

**Testimony of
Michael J. Nasi
Partner, Jackson Walker LLP**

**Before the U.S. House Committee on Energy and Commerce
Subcommittee on Environment, Manufacturing & Critical Materials
“Clean Power Plan 2.0: EPA’s Latest Attack on America’s Electric Reliability”
June 6, 2023**

SUMMARY

- I. THE ELECTRIC GRID IS IN CRISIS
 - a. Recent Events Prove that Losing Reliable & Resilient Power is a Growing Problem
 - b. NERC & RTOs Across the Country Are Expressing Serious Concerns
 - c. Other EPA Rules Are Accelerating this Problem at an Alarming Pace
- II. EPA’S NEW CARBON RULE WILL MAKE A GROWING PROBLEM UNTENABLE
 - a. It Will Devastate the Remaining Coal Fleet
 - b. It Will Significantly Contract the Existing Gas Fleet
 - c. It Will Chill Investments in Desperately-Needed New Large Gas Plants
- III. LIKE THE CLEAN POWER PLAN, THE RULE TRIGGERS “MAJOR QUESTIONS”
 - a. EPA’s BSER is Dependent Upon Too Many “Outside the Fence” Factors
 - b. EPA is Mandating a Transformation of the Entire U.S. Electricity System
- IV. WHETHER OR NOT GOVERNED BY THE MAJOR QUESTIONS DOCTRINE, THE RULE VIOLATES SEVERAL SECTIONS OF THE CLEAN AIR ACT & EPACT05
 - a. No “adequate demonstration” as required by 111(a)(1) and (b)(1)
 - b. Violates 111(b)(5) prohibition against requiring installation of “any particular technological system of continuous emission reduction”
 - c. Relies upon subsidized projects precluded from consideration under EPAct05
- V. EPA’S NEW CARBON RULE IS COERCIVE, NOT COOPERATIVE, FEDERALISM
 - a. BSER that Forces the States to Abide is Not How 111(d) is Supposed to Work
 - b. EPA’s “Presumptive Factors” Effectively Preempt the States’ Statutory Role to Consider the Remaining Useful Life of Coal Plants
- VI. EPA’S NEW CARBON RULE IS ALL PAIN, NO GAIN
 - a. Future U.S. Power emissions do not move the needle on global CO2 concentrations
 - b. The lack of global impact arguably necessitates an updated “non-significant contribution finding” under Section 111(b)(1)(A)

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INTRODUCTION & OVERVIEW

Chairman Johnson, Ranking Member Tonko, and members of the Subcommittee, thank you for the opportunity to testify today about EPA’s new proposal to limit greenhouse gas (GHG) emissions targeting carbon dioxide (CO₂) emissions from new and existing electric generating units (hereinafter EPA’s [New Carbon Rule](#)). As an environmental lawyer over the last three decades who has celebrated the success of the Federal Clean Air Act (FCAA) in courts, companies, and classrooms alike, I regret that this rule proposal is yet another example of a recent trend of the agency departing from its statutory role of environmental regulator under the FCAA and becoming an arm of the White House that mandates energy policy. Despite rhetoric that this rule is all about technology, its legal and technical flaws expose its true motivation - anti-fossil fuel ideology.

As a practitioner with 20 years of experience in the development and deployment of carbon capture utilization and storage (CCUS) policies and projects, I am aware of its promises and challenges. I am also involved in hydrogen hub discussions and business plan development in Texas and beyond, so I am also no stranger to the promise and problems of expanding the role of hydrogen in the power sector. Throughout the years of my work in the power sector, I have had a front row seat to the recent degradation of our once-reliable and resilient electric grid and have first-hand personal and professional experience with the consequences of what happens when energy system transitions are forced too fast and real human beings suffer the consequences.

It is with that background that I come before you today to express fundamental legal concerns about EPA’s new carbon proposal and to point out the immediate and lasting adverse impact it will have on our nation’s electric grid, our economic security and the rule of law.

In my testimony below, I provide a review of key events, grid studies, and grid operator statements of concern to give a sense of the state of our electric grid because it is essential to have that in mind as we consider the impacts of the New Carbon Rule. I am heavily involved in multiple EPA rule dockets—each of which threaten grid reliability because they will accelerate the retirement of coal (and some gas) plants, but none is more threatening to the grid as EPA’s New Carbon Rule. The Rule threatens our grid because it impacts our fleet in 3 dramatic ways:

1. It will devastate most of the 155 GWs of coal units not planning on retiring by 2032 by inserting immediate uncertainty about continued investments to keep plants open due to the infeasibility and cost associated with permitting, constructing and deploying CCS equipment and pipeline and injection infrastructure by 1/1/2030;
2. It will force the retirement or significant curtailment of 136-204 GWs of the existing gas fleet because of mandates to either down-dispatch or deploy unprecedented co-firing of a “low-GHG hydrogen”—a fuel that does not yet exist at scale—at a rate of 30% by 2032 and an unfathomable 96% by 2038. If the hydrogen pathway is not selected, existing gas

units must deploy CCS by 2035 at a scale and in a timeframe that is fundamentally unachievable;

3. It will chill investment in new large gas plants that are subject to these unproven technologies, which will effectively preclude us from filling the void being left by continued retirements of coal, nuclear, and older gas plants.

One of the graphics I include below depicts the compressed timeline that will force decisions that will lead to many premature retirements on the front end and compress compliance timelines that will drive wide-scale retirements of both coal and gas-fired generation on the back end.

I also address below the fact that, like the Clean Power Plan, EPA's New Carbon Rule triggers "Major Questions" and its provisions run afoul of the Supreme Court's decision in *West Virginia v. EPA* for two basic reasons:

1. EPA's Best System of Emission Reduction (BSER) determination is dependent upon too many factors outside of the control of power plant owners, and
2. It effectively mandates the transformation of the entire U.S. electricity system because it assumes the deployment of H₂ and CCS pipeline infrastructure that will take years to finance and construct and have to overcome regulatory and land access challenges, not to mention the first-of-its kind supply of "low-GHG" hydrogen that does not currently exist and will require massive quantities of water and zero-carbon power supplies to be created.

More legal issues are discussed further below but it is important to address up front the comparison that we have heard from some advocates that compelling use of CCS is analogous to compelling use of SO₂ scrubbers. In my almost three decades of working on pollution control projects at power plants, including both scrubbers and CCS, I fundamentally disagree with that comparison for two reasons:

1. When the wet scrubber mandate was put in place in 1971, there were 3 unsubsidized scrubbers controlling over 695 operating MWs of capacity and 15 more under construction on over 3,300 MWs throughout the fleet.

In contrast, the CCS projects relied upon by EPA in the current rule are heavily subsidized, slipstream projects that have experienced operational issues with nowhere near the amount of actual "in-construction" projects as was the case with scrubbers, and most involve the support of oil revenues from enhanced oil recovery (EOR) projects—making them CCUS projects, which appear not to be authorized under the New Carbon Rule; and

2. Power plants could control all the variables involved in handling the byproducts of scrubbers (otherwise known as flue gas desulfurization [FGD] material). They had existing coal ash handling systems and management units and we were able to size/enlarge those systems to accommodate management of the FGD on site.

By contrast, CCS will require a revolution in CO₂ pipeline construction, geologic characterization, and deep well injection before a single ton of CO₂ can be captured in a way that meets the standard. Only a select few plants sitting on top of already-permitted, ideal geology will have a chance of making the January 1, 2030 compliance date.

DISCUSSION

I. STATE OF THE GRID

From the outset, before I articulate the many legal and technical problems with EPA’s New Carbon Rule, the clear and present threat of this proposal to the reliability and resilience of our grid must be confronted because that threat, in and of itself, warrants immediate action to urge the Administration to revisit its approach. What follows is a brief “state of the grid” overview to provide context for just how dangerous EPA’s New Carbon Rule is.

A. Recent Events Prove that Losing Reliable & Resilient Power is a Problem

There are several examples that could be cited from the past decade as discrete examples of how our electric grid’s reliability and resilience has been degraded due to the loss of dispatchable thermal capacity. What follows is a very brief overview of the two most striking examples: *Winter Storm Uri* (February 2021) and *Winter Storm Elliott* (December 2022). Winter storms warrant heightened concern because power outages during sustained cold weather are a direct threat to human life. They are also a more difficult problem for grid operators to solve when confronted with the risk that fuel-secure coal-fired generation will no longer be available. Even the most optimistic predictions about energy storage do not cover the duration needed to span the sometimes days at a time when the sun does not shine and very little wind blows. Thus, these storms foretell the danger of pushing out fuel-secure, dispatchable coal generation in the manner and at the rate expected if EPA’s current suite of regulations, including the New Carbon Rule, are allowed to proceed.

