

Mail Stop 4561

July 7, 2006

Matthew Foster
President and Chief Executive Officer
Ascent Solar Technologies, Inc.
8120 Shaffer Parkway
Littleton, CO 80127

**RE: Ascent Solar Technologies, Inc.
Registration Statement on Form SB-2/A
File No. 333-131216
Amendment Filed on July 3, 2006**

Dear Mr. Foster:

We have reviewed your filing and have the following comment. Where indicated, we think you should revise your document in response to this comment as necessary.

Shares Eligible For Future Sale

Representative's Warrants, page 55

1. Refer to comment 8 in our letter dated February 17, 2006 and comment 1 in our letter dated April 13, 2006. In these comments, we noted that in connection with this offering, you have agreed to issue to the representative of the underwriters warrants (representative warrants) to purchase 300,000 units and commented on your consideration of the conditions described in paragraphs 12-32 of EITF 00-19 in determining the classification of these warrants. In your response to comment 1 in our letter dated April 13, 2006, you state that you: (1) are not obligated to settle only in registered shares, (2) have the option to settle in cash if unable to fulfill its timely filing obligations and (3) are not contractually obligated to settle in shares, cash or at all if it is unable to fulfill its timely filing obligations. Additionally, you also state that you may refuse to issue registered shares if an exercise notice is received when the Company is not current in its periodic filings and that the Company retains complete control over settlement of the warrants and also contemplates that there may be circumstances in which the Company

will opt to never settle the warrants whether in shares or payments of cash. However, while this may be true for purchases of “units” in this offering, based on our review of your disclosure here and in the representative warrant agreement filed as Exhibit 4.6 of this registration statement, it appears the representative warrant agreement is different from the warrant agreement for purchasers of “units” in this offering as it does not appear that these settlement alternatives are available to the holders of the representative warrants. As a result, and as previously noted, Paragraph 18 of EITF 00-19 states that if a derivative involves the delivery of shares at settlement that are registered as of the inception of the derivative transaction (e.g. this offering) and there are no further timely filing or registration requirements, then share delivery is within control of the issuer. Considering the representative warrants are included in the “units” being registered, they are considered registered at the time of inception and therefore the Company has requirements to timely file their Exchange Act reports as you will be required to deliver a current prospectus at the time such warrants are exercised. The requirements to timely file are not considered to be within your control and therefore, you do not meet the requirements of paragraph 18 of EITF 00-19. Accordingly, such warrants should be classified as liabilities, initially measured at fair value, with changes in fair value reported in earnings and disclosed in the financial statements. Tell us how you plan on complying with EITF 00-19 in your classification of the representative warrants based on the information above and tell us how you plan on valuing this liability at the time of the sale of the “units.” Also, revise your disclosures throughout the document to clearly indicate that the representative warrants will be included in liabilities and will be revalued on a quarterly basis. Your disclosures should also address the fact that the changes in fair value will have a direct impact on the Company’s results of operations.

Closing Comments

As appropriate, please amend your registration statement in response to this comment. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comment.

Matthew Foster
Ascent Solar Technologies, Inc.
July 7, 2006
Page - 3 -

You may contact at Patrick Gilmore at (202) 551-3406 if you have questions regarding the above comment on the financial statements and related matters. If you require further assistance, please contact the Branch Chief, Mark P. Shuman at (202) 551-3462, the Assistant Director, Barbara C. Jacobs at (202) 551-3735 or me at (202)551-3499.

Sincerely,

Kathleen Collins
Accounting Branch Chief