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SCALING FOR GROWTH: MEETING THE DEMAND FOR RELIABLE, AFFORDABLE ELECTRICITY

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY

OF THE

COMMITTEE ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

ONE HUNDRED NINETEENTH CONGRESS

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[1] The report has been retained in committee files and is included in the Documents for the Record at http://docs.house.gov/meetings/IF/IF03/20250305/117979/HHRG-119-IF03-20250305-SD035.pdf.

SCALING FOR GROWTH: MEETING THE DEMAND FOR RELIABLE, AFFORDABLE ELECTRICITY

WEDNESDAY, MARCH 5, 2025

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:01 a.m., in the John D. Dingell Room 2123, Rayburn House Office Building, Hon. Robert E. Latta (chairman of the subcommittee) presiding.

Members present: Representatives Latta, Weber, Palmer, Allen, Balderson, Pfluger, Harshbarger, Miller-Meeks, James, Bentz, Fry, Lee, Langworthy, Rulli, Evans, Goldman, Fedorchak, Guthrie (ex officio), Castor (subcommittee ranking member), Peters, Menendez, McClellan, Matsui, Tonko, Veasey, Schrier, Auchincloss, and Pallone (ex officio).

Also present: Representatives Carter of Georgia and Joyce.

Staff present: Ansley Boylan, Director of Operations; Jessica Donlon, General Counsel; Andrew Furman, Professional Staff Member, Energy; Sydney Greene, Director of Finance and Logistics; Emily Hale, Staff Assistant; Calvin Huggins, Clerk; Megan Jackson, Staff Director; Sophie Khanahmadi, Deputy Staff Director; Mary Martin, Chief Counsel, Energy; Joel Miller, Chief Counsel; Ben Mullaney, Press Secretary; Jackson Rudden, Staff Assistant; Chris Sarley, Member Services/Stakeholder Director; Peter Spencer, Senior Professional Staff Member, Energy; Kaley Stidham, Press Assistant; Waverly Gordon, Minority Deputy Staff Director and General Counsel; Tiffany Guarascio, Minority Staff Director; Kristopher Pittard, Minority Professional Staff Member; Emma Roehrig, Minority Staff Assistant; Kylea Rogers, Minority Policy Analyst; Andrew Souvall, Director of Communications, Outreach and Member Services; and Tuley Wright, Minority Staff Director, Energy.

Mr. LATTA. Good morning. The Subcommittee on Energy will now come to order. And the Chair recognizes himself for an opening statement.

OPENING STATEMENT OF HON. ROBERT E. LATTA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OHIO

Welcome to today's hearing, "Scaling for Growth: Meeting the Demand on Reliable, Affordable Electricity." Today, we will discuss

the state of our Nation's bulk power system and the opportunities that lie ahead in the next-generation economy.

Our economy's electric grid, built over the course of well over 100-plus years, has been referred to as the most complex, sophisticated machine known to mankind. When operating correctly, the U.S. grid efficiently delivers low-cost, reliable energy to communities of all sizes. Through extensive planning, coordination, and collaboration from a host of government and industry partners, this complex process seamlessly responds in real time to maintain reliability in both normal and extreme weather conditions.

Yet today, historic increases in electricity demand, primarily from energy-intensive AI models and domestic manufacturing, are exposing key impediments to the ability of utilities, grid operators, and generators to keep the lights on. When the lights go out, people's lives are at stake.

The entities charged with overseeing our electric grid have been warning of potential shortfalls under normal weather conditions. Extreme weather or unforeseen circumstances could turn catastrophic. In 2025, the Energy Information Administration projects that 12.3 gigawatts of cocapacities are set to retire. By the end of the decade, the North American Electric Reliability Corporation projects as high as 52 gigawatts of thermal generation will retire. The stakes cannot be higher.

Across the world, our adversaries are seeking to undermine U.S. leadership on the world stage to write the rules on the next-generation economy. Nations like Communist China, who do not share our democratic values, are seeking to develop world-leading AI models through authoritarian military lens to export their command-and-control style of governments across the world.

Yet within this emerging crisis, there is an opportunity of our Nation to correct the course and grow jobs-creating industries right here at home. But to get there, we need more energy, and we need it fast.

The Department of Energy's Berkeley Lab estimates that U.S. status center growth alone is projected to double or triple by 2028. I know in my district, it is home to over 86,000 manufacturing jobs. I am keenly aware of this problem. And I always say that we are not just operating with needing electricity and power in my district, we need affordable power to make sure.

The Clean Power Plan 2.0 is driving accelerated premature retirements of our baseload power. Permitting barriers for new natural gas pipeline infrastructure are handicapping regions of the country such as the Northeast that are desperate for energy.

Meanwhile, subsidized intermittent energy resources and public policy decisions favoring renewable energy are flooding interconnection queues and making baseload power from coal, natural gas, and nuclear near uneconomic. Generation developers continue experiencing ongoing supply chains constraints for distribution, transformers, and generation turbines.

As we will hear today, House Republicans are not alone in raising the alarm. Today's discussion will help illuminate the ways in which grid operators, utilities, and co-ops are all addressing these challenging dynamics to address reliability and affordability while providing the opportunity to grow jobs and creating industries.

The witnesses before us today will provide a holistic approach of the Nation's electricity system, the unique characteristics of each respective region of the country, and the challenges facing grid-governing regime.

PJM, the Nation's largest regional transmission organization, which spans 13 States and Washington, DC, organizes competitive wholesale markets to buy, sell electricity, and monitors reliability standards across the multistate footprint.

In the West, Basin Electric Power Cooperative members serve 3 million consumers across nine States, spanning both vertically integrated States in organized markets. Southern Company, a traditionally vertically integrated utility, reliably serves customers across the Southeast with a diverse portfolio of generating resources.

So I look forward to discussion that we are going to have today with each of the respective entities and regions and how they are confronting this new frontier and the demand expansion. And this subcommittee will play an integral role in laying the groundwork to unlock the necessary capital investment for job-creating industries while ensuring affordable and reliable energy for American households and small businesses.

[The prepared statement of Mr. Latta follows.]

Chairman Robert E. Latta
Opening Statement—Subcommittee on Energy
"Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity"
March 5, 2025

As prepared for delivery

Welcome to today's hearing "Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity."

Today, we will discuss the state of our nation's bulk power system and the opportunities that lie ahead in the next generation economy.

Our nation's electric grid, built over the course of almost 150 years, has been referred to as the most complex, sophisticated machine known to mankind.

When operating correctly, the U.S. grid efficiently delivers low cost, reliable energy to communities of all sizes.

Through extensive planning, coordination, and collaboration from a host of government and industry partners, this complex process seamlessly responds in real time to maintain reliability in both normal and extreme weather conditions.

Yet today, historic increases in electricity demand, primarily from energy intensive AI models and domestic manufacturing, are exposing key impediments to the ability of utilities, grid operators, and generators to keep the lights on.
When the lights go out, people's lives are at stake.

The entities charged with overseeing our electric grid have been warning of potential shortfalls under normal weather conditions – extreme weather or unforeseen circumstances could turn catastrophic.

In 2025 alone, the Energy Information Administration projects that 12.3 gigawatts of coal capacity are set to retire. By the end of the decade, the North American Electric Reliability Corporation projects as high as 52 gigawatts of thermal generation will retire.

The stakes could not be higher.

Across the world, our adversaries are actively seeking to undermine US leadership on the world stage to write the rules of the next generation economy.

Nations like Communist China, who does not share our democratic values, are seeking to develop world leading AI models through an authoritarian, military lens to export their command-and-control style of governance across the world.

Yet within this emerging crisis, there's an opportunity for our nation to correct course and grow job creating industries here at home.

But to get there, we need more energy and we need it fast.

The Department of Energy's Berkeley Lab estimates that U.S. data center load growth alone is projected to double or triple by 2028.

My district, home to over 86,000 manufacturing jobs, is keenly aware of the energy demands of industrial facilities.

Unfortunately, misguided decisions of the Biden administration severely constrained our avenues to increase and strengthen energy production.

The Clean Power Plan 2.0 is driving accelerated pre-mature retirements of baseload power.

Permitting barriers for new natural gas pipeline infrastructure are handicapping regions of the country, such as the Northeast, that are desperate for energy.

Meanwhile, subsidized intermittent energy resources and public policy decisions to favor renewable energy are flooding interconnection queues and making baseload power from coal, natural gas, and nuclear near uneconomic.

Making a bad situation worse, generation developers continue experiencing ongoing supply chain constraints for distribution transformers and generation turbines.

As we will hear today, House Republicans are not alone in raising the alarm.

Today's discussion will help illuminate the ways in which grid operators, utilities, and co-ops are all addressing these challenging dynamics to protect reliability and affordability while providing the opportunity to grow job creating industries.

The witnesses before us will provide a wholistic view of the nation's electricity system, the unique characteristics of each respective region of the country, and the challenges facing different grid governing regimes.

PJM, the nation's largest Regional Transmission Organization, which spans 13 states and Washington, D.C. including my home state of Ohio, organizes competitive wholesale markets to buy and sell electricity and monitors reliability standards across their multistate footprint.

In the west, Basin Electric Co-operative members serve three million consumers across nine states, spanning both vertically integrated states and organized markets.

Southern Company, a traditional vertically integrated utility, reliably serves customers across the southeast with a diverse portfolio of generating resources.

I look forward to the discussion today about how each respective entity and region are confronting this new frontier of demand expansion.

This committee will play an integral role in laying the groundwork to unlock the necessary capital investment for job creating industries, while ensuring affordable and reliable energy for American households and small businesses.

Thank you and I yield back the balance of my time.

Mr. LATTA. And with that, I yield back the balance of my time with 3 seconds.

At this time, I recognize the ranking member of the subcommittee, the gentlelady from Florida, for 5 minutes for your opening statement.

Ms. CASTOR. Well, thank you, Mr. Chairman. And welcome to our witnesses.

Mr. Chairman, we have just received some very sad news: the passing of one of our colleagues, Congressman Sylvester Turner from Houston. And if Representative Fletcher were here, she would say Houston is the energy innovation capital of the world. Also, Sylvester Turner was the longtime mayor of Houston. He was just elected. He was with us yesterday and brought his guest to the Capital. So would you indulge us with a moment of silence for his memory.

Mr. LATTA. Absolutely. The subcommittee will pause for a moment of silence.

[Moment of silence.]

Mr. WEBER. Will the gentlelady yield?

Ms. CASTOR. I yield to the gentleman.

Mr. WEBER. Thank you. I thank the gentlelady. I served with Sylvester Turner 4 years in the Texas House. I hated him, because when he went to the back mic and talked against my bill, he made me look like a fool—which is not hard to do. Y'all all know that, right? Great champion for Texas, great champion for Houston. Such a gentleman. Such a scholar. I saw him last night——

Ms. CASTOR. Yes.

Mr. WEBER [continuing]. Coming off the floor in his wheelchair. I was shocked this morning. So he will be missed.

And, Mr. Chairman, I yield back.

Ms. CASTOR. Thank you, Mr. Weber.

Mr. LATTA. The gentleman.

Mr. GOLDMAN. Thank you. I, too, served with Sylvester, and I am a little shook. He was a legend. And he is one of the most decent men you ever met. And Randy's correct. If you are at the front mic and he was at the back mic, you are dead. He was one of the smartest men you have ever met. One of the nicest.

My father has a wall of fame at the house. He has got a photo with him and Ronald Reagan, him and Lady Thatcher, and then George H.W. Bush, George W. Bush, and Sylvester Turner. That is how much he meant to people. It wasn't about party, it was about the person, and it was about Texas. And that is who Sylvester Turner was, and he will be greatly missed.

Thank you, Mr. Chairman. I yield.

Mr. LATTA. Thank you. The gentlelady is recognized.

OPENING STATEMENT OF HON. KATHY CASTOR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Ms. CASTOR. Well, thank you. I want to thank our colleagues for sharing their sentiments about Congressman Turner.

Meanwhile, back here in the Energy Subcommittee, it is difficult to dive into this very important topic. Mr. Chairman, I really appreciate you focusing in on that. But at the same time, it is rather absurd that we are tackling strengthening our electrical system

while Elon Musk and the Trump administration are taking a sledgehammer to the Department of Energy, and especially the initiatives that strengthen and modernize the grid.

The new administration has spent weeks illegally shutting down DOE grants and loans and partnerships that make energy safe, reliable, and affordable, and that includes the illegal firings of the Department of Energy Inspector General, who is tasked with rooting out waste, fraud, and abuse, and firing the scientists who protect our nuclear enterprise.

Meanwhile, the administration and House Republicans have offered noting to help hardworking Americans tackle the cost of living, including their electric bills. In fact, consumers are losing confidence as Republicans focus on tax breaks for the wealthy and the well-connected and handouts to big oil and gas.

And beware, Canada and Mexico are major manufacturers of electrical grid components like transformers and circuit breakers and switch gears, which are needed to update our growing grid. And Trump's tariffs will make these upgrades more expensive, and they will take even longer, not to mention the direct cost increases that tariffs have on electricity, especially on the northern States.

As part of the Bipartisan Infrastructure Law, the Department of Energy was administering a large grid resilience and innovation partnership initiative. The intent there was to enhance grid flexibility and improve the resilience of the power system against extreme events, like hurricanes in my neck of the woods.

One grid project was a battery installation add in Iron Mountain Data Center in Virginia that was meant to test the potential to store clean backup power in grid support uses. On his first day in office, though, the President illegally froze that project as well as $103 million in grid funding that should be helping my neighbors back home in Florida.

Growing America's leadership and artificial intelligence requires access to more energy. We will see a doubling in data center electricity capacity by 2030 from projects already under construction. A 1-gigawatt data center would be the single largest energy load in the United States today, and we are building dozens of them. And to support data centers and broader electricity growth, the U.S. Energy Information Association forecasts that the U.S. will build 63 gigawatts of new utility scale capacity this year. Ninety-four percent of that is zero carbon.

And gas will not magically solve this challenge, even for those who decide they want to build a new gas plant. If they make that decision today, the plant won't come online before 2030.

Next-generation technologies like advanced geothermal and nuclear, while incredibly promising, are at least several years away. And here is a fact check of the speech last night. The President misleadingly said the Biden administration had closed more than 100 power plants. That is not true. According to the Department of Energy, the total number of electric power plants increased by 2,187 from 2020 to 2023.

That is, the number of utility-scale electric power plants in the Nation actually increased during the Biden administration. There were about 11,000 in 2020 compared with about 13,250 in 2023.

Solar wind and batteries are the least expensive, cleanest, and fastest way to add energy to the grid right now. They are driving down energy costs now. And if we want to lower the cost of energy and we want more reliable energy, then we should be making it easier to build solar, wind, and batteries whenever it makes since to do so.

That is why it is raising huge red flags that the Trump administration is unceremoniously halting these grid and power projects. And if Republicans were willing to stand up for the innovative work to modernize the grid that is happening right now, then there are real policies that we could work on together.

The real barriers to getting new power online for data centers for large-scale manufacturing of just everyday American families is the limited capacity and disjointedness of our power grid. We need to build more transmissions to enable more generations and get more out our existing grid infrastructure.

The U.S. has two options: We can choose to double down on outdated fossil fuel strategies that are more expensive, slower to interconnect, and are big polluters; or we can choose the other option, advancing real policies that deliver cheaper, cleaner, faster power that could benefit everyone.

[The prepared statement of Ms. Castor follows.]

Committee on Energy and Commerce

Opening Statement as Prepared for Delivery
of
Subcommittee on Energy
Ranking Member Kathy Castor

Hearing on "Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity"

March 5, 2025

I find it absurd that the majority has called a hearing on this important topic of strengthening our electric system, while at the same time, they stand idly by as Elon Musk and the Trump Administration take a sledgehammer to Department of Energy initiatives that strengthen and modernize the grid. The Administration has spent its first few weeks mired in illegal shutdowns of DOE grants, loans and partnerships that make energy safe, reliable and affordable. That includes the illegal firings of the DOE IG tasked with rooting out waste, fraud, and abuse and the scientists who protect our nuclear enterprise.

Meanwhile, the Administration and House Republicans have offered nothing to help hardworking Americans tackle the cost of living including electric bills. In fact, consumers are losing confidence as Republicans instead focus on tax breaks for the wealthy and well-connected and handouts to Big Oil and Gas.

Beware - Canada and Mexico are all major makers of electrical grid components like transformers, circuit breakers and switchgears, which are needed to upgrade our growing grid. Trump's tariffs will make these upgrades more expensive and take even longer, not to mention the direct cost increases that tariffs on electricity will have on northern states.

As part of the Bipartisan Infrastructure Law, DOE was administering a $10.5 billion Grid Resilience and Innovation Partnerships (GRIP) to enhance grid flexibility and improve the resilience of the power system against extreme weather.

One GRIP project was a battery installation at an Iron Mountain data center in Virginia that was meant to test the potential to store clean power for backup and grid-support uses. On his first day in office, the President illegally froze that project, as well as $103 million dollars in grid funding that should be helping my neighbors in Florida.

Growing America's leadership in artificial intelligence requires access to more energy – we will see a doubling of data center electricity capacity by 2030 from projects already under construction. A 1-gigawatt data center would be the single largest energy load in the United States today – and we're planning to build dozens of them.

To support data centers and broader electricity growth, the U.S. Energy Information Association forecasts the U.S. will build 63 GW of new utility-scale capacity this year – 94% of which is zero-carbon.

Gas will not magically solve this challenge. Even for those who decide they want to build new gas plants, if they make that decision today, the plant won't come online before 2030. Next generation

technologies like advanced geothermal and nuclear power, while incredibly promising, are at least several years away. And here's a fact check of the speech last night: He misleadingly said Biden's administration had "closed more than 100 power plants." According to the Department of Energy, the number of utility-scale electric power plants actually increased by 2,187 during the Biden Administration. (Coal- and petroleum-powered plants decreased, because they don't make economic sense.)

Solar, wind, and batteries are the least expensive, cleanest and fastest ways to add energy to the grid now. They're driving down energy costs now. If we want to lower the cost of energy and we want more reliable energy, then we should be making it easier to build solar, wind and batteries wherever it makes sense to do so. That's why its raising huge red flags that the Trump Administration is unceremoniously halting these grid and power projects.

If Republicans were willing to stand up for the innovative work to modernize the grid that is happening right now, then there are real policies we could work on together.

The real barriers to getting new power online – for data centers, large-scale manufacturing, or just everyday American families – is the limited capacity and disjointedness of our power grid. We need to build more transmission to enable more generation and get more out of our existing grid infrastructure.

My bicameral Advancing GETs Act is a great example of this. The bill would direct FERC to implement shared savings incentives that promote the deployment of grid-enhancing technologies. That could unlock hundreds of gigawatts of clean energy stuck in interconnection queues.

We can also expand the use of new tools, like virtual power plants, which can help manage flexible electricity loads. We should also examine state level proposals that ensure that the costs of serving large loads are paid by the that companies that are vastly increasing load growth, and not shifted to consumers.

The United States faces two options. We can choose to double down on outdated, fossil fuel driven strategies that are more expensive, that are slower to interconnect, and are big polluters. Or we can choose the other option, advancing real policies that deliver cheaper, cleaner, faster power that could benefit everyone.

I yield back.

Ms. CASTOR. I yield back.

Mr. LATTA. The gentlelady's time has expired, and yields back. The Chair now recognizes the gentleman from Kentucky, the chairman of the full committee, 5 minutes for an opening statement.

OPENING STATEMENT OF HON. BRETT GUTHRIE, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF KENTUCKY

Mr. GUTHRIE. Thank you, Mr. Chairman, for the time, and thank you to all the witnesses for being here.

Gosh, I just met Mr. Turner, Representative Turner, I think yesterday—it is yesterday or the day before—sitting in the center aisle. I just chatted with him and introduced myself. And for what I have heard from people spoken today, I really missed a lot, of only knowing him for less than a day. And my thoughts and prayers are with his family. And all of us here in Congress, when we lose a colleague, it is tough. So God bless his family.

But turning to today's hearing, it is going to continue our important work in this committee to identify what is necessary to unleash American energy for the benefit of the public, the economy, and our national security. Without question, energy—and especially the affordable, reliable, delivery of electric power—is essential for America to make and do the things needed for a secure and strong economy. Affordable, reliable power is essential for growing manufacturing, for advancing the great promises of AI, and for producing the goods and services our constituents rely upon. It is essential for health and safety.

To ensure we have the right Federal policies, we must examine how the key players in our power sector—utilities, grid operators, State and Federal regulators—are preparing for a future of extraordinary electricity growth.

The witnesses today who have worked to provide power will help us in this examination. A pair of tough challenges make our task particularly urgent.

The first challenge concerns the factors behind the emerging reliability crisis. In recent years, we have witnessed the failure to ensure that there is power when our communities need it the most. This crisis has been caused by the loss of huge amounts of reliable, baseload, and dispatchable generation across many regions of our Nation following the misguided regulations, and without adequate replacement for their resources.

The resulting threats of blackouts and brownouts even in normal peak demand conditions have been extending across the most populous regions of the Nation as authorities like the North American Electric Reliability Corporations show.

Federal and State policies have driven growth of intermittent or weather-dependent wind and solar generation at the expense of generation we will need for a reliable system. It is all important. This has increased the risk for tens of millions of Americans.

Many of our constituents have already experienced costly and deadly power outages. This started in California, then we witnessed it in Texas 3 years ago during Winter Storm Uri. Just 2 years ago, southeast and east coast communities, including Kentucky, lost power. We had rolling blackouts in Kentucky, a TVA

area, due to the lack of supply power during the winter event. The root cause of this situation is a lack of reliable generation capacity and constraints on natural gas supplies.

The second challenge involves the new energy demand of AI in cutting-edge technologies. The need for power to expand and advance AI in America is coming with a blinding-fast urgency that represents a generational challenge and the need for more reliable electricity. This presents its own unique challenges layered upon the existing problems and threats.

This hearing will help us understand what is being done by the power sector utilities and operators to meet these challenges and respond to the urgency of exploding demand.

I thank you, Chair Latta, for hosting—having this hearing. I welcome the witnesses.

[The prepared statement of Mr. Guthrie follows.]

Chairman Brett Guthrie
Opening Statement—Subcommittee on Energy
"Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity"
March 5, 2025

As prepared for delivery

Today's hearing continues our important work to *identify* what is necessary to unleash American energy for the benefit of the public, the economy, and our national security.

Without question, energy and especially the affordable, reliable delivery of electric power, is essential for America to make and do the things needed for a secure and strong economy.

Affordable, reliable power is essential for growing manufacturing, for advancing the great promises of AI, and for producing the goods and services our constituents rely upon.

It is essential for health and safety.

To ensure we have the right federal policies, we must examine how the key players in our power sector—the utilities, grid operators, state and federal regulators—are preparing for a future of extraordinary electricity growth.

The witnesses today who work to provide power will help us in this examination.

A pair of tough challenges makes our task particularly urgent.

The first challenge concerns the factors behind the emerging reliability crisis.

In recent years, we have witnessed the failure to ensure there is power when our communities need it the most.

This crisis has been caused by the loss of huge amounts of reliable baseload and dispatchable generation across many regions of the nation following misguided regulation, without adequate replacement of those resources.

The resulting threats of blackouts and brownouts, even in normal peak demand conditions have been extending across the most populous regions of the nation, as authorities like the North American Electric Reliability Corporation show.

Federal and state policies have driven growth of intermittent—or weather-dependent—wind and solar generation, at the expense of the generation we will need for a reliable system.

This has increased risks for tens of millions of Americans.

Many of our constituents have already experienced costly and deadly power outages. This started in California and then we witnessed it in Texas three years ago during Winter Storm Uri.

Just two years ago, Southeast and East Coast communities—including in Kentucky— lost power due to lack of supply during another severe winter event.

In that same event, millions of homes came close to catastrophically losing natural gas service in New York City. It is chilling to think how deadly this could have been.

The root cause of this situation is the lack of reliable generation capacity and constraints on natural gas supplies.

We must examine what is being done, how it is being done, and what should be done to shore up our generation resources and expand our energy availability, in order to reverse the dangerous decline in reliability.

The second challenge involves the huge new energy demand of AI and related cutting-edge technologies.

The need for power to expand and advance AI in America is coming with a blinding fast urgency that represents a generational change in the need for more reliable electricity.

This presents its own unique challenges, layered upon the existing problems and threats.

This hearing will help us understand what is being done by the power-sector utilities and operators to meet these challenges and respond to the urgency of exploding demand.

Importantly, while growth of AI demand is exposing the current risks in our electric system, it is presenting a great opportunity to revisit our energy priorities and restore the electric system to its full potential.

This will benefit the nation in countless ways. It will enable the nation to grow, prosper, and assure security in a dangerous, adversarial world. It will improve the lives and economic security in the communities we represent.

Thank you Chair Latta. I welcome the witnesses.

At this time, I would like to yield 30 seconds to Rep. Fedorchak.

I yield back.

Mr. GUTHRIE. And I will yield to the gentlelady from North Dakota, Mrs. Fedorchak, for the remainder of my time.

Mrs. FEDORCHAK. Thank you, Mr. Chairman. I appreciate this opportunity. I would have been honored to introduce three out of the four panelists because I worked closely with all of them, but I am going to take a minute to introduce a fellow North Dakotan.

I am honored to introduce Mr. Todd Brickhouse, who embodies the values of hard work, innovation, and community service. As the CEO and general manager of Basin Electric Power Cooperative, Todd leads one of our State's largest and most prominent businesses. It is an organization that delivers reliable, affordable power to millions of people throughout the Great Plains.

With over 25 years of experience, Todd has dedicated his career to ensuring that rural America, and America as a whole, has the energy it needs to grow and thrive. Like most in this industry, Todd's work isn't about politics, it is about problem solving. That is what I appreciate most about working with folks in this industry. It is about powering everything from farms and small businesses to emerging leaders—like emerging industries like carbon capture and data centers. Todd's leadership is doing just that, as are others on this panel.

Today, Todd brings Dakota common sense to DC, and I am proud to welcome him and his amazing team, who are behind him before our committee today.

Thank you very, Mr. Chairman. I yield back.

