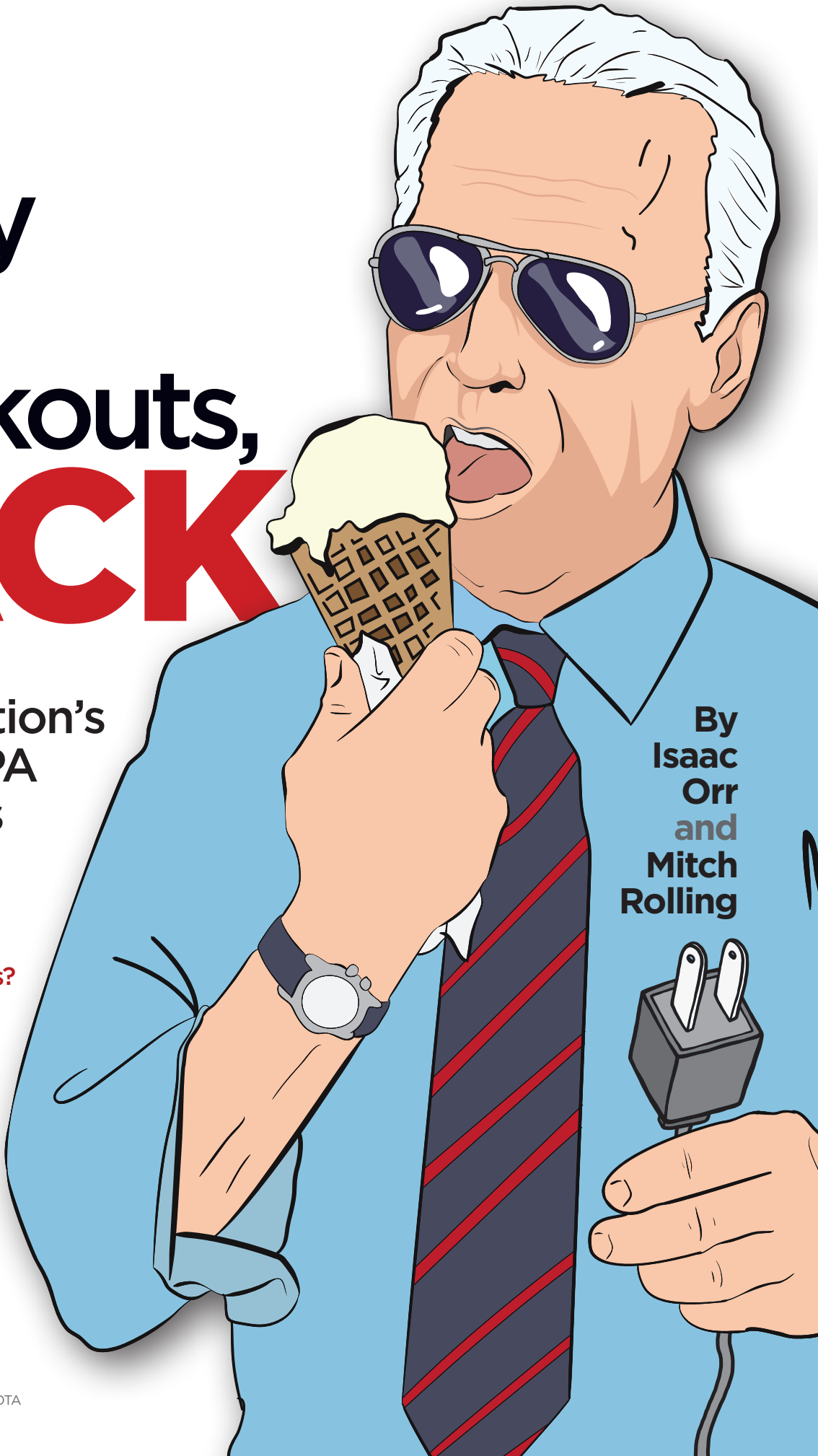
Enjoy the Blackouts, JACK

The Biden administration's reckless EPA regulations endanger us all.

By Isaac Orr and Mitch Rolling



Build back blackouts?