Winter Storm Uri

Although collective public memory is short, the tragic loss of life and near epic disaster associated with the grid’s performance during Winter Storm Uri in February of 2021 should have been a wake-up call to the nation that over-accelerated energy transitions can have tragic consequences. Massive electricity generation failures were experienced throughout the Electric Reliability Council of Texas (ERCOT) region¹ and across the Midwestern grids operated by the Southwest Power Pool (SPP)² and Midcontinent Independent System Operator (MISO).³ In my home state of Texas, more than 4.5 million homes (including my own) were left without power, most for several consecutive days, which in turn led to critical shortages of food and water. Death estimates ranged from 246 people to as many as 702.⁴ There were also catastrophic economic losses that will have lasting effects for decades with \$80-130 billion lost in Texas alone.⁵

While plenty of finger-pointing and cherry-picking of data occurred in the aftermath of Winter Storm Uri, very few analyses focused on the broader problem the committee is faced with here—the macro impact of losing fuel-secure, dispatchable generation while accelerating the addition of weather-dependent resources. The Texas section of the American Society of Civil Engineers (ASCE, 2022) did the most robust job of focusing on that aspect of the storm and their summary states it bluntly:

¹ https://www.ercot.com/files/docs/2021/02/24/2.2_REVISIED_ERCOT_Presentation.pdf.

² [Comprehensive Review of Southwest Power Pool’s Response to the February 2021 Winter Storm](#) at 40.

³ [The February Arctic Event: Event Details, Lessons Learned & Implications for MISO’s Reliability Imperative](#), at 3

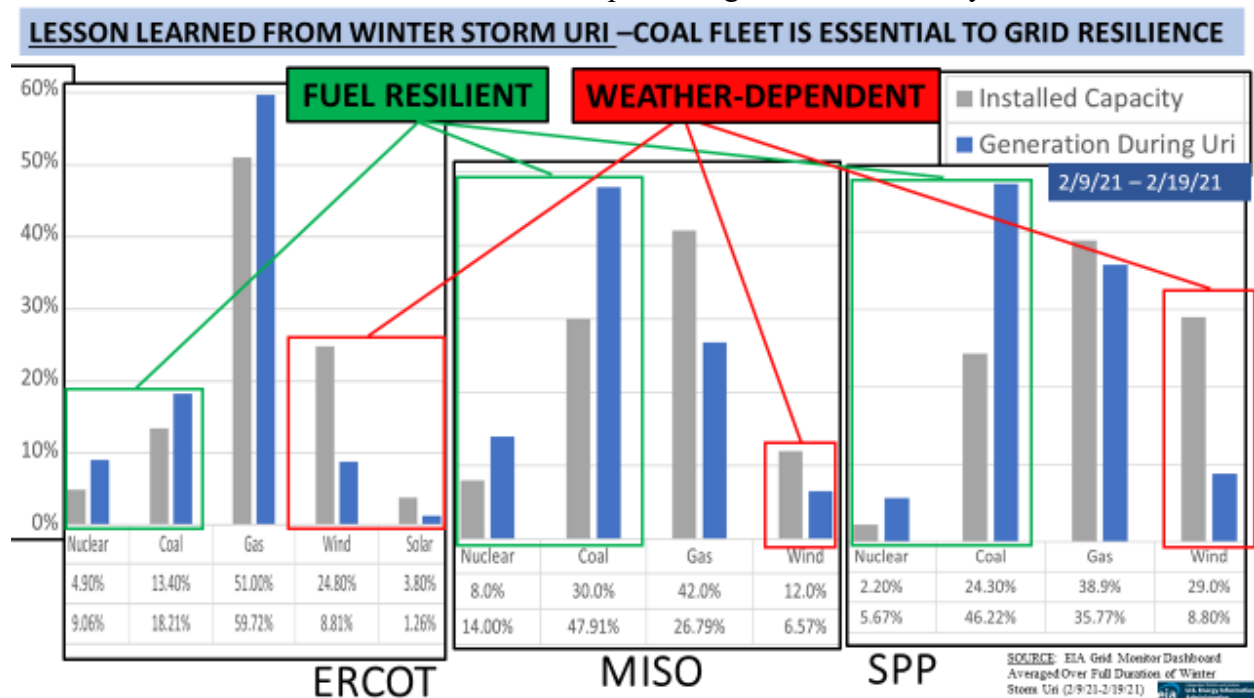
⁴ [Go read this investigation into the real death toll from the Texas freeze - The Verge](#)

⁵ [Winter Storm Uri 2021 \(texas.gov\)](#)

ASCE Texas Section identified two primary and related problems: 1) a failure to support reliable dispatchable power generation, and 2) the negative impact from sources of intermittent electric power generation.”⁶

Other credible forensic analyses show that, even if weatherization and gas supply issues had not occurred, there still would have been a deficiency of thermal capacity to cover the significant demand for electricity when the wind stopped blowing and the sun disappeared for hours (and even days)—a deficit that could have been covered by coal had it not been retired.⁷

The best metric to evaluate how well each part of the power fleet performed when we needed it most is to compare the installed capacity of each type of electricity and the actual generation (or performance) when power was needed most. The figure below graphically depicts what the Energy Information Agency (EIA) data⁸ tells us about which sources performed when we needed them most across the three most impacted regions of our country.



This data reveals that nuclear and coal combined nearly doubled their percentage in the grid during the storm at the most critical hours of need. On the other hand, weather-dependent resources like wind and solar suffered during the entire storm, especially during critical hours. As stated plainly by Oklahoma Governor Kevin Stitt during a press conference during the event:

Renewable sources like wind and solar dropped to almost zero production. Natural gas wells froze, and compressor stations went offline. That left utility companies really scrambling to buy extra energy on the spot market at skyrocketing prices. [...] Wind is normally about 40 percent, and it dropped to 10 percent. Coal in

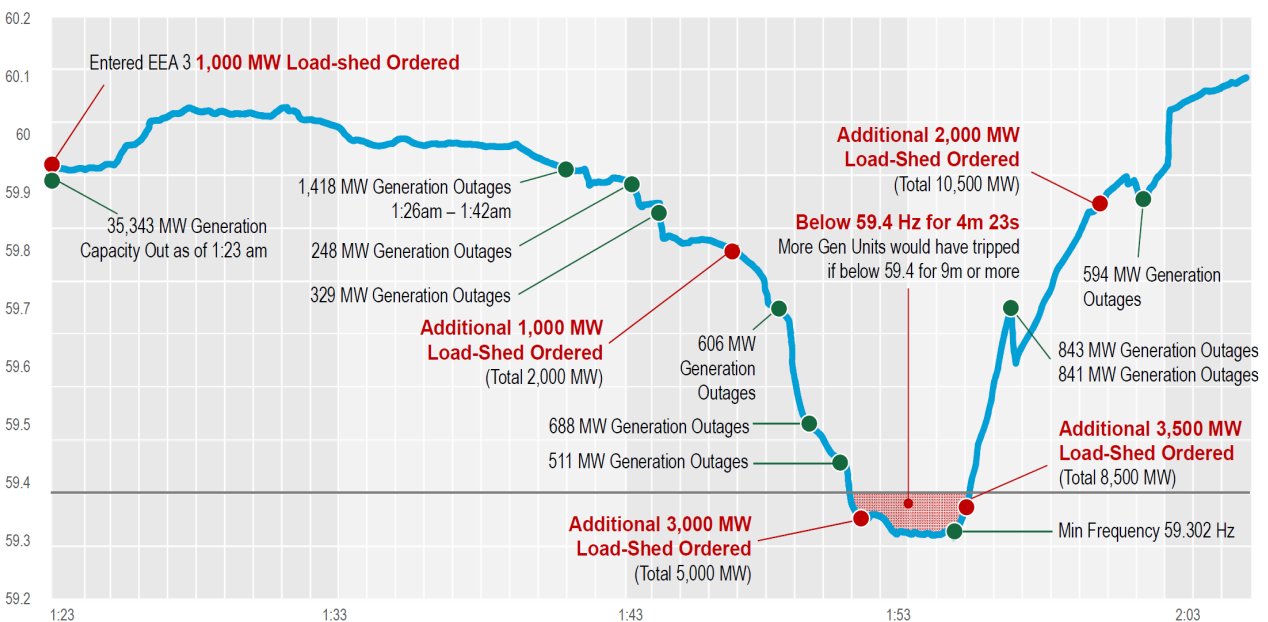
⁶ <https://www.texasce.org/wp-content/uploads/2022/02/Reliability-Resilience-in-the-Balance-REPORT.pdf> at 5.