Mr. LATTA. The gentlelady yields back. And the chairman yields back the balance of his time.

The Chair now recognizes the gentleman from New Jersey, the ranking member of the full committee, for 5 minutes of questions—or, pardon me, for 5 minutes for an opening statement.

OPENING STATEMENT OF HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. PALLONE. Thank you, Chairman Latta. This hearing is an important and timely topic. Unfortunately, it is happening in the midst of chaos and confusion for the energy industry because of the actions of President Trump and congressional Republicans.

Grid operators around the country are begging Congress to take the challenges they are facing seriously, and instead Republicans just passed a budget that would gut programs and incentives vital to electric reliability while simultaneously cutting Medicaid to fund tax breaks for billionaires.

President Trump's Department of Energy continues to freeze and slow-walk billions of dollars in investments in the clean energy sector, which could result in higher energy costs on American families.

It is all unacceptable, in my opinion, and it is frustrating because this subcommittee has important policy decisions to consider.

After a 20-year pause, demand for power in the United States is growing again. And as I have repeatedly said, this is an opportunity. It means that companies are investing in America, that cutting-edge technologies are being developed here, and that families are making investments in decarbonizing their homes and vehicles. These are good things if the power sector could meet the challenge.

We need to act to make sure that our grid remains reliable and affordable over the next decade. That means removing unnecessary barriers to clean energy and making sure that we are adequately planning for a 21st century grid.

Claims that this challenge could only be met with an endless fleet of natural gas power plants are completely misguided. For one, the gas turbine supply chain simply won't allow it. Gas turbine manufacturers are backed up and cannot fulfill new orders until 2029.

But more importantly, we need a solution that won't saddle homeowners and businesses with higher energy bills to pay for assets that may not be used for 20 years. And we need to find a way to ensure that new large loads, like data centers powering AI, are paying for their fair share of grid infrastructure, regardless of whether they are colocated with generation sources or pulling electricity directly from the grid itself.

And these aren't speculative issues to the future. They are happening now. Families in my home State of New Jersey are going to experience a nearly 25 percent increase in their power costs this June in part because PJM seems incapable of getting its act together to quickly add renewable resources to its grid.

The Texas grid operator, which serves less power demand than PJM, managed to add 11 gigawatts of generation in storage capacity last year. And PJM only managed to add less than half of that, despite having a whopping 143 gigawatts in its queue.

We should be working together to develop solutions to address this problem. But unfortunately, the Trump administration and Republicans have other ideas. Bonneville Power Administration, which is absolutely vital for electric reliability in the Pacific Northwest, was forced to fire 20 percent of its workforce as part of Elon Musk's dismantling of the Federal workforce, despite the fact that it doesn't cost taxpayers a dime.

Republicans are also taking aim at independent regulators, vital for reliability and affordability, like FERC and the NRC. And because the Trump administration cut corners in its definition of energy in its Executive orders, there is a lot of confusion about whether the tariff on electricity imports from Canada is zero, 10, or 25 percent. It is a complete disaster, and it is going to likely lead to higher energy costs for American consumers, particularly in the Northeast.

Now Trump and Republicans are trying to gut and repeal the Inflation Reduction Act, the Bipartisan Infrastructure Law, and these laws are critical to ensuring that new energy sources get built and that existing ones, especially nuclear plants, stay online.

Two new studies—and I would like to ask unanimous consent, Mr. Chairman, to insert them into the record. I will hand them over to you.

Mr. LATTA. Without objection, so ordered.

[The information appears at the conclusion of the hearing.[1]]

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[1] A report from Brattle appears at the conclusion of the haring. A report from NERA Economic Consulting has been retained in committee files and is included in the Documents for the Record at https://docs.house.gov/meetings/IF/IF03/20250305/117979/HHRG-119-IF03-20250305-SD035.pdf.

Mr. PALLONE. Thank you. They show that repealing the Inflation Reduction Act's technology-neutral tax credit would increase prices on families and decrease the amount of power brought onto the grid. The reality is that clean energy is the only source of new generation capable of meeting growing power demand at scale.

Clean energy sources and battery storage are 95 percent of the interconnection queue, and they are not going away. In fact, they are the only thing that can come to the rescue and power our manufacturing and AI renaissance. And gutting the Inflation Reduction Act and illegally freezing funds will only ensure that our grid won't be able to keep up with demand, all while radically increasing energy prices for our constituents.

So I can say, Mr. Chairman, Democrats are going to fight against Republicans' radical agenda that makes our electricity less reliable, more expensive, and dirtier.

So thank you, and I yield back the balance of my time, Mr. Chairman.

[The prepared statement of Mr. Pallone follows.]

Committee on Energy and Commerce

Opening Statement as Prepared for Delivery
of
Full Committee Ranking Member Frank Pallone, Jr.

Hearing on "Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity"

March 5, 2025

This hearing is on an important and timely topic – unfortunately, it's happening in the midst of chaos and confusion for the energy industry because of the actions of President Trump and Congressional Republicans.

Grid operators around the country are begging Congress to take the challenges they're facing seriously, and instead Republicans just passed a budget that would gut programs and incentives vital to electric reliability, while simultaneously cutting Medicaid to fund tax breaks for billionaires. President Trump's Department of Energy continues to freeze and slow-walk billions of dollars of investments in the clean energy sector, which could result in higher energy costs on American families. It's unacceptable.

And it's frustrating because this Subcommittee has important policy decisions to consider. After a 20-year pause, demand for power in the United States is growing again. As I have repeatedly said, this is an opportunity. It means that companies are investing in America, that cutting edge technologies are being developed here, and that families are making investments in decarbonizing their homes and vehicles. These are good things – if the power sector can meet the challenge.

We need to act to make sure that our grid remains reliable and affordable over the next decade. That means removing unnecessary barriers to clean energy and making sure that we're adequately planning for a 21st century grid.

Claims that this challenge can only be met with an endless fleet of natural gas power plants are completely misguided. For one, the gas turbine supply chain simply won't allow it. Gas turbine manufacturers are backed up and cannot fulfill new orders until 2029. But, more importantly, we need a solution that won't saddle homeowners and businesses with higher energy bills to pay for assets that may not be used in 20 years. We need to find a way to ensure that new "large loads," like data centers powering AI, are paying for their fair share of grid infrastructure, regardless of whether they're co-located with generation sources or pulling electricity directly from the grid itself.

And these aren't speculative issues for the future – they're happening now. Families in my home state of New Jersey are going to experience an egregious, nearly 25 percent increase in their power costs this June, in part because PJM seems incapable of getting its act together to quickly add renewable resources to its grid. The Texas grid operator, which serves less power demand than PJM, managed to add 11 gigawatts of generation and storage capacity last year. PJM only managed to add less than half of that, despite having a whopping 143 gigawatts in its queue.

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Republicans are also taking aim at independent regulators vital for reliability and affordability, like FERC and the NRC. And, because the Trump Administration cut corners in its definition of "energy" in its executive orders, there is a lot of confusion about whether the tariff on electricity imports from Canada is zero, ten, or twenty-five percent. It's a complete disaster and it's going to likely lead to higher energy costs for American consumers, particularly in the northeast.

Trump and Republicans are trying to gut and repeal the Inflation Reduction Act and Bipartisan Infrastructure Law. These laws are critical to ensuring that new energy sources get built and that existing ones – especially nuclear plants – stay online. Two new studies – that I'll ask unanimous consent to insert into the record – show that repealing the Inflation Reduction Act's technology-neutral tax credits would increase prices on families and decrease the amount of power brought on to the grid.

The reality is that clean energy is the only source of new generation capable of meeting growing power demand at-scale. Clean energy sources and battery storage are 95 percent of the interconnection queue – they're not going away. In fact, they're the only thing that can come to the rescue and power our manufacturing and AI renaissance. Gutting the Inflation Reduction Act and illegally freezing funds will only ensure that our grid won't be able to keep up with demand, all while radically increasing energy prices for our constituents.

Democrats will fight against Republicans' radical agenda to make our electricity less reliable, more expensive, and dirtier.

Thank you and I yield back the balance of my time.

Mr. LATTA. Well, thank you very much.

The gentleman yields back the balance of his time. And that now concludes our Member opening statements. The Chair would like to remind Members that, pursuant to committee rules, all Members' opening statements will be made part of the record.

At this time, we want to also thank our witnesses again for being here with us today and taking the time to testify before the subcommittee. Each witness will have an opportunity to give an opening statement, followed by a round of questions from the Members.

Our witnesses today are Mr. Todd Brickhouse, the chief executive officer and general manager of Basin Electric Power Cooperative; Mr. Asim Haque, senior vice president for governmental and member services at PJM; Mr. Tyler Norris, the James B. Duke Fellow at Duke University; and Mr. Noel Black, senior vice president of regulatory affairs at the Southern Company.

Before we get started, just a quick housekeeping, if you—you want to make sure you pull the mic up close to you when you speak. And there is the set of red lights there that will signal. If you have a green light, 4 minutes. It will go yellow with 1 minute remaining. And at red, that means stop. We appreciate you following that.

And with that, Mr. Brickhouse, you are now recognized for 5 minutes for an opening statement.

STATEMENTS OF TODD BRICKHOUSE, CHIEF EXECUTIVE OFFICER AND GENERAL MANAGER, BASIN ELECTRIC POWER COOPERATIVE; ASIM Z. HAQUE, SENIOR VICE PRESIDENT, GOVERNMENTAL AND MEMBER SERVICES, PJM INTERCONNECTION, LLC; TYLER H. NORRIS, JAMES B. DUKE FELLOW, NICHOLAS SCHOOL OF THE ENVIRONMENT, DUKE UNIVERSITY; AND NOEL W. BLACK, SENIOR VICE PRESIDENT OF GOVERNMENT AFFAIRS, SOUTHERN COMPANY SERVICES

STATEMENT OF TODD BRICKHOUSE

Mr. BRICKHOUSE. Thank you, Mr. Chairman. As you indicated, my name is Todd Brickhouse, and I am the CEO of Basin Electric Power Cooperative. Basin is a not-for-profit generation and transmission cooperative, and we are owned by 139 member cooperatives across nine States, and we serve 3 million consumers. As measured by our geographic retail service territory, Basin is the largest electric utility in the country. We serve roughly half a million square miles, which is 12 percent of the United States. So we like to say that Basin's assets are the engines of commerce for a service territory that feeds and fuels our Nation.

Basin is one of nearly 900 not-for-profit electric cooperatives across the country that are independently owned and governed by the people that we serve. Electric cooperatives provide electric service to 42 million Americans in 48 States.

There are a number of trends and policies impacting our country and electric utilities, and I would like to touch on a few of those this morning.

Reshoring our manufacturing base, guaranteeing our energy security, and supporting the development of artificial intelligence all significantly increase demand for electric power. After all, the elec-

trons that many of us on this panel provide are the raw materials of a modern economy.

To satisfy this growing demand, Basin is currently increasing its generation portfolio by more than 40 percent. And we are increasing our transmission mileage by more than 20 percent. Over the next decade, we will spend $12 billion on these endeavors. That compares to currently $8½ billion of assets on our balance sheet today.

Federal regulations should be streamlined to support our efforts. For example, our recent Roundup-to-Kummer-Ridge transmission project required two separate environmental assessments, one from the Bureau of Land Management and another from the Bureau of Indian Affairs, even though both these agencies are under the Department of the Interior. This resulted in added time, expense, and of course, red tape.

Secondly, Basin is currently adding 1,500 megawatts of nondispatchable, renewable resources to our generation fleet. This has required years of planning and development work. And these business decisions were made based on the availability of production tax credits. We understand and we support the need to put our country on a sustainable, physical path, but the immediate removal of PTCs will not allow utilities to plan for and avoid increased costs, and this will also immediately harm rate payers.

Another policy matter that needs to be on your mind is tariffs, which the President spoke about last night. We strive to source our capital expenditure program domestically. But the utility industry relies on global supply chain. Our $12 billion capital expenditure program will be adversely impacted by tariffs. And I would just like to explain to you that these are not one-time costs. These are costs that will be felt over 30 years as we depreciate these assets and we repay the debt used to fund them.

Finally, and most importantly, in order to capitalize on the opportunities of reshoring our manufacturing base, guaranteeing our energy security, and fully developing artificial intelligence, we need consistent and rational energy policies from you all.

Every sector of our economy depends on reliable and affordable electricity, whether it be households, manufacturers, or the technology industry.

As Daniel Yergin and Peter Orszag wrote in an article last week, "We are not"—and I quote—"We are not so much in an energy transition, we are in an energy addition." Periodic efforts to severely curtail major sources of the dispatchable electric generation are counterproductive, and they do not further our national interest.

Microsoft and Amazon recognize the importance of dispatchable resources, as evidenced by the recent partnership with the nuclear industry. Similarly, Meta—or Facebook—has recently partnered with Entergy for the development of 2,300 megawatts of dispatchable natural gas resources in Louisiana.

Basin is in discussions with more than 7,000 megawatts of similar loads. The Great Plains where Basin serves offers abundant wind and carbon-based natural resources, helping Basin satisfy growing demand in a balanced manner.

Basin stands ready to support efforts by Congress, the administration, and Federal agencies to enhance affordability and reliability for the American consumer. Thank you.

[The prepared statement of Mr. Brickhouse follows:]

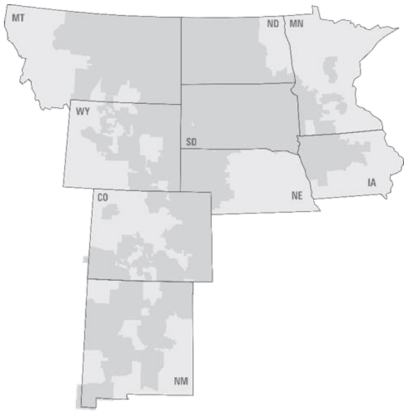
BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative

Testimony of Mr. Todd Brickhouse
Chief Executive Officer and General Manager
Basin Electric Power Cooperative

To the United States House of Representatives
Committee on Energy and Commerce
Subcommittee on Energy

"Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity"
Wednesday, March 5, 2025

Chairman Latta, Ranking Member Castor, and Members of the Committee, thank you for the opportunity to testify today. My name is Todd Brickhouse, and I serve as Chief Executive Officer and General Manager of Basin Electric Power Cooperative (Basin Electric). I am testifying today to provide my own insights as a co-op leader and to also represent the National Rural Electric Cooperative Association (NRECA).



Basin Electric is a not-for-profit generation and transmission (G&T) cooperative owned by 139 member cooperative systems across nine states serving 3 million member-owners. Its geographical footprint covers nearly 500,000 square miles – approximately 12% of the United States. It was founded by rural Americans with the objective of bringing reliable, affordable, and responsible energy to the people of the Great Plains. For more than 60 years, generation and transmission assets have been the engines of commerce for a service territory that feeds and fuels the world. Basin Electric owns and maintains over 2,600 miles of high-voltage transmission lines, 119 substations, and 224 telecommunication sites that deliver electricity to an integrated system. Basin Electric is the largest G&T in the United States for total sales (38.2 million megawatt-hour (MWh)), member sales (32.1 million MWh), and second largest in total assets ($8.2 billion).

NRECA is the national trade association representing nearly 900 rural electric cooperatives across the country including 64 G&T cooperatives and 832 distribution cooperatives. These not-for-profit entities are independently owned and governed by the people they serve. Electric co-ops provide power to 42 million Americans across 48 states, keeping the lights on across 56% of the American landscape – areas that are primarily residential and sparsely populated. These characteristics make it comparatively more expensive for electric co-ops to operate than the rest of the electric sector. This means that co-ops are constantly asked to do more with less, and they deliver.

American families and businesses expect the lights to stay on at a cost they can afford. Our nation's energy policies must meet this fundamental expectation. Basin Electric, NRECA, and America's electric cooperatives stand ready to work with Congress and the Trump Administration on smart energy policies that advance safe, reliable and affordable power by:

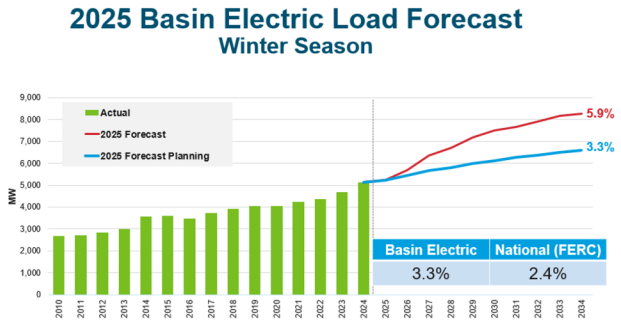
- Supporting a diverse supply of energy resources to meet skyrocketing electricity demands for American energy production and manufacturing – particularly in rural communities;
- Improving permitting processes and cutting costly and burdensome regulations to accelerate deployment and maintenance of electric infrastructure; and
- Ensuring federal programs and resources that support electric cooperative energy projects are used efficiently and effectively as we invest to meet the needs of our communities.

Basin Electric's Reliability Story

Reliable electricity is more than a convenience - it's essential for survival, especially in the harsh weather conditions of the Upper Great Plains. Basin Electric's members endure extreme weather conditions for more than half the year with temperatures reaching as low as -51° F and as high as 112° F.

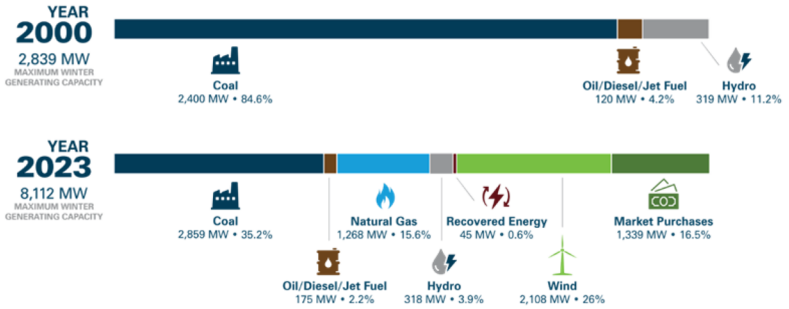
Rural areas across the Upper Great Plains attract industries, companies, and people due to the availability of land and resources, along with reliable and affordable electricity. As a result, growth within Basin Electric's service area is expanding across residential and commercial sectors. Key developments include increased demand from cryptocurrency and data center operations, the anticipated rise of ethanol-related carbon capture and sequestration projects, and ongoing economic development in western North Dakota.

Basin Electric's load growth over the next 10 years is projected to be 3.3%, excluding potential large loads including cryptocurrency and data centers, compared to the national average of roughly 2.4% , according to the Federal Energy Regulatory Commission. However, this percentage could nearly double (5.9%) if probable large load projects come to fruition, and even higher for loads that are in the early stages of discussion. The largest growth in Basin Electric's service territory is in the Bakken region—one of the largest oil and gas fields in the nation. Upper Missouri Power Cooperative, one of Basin Electric's largest members, serves this area and has witnessed record growth of over 800% in total megawatt hours and over seven-fold peak increases in the last 15 years (2009 to 2023). By serving demand in this area, Basin Electric is fostering energy independence for our nation.



Technology-based loads, such as cryptocurrency and data centers, can become operational in as little as three years - far faster than the seven years required to build the dispatchable generation infrastructure needed to support them. This is due to regulatory approvals, grid interconnection delays, and supply chain constraints.

Basin Electric takes a responsible approach through a diverse energy supply portfolio to meet member needs while adapting to the challenges of a rapidly changing energy landscape. Basin Electric's power supply resources include owned generation, long-term power purchase contracts, short-term agreements, and spot market energy purchases. Its generating resources are fueled by a diverse blend of natural gas, coal, wind, hydro, solar, recovered energy, and fuel oil. This balanced approach ensures reliable, affordable, and environmentally responsible energy for its members.



Basin Electric is a leader among G&Ts in building dispatchable generation for reliability and plans to invest $12 billion in capital expenditures - more than doubling its balance sheet of assets - over the next decade. Planned projects include:

Pioneer Generation Station Phase IV: Approximately 580 MW in new natural gas-fired generation from six reciprocating engines and two simple-cycle combustion turbines. Constructed at an existing generation site near Williston, North Dakota, it is strategically located near a reliable fuel supply and helps reduce flared natural gas in the Bakken. With a budget of approximately $800 million, all units are scheduled to begin commercial operation in 2025.

Bison Generation Station: Approximately 1,470 MW in new natural gas-fired generation planned from two combined-cycle power plants (roughly 700 MW each) in Williams County, North Dakota. One of the largest electric generation projects in the cooperative's history, this project has a budget of $4 billion and is projected to be completed in 2030.

Prairie Winds ND & Prairie Winds SD Repower Projects: Repowering planned for the existing 80 wind turbines at Prairie Winds ND & 108 wind turbines at Prairie Winds SD. The turbine blades and mechanical components will be replaced with more efficient components, with a budget of approximately $450 million. The business decision to repower these turbines was based largely on Congress' continued support of Production Tax Credits and, with continued PTCs, this project has an expected completion date of 2027.

Leland Olds Station-To-Tande Transmission (345-kV line): This transmission project, stretching roughly 160 miles and with a budget of approximately $400 million, was deemed necessary for system reliability by the Southwest Power Pool (SPP). Projected to be complete in 2026, this project will provide more reliable service to electric consumers.

Wheelock & Tande-To-Saskatchewan Transmission (230-kV line): This transmission project will stretch roughly 110 miles from existing Basin Electric substations to the Canadian border. With a budget of approximately $180 million, it is expected to be complete in 2027. This line was also deemed necessary to resolve SPP transmission capability deficiencies.

Basin Electric is one of the few utilities that supply electricity on both sides of the national East-West electric system separation. It is also a member of two independent regional transmission organizations (RTO): SPP and Midcontinent Independent System Operator. These RTOs provide flexibility and allow Basin Electric to access additional power resources across multi-state areas. For example, the SPP market provides access, control, and coordination for a mix of more than 800 generators, ensuring a diverse and cost-effective energy supply under varying conditions. Basin Electric supports efforts to ensure RTOs adequately compensate baseload power plants, helping cover the costs of maintaining these essential resources so they remain available when needed.

Cutting Regulatory Red Tape

As Basin Electric continues to meet the needs of its member-owners, particularly as energy demand grows, federal permitting and regulatory policies must be addressed to allow the cooperative to build and maintain the infrastructure critical to this mission.

NEPA Reform: Federal permits and other authorizations from various agencies are often necessary to construct and maintain electric generation and transmission infrastructure, especially when utilizing federal loans or financial assistance. For example, Basin Electric's Roundup-to-Kummer Ridge transmission project required two separate Environmental Assessments - one from the Bureau of Land Management and another from the Bureau of Indian Affairs. While both agencies report to the Secretary of the Interior, their National Environmental Policy Act (NEPA) processes do not align, and complying with both resulted in added time, expense, and red tape to a critical transmission project. In 2023, Congress made important updates to NEPA to require firm time limits for reviews, greater applicant involvement, and more efficient reviews for minimal-impact projects. It is critical that all federal agencies fully and faithfully implement these improvements. Congress should also curb lengthy, costly litigation that can cause unnecessary and often indefinite delays that hold up projects that communities badly need.

EPA's Power Plant Rule: The Environmental Protection Agency's (EPA) final Power Plant Rule, issued in May 2024, poses significant and immediate threats to Basin Electric and, more importantly, threatens the economic stability and quality of life of the millions of consumers across nine states who depend on us. This regulation could force the premature closure of always available power plants Basin Electric relies upon to maintain reliability and require us to make legally binding commitments to close power plants while the rule is still being litigated, resulting in irreversible economic harm.

It would also impede the ability to build new natural gas plants at a time of increasing electricity demand. For example, new gas-fired plants have to meet stringent emissions limits - effectively requiring 90% carbon capture, a technology that has not yet been commercially demonstrated - or limit their output of electricity. For example, a 100 MW plant may only be permitted to generate 40 MW of electricity if used as baseload or may run at 100 MW for only 40% of the calendar year. As Basin Electric is in the process of permitting a

new 1,470 MW combined cycle plant, the requirements and near-term uncertainties of this rule will impact whether it can operate a brand-new plant at full capacity when it is constructed and makes future planning very difficult.

Basin Electric has estimated that regulatory compliance with this rule may necessitate nearly $10 billion in incremental capital expenditures, in addition to approximately $12 billion needed to meet new load growth by 2035. These compliance costs would lead to an estimated 60% rate increase for Basin Electric members by 2035. Congress should support EPA as they immediately repeal the Power Plant Rule and provide compliance relief to electric cooperatives. Additionally, Congress should address EPA's New Source Review permitting requirements, which can be a significant obstacle for power plant operators proactively exploring projects to improve efficiency or reduce pollution at existing power plants.

Natural Gas Infrastructure: New natural gas capacity will be essential for meeting the nation's power supply needs and serving as a reliable backstop for intermittent generation sources. Basin Electric's natural gas needs are expected to triple from 2024 to 2030 (40mm MMBtus annually in 2024 and 120mm MMBtus annually in 2030). Basin Electric continues to use local natural resources to generate electricity for its members, leveraging abundant natural gas from the Bakken oil fields as a reliable fuel source.

Generation projects are strategically located near high-load growth areas to support system reliability, minimize transmission strain, and minimize capital investment required for new transmission infrastructure. By constructing generation closer to demand, Basin Electric also helps mitigate energy pricing spikes when transmission lines are out of service or at capacity. However, new natural gas pipelines are needed to transport the growing supply of fuel beyond the local region to areas where it can be effectively utilized. Strong coordination between the electric and gas sectors will also be critical as their interdependence grows to avoid significant and unacceptable service curtailments to consumers, particularly during winter months and extreme weather.

Effectively Using Infrastructure Tools

Electric cooperatives work together with federal agencies, particularly the Department of Energy (DOE), to access critical programs and tools to improve electric system resilience and reliability and keep electric rates affordable for member-owners. This includes numerous programs that support critical grid components, improve efficiencies, defend against cyber threats, provide hydropower, and advance carbon capture.