"I'm here to shut down reliable power plants and eat ice cream, and I'm all out of ice cream. Enjoy the blackouts, Jack." —President Joe Biden, probably.

Get ready for rolling blackouts and melted ice cream due to an onslaught of new Environmental Protection Agency (EPA) regulations that will kneecap the reliability of the American electric grid.

According to Biden EPA

administrator Michael Regan, the agency's goal is to force coal and some natural gas plants to endure deaths by a thousand cuts, piling so many onerous new rules and regulations onto the utility industry that plant owners decide to shut down or limit power generation from these reliable assets, rather than retrofit them with pollution control equipment, in favor of building unreliable wind and solar generators.

Posing the biggest threat to grid reliability among the EPA's onslaught of reckless regulations are the agency's proposed rules limiting carbon dioxide emissions from new and existing coal and natural gas-fired power plants. The EPA believes these regulations and the so-called Inflation Reduction Act (IRA) will fundamentally transform the electric grid by causing the retirement of nearly all of the coal plants on the regional electric grid to which Minnesota belongs — the Midcontinent Independent System Operator (MISO) — within the next 10 to 15 years. The EPA assumes these power plants will be replaced with unreliable wind turbines and solar panels.

The breakneck speed and broad scope of the EPA's rules prompted four of the largest power grid operators in America, which serve all or part of 30 states and 155 million people, to take the unprecedented step of warning the agency that its proposed regulations could undermine the reliability of the U.S. electric system.

These warnings are important and appreciated, but the grid operators didn't conduct the modeling necessary to show just how devastating the regulations would be to the reliability of the electric grid. American Experiment jumped at the opportunity to conduct this analysis of MISO on behalf of the North Dakota Transmission Authority (NDTA), making us the only organization in the country, that we are aware of, to conduct this deep dive on the impact of the rules.

On the brink of blackouts

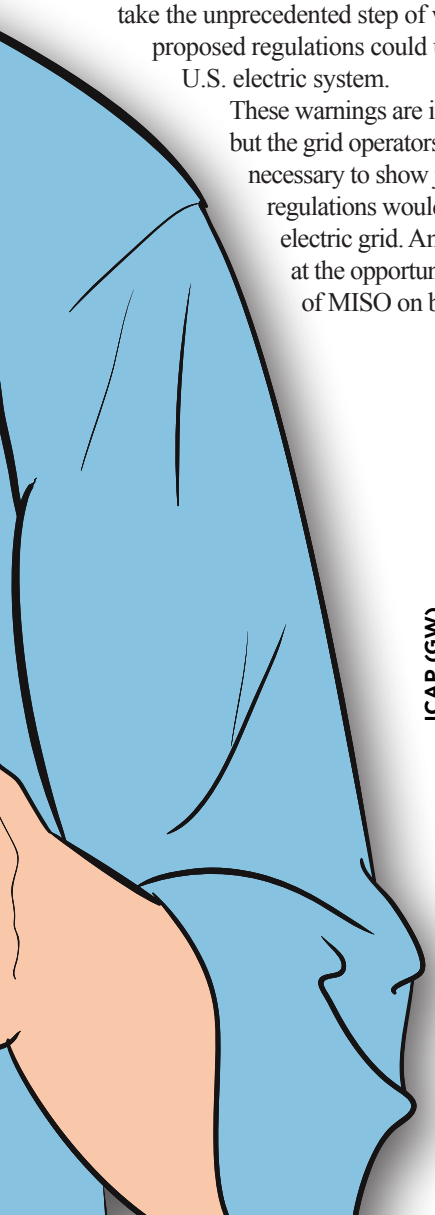
First, it's helpful to recall the current state of the electric grid in the United States, generally, and MISO, specifically: It isn't good.

Since the summer of 2020, rolling blackouts have affected California, Texas, the Southwest Power Pool (SPP) — a regional grid that includes all or part of 13 states spanning North Dakota to New Mexico — and the Southeast, including portions of Alabama, Mississippi, North Carolina, South Carolina, and Tennessee.

Furthermore, the North American Electric Reliability Corporation (NERC), the organization responsible for developing and enforcing electric reliability standards for the United States and Canada, warned last summer that two-thirds of the country, including MISO, was at an elevated risk of power outages if electricity demand had been higher than normal.

