



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

DIVISION OF  
CORPORATION FINANCE

Mail Stop #4631

May 24, 2016

Via E-mail

Domonic Carney  
Chief Financial Officer  
Ener-Core, Inc.  
9400 Toledo Way  
Irvine, CA 92618

**Re: Ener-Core, Inc.  
Amendment No.1 to Registration Statement on Form S-1  
Filed May 5, 2016  
Registration Statement on Form S-1  
Filed May 2, 2016  
File No. 333-211048**

Dear Mr. Carney:

We have reviewed your registration statement 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. The page numbers referred to in this comment letter correspond to the page numbers in Amendment No. 1.

Please respond to this letter by amending your registration statement 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 registration statement and the information you provide in response to these comments, we may have additional comments.

Prospectus Summary, page 1

Our Products, page 2

1. We note your disclosure that you “expect the first commercial deployments of KG2/PO units to begin in 2016.” In your next amendment, please update the timeframe of when you expect to deploy these units.

Risk Factors, page 10

We expect to require substantial additional financing... page 11

2. We note that Dresser-Rand is entitled to terminate the D-R agreement if you do not satisfy the capital raise requirement by July 1, 2016. In your next amendment, please disclose the amount of capital you are required to raise under this requirement.

We are dependent on our suppliers, some of which are single... page 16

3. We note your disclosure that you do not have “qualified alternative sources for any of [y]our single-sourced suppliers.” In your next amendment, please identify these single-sourced suppliers. Refer to Item 101(h)(4)(v) or Regulation S-K.

Selling Stockholders, page 31

4. For each of the selling stockholders listed below, please identify the natural person or persons who exercise voting or investment control or both for the shares of common stock held by these selling stockholders:
  - Anson Investments Master Fund LP;
  - Thomas S. Bridges Revocable Trust;
  - Williams Family Limited Partnership;
  - The Gans Family Trust; and
  - Hudson Bay Master Fund Ltd.

For further guidance, please refer to Regulation S-K C&DI Question 140.02.

5. In your selling stockholders table, please disclose the percentage of stock that will be held by the following selling stockholders after the completion of the offering:
  - Anson Investments Master Fund LP;
  - Empery Asset Master, Ltd.;
  - Empery Tax Efficient, LP;
  - Empery Tax Efficient II, LP; and
  - Hudson Bay Master Fund Ltd.

For additional guidance, please refer to Item 507 of Regulation S-K and Regulation S-K C&DI Section 240.01.

Dresser-Rand 2 MW Integration, page 43

Dresser-Rand, page 45

6. We note that you are to receive \$1.1 million currently in escrow upon completion of the FSAT. Please clarify whether you expect the FSAT to be completed in the first half of 2016, as indicated in the first paragraph on page 44, or if it was already completed in the first quarter of 2016, as indicated in the third paragraph on page 44. If so, please disclose whether or when you expect to receive the proceeds from the escrow.

Business, page 61  
Our Products, page 63

7. We note disclosure on page 64 that “you expect margins to be in the 25–30% range for units sold beginning in 2016.” Please discuss your basis for this expectation, and clarify whether you expect that this range of margin will be representative of units generally, or whether this is limited to the units you currently have under contract.

Principal Stockholders, page 110

8. Please disclose the natural person or persons who have ultimate voting or investment control over the shares held by Like Capital Limited. See Instruction 2 to Item 403 of Regulation S-K.

Closing

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.

You may contact Kevin Stertz, Staff Accountant at 202-551-3723 or John Cash, Accounting Branch Chief at 202-551-3768 if you have questions regarding comments on the financial statements and related matters. Please contact David Korvin, Staff Attorney at 202-551-3236 or me at 202-551-3765 with any other questions.

Domonic Carney  
Ener-Core, Inc.  
May 24, 2016  
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Sincerely,

/s/ Pamela Long

Pamela Long  
Assistant Director  
Office of Manufacturing and  
Construction

cc: Via E-mail  
Shoshannah Katz  
K&L Gates LLP