⁷ [2022-08-RR-LP-PushedtoBrinkElectricGridCrisis](#)-at 21-22.

⁸ U.S. Energy Information Administration, Hourly Grid Monitor Dashboard Averaged Over Full Duration of Winter Storm Uri (2/9/21-2/19/21). Source: [Real-time Operating Grid - U.S. Energy Information Administration \(EIA\)](#)

*Oklahoma is normally 10 percent, and it went to 40 percent. I've talked to several other Governors that coal was really bailing us out in the production.*⁹

Of course, wind and solar are not expected by system planners to perform well when the wind is not blowing and the sun is not shining, but EPA's Clean Power Plan assumed and, now, EPA's New Carbon Rule assumes, that the reliable and resilient backbone of our grid—coal—can diminish to a tiny portion of the grid, and batteries and smaller gas peaking units can fill in the gaps. The problem with EPA's analysis is that it contradicts the opinions of the agencies and operators with actual grid expertise. Lest we forget that the tragic loss of life from Winter Storm Uri could have been much, much worse. As documented by the figure below from ERCOT's analysis¹⁰ and testimony during hundreds of hours of testimony before the Texas Legislature immediately after Winter Storm Uri, the grid in Texas was just four minutes and thirty-seven seconds away in the early morning hours of February 15th from a deadly catastrophe of unprecedented scale, perhaps the worst in U.S. history.¹¹



Winter Storm Elliott

Although not as tragic (and as close to disaster) as Winter Storm Uri, the power outages and system disruptions experienced during Winter Storm Elliott this past winter again reminded us just how precarious our grid is and how losing additional dispatchable coal generation will exacerbate an already dangerous situation. While Winter Storm Uri hit ERCOT, MISO, and SPP the hardest in February of 2021, the biggest issues created by Winter Storm Elliott in December of 2022 were in PJM and the Southeast where three of the major utilities had to implement rolling outages within their systems as electricity demand increased above available generation levels.¹² While there were individual instances where even coal plants were forced offline, of the increased generation that was needed during the sustained cold weather to prevent system collapse, coal

⁹ [OK Gov Stitt on SPP grid: Talked with other Governors and we agree coal bailed us out - YouTube](#)

¹⁰ From "Review of February 2021 Extreme Cold Weather Event – ERCOT Presentation," Electric Reliability Council of Texas, 2021. https://www.ercot.com/files/docs/2021/02/24/2.2_REVISIED_ERCOT_Presentation.pdf.

¹⁰ *Id* at page 18-19.

¹¹ See [Texas' Power Grid Was 4 Minutes And 37 Seconds Away From Collapsing. Here's How It Happened. | KUT Radio, Austin's NPR Station](#)

¹² [PJM generators face up to \\$2B in penalties for failing to run during December's Winter Storm Elliott](#)

provided 38 percent of the critically needed energy nationally (47% in PJM, 39% in SPP, and 37% in MISO).¹³

Again, a detailed forensic analysis of that storm is beyond the scope of this testimony, but the bottom-line statistic that should cause this committee grave concern about EPA's New Carbon Rule is the extraordinary dependence of the grid on the fuel-secure, dispatchable coal capacity that EPA will through rulemaking all-but-eliminate from the U.S. grid in the coming few years.

B. NERC & RTOs Across the Country Are Expressing Serious Concerns

These events and the general degradation of reliability and resilience of our grid due to lost dispatchable capacity have national and regional grid experts raising red flags about the situation. As recently as last week in testimony before Senate Energy and Natural Resources committee,¹⁴ officials from both the North American Electric Reliability Corporation (NERC) and PJM sounded the alarm that the grid cannot afford to continue to lose dispatchable generation at the current rate. The CEO of NERC, Jim Robb, stated plainly:

*Conventional generation is retiring at an unprecedented rate ... NERC is concerned that the pace of change is overtaking the reliability needs of the system. Unless reliability and resilience are appropriately prioritized, current trends indicate the potential for more frequent and more serious long duration reliability disruptions, including the possibility of national consequence events.*¹⁵

The CEO of the grid operator PJM echoed these sentiments when Manu Asthana warned:

*Currently, the nation is developing environmental and reliability policy in separate silos with limited and not very transparent coordination between the environmental and reliability regulators. Increased coordination and synchronization of the nation's environmental and reliability needs may require discrete changes to the statutes governing each agency's mission to embrace this effort.*¹⁶

Similar concerns about the state of the grid and the risk of losing more dispatchable generation have also been clearly stated by multiple other grid operators, including MISO and SPP. In MISO, numerous reports have spelled out the risky situation that is being created by the continued retirement of dispatchable coal and gas and replacement with weather-dependent wind and solar. Of the many compelling graphics that tell that story, this figure from their November 2022 Reliability Imperative Report/Resource Assessment¹⁷ shows how the more they lose dispatchable coal and add wind and solar, the less accredited capacity¹⁸ the system will have to power the grid:

¹³ [2023_02_23-EVA-Winter-Storm-Elliott-Report.pdf \(evainc.com\)](#)

¹⁴ [Full Committee Hearing to Examine the Reliability and Resiliency of Electric Ser... \(senate.gov\)](#)

¹⁵ Written Testimony at [D47C2B83-A0A7-4E0B-ABF2-9574D9990C11 \(senate.gov\)](#)

¹⁶ Written Testimony at [2098C524-7B71-4D39-BFF1-295E6E75BDB7 \(senate.gov\)](#)

¹⁷ [MISO Reliability Imperative – November 2022 Resource Assessment \(misoenergy.org\)](#)

¹⁸ “Accredited capacity” is a measure of a resource's contribution to grid reliability during periods of heightened risk of load shedding.

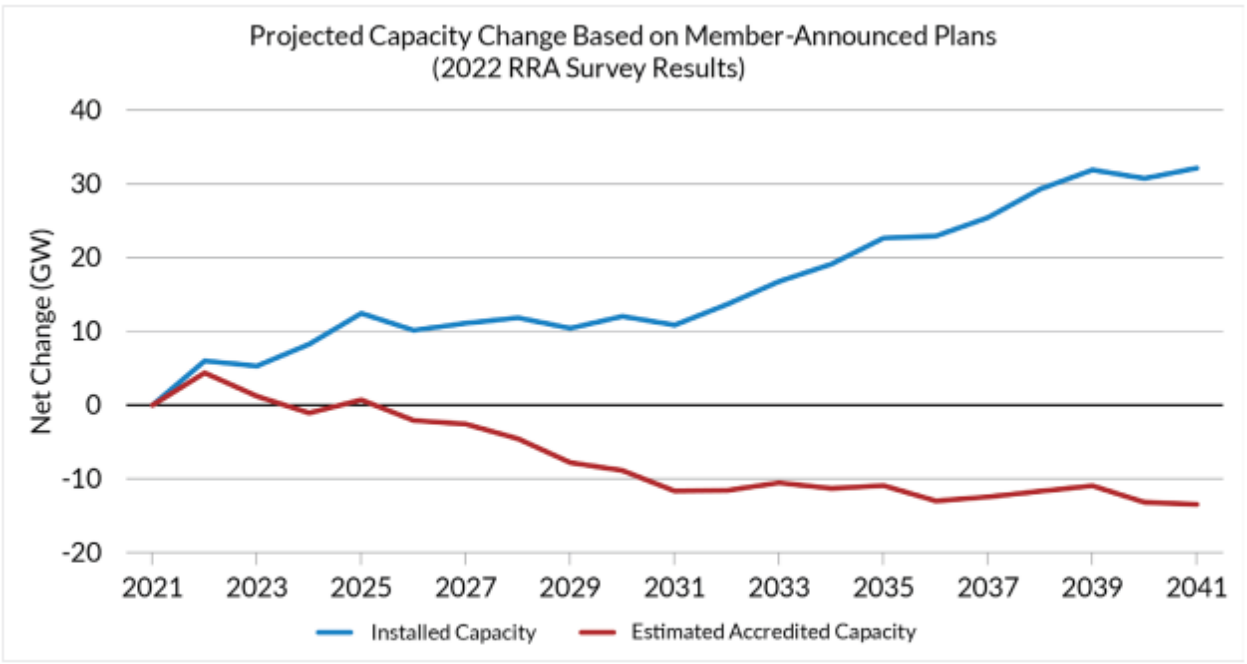


Figure 1: Projected capacity change based on member-announced plans

Like MISO, the staff and state utility commissioners within the SPP are sounding the alarm about the risks associated with the continued loss of dispatchable capacity. This figure¹⁹ from a recent SPP meeting of its Resources and Energy Adequacy Leadership (REAL) Team documents how the planned (not forced) retirement of coal-fired generation will strike a devastating blow to reserve margins (before factoring-in the devastating effects of any of EPA’s new slate of rules):

