

Ascent Solar Technologies, Inc.  
 Form 3  
 June 23, 2010

**FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION**  
**Washington, D.C. 20549**

OMB APPROVAL

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**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934,  
 Section 17(a) of the Public Utility Holding Company Act of 1935 or Section  
 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

|   |   |  |   |   |  |
|---|---|--|---|---|--|
| <p>1. Name and Address of Reporting Person *</p> <p>Â MARSH G THOMAS</p> <p>(Last) (First) (Middle)</p> <p>ASCENT SOLAR TECHNOLOGIES, INC., Â C/O</p> <p>12300 GRANT STREET</p> <p>(Street)</p> <p>THORNTON, Â CO Â 80241</p> <p>(City) (State) (Zip)</p> | <p>2. Date of Event Requiring Statement</p> <p>(Month/Day/Year)</p> <p>06/16/2010</p> | <p>3. Issuer Name and Ticker or Trading Symbol</p> <p>Ascent Solar Technologies, Inc. [ASTI]</p> | <p>4. Relationship of Reporting Person(s) to Issuer</p> <p>(Check all applicable)</p> <p><input checked="" type="checkbox"/> Director <input type="checkbox"/> 10% Owner</p> <p><input type="checkbox"/> Officer <input type="checkbox"/> Other</p> <p>(give title below) (specify below)</p> | <p>5. If Amendment, Date Original Filed(Month/Day/Year)</p> | <p>6. Individual or Joint/Group Filing(Check Applicable Line)</p> <p><input checked="" type="checkbox"/> Form filed by One Reporting Person</p> <p><input type="checkbox"/> Form filed by More than One Reporting Person</p> |
|---|---|--|---|---|--|

**Table I - Non-Derivative Securities Beneficially Owned**

|   |   |  |   |
|---|---|--|---|
| <p>1. Title of Security</p> <p>(Instr. 4)</p> | <p>2. Amount of Securities Beneficially Owned</p> <p>(Instr. 4)</p> | <p>3. Ownership Form:</p> <p>Direct (D)<br/>             or Indirect (I)</p> <p>(Instr. 5)</p> | <p>4. Nature of Indirect Beneficial Ownership</p> <p>(Instr. 5)</p> |
|---|---|--|---|

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly. SEC 1473 (7-02)

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**Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

|  |  |  |   |   |   |
|--|--|--|---|---|---|
| <p>1. Title of Derivative Security</p> <p>(Instr. 4)</p> | <p>2. Date Exercisable and Expiration Date</p> <p>(Month/Day/Year)</p> <p>Date Exercisable Expiration Date</p> | <p>3. Title and Amount of Securities Underlying Derivative Security</p> <p>(Instr. 4)</p> <p>Title Amount or Number of</p> | <p>4. Conversion or Exercise Price of Derivative Security</p> | <p>5. Ownership Form of Derivative Security: Direct (D)</p> | <p>6. Nature of Indirect Beneficial Ownership</p> <p>(Instr. 5)</p> |
|--|--|--|---|---|---|

|                        |       |       |                 |        |        |                                  |   |
|------------------------|-------|-------|-----------------|--------|--------|----------------------------------|---|
|                        |       |       |                 | Shares |        | or Indirect<br>(1)<br>(Instr. 5) |   |
| Restricted Stock Units | Â (1) | Â (1) | Common<br>Stock | 7,744  | \$ (2) | D                                | Â |

## Reporting Owners

| Reporting Owner Name / Address  | Relationships |           |         |       |
|---|---------------|-----------|---------|-------|
|   | Director      | 10% Owner | Officer | Other |
| MARSH G THOMAS<br>ASCENT SOLAR TECHNOLOGIES, INC.<br>C/O 12300 GRANT STREET<br>THORNTON,Â COÂ 80241 | Â X           | Â         | Â       | Â     |

## Signatures

G. Thomas  
Marsh 06/18/2010

\*\*Signature of Reporting Person Date

## Explanation of Responses:

- \* If the form is filed by more than one reporting person, *see* Instruction 5(b)(v).
- \*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).
- (1) The restricted stock units vest in the following amounts on the following dates: 50% on September 30, 2010; and 50% on December 31, 2010.
- (2) Each restricted stock unit represents a contingent right to receive one share of the Issuer's common stock.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *See* Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.