Energy Research Center Newsletter

As we begin another year at the University of Maryland, UMERC is launching our Newsletter to fill you in on the exciting happenings at the Center. This issue also provides an overview of the events we are planning for the spring 2015 semester. Future issues will report on news and updates from the Center. Please also check the UMERC website regularly for updates on energy topics, research, and details for the events below.

**Ellen Williams appointed Director of ARPA-E**

On December 8, 2014, Dr. Ellen Williams, Distinguished UMD Physics professor, was confirmed as the new Director of ARPA-E. Williams will ensure that technologies assisted through ARPA-E will help change the energy landscape and better meet changing energy needs in the US. Prior to this appointment Dr. Williams was on leave from UMD as the Chief Scientist for BP. Dr. Williams has served as a Professor in the Department of Physics at the University of Maryland since 1991. She founded the University of Maryland Materials Research Science and Engineering Center and served as its Director from 1996 through 2009.

For more information, visit [UMD Right Now](http://bit.ly/1Do3Y7O) for the press release.

**Transforming Energy Lecture Series**

The Transforming Energy Lecture Series hosts energy researchers, important industry leaders, and federal agency administrators to discuss advances that are, or have the potential to change all aspects of the energy field as we know it today.

On Friday, February 6th Paul Sotkiewicz, Chief Economist- Market Services Division, PJM Interconnection delivered a lecture on “The Effect of EPA’s Proposed Clean Power Plan on PJM’s Markets: An Economic Analysis”.

More details can be found on the UMERC website: [http://www.umerc.umd.edu/content/transforming-energy-lectures](http://www.umerc.umd.edu/content/transforming-energy-lectures)

**Engineering Sustainability Workshop 2015: Grid Resiliency + Climate Impacts**

On Earth Day, April 22nd 2015, UMERC, in partnership with the Clark School of Engineering, will host this on-campus workshop, bringing together researchers, students, and industry & policy leaders to discuss ways to improve the resiliency of our electrical grid, while considering the significant impacts caused by our changing climate.

[Learn more here](http://www.umerc.umd.edu/sustainability/sustainability-workshop)
11 UMERC Faculty Energy Projects Currently Funded by ARPA-E

The Advanced Research Projects Agency- Energy (ARPA-E) awarded over $19 million to research projects involving UMD energy faculty in 2014. From advanced heat-exchangers and building energy efficiency, to localized heating & cooling to innovative battery and fuel cell technologies, UMERC faculty are at the cutting edge of energy research!

**RANGE** program
- Eric Wachsman — Safe, Low-Cost, High-Energy-Density, Solid-State Li-Ion Batteries
- Chunsheng Wang — Hybridized Mg2+/H+ Aqueous Battery for Vehicle Electrification

**REBELS** program
- Eric Wachsman — Low-Temperature Solid Oxide Fuel Cells for Transformational Energy Conversion (led by Redox Power Systems)
- Eric Wachsman — Bi-functional Ceramic Fuel Cell Energy System (led by the University of South Carolina)
- Ichiro Takeuchi — Metal Supported Proton Conducting Solid Oxide Fuel Cell Stack (led by United Technologies Research Center, with Cal Tech and the University of Connecticut)

**IDEAS** program
- Michael Ohadi — A Case Study on the Impact of Additive Manufacturing for Heat/Mass Transfer Equipment used for Power Production

**DELTA** program
- YuHuang Wang — Meta-Cooling Textile with Synergetic Infrared Radiation and Air Convection for Bidirectional Thermoregulation
- Reinhard Radermacher — Robotic Personal Conditioning Device

These projects are in addition to three existing UMERC faculty projects already funded by ARPA-E, two through partnerships.

- **BEETIT** program — Ichiro Takeuchi — Thermoelastic Cooling
- **REACT** program — Ichiro Takeuchi — MnBi Based Permanent Magnets (led by Pacific Northwest National Laboratory - PNNL)
- **METALS** program — Eric Wachsman — Direct, Low-Cost Production of Titanium Alloys (led by SRI International)

From Dr. Wachsman’s group: the first all Solid State Li-Ion Battery (SSLIB) with High Capacity Anode/Anode.