. Please include an overview section in your MD&A that discusses the most important matters on which management focuses in evaluating the company's operating performance and financial condition, and provides context for the discussion of the financial statements. An overview section should provide insight into material opportunities, challenges and risks, such as those presented by known material trends and uncertainties, on which management is most focused, as well as the actions they are taking to address these opportunities, challenges and risks. For example, we note your disclosure on page 7 that you require substantial capital to continue commercialization of your water and power technologies and to fund your liabilities. We believe that a discussion of this type of information in MD&A would enhance investors' understanding of the company through the eyes of management. Please see the Commission's interpretive guidance regarding MD&A disclosures in Release 33-8350 (Dec. 19, 2003) for more information.

Results of Operations, page 25

14. We note that your discussion does not fully discuss and analyze the factors that led to the changes in various line items from period to period. Accordingly, please expand your disclosure, as applicable, to fully address Item 303 of Regulation S-K. In this regard, your discussion should address those key variable and other qualitative and quantitative factors which are necessary for an understanding and evaluation of your operations. Please expand your disclosure to more fully discuss the causes for any material changes from period to period. When multiple factors contribute to fluctuations in a single financial statement line item, please separately quantify the impact of each factor. You should also ensure that you are explaining the majority of increases or decreases in each line item. For example, we note that your gross profits in 2010 were affected by your contract with New York City, two industrial contracts, and the costs of maintaining your production group for your New York City contract and other new business. However, you do not provide a context for understanding how the two industrial contracts impacted gross profit and to what degree these factors affected gross profit. Please revise your disclosure to separately quantify and describe the specific reasons for material fluctuations between all periods presented wherever possible.

Liquidity and Capital Resources, page 26

15. Please revise your disclosure of your financing transactions to describe the material terms of each transaction. Please identify the investors, the total amount you received from the investors in each transaction, the maturity or due date of the relevant financial instrument, the interest rate, the type of security the financial instrument may be converted into, the conversion or exercise price, and any applicable financial or other covenants associated with the transaction. We note several references to the 2009 Financing and the Series B Convertible Preferred Stock Financing that are not fully explained. Additionally, please clearly disclose whether you defaulted with respect to any of these financial instruments,

and if so, how you plan to cure any such default. Finally, to the extent that certain financing transactions amend previous agreements, please revise your disclosure to group each amendment with the initial transaction so that investors may easily understand the end result of the transaction.

Security Ownership of Certain Beneficial Owners, Directors and Executive Officers of ThermoEnergy, page 30

16. On page 34, we note that the holders of the Series A and Series B Convertible Preferred Stock possess voting rights. Pursuant to Item 403 of Regulation S-K, please disclose the security ownership of certain beneficial owners, directors, and executive officers for these securities.

Management, page 33

17. On page 39, we note that you identify David A. Field and David Gelbaum as directors in 2010. Please identify these directors in your director and executive officer table and provide biographies for each director in accordance with Item 401 of Regulation S-K. Alternatively, please tell us why you are not required to provide this disclosure.

Executive Officer and Director Compensation, page 35

18. Please revise your disclosure to provide a footnote to the Summary Compensation Table disclosing the assumptions used in the valuation of the stock option awards and disclose whether the grant date fair value of the stock options was computed in accordance with FASB ASC Topic 718. Refer to Instructions 1 and 2 to Item 402(n)(2)(v) and (vi) of Regulation S-K.
19. We note that Mr. Shawn Hughes was terminated on January 27, 2010; however, it appears that he received a full year's salary for 2010. In a footnote the Summary Compensation Table, please disclose the reasons for any salary payment after termination. We further note that you made certain severance payments to Mr. Hughes during 2010. Please tell us where these payments are reflected in the Summary Compensation Table, or provide us with your analysis as to why you are not required to present these payments in the Summary Compensation Table.

Narrative Disclosure to Summary Compensation Table, page 36

Base Salary, page 36

20. We note your references to factors and general compensation philosophy "discussed above" or "described above." It does not appear that you discuss any factors or describe your general compensation philosophy in this registration statement. Please advise or revise your disclosure accordingly.

Stock Option and Stock-Based Awards, page 36

21. Please disclose the material terms of the stock option grants you made in 2010. Refer to Item 402(o)(4) of Regulation S-K.

Other Compensation, page 36

22. In footnote 2 to the Summary Compensation Table, we note that you include salary to executive officers' spouses as part of the All Other Compensation category. Please explain these payments in detail and discuss why you believe these payments should be disclosed as compensation to the named executive officers.
23. To the extent that a specific item exceeds the greater of \$25,000 or 10% of all the items included in the All Other Compensation column in the Summary Compensation Table, please identify the item. We note that several of your named executive officers received amounts under the All Other Compensation column in excess of \$25,000. Please see Item 402(o)(7) of Regulation S-K.

