Infrastructure

Renewables after the One Big Beautiful Bill

"Antifragility is beyond resilience or robustness. The resilient resists shocks and stays the same; the antifragile gets better."

Nassim Nicholas Taleb; Antifragile: Things That Gain from Disorder (2012)

Beyond resilience

In his influential work *Antifragile: Things That Gain from Disorder*, **Nicholas Nassim Taleb** presents a framework for understanding systems that not only withstand stress, but actually improve because of it.

Unlike robust systems, which resist shocks and remain unchanged, antifragile systems thrive and grow stronger when subjected to volatility, randomness, and stress[1].

This framework offers a useful lens through which to view the renewable energy industry in the US – especially in the wake of the recent passage of President Donald Trump's One Big Beautiful Bill (OBBB) on 4 July 2025.

We argue that despite repeated shocks, including the latest bill that threatens key tax credits from the 2022 Inflation Reduction Act (IRA), the renewable industry's capacity for self-correction, innovation, and adaptation has contributed to its continued expansion. In other words, the renewables industry appears to remain antifragile.

Note: **1** US Treasury Secretary Bessent recently claimed that the US economy is antifragile, bringing the concept into the spotlight.

Renewables: from skepticism to scale

In the last 20 years, utility-scale wind and solar projects in the US have navigated a barrage of challenges. Figure 1 highlights a long, though not exhaustive, list of these headwinds. At a high level, these include:

- Tax credit expirations and eleventh-hour renewals
- Grassroots opposition and local permitting battles
- Tariffs on imported solar panels and raw materials
- Financial collapses of high-profile players
- Misinformation campaigns against renewables
- Global supply chain disruptions due to COVID-19 and geopolitical tensions
- Negative headlines around upstream and downstream pollution

At various points during this period, market commentators and investors have declared the renewable energy industry dead. Yet each episode of 'doom and gloom' was followed not by a decline, but by a strong recovery and accelerated growth. What was framed as existential risk often turned into a catalyst for adaptation and reinvention.

Figure 1: Antifragility – the US renewables industry has faced gauntlet of challenges throughout its history

2005: Conservationists sued over wind farm related bird fatalities, foreshadowing later environmental debates
2006: Last minute extension of tax credits by a year, but policy uncertainty remains
2007: Tax credit extension fails, leading to further uncertainties around new projects
2008: Bureau of Land Management imposed a moratorium on new solar plant permits on federal lands
2009: Global Financial Crisis dried up tax-equity financing for renewables, despite extension of tax credits
2010: Approval of Cape Wind project met with lawsuits; Guardian article highlights the risk of toxic waste from used solar panels
2011: Solyndra, a solar panel manufacturer backed by federal loan guarantees, declared bankruptcy; Jinko Solar in China apologized for dumping toxic waste, raising questions about practices from Chinese manufacturers
2012: US Commerce Department hit imported Chinese solar panels with anti-dumping tariffs of ~31%
2013: After Production Tax Credit extension delays, US wind installations plummeted by 90% in 2013
2014: Ohio made history in 2014 as the first state to roll back its clean-energy mandates.
2015: West Virginia repealed its renewable portfolio standard (RPS); Kansas downgraded its RPS to a voluntary goal
2015: Yieldco (listed companies that hold renewable assets) stocks crashed in 2015, with some down 60-80%
2016: SunEdison, once the world's largest renewables developer, filed for bankruptcy; Amnesty International publishes report revealing child labor and human rights abuses at cobalt mines in the Democratic Republic of Congo
2017: New administration withdrew from the Paris Climate Agreement, and scrapped the Environmental Protection Agency's (EPA) Clean Power Plan; 2GW Wind Catcher project in Oklahoma/Texas was canceled after regulators in Texas denied approval
2018: US imposed a 30% tariff on solar modules, and tariffs on Chinese electronics (incl. solar inverters and batteries)
2019: Bankruptcy of utility PG&E sent shockwaves through renewable energy markets due to uncertainties around Power Purchase Agreements (PPAs); More tax credit uncertainty until Congress granted a last-minute extension in December
2020: Pandemic seized up global supply chains and on-site work, causing significant project delays; early federal stimulus omitted renewable-specific aid; Bloomberg article highlights old wind turbine blades piling up in landfills
2021: Politicians blame renewables for Texas blackouts from Winter Storm Uri
2022: US Commerce Department launched anti-circumvention investigation into solar panel imports from SE Asia; Supreme Court ruled that the EPA does not have the authority to regulate carbon emissions from power plants
2023: Offshore wind faces headwinds due to cost inflation and local opposition; States such as Texas and Florida began penalizing firms that boycott fossil fuels; Texas Energy Fund created to support fossil fuel generators
2024: Multiple offshore wind project and PPA cancellations; Previous 2-year moratorium on solar panels tariffs expired, leading to reinstatement of tariffs on panels from Southeast Asia; Nantucket wind turbine collapsed

