

Trump-proof power: the switch to cleaner energy will continue

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Key points

1. US coal generation will continue to contract, due to economics and technology, regardless of changes to federal policy.
2. Renewable energy generation will continue to grow in the US and globally, due to declining costs, improving technology, and policies to deliver benefits like pollution reduction and energy security.
3. The US is unable to reverse global megatrends driving these shifts.

The shift from coal is driven largely by economics

Coal generation is an increasingly unattractive investment. In the United States, coal's market share is shrinking due to growth in renewable energy and gas generation, and flat electricity demand. This trend is replicated across OECD countries and China.¹ Ageing coal generators lack the flexibility required to complement renewable energy. In the absence of carbon capture and storage, even the newest and most efficient coal generators are incompatible with global decarbonisation goals.²

In the United States, coal-fired electricity has fallen by 32 per cent since 2008, and its share of total power generation is down from nearly 50 per cent to about one-third.³ The number of operating coal-fired power plants has halved from 600 in 2010 to 300 in 2016, leading to the retirement of about 50 Gigawatts (GW) of capacity.⁴ Even if the Trump Administration dismantles the Obama Administration's Clean Power Plan, another 60 GW is predicted to exit by 2030.⁵

“Coal retirements look set to continue in the medium term even if the forthcoming Trump administration ends the 'war on coal'.”

John Kemp
Reuters senior market analyst

Globally, coal's share of electricity has been declining, although in absolute terms it has continued to increase. Across OECD countries coal generation is falling, in China it is flattening, and in other developing Asian nations it is rising, though the speed of this increase is slowing.⁶ Bloomberg New Energy projects that even without any new efforts to reduce emissions or grow clean energy, global fossil fuel use will peak by 2025.⁷

“Eliminating the Clean Power Plan is unlikely to decrease the rate of retirement of old coal-fired power plants in the US, or to induce utilities to build new coal plants. It's a matter of economics, not regulatory burden.”

Mark Barteau
University of Michigan Energy Institute

Rapid renewable energy growth is the norm

Plunging technology costs and increasing investment have created a virtuous cycle for renewable energy growth. For every doubling in the world's installed solar panels, costs have fallen by 26 percent, a number known as solar's "learning rate". Every doubling of wind capacity has seen costs fall by 19 per cent.

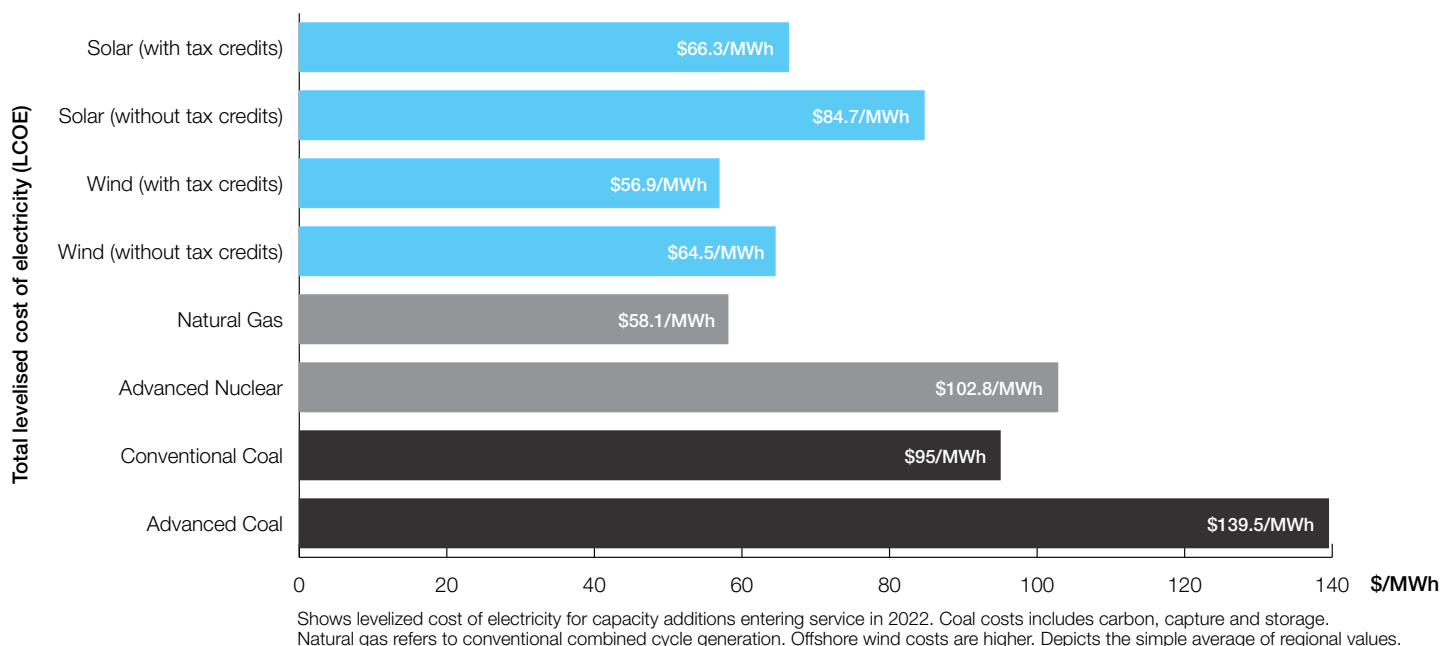
Electricity storage is also falling rapidly in cost. Battery prices fell 35 per cent last year and are on a trajectory to make unsubsidized electric vehicles as affordable as their gasoline counterparts in the next six years.⁸