Blackouts are a growing risk because too many conventional power plants — those powered by reliable coal, natural gas, or nuclear fuels — are being retired due to state and federal energy policies, eroding the margin of safety the country once had. At the same time, electricity demand is growing as lawmakers attempt to "electrify everything" by mandating electric vehicles (EVs) on the roads and banning the use of natural gas for home heating and cooking.

In short, policymakers are burning the reliability candle at both ends, and the Biden administration's EPA regulations will only throw fuel on this fire.



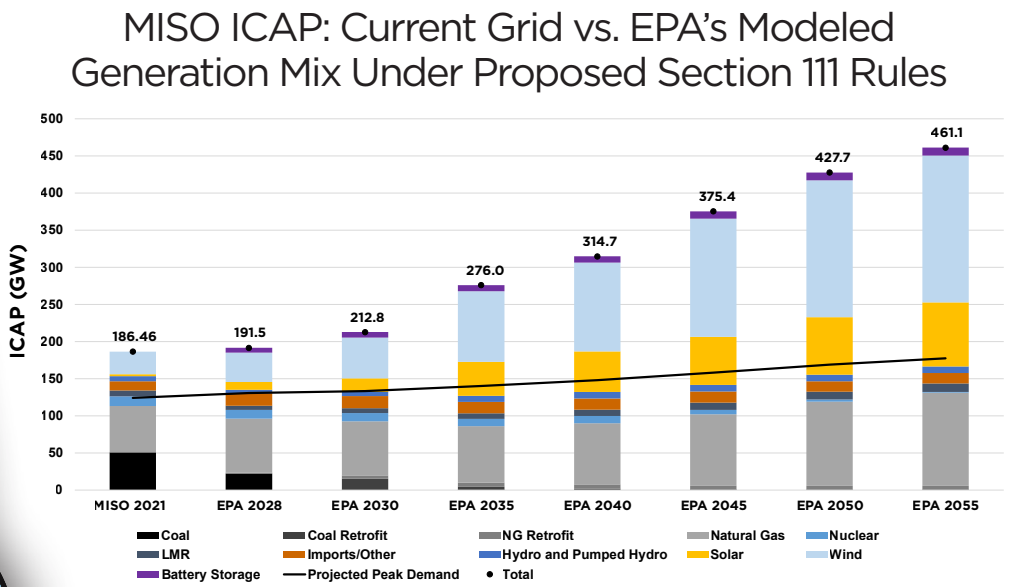


Figure 1. The EPA assumes the amount of power plant capacity will increase by a factor of 2.5, or 250 percent, but electricity demand will only grow by 43 percent.

Data Source: Integrated Proposal with LNG Update

About the regulations

The EPA proposed the new carbon dioxide regulations on new and existing coal and natural gas power plants in May of 2023. The EPA claims the proposed rules will not force coal or natural gas-fired power plants to shut down. Rather, these facilities can remain operational past 2040 if they reduce their carbon dioxide emissions using carbon capture and sequestration equipment or, in the case of natural gas plants operating in a baseload capacity, co-firing with so-called "green hydrogen."

The problem is neither carbon capture and sequestration technology nor so-called "green hydrogen" have been demonstrated to work at the scale that the EPA is mandating, leaving coal and natural gas plant owners with few options besides shutting down or reducing the hours the plants operate.

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Even the EPA doesn't seem to believe that its regulations are attainable. Looking into the agency's own modeling assumptions reveals that it expects these regulations and the IRA subsidies for wind and solar to force the closure of nearly all the coal plants in MISO by 2035, and the agency assumes virtually zero hydrogen-burning plants will be in operation in the future, as shown in Figure 1.

Instead, the EPA assumes a massive increase in the number of wind turbines, solar panels, and battery storage facilities will be built to meet rising electricity demand in the future and to replace the coal and nuclear fleets that the agency believes will shut down by 2055. This leaves the MISO region dangerously dependent on the whims of the weather to maintain grid reliability.

Rule by regulator

The EPA is mandating large changes to the electric grid in a short period of time. Any reasonable person would think that a regulation with such broad implications for the American electric grid should be subject to a thorough and transparent reliability analysis to ensure these changes won't cause rolling blackouts.