Director Compensation Table, page 39

24. In footnote 2 to the Director Compensation Table, please revise to refer to FASB ASC Topic 718, if true, rather than ASC 710.

Certain Relationships and Related Transactions, page 40

25. We note your disclosure about your consulting agreement with Rexon Limited. Please tell us why you did not reflect the compensation under this agreement in the summary compensation table entry for Mr. Reynolds. It appears that at least some of this compensation was issued directly to Mr. Reynolds in connection with his service as your interim chief financial officer.

Selling Stockholders, page 40

26. Please describe the material transactions and relationships between you and each of the selling shareholders during the past three years. Please also describe the transactions in which you issued the shares to be resold in materially complete terms, including the dates of the transactions, the purchase price, if any, and the number of shares received. Refer to Item 507 of Regulation S-K.
27. Please disclose the natural person or persons who have voting or investment control over the securities held by the selling shareholders.
28. Please disclose whether any of the selling shareholders are broker-dealers or affiliates of broker-dealers. If any of the selling shareholders are broker-dealers, please state that they

are underwriters with respect to the shares that they are offering for resale (unless the securities constituted underwriting compensation). If any of the selling shareholders are affiliates of registered broker-dealers, please revise to disclose the following:

- that the selling shareholders purchased in the ordinary course of business; and
- that, at the time of purchase of the securities to be resold, the seller had no agreements or understandings, directly or indirectly, with any person to distribute the securities.

If the selling shareholders are unable to make these representations, please state that they are underwriters.

Description of Capital Stock, page 41

29. Please note that you may not qualify information in the prospectus by reference to information outside the prospectus. See Rule 411(a) of Regulation C. Please remove the references to the General Corporation Law of the State of Delaware accordingly.
30. We note that you filed a Definitive Information Statement on Schedule 14C on July 22, 2011 to increase the number of shares of common stock and preferred stock you are authorized to issue. Please revise your disclosure accordingly.

Certain United States Federal Income Tax Considerations Applicable to Non-U.S. Holders, page 45

31. Please remove the word “certain” from this heading and discussion. All material tax considerations should be described.

Legal Matters, page 51

32. Please include in the prospectus the address of counsel who passed on the legality of the shares to be issued. Please refer to Paragraph 23 of Schedule A of the Securities Act of 1933.

Recent Sales of Unregistered Securities, page II-2

33. Please revise this disclosure to present this information in a clear and concise format that complies with your disclosure obligations under Item 701 of Regulation S-K. To the extent that certain sales correspond to or amend previous transactions, please group these transactions together so that investors may easily understand the end result of the transaction.

Undertakings, page II-17

34. Please revise to include only the undertakings applicable to this offering. In this regard, it is unclear to us why you have included the undertakings related to Rule 430A.

Exhibits

35. Pursuant to Item 601(b)(5) of Regulation S-K, please file an opinion of counsel as Exhibit 5.1 to the registration statement as to the legality of the securities being registered for resale, indicating whether they will, when sold, be legally issued, fully paid and non-assessable.
36. Pursuant to Item 304(a)(3) of Regulation S-K, please file a letter from your former accountants addressed to the Commission stating whether the former accountant agrees with the statements you made in response to Item 304 of Regulation S-K and, if not, stating the respects in which it does not agree.

Amendment No. 1 to the Form 10-K/A for the Fiscal Year Ended December 31, 2010

General

37. Where applicable, please address the above comments in your future Exchange Act filings.

Cautionary Statement Regarding Forward-Looking Information, page 3

38. We note the statement in the penultimate paragraph on page 3 that the “company undertakes no obligation to publicly revise these forward-looking statements occurring after the date hereof.” This statement does not appear to be consistent with your disclosure obligations. Please revise to clarify that you will update this information to the extent required by law.

Business, page 4

39. We note that you provided more expansive business disclosure in your Form S-1 than in your Form 10-K. In future filings, please also address the following issues:
- your distribution methods;
 - your dependence on one or a few major customers;
 - the methods of competition in your industry; and
 - your patents, trademarks, licenses, franchises, concessions, royalty agreements or labor contracts, including duration.

Changes in and Disagreements With Accountants . . . , page 18

40. In your Form S-1, we note the disclosure you provided regarding the change in accountants you made on April 12, 2010. Please tell us why you did not include this information in your Form 10-K for 2010. To the extent you are required to do so, please provide this information in future filings as required by Item 304 of Regulation S-K.