Last year, global investment in renewable energy more than doubled investment in new fossil fuel generation.⁹ Renewable energy technologies are now projected to attract the bulk of future energy investment and an ever-increasing share of electricity generation, even in the absence of new climate commitments.¹⁰

In the United States, renewable energy capacity is expected to nearly double from 2015 levels by 2021.¹¹ BNEF predicts that renewables will overtake natural gas as the dominant source of electricity generation in the U.S. in 2031, even without policy support after 2020.¹²

This forecast assumes that existing federal policies such as the tax credits for wind and solar remain in place. In 2015, the tax credits for solar and wind were extended with bipartisan Congressional support. It is possible that the Trump Administration may seek to remove these policies, but it may be unlikely (see Box 2 below), particularly as the credit for wind is set to phase out by 2019 anyway (and the solar credit by 2023). Meanwhile, the 29 US states that have mandatory renewable energy standards are likely to maintain them.¹³

Figure 1: Clean technologies are increasingly competitive with fossil fuels in the US.



Box 1: The political economy of clean energy in the US

Renewable energy has a history of support from Republicans as well as Democrats. Laws that led Texas to become the largest wind producer in the US were enacted by George W Bush when he was governor. All of the top 10 wind-energy producing congressional districts are currently represented by Republicans.¹⁴ As noted above, federal tax credits have been legislated with bipartisan support. Nonetheless, some Republican leaders would prefer to end government support for renewable technologies.

However, clean energy industries are now large employers. Wind and solar provide over 300,000 jobs, and another 300,000 people work in sectors like bioenergy, hydro, electric vehicles, hydropower and nuclear.¹⁵ These industries are rapidly expanding – solar jobs have increased 12 times faster than overall jobs and wind turbine technician is the single fastest growing job category. Renewable energy industries are now important growth drivers in states such as Iowa.

Economic benefits are part of the reason why Republicans that resist action on climate change support renewable energy. Other benefits such as energy independence and pollution reduction contribute to high levels of enthusiasm among conservative members of the public.¹⁶

“We’ve seen the economic success story behind renewables up close and personal.”

Senator Chuck Grassley
Republican Senator for Iowa

The finance sector is responding to carbon risk signals

Coal financing is getting harder to find, as more banks pledge to pull back from the industry. Large asset owners are doing the same. Pressure is growing on companies to disclose more information about their climate and carbon risk management. These factors increase the risk that asset managers and owners with fiduciary duties (legal obligations to look after the best interests of their clients) will be seen to have breached these duties if they commit to financing high carbon investments.

In the United States, JP Morgan Chase, Bank of America, Citigroup and Morgan Stanley have committed to reduce their involvement in coal mining and coal generation, to varying degrees.¹⁷ This echoes a global trend initially led by European banks.

Pressure is being applied in various ways, such as divestment, engagement and enforcement. For example, Norway’s sovereign wealth fund, the world’s biggest equities owner, has sold off holdings in more than 50 companies that rely on coal for more than 30 per cent of operations or revenue.¹⁸ Insurance firms AXA and Aviva have committed to similar thresholds. BlackRock, the world’s largest asset manager (\$5.1 trillion under management) is increasingly focusing on board-level management of climate risks.¹⁹

“There are always going to be periods of boom and bust, but what is happening in coal is a downward shift that is permanent.”

Chiza Vitta
Standard & Poor’s mining and metals analyst

“Investors can no longer ignore climate change. Some may question the science behind it, but all are faced with a swelling tide of climate-related regulations and technological disruption.”

BlackRock report

Box 2. Gas plays an important role in US power supply, but not so much elsewhere.

The boom in unconventional gas extraction in the United States led to very cheap gas and a corresponding boom in gas-fired generation. Compared with coal generators, gas-fired power plants are cheaper and faster to build, more efficient to run, and offer operational flexibility which complements renewable energy and which coal-fired power plants cannot match.²⁰ However, with domestic gas prices likely to rise rather than fall, little further growth in gas generation is expected. Instead, renewable energy is likely to soak up new investment this decade.²¹ As renewable energy takes a greater share of the electricity market, the capacity factors of gas plants decline, making them less economic as baseload generators and more reliant on capturing high-priced peaks in power demand. As peaking plant, however, they will face increasing competition from batteries.

These trends are global, notwithstanding increasing demand for gas in Asia. For these reasons, Bloomberg New Energy Finance predicts that renewables will overtake gas as a global generation source in 2027.

A further consideration for gas generation investment is the risk of strong carbon constraints or carbon prices curtailing the asset's economic life. The IEA finds that gas-fired power generation peaks in the late 2020s and then declines in its scenario of global action consistent with keeping climate change to 2°C above pre-industrial levels ("450 Scenario").²²

Endnotes

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