Week in Energy Newsletter

Welcome to the sixteenth edition of the EST&P Energy Newsletter! Send your energy news and updates to the editor at efairman@andrew.cmu.edu, currently a graduate student at Carnegie Mellon University. Use the following link to explore the Energy Science, Technology, and Policy Master's program: http://www.cmu.edu/engineering/estp. The department will also be present at the MIT Energy Conference on February 27th. A review of the event will be included in next week’s edition. In the meantime, check out the event here: http://mitenergyconference.org/.

This week is officially E-Week! In fact, Engineer the Future was held at the Carnegie Science Center this past weekend where kids of all ages were encouraged to participate in STEM activities. For example, the local Society of Women Engineers (SWE) chapter launched balloon rockets. If you’re currently a student at CMU, check out the following event on Facebook to RSVP for tech talks that will be happening throughout the week to celebrate E-Week: https://www.facebook.com/events/1415367195428085/

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International Updates

**GREAT BRITAIN’S CLIMATE DEAL**

This week, the Prime Minister David Cameron, Deputy Prime Minister Nick Clegg, and leader of opposition Ed Miliband pledged to end power generation from coal plants that are lacking in carbon capture and storage (CCS) technology. Environmental groups helped broker this deal. Great Britain is the first major economy to make such a commitment.

*Reuters: http://www.reuters.com/article/2015/02/14/us-britain-politics-climatechange-idUSKBN0LI00920150214*

**OFFSHORE WIND IN THE UK**

The Dogger Bank Creyke Beck project has been approved and will become the world’s largest offshore wind farm with 400 turbines. This project will be constructed in North Yorkshire and will
generate enough energy to power two million homes, at 2.4 GW. This project could therefore power 2.5% of the country’s electricity.


**EUROPEAN INVESTMENT IN CLEAN ENERGY**

The European Investment Bank (EIB) is financing two projects within the EU. One is an energy savings measure, and the other is aimed to attract investment in climate adaptation projects. *Reuters:* [http://www.reuters.com/article/2015/02/16/us-eu-energy-investment-idUSKBN0LK1QB20150216](http://www.reuters.com/article/2015/02/16/us-eu-energy-investment-idUSKBN0LK1QB20150216)

**RENEWABLES FOR INDIA**

Prime Minister Modi has already established a target of 100 GW of renewable energy capacity by 2022, which is 33 times greater than the current capacity. India is well on its way to meeting this target with the help of US-based companies. *SunEdison Inc.* will install 15.2 GW of solar and wind power capacity over the next seven years, while *First Solar Inc.* is to build 5 GW of solar energy by 2019. Together, these projects will contribute to more than 20 GW of clean energy in India by 2022.

*Reuters:* [http://www.reuters.com/article/2015/02/15/us-renewables-india-idUSKBN0LJ07X20150215](http://www.reuters.com/article/2015/02/15/us-renewables-india-idUSKBN0LJ07X20150215)

**PETROLEUM EXPORTS FROM CHINA**

China is further suturing the global oil market by increasing their volume limit on petroleum exports. Major companies such as *Sinopec Corp.*, *CNOOC Ltd.*, and *PetroChina* were given an export quota of 9.75 million tonnes, which is a 20% increase from 2014 levels.

*Reuters:* [http://www.reuters.com/article/2015/02/18/us-china-oil-exports-idUSKBN0LM0TL20150218](http://www.reuters.com/article/2015/02/18/us-china-oil-exports-idUSKBN0LM0TL20150218)

**CLIMATE POLICY IN NEW ZEALAND**

The former Prime Minister Geoffrey Palmer, who served in office from 1989 to 1990, called New Zealand’s climate policy a failure. This week, he called for a transition to a low-carbon economy backed by long-term policy measures.

*Global Times:* [http://www.globaltimes.cn/content/908077.shtml](http://www.globaltimes.cn/content/908077.shtml)
TIDAL ENERGY IN AUSTRALIA

The world’s first commercial-scale, grid-connected wave energy project is operating in Australia. The system was designed by Carnegie Wave Energy Ltd. and powers a naval base in Perth. The system also produces fresh water for the base. A fully submerged buoy is tethered to a pump on the ocean floor that expands and contracts in response to the waves. This movement pressurizes fluids within the pump which in turn power hydroelectric turbines onshore.


PIPINES IN MEXICO

Stolen fuel from pipelines amounts to approximately $1 B each year in Mexico. Pemex plans to remedy this issue by removing the additives blended into transportation fuels which make the fuels useable in vehicles. In the future, gasoline and diesel will run through the pipelines without these additives. Instead, the additives will be mixed in at distribution centers nearby fueling stations.


