Coal And Gas To Begin 'Terminal Decline' In Less Than A Decade, Bloomberg Says

by Joe Romm Jun 13, 2016 3:20 pm

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A stunning new forecast on "peak fossil fuels for electricity" by Bloomberg New Energy Finance (BNEF) concludes that "coal and gas will begin their terminal decline in less than a decade."

It's been clear for a while that coal demand is plateauing, if it hasn't already peaked. But BNEF explains that of the "eight massive shifts coming soon to power markets," #1 is "There Will Be No Golden Age of Gas."

Here is the core finding of BNEF's "annual long-term view of how the world's power markets will evolve in the future," their New Energy Outlook (NEO):

> Cheaper coal and cheaper gas will not derail the transformation and decarbonisation of the world's power systems. By 2040, zero-emission energy sources will make up 60% of installed capacity. Wind and solar will account for 64% of the 8.6TW [1 Terawatt = 1,000 Gigawatts] of new power generating capacity added worldwide over the next 25 years, and for almost 60% of the $11.4 trillion invested.

These conclusions may come as a surprise to the vast majority of U.S. policy- and opinion-makers, but all the way back in November the International Energy Agency came to a similar conclusion: "Driven by continued policy support, renewables account for half of additional global generation, overtaking coal around 2030 to become the largest power source."

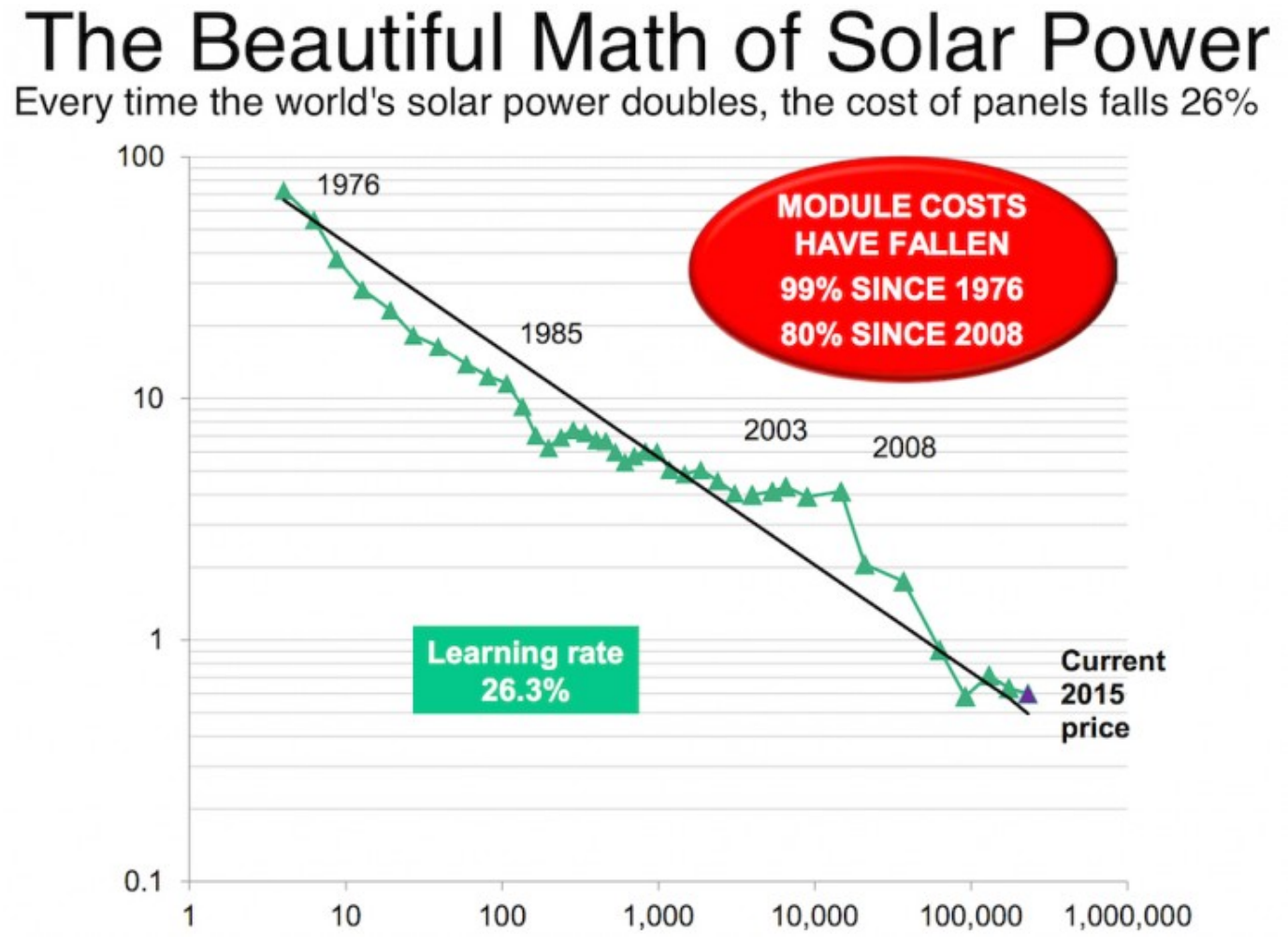
I've been reporting on this trend in my ongoing series "almost everything you know about climate change solutions is probably outdated" (see, for instance, "We Can Stop Searching For The Clean Energy Miracle. It's Already Here").

