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News. December, 2012. Issue #10. 1600 ESB [video views](#).

The future is already here — it's just not very evenly distributed.
-William Gibson

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Ratings for articles and videos: (G = General Audience, PG = Pretty Geeky, VG = Very Geeky).

News About Us

ESB News Now in Video

November & December. Let us know what you think. (G)

<http://www.youtube.com/watch?v=oeMRYSLMAMI>

<http://www.youtube.com/watch?v=ypJXZz24mhA>

Electricity

Book: Clean Break: The Story of Germany's Energy Transformation and What Americans Can Learn from It

I highly recommend this book. It is short, well-written, and readable.

When I asked Hans-Josef Fell, the chief architect of the Energiewende's legal framework, about the energy storage problem, he immediately corrected my terminology. "It is not a problem," he insisted. "It is a task."

DAVIDSON: Eighty percent by 2050 is not ambitious?

FELL: No. I think we can have 100 percent renewable electricity in Germany by 2030... The only reason the government is moving so slowly now is they want to protect the fossil fuel sector. ...This is not a technological problem. It is a political problem.

Read the whole book online free. 99 cent Kindle download. Free slideshow. (all G rated)

<http://insideclimatenews.org/news/20121113/germany-energiewende-clean-energy-economy-renewables-solar-wind-biomass-nuclear-renewable-energy-transformation>

<http://www.amazon.com/Clean-Break-Kindle-Single-ebook/dp/B00A4IEJ5K/>

<http://www.bloomberg.com/slideshow/2012-11-15/clean-break-germany-s-switch-to-renewables.html>

Study: Renewables Powering the Grid 99.9% of the Time by 2030

At 2030 technology costs and with excess electricity displacing natural gas, we find that the electric system can be powered 90% - 99.9% of hours entirely on renewable electricity, at costs comparable to today's (quote from the study itself). Article (G) and the study (VG).

<http://news.discovery.com/earth/renewables-storage-121211.html>

<http://www.ceoe.udel.edu/windpower/resources/BudischakEtAl-2013-CostMinimizedWindSolarPJM.pdf>

Eggshells & Egg Whites Enhance Energy Storage

Researcher David Mitlin is working on a way to turn waste eggshell membranes and egg whites into materials for high-performance supercapacitors. Supercapacitors offer high power density, charging and discharging far faster than rechargeable batteries. Unfortunately, they store much less energy. Mitlin thinks the membranes inside eggshells could help crack that problem. (G)

<http://spectrum.ieee.org/green-tech/fuel-cells/eggshells-for-energy-storage>

Renewable Energy Big Picture

Two parts. 50+ well-explained slides put together from a wide variety of sources. (PG).

<http://cleantechnica.com/2012/12/11/renewable-energy-big-pic-including-34-charts-graphs/>

<http://cleantechnica.com/2012/12/12/renewable-energy-big-pic-part-2-19-charts-graphs/>

Transportation

The Nonsense of Biofuels - The Future of Transportation Has to be Electric.

The author is a professor at the Max Planck Institute for Biophysics and a Nobel Laureate in Chemistry... *photovoltaic cells already possess a conversion efficiency for sunlight of more than 15 %, the electric energy produced can be stored in electric batteries without major losses. This is about 150 times better than the storage of the energy from sunlight in biofuels. In addition, 80 % of the energy stored in the battery is used for the propulsion of a car by an electric engine, whereas a combustion engine uses only around 20 % of the energy of the gasoline for driving the wheels. Both facts together lead to the conclusion that the combination photovoltaic cells/ electric battery/electric engine uses the available land 600 times better than the combination biomass/biofuels/combustion engine.*

The future of our individual transport has to be electric! (PG)
<http://onlinelibrary.wiley.com/doi/10.1002/anie.201200218/full>

Chevy Volt Owners Have Driven 100 million Electric Miles

Chevrolet states that Volt owners are traveling under electric power more than 65 percent of the time leading to a savings in gasoline expenses to the tune of \$1,370 per year. (G)
<http://www.autoblog.com/2012/12/06/gm-says-chevy-volt-owners-have-logged-over-100-million-electric/>

“Truly Remarkable”: Motor Trend’s Car of the Year: Tesla Model S

The first winner in the history of the award not powered by an internal combustion engine.
...is one of the quickest American four-doors ever built. It drives like a sports car, eager and agile and instantly responsive. But it's also as smoothly effortless as a Rolls-Royce, can carry almost as much stuff as a Chevy Equinox, and is more efficient than a Toyota Prius. Oh, and it'll sashay up to the valet at a luxury hotel like a supermodel working a Paris catwalk. By any measure, the Tesla Model S is a truly remarkable automobile. (G)
http://www.motortrend.com/oftheyear/car/1301_2013_motor_trend_car_of_the_year_tesla_model_s/

Misc.

Phillips HUE LED Bulbs - Adjust Their Color From Cell Phone or Ipad

How practical these are remains to be seen, but they do look fun. \$200 for a starter kit (3 50-watt equivalent bulbs and wireless controller to connect to your internet). \$60 for each additional bulb. Available now but was backordered at the time this was written. Article, a short, and a longer video (all G).

<http://ledsmagazine.com/news/9/10/25>
http://www.youtube.com/watch?v=IT5W_Mjuz5I
<http://www.youtube.com/watch?v=0ODJPxMQo3g>

New Plastic Lighting Material: Cheap, Long-Lived, and Energy Efficient

Field-induced polymer electroluminescent technology to be made in any shape. Product shipment as early as 2013. (G)
<http://www.bbc.co.uk/news/science-environment-20553143>

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