National News

TIMELINE FOR THE CLEAN POWER PLAN

The EPA’s Clean Power Plan aims to reduce power plant carbon emissions by 30% from 2005 levels by 2030. There has been some controversy over the 2020 deadline for implementing this legislation, as reliability may become an issue. For example, PJM may need to shut down 6-25 MW of fossil-fuel power plant capacity that does not comply with the new rules. It will be challenging to replace that capacity with clean power in time for the compliance deadline. Utilities argue that regional cooperation and a carbon price will help the Clean Power Plan be successful. FERC has an advisory role towards the EPA’s plan and has advocated on behalf of industry for pipeline & transmission and other infrastructure projects in order to maintain reliability. The EPA’s final draft of the plan will be released this summer.


INTERNATIONAL DATA ON AIR QUALITY

In an effort to help US citizens living and working abroad, the State Department and the EPA have announced that they will track air pollution abroad with monitors at US embassies. These data will be made available to the public using “Air Now,” which already tracks air quality in the US. Explore the EPA’s Air Now website: http://www.airnow.gov/

YUCCA MOUNTAIN REVIEW

Since the Energy Department has yet to review plans for nuclear waste storage at Yucca Mountain, the Nuclear Regulatory Commission (NRC) will instead perform the review. This project does not have public support, especially in Nevada; in fact, state lawmakers sent a letter to The Washington Post this week: http://www.washingtonpost.com/opinions/refueling-the-yucca-mountain-debate/2015/02/13/53f66936-b2c8-11e4-bf39-5560f3918d4b_story.html

PUBLIC TRANSPORTATION IMPROVEMENTS

The Federal Transit Administration has allocated $29 M in grant funds to thirteen organizations—laboratories, municipalities, and universities—to increase the safety, resilience, and emergency response of public transportation across the country. Learn more from the press release: http://www.fta.dot.gov/newsroom/news_releases/12286_16301.html

State News

OIL IN THE NATIONAL PETROLEUM RESERVE

The Bureau of Land Management (BLM) has recently approved a project to extract oil from the National Petroleum Reserve in Alaska. This reserve contains about 1 billion barrels of oil within 22.5 million acres, the nation’s largest block of public lands. ConocoPhillips Co. expects to produce up to 30,000 barrels of oil per day from a single 12-acre drilling pad.


Conoco Phillips also must pay $8 M towards a compensatory mitigation fund to protect environmental, subsistence, or cultural lands for locals. Read more from the Alaska Journal of Commerce: http://www.alaskajournal.com/Alaska-Journal-of-Commerce/February-Issue-4-2015/BLM-tacks-8M-fee-onto-GMT-1-project-permit/
ANTI-COAL IN MINNESOTA

The Next Generation Energy Act of 2007 restricted the purchase of carbon-intensive energy from other states. The legality of this law has been hotly debated. In particular, North Dakota sued Minnesota in 2011 over this legislation. The following article from Midwest Energy News expands on this topic: http://www.midwestenergynews.com/2015/02/17/industry-advocates-weighing-in-on-minnesota-coal-case/

COAL PLANTS IN MICHIGAN

FERC has ordered a cost-benefit study on three coal-fired power plants in Michigan. Within two months, the Midcontinent Independent System Operator (MISO) must conduct studies on the Presque Isle, White Pine, and Escanaba coal plants. The major area of concern is whether these plants must stay in operation to maintain reliability, despite the Clean Power Plan.


SOLAR PROGRAM IN MINNESOTA

The 2013 Solar Energy Jobs Act set a standard of 1.5% solar energy for utility companies in Minnesota. In response to this standard, Xcel Energy Inc. began a community solar program where subscribers receive bill credits of 9-15 ¢/kWh for selling excel solar energy back to the grid. However, many of the projects that have been submitted to Xcel’s program are actually utility scale and would require distribution system upgrades. These upgrades would result in bill increases of up to 2% for the average customer.


NET METERING IN HAWAII

Hawaii has the largest amount of solar power per capita in the country, but electricity rates on the islands are also the highest in the nation at 34 ¢/kWh. As a result, utilities are considering abandoning the current net metering program that is available for residential solar panels.

London Guardian: http://www.theguardian.com/environment/2015/feb/16/is-hawaiis-solar-power-surge-slowing-down
**NET METERING IN INDIANA**

Indiana has reduced the amount that utilities must pay customers for excess energy generated by residential solar. In addition to lowering net metering rates, state legislation will also tax solar energy consumers.


Indiana has other issues with its solar industry. Residents may only purchase solar panels directly from the utility companies rather than from a third-party distributor.


