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The problem for me was not ignorance, it was preconceived ideas.

- Hans Rosling

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Loading Order - Renewables First

In much of the US, electric utilities choose which generators are turned on, and which will be curtailed (turning off generators so there isn't too much electricity on the grid). This is called "load order" or sometimes "dispatch order."

For example, in Colorado, Xcel Energy's load order is coal first. There are times of the year when Xcel turns off wind turbines to burn coal.

California's PUC has now ordered that efficiency and renewables must come first. (G - General Audience)

<http://climateofourfuture.wordpress.com/tag/california-public-utilities-commission/>

Parts of Europe have had a "renewables first" load order for some time. This can make utilities actually pay for users to use more power at certain times. (G)

<http://www.bloomberg.com/news/2011-09-29/utilities-giving-away-power-as-wind-sun-flood-european-grid.html>

And More on the Obsolescence of Baseload

All nuclear power plants are baseload.

...nuclear power plants could ... throttle their capacity – for example in case of a storm which causes high wind energy feed-in – but only down to 50 or 60% ... of their installed capacity. After that, they would have to be shut off completely, otherwise an oversupply of power would occur.

Such oversupplies already occur today, and ever more frequently. This results in negative prices for electricity on the electric power exchange. The producers actually pay the buyers money to take their power, and pass on the additional costs to consumers. (PG)

http://www.unendlich-viel-energie.de/uploads/media/35_Renews_Spezial_Renewable_Energies_and_Baseload_Power_Plants-1.pdf

And yet, many utilities are still planning upgrades and building new baseload coal and nuclear power plants. This makes no sense in a world where most people want much more renewables.

Germany's Switch From Nuclear to Renewables

A small-town energy revolution is going on in Germany, with more than 100 rural communities becoming 100% renewable. More people work today in Germany's renewable sector than in the country's nuclear and coal industry combined.

...nuclear plants by design cannot ramp up and down quickly, making them completely incompatible with intermittent green power.

...Germany actually has an action plan to reach 80 percent renewable power, and natural gas is a temporary part of that plan.

Germany...blew past its Kyoto target of a 21 percent reduction. ... had actually reduced its emissions by 28.7 percent. Renewables have been indispensable in reaching that goal. (PG - Pretty Geeky)

<http://www.renewablesinternational.net/the-german-switch-from-nuclear-to-renewables-myths-and-facts/150/537/33308/>

Yet Another Large Solar Resource

Seems like every place we look we find places for solar with minimal environmental impact - that is in places where the environment is already not natural. For example, rooftops, parking lots, south faces of commercial buildings, buffer strips and medians of freeways, and now over plants.

UC Davis reports that "quite a few plants, especially citrus, were doing equally well" when planted under 35% shading PV panels. Page 13 (G)

<http://caes.ucdavis.edu/NewsEvents/News/Outlook/pdfs/outlook-spring-2012.pdf>

"Touchless" Building Efficiency & Solar Potential Audits

Sort of Google street view meets a clean energy future.

A number of startups are providing infrared pictures showing building energy leaks, and reports showing a home or commercial buildings solar potential without requiring an on-site visit by a technician.

Could your city arrange to have the entire city audited allowing anyone to see how their building performs and what the solar potential is for a building, block, neighborhood, and city? (G)

<http://www.greenbiz.com/blog/2012/04/18/essess-google-street-view-building-energy-efficiency>

A 2 minute video - "...city of Boston plans to scan nearly every square foot of properties..." (G)
<http://techtv.mit.edu/videos/17695-cbs-boston-mit-s-infrared-thermal0imagery-system-detects-heat-leaks-in-homes>

An Evaluation of Boulder's SmartRegs Program

Residential rental building energy requirements. Voluntary until 2019. Easy to use. Based on 100 point system.

Of the approximately 34 million rental units in the United States, more than 24 million were built before 1980 and consequently, to those efficiency levels. These statistics suggest an enormous opportunity for energy reduction in rental units in this country. (PG)

<http://www.nrel.gov/docs/fy12osti/54724.pdf>

Bloomberg's Sustainability Indicators

- \$409 billion: worldwide government subsidies given to the fossil-fuel industry in 2010.
- \$66 billion: global subsidies for renewable energy in 2010. (G)

<http://www.bloomberg.com/news/2012-04-13/sustainability-indicator-130-billion-pints-of-beer.html>

No Matter Where in the US, Electric Vehicles (EVs) Save Emissions and \$

US Map by Union of Concerned Scientists. (G)

<http://green.autoblog.com/2012/04/16/ucs-no-matter-where-you-live-driving-electric-saves-money-emi/>

Are Fuel Cell Cars The Future?

Hyundai's plans and some projections on manufacturing fuel cell vehicles - perhaps 10,000 by 2015 and bringing the price down to \$50,000. (G)

<http://green.autoblog.com/2012/04/16/hyundai-will-make-limited-number-of-fuel-cell-vehicles-this-ye/>

It looks to me like we are approaching a 3-way race for the future of transportation - pure EVs like the Nissan Leaf, Fuel Cell EVs, and Plug-In EVs like the Chevy Volt and plug-in Prius. Or perhaps the markets will split ... you will have your pure electric urban runabout, and your long-distance plug-in or fuel cell?

Or maybe a rentable tow behind trailer for your EV when you wish to do long-distance transportation which you exchange every few hundred miles? (G)

<http://www.wired.com/autopia/2010/11/range-extending-trailer-charges-your-ev-carries-your-gear/>

or (G)

<http://www.mynissanleaf.com/viewtopic.php?p=155656#p155656>

Leaf Light-Duty Towing Hitch (G)

<http://green.autoblog.com/2012/01/07/light-towing-now-possible-with-your-nissan-leaf/>

Tesla Model X to have Excellent Towing Capability (G)

<http://green.autoblog.com/2012/04/27/model-x-will-have-excellent-towing-capability-despite-photo-mo/>

Electric Vehicle Battery Costs Drop 14% in 2011 (G)

<http://green.autoblog.com/2012/04/17/advanced-vehicle-battery-costs-drop-14-in-the-past-year-down-3/>

EV License Plates in Mass. & Hawaii

Free. A way to spread the word on the EV revolution. (G)

<http://green.autoblog.com/2012/04/27/massachusetts-will-distribute-happy-little-ev-license-plates/>

For the Person Who Has Everything...

\$980,000 EV. 0 to 60 in 2.8 seconds. 380 mile range. Only 88 to be built. (G)

http://green.autoblog.com/2012/04/28/rimac-concept_one-shows-up-in-monaco-with-980k-sticker-price-w/

Car Train Concept

At higher speeds, air resistance becomes the biggest loss of energy for cars. But if cars are close together, only the first car has significant air resistance loss. There have been a number of proposals for car trains over time. Here is another concept. (G)

<http://green.autoblog.com/2012/04/23/cherys-completely-unusual-ant-concepts-hook-up/>

Wind Data Meets Art

Not clear how useful, but a fascinating wind map. (G)

<http://hint.fm/wind/>

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

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