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Progress lies not in enhancing what is, but in advancing toward what will be.
- Kahlil Gibran

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Electricity

NYT: German Modeling Shows 80% Renewable Energy With Massive Savings

Cost for 80% renewables: 500 Billion Euros. Fuel-Savings: 600 Billion to 1 Trillion Euros. Scientists developed a comprehensive model of Germany's electricity, transportation, and heating energy systems and conducted millions of simulations. Savings are seen along with more employment and no harm to living standards or the economy.

"The faster you add renewable energy to the grid, the faster you reach the crossover point where the savings become greater than the costs. We estimate that Germany could reach that point as soon as 2025."

Contrary to popular fears, Mr. Henning said, "there are many hours when renewables are not sufficient to meet demand, but even more hours when we have too much renewable energy." (Article: G. Report: PG)

<http://www.nytimes.com/2014/12/01/business/energy-environment/plan-outlines-low-carbon-future-for-germany-energy.html>

<http://onlinelibrary.wiley.com/doi/10.1002/ente.201300083/pdf>

America Could Power Itself 100 Times Over With Solar (G)

<http://www.washingtonpost.com/blogs/wonkblog/wp/2014/11/20/report-america-could-power-itself-100-times-over-with-solar-energy/>

Floatovoltaics - Floating Solar

Putting solar electric panels over lakes and reservoirs has some interesting advantages. There is no foundation to build, in some designs panels can be rotated easily to face the sun, and evaporation from the reservoir can be reduced (important in drought situations). (articles both G)

<http://cleantechnica.com/2014/11/24/yet-another-claim-worlds-largest-floating-solar-plant/>

<http://www.renewableenergyworld.com/rea/news/article/2013/11/running-out-of-precious-land-floating-solar-pv-systems-may-be-a-solution>

Archimedes Screw - Fish Friendly, Low Speed Hydro Generators

A big challenge for hydro pumps and generators is that they destroy fish - particularly baby fish. This company claims fish-friendly generators. (article & website. Both G)

<http://www.hydroworld.com/articles/2014/06/durham-city-center-receives-100-kw-hydroelectric-power-project.html>

http://www.spaansbabcock.com/hydro_power.aspx

Transportation

Turn Key EV Spree?

Solar has 3rd party leasing companies - no home or business owner money down, savings from day one, with no building-owner maintenance and solar is installed on the roof. For commercial buildings energy efficiency has ESCos - Energy Service Companies that finance, install, and maintain energy efficiency retrofits while paying back over time through energy bill savings.

Now it is EV's turn. Indianapolis leased 425 EVs from Vision Fleet - they buy the EVs, install chargers, manage everything down to electricity charging contracts and scheduling, and the cities pay less than they had been for their old gasoline vehicle fleets. (article & website - both G)

<http://www.greentechmedia.com/articles/read/Startup-Borrows-Financing-Model-From-Solar-Efficiency-Sectors-to-Launch-EV>

<http://visionfleet.us>

Energy Storage, Etcetera

A \$200 Infrared Camera in Every Toolbox?

Attaches to your smart phone or pad and lets you see heat or cold. One of the challenges in building efficiently has been that the tools to see energy leaks in new or repaired buildings have been too expensive for most workers. No longer... (G)

<http://obtain.thermal.com/category-s/1818.htm>

Battery Factories Powering Up Everywhere

While Tesla rapidly builds it's Reno battery Gigafactory, LG Chem recently announced a new plant to make batteries for 100,000 EVs per year in China. And Alevo announced it already has \$1 B in private funding for a North Carolina factory to build 1 GWh per year of their proprietary technology grid storage batteries. (both articles G)

<http://itersnews.com/?p=90005>

<http://cleantechnica.com/2014/11/10/alevo-1-billion-battery-startup/>