



DIVISION OF  
CORPORATION FINANCE

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

September 1, 2011

Via E-mail

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

**Re: ThermoEnergy Corporation  
Amendment No. 1 to Registration Statement on Form S-1  
Filed August 18, 2011  
File No. 333-175227  
Form 10-K/A for the Fiscal Year Ended December 31, 2010  
Filed August 11, 2011  
Form 10-Q/A for the Fiscal Quarter Ended March 31, 2011  
Filed August 11, 2011  
Form 10-Q for the Fiscal Quarter Ended June 30, 2011  
File No. 033-46104-FW**

Dear Mr. Klowan:

We have reviewed your filings and have the following comments.

Amendment No. 1 to Form S-1 filed on August 18, 2011

Risk Factors, page 7

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

1. We note your response to comment nine in our letter dated July 26, 2011; however, we partially reissue the comment. Please revise your disclosure to discuss the steps you have taken to remediate the material weaknesses and when you anticipate full remediation.

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

Results of Operations, page 25

2. We note your response to comment 14 in our letter dated July 26, 2011; however, we reissue the comment. As previously requested, please expand your disclosure to explain more fully the reasons for any material changes from period to period. For example, we note that engineering, research, and development expenses decreased in 2010 due to

efforts by your engineering staff on the New York City contract. Please explain the efforts that decreased these expenses. Additionally, please explain why your expenses related to issuances of warrants decreased by approximately \$1.8 million in 2010. Please note that these examples are not an all-inclusive list of where we expect to see expanded disclosure. Please revise this section to address all factors necessary for an investor to understand and evaluate your operations.

3. In Amendment No. 2 to the Form 10-K/A for the fiscal year ended December 31, 2010, it appears that your disclosures in the Comparison of Years Ended December 31, 2010 and 2009 differ from your disclosures for the same period in Amendment No. 1 to the Form S-1. For example, we note the differences in the paragraphs describing general and administrative expenses. Please advise or revise your disclosure accordingly. This comment also applies to your disclosure relating to the Comparison of Six-Month Period Ended June 30, 2011 and 2010 in your Form 10-Q for the fiscal period ended June 30, 2011.

Liquidity and Capital Resources, page 26

4. Please revise your disclosure to provide the applicable exercise price for each issuance of warrants and the conversion price for each issuance of debt or preferred stock. For example, in the second paragraph on page 28, you do not provide the exercise price for the warrants entitling the selling stockholders to purchase 33,333,344 shares of common stock.
5. On page 28, please disclose the identity of the CASTion Noteholders with whom you entered into the Note Amendment and Forbearance Agreements. Please also disclose the amount of the Restated CASTion Notes.
6. We note the comprehensive disclosure you provided in response to comment 15 in our letter dated July 26, 2011. So that investors may fully understand the results of your financing transactions, please disclose, for the most recent fiscal year and interim period, the total amount raised in the financing transactions, your current debt level, the amount of debt that has been converted into preferred or common stock, and the amount of debt that may be converted into preferred or common stock.

Executive Officer and Director Compensation, page 35

7. We note your response to comment 19 in our letter dated July 26, 2011. Please note that amounts paid in connection with any termination should be included in the All Other Compensation column of the Summary Compensation Table. Please revise your disclosure with respect to Messrs. Hughes and Reynolds to report severance payments in the All Other Compensation column rather than the Salary column. Refer to Item

402(n)(2)(ix)(D) of Regulation S-K. Please also revise footnote 3 to the Summary Compensation Table accordingly.

Stock Option and Stock-Based Awards, page 36

8. We note your response to comment 21 in our letter dated July 26, 2011; however, we reissue the comment. Please disclose the material terms of the stock option grants you made in 2010 in accordance with Item 402(o)(4) of Regulation S-K.

Certain Relationships and Related Transactions, page 40

9. We note your response to comment 25 in our letter dated July 26, 2011. Please tell us supplementally whether the \$30,000 success fee payment to Rexion, the issuance of a five-year warrant to Mr. Reynolds for the purchase of 500,000 shares of your common stock, and an additional \$53,000 payment to Mr. Reynolds constituted executive compensation. If so, please so disclose in the Summary Compensation Table.

Description of Capital Stock, page 41

Authorized and Outstanding Capital Stock, page 42

10. We note your response to comment 30 in our letter dated July 26, 2011. Due to your recent increase in your shares of authorized stock, it appears that the amount of your undesignated preferred stock should be 17,791,666 rather than 3,545,379. Please advise or revise your disclosure accordingly.

Recent Sales of Unregistered Securities, page II-2

11. We note your response to comment 33 in our letter dated July 26, 2011, as well as your revised disclosure. It appears that your disclosure in this section does not reflect all issuances of unregistered securities. For example, on page 40, we note that you issued a warrant to Mr. Reynolds to purchase up to 500,000 shares of common stock that does not appear to be described in this section. Additionally, there are several issuances of notes described in the Liquidity and Capital Resources section that do not appear to be described, such as the 3% Secured Convertible Promissory Notes issued on March 10, 2010 in connection with the Bridge Loan Agreement. Please ensure that each issuance of unregistered securities for the last three years is described in this section in accordance with Item 701 of Regulation S-K.

Undertakings, page II-14

12. We note your response to comment 34 in our letter dated July 26, 2011. It is unclear to us why you have not included the undertakings contained in Item 512(a)(5)(ii) and 512(h) of Regulation S-K. Please advise or revise your disclosure accordingly.

Amendment No. 2 to Form 10-K/A for the Fiscal Year Ended December 31, 2011

Business, page 4

13. We note your response to comment 39 in our letter dated July 26, 2011; however, we partially reissue the comment. In future filings, including any future amendments to your Form 10-K, please provide disclosure regarding the methods of competition in your industry and your patents, trademarks, licenses, franchises, concessions, royalty agreements or labor contracts, including duration. We note that you provide this information in Amendment No. 1 to the Form S-1 on pages 18 and 19, respectively.

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

14. We note your response to comment 42 in our letter dated July 26, 2011; however, we reissue the comment. In future filings, including any future amendments to your Form 10-K, please revise your definition of internal control over financial reporting contained in the first paragraph of this section so that it conforms to Securities Exchange Act Rules 13(a)-15(f) and 15(d)-15(f).
15. We note your response to comment 43 in our letter dated July 26, 2011; however, we reissue the comment. You appear to have provided the company's conclusion as to whether the company maintained effective internal control over financial reporting as of December 31, 2010. However, you are required to provide management's assessment 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 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.
16. We note your disclosure regarding the existence of certain material weaknesses. In future filings, including your Form 10-K amendment, for each material weakness and each deficiency you discovered in 2010, disclose who discovered it, when it was discovered, how you plan to remediate the material weakness or deficiency, and when you anticipate full remediation.

Evaluation of Disclosure Controls and Procedures, page 19

17. Please explain to us supplementally how you concluded that your disclosure controls and procedures were effective as of December 31, 2010 in light of the material weaknesses that prevented you from concluding that your internal control over financial reporting was effective as of December 31, 2010.

Amendment No. 1 to Form 10-Q/A for the Fiscal Period Ended March 31, 2011

Signature, page 22

18. Please have future quarterly reports on Form 10-Q signed by a duly authorized officer and by your principal financial or chief accounting officer. In this regard, we note that your principal financial or chief accounting officer does not appear to have signed your quarterly report on Form 10-Q/A for the fiscal period ended March 31, 2011. Please refer to General Instruction G of Form 10-Q. This comment also applies to your Form 10-Q for the fiscal period ended June 30, 2011.

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