



Pivotry Radiometer is a free periodic newsletter about new developments in the solar renewable energy industry and based upon the “game changers” from the Pivotry Perspectives Workshops conducted by Wayne Chang, Ph.D. You are welcomed to share this newsletter with others.

Pivotry Radiometer is in four sections this month:

1. New Materials

Last month, a new solar PV startup called Twin Creeks “unstealthed” by announcing dramatic cost savings in producing crystalline silicon cells (ref-1.1). They claim to create solar cells that are half the price of current cells. A specially designed hydrogen ion particle accelerator cannon called Hyperion is used to shear off 20 um ultra-thin layers of Si with much less waste than traditional mechanical wire slice sawing methods. The Twin Creeks process (ref-1.2) for making ultra-thin Si is called Proton Induced Exfoliation (PIE). This disruptive capital equipment company makes Si material cost competitive in a new way.

2. Hybrid Systems and Integration

At the recent PV America West Conference, San Jose, California (March 19-21, 2012), Xtreme Power’s Founder and Chairman gave a 20min video interview about the latest developments in energy storage systems and integration with utility grids (ref-2.1). They offer storage and control systems in the 1MW range (ref-2.2) for utility scale applications, and its energy storage technology is based upon a dry cell model with non-exotic materials. These integrated storage control systems claim to address the issues of intermittency and variability from both solar PV and wind generation sources. Xtreme Power will be announcing later this year new products for micro-grid and residential solar PV applications in the 10-100kW range. As well, in the video interview discussions, they are working on energy storage products for the large format electric vehicle market, i.e. trucks and SUV’s.

3. Photovoltaic Technology Roadmaps and Standards

At the recent NREL PV Module Reliability Workshop, Golden, Colorado (February 28 – March 1, 2012), a number of key standards such as IEC 61215 were highlighted as well as proposed new testing protocols, e.g. durability, test-to-failure and long-term sequential testing (ref-3.1). Potential Induced Degradation (PID) of crystalline silicon PV modules is a known issue, and standardized tests are likely to follow. A very large set of test methods were presented (ref-3.2) for the greater objective of improving PV module reliability and reducing costs. Some of the new tests discussed included mechanical load testing of PV modules in mounting structures, accelerated temperature cycling tests and duplicating wind-induced module response in the laboratory without wind tunnel. The 2012 conference proceedings will be available online shortly, and the previous two years proceedings are available.

4. CULTURE Perspectives

An interesting perspective shows a culture shift at the Vatican under Pope John Paul II (1978 – 2005). For over 350 years, the canonization process to declare a person a saint was unchanged. Since the 16th Century, there have been about 300 saints declared. In a controversial move, the process was changed in 1983. John Paul declared more saints in his papacy than all 264 popes before him combined (ref-4.1). He canonized 482 saints and was labeled the Saint-Maker Pope (ref-4.2). When interviewed about this, he said ‘Sometimes it is necessary to do something that is too much’.

REFERENCES & LINKS

- 1.1 <http://www.extremetech.com/extreme/122231-solar-panels-made-with-ion-cannon-are-cheap-enough-to-challenge-fossil-fuels>
- 1.2 <http://www.greentechmedia.com/articles/read/twin-creeks-secretive-solar-equipment-firm-unstealths/>
- 2.1 <http://www.pvamericaexpo.com/west/>
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- 3.1 <http://www.nrel.gov/pv/pvmrw.html>
- 3.2 http://www.nrel.gov/pv/pdfs/pvmrw_agenda.pdf
- 4.1 http://www.cbsnews.com/2100-18560_162-578794.html
- 4.2 <http://www.bloomberg.com/news/2011-04-30/saint-maker-john-paul-ii-to-gain-beatification-in-record-time.html>

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