Transformers: Increasing energy demand and generation needs have created a bottleneck in procurement of critical grid components such as electric transformers, delaying much needed projects. Lead times for high-voltage transformers have increased from 18 months to 3-5 years and for high-voltage breakers from 6 months to 4-5 years. Some providers have stopped taking new orders completely, costs have increased significantly, and backlogs for American-produced transformers have made meeting Buy American requirements challenging. To help address these challenges, Congress should provide targeted federal financial support for critical grid component manufacturing here in America to expand production and reduce lead times. Basin Electric is grateful to many on this Committee who weighed in with DOE last year to ensure their updated distribution transformer energy conservation standards did not exacerbate this problem and instead allow use of the existing core material - grain oriented electrical steel - while supporting development of amorphous core transformers.

Advanced Conductoring: Advanced electrical conductors have higher strength and thermal capacity than traditional conductors which can reduce the size and quantity of grid structures required, in turn reducing cost to members and lessening impacts to landowners. Basin Electric has implemented carbon fiber

composite core – one type of advanced conductoring - on three recently energized transmission projects: the 230-kV, 26-mile Neset-North Shore line and the 345-kV, 15-mile PGS-Judson and 33-mile Roundup-Kummer Ridge lines. We also plan to evaluate the use of advanced conductors for future transmission projects. DOE has been a key partner for many electric cooperatives across the country in pursuing similar projects, particularly through the Grid Resilience and Innovation Partnerships program.

Cybersecurity: The electric sector faces a rapidly evolving threat landscape with cyber adversaries targeting our systems and infrastructure. Securing the grid against these threats is a top priority for Basin Electric and electric co-ops across the country. Basin Electric and other co-ops leverage DOE programs, like the Energy Threat Analysis Center, OT Defender, and Rural and Municipal Utility Cybersecurity Program, to strengthen our cybersecurity posture, improve information sharing and threat situational awareness, and build our cyber workforce.

Hydropower: The Federal Power Marketing Administrations (PMAs) within DOE, including the Western Area Power Administration (WAPA) who we partner with in Basin Electric's service area, protect reliability by managing federal power and transmission systems that provide affordable hydropower. The PMAs are funded through rates paid by utility customers like Basin Electric's member-owners - not U.S. taxpayers - which ensures local accountability and directs benefits to regional communities. It is critical for WAPA and other PMAs to retain the authority and staffing required to deliver always-available hydropower across their regions. Importantly, Congress should support rescinding the 2023 Memorandum of Understanding on the Lower Snake River Dams, which could devalue hydropower and set an unacceptable precedent of dam breaching for PMA hydropower nationwide.

Carbon Capture: For several years, Basin Electric has hosted the discovery of new technologies to capture and store carbon off its 405 MW Dry Fork Station coal plant near Gillette, Wyoming through the University of Wyoming School of Energy Resources-managed Wyoming Integrated Test Center (ITC) in partnership with NRECA and Tri-State Generation and Transmission Cooperative. DOE recently awarded the Wyoming ITC $17 million for test site improvements. Basin Electric has partnered with the University of Wyoming-led and DOE-funded CarbonSAFE project in Wyoming which will develop a 50-million-ton carbon dioxide (CO_2) storage hub. Dakota Gasification Company, a subsidiary of Basin Electric, is also home to the largest carbon sequestration project in the world - The Great Plains CO_2 Sequestration Project. The project went into service mid-February 2024 and by the end of the year a total of 1.38 million metric tons of CO_2 had been captured and sequestered. Basin Electric continues to monitor carbon capture technology readiness and costs, as well as regulatory developments, as we evaluate next steps on carbon capture projects.

In order to maintain affordability for our member-owners as we deploy needed infrastructure projects, electric co-ops also rely on a variety of federal financing mechanisms. Basin Electric supports full and proper funding for the U.S. Department of Agriculture (USDA) Rural Utilities Service, which provides financing to electric co-ops and benefits the federal government because co-ops consistently repay their loans with interest, generating a positive return.

Further, federal tax policy has played a critical role in Basin Electric's ability to provide affordable electricity to consumers. We are grateful to those members here who have supported energy tax credits – including the Investment and Production Tax Credits and the 45Q program – and urge Congress to continue support for these important incentives. Since 2022, co-ops have also gained access to an "elective pay" (or direct pay) option so rural Americans can take advantage of energy incentives available to other utilities. Congress should protect access to elective pay energy tax credits that will be critical to co-op infrastructure projects.

Co-ops across the country, including Basin Electric, also participate in USDA's New Empowering Rural America (New ERA) program, a voluntary grant and loan program designed specifically for electric co-ops as they deploy new nuclear, carbon capture, batteries, renewables, and other technologies that make sense for local communities. In addition to our planned baseload and peaking generation, Basin Electric's New ERA awards include funding for both new and repowered wind, solar, and hydropower generation as well as battery storage. We are in an era of energy expansion, not just a transition, and every available electron will be needed to meet growing demands of our membership and power rural America. Congress should support USDA and co-ops as they deploy these projects and oppose any cuts to the New ERA program.

Conclusion

Our nation is at an energy crossroads. Your leadership in shaping our nation's energy policy is more critical than ever. Basin Electric stands ready to support the efforts by Congress, the Administration, the new National Energy Dominance Council, and all federal agencies with jurisdiction over energy in their efforts to enhance affordability and reliability for American consumers.

Mr. LATTA. Thank you very much. Mr. Haque, you are recognized for 5 minutes for your opening statement.

STATEMENT OF ASIM Z. HAQUE

Mr. HAQUE. Chairman Latta, Ranking Member Castor, Chairman Guthrie, Ranking Member Pallone, and members of the subcommittee, thank you for the invitation to participate in this hearing to provide PJM's perspective as it relates electric grid reliability and cost during this period of heavy forecasted demand growth. My name is Asim Haque, and I am the senior vice president of governmental and member services at PJM Interconnection.

PJM is considered the largest grid operator in North America, as we ensure the reliable flow of power to 67 million consumers in all or parts of 13 States and the District of Columbia. PJM is an entity without profit motive, as we effectively function as a not-for-profit that is fully regulated by the Federal Energy Regulatory Commission, an independent Federal agency that plays a critical role in the oversight of the energy industry.

We are a mission-driven organization whose primary focus is to keep the lights on for the 67 million consumers that we serve.

This past January, during a cold spell, we experienced our all-time winter peak of approximately 145,000 megawatts. And if you were here in the District or otherwise in our footprint during MLK weekend, you probably didn't think for a second about the cold weather and its impact on the grid. And that is how we like it. And that is the expectation that we create for ourselves at PJM, which is in tandem with our asset owners to keep the lights on 24/7 without you having to think about it.

While our industry can be quite complicated, what we are seeing projecting out into the future actually is not incredibly complicated. After years of what has been relatively flat demand for power in PJM, we are now seeing a major uptick in forecasted growth due primarily to the proliferation of data centers, but also due to electrification in the onshoring of U.S. manufacturing.

According to our most recent forecast, PJM expects its summer peak to climb to 220,000 megawatts over the next 15 years. To compare, our all-time summer peak, which occurred in 2006, is 165,563 megawatts. For winter, the forecast is estimated at 210,000 megawatts, again, 15 years out. PJM's record-high winter peak, again, occurred just this past January at 145,000 megawatts.

So we are experiencing in real time as well as forecasting out, the substantial increase in demand.

So let's talk about supply. After years of having a healthy reserve margin in PJM, we are seeing that reserve margin get eaten up. PJM conducted a study in 2023 where we estimated retirements in the amount of 40,000 megawatts by 2030, driven primarily by State and Federal policies and some economics.

Now, we do have a number of mostly renewable resources that want to connect to the system that are currently in our generation interconnection queue. That queue has undergone quite a bit of reform per our own efforts and an order from the FERC in 2022, and we are nearing the end of that FERC-approved reform.

We hope that all of these projects interconnect. But we certainly have quite a few projects that are through the queue right now

that aren't constructing at the pace needed to keep up with supply retirements and certainly not the projected increase in demand.

Last year, we interconnected just 4,800 megawatts into an otherwise 180,000-megawatt system. So supply is coming off of the system, and new supply additions are not keeping pace again.

Currently, about 50,000 megawatts through the queue, nothing left to do with PJM, and not interconnecting or not constructing. And we can talk about that a little more.

We should also note that the resources leaving the system are larger, dispatchable coal and gas resources. And the resources they are adding from our queue are primarily intermittent renewable resources. We are resource agnostic. And when you flip the switch, you don't know whether that is a nuclear, coal, gas, renewable watt that you have just consumed. But when you trace those watts all the way back to their source, all of these resource types have different capability and availability. So we need to be conscious of that. It is not a one-for-one swap in terms of availability and capability of the resources that we are retiring and then the resources that we are adding to the system.

But either way, we want those watts. We want those renewable resources to find their way under the system as soon as possible. We want as much supply as we can get in order to meet this growing demand that means delaying retirements, new supply, that is supply in our queue, and even additional supply on top of that.

So again, supply is decreasing, demand is increasing, but for your constituents, the supply demand in balance has the potential to bleed into fundamental pillars of power delivery for the average American to really reliability and cost. We all need to consider reliability degradation and consumer cost increases as a natural byproduct of policies that exacerbate the supply, demand, and balance.

I want to end my opening statement with some optimism. The fact that we are here talking about supply and demand is great progress. We have been talking about this—PJM—for some years now. And the fact that this committee is focused on the supply/demand challenge is a really good thing. The fact that demand is growing means that our Nation's economy is growing, and that is a really good thing as well. We have lots of resources that want to interconnect in the PJM system. That is a really good thing as well.

PJM, in particular, has markets that it can utilize to incentivize our next major technological breakthrough as well as any new resources that we can possibly find onto the system.

Mr. LATTA. Pardon me. If you could just finish up, please. Thank you.

Mr. HAQUE. Yep. So, again, this is a moment here at PJM, it is a moment for the industry, and in conjunction with our stakeholders and all of you, we expect to meet that moment. Thank you.

[The prepared statement of Mr. Haque follows:]

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY & COMMERCE, SUBCOMMITTEE ON ENERGY

Testimony of Asim Z. Haque
Sr. Vice President – Governmental and Member Services
PJM Interconnection

March 5, 2025

For Public Use

Executive Summary

On behalf of PJM Interconnection, L.L.C. (PJM), the largest electric grid operator in North America, I am honored to present our views on the steps being undertaken on a daily and hourly basis to ensure the reliability of the electric power grid in the 13 states that we serve along with the District of Columbia. As a regional grid operator we face many new challenges, as well as opportunities, given the changing mix of electric generation resources combined with increasing demand for electricity, which must be reliably supplied 24 hours a day, 7 days a week.

Specifically, in this testimony, I detail:

- How PJM integrates competitive markets, reliable operations and long-term planning to attract investment in needed infrastructure and ensure reliable, efficient and cost-effective electric supplies to the 65 million Americans we serve
- The significant new demand/load forecasted to enter the system, due primarily to data center proliferation but also due to expansion of the electric vehicle market, electrification of building heating systems and growth in U.S. manufacturing
- Concerning trends as we see the pace of supply/generation retirements far exceeding the addition of new supply/generation being added to the system
- Actions PJM has undertaken to bring new supply to the system and to continue to appropriately reflect supply/demand fundamentals in our market

We look forward to continuing to work with this Committee and members on both sides of the aisle, as we have done in the past, to address these issues constructively and proactively. We are heartened that the Committee is conducting this hearing and by the Committee's interest in these important issues. We thank you for your consideration.

Introduction

Chairman Latta, Ranking Member Castor, Chairman Guthrie, Ranking Member Pallone and Members of the Subcommittee:

Thank you for the invitation to participate in this hearing to provide PJM's perspective as it relates to preserving electric grid reliability during this period of heavy forecasted demand growth. My name is Asim Z. Haque, and I serve as Sr. Vice President of Governmental and Member Services for PJM Interconnection.

Based in Valley Forge, Pennsylvania, PJM ensures the reliable flow of power to 65 million customers in all or parts of 13 states and the District of Columbia. PJM has no profit motive, as it effectively functions as a not-for-profit entity that is fully regulated by the Federal Energy Regulatory Commission (FERC).

We liken our role to that of an air traffic controller, but for the electric grid. We don't own the high-voltage transmission lines that carry electricity where it is needed most, but we direct and balance the flow of that power throughout our footprint and to neighboring regions when they need it.

In addition to managing reliable operations, PJM also plans necessary enhancements to the grid to ensure reliability into the future, and operates electricity markets within its region to competitively procure capacity and to efficiently dispatch resources to meet electricity demand, or load, in real time. The purpose of these electricity markets is to cost-effectively reinforce reliable grid operations.

Testimony

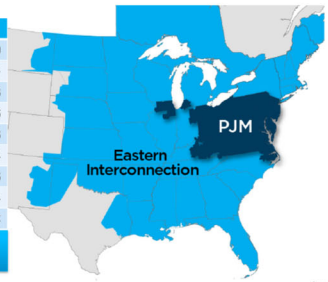
PJM and Its Role

PJM's footprint encompasses all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and Washington, D.C., as shown in **Figure 1.** As such, we are responsible for ensuring reliable and efficient delivery of electricity over the bulk electric system to one-fifth of the nation. We are fuel and technology neutral in carrying out this function, valuing resources using different fuels and technologies based on their reliability value and cost-effectiveness.

Figure 1. PJM Service Territory

Key Statistics	
Member companies	1,110
Millions of people served	67+
Peak load in megawatts	165,563
Megawatts of generating capacity	182,036
Miles of transmission lines (BES)	88,333
Gigawatt hours of annual energy	800,004
Generation sources	1,486
Square miles of territory	369,054
States served	13 + DC

- 27% of generation in Eastern Interconnection
- 24% of load in Eastern Interconnection



As of 2/2025

Integrating Competitive Markets and Transmission Planning

As a large regional transmission organization, or RTO, PJM undertakes three core functions:

- Real-time operation of the bulk power grid
- Market operations to ensure the most cost-effective and efficient dispatch of resources to meet customer demand
- Planning the expansion of the electric transmission system to meet future customer needs

These three legs of the stool, as outlined in **Figure 2** below, operate in tandem to ensure that there is a reliable and economically efficient delivery of electricity to the 65 million Americans we serve, not just today but into the future.

Figure 2. PJM's Primary Focus of Reliability Served by Three Core Functions

Markets Help To Reinforce Grid Reliability

PJM's markets exist to reinforce grid reliability by ensuring that market signals work in tandem with regional reliability requirements and those of the North American Electric Reliability Corporation (NERC). For example, our capacity market is designed to procure resources available to meet projected peak demand and other contingencies three years ahead of time. Through our Day-Ahead and Real-Time energy markets, we economically dispatch the most cost-effective resources to meet the hour-by-hour demand for electricity within the physical limitations of the transmission system.

In addition, based on economics and needs, in any given hour, PJM facilitates the export or import of power to and from our interconnected neighboring systems, including: those systems to our south, such as Duke Energy in the Carolinas and the Tennessee Valley Authority (TVA); the Midcontinent Independent System Operator (MISO) to our west; and the New York Independent System Operator to our north.

In fact, our strong interconnected ties with our neighbors have allowed us to facilitate exports to our neighbors in the MISO, TVA, Duke Energy-Carolinas and the Southwest Power Pool (SPP) during tight conditions, such as those experienced in Winter Storm Elliott in December of 2022, and have allowed end-use customers within the PJM region to benefit from lower-cost supplies of electricity from our neighbors during other times of the year.

These strong ties (which we refer to as "interregional transfer capability") help to support reliable and cost-effective operations throughout the entire Eastern Interconnection. PJM also is responsible for managing the interconnection of new generation seeking development in the region. In just a few years, we have seen our interconnection queue transform from one dominated by a few large natural gas projects to one today that is dominated by many, smaller, new renewable resources.

The Integration of Markets, Operations and Planning: Real Customer Savings

The efficiencies of this market-based approach to reliability, combined with our Planning functions and geographic scale, have resulted in real savings to customers, estimated at between $3.2 billion and $4 billion annually. Those savings fall into several categories as exemplified in **Figure 3**.

Figure 3. PJM Value Proposition

The customer savings outlined above are annual estimated savings in the delivery of electricity at the wholesale level, i.e., the delivery of electricity to "load-serving" entities, which can be your traditional utility or, in retail choice states, a competitive service provider. Individual states then have a variety of means to pass those savings through to retail end-use customers. These pass-through vehicles include: fuel-adjustment and purchased-power-adjustment clauses, which are line items in individual customer utility bills in traditionally regulated states; competitive auctions (known as default service auctions); or direct customer choice programs in states that have restructured the delivery of electricity to retail customers.

What is key is that the competitive wholesale market structure that PJM has championed over the years is fully adaptable to states that have restructured their markets, as well as those that have maintained the traditional model of a single regulated supplier of electricity (known as "vertical integration").

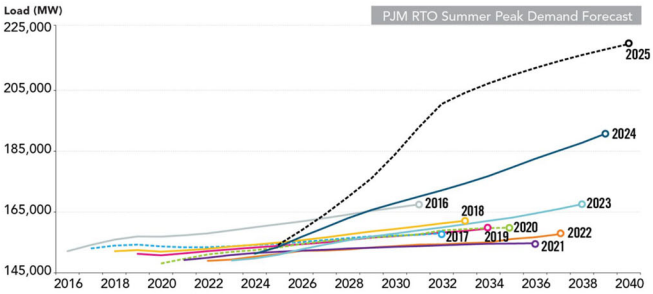
Major Demand Increases Forecasted

In January, PJM issued its 2025 Long-Term Load Forecast, which predicts significant growth in electricity demand looking out over a 20-year planning horizon, shown in **Figure 4**. It is also worth noting that this latest forecast includes substantial demand increases when compared to the one issued just one year prior, showing how quickly these industry dynamics are accelerating. Demand increases are being driven largely by data center proliferation, but also based on the growth in electrification (both EVs and for heating) and the onshoring of the manufacturing industry.

According to our most recent forecast, PJM expects its summer peak to climb about 70,000 MW, to 220,000 MW, over the next 15 years. The record summer peak for the PJM footprint occurred in 2006 at 165,563 MW.

While winter peaks will remain slightly lower, the forecast shows winter closing the gap in peak electricity use, estimated at 210,000 MW by 2039. PJM's record-high winter peak occurred in January, when PJM served a preliminary load of approximately 145,000 MW on the morning of Jan. 22, according to preliminary load estimates.

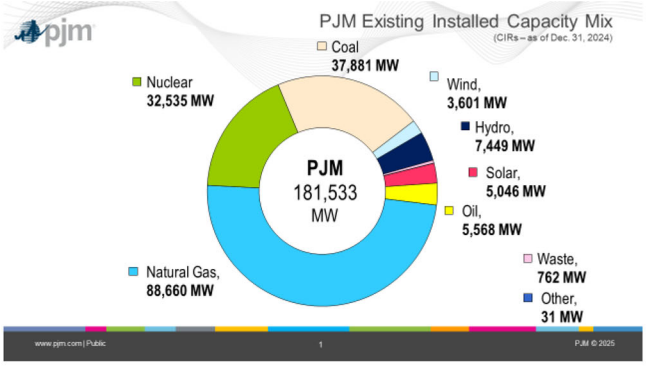
Figure 4. Electricity Demand Growth



Supply Decreasing on the System and New Supply Not Maintaining Pace

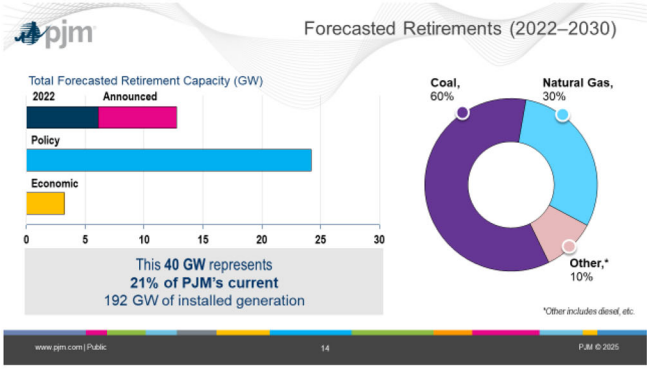
PJM has had a diversified portfolio of generation assets that have capably served to maintain grid reliability for many years.

Figure 5. PJM Existing Installed Capacity Mix (Capacity Interconnection Rights – as of Dec. 31, 2024)



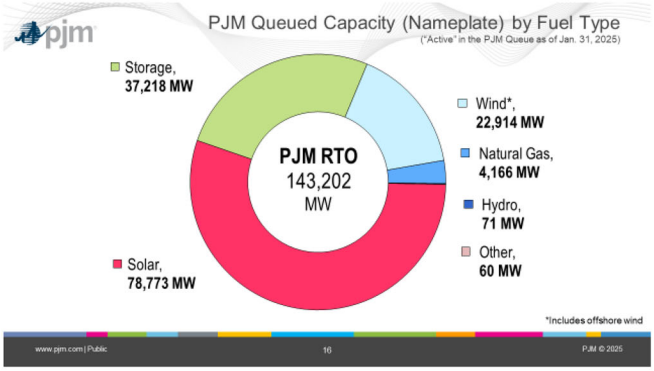
This portfolio is undergoing significant transition. Dispatchable generators, i.e., those generators that can quickly respond to directions from PJM operators regardless of weather, are retiring at a rapid, date-certain pace, largely due to state and federal policies. Although today the category of dispatchable generators largely refers to fossil-fuel-based resources, longer-duration batteries and potentially other technologies could also serve in this role in the future to the extent they can become more cost-effective and be deployed at scale.

Figure 6. Forecasted Retirements (2022–2030)



PJM is simultaneously experiencing an accelerating transition toward intermittent renewable generation. Policies, economics and consumer choices are shifting the grid away from dispatchable, emitting generation resources toward intermittent generation with little-to-no carbon emissions.

Figure 7. PJM Queued Capacity (Nameplate) by Fuel Type ("Active" in the PJM Queue as of Jan. 31, 2025)



PJM is resource agnostic and is working to facilitate the entry of these resources onto the system. As demand increases, PJM will need not only a substantial amount of this mostly renewable generation in our queue to construct to keep pace, but additional supply that has not yet entered our queue to meet our forecasted demand increases in the out years.

However, the Committee should note that renewable resources do not replace thermal dispatchable resources "1 for 1," and any system will require multiple megawatts of renewable resources to replace one megawatt of a retiring dispatchable resource due to former's lack of availability/capability in certain hours of the day and seasons of the year.[1] Further, unlike traditional thermal generation, renewable resources do not provide certain "essential reliability services"[2] that are necessary to balance and maintain the power grid.

PJM believes that the forecasted increase in demand is an "all hands on deck" event, and that we will need all of our resources in order to meet both the opportunity and challenge that this demand increase presents.

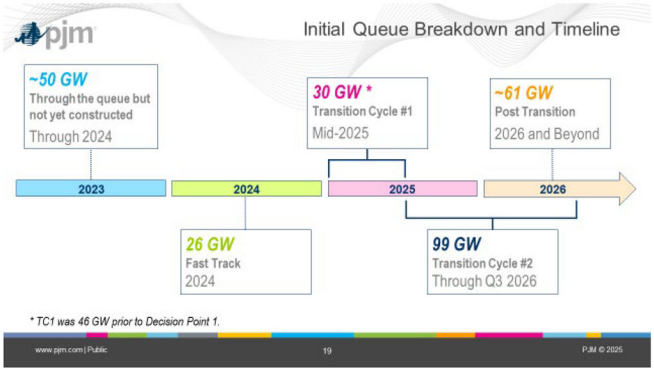
[1] Due to both natural resource constraints (the sun doesn't always shine and wind doesn't always blow) or technical and economic constraints (e.g., long-duration battery storage technology is still maturing), one megawatt of wind, solar or battery isn't enough to replace one megawatt of dispatchable thermal generation. It takes many megawatts, and usually a range of technologies available at different times, to effectively replace a megawatt of thermal generation.

[2] This term is defined by the North American Electric Reliability Corporation and includes physical grid concepts such as voltage control, frequency support, and ramping capabilities.

PJM is also responsible for managing the interconnection of new generation seeking development in the region. In just a few years, we have seen our interconnection queue transform from one dominated by a limited number of natural gas projects to one today that includes many, smaller, new renewable resources. You may have heard of delays in the processing of new generators' requests to interconnect, and these delays are not limited to PJM but faced by virtually all grid operators across the nation. They reflect the ever-increasing demand for developing new renewable resources through public policy initiatives as well as corporate goals and customer demands. However, these delays were exacerbated by our interconnection queues containing many speculative projects where developers would, at a very low cost, submit multiple hypothetical projects, even with intentions to only build one such project.

With the approval of FERC, PJM launched significant reforms that move the interconnection process from a "first-come, first-served" system of queue management to a "first-ready, first-served" system with progress payments and milestones designed to weed out speculative projects and the wasted time, resources and study work that resulted. The transition is expected to be completed next year, and below is a snapshot of the volume of projects that we have cleared, and expect to clear, through the queue.

Figure 8. Initial Queue Breakdown and Timeline



It is important to note that we currently have approximately 50 GW of resources that have cleared the interconnection process. Developers do not have any additional work to perform with PJM to study their safe and reliable interconnection to the power grid but are not proceeding to construction and operation expeditiously. In many instances, these developers are experiencing issues that are outside of their own control. These include project financing, global supply chain and permitting/siting lag or refusals. In 2024, PJM interconnected approximately 4,800 MW to the grid, not enough to keep pace with retirements and load growth.