Source: Media reports, US Congress, UBS Asset Management, July 2025.

For example, after the 2015-16 collapse of SunEdison and the crash in the yieldcos (listed renewables companies), the market panic at the time was intense. However, this crisis catalyzed reforms in how renewable projects were financed. The industry emerged leaner and more disciplined.

Examples of how the renewables sector has consistently adapted to these stress tests include:

- **Financing:** Institutional investors brought in better risk discipline, longer investment horizons, and lower costs of capital, replacing the yieldco growth model. Revenue contracts, hedging products, and tax equity structures matured to mitigate risk. The industry also became more conservative with leverage.
- **Supply chain:** Since the 2012 solar tariffs, the industry began diversifying procurement and localizing manufacturing. The COVID pandemic further forced the industry to adjust its supply chain.
- **Insurance:** As climate risks grew, specialized insurance products for solar radiation and wind variability emerged. There are even insurance products that help hedge policy uncertainty (e.g. tax credit insurance).
- **Project execution:** Developers now focus on long term offtake, community outreach, regulatory hurdles, interconnection readiness early in the process, shifting away from the previous land grab strategy.

These adaptive behaviors are textbook examples of antifragility – they are not just responses to adversity, they are improvements made possible by it, ultimately helping the industry scale even more rapidly.

One Big Beautiful Bill – chaotic, but not catastrophic

Perhaps no factor has defined the sector's volatility more than the recurring drama of federal tax credits. The recent One Big Beautiful Bill represents the latest threat, which we summarize in Figure 2.

The rollback in renewable subsidies is far worse than what markets expected even at the beginning of the year, although it is slightly less severe than feared based on earlier versions of the bill in June.

Figure 2: One Big Beautiful Bill phases out some of the most important clean energy tax credits (Bordeaux = negative vs. IRA; green = same or better vs. IRA)

