

Week in Energy Newsletter

Welcome to the Eleventh Edition of the 'Week in Energy' Newsletter (12/22 – 12/28)!

First, a very Happy New Year to everyone!

Second, as Evelyn noted in the Tenth edition of the Newsletter, ESTP Alumni Janak Gahlot (Dec '14) and Sidharth Choudhary (May '14), have begun a campaign to visit some of California's innovative energy projects.

Visit <https://www.trevolta.com/travels/The-New-Rush-Renewable-Energy-in-California-27976> and learn more about their project and motivation. Donate to their campaign to get some fun rewards. Further, you can follow them and their journey on <facebook.com/EnergyProspectors>

Please do not forget to send your energy news and ESTP updates plus any comments to the Editor at saakshig@andrew.cmu.edu

In this Edition...

- Climate Change
- Renewables
- Technology
- CMU News
- Energy job postings

CLIMATE CHANGE

Last year was Europe's warmest year since the 1500s

Researchers at Oxford University have found that global warming has increased the risk of 2014 being the hottest year for Europe since the 1500's by a factor of at least 10. Other teams working independently in The Netherlands and Australia said the odds have been boosted by 35 to 80 times. The Royal Netherlands Meteorological Institute calculated that global warming made 2014's high temperature in Europe at least 80 times more likely. Therefore, 19 European countries are likely to see their hottest year on record this year, including the UK, Germany and France.

More on this trend: <http://www.climatecentral.org/europe-hottest-year-on-record-climate-change>

Ebola outbreaks frequent because of Climate Change

Scientists have pointed to meteorological data to show that previous outbreaks typically occur in clusters after sudden weather changes. Therefore, global warming and the increase in extreme weather could factor in the virus's ascendance especially severe dry spells followed by heavy rains. Other diseases affected by weather patterns include malaria and dengue fever.

New York Fracking Ban

Governor Andrew Cuomo announced on Dec. 17 that hydraulic fracturing would be banned in New York State, citing the lack of scientific data on public health effects. Fracking involves injecting large amounts of water, sand and chemicals deep underground at high pressures to release oil and natural gas from rock formations. However, the state's health commissioner found significant public health risks associated with fracking with concerns about water contamination and air pollution. The ban was a huge political success for the governor and for those opposed to fracking.

Read more about the state's moratorium here:

http://www.nytimes.com/2014/12/18/nyregion/cuomo-to-ban-fracking-in-new-york-state-citing-health-risks.html?_r=1 and

<http://www.nationaljournal.com/energy/new-york-state-moves-to-ban-fracking-20141217>

BP argues for reduced fines from the Gulf of Mexico Oil Spill due to drop in Oil prices

British Petroleum's U.S. Exploration and Production, the oil unit tied to the Gulf of Mexico Oil spill argued that its penalties should be set at the lower end of the possible range for the fines, because its \$43 billion in spill liabilities and the falling U.S. benchmark oil price (at \$55.26 on 22nd Dec) have already cut its value significantly. Since the spill, the unit has operated at loss, only with assistance from a corporate parent that is not legally obligated to assist. In September, BP was found grossly negligent in the lead up to the oil spill meaning that BP could face the maximum \$4300 per barrel fine for the spill.

Read BP's legal argument:

<http://www.forbes.com/sites/lorensteffy/2014/12/24/why-bps-latest-macondo-maneuvers-are-a-specious-legal-argument/?ss=energy>

RENEWABLE TECHNOLOGY

Korean Govt. to Invest \$18.1 billion in Clean Energy Tech

Over the next 10 years, the Korean government will invest 20 million won into the development of safe and effective clean energy technologies. In energy supply, the government places emphasis on the development of high efficiency clean thermal power, next generation clean fuels, and hybrid new renewable energy. On the demand side, it concentrates on the realization of a highly efficient energy and low carbon society.

<http://www.businesskorea.co.kr/article/8201/energy-tech-korean-govt-invest-20-trillion-won-energy-tech-development-next-10-years>

Space based solar power in the future

Scientists have come up with the idea of building a solar power station in space that could harvest non- stop continual power. Since space is absent of atmosphere, there are no clouds blocking the sun. Therefore, conventional solar generation method problems are not an issue in space where sun can be harvested without interruption. Only the cost of putting payloads in space is preventing the idea becoming a reality.

<http://www.cnn.com/2014/12/18/tech/innovation/space-based-solar-power/>

Employment drops in all energy sectors except renewables

The electric power sector lost more than 5,800 jobs over the last three years with employment taking a hit in all energy sources except for renewables, according to the EIA. Non-hydro renewable electricity generation gained nearly 1,800 jobs over the period, largely in the solar sector. This overall decline in jobs comes as growth in US electricity demand comes to a standstill, due to energy efficiency upgrades and growth in distributed energy resources like rooftop solar.