OPERATIONAL EXPERIENCE



¹⁹ [SPP Documents & Filings - Southwest Power Pool](#)

The stark situation SPP is facing recently led the Public Utility Commission of Texas (PUC) to unanimously reject a new wind and solar proposal in the SPP part of Texas. During the deliberation, Commissioner Will McAdams, who also wrote an explanatory memo,²⁰ stated:

*In my role as the chairman of the [REAL] Team I have seen and heard SPP Staff say that the SPP system cannot afford any more retirements of dispatchable generation. . .*²¹

C. Other EPA Rules Are Accelerating this Problem at an Alarming Pace

Perhaps the most dramatic risk to grid operations from increased retirements of dispatchable generation exists within the ERCOT region where I reside. And federal courts are starting to notice. Without even considering the not-yet-released EPA New Carbon Rule, the United States Court of Appeals for the Fifth Circuit issued a stay on May 1, 2023²² that effectively blocks EPA from imposing federal mandates on Texas and Louisiana under its Ozone Transport Rule Federal Implementation Plan published yesterday.²³ The court based its opinion in part on a compelling declaration from grid operation staff at ERCOT that set out many immediate concerns about the continued retirement of dispatchable capacity from the grid, including:

*The risks associated with the retirements of these units include but are not limited to: the increase in probability that ERCOT will need to direct utilities to shed firm load (i.e., to disconnect customers from the grid) to ensure the reliability of the remaining electric system; the reduced availability of outages for the remaining thermal generation fleet; the reduction in system inertia; and the impact on transmission flows and associated reliability problems . . . ERCOT performed a study to quantify this risk for summer 2026, assuming the retirement of 10,800 MW of coal and gas generation. In this assessment, ERCOT used its Operating Reserve Risk Model to run 10,000 simulations of conditions during this period. ERCOT's assessment concluded that the **probability of the supply of generation being inadequate to serve the demand on the grid** during the 7 to 8 p.m. window at some point in summer 2026 **increased from 4.5% to 40%.**²⁴*

II. CLEAR AND PRESENT DANGER OF THE NEW CARBON RULE TO THE GRID

The above-referenced concerns about the continued loss of dispatchable generation establish a concerning backdrop before we even consider the potentially drastic impacts of EPA's New Carbon Rule. I will now turn to why the subject of today's hearing presents a clear and present danger to the grid well beyond any of the other pending grid-threatening EPA rules. Despite claims by the Administration and eNGOs that the grid impacts of the new rule are far enough out in the future to allay concerns, such claims flatly ignore the already-critical state of the grid and how the timelines associated with this rule and the lead times necessary to build the mandated projects do, in fact, create a clear and present threat to our grid.

²⁰ [Commissioner McAdam's Memo](#)

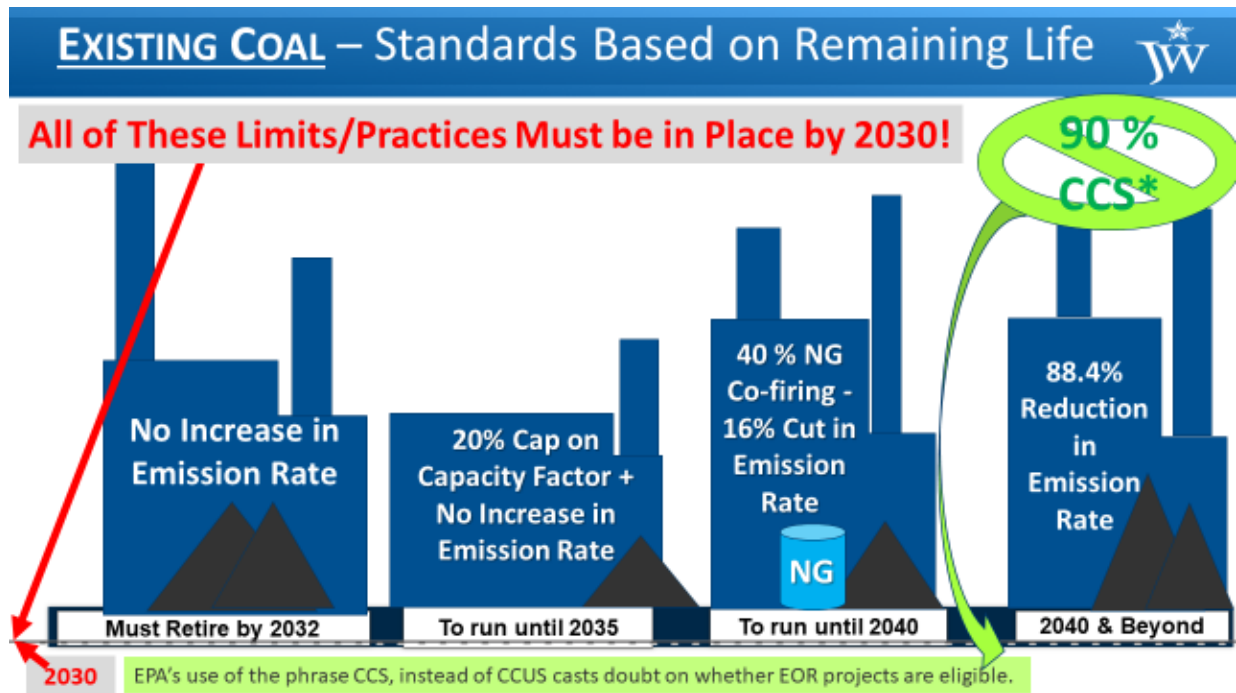
²¹ [May 25, 2023 PUC Open Meeting Broadcast \(Agenda Item No 8\)](#)

²² [Court Order_3.pdf \(texasattorneygeneral.gov\)](#)

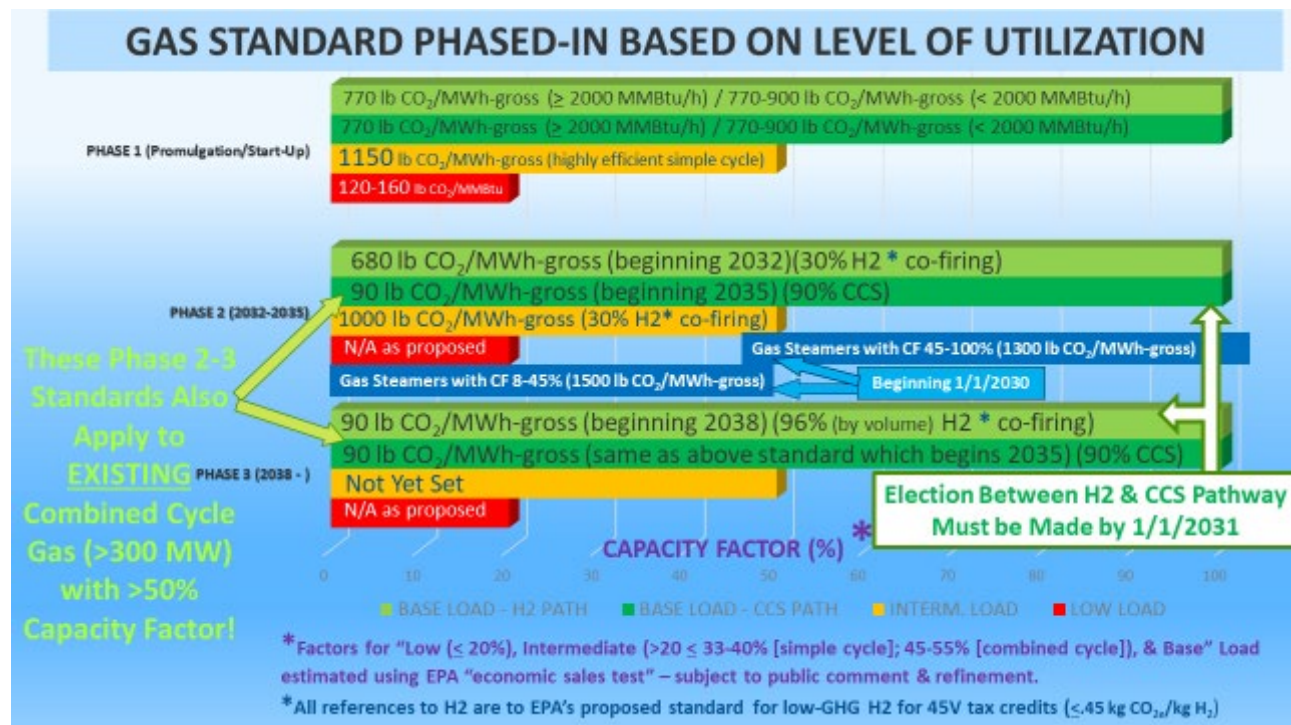
²³ [Federal Register :: Federal "Good Neighbor Plan" for the 2015 Ozone National Ambient Air Quality Standards](#)