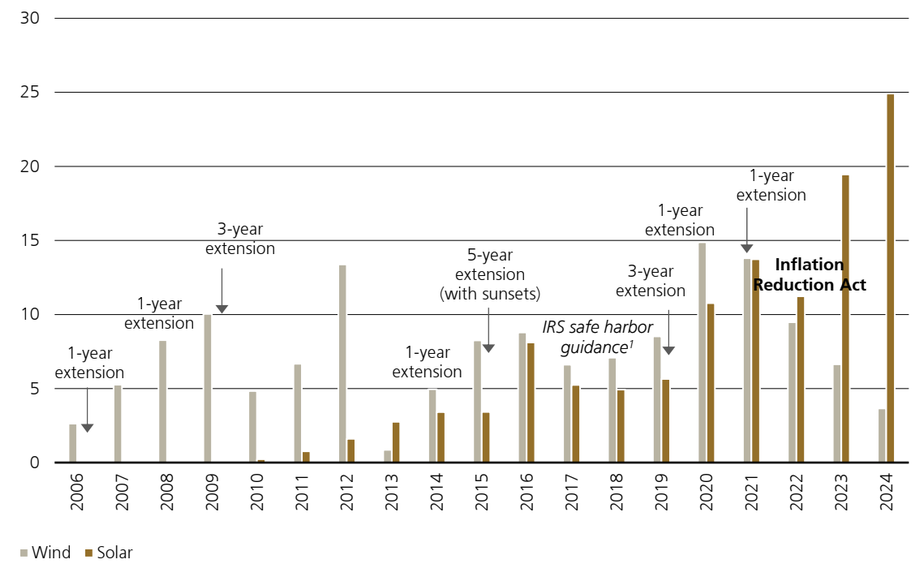
Tax Credits	Under the IRA	Under the OBBB
Clean electricity production – wind, solar etc. (45Y[1])	Phase out 2032-2036	Phase out for solar & wind after 2025; must start construction within 12 months[2] and placed in service by 2027 Phase out 2034-2035 for others
Clean electricity investment – wind, solar etc. (48E[1])	Phase out 2032-2036	Phase out for solar & wind after 2025; must start construction within 12 months[2] and placed in service by 2027 No change for energy storage
Advanced manufacturing (45X)	Available through 2032	Ends after 2027 for wind Phase out after 2029 for others
Nuclear power production (45U)	Available through 2032	No change
Carbon sequestration (45Q)	Available through 2032	No change
Clean fuel (45Z)	Available through 2027	Available through 2029
Clean hydrogen (45V)	Available through 2032	Available only if construction starts by 2027
Electrical vehicle (EV) and EV charging (30D)	Available through 2032	Available through 2025
Energy efficient home (25C)	Available through 2032	Available through 2025
Residential clean energy (25D)	Available through 2032	Available through 2025

Source: UBS IB Research, July 2025. Notes: **1** 45Y more commonly known as PTC, 48E more commonly known as ITC. **2** Pending interpretation of Safe Harbor rules by the Internal Revenue Service (IRS) after President .Trump's July 7th executive order 'Ending Market Distorting Subsidies for Unreliable, Foreign Controlled Energy Sources'.

The bill includes provisions to reduce or phase out key wind and solar energy tax credits. The immediate effect is a rush to complete current projects to qualify for these subsidies before they expire. This mirrors past cycles where policy cliffs spurred short-term deployment spikes, followed by a temporary lull (see Figure 3).

Although clearly disruptive to project planning, supply chains, and workforce management, the industry also has over 20 years of experience navigating these challenges.

Figure 3: US renewables annual installations have always been volatile due to frequent policy U-turns (GW)



Source: EIA; US Congress, April 2025. Notes: **1** Safe harbor rules essentially 'locks in' tax credits early in development if certain requirements are met.

Three days after the passage of the OBBB, President Trump issued an executive order giving the Treasury 45 days to tighten the guidelines for tax credit qualification around safe harbor rules (a mechanism that allows developers to 'lock in' tax credits after deploying 5% of a project cost).

There is strong IRS precedent and legal language in the OBBB that should limit major changes. However, additional restrictions could further accelerate the phasing out of tax credits and increase the urgency to complete near-term projects.

Another punitive feature of the bill is the introduction of foreign entity of concern (FEOC) restrictions, which limit the use of Chinese equipment and even financing from Chinese counterparties in order to qualify for tax credits. This puts additional pressure on the industry to onshore its manufacturing capacity.

On the positive side, tax credits for technologies such as energy storage, carbon capture, clean fuels and nuclear have been spared from cuts. The 'transferability' mechanism of tax credits, which allows a direct sale of tax credits in a streamlined manner, also remains intact, despite being struck out from the House's version of the bill. An excise tax on wind and solar, that was in one of the Senate's versions of the bill, has been scrapped.

Finally, investors should not lose sight of the bigger picture of the OBBB: the extension of tax cuts and bonus depreciation is undeniably positive for the broader business community, even with tax credit cuts as a trade-off.

