

Increase Value of Solar Power Generation by Up to 13%? How?

In geographical areas where seasonal snowfall occurs, ***the value of total annual solar electricity generation of kWh could increase up to 13% (after deduction for cleaning energy consumed) over ‘legacy’ solar panels*** that do not have the benefit of a ***newly-patented invention*** that might deliver **Billions of Dollars** worth of incremental value of electricity generated for our world. How???

Wasted Sunlight ...

It would be nice to flip a switch and heat your entire solar power array to melt all the frost or snow that has accumulated on your solar panels. The problem is, doing it that way is inefficient because you end up using more electricity melting than you generate.

snow
on solar
panels



frost & snow



frost & snow

But ... what if you could melt that frost & snow ... starting with just one or two panels ... and then use the power generated by the newly-cleaned solar panels to incrementally and sequentially melt the frost & snow that covers the other panels?

Cleaning Large Solar Farms ...

Snow and frost are not the only issues that reduce power generation of solar panels; dust and sand are also problems on large solar farms that can have ***thousands*** of solar panels.



← Large solar farm


Dust reduces efficiency
of solar panels →



US Patent 11,411,531

(titled *Cleaning Method for Solar Panels*)

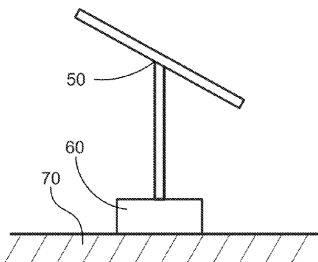
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<p>(12) United States Patent Stewart</p>	<p>(10) Patent No.: US 11,411,531 B2 (45) Date of Patent: Aug. 9, 2022</p>
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<p>(54) CLEANING METHOD FOR SOLAR PANELS</p> <p>(71) Applicant: PASCO Ventures LLC, Highlands Ranch, CO (US)</p> <p>(72) Inventor: Paul A. Stewart, Highlands Ranch, CO (US)</p> <p>(73) Assignee: PASCO Ventures LLC, Highlands Ranch, CO (US)</p> <p>(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 114 days.</p> <p>(21) Appl. No.: 17/014,588</p> <p>(22) Filed: Sep. 8, 2020</p> <p>(65) Prior Publication Data US 2020/0403563 A1 Dec. 24, 2020</p> <p>Related U.S. Application Data</p> <p>(63) Continuation-in-part of application No. 16/386,349, filed on Apr. 17, 2019, now abandoned.</p> <p>(51) Int. Cl. <i>H02S 40/12</i> (2014.01) <i>B08B 6/00</i> (2006.01) <i>B08B 7/00</i> (2006.01)</p> <p>(52) U.S. Cl. CPC <i>H02S 40/12</i> (2014.12); <i>B08B 6/00</i> (2013.01); <i>B08B 7/0033</i> (2013.01)</p> <p>(58) Field of Classification Search None See application file for complete search history.</p> <p>(56) References Cited U.S. PATENT DOCUMENTS 6,911,593 B2 6/2005 Mazumder et al. 8,046,101 B2 10/2011 Hisatani et al.</p>	<p>8,344,238 B2 1/2013 Gronet et al. 8,756,739 B1 6/2014 Potter et al. 8,771,432 B2 7/2014 Moller et al. 2010/0275968 A1* 11/2010 Kaiser H01L 31/02021 136/244</p> <p>2012/0152877 A1 6/2012 Tadayon 2014/0041713 A1 2/2014 Alder et al. 2015/0001201 A1 1/2015 Adler et al. 2015/0047688 A1 2/2015 Gharib et al. 2015/0114450 A1 4/2015 McKarris (Continued)</p> <p>OTHER PUBLICATIONS PCT International Search Report; dated May 22, 2020. (Continued)</p> <p><i>Primary Examiner</i> — Mikhail Kormikov <i>Assistant Examiner</i> — Pradhuman Parthar (74) <i>Attorney, Agent, or Firm</i> — Hammer & Associates, P.C.</p> <p>(57) ABSTRACT A method for cleaning solar panels when snow, ice, or dust accumulates on the solar panels to reduce or eliminate the electrical power output from the solar panels. The method of cleaning includes selecting specific cleaning locations, on the array of solar panels, based primarily upon obstruction location and obstruction size differences. The method of cleaning also includes the incremental and sequential selection of the cleaning locations, and the incremental and sequential activation of cleaning devices within the selected cleaning locations. Additional groups of incrementally and sequentially activated cleaning devices may be powered, in whole or in part, by the prior solar panels that have been cleaned.</p> <p>2 Claims, 5 Drawing Sheets</p>
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Also referred to as the Solar Panel Cleaning Invention ... or “SPCI”.

Meet Paul A. Stewart, SPCI inventor, skiing with his wife at Telluride ...



“I was often frustrated after we had heavy frost or snowfall in our Denver-area neighborhood because our solar panels would remain covered for 1-5 days afterwards, and no electricity was produced by our solar power system during those clear-sky ‘bluebird’ days that often follow heavy frost or snowstorms.

While riding on a ski lift with my wife at Telluride, I had an epiphany while looking down at all the snow-covered roofs below us. You **don’t** have to heat your **entire** solar array to melt the snow or frost that has accumulated – you just need to melt the snow from just **one or two** panels, then use the power generated from the newly-cleaned panels to **incrementally** and **sequentially** clean the **other** solar panels!”

'Bluebird' Days Often Follow Snow

Snowstorms are frequently followed by one or more 'bluebird' days of cloudless skies and intense sunlight that today goes wasted because snow still covers the solar panels and prevents them from generating power until temperatures rise and the snow melts.

That just changed! When using SPCI in geographic areas where heavy frost or snow occasionally covers solar panels, ***the value of total annual solar electricity production of kWh could increase up to 13% (after deduction for cleaning energy consumed) over 'legacy' solar panels*** that do not have the benefit of SPCI, potentially delivering ***Billions of Dollars*** worth of incremental value of solar electricity generated for our world.

This Patent Can Still Be Beneficial in Extremely-Snowy Areas

Some places in the world have too much annual snowfall to make it possible for SPCI to generate *incrementally*-more electricity.

Even so, homeowners, commercial building owners and ski resort owners in heavy snowfall areas may still elect to purchase and install SPCI because it is more convenient and safer for the people who physically shovel or rake snow off those roofs.



Identifying Future Infringers Will Be Straightforward

The SPCI inventor comments:

“I firmly believe this will become a preferred embodiment in everything from residential solar installations to giant solar farms around the world. With various companies that now do high-resolution overhead digital comparative imaging, identifying any future infringers down to the per-panel level will be relatively straightforward. Since my patent is a broad method patent, whether the obstruction is snow, ice, frost, dust, pollen, sand or other similar obstruction, whatever device or mechanism uses my incremental and sequential cleaning method that generates more value of electricity will all be covered by my patent.”

If your firm is interested in licensing or acquiring SPCI, please contact ...

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To prioritize our response to you, please put the following words in the subject line of your email:

“SPCI / Solar Panel Cleaning Invention”