Controls and Procedures, page 18

41. We note that you did not document or test your key controls over financial reporting or your disclosure controls and procedures. You are required by law to take these actions pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, as amended, and the rules and regulations promulgated thereunder. Please undertake these and any other required actions and file an amendment to your annual report on Form 10-K for the fiscal year ended December 31, 2010 to update your disclosure accordingly, all within 30 calendar days of the date of this letter. This comment also covers the “Controls and Procedures” disclosure in your quarterly report on Form 10-Q for the quarter ended March 31, 2011.

In completing your evaluation, you may find the following documents helpful:

- the Commission’s release Amendments to Rules Regarding Management’s Report on Internal Control Over Financial Reporting (Securities Act Release 8809/Financial Reporting Release 76). You can find this release at: <http://www.sec.gov/rules/final/2007/33-8809.pdf>;
- the Commission’s release Commission Guidance Regarding Management’s Report on Internal Control Over Financial Reporting Under Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (Securities Act Release 8010/Financial Reporting Release 77). You can find this release at <http://sec.gov/rules/interp/2007/33-8810.pdf>; and
- the “Sarbanes-Oxley Section 404 – A Guide for Small Business” brochure. You can find this information at <http://www.sec.gov/info/smallbus/404guide.shtml>.

In addition, please consider whether management’s failure to perform or complete its report on internal control over financial reporting impacts its conclusions regarding the effectiveness of your disclosure controls and procedures as of the end of the fiscal year covered by the report and revise your disclosure as appropriate.

Management's Report on Internal Control Over Financial Reporting, page 18

42. We note that your definition of internal control over financial reporting on page 18 does not conform to the definition contained in Securities Exchange Act Rules 13(a)-15(f) and 15(d)-15(f). In future filings, please revise to provide the correct definition.
43. We note that management has not expressed a statement as to whether or not internal control over financial reporting is effective, as required by Item 308(a)(3) of Regulation S-K. Please promptly file an amendment to your annual report on Form 10-K for the year ended December 31, 2010 to revise your controls and procedures disclosures to state, in clear and unqualified language, management's conclusion as to the effectiveness of your internal control over financial reporting for the relevant period. Please ensure that the signature page is currently dated, and please note that the revised certifications must refer to the Form 10-K/A and be currently dated.
44. On page eight of your Form S-1, we note your disclosure regarding the existence of material weaknesses in 2010. In this section, for each material weakness and each deficiency you discovered in 2010, disclose who discovered it and when it was discovered, and disclose how you plan to remediate the material weakness or deficiency and when you anticipate full remediation.

Evaluation of Disclosure Controls and Procedures, page 19

45. We note that management has not expressed a statement as to whether or not your disclosure controls and procedures are effective, as required by Item 307 of Regulation S-K. In your 10-K amendment, please revise your controls and procedures disclosures to state, in clear and unqualified language, management's conclusion as to the effectiveness of your disclosure controls and procedures for the relevant period.

Exhibits 31.1 and 31.2 – Section 302 Certifications

46. We note that your CEO and CFO certified that they evaluated the effectiveness of your disclosure controls and procedures and presented their conclusions regarding effectiveness in the Form 10-K/A. See paragraph 4(c) of Exhibits 31.1 and 31.2. Additionally, we note that your CEO and CFO certified that they evaluated your internal control over financial reporting. See paragraph 5 of Exhibits 31.1 and 31.2. Please tell us how your CEO and CFO were able to certify these actions if you did not test or document your internal control over financial reporting and your disclosure controls and procedures and if your CEO and CFO were not able to reasonably assess the effectiveness of your internal control over financial reporting or your disclosure controls and procedures. This comment also covers the certifications filed as Exhibits 31.1 and 31.2 to your quarterly report on Form 10-Q for the quarter ended March 31, 2011.

Form 10-Q for the Fiscal Quarter Ended March 31, 2011

General

47. Where applicable, please address the above comments in your quarterly report on Form 10-Q for the fiscal quarter ended March 31, 2001 and future periods.

Exhibits 31.1 and 31.2 – Section 302 Certifications

48. In future filings, please file your certifications exactly as set forth in Item 601(b)(31)(i) of Regulation S-K, which should include the phrase “for the registrant” in paragraph 4.

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 the information the Securities Act of 1933 and all applicable Securities Act rules 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.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company 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.

Please refer to Rules 460 and 461 regarding requests for acceleration. 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. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Teodor Klowan, Jr.
ThermoEnergy Corporation
July 26, 2011
Page 12

You may contact Jessica Kane at (202) 551-3235 or Dietrich King at (202) 551-3338 with any questions.

Sincerely,

/s/ Dietrich King for

Pamela Long
Assistant Director

cc: William E. Kelly, Esq. (Via E-mail)
Nixon Peabody LLP
10 Summer Street
Boston, MA 02110