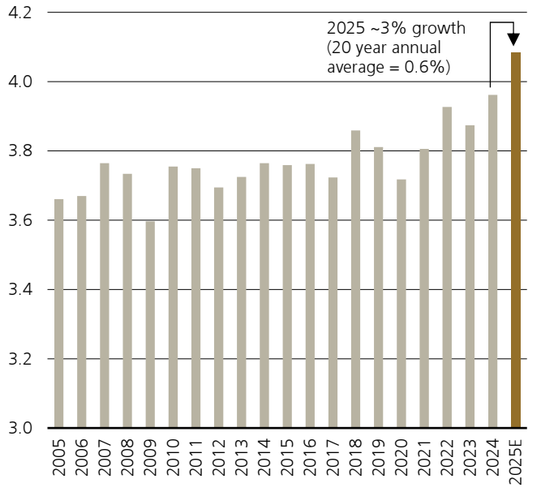
Renewable economics outruns policy risks

Despite policy swings, one tailwind remains: demand. Figure 4 shows that US electricity consumption is at an all-time high, driven in part by the AI revolution, data centers, electrification, and reindustrialization. Power demand is currently growing at a pace of 3% per annum, compared to the 20-year annual average of 0.6%. This helps insulate renewables from some of the political uncertainties in Washington.

Wind and solar also remain the cheapest sources of electricity generation in most markets, even on an unsubsidized basis and including the impact of tariffs (a 10-15% increase in project cost, based on Wood Mackenzie's estimates) (see Figure 5).

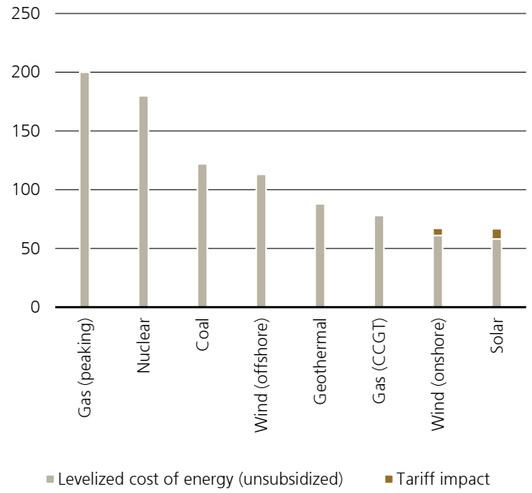
A permanent end to subsidies could actually be a positive for the industry – streamlining project development by eliminating constant rule changes, complex financing structures, and unclear eligibility standards. Investment decisions would finally rest on straightforward economics.

Figure 4: US electricity consumption growth accelerates (000 TWh)

