

The Energy Solution for Texas — and the US

In response to the excellent commentaries about the Texas wind energy fiasco (e.g. from [Tucker Carlson](#)), there is a lot of pushback baloney — because the guilty parties never want to acknowledge the failures of their policies. It is always the blame of someone else, or something else. *Always*.

This brief, simplified article is about the primary core problem, that essentially no one is talking about...

In every electric grid (like the Electric Reliability Council of Texas, [ERCOT](#), in Texas), Supply and Demand have to be matched *every second*. Otherwise, when Demand exceeds Supply there would be blackouts — which would happen daily (as occurs in some third world countries).

To assure that this matching is continuous, there is a Grid Safety Reserve. This consists of **operating standby fossil fuel supplies**, amounting to 15±% of the current demand. When Demand exceeds Supply+Safety Reserve, again there would be blackouts — which is what is currently happening in Texas.

The two fold purposes of this Safety Reserve are for the Grid to able to fully handle:

- 1 - *unexpected* changes in electricity Demand, plus
- 2 - *unexpected* downtime for electricity Sources.

That sounds sensible, so what's the problem?

Well, for industrial wind to work on any Grid, it needs to have a 100% *augmenting supply* to compensate for its continually, rapidly, changing power output (i.e. to maintain the per second balance explained above). For technical and economic reasons, this augmenting supply is almost always gas.

OK, so for every 10 MW wind project, does that means that there needs to be a dedicated 10 MW gas facility? YES!

Is that happening — e.g. in Texas? NO!

Why not? Because:

- 1 - To maintain the false narrative that wind is inexpensive, wind developers (and their political allies) resisted acknowledging that such augmentation is necessary.
- 2 - Wind developers didn't pay for the augmentation their product *requires* — which they should (i.e. not ratepayers).
- 3 - Since wind wasn't properly paying for it, utility companies said: let's save some money and skip the *necessary* augmentation.
- 4 - The Grid operator (ERCOT) failed to require wind developers to pay for the *necessary* augmentation, or for utilities to provide it.
- 5 - Worse, the Grid operator allowed utility companies to steal from the *Safety Reserve* (!) to absorb the frenetic daily wind fluctuations.

Such theft is totally wrong — and should be illegal — as the Grid Safety Reserve is for *unexpected Demand* or *Supply* changes. Conversely, wind energy is *expected* to continuously change through the day, every day.

The Grid Safety Reserve was never intended to compensate for *continuous, inherent* unreliability. All Grid operators should impose a penalty on any normal operation of their wind fleet that steals from the Safety Reserve — as it jeopardizes all of their ratepayers.

To be clear, this embarrassingly ignorant set of realities is going on in most US Grids. How they get away with it is simple:

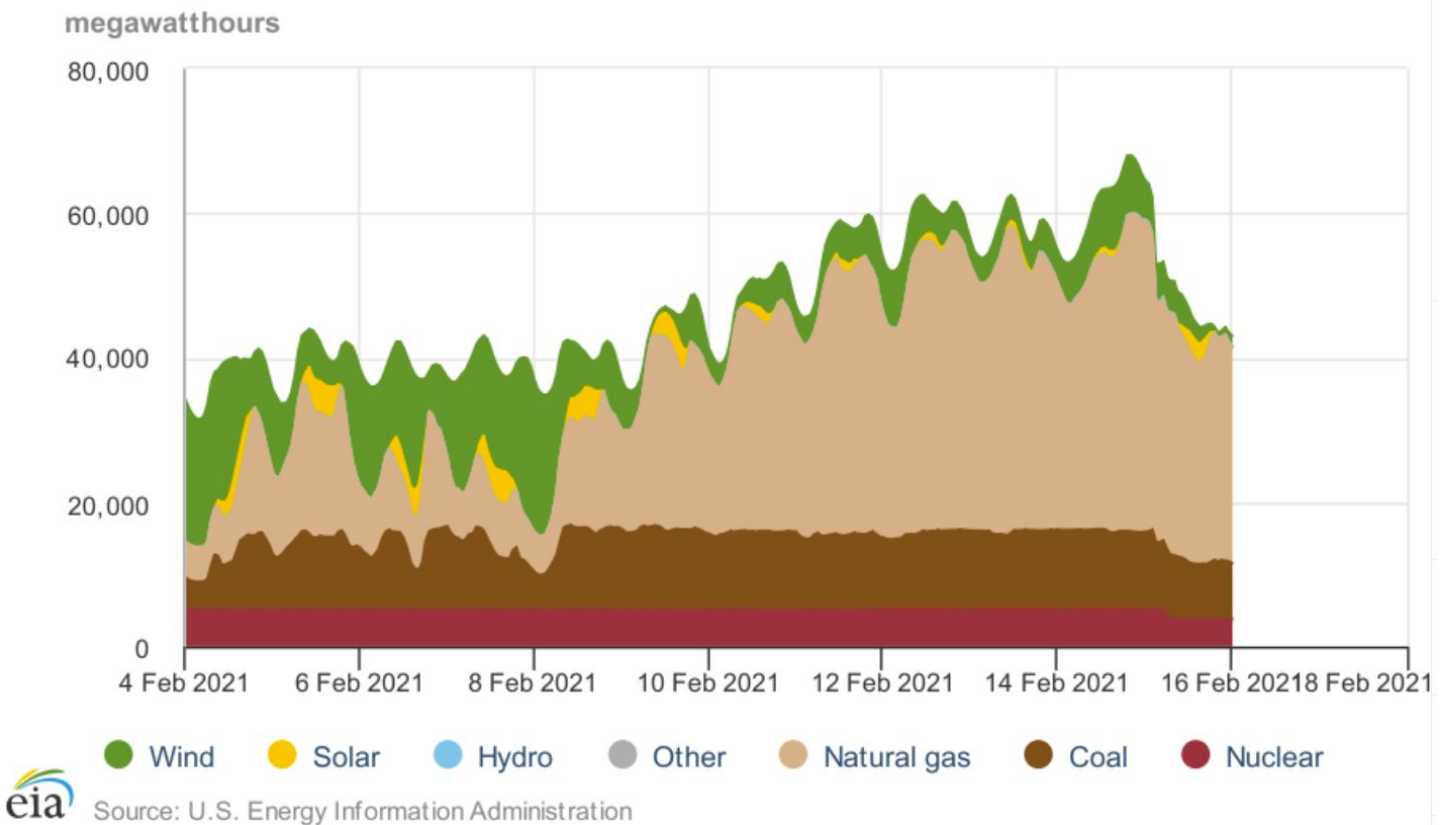
- 1 - The public is deceived about the necessity of augmentation, *and*
- 2 - In most other places in the US, the Wind contribution to the Grid is low single digits — e.g. 5%. In such a scenario, Wind can steal 5% of the 15±% Grid Safety Reserve, and no one will be the wiser. Everybody looks the other way...

However, in the Texas case, Wind energy is claimed to be 28±%. Clearly a 15% Safety Reserve can't handle a loss of 28% — which is exactly what happened this week.

So, when wind goes to near zero in Texas, the Grid will have blackouts — *even if everything else is at full capacity!* If there are also failures of conventional capacity, the situation will be worse.

Look closely at this graphic:

Electric Reliability Council of Texas, Inc. (ERCOT) electricity generation by energy source 2/4/2021 – 2/17/2021, Central Time



This is a visual description of the recent power sources in Texas:

- 1 - Which sources are up and running and carrying 95%± of the load? [*Answer:* Fossil Fuels and Nuclear]
- 2 - How much of that "28%" is wind supplying? [*Answer:* < 5%]

Question: **so which source is to blame?**

Now you know the answer, and who is to blame.

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PS — To be sure there are other secondary sources that have earned chastisement here. Mark Mathis ([Clear Energy Alliance](#)) has a fine list of rogues gallery candidates:

- #1 - ERCOT waited too long to initiate conservation measures. (But those measures wouldn't have been necessary if ERCOT had taken reliability seriously.)
- #2 - Texas rapidly increased its dependence on unreliable wind power from 6% in 2010 to 28% in 2020.
- #3 - Policymakers and ERCOT know that during common weather events (heatwaves, cold snaps, night time, etc.) that wind typically has very low electricity generation — but they kept installing turbines anyway.
- #4 - Between February 8th and the 16th wind power crashed as turbines froze. Coal **increased** by 47% and natural gas **increased** by a stunning 450%. But it wasn't enough as millions of Texans lost power in frigid temperatures.
- #5 - The rush to install industrial wind turbines soaked up so much of the available utility investment capital, that there wasn't enough left for transmission upgrades and infrastructure maintenance. Those infrastructure weaknesses contributed to the Texas blackouts.
- #6 - Wind power is massively subsidized (esp Federally), which has distorted the Texas electricity ratepayer market. This discouraged new investment for reliable critically important base-load power (e.g. nuclear).
- #7 - Wind subsidies have made older base-load power generators unprofitable. Texas has shut down more than 3,000 Megawatts of power from conventional sources over the past few years, while adding 20,000 Megawatts of unreliable wind. This has made the ERCOT Grid far less reliable.
- #8 - Unlike some other Grids, ERCOT is an energy only market — meaning that there is no compensation for reserve power. This discourages that necessity.