Expediting Supply and Market Reforms to Support Reliabilty

In addition to processing thousands of megawatts of projects through the existing queue, PJM is doing everything it can within its given authority to expedite additional supply connecting to the grid. In December, PJM advanced three efforts to create lanes both within and outside of the queue process. These include:

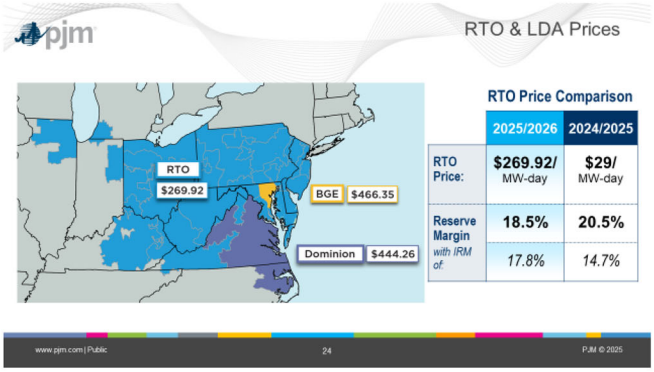
- **Capacity Interconnection Rights Transfer** – new generation resources swapping in for a deactivating generation resource at the same or similar location that then don't need to go through the generation interconnection queue (e.g., coal plant retirement and gas conversion or renewables swapping in)

- **Surplus Interconnection Service** – making it easier to add more generation to an existing site for generators that are not able to operate continually 24/7/365 (e.g., adding storage to a renewable site)

- **Reliability Resource Initiative** – a queue opened for new, shovel-ready resources that can come online quickly and that most effectively contribute to reliability (e.g., nuclear uprates, new nuclear, new gas, battery storage)

As to markets, PJM has also taken recent action to better reflect supply/demand fundamentals. Markets are essential in PJM to incentivize new generation entry from private developers as opposed to a paradigm where consumers pay for that new development. PJM is committed to its markets and the capacity market is an important tool that serves to procure enough supply to meet demand during a given year in the future. The price of capacity rose sharply in our most recent auction, reflecting the supply/demand concerns that we have been expressing for several years.

Figure 9. RTO & LDA Prices



Our reserve margin has declined, and as our reserve margin continues to decline, prices are likely to increase. Simply put, as supply decreases and demand increases, prices will go up. It is important to note that capacity prices are but one component of the total wholesale cost of power – meaning one part of a larger component (generation) of total wholesale power costs. In addition, the capacity market is a residual market, where power is procured only if you are not self-supplying or engaged in a bilateral contract. Further, for the end-use consumer, this cost can be hedged by these mechanisms or through state procurement auctions. The bottom line is that rising capacity prices are indicative of the tight supply/demand environment we are experiencing and could rise further should conditions persist or worsen.

PJM's Perspective Moving Forward and Policy Guidance

Grid reliability and, in particular, resource adequacy are national issues. NERC has identified that nearly two-thirds of the country is experiencing similar conditions to PJM. As demand rises, we must continue to maintain reliability for our consumers in as cost-effective a manner as possible. PJM has been warning of our concerns for some years now, and we are grateful to the Committee for the seriousness with which you are approaching this issue. After years of flat demand, the dynamics we are collectively experiencing now provide the opportunity for collaboration and advancement for the betterment of our nation.

As noted above, PJM is doing everything within its authority to try and tackle this supply/demand challenge. It is also very conscientious of maintaining cost-effectiveness for consumers while simultaneously attempting to balance the varied policy priorities of our policymakers.

PJM largely leaves the determination of policy to you and your counterparts at the state level. However, we urge that reliability considerations be built into the analysis of potential policies rather than either being taken for granted or considered only as an afterthought once legislation is enacted. To date, we have been able to manage reliability emergencies that are exacerbated by policy choices through various "reliability safety valves" that we sought to build into the rules, with use of the Secretary of Energy's Federal Power Act Section 202(c) emergency authority as a last resort when necessary.

Further, based upon the price increases that are likely to result from tightening supply/demand, rising costs should be considered as a natural byproduct of any policies that are enacted that exacerbate our current supply/demand challenge. Finally, anything this Committee can do to expedite the construction of new energy infrastructure, both generation and transmission, is welcome.

I thank you for the opportunity to present my testimony today. I look forward to your questions.

Mr. LATTA. Mr. Norris, you are recognized for 5 minutes for your opening statement.

STATEMENT OF TYLER H. NORRIS

Mr. NORRIS. Good morning, Chairman Latta, Ranking Member Castor, Chairman Guthrie, and Ranking Member Pallone, and members of the subcommittee. Thank you for the opportunity to testify. I am informed that another Tyler testified a month ago. I assure you, this is not coordinated.

My name is Tyler Norris. I am a James B. Duke Fellow at Duke University. My Ph.D. research focuses on electric power systems. My research is informed by 15 years of experience in the energy sector, spanning utility-skilled power plant development, electricity market forecasting, and technology commercialization at the Department of Energy. I am here today in my personal capacity.

My testimony draws, in part, from my research as lead author of a new study called "Rethinking Load Growth," released last month by Duke University's Nicholas Institute.

While demand presents challenges, our research suggests that with strategic planning, the U.S. power system is well positioned to integrate these loads in a reliable and cost-effective manner.

My testimony focuses on three areas: first, how the existing power system can integrate new large loads while preserving reliability; second, how interconnection reforms can accelerate new generation; third, how these near-term solutions can buy time and capital for long-lead resources, like bulk transmission and nuclear power.

First, our analysis finds that with modest flexibility from new large loads, the grid can accommodate significant demand growth without major new infrastructure. The U.S. power system is already designed to handle extreme peaks and demand, meaning that in most hours the substantial portion of the power system is unutilized. And, in fact, we found that the average utilization rate of the U.S. power system is 53 percent, meaning that nearly half of our power infrastructure sits unused at any given time.

If new large loads such as AI data centers can adjust their power consumption during a small fraction of high-stress hours on the order of 0.5 percent of their maximum up time, the grid could absorb the equivalent of four or five Project Stargates, the $500 billion data center initiative announced by President Trump. This highlights a key opportunity. Leveraging existing capacity through flexible load strategies can provide a bridge while long-lead resources, such as new transmission and a clean firm generation, are developed.

Second, while load flexibility can help, interconnection delays remain a major obstacle to deploying new generation. And the volume of projects stuck in interconnect queues has quadrupled to 2,600 gigawatts.

However, there is one market—the Electric Reliability Council of Texas—they have taken a different approach, and it is achieving significantly greater interconnection and performance than other U.S. markets.

Between 2021 to 2023, ERCOT interconnected at least 70 percent more generation capacity than any other organized market, despite serving a load that is half the size of PJM's.

Unlike other regions which require extensive studies and costly network upgrades before allowing new generators to connect, ERCOT permits interconnection first and manages grid impacts in real time, while planning transmission upgrades separately.

While not all markets can replicate the ERCOT's approach without structural reforms, there are meaningful steps that FERC and other policymakers can take to improve interconnection efficiency. These include adopting a less restrictive approach to energy resource and interconnection service, enabling generators to use grid capacity reserved for existing power plants and developing interconnection entry fees to provide greater upfront certainty.

Finally, long-term reliability will require investment, new transmission and clean firm generation. These resources can take a decade to develop, and their high capital cost makes them highly sensitive to policy uncertainty.

So stable Federal policies, including maintaining tax incentives, loan guarantees, and clear transmission-planning processes, will be critical to ensuring that these projects are built.

At the same time, a hasty overbuild of new gas infrastructure in response to load growth could undermine private investment and clean firm technologies such as advanced nuclear and geothermal.

If investors perceive that policymakers are tilting the playing field towards gas or creating excess capacity that substantially depresses capacity prices, they may be reluctant to commit to these higher-risk, long-term investments.

In conclusion, by leveraging flexible load, streamlining interconnection, and investing in long-lead resources, the U.S. can maintain reliability while enabling economic growth and making progress on decarbonization.

Thank you for the opportunity to testify, and I look forward your questions.

[The prepared statement of Mr. Norris follows:]

United States House of Representatives, 119th Congress
Energy and Commerce Committee
Subcommittee on Energy

Congressional Testimony of Tyler H. Norris of Duke University
Hearing on *Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity*
March 5, 2025

Good morning, Chairman Latta, Ranking Member Castor, Chairman Guthrie, Ranking Member Pallone, and Members of the Subcommittee. Thank you for the opportunity to testify. I am here today in my personal capacity and not on behalf of Duke University.

My name is Tyler Norris. I am a James B. Duke Fellow at Duke University's Nicholas School of the Environment, where my PhD research focuses on bulk electric power systems. My research is informed by fifteen years of energy sector experience, most recently as vice president of development at Cypress Creek Renewables, a leading US independent power producer, where I managed a multi-gigawatt project portfolio. I was previously a director at S&P Global Platts, an international energy consultancy, where I developed power market forecasts for electric utilities and integrated majors. Prior to S&P, I was a special advisor at the US Department of Energy, where I designed technology commercialization programs.

I am here to testify that the United States can support the orderly integration of new electricity demand, provided we make strategic use of existing infrastructure, provide a stable policy environment, and take a proactive approach to plan and invest in long lead resources. My testimony draws in part from my research as lead author of the recent study, *Rethinking Load Growth: Assessing the Potential for Integration of Large Flexible Loads in US Power Systems*, released in February 2025 by Duke University's Nicholas Institute for Energy, Environment, and Sustainability.[1]

In short, our findings suggest that with modest flexibility from new large electricity customers, the existing US power system can accommodate substantial load additions without compromising reliability. Given the time required to develop new generation and transmission at scale, leveraging the infrastructure we have already will be essential in the near term. Flexibility measures can provide a crucial bridge, buying time and conserving capital while longer-lead resources are planned and built.

My testimony today will cover three topics. First, I will discuss how the existing US power system can quickly integrate large volumes of new electricity load while preserving reliability and affordability. Second, I will review opportunities to accelerate the addition of new generation to grid. Finally, I will outline how these measures can buy time and conserve capital for scaling up long-lead investments, including bulk transmission expansion, clean firm generation, and long-duration energy storage.

[1] Norris, T. H., T. Profeta, D. Patino-Echeverri, and A. Cowie-Haskell. 2025. Rethinking Load Growth: Assessing the Potential for Integration of Large Flexible Loads in US Power Systems. NI R 25-01. Durham, NC: Nicholas Institute for Energy, Environment & Sustainability, Duke University. https://nicholasinstitute.duke.edu/publications/rethinking-load-growth.

I. The Existing US Power System Can Accommodate Large Load Additions

Limits to Rapid Infrastructure Expansion Demand Broader Solutions

US winter peak load is now forecasted to grow by 21.5% over the next decade, higher than any period since the 1980s.[2] The primary catalyst for this updated forecast is the surge in electricity demand from large commercial customers. While significant uncertainty remains, particularly following the release of DeepSeek, data centers are expected to account for the single largest growth segment, adding as much as 65 GW through 2029 and up to 44% of US electricity load growth through 2028.[3] [4]

This load growth is colliding with barriers to timely resource expansion, including supply chain constraints, restrictive interconnection procedures, and extended permitting processes, among other obstacles. Transformer order lead times have grown to two to five years, up from less than one year in 2020, while costs have surged by 80%.[5] More recently, lead times for gas turbines have reportedly reached four years,[6] with NextEra's CEO stating in a recent earnings call that new gas projects "won't be available at scale until 2030, and then only in certain pockets of the US."[7] Due in part to these constraints, some utilities have quoted interconnection delays for new large loads ranging up to 7 to 10 years.[8] [9]

Today's infrastructure development challenges appear to be more pronounced than in past periods of US load growth, driven by stricter permitting requirements, a diminished manufacturing base, skilled labor shortages, higher population density, and less land availability. The scale and complexity of the challenge underscores the importance of deploying every available tool, especially those that can more swiftly, affordably, and sustainably integrate large loads – particularly amid market pressure for many customers to access the grid as quickly as possible.

In recent months, the US Secretary of Energy Advisory Board and the Electrical Power Research Institute have highlighted a key solution: load flexibility.[10] [11] The promise is that the unique profile of AI data centers can facilitate more flexible operations, supported by ongoing developments in distributed energy resources (DERs) and advanced computational resource management.

Load flexibility refers to the ability of end-use customers to temporarily reduce their electricity consumption from the grid during periods of system stress by using on-site generators, shifting workload to other facilities, or scaling back operations. When system planners can reliably anticipate this load flexibility, the immediate pressure to expand generation capacity and transmission infrastructure can be alleviated, mitigating or deferring costly expenditures. By facilitating near-term load growth without

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[2] NERC. 2024 Long-Term Reliability Assessment. Atlanta: North American Electric Reliability Corporation.
[3] Wilson, J. D., Z. Zimmerman, and R. Gramlich. 2024. Strategic Industries Surging: Driving US Power Demand. Bethesda, MD: GridStrategies. https://gridstrategiesllc.com/wp-content/uploads/National-Load-Growth-Report-2024.pdf.
[4] Rouch, M. A. Denman, P. Hanbury, P. Renno, and E. Gray. 2024. Utilities Must Reinvent Themselves to Harness the AI-Driven Data Center Boom. Boston: Bain & Company. https://www.bain.com/insights/utilities-must-reinvent-themselves-to-harness-the-ai-driven-data-center-boom/.
[5] NIAC. 2024. Addressing the Critical Shortage of Power Transformers to Ensure Reliability of the U.S. Grid. The National Infrastructure Advisory Council. Washington, DC: The President's National Infrastructure Advisory Council.
[6] GEP. 2024. "Navigating Energy Transition Challenges and Supply Chain Innovations." https://www.gep.com/blog/strategy/energy-transition-challenges-supply-chain-innovations.
[7] Arun, A. 2025 "The Natural Gas Turbine Crisis." *Heatmap News*, February 26. https://heatmap.news/ideas/natural-gas-turbine-crisis.
[8] Saul, J. 2024. "Data Centers Face Seven-Year Wait for Dominion Power Hookups." *Bloomberg*, August 29.
[9] WECC. 2024. "State of the Interconnection." Western Electricity Coordinating Council, September. https://feature.wecc.org/soti/topic-sections/load/index.html.
[10] SEAB. 2024. Recommendations on Powering AI and Data Center Infrastructure. Washington, DC: US Secretary of Energy Advisory Board. https://www.energy.gov/sites/default/files/2024-08/Powering%20AI%20and%20Data%20Center%20Infrastructure%20Recommendations%20July%202024.pdf
[11] Walton, R. 2024. "EPRI Launches Data Center Flexibility Initiative with Utilities, Google, Meta, NVIDIA." *Utility Dive*, October 30. https://www.utilitydive.com/news/epri-launches-data-center-flexibility-initiative-with-NVIDIA-googlemeta/731490/.

prematurely committing to large-scale capacity expansion, this approach offers a hedge against mounting uncertainty in the US data center market in light of the release of Deep-Seek.

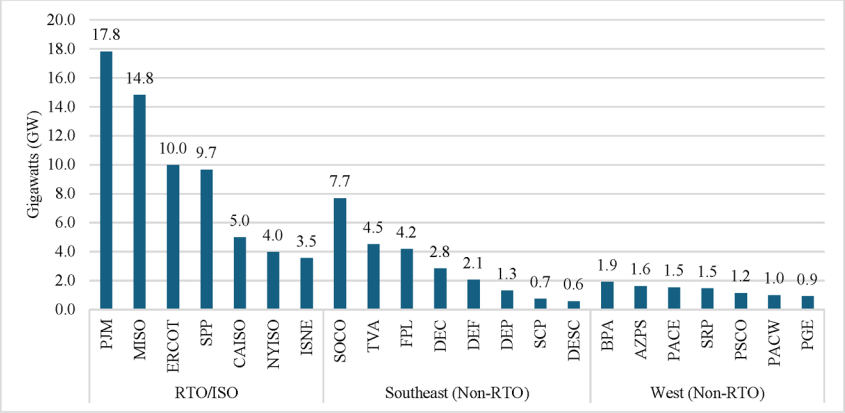
Modest Flexibility from New Loads Can Enable Significant Load Additions

To support the identification of near-term solutions, my colleagues and I recently conducted a study on how the existing US power system can accommodate new loads. The analysis, which encompasses 22 of the largest US balancing authorities serving 95% of the country's peak load, provides a first-order estimate of the volume of new load that could be added before total system-wide load exceeds what grid operators are already prepared to serve, provided the new load can be temporarily curtailed as needed. We term this curtailment-enabled headroom.

Key results include:

- 76 gigawatts (GW) of new load – equivalent to 10% of the nation's peak demand – could be integrated with an average annual load curtailment rate of 0.25% (i.e., if new loads can be curtailed for 0.25% of their maximum uptime)[12]
- 98 GW could be integrated at a 0.5% curtailment rate (Figure 1), and 126 GW at 1.0%
- The average curtailment event lasts about two hours, and nearly 90% of hours during which load reduction is required retain at least half of the new load (i.e., less than 50% curtailment of the new load is required)
- The five balancing authorities with the largest potential load integration at 0.5% annual curtailment are PJM at 18 GW, MISO at 15 GW, ERCOT at 10 GW, SPP at 10 GW, and Southern Company at 8 GW

Figure 1: System Headroom Enabled by 0.5% Curtailment of New Load by Balancing Authority

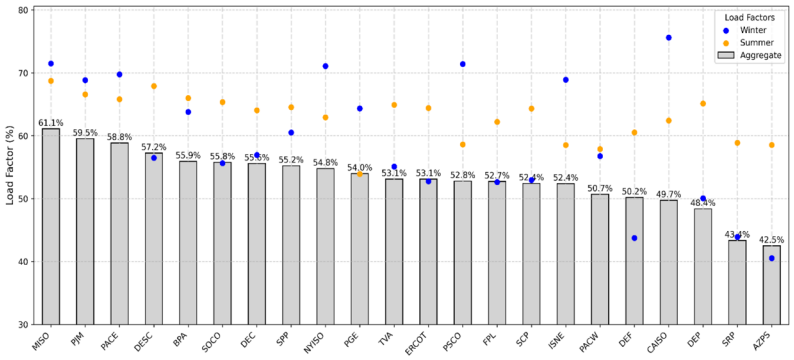


[12] For example, a 100 GW data center with a maximum potential annual electricity use of 876,000 GWh (100 GW * 8760 hrs/year) would need to curtail 0 25% of this consumption from the grid in an average year, totaling 2,190 GWh.

To contextualize these figures, the $500 billion data center megaproject announced by President Trump, Project Stargate, would entail 15-25 gigawatts of new load.[13] In other words, if new AI data centers can adjust their electricity consumption during a limited number of hours when power grids experience peak stress, equivalent to 0.5% of their maximum uptime, the existing US power system could accommodate up to four or five Project Stargates. This is equivalent to more than $2 trillion in data center investment.

These findings suggest that the existing US power system can accommodate significant load additions with limited flexibility measures. This is possible because the grid is designed to handle occasional demand spikes during extreme weather, meaning it operates with spare capacity in most hours. In fact, our analysis found that the average load factor – the utilization rate of the system – is just 53%, indicating that nearly half of US electrical infrastructure remains unused at any given time, on average (Figure 2).

Figure 2: Load Factor by Balancing Authority and Season, 2016–2024



Achieving this potential does not require new technologies but rather more methodical up-front planning. As we document in our report, data centers and other large computational loads are already participating in demand response programs, and US utilities and system operators have started introducing similar service options in their territories.

This should not be interpreted to suggest the US can fully meet its near-and medium-term electricity demands without building new peaking capacity or expanding the grid, not least due to other sources of electricity demand growth.[14] Instead, the findings highlight how flexible load strategies can help tap existing system headroom to more quickly integrate new loads, reduce the cost of capacity expansion, and enable greater focus on the highest-value investments in the electric power system.

While our study focused on the opportunity for flexibility from new data centers, it is worth emphasizing that flexibility could be a promising opportunity for other commercial, industrial, and residential loads, including existing customers. If a new data center finds it impractical or uneconomical to be flexible, it

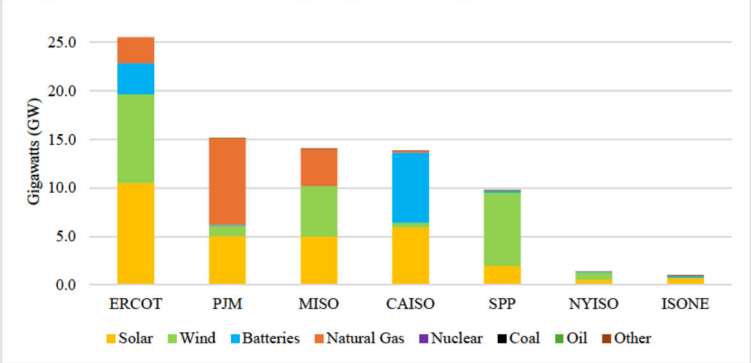
[13] Sivaram, V. 2025. "America May Not Need a Massive Energy Build-Out to Power the AI Revolution." Council on Foreign Relations. https://www.cfr.org/blog/america-may-not-need-massive-energy-build-out-power-ai-revolution.
[14] As noted in our report, the precise requirements for power generation and transmission capacity to integrate these new loads reliably and affordably must be calculated with follow-up studies that remove the simplifying assumptions of these first order estimate.

could conceivably procure flexibility from other loads (e.g., as a "virtual power plant") to create similar system-wide benefits. Similarly, measures to improve the energy efficiency of the existing US building stock can support load additions by putting downward pressure on system peaks.

II. Streamlining Grid Access Can Unlock New Power Generation

Just as flexible loads help make better use of existing infrastructure, an approach that embraces flexible generation interconnection can accelerate the addition of new power resources, reducing the number of valuable projects that remain stuck in interconnection queues for years while waiting for costly upgrades. Despite the need for new generation, inefficiencies in grid connection have become a major barrier, with interconnection queue capacity quadrupling since 2010 to nearly 2,600 gigawatts[15] and project developers now identifying interconnection as a leading cause of project cancellations.[16] While FERC Order 2023 was a constructive step, these inefficiencies appear likely to persist without further reforms.

Figure 3: Electric Generation Capacity Additions by Market and Fuel, 2021-2023[17]



While most US markets struggle with these delays, the Electric Reliability Council of Texas (ERCOT) has taken a different approach that is achieving significantly greater performance:

- Between 2021-2023, ERCOT interconnected at least 70% more generation capacity than any other ISO/RTO,[18] despite serving a load that is only half of PJM's peak load (Figure 3).
- ERCOT has the fastest interconnection processing rate of any market, requiring nearly 2X less time than markets like PJM and NYISO in terms of duration from interconnection request to interconnection agreement.[19]

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[15] Rand, J., N. Manderlink, W. Gorman, Ryan H.W., et. al. 2024. *Queued Up Characteristics of Power Plants Seeking Transmission Interconnection As of the End of 2023*. Lawrence Berkeley National Laboratory. https://emp.lbl.gov/queues.
[16] Nilson, Robi, Ben Hoen, Joseph Rand. 2024. *Survey of Utility-Scale Wind and Solar Developers Report*. Lawrence Berkeley National Laboratory. https://emp.lbl.gov/publications/survey-utility-scale-wind-and-solar.
[17] Chart created by the author based on data sourced from EIA and EPA.
[18] This estimate is conservative, because it relies on EIA's definition of operational capacity and does not account for a material volume of generators that are synchronized but not yet declared fully commercially operational.
[19] Rand, Joseph, Nick Manderlink, Will Gorman, Ryan Wiser, Joachim Seel, Julie M. Kemp, Seongeun Jeong, and Fritz Kahrl. *Queued Up 2024 Edition, Characteristics of Power Plants Seeking Transmission Interconnection As of the End of 2023*. 2024.

- For interconnection requests from 2000-2018, ERCOT (30%) had the second-highest project completion rate after ISO-NE.[20]

The key difference is that several electricity markets, including PJM, impose substantially higher barriers to entry for new generators seeking to connect to the transmission system. In contrast, ERCOT allows generators to freely connect and, once online, manages their grid impacts with real-time operational tools, while pursuing transmission upgrades through a separate planning process – an approach known as "connect and manage."[21]

Under the more restrictive approach, new proposed generators are required to undergo rigorous studies that frequently trigger the need for extensive grid upgrades, for which the full cost is generally assigned to the proposed generators. This can require years of study and often leads to cascading project withdrawals, as the assigned costs make the projects economically unviable, thus triggering the need for additional studies. To offer an analogy, this is akin to if President Eisenhower had required commercial truck fleets to pay upfront for the cost of the Interstate Highway System before commencing its construction.

ERCOT's unique market structure means that other markets cannot easily replicate its approach without structural reform.[22] However, there are meaningful steps other markets can take to improve their interconnection performance, which FERC and other policymakers can encourage, including:

- *Adopt less restrictive treatment of Energy Resource Interconnection Service (ERIS):* FERC created ERIS in Order 2003 to provide a less restrictive option for generator interconnection, but it is often treated restrictively or otherwise discouraged. To address this, transmission providers can adopt ERIS treatment that is more consistent with the intended purpose of the service. [23] [24] [25]
- *Enable new generators to use grid capacity reserved for existing generators*: FERC could establish clear and consistent rules for Surplus Interconnection Service, ensuring that all transmission providers provide a streamlined, workable study and evaluation process for new energy resources to share interconnection rights with existing power plants that aren't fully using the rights they have been allocated.[26]
- *Adopt an interconnection "entry fee" for proactively planned capacity:* FERC can encourage transmission providers to allow new proposed generators to proceed quickly with upfront certainty by specifying in advance the cost information in exchange for taking on some of the cost of planned transmission buildout.[27]

Some markets have proposed to address this dilemma by changing long-standing market rules to prioritize certain types of generators over others in the interconnection process. Unfortunately, this

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[20] Ibid., 29.
[21] Norris, T. H. 2023. *Beyond FERC Order 2023 Considerations on Deep Interconnection Reform*. NI PB 23-04. Durham, NC: Nicholas Institute for Energy, Environment & Sustainability, Duke University. https://nicholasinstitute.duke.edu/publications/beyond-ferc-order-2023-considerations-deep-interconnection-reform.
[22] Unlike other markets, as an energy-only market without a capacity market, ERCOT's interconnection process is not delayed by studies that identify the network upgrades required to guarantee that the newly connected generators can sell their capacity, nor does it require generators to fund such network upgrades, which often undermines generators' financial viability and prompts projects cancelations.
[23] Norris, T.H. 2024. Pre- and Post-Workshop Comments for Staff-Led Workshop on Innovations and Efficiencies in Generator Interconnection. FERC Docket No. AD24-9-000. https://elibrary.ferc.gov/eLibrary/docketsheet?docket_number=ad24-9
[24] Enel North America. 2024. Pre-Workshop Comments for Staff-Led Workshop on Innovations and Efficiencies in Generator Interconnection. FERC Docket No. AD24-9-000. https://elibrary.ferc.gov/eLibrary/docketsheet?docket_number=ad24-9
[25] Joint Post-Workshop Comments of RMI, Clean Energy Buyers Association, Conservative Energy Network, et al. Docket No. AD24-9-000
[26] Farmer, M., and A. Silverman. 2025 *Unlocking the Power of Surplus Interconnection Barriers Opportunities, and Strategic Solutions*. GridLab. https://surplusinterconnection.s3.us-east-1.amazonaws.com/2025-02-21_GridLab_Surplus_Interconnection_Barriers_Report.pdf
[27] Gramlich, R. et al. "Unlocking America's Energy: How to Efficiently Connect New Generation to the Grid." 2024. https://blog.advancedenergyunited.org/reports/unlocking-americas-energy

appears to be a temporary fix at best and, at worst, could result in lasting damage to business confidence in the integrity of market rules that discourages future private investment.