**SMART METERS IN NEW YORK**

Within the US, 40% of households already have smart meters. Consolidated Edison Inc. has proposed a $1.5 B plan to replace approximately five million traditional meters with smart meters. This plan would be financed in part by a 3.2% hike in electricity rates.


**CLIMATE CHANGE IN NEW YORK**

A panel of scientists have predicted a six-foot increase in sea levels by 2100 in Manhattan, as well as an 8.8°F temperature increase and a tripling in the frequency of heat waves by the 2080s. Extreme precipitation is also expected to occur with one and half times more events per year by the 2080s. Read the report: [http://onlinelibrary.wiley.com/doi/10.1111/nyas.12591/pdf](http://onlinelibrary.wiley.com/doi/10.1111/nyas.12591/pdf)

**TESLA IN TEXAS**

State legislation will now allow Tesla to sells cars at twelve stores across Texas. Dealerships are traditionally the only location where automobiles may be sold. This deal is similar to that in New York, Ohio, and Pennsylvania.

EFFICIENCY IN TEXAS

A report by the South-Central Partnership for Energy Efficiency as a Resource (SPEER) recommends that Texas increase energy efficiency. Several measures are outlined in the report as possible methods to boost efficiency. SPEER recommends (1) aligning stakeholder’s interests, (2) empowering an existing state agency to propose and develop advocacy programs, (3) creating an energy efficiency registry so that state and local communities could receive credit for their air quality measures, (4) increasing compliance with existing building energy codes, (5) providing access to finance retrofits, (6) introducing smart meters across the state, and (7) initiating an energy savings goal.

Read SPEER’s report: https://eepartnership.files.wordpress.com/2014/03/speer_report_021615_d10lr.pdf

Industry

ELECTRIC VEHICLE BY APPLE

Apple has announced that it has been working on an electric vehicle prototype called Titan that could compete with Tesla and other forward-thinking automobile manufacturers.


SAFETY IN OIL REFINERIES

Typically, union workers strike for better wages, but this time oil refinery workers—members of the United Steelworkers—are striking for better safety measures. They are especially concerned about staffing levels and maintenance contractors. The larger oil companies, such as Royal Dutch Shell PLC, are especially resistant to the strike.


There was an explosion at an ExxonMobil refinery in Los Angeles earlier this week. Read more from the Los Angeles Times: http://www.latimes.com/local/lanow/la-me-ln-portion-of-refinery-ordered-to-shut-down-20150219-story.html
**Train Derailments**

A train transporting crude oil by the Canadian National Railway Co. caused a fire earlier this week, but no injuries occurred. Read more in the WSJ:  http://www.wsj.com/articles/train-carrying-crude-oil-derails-in-ontario-1424015961

Another train carrying crude oil derailed in West Virginia during a winter storm, destroying a home and causing an evacuation of 2500 people. The following NYT articles elaborate on the accident: (1) http://www.nytimes.com/aponline/2015/02/16/us/ap-us-train-derailment.html?_r=0 (2) http://www.nytimes.com/2015/02/18/us/west-virginia-train-derailment-dumps-oil-into-river.html

**Research**

**Hydraulic Fracturing Data**

The United States Geological Survey (USGS) has released 60 years (1947-2010) of fracking data. The report reviews trends for water, proppants, treatment fluids, and additives used during the fracking process. There has been a rapid expansion of hydraulic fracturing: only 6% of oil and gas wells were fracked in 2000, while 42% were fracked in 2010.

Read the report: http://pubs.usgs.gov/sir/2014/5131/

Access the data: http://pubs.usgs.gov/ds/0868/

**Offshore Wind in the US**

The Clean Energy Group and Navigant Consulting have joined forces to produce a comprehensive report on the offshore wind industry. The report argues that offshore wind will only be successful if states collaborate. Currently, there are no utility-scale offshore wind projects in the US. Read the report here: http://www.cleanegroup.org/assets/2015/Up-in-the-Air.pdf

**Carbon Footprint of Biofuels**

Biofuels have been extremely controversial in recent years. The EPA’s Renewable Fuel Standard (RFS) defines renewable fuels and sets a mandate for the volume that must be blended into gasoline. A life-cycle analysis (LCA) can be applied to compare different types of biofuels in terms of their environmental impact. However, the University of Michigan recently published a study...
that argues that, due to the current technique of accounting for land-use, biofuels are given too much credit for removing carbon dioxide from the atmosphere, and thus the current method for LCA is essentially meaningless.


**Combat Climate Change with Music**

The physicist Robert Davies has collaborated with a classical quartet as part of *The Crossroads Project*. In an effort to increase awareness of climate change, the quartet performs while evocative pictures and paintings of nature are displayed.