BNEF, however, keeps putting out the most comprehensive, up-to-date, chart-filled, data-driven analyses of the clean energy revolution — and it is all must-read stuff.

Let me single out two charts in particular, an amazing one you've probably seen before, and an equally amazing one you probably haven't.

Solar and Wind Prices Plummet

In a section headlined, "Solar and Wind Prices Plummet," BNEF says "The chart below is arguably the most important chart in energy markets. It describes a pattern so consistent, and so powerful, that industries set their clocks by it."



CREDIT: BNEF

"Wind-power prices are also falling fast — 19 percent for every doubling," explains BNEF. They project that over the next quarter-century, dropping prices and improving performance (see below) will drive the world to a stunning $3.4 trillion investment in solar, and $3.1 trillion for wind — and both of those exceed the cumulative investment of $2.1 trillion projected for all fossil fuels through 2040. BNEF expects an investment in new hydropower of some $900 billion through 2040, and an investment of about $1.1 trillion in new nuclear.

The result of these investments and the continued learning by solar and wind means make "these two

technologies the cheapest ways of producing electricity in many countries during the 2020s and in most of the world in the 2030s."

Significantly, the $7.8 trillion investment in renewables and ongoing price drops are all just what BNEF expects to happen on our current path. It's "business as usual." It does not assume the world embraces the policies needed to drive the investments necessary to stabilize below the 2°C (3.6°F), as the nations of the world have unanimously agreed to do in Paris last December. In the below-2 degrees Celsius scenario, "the world would need to invest another $5.3 trillion in zero-carbon power by 2040."