²⁴ See also, ERCOT projection of lost coal and gas capacity from EPA Rule: [PowerPoint Presentation \(ercot.com\)](#)

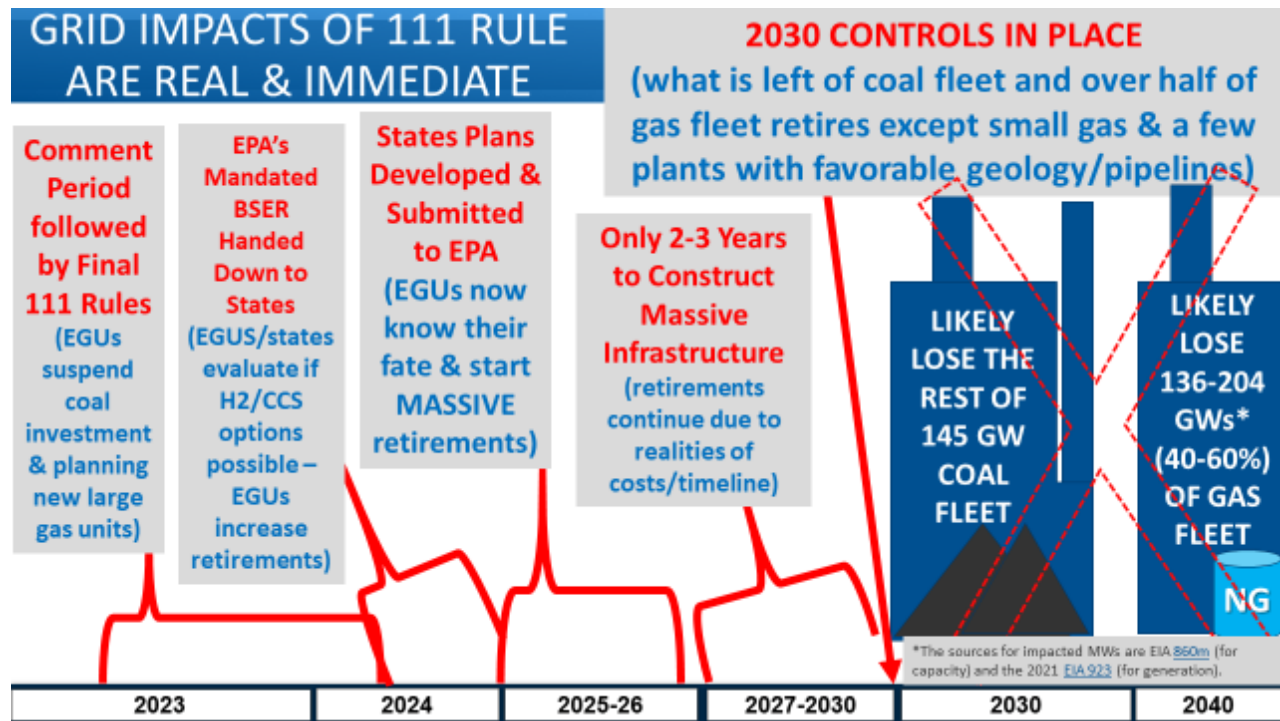
Although the legal defects of these requirements will be discussed further below in my testimony, the graphics below provide context for the timeline graphic which illustrates the immediate threat of this rule to the grid. The first graphic explains how EPA's New Carbon Rule establishes tiers of requirements for existing coal-fired generation depending upon remaining life.



The next graphic depicts how EPA's standard for new and existing gas is broken down depending upon the utilization rate of a given simple cycle or combined cycle combustion turbine.



This final graphic sets out a projected timeline associated with the rule’s implementation with an explanation of the key implementation milestones (in red) accompanied by the real-world decision making that the power sector will be faced with along the way (in blue).



What follows is a more detailed background supporting the summary statements in the graphic.

A. Existing Coal Investments Questioned & Retirements Increase:

55,834 MWs of existing coal is scheduled for retirement prior to 2032.²⁵ An additional 155,110 MWs are at serious risk of retirement due to the New Carbon Rule (including 9,791 MWs that are scheduled to retire after 2032). As discussed more fully below, the expense and uncertainty associated with retrofitting coal plants with CCS will effectively shorten the lives of most existing coal plants. With a shorter horizon during which plant investments can be recovered through rates or market sales, very few plants will be able to economically justify the significant additional capital and O&M costs associated several recently-issued EPA rules (*e.g.*, the Coal Combustion Residuals (CCR) Rule, Effluent Limit Guidelines (ELGs), Ozone Transport Rule, and the Mercury and Air Toxics (MATS) Rule). This will significantly increase the pressure to retire such units as compliance deadlines for other rules approach and will culminate in a large slug of retirements as soon as state plans are approved and seal their fate. An eventual mass retirement scenario of the remainder of the fleet will likely occur in 2030-32 when the compliance dates of the New Carbon Rule are proposed to kick-in. Only a handful of coal plants will remain after 2032 because the economics of running at a 20% capacity factor will force most units that want to continue to operate to co-fire 40% natural gas in order to extend their lives to 2040—something that is not commercially demonstrated across boiler types and, as discussed further below, effectively forces a choice between retirement and CCS. Other than those few plants with favorable geology and/or close proximity to existing CO₂ pipeline capacity, along with the economic capability and market rules to support the multi-billion dollar investment in CCS, the vast majority of what is left of the

²⁵ Data sources three items derived from EIA [860m](#) (for capacity) and the 2021 [EIA 923](#) (for generation).

remaining coal fleet will start retiring in 2030 and be all but gone by 2040. Even the CCS-capable subgroup could be smaller than anticipated given the short timeframe between when they will know what their state's plan requires (2026-27, at the earliest) and January 1, 2030, when they will be required to have the full 90% CCS capture, transport, and storage system up and running.

BOTTOM LINE FOR COAL: beginning in 2030, culminating in 2040, America's grid will have lost almost all of its fuel-resilient, dispatchable backbone provided by coal due to EPA's suite of new regulations (most prominently, EPA's New Carbon Rule).

B. New Large Gas Investments Stalled:

While coal retirements continue to accelerate due to a suite of EPA rules, including the looming deadlines associated with EPA's New Carbon Rule, the high-efficiency, new combined cycle (CC) and heavily utilized simple cycle combustion turbine (SCCT) gas (so critically needed to fill the gap left by retiring coal) is faced with so much uncertainty due to this rule's requirements that investment in new gas will be significantly chilled. I know from personal experience that ongoing Integrated Resource Plans (IRPs) are being held up and even suspended due to EPA's new rule proposal. Large CC and SCCT projects commencing construction after the date of the published proposal (May 23, 2023) became subject to an unprecedented low-GHG hydrogen co-firing requirement beginning in 2032 (30%, increasing to 96% in 2038) or a 90% CCS requirement by 2035. EGUs will not want to build (and banks will not want to finance) new gas projects "at risk" until they know what the final rules will be and whether the infrastructure will be available to even conceive of a compliance pathway that would justify building new gas at scale.

C. Existing Large & Heavily Utilized Gas Plants Lost:

Just as problematic as chilling investment in new gas is the impact of EPA's New Carbon Rule on existing gas-fired generation. As the graphic above and discussion further below detail, existing CC gas with a capacity factor greater than between 45-55% (depending up on the application of EPA's "economic sales test") must comply with the same uncertain and undemonstrated hydrogen co-firing or CCS requirements as new large, high utilization gas units. 194 GWs of existing CC gas (60.6% of the entire existing CC fleet) is currently operating above a 45% capacity factor with 126 GWs (39.3% of the entire CC fleet) currently operating above a 55% capacity factor.²⁶ As coal assets are retired at the increasing rate discussed above, the utilization rate of CC gas will likely rise; thus, increasing the above-referenced estimates of at-risk capacity. Hydrogen co-firing or CCS requirements also apply to SCCT gas units that are utilized at capacity factors between 33-40%. In the current resource mix, that equates to around 10 GWs, but the loss of existing coal and large CC gas will put significant upward pressure on large SCCT gas usage such that the amount of SCCT capacity at risk in that category will increase over time as well. EGUs will not know what their new gas requirements are until 2027, at the earliest, because the states will need the full 2 years allotted to them (if not more) to develop and secure approval of their plans. That will leave far too little time to implement the massive infrastructure projects necessary to make either the hydrogen or CCS pathway feasible.

