



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

DIVISION OF
CORPORATION FINANCE

January 7, 2014

Via E-mail

Shaker Sadasivam
President and Chief Executive Officer
SunEdison Semiconductor, Inc.
501 Pearl Drive
St. Peters, Missouri 63376

**Re: SunEdison Semiconductor, Inc.
Amendment No. 2 to Registration Statement on Form S-1
Filed December 17, 2013
File No. 333-191052**

Dear Mr. Sadasivam:

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.

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.

Artwork

1. Regarding the various products depicted in your graphics, please include only in your graphics pictures of products that that contribute substantially to your revenue.
2. Please note that you may include text in your artwork only to the extent necessary to explain briefly the visuals in the presentation. By means of non-exclusive example, text such as "Global leader," "One of the most technologically advance wafers," "One of only 2 fully integrated SOI manufacturers," "50 years of technology leadership," "Key customers" and "Extensive global footprint" does not appear necessary to explain the visuals.

Structure and Formation of Our Company, page 5

3. We note SunEdison Semiconductor Ltd. will be formed prior to the effectiveness of this registration and will be the registrant. Please tell us what consideration you have given to providing financial statements for this entity and explain why you concluded that such financial statements are not required.

Conflicts of interest between SunEdison and us, page 22

4. Please revise to provide a separate risk factor to highlight the risk mentioned in the first full paragraph on page 23.

Exhibit Index, page E-1

5. Please file as an exhibit the CCZ and diamond coated wire license agreement mentioned on page 104.

Exhibit 5.1

6. Refer to paragraph 4. The exhibit that you file to satisfy your obligations under Regulation S-K Item 601(b)(5) should be based on all applicable documents, not merely a selected set of documents. Please file a revised opinion of counsel accordingly.
7. Please tell us why the assumptions in paragraph 5(a), 5(b) and 5(f) are necessary and appropriate.
8. Refer to the last two sentences of paragraph (3) and paragraph 5(c). Please confirm to us that the statements of fact that you relied upon do not represent matters of fact material to your opinion that are readily ascertainable.
9. We note that statements in paragraph 8 regarding the opinion being governed and construed in accordance with Singapore law, and that all matters arising under or in connection with this letter shall be referred exclusively to the Singapore courts. Please tell us how those statements are consistent with Section 14 of the Securities Act.

Exhibit 8.1

10. We note that counsel is of the opinion that the statements in the prospectus under “Material U.S. Federal Income Tax Consequences” are accurate in all material respects. Please note that the Exhibit 8 short-form opinion must state clearly that the disclosure in the tax consequences section of the prospectus is the opinion of the named counsel. Please submit a revised opinion accordingly. For guidance, please refer to Section III.B.2 of Staff Legal Bulletin No. 19, available on the Commission’s website.

Exhibits 10.2 and 10.4

11. We note that you have requested confidential treatment for exhibits 10.2 and 10.4. Please be advised that any comments will be issued in a separate letter on your confidential treatment application.

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.

Shaker Sadasivam
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You may contact Gary Newberry, Staff Accountant, at (202) 551-3664 or Kevin Vaughn, Accounting Branch Chief, at (202) 551-3643 if you have questions regarding comments on the financial statements and related matters. Please contact Tom Jones at (202) 551-3602 or Mary Beth Breslin, Senior Attorney, at (202) 551-3625 with any other questions.

Sincerely,

/s/ Mary Beth Breslin for

Amanda Ravitz
Assistant Director

cc (via e-mail): Dennis M. Myers