III. Near-Term Solutions Buy Time and Capital for Long-Lead Resources

Immediate additions of flexible loads and generators can provide a bridge that buys time and saves capital while power system planners scale up longer-lead-time resources, including transmission expansion, clean firm generation,[28] and long-duration energy storage. Solar and wind backed by lithium-ion battery storage will continue to play a major role, but in many jurisdictions, a feasible and cost-optimal long-term portfolio will require a mix of variable renewables, clean firm generation, and other balancing resources. While near-term solutions can alleviate pressure, sustained investments in these foundational resources are necessary to ensure the US can reliably meet demand growth into the 2030s and beyond.

A complete discussion of these long-lead resources is beyond the scope of this testimony, but a few key points bear emphasis. First, projects that require on the order of a decade to develop and construct are unlikely to make a material contribution in response to near and medium-term load growth. However, this does not diminish their importance. To the contrary, these resources will be vital to sustaining reliability, affordability, and progress on decarbonization beyond the next decade, especially as the "lowest hanging fruit" associated with more readily scalable resources is depleted.

Second, the high upfront capital expenditures typically associated with long-lead resources make them particularly sensitive to policy and regulatory uncertainty. Stable federal and state policies are critical to reducing financing risk and ensuring these projects can be developed at reasonable cost. For example, a repeal of the Inflation Reduction Act's technology-neutral tax credits or a rollback of loan guarantees from the Department of Energy's Loan Programs Office would likely have a crippling effect on investments in advanced nuclear, carbon capture and storage, and other next-generation energy technologies. Similarly, trade policies that increase the cost of essential input materials, such as steel, transformers, and rare-earth elements, could significantly impact project viability.

Third, these high upfront capital expenditures generally require higher electricity rates, especially to the extent that federal and state incentives are rolled back. With ratepayers already facing rising power bills across the US, each jurisdiction will inevitably face limits to how many large, capital-intense, long-lead projects it can bear. This underscores the importance of sophisticated, proactive planning to identify and prioritize the highest value projects, such as through the multi-value long-term scenario-based transmission planning required by FERC Order 1920.

Fourth, a hasty over-build of natural gas infrastructure in response to load growth could undermine private investments in clean firm technologies like advanced nuclear and enhanced geothermal, while exposing ratepayers to the risk of rising gas prices and market volatility. If investors perceive that policymakers are tilting the playing field to favor gas over other resource options, or that gas overbuild could depress capacity market prices, they are less likely to make higher-risk, long-term investments in clean firm technologies.

[28] "Clean firm" generally refers to electricity generation technologies that produce low or zero greenhouse gas emissions while being dispatchable, such as nuclear, geothermal, carbon capture and storage, hydropower with storage, and potentially green hydrogen-fueled power plants and some long duration storage systems.

IV. Conclusion

The United States has the infrastructure, resources, and technological capability to meet growing electricity demand. By leveraging the flexibility of new large loads, streamlining generator interconnection, and making strategic investments in long-lead resources, policymakers can ensure a reliable, affordable, and sustainable power system for the future. While near-term solutions such as load flexibility and more efficient interconnection processes can help maximize existing infrastructure, these measures should be complemented by long-term investments in transmission expansion, clean firm generation, and other advanced energy technologies. Achieving this balance will require a stable policy environment that encourages private investment and avoids reactionary decisions that could undermine market confidence.

Mr. LATTA. Well, thank you very much for your opening statement.

Mr. Black, you are recognized for 5 minutes for your opening statement.

STATEMENT OF NOEL W. BLACK

Mr. BLACK. Thank you up, Chairman Latta, Chairman Guthrie, Ranking Member Castor, and members of the committee for the opportunity to discuss what we see as exciting but pressing policy issues around electricity.

Electricity is the lifeblood of our modern society. Its essential service is woven into every aspect of our lives. It powers our homes and hospitals, drives our economic growth, and ensures the well-being and safety of our customers.

We believe this interconnected grid that we have built over the last 100 years is irreplaceable in delivering electric service and provides scale and value that other solutions can't match.

Electricity is a necessity. An access to reliable electricity is a fundamental expectation. When electricity is unstable or unaffordable, the real-world impacts are immediate and can be severe. Our responsibility is to ensure the grid delivers dependable, cost-effective energy no matter the circumstances and over the long term.

At Southern Company, our 28,000 employees take this very seriously. Every day, we work to serve 9 million customers who rely on us. Our diverse 44,000-megawatt interconnected fleet spanning nuclear and hydro, natural gas, coal, and renewables demonstrates how an intentionally engineered approach provides a foundation for energy security.

Our system, this interconnected grid, is a modern engineering marvel, as we have heard earlier. Utilities like ours are an essential piece of the energy equation. It is not only the interconnected grid with its—it is only—I beg your pardon—the interconnected grid with its scope and scale that can meet all customers' needs.

Southern Company's commitment to innovation resilience is evident. With the recent addition of new nuclear units at Vogtle, we now operate the largest nuclear generation station in the country. In this moment of rapid energy growth, it has become obvious how electricity and energy, though, are highly regional in nature. The weather, resources, State and local politics, geography, the region's load profile and market structure greatly impact the physics and finance of delivering electricity.

We have all heard the one-size-fits-all approaches are often not appropriate for energy policy. That is because of this intense regionalism that drives energy outcomes. At Southern Company, our customers are the beneficiaries of a State-regulated, vertically integrated market structure that holds us, Southern Company, directly accountable.

Straightforward regulatory models like ours, where the accountability for the grid is clearly understood, are producing results enabling this innovation economy.

In short, the Southeast remains open for business. Regions with unusually complex regulatory processes are experiencing slower infrastructure build-out. I think this may be why the concept of co-location has become so popular in certain parts of the country.

Time-challenged customers see colocation as a tool to cut through some of the complexities. As those regions consider colocation arrangements, however, it will be critical to ensure that existing everyday customers are protected.

Colocation arrangements we don't see are not necessary in our region because we are timely serving this demand. At Southern Company, we have a robust, well-planned energy system that seeks to protect all customers from price volatility.

Under the watchful eyes of our regulators, we strive to make the right investments today to keep prices stable and support economic expansion, which helps mitigate any inflationary pressures tomorrow.

However—and I am about to wrap up, and this is important—to sustain this momentum, we must continue to invest in infrastructure. The reality is clear: Infrastructure, particularly natural gas infrastructure, is required now to meet the rising demand. Pipelines, transmission systems, and generation capacity must keep pace with the economy.

Thank you for the opportunity to speak. I look forward to discussing how we can work together to ensure America continues to benefit from abundant, reliable, and affordable energy.

[The prepared statement of Mr. Black follows:]

Southern Company

Testimony of Mr. Noel Black
Senior Vice President of Government Affairs
Southern Company Services

To: The United States House of Representatives Committee on Energy and Commerce
Subcommittee on Energy

"Scaling For Growth: Meeting the Demand for Reliable, Affordable Electricity"

Southern Company is a leading energy provider serving 9 million customers through its family of companies. The company has electric operating companies in three states, natural gas distribution companies in four states, a competitive generation company, a leading distributed energy infrastructure company with national capabilities, a fiber optics network, and telecommunications services.

Our system has over 44,000 MW of generating capacity, capabilities in all 50 states, and approximately 28,000 employees who work every day to keep the lights on and the gas flowing. Our retail electric operating companies are vertically integrated and state regulated utilities, whose customers benefit from a diverse portfolio of generation resources, including nuclear and natural gas resources, that provide reliable and affordable electric service.

Electricity is the lifeblood of modern society. It is not just another commodity--it is an essential service, woven into every aspect of our lives. It powers homes and hospitals, drives economic growth, and ensures the well-being of communities. The interconnected grid is irreplaceable in delivering electric service to consumers, and providing resilience, affordability, and reliability at a scale no other system can match.

Electricity is a necessity and access to reliable electricity is a fundamental expectation--whether for small businesses, large industries, or families in every income bracket. When electricity is unstable or unaffordable, the real-world impacts are immediate and severe. Our responsibility is to ensure the grid delivers dependable, cost-effective energy, no matter the circumstances.

At Southern Company, our employees take this responsibility seriously. Every day, we work to serve the nine million customers who rely on us. Our diverse and interconnected fleet--

spanning nuclear, natural gas, coal, and renewables--demonstrates how a balanced approach provides the foundation for energy security. This system, which is a modern engineering marvel, helps ensure we can meet today's needs while also preparing for the future.

Southern Company's commitment to innovation and resilience is evident. With the recent addition of new nuclear units at Plant Vogtle, we now operate the largest nuclear generating station in the country. As demand grows--driven by data centers and artificial intelligence, manufacturing reshoring, and a changing economy—Southern Company is prepared to provide the reliable power these industries require.

Looking ahead, our nation must prioritize energy abundance. A robust, well-planned energy system supports economic stability, drives growth, and protects consumers from volatility. Under the watchful eyes of our regulators, if we strive to make the right investments today, we can keep electricity prices stable, support economic expansion, and help mitigate inflationary pressures.

However, to sustain this momentum, we must invest in infrastructure that supports this rapid growth. The reality is clear: infrastructure, including natural gas infrastructure, is required now to meet rising demand in an affordable and reliable way. Pipelines, transmission systems, and generation capacity must keep pace with an expanding economy and evolving energy needs.

Importantly, electricity and energy are highly regional in nature. The weather, resources, state and local political environments, geography, and load profiles greatly impact the physics and finance of making, moving and serving electricity. Energy policy is therefore highly regional in nature, and this regionalism must be considered when developing federal policies.

We have all heard that "one-size fits all" policies are often not appropriate in energy policy, and that is because of the intense regionalism that drives energy outcomes. At Southern Company, we operate within a state regulated, vertically integrated market structure that holds us accountable for delivering affordable, reliable power to all customers that we are privileged to serve. Southern Company takes our responsibility to provide reliable and affordable energy to our customers seriously. We conduct extensive integrated resource planning to ensure that we have sufficient resources to meet the energy needs of our customers and that we thoughtfully integrate new, larger customers in a way that benefits all other customers.

Southern Company is proud to deliver reliable and affordable energy that supports our nation and helps the American economy thrive. We do everything in our power to make sure

that the lights are on and the gas is flowing, but our mission goes beyond providing reliable, affordable energy. We are a key part of the communities we serve: our support spans from Little League baseball teams to the local Chambers of Commerce, and everything in between.

Southern Company is committed to our communities for the long-term. We are supporting economic growth in our states by providing the reliable and affordable energy that helps them continue to thrive, because we recognize that we are an irreplaceable part of our states' remaining open for business. This is happening against a backdrop when many parts of the country are shutting their doors to growth for a variety of reasons, including that they simply cannot meet energy needs.

Southern Company appreciates the opportunity to participate in this discussion. We look forward to discussing how we can work together to ensure America continues to benefit from an abundant, reliable, and affordable energy future.

Mr. LATTA. Well, thank you very much for your opening statement. And that will conclude our opening statements from our witnesses. We will now begin the questions for our Members. And I will begin the questions. I recognize myself for 5 minutes.

One of the questions I ask everybody that came before us in the subcommittee in the last Congress is very simple. I usually get a yes or no.

Do we need more energy production in this country, or less? Mr. Brickhouse?

Mr. BRICKHOUSE. Yes.

Mr. LATTA. Mr. Haque.

Mr. HAQUE. Yes.

Mr. LATTA. Mr. Norris?

Mr. NORRIS. Yes,

Mr. LATTA. Mr. Black?

Mr. BLACK. Absolutely.

Mr. LATTA. Thank you. That is exactly the same response I got from everybody in the last Congress.

Boy, lots of questions and so little time that we get. But if I can start—Mr. Haque, if I can ask you some quick questions. We had the polar vortex, it went across the Midwest in 2014. And I know in talking with PJM, I think every year I ask the same questions, if we could sustain what we were able to do, not having blackouts, brownouts at that time.

But when looking at PJM's statements and also what was told in my office, that we also now are looking at 2026. What could happen in 2026 if we had another massive polar vortex?

Mr. HAQUE. So, Chairman, you know, where we are headed is this continued supply/demand crunch—so, again, supply is coming off the system, we are not seeing a lot of the new supply added to the system, and then we are seeing these major upticks in demand——

Mr. LATTA. Let me interrupt. I am sorry to interrupt. Let me just ask you what you just said. Because, also, in your testimony you brought this up. You know, we are taking off generation at the same time the demand is going up. Should we be looking at not taking off that generation? And why is that generation being taken offline?

Mr. HAQUE. The drivers behind generation leaving the system are primarily State and Federal decarbonization policies in tandem with some economics. We put out a study in 2023. It was an energy transition study that we put together that expressed the statistics around the drivers for supply leaving the system.

Mr. LATTA. Well, you know, that is concerning because, you know, if we are taking it off at the same time we are having more need, it is going to be a real problem for us.

Mr. Black, if I could ask, in your statement, and also towards your closing in your statement, you are talking about we need to be investing in that infrastructure that supports rapid growth.

You know, was the whole idea and the whole notion of all these data centers coming online ever projected maybe 10 years ago from what we are looking at in our generation that we had to have?

Mr. BLACK. Definitely not projected, but definitely manageable, right? So I think we would go through processes called IRPs, or in-

tegrated resources planning processes, every few years. And we expedited one in Georgia recently so that we can—it gets back to that notion of intentionally designing and engineering our system fleet to meet this moment. I would say, we think about it and manage it really through this notion of energy abundance as well, right?

Supply and demand, obviously, is an issue in everything and everything and, you know, we deal with in our lives. But I think we seek to make sure we are available. And that availability and abundance puts downward pressure on rates for us, right? And I think that is a really, really important issue. And obviously, in this moment of meeting this demand, we can do both.

Mr. LATTA. Well, thank you. Mr. Brickhouse, I have probably more electric co-ops in my district than any other districts in the State of Ohio. And I know the importance of what you all do out there. But, you know, a couple other questions I think it is very important that you brought up was about addressing permitting. And on the permitting side, if we don't do something, what is going to happen out there if we don't address permitting, especially for not just you, but for anybody that is out there, either generating or on the transmission of power?

Mr. BRICKHOUSE. Well, what my colleague from PJM referenced was a large uptick in—or mismatch between supply and demand. And I think this mismatch is critical for policymakers to understand. It takes us 7 years from initial concept to bringing on and actually generating electrons for a power plant. You can bring on a data center in 3 years. So what we are faced with now is having to tell data centers and other large loads that they need to wait up to 7 years in order to build their facilities. So permitting is a key part of it, and we need more sensible, you know, permitting action coming out of Congress and, frankly, in some of the States we serve as well.

Mr. LATTA. Well, again, I appreciate everyone being here today, because all of the things that we have heard from our witnesses, you know, this is what we have to be addressing to make sure we meet our power needs into the future.

And my time has expired, and I now recognize the gentlelady from Florida, the ranking member of the subcommittee, for 5 minutes for questions.

Ms. CASTOR. Thank you, Mr. Chairman.

Mr. Norris, your new study caught my attention because you say that we can accommodate some of the additional capacity we need through flexible load strategies. What are you talking about here?

Mr. NORRIS. Thank you, Ranking Member. What flexible load strategies refer to is we are a very, very small summer—number of hours a year where the system is experiencing its highest stress, that these large electricity consumers could reduce their assumption from the grid from a variety of possible avenues. One would be if they have their own onsite power for batteries to work if they could tap, again, we are talking on an average basis of 2 hours per event. That is one option.

A lot of the new AI centers—data centers have the ability to defer their workloads. These are the training workloads that train the foundational models. And so those are deferrable.

Other advanced data center companies have now found the ability to shift those workloads to other data centers and other regions during extreme weather events. And then, finally, there is the option to simply temporarily reduce operations. And this is the case for other computational loads like Bitcoin mining. And those are actually some of the most flexible loads on the system that we see right now. And they are able to dispatch down almost instantaneously in signal from the grid.

Ms. CASTOR. Will this help us address the growing concern with additional costs to consumers, to other rate payers as AI data centers demand more energy?

Mr. NORRIS. Yes. So there is an opportunity here because, you know, we already have a relatively low utilization rate for the existing power system. So if new load utilize the existing more, that can result in actual reduction in rates to the existing rate payers. So that is a great opportunity.

The challenge becomes when the new loads end up triggering the need for substantial new grid infrastructure and new power plants that are only needed to serve a limited number of hours in the air for peaking capacity.

And so, I think it is important to consider guardrails when you are talking about potential, significant increase in rates in response to that capacity expansion.

Ms. CASTOR. So is that a job for Congress? Is that a job for FERC? Is that a job for public utility commissions, or all of the above?

Mr. NORRIS. I think it is probably all of the above. I mean, one of the challenges that we face right now is that in large-load interconnection, there are no standardized processes. So this is State jurisdictional as, you know, retail rates usually are. But, you know, it is very different from generator interconnection, where we have very standardized processes. It is work regulated.

So it is really the Wild West right now, and each State is kind of doing it differently. And so I won't—I am not a lawyer. I am not going to opine into the jurisdictional issues between FERC and States, but I think other previous former FERC Commissioners are seeing right now as we speak that it would be helpful to have some degree of synergization,

Ms. CASTOR. So, Mr. Haque, what do you think of this? And have you looked at the study?

Mr. HAQUE. I have looked at the study. I think there is a lot there with respect to demand flexibility. And we have actually been in conversations with data centers who are trying to locate it in the footprint about their ability to be flexible. It is not clear whether or not these data centers can actually express the kind of flexibility that is described in Mr. Norris' paper.

And so, you know, I agree with Mr. Norris that, if we are able to get some flexibility from data center load, that, you know, we may not have to plan necessarily for—because we planned our systems based on peak, because we want to serve 24/7, 365.

Ms. CASTOR. And I hear you loud and clear about the interconnection queue problem. And that clearly is an area where Congress could help get these large power sources onto the grid. Do you agree?

Mr. HAQUE. Representative, our generation interconnection queue has been reformed. So we got an order from the FERC in 2022, and we are at the tail end of implementing that reform. It has taken some time to get the queue from a position where it was evaluating these large centralized generating stations, now evaluating many hundreds, if not more of smaller, renewable projects. So we realize queues are a challenge.

Ms. CASTOR. You are ahead of the game compared to others?

Mr. HAQUE. I have not benchmarked us necessarily against others, and I don't want to speak against. But we are, again, at the tail end of that queue reform effort.

Ms. CASTOR. OK. Mr. Norris, you also highlight this problem with the interconnection queues in your testimony. What do you recommend that Congress needs to do about it?

Mr. NORRIS. Thank you for that. I know we are limited on time, so I will try to be brief. I think, while I mentioned that it is hard for other markets to fully replicate what ERCOT is doing, I think there are a lot of lessons there and things we can do enable generators that are willing to accept some risk of curtailment to be added to the grid much more quickly. And we have adopted this very sort of conservative, restrictive approach that actually imposes these very high barriers of entry to getting new generators on the system.

And so I think there are opportunities to streamline an interconnection service and actually make it more consistent with the original intent of energy resource center connection service that FERC set out in 2003.

Ms. CASTOR. Thank you. I yield back my time.

Mr. LATTA. The gentlelady's time has expired, and yields back. The Chair now recognizes the gentleman from Kentucky, the chairman of the full committee, for 5 minutes for questions.

Mr. GUTHRIE. Thank you. I appreciate it very much. And a lot of my thinking in this area came—a lot of us were at the Library of Congress last fall, and Eric Schmidt—the Google Eric Schmidt, not Senator Eric Schmitt—was presenting to us, and he talked a lot about the demands for AI, the demands for power. And in his book "Genesis" he wrote with—the last book written by Henry Kissinger—just really lays out the need to win the battle of AI against China.

And who is going to control the platform for AI? And he didn't say this, but I took away from it, it is like the dollar. Are we going to be the world currency or not? And so, in the biggest driver for AI is the innovators are going to figure it out. What they need is access to power so they can generate these. And there's trainable AI data centers that can be flexible. But China is not building—they are building others as well as that we have to compete with. And we are going to have to be flexible and efficient as much as we possibly can.

But to believe that we can stay down the path that we are on in electricity and to defeat China, that I think it is just—it is like European thinking: Let's run the world, let's plan for the world like we want it to be, not like it is. And you deal things in the ivory tower. It has just been devastating to Europe right now. Go there and see.

And so we have to be responsible and we have to have—but I think it is imperative that we win the fight for AI. If we don't, then we are going to lose the battle for AI to China. And China is building 2 coal plants a week—or a coal plant every 2 weeks—to support their AI. We are also going to lose the other battle for climate change as well unless China has a different climate than we do, and I don't think that is accurate.

So, Mr. Black, in your testimony you talk about energy policies are highly regional in nature and how it affects the physics of finance and making and moving electricity. For policymakers, what should we take away from that point?

Mr. BLACK. So we just had a question, sort of, talking about whose job it is to deal with some of these issues. You know, I will say we are always thinking through how do we regulate as close to the customer as possible from the State perspective.

So a lot of the programs that Mr. Norris has studied in presenting we have had for a number of years. I am going to age myself. At 25 years ago, I helped develop a tariff called the customer-owned dispatchable energy tariff, which is a standby generator tariff that does exactly what Mr. Norris is talking about. But that is all through the State level, right.

So when we get into these responsibilities of who can manage the grid and help us improve utilization rates, we would say much of that is at the State level. And we do that through IRPs and, again, the careful, careful management and oversight of our State regulators.

Mr. GUTHRIE. So thank you.

And we are going to have more hearings and hopefully have people that build these data centers that will just talk about what the risk is if we go down the path that Europe has gone where they are not building them in Europe. They are not building them. They can't afford to build them in Europe, and that is a—it set Europe back. Absolutely, their energy policy has set them back.

So, Mr. Brickhouse and Mr. Haque, you are in different regions of the country, under different regulatory setups. Would you each briefly explain how you plan to meet new growth and power demand and ensure reliability and affordability?

Mr. Brickhouse first, and then Mr. Haque.

Mr. BRICKHOUSE. Thank you.

So our process and actually how Basin was formed more than 65 years ago, it starts with a load forecast. And from that annual load forecast, we will plan out what our generation assets are going to look like in the future. So you get something similar to what Mr. Black was referencing on an integrated resource plan.

And Basin's recent history has been rapid growth. Since 2010, we have averaged an increase in megawatt hour sales to our members of about 5 percent a year. And you are not going to find hardly any other utilities that have grown that rapidly. And over that——

Mr. GUTHRIE. I have a limited amount of time. So, Mr. Haque, if you could. I am running out of time, so——

Mr. HAQUE. Sure. PJM is, again, a 14-jurisdiction regional transmission organization, and we have both regulatory paradigms. We have the vertically integrated jurisdictions, about half, and we have restructured jurisdictions, about half. Restructured jurisdictions,

they rely on markets to incentivize new resources. Vertically integrated jurisdictions, the same as Mr. Brickhouse and, I think, as Mr. Black were describing, through integrated resource planning.

Mr. GUTHRIE. So thank you.

And wind and solar is important to this mix. As a matter of fact, you can produce it quicker, is what my colleague from Florida talked about. But the problem is, if you incentivize it to the point where people don't build other dispatchable power because you can't be competitive, then we lose in the long term.

So in the short term, wind and solar is going to be—because of the supply chains and others, we are going to need it, but we also need to make sure we don't disincentivize building power to win this battle.

So my time has expired, and I yield back.

Mr. LATTA. Thank you much. The chairman yields back.

The Chair now recognizes the gentleman from New Jersey, the ranking member of the full committee, for 5 minutes of questions.

Mr. PALLONE. Thank you, Mr. Chairman.

Mr. Norris, I want to ask you some questions. I want to focus on something you mentioned in your written testimony, which was that if large energy loads can be a little flexible, it will buy us a lot more time to increase the grid's generation and transmission capacity. And, frankly, we are going to need that time because many grid operators have been abysmally slow at getting sources of clean energy hooked up to the grid.

So let me ask you this, Mr. Norris: Can you talk about what policy changes to interconnection queues or anything else we need to make to get energy on the grid as quickly as possible, and how important it is to make those changes sooner rather than later?

I have three questions, so——

Mr. NORRIS. Thank you, Congressman.

This has been a significant area of research for us, and what is actually interesting about it is how similar the solutions are on the large-load side for the large-generator side to get them onto the grid faster. And the way it works, sir, is they look at the maximum output or draw that the generator or the load puts on the system, and they study it. And what happens is it often triggers a lot of upgrades on the system.

But if the load or the generator is willing to be flexible such that it might be curtailed in a small number of hours a year, it can connect to the grid much more quickly. That is what ERCOT does, and that is why their speed to interconnection is twice as fast as every other market.

And so with modifications to energy resource interconnection service and making these large-load services available, they may be able to connect with the grid much more quickly so that we can win the AI race, as the other Member just said.

Mr. PALLONE. All right. I guess I am going to have to go quicker, because I actually realized I have four questions.

With all this increased demand on the grid, how can we best protect residential ratepayers from skyrocketing costs, and how much of this is the Federal Government's responsibility versus State regulators' responsibility?

Mr. NORRIS. Yes, I think for a lot of these large loads that are coming on the system, they are coming into a paradigm where we had no load growth. And where the traditional paradigm was, we need any new loads of any cost. And the problem is that, under this kind of paradigm, with this amount of load this quickly, the rate impacts could be substantial.