BOTTOM LINE FOR GAS: the growing deficit of large unit dispatchable capacity, which is being drastically accelerated by EPA and will include significant loss of gas, cannot realistically be filled by new gas given the uncertainty caused by EPA's New Carbon Rule.

²⁶ Data sources for this discussion derived from EIA [860m](#) (for capacity) and the 2021 [EIA 923](#) (for generation).

III. LIKE THE CLEAN POWER PLAN, THE RULE TRIGGERS “MAJOR QUESTIONS”

Like the Clean Power Plan, the Rule triggers “Major Questions” and its provisions run afoul of the Supreme Court’s decision in *West Virginia v. EPA* for two basic reasons:

A. EPA’s BSER is Dependent Upon Too Many “Outside the Fence” Factors

Here, EPA’s BSER assumes the deployment of H₂ and CCS pipeline infrastructure that will take years to finance, overcome regulatory and land access challenges, then finally construct. Pipelines are at least familiar. But EPA also relies upon a non-existent, first-of-its kind supply of “low-GHG” hydrogen that will require massive quantities of water and zero-carbon power supplies to be created.²⁷

The “low-GHG hydrogen” that is required to displace 30% of existing and new baseload (and new intermediate load) gas by 2032 does not currently exist in the commercial marketplace. EPA’s Proposed Definition of “low-GHG hydrogen” references Treasury’s pending IRC section 45V(b)(2)(D) eligibility, monitoring, verification, and reporting protocols for the production of H₂ in compliance with a Well-to-Gate (WG) standard of ≤.45 kg CO_{2e}/kg H₂ (using the Greenhouse gases, Regulated Emissions, and Energy use in Technologies [GREET] model). A supply of what EPA proposes to mandate across the nation by 2032 does not currently exist. IEA projects that:

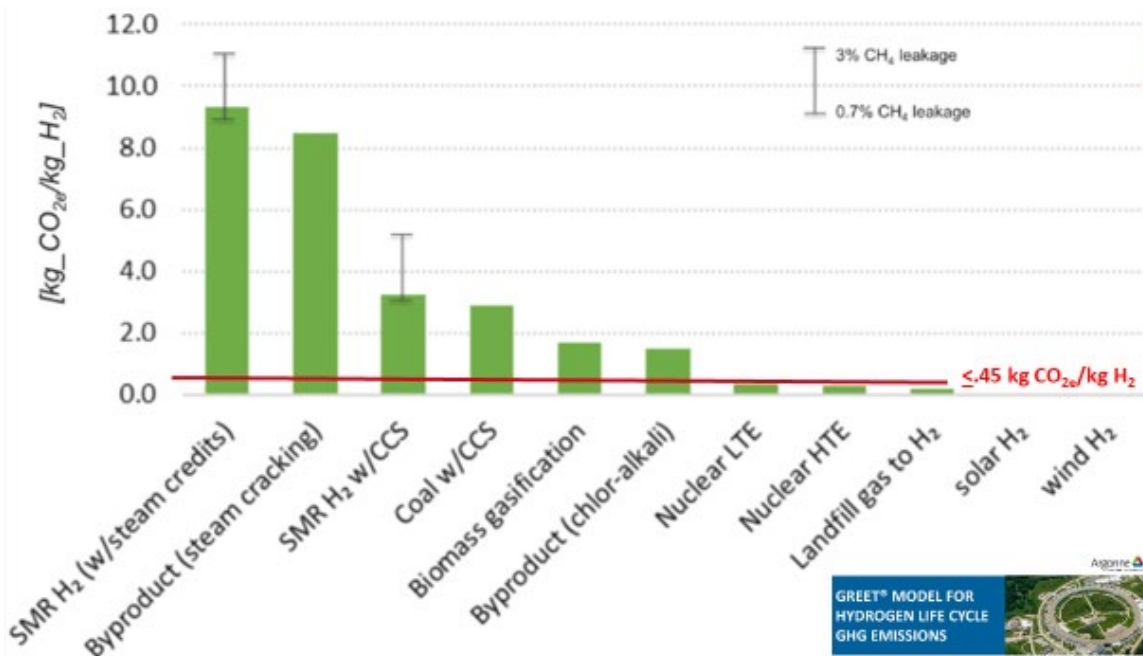
*Practically all dedicated hydrogen production (more than 99%) is currently based on fossil fuels, mainly the steam reforming of natural gas & coal gasification. In 2021, around 70% of the energy requirement for dedicated hydrogen production was met with natural gas & around 30% with coal. China alone accounts for 97% of global coal consumption for hydrogen production. Less than 1% of the hydrogen produced with fossil fuels was from facilities equipped with CCUS. Electricity & biomass met barely 0.2% of the total energy demand for hydrogen production in 2021.*²⁸

The DOE/Argonne Labs figure below²⁹ (with an overlay of EPA’s low-GHG hydrogen standard) demonstrates just how few potential sources of hydrogen could meet their proposed standard:

²⁷ 88 Fed. Reg. 33240, 33311 (May 23, 2023)

²⁸ [Hydrogen Supply – Analysis - IEA](#)

²⁹ [GREET Model for Hydrogen Life Cycle GHG Emissions \(energy.gov\)](#) at slide 8.



B. EPA is Mandating a Transformation of the Entire U.S. Electricity System

EPA’s New Carbon Rule may not, at first glance, appear to involve generation shifting because it does not hard-wire such shifting into its BSER determination like it did in the CPP. But the New Carbon Rule’s BSER depends on fanciful outside-the-fence factors which are, in effect, no different than explicitly calling for shifting. The large-scale energy infrastructure not currently in place and not controllable by individual power plants is just like how the CPP assumed that coal plants could buy from or build lower carbon sources to meet a standard that EPA conceded could not be met with technology applied at or on the source (a.k.a. “inside the fence”). The above shows how massive of an undertaking that is. That EPA’s proposed compliance timelines are nominally so far in the future evidences how unproven the required compliance technologies are today, and so there is a real risk that this undertaking won’t happen in time. So, the effect of EPA’s rule will be effecting generation shifting.

In *West Virginia v. EPA*, the Supreme Court held that courts are guided “common sense” as to the manner in which Congress is likely to delegate power to an administrative agency.³⁰ Common sense dictates that undemonstrated CCS and H₂ systems, like generation shifting, are not the sort of “best system” Congress had in mind when it empowered EPA in Section 111 of the Clean Air Act to compel emissions reductions through application of “adequately demonstrated” technologies. Congress simply has not given EPA this sort of grid-devastating economic and political power, and for good reason.

³⁰ *West Virginia*, 142 S.Ct. at 2609.

IV. WHETHER OR NOT GOVERNED BY THE MAJOR QUESTIONS DOCTRINE, THE RULE VIOLATES SEVERAL SECTIONS OF THE CLEAN AIR ACT & EFACT05

EPA’s action violates three separate statutory provisions—two from the Clean Air Act and one from the Energy Policy Act of 2005 (EPAAct 05).

A. No “adequate demonstration” as required by 111(a)(1)

Section 111(a)(1) of the Clean Air Act requires that the standards in the New Carbon Rule be based on “the best system of emission reduction” that has been “adequately demonstrated” for the source category. EPA has not carried its burden. The historical deference by the courts to the EPA’s selection of other Section 111 standards has centered on two components—on one axis, how much data and support the EPA has, and on the other axis, how much lead time is given to the regulated entities. The more data, including to analogizing to other industries, the more the EPA has leeway in how stringent it can be. And so too with lead time—the more lead time, the more leeway.³¹ EPA’s data is limited and for reasons discussed below, includes subsidized examples that are either strictly forbidden from consideration by EPAAct05 or should not be considered as a matter of Clean Air Act law because they are not commercial. As far as the timeline goes, as discussed at length above, what might appear to be adequate time (with 2030, 2032 and 2038 deadlines) is woefully insufficient when you factor-in the rulemaking and state plan development and approval timeline and the massive amount of planning, financing, permitting, and construction involved with creating a first-of-its kind hydrogen supply and transportation network, as well as a currently non-existent national network of carbon capture, transportation, and storage infrastructure.

