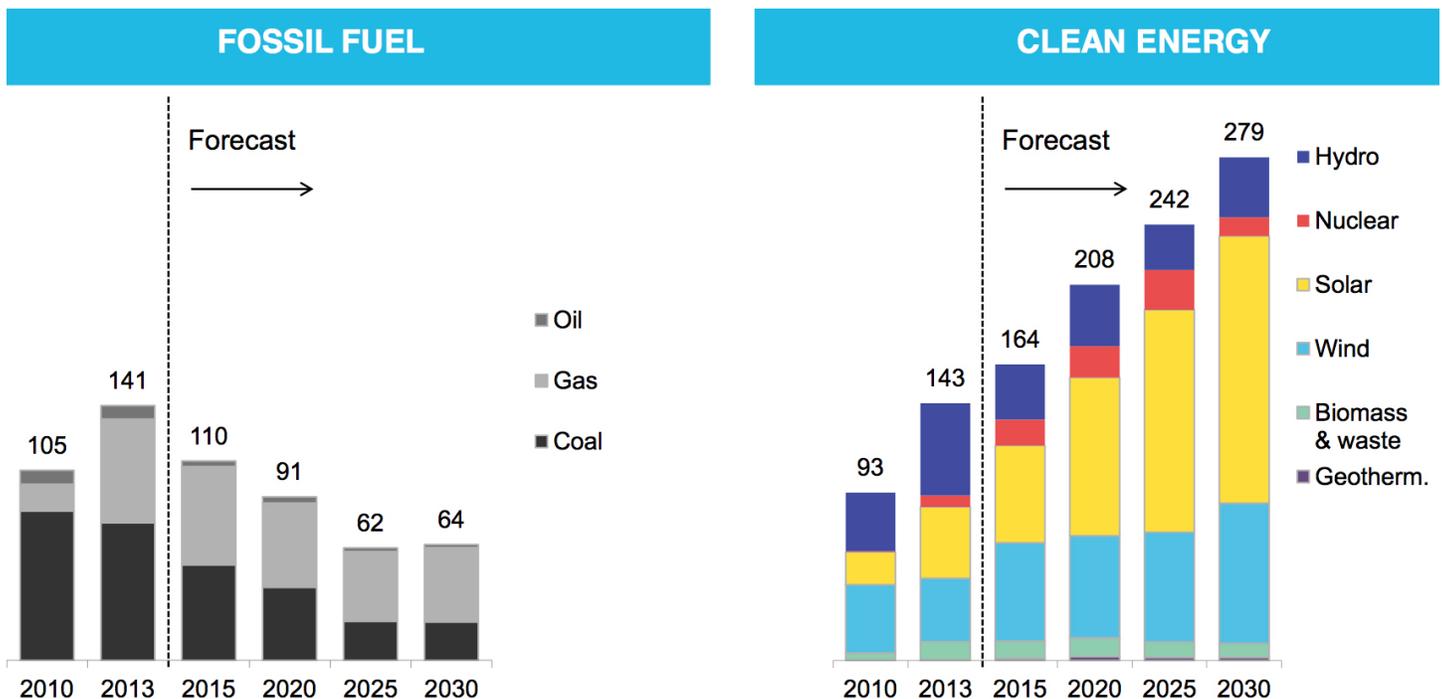


Watt's Happening?

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Power to spare



This graph from Bloomberg New Energy Finance shows new global power generating capacity from 2010 to the present, and projected new capacity to 2030. According to Bloomberg, the world is now adding more capacity for renewables each year than all the fossils combined. Things are changing, and fast.

Renewable energy has always seemed kind of like magic to me. Let a wind turbine spin in the wind or let the sun shine on a solar panel and out comes electricity. Cool.

And there's more. What the "renewable" part of renewable energy means, of course, is that there is **NO FUEL REQUIRED**. Sure we need some to build the energy harvesting equipment in the first place (for now), and a little bit for maintenance, but the point is, once it is up and running, it makes electricity without fuel. Nature just keeps "renewing" the energy source, forever.

And hey, there's a really good spin off from this "no fuel" thing: no pollution. Yes folks, once she's up and running, renewable energy is so close to pollution-free that you might as well call it that.

Remember, "no fuel" means no fuel to be dug up or drilled for, refined or transported. No-fuel energy has a tiny environmental impact compared to fuel-based energy. Period.

No fuel also means lower cost, eventually. When renewables become the norm in a decade or two, the dollar and cents costs of energy will go down, especially if we include (which we should) the costs

to the natural environment, health care costs from pollution, the costs of adapting to global climate change (if we can!) and the costs of extracting, refining and transporting fuel. Way down.

Hmm, an energy source that needs no fuel, creates no pollution, costs less and lasts forever. Sounds like a pretty good idea!

But is there enough of it to power our hi-tech, energy hungry, over-populated planet? Is it actually POSSIBLE to power everything all the time with renewables? The answer: “You bet!”

MORE WHERE THAT CAME FROM

There is, indeed, enough. Supplies of easily accessible wind and solar dwarf the energy consumed by everybody on the planet many times over. Like, really dwarf.

The sun alone pours some 350,000,000 terawatt (trillion watt) hours of solar energy on the planet each year, about four thousand times more than we currently consume, and about 400 times more than all the energy in the world’s remaining oil reserves. There is LOTS of renewable energy. And it doesn’t run out.

But what would be needed to harvest all the energy needed to run the whole planet? A 2009 study published in Scientific American, “A path to sustainable energy by 2030,” by Mark Z. Jacobson and Mark A. Delucchi, proposes a plan to eliminate the need for all fossil fuels worldwide by 2030 (just 20 years!) using a mix of 90,000 solar plants, numerous geothermal, tidal and rooftop photovoltaic installations, and 3.8 million 5-megawatt wind turbines scattered all around the globe.

Wind power is already cost-competitive with most other energy sources, including coal. The cost of solar power has plummeted over the last few years as well, and is also quickly reaching the point where it is cost-competitive with conventional energy. Japan installed over one million solar roofs last year, and is busily installing another million this year. That’s fast!

INTERMITTENCY? EASY PEASY

What about that old “intermittency” problem? The sun doesn’t always shine and the wind doesn’t always blow, after all. The good news is that once you get a fair bit of this renewable infrastructure in place, things tend to even out: wind not blowing here but blowing over there, sun shining when the wind isn’t blowing, geothermal and hydro providing that important, consistent “base load” supply.

New energy storage technologies (like Tesla’s new battery system for home solar power systems) are also a huge new growth industry that will, in a few decades, render most of the intermittency issue a problem of the past.

As of last year, global investment in renewables began to exceed investment in coal, gas and oil combined. Something must be working. Clearly, the problems are being solved and the shift to renewables is happening, quickly.

Renewable energy seems like magic, but it isn’t. It’s just simple, common sense technology, actually. Can we change our entire energy system in 20 to 30 years, as experts say we must to avoid catastrophic climate change?

Yes we can!

Quick Fact:

ELECTRIC TRAIN BREAKS OWN RECORD: the world’s fastest passenger train recently broke its own record when Japan’s JR Central maglev train reached an astounding 603 kilometres per hour. The same company set the previous record back in 2003 at 581 km/h.