And so I think you are seeing a number of jurisdictions realize that there need to be guardrails put in place. And ideally, any incremental cost of service to serve the new load for these large loads should be covered by that large load.

And I think there are other guardrails that can be put in place like upfront security they could post while they are trying to interconnect, and then exit fees as well.

Mr. PALLONE. OK. And then I wanted to go back to the studies I entered into the record earlier, and they show that repealing the IRA's technology-neutral tax credits could increase the price families pay for power in some States by up to 20 percent.

So, Mr. Norris, just because—you know, of course, I question a lot my Republican colleagues' what they describe as facts. But wouldn't that be bad for affordability? Am I correct?

Mr. NORRIS. Yes. And there are a few studies out there that are demonstrating this right now. I mean, it is sort of obvious, right? If you pull back incentives for a given activity, you are going to see less of that activity. In this case, that means there is going to be less generation out of the system, and that is going to impose higher cost.

And there was a study just released last week by NERA Economic Consulting that found that there would be higher rates of 7 percent for residential customers in 2026 alone, and I think it was 10 percent for commercial customers.

Mr. PALLONE. OK. My last question is of Mr. Haque. FERC recently approved PJM's Reliability Resource Initiative, or RRI, which allows the one-time assertion of up to 50 projects in the PJM's queue ahead of other resources.

I am very aware of PJM's challenges of getting enough power line, but just ask—you know, if you ask any of my constituents, they will certainly talk about that.

But, Mr. Haque, can you confirm that the RRI framework is a one-time solution for PJM and that the grid operator is dedicated to working diligently to comply with FERC Order 2023 and create an interconnection process that doesn't need these manual interventions to allow energy to access the grid?

Mr. HAQUE. I can confirm all of that, Representative. Thank you.

The RRI initiative is actually one of three different initiatives that we advanced to try and expedite supply trying to come onto the system, and we are grateful for FERC's assistance in approving our proposals.

If you think about it, you know, we are going to be in a position next year where we are in our new queue reformed process. Any project that comes through the queue will have a 1-to-2-year turnaround timeframe. It has taken us a few years to, sort of, unclog the queue and get to that position, but while we are doing that, we have actually created, through the FERC's approval, some addi-

tional expedited lanes to try and get resources onto the system to meet this growing demand.

Mr. PALLONE. And, you know, obviously, I am concerned about this approach of deciding which projects can get onto the grid is going to disincentivize clean energy developers from, you know, ever building generators that serve PJMs again.

I know my time has run out, but I do want to say, Chairman Latta, I was happy to see—he is not here, I don't think—that Chairman Guthrie talked about the importance of solar and wind power. Because every time I hear Trump, he says he wants to get rid of it completely. So it is good that you guys, at least—or I hope—do not agree with Trump in that regard, but we will see.

Thank you.

Mr. LATTA. The gentleman's time has expired. He yields back.

The Chair now recognizes the gentleman from Texas, the vice chairman of the subcommittee, for 5 minutes for questions.

Mr. WEBER. I thank the chairman.

Mr. Norris, I am going to come to you. You made some interesting statements in your testimony about ERCOT has certain advantages. Would you go back through there and state those again for us?

Mr. NORRIS. Yes. So ERCOT makes it much easier for new generators to connect to the grid, and there are different reasons for this, but basically it is come one, come all. They study them. They give them the result of the study, but they don't charge them for the cost of big grid upgrades.

So a project can connect at its own risk, and the result is that their speed to market, speed to interconnect is twice as fast as other markets. And they have been adding more capacity, as I mentioned earlier, than any other market by far.

Mr. WEBER. When you say speed to connect is twice as fast, what does that mean? They are able to get up and running in half a day, 1 day, 2 weeks? What does that mean?

Mr. NORRIS. Well, these are big assets. So it is a little longer than that, but you are generally talking about on the order of 2 years. The speed we are talking about is from interconnection request to getting online. And so we are talking about, you know, 3 years, approximately. And in other markets, it can take 5 or 6.

Mr. WEBER. OK. Mr. Brickhouse, I am going to come to you. With that in mind—and I know, of course, ERCOT, do I recall correctly—I will ask all of you. There are nine grids in the country. Is that right? Nine various grids. Is that right?

Mr. HAQUE. There are nine grid operators in the country.

Mr. WEBER. Nine grid operators. OK.

So with that in mind, trying to make things easier to connect to, Mr. Brickhouse, how do you all follow along those lines? Are you like ERCOT, less like ERCOT? Where do you all fall in that scenario Mr. Norris just painted?

Mr. BRICKHOUSE. Well, with respect to connections, as I mentioned earlier, you can get a data center online a lot quicker than you can build a power plant. So our focus is—lately, has been getting power plants online as quick as possible. And so we will go—primarily, most of our load is in the Southwest Power Pool. So we will go through an interconnection process with them.

And with Pioneer IV, which is 580 megawatts of dispatchable natural gas generation we are finishing up, we have actually elected to connect to the grid prior to the final cost estimate of what grid upgrades will need to take place.

Mr. WEBER. Is that a 2- or 3-year process?

Mr. BRICKHOUSE. Yes.

Mr. WEBER. How about you, Mr. Haque, 2- or 3-year process?

Mr. HAQUE. Our process is different than ERCOT's process. If you are load that wants to connect to the system, you know, we feel like there is an obligation to serve that load, but our processes are different than the others.

Mr. WEBER. So what timeframe does it take?

Mr. HAQUE. I am sorry. Can you repeat the question?

Mr. WEBER. What timeframe does it take? If you are going to hook up—you identified a load. What is it going to take: a year, 2, 3?

Mr. HAQUE. That is dependent. OK. The load that wants to interconnect to the system, it will be dependent on a series of different factors. And it will be dependent on, first of all, the transmission system, whether the transmission system can actually accommodate the load.

Mr. WEBER. Bear the load.

Mr. HAQUE. And so we will study it and see if the transmission system can actually accommodate the load. And then there are some—we will just characterize them as adventurous arrangements that some of these data centers are trying to enter into, which then adds to the potential complexity with the possibility of this concept of colocation generally.

Mr. WEBER. So you are studying right now about AI, aren't you?

Mr. HAQUE. Yes, we are.

Mr. WEBER. OK. How about you, Mr. Brickhouse, studying right now about AI?

Mr. BRICKHOUSE. Yes, we are expected to connect AI.

Mr. WEBER. Did either one of you all—and I will start back with you, Mr. Brickhouse—have to knock offline a coal plant?

Mr. BRICKHOUSE. Have we knocked offline a coal plant?

Mr. WEBER. Have you all had to take a coal plant offline?

Mr. BRICKHOUSE. No.

Mr. WEBER. How about you all, Mr. Haque?

Mr. HAQUE. For the purposes of AI?

Mr. WEBER. No, just in general.

Mr. HAQUE. Yes, we have had quite a bit of coal retire on our system.

Mr. WEBER. So let me go back to Mr. Brickhouse. Not just for AI, but have you had to take a coal plant off just in general?

Mr. BRICKHOUSE. We do have periodic outages. And then with the wind resources across the great planes, periodically——

Mr. WEBER. But you have not decommissioned a coal plant?

Mr. BRICKHOUSE. We have not decommissioned a coal plant. One of our original coal assets was actually decommissioned in the '80s, which I don't think you are referring to. But that was for different reasons.

Mr. WEBER. What, I don't look that old? Is that what you are trying to say? I like this guy.

So I guess I will come to you, Mr. Black. How do you feel about commissioning—or decommissioning some of the coal plants? You have got 13 seconds.

Mr. BLACK. Sure. We have retired some coal plants, but we have some coal plants, obviously, still in our fleet. They are incredibly useful for us, and we have extended the life of those recently in our IRPs to meet demand.

Mr. WEBER. OK. I appreciate that.

Mr. Chairman, I yield back.

Mr. LATTA. Thank you. The gentleman's time has expired, and he yields back.

The Chair now recognizes the gentleman from California's 50th District for 5 minutes of questions.

Mr. PETERS. Thank you very much, Mr. Chair.

And thanks for holding the hearing on this issue. This is something I have been looking forward to for a while, where we can have a discussion about kind of what the challenge is and what we might do to come up and meet it as a country.

It will be a challenge to keep the lights on and keep costs low given what we have, this unprecedented increase in energy demand from data centers, manufacturing electrification, population growth. I think we have all acknowledged that.

I don't believe we are prepared to handle this demand as is. We can't just address the problem by building more of any one particular kind of energy, and anyone who thinks otherwise, I think, is probably maybe being a little bit ideological, which I don't want to be.

New cleaner generation has to play a role in meeting the energy demand. We also need to make significant investments in our electric grid and pipeline infrastructure so that power can be moved more efficiently from where it is abundant to where it is needed. And we need to use all the tools in the toolbox to meet the challenge.

But we do fail if we don't get shovels in the ground and start building what we need at the pace we need to build it, at a pace that meets the urgency of the challenge. And every day we waste will increase costs, give our competitors an edge, make us more open to unreliability, and make us less safe.

In the 1970s, when many of the first environmental rules were passed, our priority was to stop dirty, destructive projects. We were on defense. Today, if we want to continue to reduce our emissions and build the infrastructure of the future while reducing cost for taxpayers, we need to go on the offense and reform our laws to meet the challenges of today. As we have spoken before, that means permanent reform in many different contexts.

I look forward to working with my colleagues on real solutions that will strengthen the electric grid, drive down costs, and build a more resilient future for our constituents.

Mr. Norris, I have put forward several bills to incentivize grid planning to harden utility infrastructure, more efficiently site and permit national-interest transmission lines. And one of those bills is my bipartisan Speed and Reliability Act, which streamlines permitting for large transmission lines that relieve grid congestion and improve reliability.

Can you talk about the cost and reliability benefits to identifying the highest-valued projects and streamlining permits for those projects?

Mr. NORRIS. Absolutely. And thanks for your leadership, Congressman.

I think a good case study on this, actually, is in our region in the Carolinas where the industry worked with Duke Energy on a proactive transmission upgrade. It was to the eastern Carolinas. And the reason is because the least-cost resources available to the system are located there. Its large-scale solar power plants.

But that area of the grid is relatively weak, and so they went through a proactive public-policy-driven process. They got approval from the utilities commission, $560 million, but it unlocked gigawatts of projects. And not only was that expected to reduce rates overall but actually could improve reliability because, you know, on the hottest summer days where you get a really nice solar profile, that could actually help support the summer peaks. So, you know, that is a good example.

And I think your bill there is a no-brainer, right? When you have to go through two separate permitting processes, both from FERC and the Department of Energy, it makes a lot of sense to consolidate into one because, again, if we are going to meet this load growth in a fast manner, we have to get into the transmission build as quickly as possible.

Mr. PETERS. Thanks. I appreciate you being here. Also, we have a Duke connection, which I also—so I am listening to you extra hard. I appreciate that very much.

Mr. Haque, I wonder if you could talk about interregional transmission and the importance of investing in the electric grid. How is that complementary to building new generation sources, and how do you think about that, both regional and interregional transmission?

Mr. HAQUE. So, certainly, the build-out of transmission will be essential to getting our resources, especially our renewable resources that are in the queue, connected to the power grid. The more transmission that you build out—we build out for reliability, we build out for market efficiency. We are advancing down this path of long-term planning. That was approved by the FERC. But the more transmission you build out, theoretically, the less that renewable developers need to pay in upgrades. And so that will be helpful there.

Interregional, we currently—we export quite a bit of power to our neighbors. February, we were exporting—in fact, we exported 14,000 megawatts during a cold weather snap to our neighbor, the Midcontinent ISO. And so there is actually quite a bit of interregional capability that exists today, and so we will continue to study this to see if there is any additional——

Mr. PETERS. PJM has determined that it is not just about building transmission in your region for reliability, for consumer service. You have decided that as part of your business it is important for you to plan and to execute on interregional transmission, right?

Mr. HAQUE. We have, again, quite a bit of interregional transfer capability, and we will continue to analyze that. We are actually doing a joint study with the Midcontinent ISO right now. And, of

course, FERC Order 1920 actually mandates that we look at interregional planning in tandem with our long-term planning framework.

Mr. PETERS. Well, thank you. Thanks for your leadership. And thanks to all the witnesses.

I yield back.

Mr. LATTA. Thank you. The gentleman's time has expired, and he yields back.

The Chair now recognizes the gentleman from Alabama's Sixth District for 5 minutes of questions.

Mr. PALMER. I appreciate the witnesses being here. And I want to raise some questions about the reliability of the grid, particularly as it regards transformers.

A couple years ago, there was an attack on two—on transformers in North Carolina that shut down power for about 4 or 5 days. And one of the things that I found out was that they had to salvage or scavenge transformers from around the country. They didn't have transformers in reserve to get those back up.

Mr. Black—I should say, Mr. Brickhouse, you flagged these concerns in your testimony. And I am concerned that we have a major supply chain problem in our ability to manufacture transformers here to meet our needs if we were to have a catastrophic event, a coronal mass ejection, a geomagnetic issue that could shut down huge numbers of—huge portions of our power grid.

So I would just like for you to comment on that and particularly something that President Trump mentioned in his speech last night about the need to declare I think critical minerals, rare earth elements, as critical to our national security.

Mr. BRICKHOUSE. So on the transformer issue, I think it extends a little bit further to breakers as well. And part of the issue that you are having is with these large loads that I think everyone has talked about today. A data center needs similar equipment as a power plant. We need breakers and transformers when we build a power plant to get that energy on the grid, and to receive that energy, a data center needs breakers and transformers.

So with the advent of these large loads in the form of data centers, you have almost double demand for the similar equipment that are needed by the two facilities.

Mr. PALMER. If we had a catastrophic event—are you gentlemen familiar with an event that occurred in 1859 called the Carrington event? It was the worst coronal mass ejection ever recorded.

If we had an event like that, Lloyd's of London has done an assessment that it would—there would be about 30 million people in North America that would be without power for anywhere from 2 weeks to 2 years. If we were to have something along that scale, how long would it take us to replace the transformers, the breakers, to get our grid back up and operational?

Mr. BRICKHOUSE. It would be a considerable period of time, depending on how wide the impacts were. We did have—it causes the Northern Lights in North Dakota, actually, and there was significant activities within the past 12 months on those. And the grid operators, especially in the Western area, the power administration watched that closely.

Mr. PALMER. The point I am trying to make, sir, is that we don't have the manufacturing capacity in this country. We don't have the skilled labor. We don't have access to the critical minerals that we need to build our own transformers. We don't have an adequate supply of transformers. Most of the transformers we get either come from Mexico or China.

We would be in a very, very serious situation that would—Lloyd's of London I think would—report would indicate a potential massive loss of life, depending on when it occurred, and that is a huge concern to me.

And what happened in North Carolina, Mr. Black, the guy goes in and shoots up the oil tanks, which cooled the transformers, and we lose that whole station.

Does Southern Company have a plan if we were to have even not a catastrophic event but a major event?

Mr. BLACK. Certainly, GMDs, who have been on our radar for quite some time, and, you know, physical security like you mentioned in the Carolinas there are something we plan for and test and prepare for all the time.

I think your sensitivity around, in the midst of all this growth, the supply-and-demand challenges, you know, we have seen it ebb some, the challenges, since COVID, but there is a lot going on, right, and the international stress on the supply chain is there for sure. So we are preparing for it.

Mr. PALMER. My concern too is we are in an arms race for artificial intelligence. And I am looking at the NERC report on the high-risk areas and the medium-risk areas, and it is clear we don't have the power capacity to build the data systems that we need in order to win that arms race with China.

With that, Mr. Chairman, I yield back.

Mr. LATTA. Thank you very much. The gentleman yields back.

And the Chair now recognizes the gentleman from New Jersey's Eighth District for 5 minutes of questions.

Mr. MENENDEZ. Thank you, Chairman.

Clean energy is the only source of new generation capable of meeting electricity demand. A report by the Clean Grid Initiative suggests that we need to rapidly deploy clean energy generation and transmission faster than we currently are.

And 94 percent of proposed power generation waiting to be interconnected is zero carbon. But, instead, the President's energy policy focused primarily on oil and gas while ignoring clean energy sources, such as solar and wind. In New Jersey, we have already seen the consequences of the President's prioritization of oil and gas, as the future of renewables, like wind, have been put at risk.

We should all be committed to accelerating our clean energy production and connecting it to the grid as quickly as possible. Instead, Republicans and Trump are focused on repealing critical programs that invest in renewable energy generation, putting the future of clean energy at risk.

The Inflation Reduction Act provides certainty for the energy industry, allowing us to plan for future energy demands. Investing in clean energy generation is critical for ensuring the future reliability of our grid. Not only does repealing the IRA jeopardize the future of renewables, it will also increase energy cost for consumers and

our constituents. The IRA is on track to save Americans up to $38 billion on their electricity bills.

Mr. Brickhouse, during your opening remarks, you made a reference to consistent reliable policies. And I believe it is safe to say that you would agree that the energy industry needs certainty. Is that correct?

Mr. BRICKHOUSE. Consistent policy is helpful, correct.

Mr. MENENDEZ. And having some predictability is helpful in terms of these long-term investments?

Mr. BRICKHOUSE. Having predictability? Is that what——

Mr. MENENDEZ. Predictability in terms of future policies is helpful in making these long-term investments. Is that correct?

Mr. BRICKHOUSE. Yes.

Mr. MENENDEZ. So wouldn't repealing the IRA make it harder for the industry and States to make the investments needed for projected demands for reliable, affordable electricity? Yes or no?

Mr. BRICKHOUSE. I think that depends.

Mr. MENENDEZ. I think the answer is yes, but I will move on.

Mr. Norris, would repealing the IRA, as our colleagues across the aisle seek to do, make life more or less affordable for Americans?

Mr. NORRIS. According to economists, based on studies they have conducted in the past couple of months, it will lead to an increase in electricity rates. And the NERA study says 7 percent for residential customers in 2026, 10 percent for commercial customers in 2026.

Mr. MENENDEZ. So the answer would be, yes, it would make life more—it would be less affordable for Americans?

Mr. NORRIS. Correct.

Mr. MENENDEZ. And how disruptive would the repeal of the IRA be to the long-term investments currently underway across the country to increase our access to, again, reliable, affordable electricity?

Mr. NORRIS. I want to highlight one resource in particular, which is nuclear power. And I think it is unequivocal that—I mean, it is a resource that is still above cost. Georgia did a great service in some sense by paying above market for those two reactors at Vogtle, but there still has to be some cost premium paid to get those resources online. And they are heavily reliant on Federal subsidies and incentives.

And so if there is a repeal of the IRA tech-neutral tax credit for nuclear or any impact on the Loan Programs Office, there will not be a nuclear renaissance in the United States. And similar principles apply to enhanced geothermal and other possible firm baseload or clean baseload sources in the future.

Mr. MENENDEZ. And to achieve energy dominance in this country, shouldn't we want an all-of-the-above approach, and shouldn't we continue these investments that are already underway and funded by the IRA?

Mr. NORRIS. One of the, I think, could-have-been bipartisan opportunities in the IRA was to shift from resource-specific tax incentives to a technology-neutral structure. And so the whole idea there was to make it an all-of-the-above approach, and so I think that was a key design. And, again, for these advanced resources, it is

going to be critical to keep those in place if we want to see them move forward.

Mr. MENENDEZ. Thank you.

Mr. Haque, I understand that wind, solar, and storage make up the vast majority of resources in PJM's queue, and PJM is currently undergoing queue reform efforts. So let me ask you this: If the IRA's tax credits were to be repealed, wouldn't the vast majority of resources in PJM's interconnection queue see a substantial amount of their financial incentives erased?

Mr. HAQUE. Representative, we haven't studied what potential repeal of the IRA would do to the queue. I have read studies independently that say that repeal of the IRA would create financial challenges for those resources to come to eventual fruition.

And right now, you know, we have got a challenge because we have actually cleared, through our queue, about 50,000 megawatts, 50 gigawatts of primarily renewable resources that are having challenges related to financing, that are having challenges related to supply chain, that are having challenges related to State and Federal citing.

And so I think that, you know, pursuant to your point, that, you know, this would probably create additional financial strain on those resources should the IRA be repealed, but, again, nothing that I have specifically seen.

Mr. MENENDEZ. That is why we should work to make sure we continue the IRA and see its full implementation, not repeal it.

Thank you all so much.

Mr. LATTA. Thank you. The gentleman's time has expired, and he yields back.

The Chair now recognizes the gentleman from Georgia's 12th District for 5 minutes of questions.

Mr. ALLEN. Thank you, Mr. Chairman.

And I would like to thank the witnesses for being here today and sharing your expertise on this important challenge that we have.

The United States has an abundant energy supply, and the question is not do we have enough energy resources but can we produce energy at the levels needed to meet the Nation's future demand?

My State of Georgia is the top State to do business in 12 years in a row, and with that, new manufacturing and data centers are coming to the State. This is leading to high demand for the grid, and we must continue to ensure we can provide reliable, affordable energy as we power our Nation's needs.

In my district, the 12th District of Georgia, we have Plant Vogtle, the largest nuclear energy clean power station in the country. Nuclear energy will play a critical role in meeting our growing needs to ensure U.S. leadership in the next-generation economy.

The ADVANCE Act was signed into law last year and included my legislation, the Nuclear Licensing Efficiency Act, which will drive more efficient, timely, and predictable reviews of reactor licenses.

Mr. Black, thank you for being here today. Can you discuss the consideration Southern Company takes into account when seeking to invest in nuclear facilities and how you see the role of nuclear energy in our future energy mix?

Mr. BLACK. Well, we are certainly proud of Vogtle and glad we have it online, particularly in this moment of radical expansion of our grid. It is operationally a fantastic resource and provides a lot of, sort of, electrical benefits to our system that enables us to take even more customers to our system.

I think the AP1000 is a solution that we understand. Its risks are understood, and I think it is a solution that we in our Nation should think through in expanding its development.

Mr. ALLEN. Right. We know how to build them. I mean, it was 30 years——

Mr. BLACK. Yes.

Mr. ALLEN [continuing]. Before we built.

And this is somewhat of a modular project. I mean, it is made off—a lot of it is made offsite and then brought in and erected. And we can continue probably to improve on that. But at least we now have the workforce. We have the capability. We know we can do it, and we know that things are going to be running there are for a long, long time.

Mr. Brickhouse, in my State, the Oglethorpe Power is a wholesale provider of energy for electric co-ops, and they tell me that it is critical for reliability of the grid. They have the ability to run their dispatchable baseload assets like nuclear but also their coal plants and natural gas generation. During the Biden administration, the EPA's Clean Power Plan 2.0 would only make it harder and more expensive for cooperatives to maintain reliability of the grid.

Can you walk us through how the EPA regulations on power plants are factored into Basin Electric members' planning and investment decisions and how that may impact the ratepayer and reliability in your areas?

Mr. BRICKHOUSE. Certainly. Thank you. And our chief financial officer, who is with me today, used to work at Oglethorpe, so we have some things in common there.

I think the most illustrative example for the committee would be that a baseload coal plant, you want it to be available and online, or available, at least, 90 percent of the time. If you have to go and do carbon sequestration on that, you are going to have a parasitic load of about 25 percent of the output of that unit, and you are combining another industrial process to that unit. And the combined—you are not going to have 100 percent reliability for your carbon capture, which is going to bring down the entire availability of that power plant.

Mr. ALLEN. In other words, put you pretty much out of business there.

Mr. BRICKHOUSE. Or makes your rates a lot more expensive.

Mr. ALLEN. Yes. I would like to circle back on the role of nuclear energy. Mr. Haque, as an organized market, PJM operates very differently than the vertically integrated structure of the State of Georgia. When operating efficiently, the market should send price signals that invite potential nuclear developers to enter the region. Given growing energy demands in the market, there should be an opportunity for more nuclear energy to help meet future energy needs of the region.

What are the barriers you are seeing in PJM's region to expand the use of nuclear energy?

Mr. HAQUE. Thank you, Representative. I think we are actually seeing some good movement on nuclear in the PJM region right now, and so we are seeing particularly nuclear uprights to existing facilities. There was a recent announcement of the reopening on what was formerly Three Mile Island, now called the Crane Clean Energy Center, in the State of Pennsylvania. So we are seeing some good movement in the nuclear space.

When you have these supply/demand challenges, it means the prices go up. And so when prices go up, it sends a price signal to those who would want to invest in our market and specifically invest not on the backs of consumers but private dollars into the marketplace to build a new unit.

That is the, sort of, crux of what the markets are, and we are actually, you know, seeing some of that activity already in our footprint after sending just, frankly, one high clearing price.

Mr. ALLEN. Well, thank you very much.

And I yield back, Mr. Chairman.

Mr. LATTA. Thank you. The gentleman's time has expired, and he yields back.

The Chair now recognizes the gentlelady from Virginia's Fourth District for 5 minutes for questions.

Ms. MCCLELLAN. Thank you, Chairman Latta and Ranking Member Castor, for holding this hearing on how we can meet our growing demand for reliable and affordable electricity.

I am glad to hear Chairman Guthrie in his questions earlier say that that should include clean energy sources like wind and solar. I agree.

So I am a member of Gen X, and I grew up on "Schoolhouse Rock." And I think everybody here knows and is very familiar with "I'm Just a Bill." But my favorite episode actually was "The Energy Blues."

And I can't help, as we have been listening to your testimony and the questions, I have had "Energy Blues" rolling through my mind. Maybe one day I will ask for unanimous consent to put the lyrics in the record. I am not going to sing it, but I do want to highlight a couple of them.

"Energy. Sometimes I think I'm runnin' out of energy. Seems like we use an awful lot for heatin' and lightin' and drivin', readin' and writin' and jivin'. Energy. You'd think we'd be savin' it up."

It goes through a history of the energy sources and the increase in demand in American history. It says, "Energy. We're looking to try and find some new kinds. Energy. Exploring to try and make a new find. Nuclear and thermal and solar. If we miss, we'll get colder and colder. Energy. We've gotta stop usin' you up."

Then it introduced my little kid self to the concept of energy efficiency: "So don't get cross when Mama says turn that extra light out. Just turn it off till we find us a fuel that never runs out. If everyone tries a bit harder, our fuel will go farther and farther. Energy. We're gonna be stretchin' you out."

