



DIVISION OF  
CORPORATION FINANCE

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

October 7, 2011

Via E-mail

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

**Re: ThermoEnergy Corporation  
Amendment No. 2 to Registration Statement on Form S-1  
Filed September 26, 2011  
File No. 333-175227  
Form 10-K/A for the Fiscal Year Ended December 31, 2010  
Filed September 26, 2011  
Form 10-Q/A for the Fiscal Quarter Ended June 30, 2011  
Filed September 26, 2011  
File No. 033-46104-FW**

Dear Mr. Klowan:

We have reviewed your filings and have the following comments.

Amendment No. 2 to Form S-1 filed on September 26, 2011

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

Results of Operations, page 25

1. We note your response to comment three in our letter dated September 1, 2011; however, we partially reissue the comment. It appears that your disclosures in the Comparison of Years Ended December 31, 2010 and 2009 in Amendment No. 2 to the Form S-1 differ from your disclosures for the same period in Amendment No. 3 to the Form 10-K/A for the fiscal year ended December 31, 2010. For example, we note the differences in the paragraphs describing general and administrative expenses; engineering, research and development expenses; and selling expenses. Please advise or revise your disclosure accordingly.

Executive Officer and Director Compensation, page 35

2. We note that you moved certain amounts from the 2010 Base Salary column into the 2010 Bonus column in the Summary Compensation Table for Messrs. Cossey, Hughes,

and Reynolds. Please explain to us supplementally how you determined that these amounts should be characterized as bonuses rather than salary.

3. We note that you include disclosure regarding the warrants that Mr. Reynolds received in 2009 under the All Other Compensation column rather than the Option Awards column in the Summary Compensation Table. Please tell us supplementally why you believe this compensation should be disclosed as other compensation as opposed to an option award. Please note the definition of “option” for purposes of Item 402 of Regulation S-K in Item 402(a)(6)(i).

Outstanding Equity Awards at Fiscal Year-End (2010), page 37

4. It appears that certain of your disclosures in this table conflict with certain disclosures of the same table in Amendment No. 3 to the Form 10-K/A for the fiscal year ended December 31, 2010. For example, we note the differences in the number of securities underlying unexercised options exercisable for Messrs. Bullock and Klowan. Please advise or revise your disclosure accordingly.

Recent Sales of Unregistered Securities, page II-2

5. We note your response to comment 11 in our letter dated September 1, 2011; however, we reissue the comment. 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 issuance 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. If you believe you are not required to provide the type of disclosure described in the examples above, please provide us with your analysis as to why you are not required to do so. Alternatively, if you believe that you have already provided the type of disclosure described above, please tell us where it is located.

Exhibit 5.1 – Legal Opinion of Nixon Peabody LLP

6. We note counsel’s statement in the first paragraph of the opinion that 19,833,340 shares are issuable to the selling shareholders upon conversion of the Series B Convertible Preferred Stock and 34,333,344 shares are issuable to the selling shareholders upon exercise of the warrants. These numbers appear to conflict with your disclosure in the footnotes to the Selling Shareholder Table on page 41 where it appears that 20,833,340 shares are issuable upon conversion of the Series B Convertible Preferred Stock and 33,333,344 shares are issuable upon the exercise of the warrants. Please advise or revise your disclosure accordingly.

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Amendment No. 3 to Form 10-K/A for the Fiscal Year Ended December 31, 2011

Evaluation of Disclosure Controls and Procedures, page 19

7. We note your response to comment 17 in our letter dated September 1, 2011, and have given it careful consideration. Notwithstanding your response, we still do not fully understand what consideration management gave to the two identified material weaknesses in your internal control over financial reporting when evaluating the effectiveness of your disclosure controls and procedures for the fiscal year ended December 31, 2010. Accordingly, for each material weakness, please tell us what consideration management gave to the existence of the material weakness and its impact, if any, on your disclosure controls and procedures. Please be as specific as you can in your response.

You may contact Jessica Kane at (202) 551-3235 or Dieter 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