However, the EPA never analyzed how IRA subsidies for wind and solar or its carbon dioxide regulations would affect the reliability of the electric grid; ***it simply assumed the grid would be reliable***. This baseless assumption is so unbelievable that our jaws dropped when we read it in EPA documents discussing the rules.

It doesn't seem possible that a small group of unelected bureaucrats at the EPA could be allowed to mandate such massive changes to our electric grid — and our way of life — without having to do a basic reliability study and transparently show their work to the American people, but this is how our system currently operates. This "rule by regulator" is disheartening at best and depressing at worst.

The only way to fight back against these EPA regulations is to do the government's job for them by modeling the impact of these rules and explaining why they are unworkable in a public comment period. This is why Mitch Rolling and I jumped at the opportunity to work with NDTA analyzing the impact of these regulations on the reliability and cost of electricity in MISO and submitting our findings as part of the formal rulemaking process.

Running the numbers on reliability

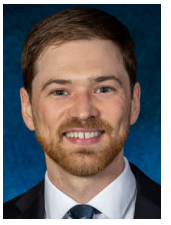
We understood the EPA would try to ignore or discredit our work, so we crafted our reliability analysis to be as bulletproof as possible. To this effect, we used the EPA's own assumptions for what the MISO grid and electricity demand would look like in the future (Figure 1) and compared this installed power plant capacity to historical hourly fluctuations in electricity demand and wind and solar output from 2019, 2020, 2021, and 2022.

Our thought process was simple: If the EPA's MISO grid of the future can't handle historical conditions, we should have zero confidence that the EPA's modeled grid would be able to keep the lights on in the future. The numbers show that the EPA's grid was not able to keep the lights on using *any* of these historical comparison years and that some of the capacity shortfalls that would occur would be absolutely devastating.

For example, MISO would experience multiple 12-hour blackouts in January 2040 if wind and solar are as unproductive as they were in 2021, illustrated in red in Figure 2. One of the blackouts would be so large that it would account for nearly 20 percent of the electricity demand on the grid, an amount so massive that it would entirely black out Wisconsin and Minnesota at the same time.

Power outages of this size and scope would almost certainly be deadly. More than 246 people died in Texas during Winter Storm Uri in February 2021, when blackouts cut power to 4.5 million people. The winter blackouts stemming from the IRA subsidies and Biden's EPA carbon dioxide regulations would affect nine to 10 million people in a part of the country that experiences harsher winters than Texas, increasing the odds of fatalities, frozen pipes, property damage, and billions of dollars in economic losses.

The massive blackouts happen for a



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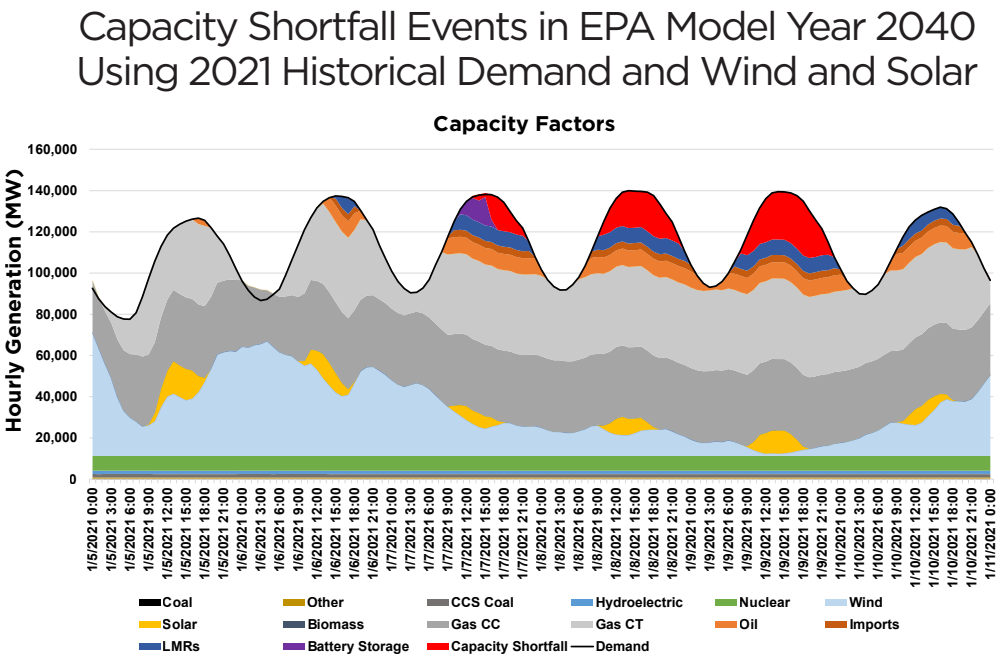

