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News. July, 2014. Issue #28. 38,000 ESB [video views](#).

You can talk until the cows come home.
Setting an example is not the main means of influencing others; it is the only means.
Albert Einstein

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Electricity

New PV Material - Perovskite

Purified silicon PV took 60 years to move from single digit to > 20 % efficiencies. Perovskites - introduced as a PV material just 5 years ago - are now demonstrating 19% efficiency in the lab. Many companies are looking at commercialization of this lower cost than silicon material. (PG) <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6840788>

Solar Saves All Electricity Ratepayers Money in Nevada

Net metered solar systems in the time period 2004 - 2016 are shown to provide non-solar ratepayers a benefit (savings) of \$36 million over the systems' lifetimes. (article G. Study PG) <http://www.seia.org/blog/what-cost-shift-new-study-shows-solar-s-value-grid>
http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2010_THRU_PRESENT/2013-7/39428.pdf

Cutting Carbon Lowers Electricity Bills

Article cites report saying that cutting carbon will have only modest costs initially, but then will actually lower costs in the longer-term. (article G).

<http://www.forbes.com/sites/michaelkrancer/2014/07/21/report-lowering-co2-emissions-will-drive-electric-bills-down-not-up-surprised>

Transportation

Research: Evacuated Tube Magnetic Levitation Trains at 1,800 Miles Per Hour?

Today's magnetic levitation trains can reach 250 MPH. But much higher speeds can be had by running the train in a sealed tunnel and reducing the air pressure. *At 10 percent of normal atmospheric pressure, such evacuated tube systems might allow maglev trains to rocket along guideways at 3,000 km (1,860 miles) per hour.* (short article & picture. G)

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6840791>

Energy Storage, Etcetera

A Roadmap for 100% Renewable Energy (Electricity, Transport, & Heat) in California

One of the most comprehensive and detailed reports I've seen. *A complete conversion in California by 2050 is estimated to create ~220,000 more 40-year jobs than lost, eliminate ~12,500 ... state air-pollution premature mortalities/yr, avoid \$103 ... billion/yr in health costs...*

In addition, it would use less than 1% of California's land, and could pay for the costs of the new generation from healthcare and carbon costs alone in about 7 years. (Report: PG)

<http://web.stanford.edu/group/efmh/jacobson/Articles/I/CaliforniaWWS.pdf>

The Storage Necessity Myth: How to Choreograph High-Renewables Electricity Systems

Amory Lovins presents 2 short videos that show that perhaps we don't need utility scale electricity storage and why renewables are taking over. (Video: 4 minutes. PG)

<https://www.youtube.com/watch?v=MsgrahFln0s>

(Video: 3 minutes. PG)

<https://www.youtube.com/watch?v=k3kve0PV0VA>

More Bad News for Coal & Nuclear Generators From Australia - Solar Outcompetes Them

In an energy democracy, even free coal has no value. (G)

<http://www.theguardian.com/commentisfree/2014/jul/07/solar-has-won-even-if-coal-were-free-to-burn-power-stations-couldnt-compete>

Novel Approach to Generating Steam From Sunlight

A new material structure developed at MIT generates steam by soaking up the sun. The structure — a layer of graphite flakes and an underlying carbon foam — is a porous, insulating material structure that floats on water. When sunlight hits the structure's surface, it creates a hotspot in the graphite, drawing water up through the material's pores, where it evaporates as steam. The brighter the light, the more steam is generated. (Article. G)

<http://www.renewableenergyworld.com/rea/news/article/2014/07/steam-from-the-sun>