

## February 18th, 2021 Re: Testimony in Opposition to SB 2313

Chairman Kreun, and members of the Committee, my name is Ryan Warner. I am the co-owner of Lightspring, an energy technology company in Bismarck.

This is a very timely bill given the recent grid disruptions we've been experiencing. As such, before we get started I'd like to review what happened this week as a way to frame today's discussion.

As most in this room know, grid operators in Texas and the SPP use sophisticated models that draw from historical weather data and electricity usage patterns to manage and predict demand. However, when an unprecedented weather event strikes - like snow and cold weather in Texas - grid demand can skyrocket<sup>1</sup> at the same time that production grinds to a halt.<sup>2</sup>

Digging deeper into this disruption, we now know that the cold and snow in Texas threw nearly 50% of the grid's natural gas generation sources offline.<sup>3</sup> This was due to gas well freeze offs cutting production, as well as weather-related shutdowns and the prioritization of gas line capacity for home heating use. This loss of natural gas due to extreme weather was the equivalent of nearly 26 gigawatts of capacity.

During this time of crisis, renewable resources like wind and solar performed admirably, with output only briefly dropping below projection for extreme contingency planning scenarios.<sup>4</sup>

Sure, it is also true that some windmills did ice up. This is because windmills in Texas are not outfitted with blade heaters to prevent icing. That said, the ones that did not ice up actually over-performed relative to their projected output. All in all, when rolling blackouts started occurring, wind generation was relatively high and solar production was

are the main reasons behind the blackouts in Texas. See <u>https://finance.yahoo.com/news/texas-grid-official-expects-power-142722753.html</u> <u>https://twitter.com/JesseJenkins/status/1361348544154664961</u>

<sup>&</sup>lt;sup>1</sup> ERCOT recorded their largest ever winter electric demand peak on February 14th, 2021. <sup>2</sup> Weather-related outages occurred across all generation sources. According to Dan Woodfin, a senior director for the Electric Reliability Council of Texas, frozen instruments at natural gas, coal and even nuclear facilities, as well as limited supplies of natural gas,

<sup>&</sup>lt;sup>4</sup> <u>https://energycentral.com/c/gr/observations-winter-electric-reliability-event-south-central-us</u>

abnormally high on both Monday and Tuesday this week.<sup>5</sup>

Now, here in North Dakota, SB 2313 seeks to create "grid reliability" by mandating non-dispatchable sources of electricity secure firming contracts to ensure they have enough capacity to meet the "reliability standard". Unfortunately, firming contracts do not actually increase reliability.

This is because firming contracts are basically a form of insurance for non-dispatchable resources that allow them to guarantee capacity in their power purchase agreements even during times when the wind is not blowing or the sun is not shining.

But insurance is a form of financial hedging; it does not prevent catastrophe, it is simply a compensation mechanism that kicks in after a catastrophe happens. Much like life insurance doesn't prevent you from dying, the firming requirement in SB 2313 will not prevent the grid from failing.

In fact, all the firming requirement does is require that renewable energy subsidize the uneconomic operation of coal-fired power plants<sup>6</sup>. Even if this same law was in place in Texas last week, that grid would have still failed because the supposedly "dispatchable" energy of natural gas and coal was unable to dispatch due to the weather conditions.

You might be asking, well, what does create reliability?

That's simple, reliability is a function of diversity. This is because all energy sources can be disrupted, and therefore being overly dependent on any one source just isn't smart. If half of your capacity is in natural gas - like the grid in Texas - then adding more natural gas actually provides diminishing returns for reliability.

In short, accounting for correlated outages like the kind that occurred in Texas and in the SPP this week indicate that generation diversity is the best way to manage unpredictable severe weather events.<sup>7</sup>

Conversely, SB 2313 - if implemented - would actually result in less generation diversity because the firming requirement foists regulatory and monetary hurdles onto renewable resources. In other words, this "grid resiliency" bill will actually make our grid less resilient!

<sup>&</sup>lt;sup>5</sup> This is likely because the efficiency of solar panels is markedly improved by cold weather.

<sup>&</sup>lt;sup>6</sup> Basin's Coal Creek power plant is estimated to have lost over 21 million dollars between 2015 and 2017 due to running the plant when it would have been cheaper to purchase power from the market instead. See

https://www.cureriver.org/wp-content/uploads/2020/02/UCS-Issue-Brief-Minnesota-Electric-Cooperativesand-Out-of-State-Coal-Plants.pdf

https://www.andrew.cmu.edu/user/fs0v/papers/CEIC\_17\_02R1%20Resource%20adequacy%20risks%20t o%20the%20bulk%20power%20system%20in%20North%20America.pdf

In closing, the lesson learned from this week is that grid disruption is caused by severe weather events. Severe weather events are more and more frequent due to the rate of climate change. Climate change is accelerating due to the amount of CO2 and other greenhouse gases that we are releasing into the atmosphere. And burning fossil fuels to create electricity is one of the biggest sources of atmospheric CO2 in the world.

In other words, burning fossil fuels to create electricity over the last 80 years started a chain reaction that has directly led to the grid disruptions of today.

This bill seeks to create "grid reliability" by forcing renewable energy to subsidize the market failures of coal. Given that the grid is threatened most by severe weather events and that these events have increased in frequency due to the climate change spurred by burning fossil fuels, this is a little like starting a fire one day, and then coming back the next day and claiming that you are the only one who knows how to put it out. No, I don't think so, we need a diverse set of solutions to put this fire out. And we definitely shouldn't put additional regulations and costs on the very sources of electricity that are actually helping the most put out this fire.

As such, I urge the committee to move forward with a DO NOT PASS designation for SB 2313.