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News. January, 2014. Issue #22. 21,000 ESB video views.

The future belongs to those who believe in the beauty of their dreams.
- Eleanor Roosevelt

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Electricity

Wind Energy Boosts Grid Reliability Says NREL Study

Wind turbines can actually improve grid reliability, resilience, and power quality. (article G and study PG).
http://cleantechnica.com/2014/01/24/forget-intermittency-nrel-says-wind-energy-can-boost-grid-reliability/
http://www.nrel.gov/docs/fy14osti/60574.pdf

The Death of Electric Utilities as We Know Them

There have been quite a few articles published recently describing the threats of reduced load and direct competition from distributed energy generation to electric utility business models (google *utility death-spiral*). This very interesting article is from David Crane, CEO of NRG - a large investor owned utility - as interesting for who is saying it as what he says. (both G)
www.energybiz.com/magazine/article/340139/keep-digging

Tidal Energy Could Supply Half of Scotland's Power
Tides run at up to 30 kilometers per hour off the coast of Scotland. A new study shows that tidal turbines could provide 1.9 gigawatts or a bit less than half of Scotland's electrical energy in one area. Also note that the Scottish government is providing a $16 million prize to the wave or tidal generator that produces the most energy in a continuous 2-year period with a minimum of 100-GWh to qualify. (G)
http://spectrum.ieee.org/tech-talk/green-tech/geothermal-and-tidal/tidal-energy-could-supply-half-of-scotlands-power

Luminescent Plastic Sheet Improves Solar PV Efficiency & Reduces Cost
Researchers are using a fairly cheap plastic sheet to improve cost-effectiveness of PV. The plastic absorbs light of many frequencies, re-emits it inside the plastic, and concentrates the light onto a very small amount of high efficiency - high-cost - PV material. (G)
http://www.technologyreview.com/news/522156/colored-plastic-doubles-solar-cell-power/

Powering the Planet With PV
A large amount of the world's people still have very limited access to electricity. This company aspires to install millions of PV panels in remote villages. A novel approach because the panels integrate cell phone technology and allow cell-phone-micro-payments by the users to pay for the electricity. Cell phone access and micro-payments are common in much of the emerging & even undeveloped world - much more common than grid-based electricity. (G)
http://spectrum.ieee.org/energywise/green-tech/solar/prepaid-microsolar-coming-to-the-philippines

Research: Nanorod Solar Cells Perform Better With Pop & Rock Music...
... than with classical music. And music worked better than flat sounds. (G)
http://spectrum.ieee.org/energywise/green-tech/solar/good-vibrations-boost-solar-cell-performance

Transportation

URB-e Electric Folding Compact Scooter
Potential solution for the problem of going the last mile with public transit. Fold up your last-mile solution and bring it with you on transit. (article & 1 minute video. Website. All G)
http://green.autoblog.com/2014/01/04/urb-e-foldable-trike-is-worlds-most-compact-electric-vehicle
http://urb-e.com/product.html

Energy Storage, BioMass, Etcetera

Bad Energy Saving Tips (and Real Energy-Saving Tips in a Sidebar)
Bad advice for consumers from many utilities and others that should know better exposed & briefly explained. Sidebar on the left for "Real Energy-Saving Tips". (G)
http://www.greenbuildingadvisor.com/blogs/dept/musings/stupid-energy-saving-tips

Global Warming Explained in 52 Second Video (G)
http://www.youtube.com/watch?v=R-qtr9xKwow

Flow Battery Using Organic Compounds - Safer, Cheaper, & Scalable Energy Storage
Researchers are working toward perfecting flow batteries using very inexpensive materials. In a regular battery, the chemical reactants are stacked or rolled up into a cell. When you discharge that fixed amount of reactant you must recharge.

Flow batteries typically have an expensive central chamber where the charging & discharging reaction takes place but with inexpensive tanks to store liquid reactants. Pump one way to make electricity, and reverse the pumps to store electricity. To increase the capacity of the battery simply build bigger tanks. If the reactant liquids can be made cheaply & safely you may have the perfect energy storage battery.

Fuel cells are one type of flow battery typically using hydrogen and oxygen as the reactants going in, and making water out. In fact, some hydrogen fuel cells can be reversed to use electricity to make hydrogen and oxygen from water - so the reactants can "flow" both ways.

So far, the other common flow battery reactants have been based on relatively expensive vanadium. This research is looking at reactants that can be cheaply produced from oil. (G)
http://www.technologyreview.com/news/523251/new-battery-material-could-help-wind-and-solar-power-go-big/

Prickly Pear Cactus as Source for Biomass & Biogas
Thrives in extreme heat and tolerates cold. Needs almost no water. Decomposes well. (G)
http://www.renewableenergyworld.com/rea/news/article/2014/01/prickly-pear-cactus-nuisance-or-bioenergy-opportunity