So just want to remind you that our childhood shows, our childhood jingles are actually very educational and still very relevant.

So, Mr. Brickhouse, I think I misheard you in one of your answers, and I want to make sure I set the record straight. In your written testimony, you urged Congress to keep the investment tax credit and production tax credit. Is that correct?

Mr. BRICKHOUSE. Correct. And in my oral testimony, I referenced that as well.

Ms. MCCLELLAN. OK. I thought I—I might have misheard you. I thought I heard something that contradicted that. So I just wanted to make sure that your position on that was clear.

In Virginia, we have the Coastal Virginia Offshore Wind project, which is an incredible example of how offshore wind can be a powerful economic engine for the entire region. And it is something that has bipartisan support that grew out of bipartisan—the Virginia Clean Economy Act and related wind legislation that we passed. And nationally, offshore wind has brought $25 billion in new investments to ports, factories, manufacturing facilities, the electrical grid, and jobs.

You all have discussed the demand for electricity in the region is expected to grow significantly in the coming years for a wide variety of reasons. And there are currently offshore wind projects like the one in Virginia and elsewhere that could contribute to PJM's grid.

Mr. Norris, could you explain how, despite Chairman Guthrie's view that wind and solar are necessary and we should continue down that path, can you talk about how President Trump's Executive order halting new Federal leases and permits for wind energy and the massive uncertainty it creates for businesses will impact PJM's ability to meet the growing demand for energy in the coming years?

Mr. NORRIS. Yes. Well, one of the great things about offshore wind is it actually has a pretty high-capacity factor and a capacity value, because it actually produces on winter mornings when we need power. So it has a nice profile.

What is happening is that some States have said, "We are willing to pay above market to get the offshore wind industry kick-started." Kind of like Georgia said, "We are willing to pay above market to get these two new reactors online." And that is a great service to the country that they are performing because offshore wind is an immense resource. It could offer a lot of energy in the future. It does require some upfront investment to get it down the cost curve. But if you are going to get rid of the leases, then it has no possibility of growing as an industry, and you are basically preventing those States from saying we want to develop this resource.

Ms. MCCLELLAN. Thank you.

And I will just note in my final seconds that one of the quickest ways that we can help to address the growing demand is to also help mitigate that demand through things like energy efficiency programs that are the fastest and cheapest way to help address demand and slow its growth.

So you all touched on that in your testimony, and I just wanted to reiterate that point given that we are taking some opposite actions here in Congress last week and this week on the House floor.

Thank you, and I yield back.

Mr. LATTA. The gentlelady's time has expired, and yields back.

The Chair now recognizes the gentleman from Ohio's 12th District for 5 minutes for questions.

Mr. BALDERSON. Thank you, Mr. Chairman.

And I will start my questions this morning. Thank you all for being here with my good friend and always my chairman from the great State of Ohio, Mr. Haque.

Mr. Haque, I would like to discuss some concerning trends we are seeing with operators' interconnection queues. It has been talked a little bit about here this morning.

PJM's existing installed capacity mix is overwhelmingly made up of dispatchable power generation, such as natural gas, nuclear, and coal. However, 97 percent of PJM's queue capacity comes from renewable generation.

Mr. Haque, in your testimony, you note that, unlike traditional thermal generation, renewable resources do not provide certain essential reliability services that are necessary to balance and maintain the power grid. Do you have any concerns with the lack of dispatchable power generation entering PJM's interconnection queue, and are there enough of these projects to offset premature retirements and meet rising growth demand?

Mr. HAQUE. Thank you, Representative. Great to see you.

We certainly have concern with not having dispatchable resources in the generation or connection queue, and the grid is a machine and it is a machine governed by the laws of physics. And this is not us, this is the North American Electrical Liability Corporation who has published papers, published analyses that say that we need central reliability services, which are things like—control things like ramp and voltage and things that, as a lawyer, I don't quite understand but that are necessary.

And so we do need our spinning mass resources. We do need our thermal resources—nuclear, coal, gas—to continue to run a power grid the size of PJM interconnection.

Having, you know, said all that, you know, again, we need these dispatchable resources to find the wind system. We can integrate more renewables onto our system. There are grid operators. There are grids that run on, you know, more renewable resources than we currently run on. Now, what that sort of balance is and what that threshold is, you know, we are not quite there yet, but we do need dispatchable resources to run our system.

Mr. BALDERSON. All right. Thank you.

Mr. Haque, again, I recently introduced the Grid Power Act with Senator Hoeven of North Dakota and Senator Todd Young of Indiana. Our bill provides a process that would give grid operators the authority to identify and expedite the consideration of essential projects that will protect our grids reliability and provide the power needed to meet America's growing demand.

As you know, the key backlog isn't unique to PJM. Depending upon the region, projects may sit and wait in interconnecting queues for over 5 years before they can even begin their feasibility and impact studies. I appreciate that PJM is ahead of the curve here. And as you said, you are making good progress getting through the queue backlog. But I also understand that last year PJM cleared 50 gigawatts of resources through their queue, and developers are not getting those projects built.

Mr. Haque, can you briefly discuss why PJM's Reliability Resource Initiative is so critical to improving grid reliability and maintaining resource adequacy? First question. And how can grid operators, FERC, and Congress build all this initiative to get more reliable generation?

Mr. HAQUE. Yes, absolutely. I think grid operators across the country are facing what we are facing, which is the supply/demand challenge and clogged queues.

Again, you know, I would like to think that we are ahead of the curve. Again, I have not benchmarked us against other grid operators, but, you know, again, next year we will be through our queue reform effort, 1-to-2-year turnaround timeframe.

But in the meantime, we needed to create an opportunity for resources that are more shovel ready that can best contribute to reliability to find their way into the queue because otherwise you would have to get back—you would have to get in the back of a line starting in 2026, and we need those resources now.

Now, there has been a misnomer out there that, you know, these are going to be effectively fossil resources, and that is actually not true. In fact, what we know right now is that nuclear uprights and this Crane Clean Energy Center, this TMI reopening are going to find their way into the RRI, the Reliability Resource Initiative. And we are hearing anecdotally that we will have some storage projects as well find their way through to the RRI.

So to us—again, we are agnostic in terms of the resource type. Every resource type has its capability, and we have to be, sort of, honest about the physics of the grid and how it operates. And so that is our RRI, which I think is very akin to the legislation that you introduced.

Mr. BALDERSON. Yes. Thank you.

Mr. Chairman, I yield back.

Mr. LATTA. Thank you. The gentleman yields back.

And the Chair now recognizes the gentlelady from California's Seventh District for 5 minutes for questions.

Ms. MATSUI. Thank you, Mr. Chairman. And I would like to thank you and Ranking Member Castor for having this hearing today. And I want to thank the witnesses for joining us today.

I am particularly concerned by President Trump's unprecedented power grab to exert control over independent agencies, including FERC. Congress created the Federal Energy Regulatory Commission as an independent agency to insulate its decisions from political influence.

Mr. Norris, can you very briefly explain FERC's role in regulating electricity, how that impacts Americans' electricity bills, and why FERC's impartiality is so important?

Mr. NORRIS. Yes. Thank you, Congresswoman.

I like to think of FERC as, sort of, the referee that makes sure that markets are functioning properly and calls fouls where they take place. But the whole point is to have efficient markets, right, that are competitive to ensure that the least-cost electricity that is reliable is available to the customers. And so that is the role.

I think it is concerning. Look, I have been part of a number of FERC proceedings, a lot of State PUC proceedings. I have never—I can't remember ever hearing a participant in one of those pro-

ceedings say we wish this was more politicized and had less quality review, right.

So I think when you are talking about a business context with decisions that are this critical, you need substantial expertise, and that is exactly why we have FERC, because that brings that to bear.

Ms. MATSUI. Right. Now, you worked as a solar developer, adding new energy capacity to the grid to help meeting rise in demand. So I guess from an energy project developer's perspective, what would be your top concern if the President had ultimate authority over FERC rulemaking?

Mr. NORRIS. I could think of a variety of concerns. I mean, I think even just from a speed of business standpoint—I mean, it already takes a long time to get these proceedings done. But if you add another layer of review and approval, that could make the process even less efficient.

I think knowing that the regulators are impartial and technology neutral is critical to ensure that there is business confidence and that you attract investment from a variety of different sectors. So those two issues, I think, speed of business and a lack of impartiality, would be the two biggest concerns.

Ms. MATSUI. So every member of this committee should be gravely concerned about protecting FERC's independence, correct?

Mr. NORRIS. I believe so.

Ms. MATSUI. Otherwise, FERC's policies could shift dramatically from each new administration.

Fundamentally, I don't disagree with my Republican colleagues about the challenges we are facing. The Chair has called this hearing to highlight the need to meet rising energy demand while also lowering energy costs for consumers. That is a goal we all share. But if your objective is to add more affordable generation to the grid, it doesn't take an energy expert to tell you that repealing Federal incentives that lower the cost of building and operating new energy projects is counterproductive.

It was just reported that Republicans will start drafting a bill next week that will repeal Federal incentives for new energy projects which are supporting the build of affordable energy across the country, including in many of my Republican colleagues' districts.

Mr. Norris, what effect would this repeal have on the electric grid in, let's say, Southeastern U.S.?

Mr. NORRIS. I think there are a variety of potential impacts. I will note that a key component of Duke Energy's resource plan going out 10 to 15 years now is nuclear power expansion, building on what has happened to Vogtle. And if those incentives are repealed, I think it is quite unlikely that there will be any nuclear expansion that takes place in the Southeast.

Offshore wind is another impact. They are planning for that. It is part of their Carbon Plan integrated resource plan. That would probably be taken off the table, and, of course, it would make solar and wind more expensive as well. So it is likely to increase rates, and it may have impacts on reliability.

Ms. MATSUI. OK. I want to switch gears, Mr. Norris, to talk about load flexibility. I am a strong proponent of virtual power

plants because I believe they have the potential to meet rising demand faster and cheaper than many other options.

Our utility in Sacramento, SMUD, is a leader on virtual power plants, but many utilities are skeptical that virtual power plants can reliably meet demand.

Mr. Norris, what would you say to a utility that is skeptical of virtual power plants?

Mr. NORRIS. Well, you know, the largest form of a virtual power plant is what we call demand response, and it plays a very substantial role in some markets. So in the Midwest Independent System Operator, demand response contributes to about 10 percent of their overall system peak. That is quite substantial. And then in many other markets, it is about 5 percent.

In Duke Energy, where I am based, you know, they have a PowerPair program where most of the subscribers actually allow the utility to have direct control over the battery storage onsite. So in this case, you can actually have the utility knowing that it is able to operate because they can send a direct control signal to that device.

Ms. MATSUI. OK. Well, thank you very much.

And I have run out of time. Thank you. I yield back.

Mr. LATTA. Thank you. The gentlelady's time has expired, and yields back.

The Chair now recognizes the gentleman from Texas' 11th District for 5 minutes for questions.

Mr. PFLUGER. Thank you, Mr. Chairman.

It is amazing to me that we still have a math problem between the two sides of the aisle here, but we do. And, you know, I want to try to address this math problem.

Last year, when I asked the Secretary of Energy, Ms. Granholm, how much energy does the United States consume, she couldn't answer the question. And, you know, when you go back a couple years ago, you see that the consumption has actually risen by about .5 percent annually. But Department of Energy, the same one that Ms. Granholm ran, actually has predicted that it is going to be between 5 to 6 percent increase in consumption in the next 10 years. And yet, we are still talking about unreliable sources here, which is just unbelievable to me.

And the billions of dollars that are being pushed out because of the IRA—we will get to those questions—but the answer to that question was 4,292 terawatt hours in 2022, with a .5 percent increase annually. But that is changing.

So, Mr. Brickhouse, what I want to talk to you about first off is, in your testimony, you talk about tripling of increase for natural gas demand. And I want to hear, what is holding us back from using that as a provider?

Mr. BRICKHOUSE. Well, Basin Electric's perspective, nothing is preventing us from using it. Since 2010—again, we have grown 5 percent annually each year, on average. Since then, we have added roughly 1,000 megawatts of natural gas generation to our portfolio. At the same time, thankfully for the wind resources in our service territory, we have added a similar amount of wind generation.

As we look out through the balance of this year, we will add 600 megawatts of dispatchable natural gas generation, and then we

will spend $4 billion between now and 2030 to add another 1,500 megawatts of natural gas generation.

Mr. PFLUGER. What is the most important quality to you? Is it affordability? Is it reliability? Is it this notion that somehow one form or another is cleaner? I mean, what is the most important? As a deliverer of electricity, what is the most important characteristic?

Mr. BRICKHOUSE. Well, I think anybody that joins the electric utility industry—we are a public service industry, which I think is a noble calling, and our objective is to produce safe and reliable and affordable power in an environmentally responsible manner. I think everyone at this table that is employed by a utility, that is our tagline.

Mr. PFLUGER. And natural gas can do that and is that——

Mr. BRICKHOUSE. Most definitely.

Mr. PFLUGER [continuing]. With 40 percent of the production of——

Mr. Black, permitting reform. What I was trying to get at, what is holding us back from using that? Tell us about the detrimental effects of not having permitting reform to deliver affordable, reliable, clean energy.

Mr. BLACK. Sure. Yes. There are three fairly specific things that we could do to amend, you know, this process, the Clean Water Act and NEPA and judicial reform to prevent litigation and uncertainty around infrastructure projects.

And I think the important point of all this is—and you asked a great question of, sort of, What is the constraint right now? And I checked gas prices this morning. They were a little less than $3 for MMBtu, and pipelines are the constraint, right.

There is a finite amount of space in a pipe, and if we don't have enough pipes, you get to a point where you have things like basis blowout, which is the cost of transportation blows out, you know, 10 times more than the cost of gas.

So our need is to build the infrastructure so that we don't create our own constraint, and then we can get access to that today's sub-$4 gas.

Mr. PFLUGER. I was just trying to Google gas prices in Europe, and I am sure we can do that relatively quick. But it is not $3 at NCF. It is much higher than that.

Mr. Haque, in the last 45 seconds, any expanded thoughts on permitting and how we can deliver for the needs that we know—we are in energy expansion. That is where we are.

Mr. HAQUE. We support permitting reform. Anything we can do to get energy infrastructure built more expeditiously, whether that is generation or transmission, will be extremely helpful.

You know, one additional factor that we didn't discuss with respect to—I appreciated Mr. Brickhouse and Mr. Black's responses. You know, I think policy also has—and specifically decarbonization policies, specifically in the gas industry right now, it can be the cheapest resource possible to build out and would also, you know, help with great reliability in tandem with the renewable resources that we are going to naturally see find their way onto the system.

You know, but if, sort of, there is a policy overhang that creates a risk premium that is really too high for investors to invest in,

that is, sort of, another factor on top of what has already been referenced that creates challenges for natural gas generation to get built out on the system.

Mr. PFLUGER. Thank you very much.

Time has expired. I yield back.

Mr. LATTA. Thank you. The gentleman's time has expired, and yields back.

The Chair now recognizes the gentleman from New York's 20th District for 5 minutes for questions.

Mr. TONKO. Thank you, Mr. Chair.

I am glad that there is a bipartisan recognition of the impending challenges facing our electricity system to meet growing demand, but we are doing ourselves a disservice if we continue to ignore demand-side solutions.

Mr. Norris, I appreciated your testimony because I believe we need to incentivize energy efficiency, demand response, and smarter grid management. Reducing peak demand allows our existing generation resources to be stretched further.

So, Mr. Norris, can you make the case for reducing peak demand as one of the fastest and most cost-effective strategies we can implement to match near-term growth projections?

Mr. NORRIS. That is correct. And I can expand on that. So there——

Mr. TONKO. If you would, please.

Mr. NORRIS. You know, the cheapest form of a megawatt is a megawatt, right, so not having the need to deliver the megawatt. And so there are a growing number of loads on the system that could be flexible, right. So they could be deferred, or they could be front loaded by a couple of hours. Because these system peaks that we are talking about, they are on average events that are approximately 2 hours. The most trickiest is when they occur during winter mornings, and that is from 6 to 8 a.m.—or 6 to 9 a.m. is the period that is well-defined for a lot of the jurisdictions in the eastern interconnect.

And so for flexibility of 2 to 3 hours—for example, running your hot water heater, you know, before you wake up, so that your water is already warm and ready to go so you don't have to run it, right, like when that peak is occurring—we can get more headroom out of this system out of that.

And I think the biggest opportunity may be from these large centralized new loads that are coming in. Because, especially if they already have their own onsite power and they are able to run that for a few hours a year, then we would add a lot more of that load a lot more quickly.

Mr. TONKO. Thank you. I appreciate that. And unfortunately, demand-side policies are not the only tools being ignored by the Trump administration. We really are going to need every available electron to meet our needs. It is hard to believe that the administration is so brazenly dismissing the importance of wind, of solar, and of storage.

Excluding wind and solar from energy dominance counsels launch, and making it harder to permit wind projects on both Federal and private lands is completely antithetical to any claim that we need to rapidly expand our electricity system.

Certainly, renewables have supply chain and permitting challenges, but so do gas plants with turbines currently being ordered for delivery in 2029.

So Mr. Norris, since wind and solar and storage resources make up the bulk of the interconnection queue and are able to be deployed most quickly amongst new resources, do you think there is a disconnect in the administration's position of disadvantaging these resources while also seeking to encourage near-term load growth?

Mr. NORRIS. Yes, I think it is worth noting. So, you know, in Texas, for example, they have seen record summer peaks in the past 2 years. At the same time, they have added record amounts of new capacity. And most of those additions were solar and batteries. And so, I think, most analysts have concluded that if ERCOT had not added that solar and storage as fast as they did, there would have been rolling blackouts in the summer periods during those summer peaks.

Solar and storage can contribute to reliability, and it is doing so in a number of markets. And wind as well. It actually balances out the solar profile oftentimes because you can still get decent wind resource in those winter mornings. I think what you said is generally accurate.

Mr. TONKO. We also know policy stability is needed to properly plan for and make energy investments. There have been several independent studies finding that repeal of clean energy tax incentives will result in major cost increases for our American families and businesses. And creating uncertainty about the future availability of these credits is already having a chilling effect on private-sector investments.

So Mr. Norris, if we need projects to be built as quickly and at the lowest cost possible, how does tax credit policy uncertainty discourage investment and upend planning?

Mr. NORRIS. You know, we are already hearing of impacts. You know, there are active procurements taking place in the Southeast right now for new solar and solar-plus storage resources. And even the uncertainly of not knowing where the tax incentives are going to land as a result of then developers pulling projects out of those RFPs, which means necessarily the cost of those procurements is going to increase. And so, even the uncertainty—before we even, you know, decided if we actually repeal them is already having an impact.

But, you know, it is just kind of basic economics, right. If you pull back incentives from a given activity, you are going to see less of that activity. And in that case, this means that you are going to see less generators added to the system.

Mr. TONKO. Thank you. And, Mr. Black, there is a strong bipartisan support for nuclear energy on the committee. Can you explain the role the Department of Energy's Loan Programs Office played in supporting the development of the plant Vogtle? And if you could answer that quickly. My time is expiring.

Mr. LATTA. And if you could answer that quickly. The gentleman's time is expiring.

Mr. BLACK. Yes, it provided hundreds of millions of dollars of benefit in Vogtle.

Mr. TONKO. OK.

Mr. BLACK. That is the buy-down of that loan.

Mr. TONKO. I appreciate that. With that, Mr. Chairman, I yield back.

Mr. LATTA. Thank you very much. The gentleman yields back. And the Chair now recognizes the gentlelady from Tennessee's First District for 5 minutes for questions.

Mrs. HARSHBARGER. Thank you, Mr. Chairman. Thank you to the witnesses for being here today. I will start with Mr. Black. Tech companies make a tremendous amount of money by running their own super computers at data centers. It seemed to me that they would want to focus their resources on building these data centers rather than getting into the power business. So why do you think these tech companies are going behind the meter, because they can buy wholesale power from utilities, or buy utilities—or at regular rates or a negotiated rate?

Mr. BLACK. I think it is a great question. And I think in parts of the country where maybe they are finding it difficult to find available power that is affordable, that is a solution. I think it is likely a near-term solution. Again, I have waxed on about the benefit of the integrated grid. And I think the one-off colocation solutions may be short term. For the long term, I think the unassailable benefits of the way we provide power will be recognized.

Mrs. HARSHBARGER. Yes, that was my next followup. What would the benefits be to these tech companies or individual rate payers or the system as a whole when adding these new loads like the data centers in front of the meter and sitting behind the meter?

Mr. BLACK. Yes, so the benefits of these customers and the growth and the amount of generation they require done right, charged right with the right tariffs, allow us to build a system that indeed puts down refresh-on rates. And it is around some of the conversations that Mr. Norris has had in around that utilization rate. So I need fewer resources to produce more electricity. Well, that puts downward pressure on each unit produced of electricity. So it can be a fantastic thing.

Mrs. HARSHBARGER. Yes. OK. Thank you, sir.

Mr. Haque, different types of computing facilities, whether they be cryptocurrency, mining facilities, AI computing, or otherwise, they have different demand needs. And as our committee considers these policies based on growing load demand, would there be any need to define these facilities differently based on their differing demand needs?

Mr. HAQUE. It is a great question, Representative. One thing that needs to be examined is this load, and specifically, you know, the—we will just characterize it as cost and other obligations that it creates. And so, you know, we have spent a lot of time with our stakeholder community and within our stakeholder process talking about this load in particular, how big it is, how quickly it is coming on to the system.

You talked about, you know, behind-the-meter opportunities as well as in-front-of-the-meter opportunities for these folks to come on. And look, it is a good story. It is a good story for the Nation to have these data centers and to have this growth. But simultaneously, I do think we need to think about whether there needs to

be, you know, additional we will just call it, you know, for us, you know, tariff structures or revisions to deal with this load coming on, specifically, you know, their cost for the system.

And, you know, for instance, whether they are paying their fair share of transmission upgrades, whether they are paying their fair share of ancillary services, which is a service within, you know, our grid framework.

And so I think you are bringing up an important point. I think it is something that deserves analysis.

Mrs. HARSHBARGER. Yes. You know, we talked a little bit a few minutes ago. You know, PJM covers just a sliver of my district, and then TVA, you know, covers the vast majority. And you talked about the Winter Storm Elliott, where there was a surge in demand. It affected my district tremendously. And that allowed you to get that waiver to meet the demand to sell excess power to TVA on the open market.

You know, we don't need all plants to be in use at the same time. You know, it is kind of like when you lose weight and you have your closet, you don't throw those clothes away, you take them upstairs, and you put them in the closet. And then you got your overweight clothes and then you got your skinny clothes. And it is kind of the same way with this power structure, you know. You don't want to turn all of it off or get rid of it all at once. Do you agree?

Mr. HAQUE. I agree with that. I have, historically, been a weight fluctuator, so I do have my heavy suits and my skinny suits.

Mrs. HARSHBARGER. Well, we all do. I just go upstairs to shop.

Mr. HAQUE. But I also agree fundamentally with the premise. And look, the tighter we get on supply, the less we are going to be able to export to our neighbors. And we have been, historically, when the weather gets rough, especially these last few winters, we have been able to export to our neighbors in order for them to keep the lights on. And so the tighter we get with supply, we have generally been the, sort of, the grid in the eastern interconnect that has had the most robust supply. The tighter we get, the less we are going to be able to help our neighbors. And so, I think, fundamentally, you know, I do agree with what you are saying.

Mrs. HARSHBARGER. You keep those overweight clothes. I got you, pal. All right. My time is up, and I will yield back.

Mr. LATTA. The gentlelady's time has expired, and yields back. And that is the first time I have heard that analogy before.

The Chair now recognizes the gentleman from Texas' 33rd District for 5 minutes for questions.

Mr. VEASEY. Thank you, Mr. Chairman. And I did want to take a personal privilege here to talk about my friend, Sylvester Turner, that we lost. When I was in the State legislature with Sylvester, this was his wheelhouse. He loved talking about ERCOT and knew it in and out, and the transmission piece. And from someone that he would always probably say that—he would never say he was from Houston. He would always say he was from Acres Homes, which is a neighborhood in Houston. And from Acres Homes to Harvard, Sylvester got his lesson and literally learned this particular thing that we are talking about today in and out. And I am devastated. And I thank y'all for being here today.

One of the problems that we are obviously having is that bringing new resources onto the grid, it is a challenge for a lot of different reasons, but we know that we are going to continue to have electricity demand. There was just a great article recently in one of our local papers in north Texas talking about some nuclear reactors that were going into the Haskell area of West Texas in order to help with, you know, data centers and all of the new demand that is going to be online for ERCOT.

One of the things that worries me is I don't know that FERC's order of 2023 to modernize interconnection process has made some progress with that. There are still some barriers that remain. The connect and manage model that is used in my home State of Texas allows generators to connect faster by managing grid constraints in real time instead of waiting for upgrades. And that means that sometimes the generators will have to curtail their production, but that is a market decision that they make. And it works so well that ERCOT interconnected 2.5 times more capacity than PJM, despite PJM serving a much larger load.

And so knowing all of that and knowing that America is going to have energy needs to be met and that we need a more efficient interconnection system, I wanted to ask Mr. Norris. A lot of your highlights at ERCOT is far more efficient than other regions in interconnection, and I wanted to ask you what policies allow ERCOT to interconnect projects faster than other RTOs and ISOs, and do you think they can be applied nationally?

Mr. NORRIS. Thank you, Congressman, for the great comments and the very good question. I think this is a very, very significant phenomenon that has happened in ERCOT over the past years. I don't know that we have ever seen such a differential between one market exceeding every other market so substantially and such a critical area, and in this case a new capacity addition.

ERCOT has taken a forward-looking approach here. So they allow generators to connect freely, and they don't charge them for the cost of network upgrades. They plan their grid separately via a separate process that is designed to identify the upgrades that have the best benefits for the rate payers. And then they manage the impact, as you said, in real time. So they have sophisticated real-time operational tools that allow them to manage all these new generators that are coming online.