<http://www.greentechmedia.com/articles/read/employment-drops-in-all-segments-of-the-power-sector-except-renewables>

TECHNOLOGY

Startup helps keep the heat on in NYC

Every year, New York City authorities receive more than 200,000 heating related complaints. Heat Seek is a non-profit startup that helps tenants by giving them web enabled sensors that track temperatures and automatically record when an apartment is in violation of heating laws. For building owners, the technology can also be a cost saving tool allowing property owners and landlords to see where they're losing heat.

See their website and kick-starter page:

<http://heatseeknyc.com/>

<https://www.kickstarter.com/projects/heatseeknyc/heat-seek-nyc>

Smart Glass by View

View is a company making glass that can be controlled from a smartphone to darken or lighten a window, a technology that promises in many cases to do away with the need to curtains or blinds and save significant amounts of energy spent on cooling. It has already been implemented the W hotel in downtown san Francisco that claims its rooms to be green 24/7. While the price of this glass is 5-6 times that of normal glass, savings on lighting, electricity, ventilation and air conditioning can amount to 23% at peak times.

Read about this technology here:

<http://www.sfgate.com/business/article/How-smart-glass-windows-slash-energy-bills-5984083.php>

Power outlets for energy savings

A smart power outlet can be installed by an electrician in less than 30 minutes and here are a few to consider. Power 2U has two USB ports attached to two standard sockets. Sliding doors on the USB outlets cut powers when a device isn't attached, even while its plugged in. SafePlug Kitchennete shunts power from one device to another to prevent an overload on the civuit which prevents damage to appliances. Kill a Watt measures energy use in KWh to see how much energy each machine in your house is using and can be monitored by day, week, month or year.

To find out where to buy each of these outlets (all under 100\$):

<http://www.charlotteobserver.com/2014/12/31/5417435/4-smart-power-outlets-for-energy.html#.VKp2HyvF-So>

Energy Provider EDF Energy to sell and install smart thermostat Netatmo

Npower tied up with Nest to offer the thermostat installation service to its own customer base, however EDF is offering the service to everyone, putting Netatmo's thermostat on a level playing field with the likes of Nest, Tado and Climote.

Read about their partnership: <http://recombu.com/digital/article/edf-energy-netatmo-smart-thermostats-partnership>

<http://www.gurufocus.com/news/301070/fuelcell-energys-smart-moves-will-help-it-improve-its-results-in-the-long-run>

CMU NEWS

Solution to Lithium Air Batteries' Premature Death

Lithium Air batteries can store twice as much energy as lithium ion batteries. What makes these batteries lighter than the ion batteries is replacing the cathode component with air. These lighter batteries can then store more energy. However, one major problem associated with these batteries is that the lithium and air which is essentially oxygen reacts and forms a lithium peroxide film that prevents electron movement to the active site, resulting in reduction of the storage capacity as well as sudden death. CMU researchers and Venkat Viswanathan, assistant professor, Mechanical Engineering have found a solution to this problem through the addition of water.

Watch him talk about the research:

<https://www.youtube.com/watch?v=VqbRQNRxSvM#t=59>

Residents can document Pittsburgh visual air pollution through CMU's Breathe Cam

Breathe Cam, is funded by the Heinz Endowment as part of its Breathe Project, and keeps a constant watch on air quality over Pittsburgh, even tracing the pollution back to the source. The Cameras can be accessed online and residents can then zoom in on areas of interest using the interactive controls.

The researchers have also developed a computer vision tool to help people identify and quantify events of interest such as releases from a smokestack.

To use the Breathe Cam: <http://breatheproject.org/learn/breathe-cam/>

<http://www.pittsburghmagazine.com/Best-of-the-Burgh-Blogs/The-412/December-2014/Breathe-Cam-Offers-Fresh-Look-at-Pittsburghs-Air-Pollution/>

INTERESTING READS

Understand why oil prices keep falling:

<http://www.vox.com/2014/12/16/7401705/oil-prices-falling>

Will cheap gas increase driving? :

<http://www.vox.com/2014/12/27/7451011/gas-prices-driving>

Energy job postings for ESTP students

The following are the Energy jobs with deadlines coming up in the next two weeks. For application deadlines and requirements, please refer to Tartantrak.

California Environmental Justice Alliance - Policy Advocate

The Dershowitz Group – Internship

Opinion Dynamics – Project Analyst

Sumitomo Mitsui Banking Corporation's Power Project Finance Group – 2015 Analyst Program

The Environmental Law Institute – Research Associate

Mainstream Engineering – Mechanical Design Engineer

Energy Solutions – Energy Efficiency Advocate & Project Managers

Institute for Defense Analysis – IDA STPI Science Policy Fellowship Prpgram

To learn more about the Energy, Science, Technology and Policy Department please visit the website at <http://www.cmu.edu/engineering/estp>