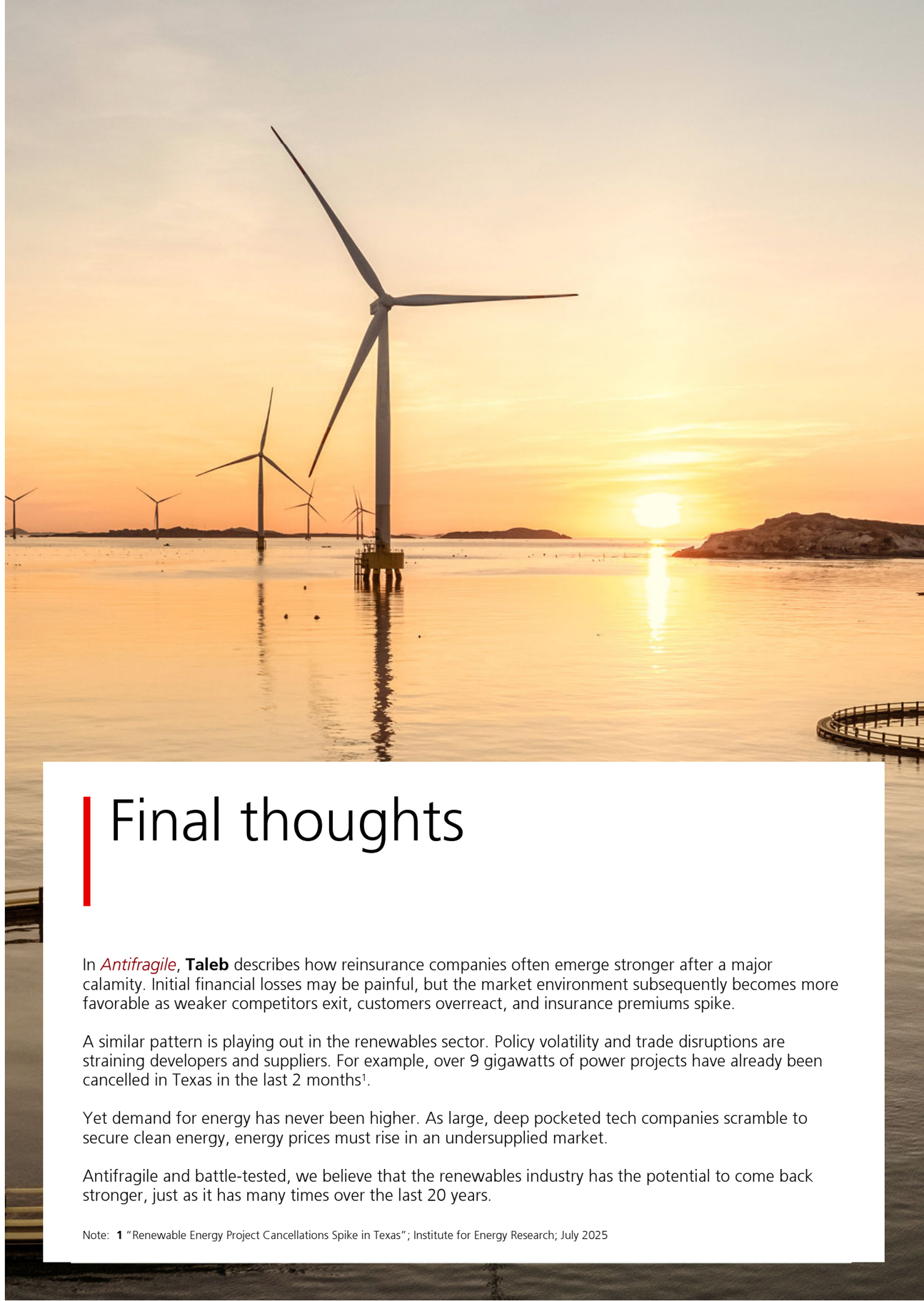


Note: 2025 forecast based on trailing 12 million growth rate as of April 2025. Past performance is not indicative of future results. Source: Energy Information Administration, June 2025.

Figure 5: Wind and solar remain low cost, even without subsidies and with tariffs (USD/MWh)



Source: Lazard's Levelized Cost of Energy Analysis Version 18.0, Wood Mackenzie, June 2025.



Final thoughts

In *Antifragile*, **Taleb** describes how reinsurance companies often emerge stronger after a major calamity. Initial financial losses may be painful, but the market environment subsequently becomes more favorable as weaker competitors exit, customers overreact, and insurance premiums spike.

A similar pattern is playing out in the renewables sector. Policy volatility and trade disruptions are straining developers and suppliers. For example, over 9 gigawatts of power projects have already been cancelled in Texas in the last 2 months[1].

Yet demand for energy has never been higher. As large, deep pocketed tech companies scramble to secure clean energy, energy prices must rise in an undersupplied market.

Antifragile and battle-tested, we believe that the renewables industry has the potential to come back stronger, just as it has many times over the last 20 years.

Note: **1** "Renewable Energy Project Cancellations Spike in Texas"; Institute for Energy Research; July 2025

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