

# Watt's Happening? #126

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## Solar set to replace . . . *most everything!*



*Solar is changing the way we make and use energy so quickly that it's difficult to keep up. Here we see the Hudson's Hope District Office and curling rink, with their new solar power arrays providing almost all of their electrical needs for decades to come at no cost to ratepayers. It's that easy!*

**A century or so ago,** hydro electricity was THE source of power in North America.

Back in the late 1800's, Thomas Edison was blowing minds with his electric lights, and in the scramble to find cheap methods of generating more and more electricity, hydro power quickly won out over wood and coal-fired steam generators. By 1920, 40% of all electricity in

the U.S. came from hydroelectric dams.

### **NOT SO NOW**

Today, hydroelectricity generates just 7.4% of all utility power south of the border, a number that has remained roughly constant for the last 30 years.

Wind and solar, on the other hand, have taken off over

the last decade, with no sign of slowing down. By 2019, wind is set to surpass hydro as the largest producer of renewable energy in the States when it reaches 300,000 megawatts of installed capacity.

Solar is close behind, having just exceeded wind as the fastest growing energy source on the planet. The annual growth rate of global solar is now some 75,000 megawatts per year, while wind is

lagging at about 60,000 megawatts per year. This growth now exceeds the annual growth rates of new coal, gas and nuclear combined.

There are reasons for solar surpassing even wind. Solar is easier to site than wind, with almost no “not in my backyard” problems, and with no moving parts, solar is more long-lived and cheaper to maintain.

The price per installed watt of solar has also come way, way down much more quickly than wind, because solar lends itself more readily to large scale automated mass production.

Solar is also in many ways a more versatile energy source: solar electric generating roofing materials and windows are now poised to enter mainstream markets in a big way.

## **COAL WILL FADE AWAY**

Just a few years ago, coal was the cheapest energy source on the planet. Messy, highly polluting and very carbon intensive, but cheap. Not so now.

A global flood of frack-gas has put coal on the back burner, with many plants either closing or being converted to gas, a cleaner, cheaper fuel. For now.

But both gas and coal are having a tough time competing with wind and solar, the cost of which continues to fall. Gas, once heralded as the “30-year energy transition fuel” is facing stiff competition from renewables, and is now looking more like the 10-year transition fuel. Sorry, but gas is turning out to be just too expensive.

## **EVEN NUCLEAR . . .**

Nuclear power has served France well, supplying an amazing 75% of their electricity needs for decades. But with an aging fleet of reactors and the astounding

cost of decommissioning and replacing them, France has set aggressive new goals of reducing nuclear by 25% by 2035, replaced mostly by solar.

Already, solar in France has leapt from almost nothing a few years ago to about 7000 installed megawatts, with the same very rapid growth curve for solar we are now seeing around the world.

## **BIG HYDRO GOES BIG SOLAR**

The Three Gorges Corporation in China owns and operates the world’s largest hydroelectric facility.

Three Gorges is now building the world’s largest floating solar farm.

Covering an area larger than 160 football fields, the new installation’s solar panels float on a lake that was formed when a coal mine collapsed. How fitting and symbolic!

Solar and water work well together. The solar panels help conserve fresh water by reducing evaporation into the surrounding atmosphere, while the water keeps the ambient temperature around the panels lower, increasing their efficiency and extending their lifetime.

Solar is not just a China thing, of course. It has become a worldwide phenomenon.

Oh, and don’t worry about Trump’s move to add new tariffs on solar-panel imports to the U.S. He can try to slow down the switch to clean energy, but he can’t beat basic economics. The cheapest energy sources will win out, and that’s exactly where solar and wind are headed.

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