In the preamble, EPA grounds the legal basis for its currently undemonstrated standards being “adequately demonstrated” on two court decisions—*Portland Cement* and *Lignite Energy Council*.³² In those cases, the D.C. Circuit held that EPA may look forward “toward what may fairly be projected for the regulatory future” instead of “determining what is available now.”³³ But in both decisions, the D.C. Circuit narrowed its holding with an important preface: that the standards at issue applied to “new plants” or “new sources.”³⁴ But here, as previously discussed, EPA’s standards apply both to new and existing sources.

In short, neither the Clean Air Act nor EPA’s cited court precedent support EPA’s currently undemonstrated standards.

B. Violates 111(b)(5) prohibition against requiring installation of “any particular technological system of continuous emission reduction”

³¹ *Lignite Energy Council v. U.S. E.P.A.*, 198 F.3d 930, 934 (D.C. Cir. 1999); *Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d 375, 391–92 (D.C. Cir. 1973)

³² See, e.g., 88 Fed. Reg. at 33,272.

³³ See, e.g., *Portland Cement*, 486 F.2d at 391.

³⁴ See, e.g., *Portland Cement*, 486 F.2d at 391 (“[S]ince it is addressed to standards for new plants”); *Lignite Energy Council*, 198 F.3d at 934 (“Because it applies only to new sources

Under 111(b)(5), a source must be given the freedom of achieving the applicable emission requirement any way it chooses. EPA has assumed so many unrealistic things about what sources will be able to rely upon outside their facilities that the flexibility they are given is illusory. They simply cannot meet the numbers without the full breadth and scale of the technology and infrastructure installation hard-wired into EPA's BSER.³⁵

C. Relies upon subsidized projects precluded from consideration under EPAct05

EPA cannot use EPAct05-funded projects in showing a technology is "adequately demonstrated" under Section 111 of the CAA. The text of Section 402(i) of the EPAct05 confirms it.³⁶ As one federal court has put it: "[T]he federal government cannot subsidize construction of facilities with the Energy Policy Act and then claim that the facilities for which it paid demonstrate, for Clean Air Act purposes, that the technology is viable."³⁷

EPA has misread the statute to erase Congress's distinction between the viability of the technology and level of emission reduction in the plain text. EPA can use such facilities as additional evidence for "level of emission reduction," but not for the viability of technology like CO₂ capture technology.³⁸ Because the statute is unambiguous, the EPA's interpretation earns no deference.³⁹ What the EPA is trying to "adequately demonstrate" is technology, so only the non-EPAct05-funded facilities can be used to make the demonstration. When those EPAct05-funded facilities are stripped away, EPA is left with smaller, also-subsidized, non-commercial projects that fail to meet the "adequately demonstrated" threshold in section 111(a)(1) to justify a BSER with the scale and timing of the requirements they seek to impose.

V. EPA'S NEW CARBON RULE IS COERCIVE, NOT COOPERATIVE, FEDERALISM

While the Supreme Court in *West Virginia v. EPA*⁴⁰ rejected the CPP before reaching the "coercive federalism" nature of that rule, a notable defect of the CPP was the fact that EPA hard-wired assumptions about how state grids would operate when it derived BSER based on generation shifting for coal-fired power plants. This had the effect of commandeering the state's grid operations because, as EPA acknowledged, no coal-fired power plant could meet the standard being imposed without building or buying from other lower carbon sources of power. In other words, it necessarily assumed those resources would be available on the grid (or built in the future) and did not leave room for states to assume any other energy reality when applying BSER. And, worse, that they did this without any prior consultation with or deference to the states and RTOs that operate the grid.

EPA's New Carbon Rule has a very similar defect because it is, again, hard-wiring assumptions about the energy system into its BSER determination that effectively strips the states of their ability to tether individual source performance standards to the realities of current (or

³⁵ 42 U.S.C. § 7411(b)(5); *see also* *W. Virginia*, 142 S. Ct. at 2601.

³⁶ 42 U.S.C. § 15962(i).

³⁷ *Nebraska v. U.S. Env't Prot. Agency*, No. 4:14-CV-3006, 2014 WL 4983678, at *2 (D. Neb. Oct. 6, 2014).

³⁸ EPA's interpretation turns on applying the word "solely" to all clauses in a series. But that solely only applies to the clause with "level of emission reduction." One way to show that solely does not modify the first clause is to remove the other clauses to show the : "No technology . . . solely by reason of the use of the technology"

³⁹ *Epic Sys. Corp. v. Lewis*, 138 S. Ct. 1612, 1630 (2018)

⁴⁰ *West Virginia*, 142 S. Ct. at 2616.

reasonably conceivable) energy systems. Specifically, EPA’s BSER assumes the existence of large-scale energy infrastructure (e.g., H₂ supply and H₂ and CO₂ pipelines) not currently in place and not controllable by individual power plants—just like the CPP assumed that coal plants could buy from or build lower carbon sources to meet a standard that EPA conceded could not be met with technology applied at or on the source (a.k.a. “inside the fence”). Not only does this run afoul of the *West Virginia* holding, as discussed above, it has the effect of coercing, rather than cooperating with, states as they apply BSER to individual sources.

It is undisputed that the Clean Air Act as a whole, and Section 111(d) in particular, are infused with fundamental principles of “cooperative federalism.” While EPA gets to determine BSER, it is the states that get to decide what individual, existing sources must do to comply. By its clear language and as EPA regulations have long acknowledged,⁴¹ Section 111(d)(1) leaves to the states the job of apply EPA’s BSER to individual sources and allows the state to apply a less stringent standard of performance based on a number of factors, including “among other factors, the remaining useful life of the existing source to which such standard applies (a.k.a. “RULOF”).

Although the preamble to EPA’s New Carbon Rule discusses the states’ right to invoke RULOF, there are several instances that signal EPA’s intention to significantly curtail the use of RULOF and undermine the cooperative federalism balance. For example, EPA appears to be effectively nullifying the states’ ability to consider RULOF for the long-term coal-fired category when it states on page 33383 of the preamble:

*EPA’s proposed BSER determinations for each of these subcategories already consider costs amortized consistent with the operating horizons of sources within each subcategory. The EPA therefore **does not anticipate that states would be likely to demonstrate the need to invoke RULOF based on a particular coal-fired EGU’s remaining useful life***

Section 111(d)(1) in no way endorses EPA preemptively nullifying a state’s ability to factor-in RULOF because EPA decides to front-load remaining useful life into its subcategorization of BSER. That is the equivalent of EPA writing that part of the Clean Air Act out of the statute.

Another example on the same page of the preamble narrowly defines what might justify a state determining whether CCS is feasible due to the absence of on-site geology or a CO₂ pipeline. EPA implies that a source or state must establish the “impossibility of constructing a pipeline” in order to determine that CCS is infeasible. Given the magnitude of permitting, landowner rights, and economic and environmental factors that could make it infeasible to build a pipeline, imputing a standard of “impossibility” does not bestow great confidence that EPA intends to honor the state’s primary role in the feasibility evaluation.

A final example of EPA pre-supposing limitations on the state’s discretion in this context appears in footnote 628 of the preamble, which states:

*The EPA also considered impacts on the energy sector as part of its BSER determinations. However, because this consideration does not apply at the level of a particular affected EGU, **it would not be appropriate basis for invoking RULOF.***

⁴¹ 40 CFR 60.24a(c).

The numerous grid impact concerns articulate above refute the concept that the premature retirement of individual sources could never cause an energy sector impact. Regardless, it is not EPA's call to decide that question and they do not get to preemptively instruct states that they cannot consider such impacts.

All of this is raised simply to point out that this rule, although not as overtly coercive as the CPP, has many similarly coercive provisions that ignore the primary role of states in the cooperative federalism balance of Section 111(d). As Justice Gorsuch pointed out in his concurrence in *West Virginia v. EPA*:

*. . . the major questions doctrine and the federalism canon often travel together. When an agency claims the power to regulate vast swaths of American life, it not only risks intruding on Congress's power, it risks intruding on powers reserved to States. . . CPP unquestionably has an impact on federalism, as 'the regulation of utilities is one of the most important of the functions traditionally associated with the police power of the States.'*⁴²

This admonishment should be heeded by EPA and it should reconsider preemptively restricting the discretion Section 111(d)(1) reserves exclusively for the states.

