

Watt's Happening? #89

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Global Energy Update



New smart battery systems like Tesla's Powerwall will soon revolutionize how we use power at home, and how we fuel our cars.

Enough solar energy strikes the earth each hour of every day to power our whole global society for an entire year.

Sunlight powers all things living on our little blue marble. It powers the wind and weather, and makes us smile on a sunny warm day.

Together, we are now taking the first steps towards tapping into this limitless, forever power source. Global investments in wind and solar power now outpace investments in all other energy sources combined.

Lets take a quick snapshot of the changing energy scene from around the world:

MUSK GOES SOLAR

Elon Musk (Tesla Motors, Space X) is buying one of the world's largest solar retailers, SolarCity, in a bid to integrate his revolutionary electric cars and batteries with the ideal means of powering them – the sunshine hitting everybody's rooftops.

ROYAL BANK WANTS CARBON PRICING

Jack Stackhouse, senior VP for the Royal Bank of Canada, has come out strongly in favour of putting a price on carbon as a key to Canada's low-carbon future. "This is our Apollo mission if we seize the moment, it could be our Titanic if we don't."

CAR POLLUTION

In May of this year the World Health Organization revealed that more than 80 percent of the world's urban population is being exposed to extreme levels of air pollution which contributes to some 99,000 deaths per year in Europe alone.

With such concerns in mind, Dutch politicians are preparing to ban the sale of new petrol vehicles in their country by 2025, the first country to do.

BRANSON SUPPORTS FORMULA "E" RACING

Billionaire Richard Branson (Virgin Galactic and some 400 other companies) is a strong supporter of the new ePrix to accelerate the development of electric vehicle technology.

"Formula E is pushing the boundaries forward into what will be the future," he said on CNN at the London ePrix earlier this year. "Fifteen years from now, I suspect every car on the road will be electric."

Sales of electric vehicles passed one million last year, but that number is only 0.1 percent of the total number of cars on the road. That number is expected to rise to 20 million by 2020, with electric cars reaching cost equality with fuel-powered vehicles by 2022.

Eventually, electric vehicles will prevail because they are cheaper to run, much cheaper to build and maintain, and drivers can effortlessly make their own electric "fuel" from the sunlight falling on their roofs.

MARITIMES PULLING AHEAD

The Maritimes have been quietly pulling ahead in the race to clean energy in Canada. PEI is now close to meeting 30 percent of its energy needs with wind, while Nova Scotia has more installed wind capacity than BC, and an aggressive policy to install more (unlike BC!).

SOLAR TIPPING POINT NEARS

Home solar will reach a tipping point for mass adoption when energy storage becomes competitive with energy generation. At that point everyone will essentially be able to go off-grid with a secure self-contained solar energy system that automatically dips into the grid to sell or buy energy only if needed or if it gives the homeowner financial benefit. An electric car plugged into such a system will become part of your own smart micro-grid, giving you more storage and ultra-cheap solar-powered mobility too.

Battery storage is still expensive at about US \$650 per kilowatt hour, but is quickly headed for US \$425. In less than three years energy storage is set to achieve US\$200 per kilowatt hour, which is expected to be the trigger point for mass adoption.

New smart battery systems now entering the market (or about to) feature very long life (30 years plus), zero maintenance, and complete recyclability.

IKEA AIMS AT SOLAR

Seeing an expanding market with unlimited potential for growth, home furnishings giant IKEA has announced its intention to become the world's largest residential solar supplier. IKEA will begin offering solar PV arrays in nine countries over the next two years, starting in the UK, Netherlands and Switzerland.

"May you live in interesting times" goes the ancient Chinese curse. The rapid move to renewable sources of energy from the sun and wind is not only interesting but also necessary and inevitable. For thoughtful people around the world, that's not a curse but a blessing.



The eight solar arrays of the International Space Station provide 246 kilowatts of electricity to power all on-board systems. Solar power was chosen because it is light weight, maintenance-free and extremely reliable, advantages that make sense on Earth too.