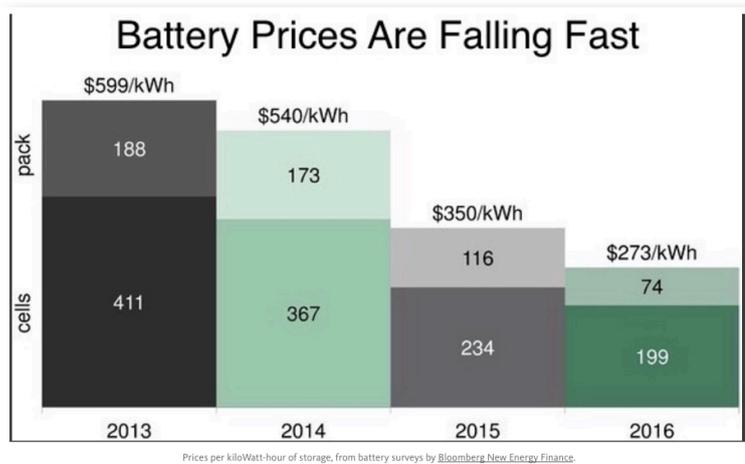


# Chart of the month: Driven by Tesla, battery prices cut in half since 2014

Electric vehicles already match petrol cars on total cost, soon batteries plus solar will beat natural gas power.



Prices per kiloWatt-hour of storage, from battery surveys by Bloomberg New Energy Finance.

Battery prices have continued their **stunning decline**, with game-changing implications for electric vehicles (EVs), the electric grid, and the cage fight between renewables and natural gas.

Bloomberg New Energy Finance (BNEF) reports that lithium-ion battery prices have fallen “by almost half just since 2014” and “electric cars are largely responsible.” Last year, BNEF called

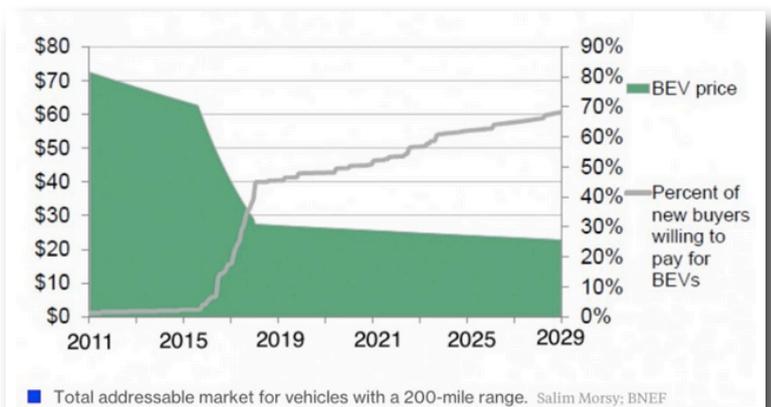
this “the miracle of Musk,” referring to Elon Musk, the CEO of Tesla, which jump-started the stagnant EV business and whose giga-factory will keep putting downward pressure on battery costs.

In 2013, the International Energy Agency **estimated** EVs would achieve cost parity with gasoline vehicles when battery costs hit \$300 per kiloWatt-hour of storage capacity, which the IEA said would happen by 2020.

That price point was in fact crossed last year, which is why **both GM and Tesla** announced they could deliver affordable (well below \$40,000), long-range (200-plus miles) EVs.

BNEF’s **analysis** shows why that’s a game-changer:

The result, as the lead author of a GTM Research report on EVs **explained**, is that



“a price and energy cost analysis of conventional, hybrid, and electric vehicles illustrates that the EV has the lowest lifetime cost, even in a low-oil-price environment.”

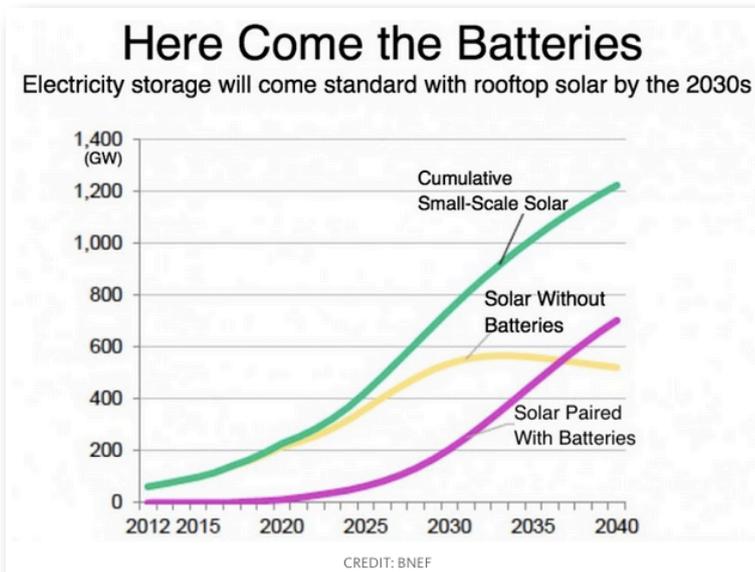
The \$300 per kWh price point is also where lithium-ion batteries storing excess renewable generation **start to get competitive** against natural gas “peaker” power plants, which power on just for the morning and evening demand surge.

“Three new plants in California show how lithium-ion storage is ready to power the grid,” Bloomberg **reported** Monday. “Any one of these projects would have been the largest battery storage facility ever built.”

These three storage projects were completed in lightning speed, under six months, and Tesla’s completed “in just three months a project that in the past would have taken years.” And unlike gas peakers, battery storage of renewables generates no air pollutants or carbon pollution.

When battery prices drop another 50 percent, which BNEF thinks will happen within a decade or so, batteries dominate the market.

CREDIT: BNEF



“Batteries capable of storing power at utility scale will be as widespread in 12 years as rooftop solar panels are now,” **predicts** BNEF.

Over the next 25 years, small-scale battery storage will become a \$250 billion market.

This in turn will drive **“peak fossil fuels for electricity.”** Bottom line:

“Coal and gas will begin their terminal decline in less than a decade.”

Similarly, EVs will likely drive **peak oil demand** in the 2020s, too.

Tragically, we have a president who is beholden to the dirty fuels of the past like coal and oil, and who is poised to **cede millions of high-wage clean energy jobs** to China and other countries.