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News. June, 2016. Issue #50. 89,000 ESB [video views](#). *100% Renewable by 2035.*

*If you are going to achieve excellence in big things, you develop the habit in little matters. Excellence is not an exception, it is a prevailing attitude.
- Colin Powell, military leader and statesman.*

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Moving to 100% Renewables

US Clean-Energy Jobs Surpass Oil Drilling and Coal Mining Jobs (G)

<http://www.bloomberg.com/news/articles/2016-05-25/clean-energy-jobs-surpass-oil-drilling-for-first-time-in-u-s>

Solar Homes Sell Faster for More Money in New Hampshire

If you have two identical houses... the one with the solar system should sell faster and for more money...the extra money will cover the cost of installation. ... granite used to be... a premium adder; now it's expected by buyers. Solar's going to go the same route. People will expect it. (G)
<http://www.concordmonitor.com/solar-home-sales-NH-1874567>

Concrete Wind Turbine Tower Assembly. Advantages of Concrete vs. Steel Towers

A fun video. Article clearly and simply explains pros and cons of concrete vs. steel towers for wind turbines. (5 minute video & article. G)

<http://www.vox.com/2016/6/1/11820920/concrete-wind-turbine>

Californians Save \$192 Million Because of Efficiency & Solar

Reduced electricity use led to cancelling \$192 Million in transmission projects. (G)

<http://www.greentechmedia.com/articles/read/Californians-Just-Saved-192-Million-Thanks-to-Efficiency-and-Rooftop-Solar>

Online Book: Our Renewable Future

Laying the Path for One Hundred Percent Clean Energy

Richard Heinberg & David Fridley

The best book I've seen so far that describes the energy we use, and how we will move forward to a renewable future. Available for free online, and for pay as a download or paperback. (G)
<http://ourrenewablefuture.org/introduction/>

Fair Electricity Markets

ESB Note: Renewables do well where they are allowed to compete directly on price in fair electricity markets. Perhaps as much as 2/3s of the people of the US get their electricity from some kind of fair market. That still leaves a lot of the country with monopoly electricity markets where choice does not exist. ESB News believes fair markets will be essential in a quick transition to 100% renewables while providing safe, reliable, low-cost electricity.

Texas Regulators Save Customers Billions of \$s by Avoiding a Traditional Capacity Market

In an “energy-only” electricity market, generators are paid only for the electricity they sell. In most of the US, generators are also paid for the “capacity” their generators provide - even when the generators don't run. This is because a certain amount of excess capacity is essential for reliability - say to backup a big generator that suddenly fails, or to meet peak electric demand during heat or cold snaps. But over the entire US these capacity payments add up to 100s of billions of dollars. And capacity payments encourage overly expensive generators and excess generation - generation capacity above and beyond what is needed for reliability.

Texas regulators took a middle of the road approach designing a market that is mostly energy-only but with a small market driven capacity payment, saving customers billions of \$s in just a few years. (PG)

<http://www.greentechmedia.com/articles/read/texas-regulators-save-customers-billions>

Energy Storage and Miscellaneous

Caterpillar's New Focus on Microgrids, Renewables, and Storage in Remote Locations

Cat generators large and small are already in 100s of thousands of places worldwide. Caterpillar believes the time is ripe to offer additional storage and renewables to their customer base. (G)

<http://www.renewableenergyworld.com/articles/2016/05/what-s-behind-caterpillar-s-new-hybrid-microgrid-play-here-s-a-deeper-look.html>

Electricity to Hydrogen Gas for Storage Using Proton Exchange Membranes (PEM)

PEMs are what make most low temperature fuel cells work. PEM fuel cells take hydrogen and oxygen and make electricity and water. This technology reverses that to take in electricity and water and make hydrogen. One mechanism for storing this hydrogen is to inject it into an existing national natural gas distribution and storage system. Note that natural gas often, perhaps usually, includes some hydrogen. They claim that their 1 MW unit is about 60% efficient. (PG)

<http://www.itm-power.com/product/hgas>