Figure 2. Massive blackouts would occur in 2040 if MISO wind and solar conditions are the same as they were in 2021.

few reasons. The biggest reason is that the wind turbines and solar panels that the EPA assumes will exist in MISO in 2040 aren't producing enough electricity to meet demand. Historical data show wind generation falls throughout the week, solar generation is low in winter due to short days and snow cover, and the battery storage facilities on the grid, shown in purple in Figure 2, aren't large enough to make up for their loss.

Falling wind and solar output wouldn't be a problem if there were enough natural gas plants on to ensure the lights stay on even if there is zero electricity being generated from these sources. The EPA's modeling didn't build nearly enough natural gas plants to replace retiring coal plants *and* meet future growing electricity demand.

As a result, these regulations would endanger everyone by leaving us vulnerable to massive winter blackouts when the weather isn't cooperating.

The true cost of the EPA's regulations

It's one thing to demonstrate that these regulations, as currently drafted, would cause dangerous blackouts, but we also wanted to calculate the true cost of these proposed rules.

To do this, we modeled how much additional wind, solar, natural gas, and battery storage capacity would be needed to prevent blackouts from occurring based on the historical performance of these resources in 2019, 2020, 2021, and 2022, and meet the reductions in carbon dioxide emissions that the EPA assumes will occur because of IRA subsidies and its proposed regulations.

We found that achieving these two criteria would require a much bigger electric grid than the EPA anticipated. In total, the MISO grid would need to add an additional 146 gigawatts (GW) of capacity — enough to meet Minnesota's current peak power demand eleven times — relative to the EPA's assumptions to meet these two criteria. This means the grid shown in Figure 1 would need to be 32 percent bigger.

Building this extra capacity would cost an additional $246 billion compared to the EPA's assumed grid. This would cause electricity prices for families and businesses to increase by about 32 percent, which equates to approximately $170 every year for each of the 45 million people living in the MISO region. For a family of four, this is an extra $680 per year.

Not only would these regulations impose an extreme financial burden on families that are already struggling to make ends meet, but the costs of complying with these regulations would far exceed the benefits. In fact, our analysis found that these regulations would result in annual compliance costs of $7.7 billion in MISO, which far exceeds the EPA's estimates of $5.9 billion per year in net benefits *for the entire nation*.

It is important to remember the EPA's annual net benefit calculations include the agency's calculation of the benefits of reducing greenhouse gas emissions to prevent future temperature increases. This means that the cost of reducing emissions in MISO alone would far exceed the administration's estimated climate benefits for the entire country.

What happens next?

American Experiment submitted our comments to the Federal Register on August 8, 2023. For the next several months, the EPA will read and respond to the comments that have been submitted as part of issuing a final regulation sometime in 2024, which will become the law of the land unless it is stopped as the result of a lawsuit. These legal battles will almost certainly end up at the U.S. Supreme Court in what will be a landmark decision with wide-ranging implications for the future of energy policy in America.

Conclusion

The Biden EPA has set the United States on a crash course with energy reality by regulating dependable power plants out of existence and stacking the deck in favor of unreliable wind and solar generators that are not up to the task of powering our modern lives. Our modeling suggests winter blackouts and skyrocketing electricity prices will be the inevitable end result.

It is an outrage that the EPA can impose such sweeping and dangerous regulations with so little input or oversight from the American people or their elected representatives. Most Americans probably don't even know that the EPA is crafting these regulations, but they'll find out when the lights go dark.

It's truly the EPA versus the grid right now. Enjoy the blackouts, Jack. ★