VI. EPA'S NEW CARBON RULE IS ALL PAIN, NO GAIN

The lack of global impact from EPA's New Carbon Rule arguably necessitates an updated "non-significant contribution finding" under Section 111(b)(1)(A). As pointed out by commenters in past dockets, including leaders of the State of Texas beginning on April 26, 2018,⁴³ Section 111(b)(1)(A) establishes an explicit test for whether a specific pollutant can be regulated within a specific source category. For reference, that section states:

*The Administrator shall, within 90 days after December 31, 1970, publish (and from time to time thereafter shall revise) a list of categories of stationary sources. He shall include a category of sources in such list if in his judgment it causes, or **contributes significantly** to, air pollution which may reasonably be anticipated to endanger public health or welfare.* (Emphasis added)

It should be noted that the 2009 Tailpipe Rule Endangerment Finding was governed by a less stringent standard under Section 202 of the FCAA, which is in large part identical to Section 111(b)(1)(A) except the notable absence of the word "significantly" from the Section 202 Standard. This difference in statutory text is important given how much harder it is to meet the test when a source category is required to "significantly" contribute rather than just "cause or contribute" to endangerment.

Despite the misconception of many that a "non-significant contribution" finding would constitute "climate change denial," the Texas officials' comment noted above pointed out that this finding can be made without having to tackle the climate change debate.⁴⁴ It is simply math - when you get beyond the rhetoric and factor in global carbon emission trends, the simple fact is that eliminating all U.S. power plant carbon emissions would render less than a 0.4% reduction in

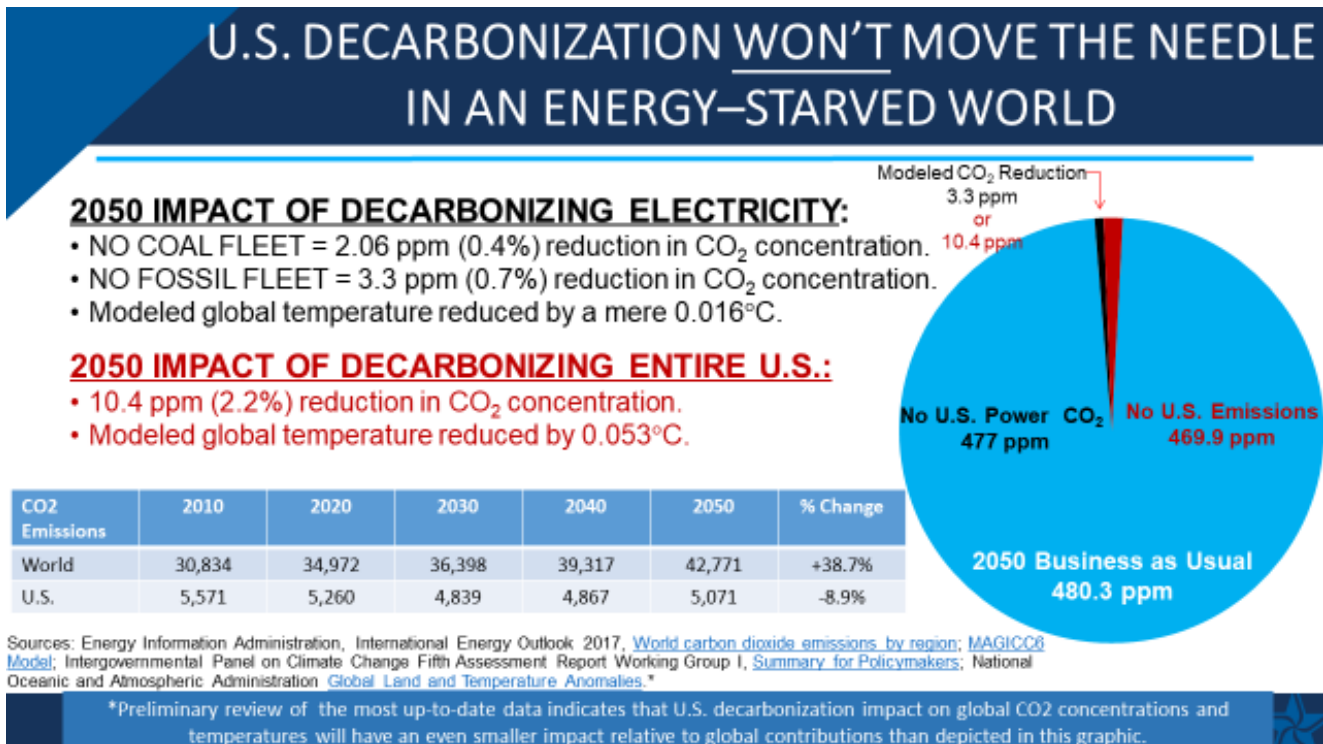
⁴² *West Virginia*, 142 S. Ct. at 2622 (Gorsuch, J., concurring).

⁴³ Texas Comment in Docket for Docket No. EPA-HQ-OAR-2017-0355 - [Regulations.gov](https://www.regulations.gov)

⁴⁴ *Id.*

global CO₂ concentration (2.06 PPM of the 500 PPM projected 2050 global concentration of CO₂). This corresponds to a reduction in global temperature of 0.021 degree Fahrenheit which would mitigate sea level rise by less than 1/50th of an inch.⁴⁵

As reflected in the graphic below, using the IPCC MAGIC model and EIA data to calculate what the model predicts as an impact to global concentrations, if U.S. power plant carbon dioxide emissions were scaled down to zero, that number would be 0.7% of the global concentration. Common sense would suggest that 0.7 percent (a number that will continue to drop as non-U.S. emissions increase) would not meet the “significant contribution” standard in Section 111(b)(A), if EPA were to honor that guardrail on a source-category and pollutant-specific basis.



I acknowledge that EPA continues to believe that it made a finding that satisfied Section 111(b)(1)(A) in 2015⁴⁶ and that the D.C. Circuit in *American Lung Ass’n v. EPA* decision⁴⁷ let that determination stand, and the *West Virginia* Court did not reach the question. However, the global aspect of this particular pollutant mandates that EPA not be given a perpetual blank check to regulate CO₂ from the power sector in any way it sees fit when every year that passes renders U.S. power sector contributions to the global pool of CO₂ less consequential. As our electric grid reliability and resilience continues to deteriorate and non-U.S. global CO₂ emissions from an energy-starved world continue to grow, Congress should hold EPA to the materiality test set forth in Section 111(b)(1)(A) and keep EPA in its lane so that domestic carbon regulations are not “all pain, no gain.”

⁴⁵ These conclusions were drawn from the Energy Information Administration, International Energy Outlook 2017, [World carbon dioxide emissions by region](#); [MAGICC6 Model](#); Intergovernmental Panel on Climate Change Fifth Assessment Report Working Group I, [Summary for Policymakers](#); National Oceanic and Atmospheric Administration [Global Land and Temperature Anomalies](#).*

⁴⁶ [New Carbon Rule](#) at 33267.

⁴⁷ [American Lung Association v. Environmental Protection Agency, No. 19-1140 \(D.C. Cir. 2021\)](#) :: Justia

At the same time, we should double down on research and development with the Department of Energy and the private sector to drive down the cost of CCUS, small modular nuclear, and energy storage and help finance those technologies globally so the growing emissions from the rest of the world can be mitigated without sacrificing human flourishing. Currently, the U.S. is perpetuating an immoral policy of withholding funding from fossil-fuel-related projects in developing nations without any proviso that they could be funded if they involve CCS, let alone the more economically feasible CCUS.⁴⁸ This deprives hundreds of millions of our fellow global citizens access to affordable & reliable energy and ignores the fact that, according to the IPCC, carbon capture is essential to every decarbonization scenario that does not deprive the developing world the ability to energize. In sum, **the world needs carbon capture, nuclear, & advanced energy storage technology, NOT anti-fossil fuel ideology.**⁴⁹

CONCLUSION

Given the many legal and technical flaws and immediate threats to the grid associated with EPA's New Carbon Rule, I urge the committee to request that EPA to withdraw their proposal and substantially rework their rule to stay within the guardrails established by Section 111 of the Clean Air Act.

EPA should simultaneously be instructed to fundamentally reexamine the grid impacts of their full suite of power plant rules in direct consultation with national, regional, and state grid operators and experts.

At the very least, I urge the committee to insist that EPA extend the current 60 day comment period to at least 120 days to allow the necessary legal, economic, technical and grid analyses to be conducted. As fully documented in my testimony, there are simply too many legal and practical issues to be resolved, too many other EPA power sector dockets ongoing, and too many warning signs that the consequences of doing this rule wrong could be irreversible and, ultimately, tragic.

⁴⁸ [Executive Order on Tackling the Climate Crisis at Home and Abroad | The White House](#)

⁴⁹ [Carbon Capture Utilization & Storage - Technology essential for an equitable energy path forward | UN Web TV](#)