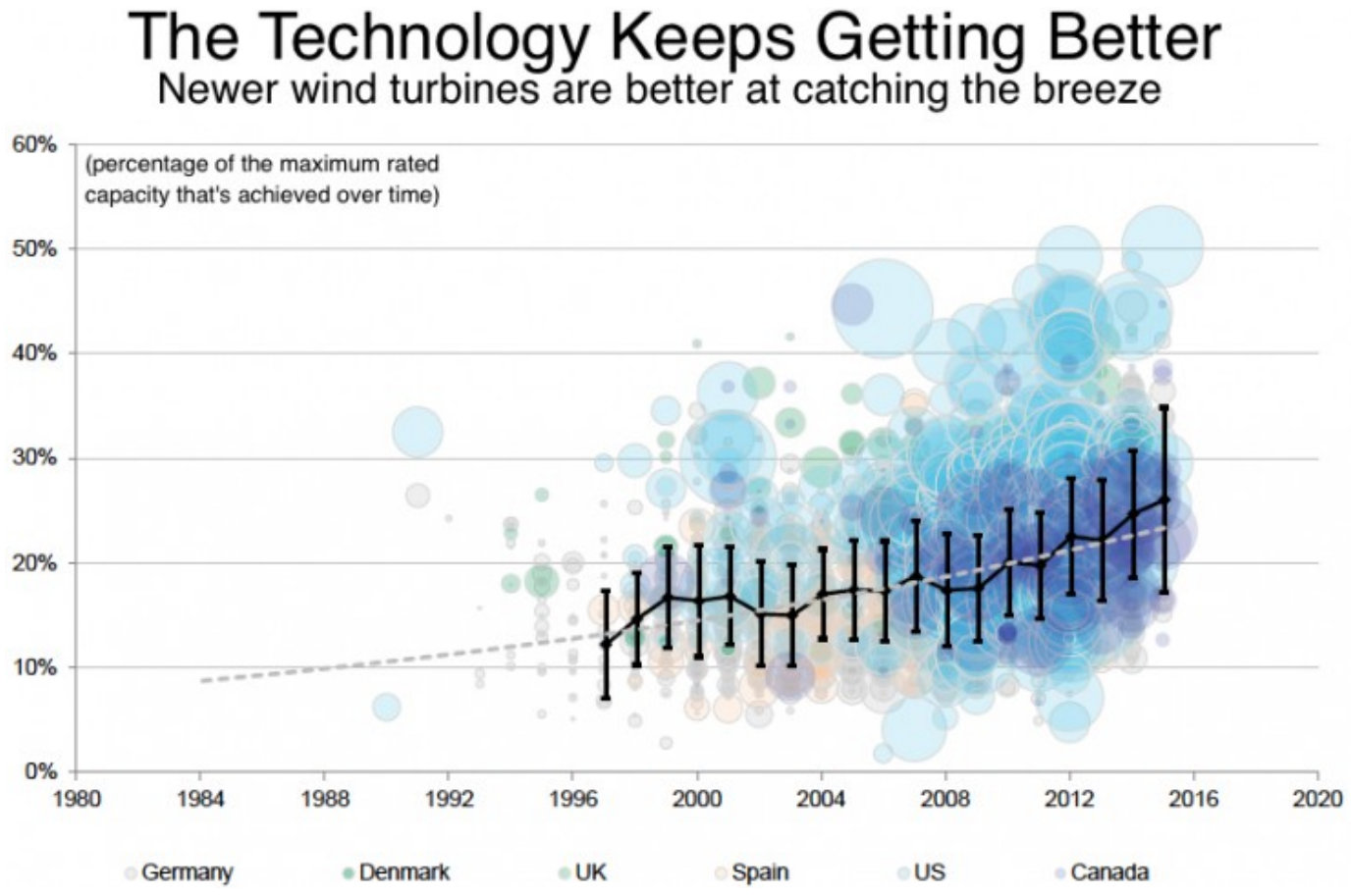
Also, given how increasingly cost competitive solar and wind are on their own over the next decade or two, the trend to put a price on carbon in a growing number of countries around the world means that, for those nations, renewables will be competitive even sooner.

Capacity Factors Go Wild

BNEF explains that one of the "massive shifts coming soon to power markets" is: "Capacity Factors Go Wild." The capacity factor is the "percentage of a power plant's maximum potential that's actually achieved over time."

Wind, for instance, "varies in strength with the time of day, weather, and the seasons." That means "a project that can crank out 100 megawatt hours of electricity during the windiest times might produce just 30 percent of that when averaged out over a year." That would be a 30 percent capacity factor.

BNEF's key post is that the capacity factors for renewables keep going up as the technology gets better and we get smarter about figuring out the optimal placement. BNEF reports that "Some wind farms in Texas are now achieving capacity factors of 50 percent" (!) and offer up this remarkable chart of capacity factors over time:



Some Texas wind farms now generate full power the equivalent of half the time.

CREDIT: BNEF

As capacity factors and prices improve, renewables become more attractive. Moreover, once built, the marginal cost of operating a solar and wind plan is “pretty much zero — free electricity — while coal and gas plants require more fuel for every new watt produced.” Choosing free zero-pollution power over not-free dirty power isn’t a tough choice for utilities.

And that brings us to BNEF’s jaw-dropping conclusion: “As natural gas and coal plants are increasingly idled in favor of renewables, their capacity factors will take a big hit, and lifetime cost of those plants goes up. Think of them as the expensive back-up power for cheap renewables.”