And the rest of the country, we have actually established very high barriers to entry for new generation. And the way we study them is highly restrictive, and it is likely, in many cases, to trigger substantial network upgrades. And that is really—in some ways, the primary cause of all these interconnection queue backlogs is that we have taken this highly restrictive approach to getting new generation on the system.

So I do think there are lessons that other jurisdictions can learn from ERCOT. They can't necessarily adopt it immediately, because that would require larger structural reform. But there are ways that they can offer services to generators to allow them to move forward more quickly.

Mr. VEASEY. I know that in a lot of your work, you also suggest that better allot and interconnection transmission planning and resource procurement should take place. And I was wondering, how

should FERC and Congress incentivize more proactive transition investment?

Mr. NORRIS. Proactive transmission planning is going to be critical, in part because we are in a very supply-chain-constrained environment. My rates are already rising, and so there is just a threshold for how much we can do very quickly.

So we need proactive planning so that we can identify the highest-value upgrade to the system and focus our limited resources on those. And that is exactly what Order 1920 tried to do, right, is to create this multivalue, proactive approach to transmission planning.

And so, you know, I mentioned one example in the Carolinas that we did with Duke Energy. And everyone got behind that. It was highly bipartisan. It is going to unlock a lot of cheap generation. It is going to contribute to reliability. But we have to make sure that we maintain Order 1920 if we want to reap the benefits of that type of proactive approach going forward.

Mr. VEASEY. Thank you very much. Mr. Chairman, I yield back,

Mr. LATTA. Thank you. The gentleman yields back the balance of his time.

The Chair now recognizes the gentlelady from Iowa's First District for 5 minutes for questions.

Mrs. MILLER-MEEKS. Thank you to Chairman Latta and the Ranking Member Castor for holding this hearing today. I want to also thank our witnesses for testifying before the subcommittee.

Mr. Norris, I want to especially thank you for acknowledging that the perverse incentives of the Biden administration the past 4 years actually dampened the energy generation from carbon-based fuels, but I digress.

The United States is experiencing unprecedented energy demand growth, requiring us to rapidly deploy new generation capacity across the country. In Iowa, we are seeing this firsthand with the recent announcement of QTS' new data center campus in Cedar Rapids, the largest economic development investment in the city's history at a minimum of $750 million.

This facility chose Cedar Rapids in part because of access to reliable, affordable, renewable energy sources, demonstrating how energy infrastructure directly impacts our ability to attract cutting-edge industries.

As these technology-intensive facilities continue to expand across America, we face several critical challenges in meeting skyrocketing demand. Meanwhile, EPA's Power Plant 2.0 rule threatens to undermine grid reliability by forcing plants to implement carbon capture technology that isn't yet commercially viable at scale.

We need commonsense, pragmatic approaches that facilitate faster development, such as repurposing existing generation sites and unused transmission capacity to streamline permitting and accelerate clean energy integration.

With that context, I would like to ask a few questions about how we can best meet this growing demand while maintaining reliability and affordability for all consumers and not ceding national security interests to the Chinese Communist Party.

Mr. Brickhouse, you mentioned that technology-based loads like data centers become operational in 3 years, while dispatchable generation takes 7 years to build. How is Basin Electric leveraging existing sites and transmission corridors, along with considering wind, solar, and energy storage, which can be placed into service sooner to meet this interim reliability gap?

Mr. BRICKHOUSE. Well, with respect to renewables, when renewables were used to hit or to satisfy our peak demand, we typically think of it as needing to have backup dispatchable generation in order to satisfy the times when the wind is not blowing and the sun is not shining.

For example, on February 20, it was negative-30-something degrees in North Dakota and across the Great Plains and probably down into Iowa, and STP had a peak of 48,000 megawatts. And the wind contribution to generation was about 2,000 megawatts. And that had, I believe, decreased sevenfold in 24 hours.

So we need to have dispatchable generation given the harsh climates in our service territory.

Mrs. MILLER-MEEKS. Exactly. And we have seen the same thing in Iowa, as well, as when I visited MISO. And we know that the U.S. needs to significantly accelerate domestic energy production infrastructure, both to meet growing demand and, as I said, to compete with the Chinese Communist Party in strategic sectors like AI and clean energy.

Mr. Black, your experience with developing transmission projects across multiple jurisdictions gives you unique insight into supply chain challenges. How critical are tax incentives like the tech-neutral electricity credits under 45Y and 45E and 45X advanced manufacturing for onshoring American manufacturing and energy sector? And what would the competitive implications be against China if these credits were significantly reduced?

Mr. BLACK. Yes, so there is definitely a significant amount of investment required. And those investments or those tools that you just discussed are incredibly helpful in ensuring that we can get those projects built and online in a manner that is affordable for our customers.

Mrs. MILLER-MEEKS. Thank you. Mr. Haque, Basin Electric is experiencing load growth significantly higher than natural average, in part, due to data center demand.

Given your experience at PJM, what best practices would you highlight to balance increased costs to rate payers and economic development?

Mr. HAQUE. So as supply decreases and demand increases, it will raise prices. And this is just the reality of the marketplace. Now, one thing that we can do is work with our retail regulators on how those costs end up getting passed down to consumers.

I was a former retail regulator myself from the State of Ohio. You know, how those we call them default service procurement auctions work, how a deregulated State, how those costs are passed down is something that is worth examining, frankly, in all of our jurisdictions. Because a price increase in just one of our markets should not actually result in a direct proportionality of costs that are passed down to consumers.

Mrs. MILLER-MEEKS. Thank you. We need to significantly accelerate domestic energy infrastructure to meet growing demand. Tax incentives, like the tech-neutral clean energy credits under 45Y, 45E, and the 45Q carbon sequestration credit and the 45X advanced manufacturing credit, aimed to strengthen American manufacturing capability and reduce the engineering procurement and construction risks that have plagued major energy projects.

With that, I yield back.

Mr. LATTA. Thank you. The gentlelady's time has expired, and yields back.

The Chair now recognizes the gentlelady from Washington's Eighth District for 5 minutes of questions.

Ms. SCHRIER. Thank you, Chairman Latta. And thank you to our witnesses today. I am going to start with just a few questions for Mr. Brickhouse.

Mr. Brickhouse, Basin Electric purchases electricity from hydropower assets at the Western Area Power Administration, correct?

Mr. BRICKHOUSE. Yes, ma'am.

Ms. SCHRIER. Thank you. And for those who don't know, this is one of just five Federal agencies that market electricity from federally owned hydropower. Can you talk about just how valuable the Western Area Power Administration's hydropower is to your co-op's energy mix?

Mr. BRICKHOUSE. Yes. So the Western Area Power Administration owns and operates about 17,000 miles of transmission through the Great Plains and down into the desert Southwest. And then Bonneville Power Administration, which we don't have adjacent service territory in about 15,000 miles of transmission, if memory serves me correctly.

And with respect to WAPA specifically, their transmission lines will end at one of their substations. On the other end of that substation, Basin's transmission line will connect and take it to the rest of our members.

Ms. SCHRIER. Got it.

Mr. BRICKHOUSE. So a key partner.

Ms. SCHRIER. So you are focusing more on transmission. I was really focusing on hydro power, which is, of course, important because it is base load, and it is dispatchable, it is clean and affordable.

Mr. BRICKHOUSE. And we transact through the hydropower with them on a daily basis.

Ms. SCHRIER. What would happen if this hydropower were to suddenly become unavailable?

Mr. BRICKHOUSE. My colleague from PJM says when you have a supply and demand imbalance on the demand side or the supply side shrinking, you are going to have higher prices immediately.

Ms. SCHRIER. Higher prices, less reliability. Thank you. And in this context, the Bonneville Power Administration is a similarly public power that supplies Washington, Oregon, Montana, and Idaho and is funded by our electric bills, not by the Federal Government.

So I want to extrapolate what this means from my State of Washington. It has twice the generating capacity of WAPA. And, in fact, Bonneville is the largest of the five power marketing ad-

ministrations. So I want to also mention that this is important to several of the Republican colleagues in this committee.

Across the Pacific Northwest, Bonneville accounts for about 65 percent of the generating capacity in the region and most of the high-voltage transmission, as you discussed. The operations, therefore, at Bonneville are essential to maintaining the grid at existing energy rates. And again, you pointed out that we the rate payers pay for the operations, and not the Federal Government.

So despite all of that, the administration and Elon Musk have still set their sights and succeeded in cutting nearly 20 percent of the workforce there, and that includes a lineman who worked on downed power lines, the system operators that make sure that demand meets supply, and they are up 24/7, and then, of course, the vice president of transmission.

I just want to point out that these deliberate words of "probationary employees" is really pretty disparaging. It implies that they are in trouble and are dispensable. Really, that is not the case. It just means they have been 1 or 2 years or just got promoted.

So I am not saying BPA is perfect, but this decision is not saving taxpayer money. It is not just reckless, and it is also not helping to pay for the gigantic tax cuts that my colleagues are planning for the wealthiest people and corporations in the U.S.

If this weren't even enough, the self-inflicted damage from trade wars with our allies with Canada just started yesterday. And the rates here, again, are going to be unprotected from rate hikes. So in this case, the majority in the administration may not know that the largest share of Washington State's natural gas actually comes from Canada.

So this administration—the same one that promised to slash energy bills in half in the next year—is doing exactly the opposite. And over and over, either a basic misunderstanding of the facts or lying to the public or retaliation against the Northwest region, which includes Idaho and Montana, is hurting my constituents. And I sure hope that Secretary Wright is listening.

Thank you, and I yield back.

Mr. LATTA. Thank you. The gentlelady yields back the balance of her time.

The Chair now recognizes the gentleman from South Carolina's Seventh District for 5 minutes for questions.

Mr. FRY. Thank you, Mr. Chairman, and thank you to our witnesses for being here today and your testimony. I come from the great State of South Carolina, where we have seen record investments from an economic development standpoint, advanced manufacturing, AI, and, of course, a rapidly increasing population. Myrtle Beach, one of the towns that I represent, is the fastest-growing city in the country, creating more of a demand on our grid. Companies like DC Blox are investing in our critical infrastructure, including the Myrtle Beach Cable Landing Station data centers across the State, expanding connectivity and supporting high-performance computing.

And as these industries grow and as people continue to move to South Carolina, energy must keep up. Nuclear is key in my mind to meeting some of that demand. In fact, South Carolina already generates 55 percent of its electricity from nuclear thanks to initia-

tives like the Palmetto nuclear coalition. We have a strong, industry-led effort to advance large-scale reactors and small modular technologies.

But we can't rely on the status quo for long. We have to meet that challenge in Congress. We need policies that prioritize energy expansion, modernize transmission and regulatory certainty to ensure that American industry has the power it needs when it needs it. So I look forward to talking with y'all today.

Mr. Norris, you discussed in using demand response and load management programs to incorporate massive new loads onto the grid. You also mentioned how this creates headroom for more expansion in the short term.

But I am curious, how do utilities and grid operators approach the demand side response, which if I understand correctly, expands existing energy conservation measures?

Mr. NORRIS. Yes, so what we are talking about is a little different from existing demand response programs, because what we are trying to do is in this planning realm, right, we are all trying to plan for this large load that is coming. We want to connect the dots between the large customer and the electric utility and say, "We recognize, say, this data center, you are going to have some onsite power—it could be natural gas, by the way—you are going to have onsite natural power plants already. So let's not have redundant capacity so that we are going to have to install a new gas power plant and all the transmission to deliver the power."

In response, that data center could get online even more quickly, right, so we could compete in the AI race.

Mr. FRY. OK.

Mr. NORRIS. So I think that is what we are trying to create here.

Mr. FRY. Mr. Black, I saw you writing down some stuff. Do you care to respond to that same question?

Mr. BLACK. Yes, so to do what he was just reflecting on, we need what we call the abilities: the visibility, the dispatchability, the predictability of these loads. If we don't have that kind of control, we can't, frankly, pay that customer an appropriate amount so that they provide benefits to our system.

And we have been—Southern has a long history of doing this from our RTP, real-time pricing, to interruptible standby generation rates. We have been doing this a long time. And it is an important part of, sort of, rate world. We trim the peaks and fill the valleys, and that improves the efficiency of our system. So absolutely necessary, but those abilities are probably the key to unlocking that value.

Mr. FRY. Mr. Brickhouse, the same question to you. And by the way, I am a big fan of co-ops. South Carolina co-ops are some of the best. We love them. The same question to you.

Mr. BRICKHOUSE. Thank you. I live in Congresswoman Fedorchak's district, but I was born in the great State of South Carolina. So thank you.

Mr. FRY. Good game Friday.

Mr. BRICKHOUSE. I guess from our perspective, as a load-serving entity, we have to look at it with some skepticism and say, What happens if the load does not respond? And that can happen. And we are in a regional transmission organization, and we were obli-

gated to abide by their rules. I will let Mr. Haque talk about this a little more specifically, if he would like.

But a number of years ago, PJM adjusted their demand response rates because they had—and I don't want to mischaracterize this—but they had significant demand for those demand response rates, and they changed the rules and gave it less capacity accreditation.

So it is a utility that is not subject to PJM's RTO rules but to STP's RTO rules, you do have to have that in the back of your mind: Is a load going to show up when you curtail that demand, and is the regional transmission organization going to change the rules down the road, and we are suddenly going to have to come up with more capacity?

Mr. FRY. Thank you for that. Mr. Brickhouse, as a utility operator, what are the benefits of policies that promote energy abundance rather than scarcity management.

Mr. BRICKHOUSE. Permitting reform is a concern. And I think that there are a number of changes that Congress can make to the National Environmental Policy Act that would be very helpful to have additional resources come online more quickly.

Mr. FRY. Thank you for that. Mr. Chairman, I see the balance of my time has just now expired, and with that, I yield back.

Mr. LATTA. The gentleman's time has expired, and yields back.

The Chair now recognizes the gentlelady from Florida's 15th District for 5 minutes.

Ms. LEE. Thank you, Mr. Chairman. And welcome to all of our witnesses here today. Ensuring the reliability and affordability of our electric power system is crucial for our national security, our economy, and the well-being of our communities.

My home State of Florida is one of the Nation's largest producers of electricity, with a rapid population growth, increased manufacturing, and advances in technology, including artificial intelligence and the data centers needed to power it, our demand, and production will only continue to rise.

It is imperative that our electric grid is prepared to meet this growing demand for power. Our generation and transmission systems must be reliable and resilient with the ability to ensure continuous power supply and to respond quickly to unforeseen circumstance and changes in demand.

Mr. Brickhouse, in your testimony you mentioned the rapidly evolving threat landscape and that the electric sector faces considerable challenges from our cyber adversaries. Would you expand, please, on the types of cyber threats that our electric power system faces?

Mr. BRICKHOUSE. Well, it is not terribly different than what you and I face every day when we go home. If you click on a wrong link and your computer gets some type of virus in it that can spread rapidly, and it shuts your computer down, and, obviously, in the utility space or at any business we have, large networks in that can be shut down and harmed relatively quickly by those.

Ms. LEE. You also mentioned several specific programs that Basin Electric has leveraged to strengthen its cybersecurity posture, including the Threat Analysis Center, Rural Municipality Utility Cybersecurity Program. Are there any specific programs or

best practices related to cyber that you want to highlight or share as success stories?

Mr. BRICKHOUSE. Well, I will answer it a little bit differently, is that we appreciate the Federal Government's support here because these are national security issues, and many of the bad actors are people from overseas. And so we need to work in a coordinated fashion with intelligence agencies in order to make sure that we understand the threats and can defend ourselves and our networks from those threats.

Ms. LEE. And Mr. Black, in your testimony you mentioned that energy policy is highly regional due to some variations and factors like weather, geography, and resources. And Florida, like several of the other Southern States that your company serves, experienced devastating hurricanes last year.

I am interested in discussing further with you how utility companies like yours prepare for these types of events.

Mr. BLACK. We are certainly practiced, unfortunately, at dealing with hurricanes. We had one of the largest hurricanes in our company's history this last year as it moved through Georgia. More poles—but I can go through all the statistics. It is devastating.

Our ability to work with our friends in a coordinated manner to get customers back on is probably better than it has ever been, right? I think the investment in our system from a resilience perspective and the investment in our system in recovery has been—it improves year to year.

These events get more remarkable, it seems, as the South continues to grow and proliferate. But our ability to invest in the system for resilience so that we can get back on quicker and work with our peers and colleagues around the country to bring those resources in is better than it has been ever.

Ms. LEE. And you just touched on something that I want to ask a followup question about, and that is, I understand the investor-owned utilities' mutual assistance program has been beneficial for getting customers' lights back on in the wake of these extreme weather events.

Can you share with us what that program is and how it has helped you work on disaster recovery?

Mr. BLACK. Certainly. It is the processes and communication and the network that is required to call in crews from all over the country. And again, these last few storms we had trucks and folks as far away from the West Coast coming into Georgia and North Carolina and so many of these States that were devastated.

So the mutual assistance program, again, at this point so welpracticed. And the ability of companies to get people quickly on the work is the challenge. Having just the resources is step one. Getting them on the work is where the practice and the training and the commitment comes from.

Ms. LEE. Thank you, Mr. Chairman, I yield back.

Mr. LATTA. Thank you. The gentlelady yields back the balance of her time.

The Chair now recognizes the gentleman from New York's 23rd District for 5 minutes for questions.

Mr. LANGWORTHY. Thank you, Mr. Chairman.

Mr. Brickhouse, in its 2024 Long-Term Reliability Assessment issued last month, NERC ranked the middle part of the country in the MISO area as high risk for energy shortfalls, with elevated risks throughout many other regions. And NERC notes at Section 111 Standards, MATS rule, coal ash regulations, and effluent limitations guidelines specifically are, quote, "regulations [that] impose considerable financial and operational challenges on coal-fired generators" and, quote, "have the potential to influence generators to seek deactivation during the 10-year assessment period" of NERC's study.

For the first time in years, we are facing increasing demand for electricity, in part due to ballooning demand from data centers and increased electrification. But the previous administration under President Biden tried to engineer an accelerated shift in the mix of electricity generation in the country with the goal of trying to force the shutdown of coal-fired power plants while discouraging natural gas transmission in generation.

Mr. Brickhouse, should we have requirements that any environmental push to shift the mix of electricity production be fully vetted by reliability authorities like FERC and NERC? Or should we have reliability at the center of electricity planning moving forward?

Mr. BRICKHOUSE. I think that in terms of regulations, we have to be careful of unintended consequences and regulations that are put in by well-intentioned people today have the threat of being misused in the future. As a utility—and I think Mr. Black referenced this earlier as well—it is our obligation to balance supply and demand.

Mr. LANGWORTHY. Thank you. In the last 4 years and looking even earlier than that, Democratic administrations have put their own public policy agenda items ahead of real issues like reliability and affordability. We saw this play out with former President Biden's work to shut down generation. And we see it on a State level, where States like my home State of New York, where radical, even irresponsible public policies like the Climate Leadership Community Protection Act are putting zealous goals for emissions reductions and electrification ahead of basic questions about reliability, affordability, and the safety of residents.

So I would like to go down the row here and ask: Have you seen State policies lead to or have an effect on higher rates and lower reliability? Mr. Brickhouse?

Mr. BRICKHOUSE. Yes.

Mr. LANGWORTHY. Mr. Haque?

Mr. HAQUE. Absolutely.

Mr. LANGWORTHY. Mr. Norris?

Mr. NORRIS. Yes.

Mr. LANGWORTHY. Mr. Black?

Mr. BLACK. I will say our region in support of our States and that regulation close to the States has resulted in affordable and reliable power for our companies—so in our customers. So I would say State alignment around that issue, at least in our region, and this is back to that regionalism, has been strong.

Mr. LANGWORTHY. Now, the New York grid plans to add 3.5 gigawatts of new large loads to its system by 2030, including Mi-

cron's microchip fabrication facilities in the Syracuse area, which are creating thousands of new jobs and leading to billions of dollars of new investment.

Now, currently, my State relies on energy supplies from other States and Canada to meet more than 80 percent of its total energy needs and has the country's seventh-highest average residential electricity rates.

Now meanwhile, vast natural gas, hydropower, and geothermal resources in New York remain untapped. I mean, I find this to be unacceptable. Unlocking our abundant energy resources can lower the cost of electricity, while adding new loads to the system can put downward pressure on consumer rates.

Mr. Black, we have heard today about the demand needs of various technologies like AI computing, cryptocurrency mining, and expanded manufacturing, such as the Micron facility that I mentioned. What policy consideration should be made to ensure grid reliability and efficiency while accommodating very energy-intensive industries coming into new areas?

Mr. BLACK. So I think two important points there: firm gas pipes, and we have talked a little bit about today this interconnection, sort of, accountability and affected systems. Those are processes at our State level that we see that results in a more ubiquitous transmission and gas system. You don't build a gas pipeline without a firm gas contract. And that could be some of the struggles. I don't know. I am not as familiar with your region. I am sorry for that. But our area is committed to that. And again, those firm gas contracts are resulting in more infrastructure to support the region.

Mr. LANGWORTHY. Thank you. These policies and their consequences are being felt across the country and will be felt in the coming years. They clearly warrant greater scrutiny, even vetting. As a New Yorker whose constituents experience the results of such irresponsible policies as they relate to our electricity needs firsthand, I believe strongly that we need to ensure reliability and affordability are always at the forefront of energy policy moving forward in all levels of policymaking.

And with that, Mr. Chairman, I yield back.

Mr. LATTA. Thank you very much. The gentleman's time has expired, and yields back.

The Chair now recognizes the gentleman from Colorado's Eighth District for 5 minutes of questions.

Mr. EVANS. Thank you, Mr. Chairman. Thank you, Ranking Member. And thank you, of course, to the witnesses for coming today.

In Colorado's Eighth Congressional District, I represent a working-class district, northern suburbs of Denver, for whom energy is a major, major driver in the economy. In fact, the Loyal Electric utility that provides power to our area also services one of the major oil and gas fields in the area. And in my conversations with them, they have said that they are forecasting needing 3 times as much electricity in the next 10 years as they are currently using now, and that is after doubling the amount of electricity that they have to provide over the last 10 years.

And so, Mr. Brickhouse, the first question to you is, I have also heard directly from these utilities that because of Colorado's just very draconian laws around greenhouse gases emissions and the so-called carbon-free roadmap in Colorado, they are being forced to pull gigawatts of coal-fired generation off of the grid in Colorado.

And so the question to you is, When you or your members are faced with those draconian regulations that require gigawatts of electrical generation to be pulled off of the grid, how does that impact your ability and the ability of other electrical providers to be able to keep up with the growing demand for electricity and keep it affordable?

Mr. BRICKHOUSE. We had a very short period of time in the late teens where our growth was slowing, and it quickly reaccelerated after COVID, and we have grown basically 5 to 7 percent in unit sales every year after that. And that dramatically changed our expected path of our resources. We had tentative plans to evaluate closure of some facilities, and those are gone today. And I concur with the distribution cooperative you have been talking to down there that demand growth that we have in the future is going to require every existing resource, and it is going to require utilities to build enormous amounts of dispatchable generation in the future.

Mr. EVANS. How would you characterize the decision to retire coal-fired generation in the United States and in Colorado?

Mr. BRICKHOUSE. We have a member in Colorado that serves that load. So they had dealt with it one way. In North Dakota and other parts of our service territory, Wyoming, close proximity to Colorado, we are keeping all-of-the-above resource strategy intact.

Mr. EVANS. Do you think it is wise to be retiring coal-fired generation when we need additional capacity, not less?

Mr. BRICKHOUSE. No.

Mr. EVANS. Thank you. Moving on to NEPA reform. We know how critical it is that we not be our own worst enemy when we are trying to expand electrical generation so that folks have access to affordable and reliable electricity. And we have often heard conversations about how NEPA can sometimes get in the way of that.

So do you have any examples that you might be willing to elaborate on about how Congress can streamline the permitting of getting more electrical generation onto the grid?

Mr. BRICKHOUSE. I think with NEPA, the best example is there is a project that we were doing with two partners. It was a natural gas development. And we got caught up in an extra review. And it, as a result of that, will likely write off a significant portion, if not all of the development costs of that project.

Mr. EVANS. Thank you. Switching to Mr. Haque. I represent a truly and all-of-the-above energy district. We have a major oil and gas footprint, but we also have wind, we have solar, we have geothermal. We used to have nuclear generation. We don't have that anymore in Colorado. We are trying to get that back.

And so my question to you is as we are looking at, again, in my area needing three times as much electricity in the next 10 years, are there any emerging technologies, SMRs, geothermal, that you would like to see us be able to move forward to help meet some of this demand and then also be able to colocate the generation with

the demand knowing that we have certain shortcomings in the transmission?

Mr. HAQUE. Representative, great question. In the near term, here is what we are going to see: We are going to see quite a few of the renewables, hopefully, that are in our queue connect to the system. We are going to see uprates of existing generating units. I think I described some of the nuclear uprates. There is a possibility of gas uprates as well. And I think you are going to see more demand response participate in our marketplace long-term. We are going to get more renewables into the system. We are going to need new natural gas. And we are going to need new, you know, new technologies.

SMRs are, you know, very promising technology, but they are some years away. So we were dealing with the technology that exists today. And that technology is—you know as we sit here today, again, we have got, you know, effectively, our existing fleet and then new renewables, new storage, new natural gas.

Mr. EVANS. Thank you. I yield back.

Mr. LATTA. The gentleman's time has expired, and yields back.

The Chair now recognizes the gentlelady from North Dakota for 5 minutes for questions.

Mrs. FEDORCHAK. Thank you, Mr. Chair. Thank you all for being here and sharing your expertise with us. I have a few rapid-fire questions I want to ask to start, just because I want to hear from all of you. So just a yes or no on the first one.

In your opinion, can you both support renewables and support the urgent need for more dispatchable, fuel-secure resources? Mr. Brickhouse?

Mr. BRICKHOUSE. Yes.

Mr. HAQUE. Yes.

Mr. NORRIS. Yes.

Mr. BLACK. Yes.

Mrs. FEDORCHAK. Thank you. Secondly, is the call for more dispatchable, fuel-secure power generation driven by partisan politics or grid physics and mechanics?

Mr. BRICKHOUSE. Physics.

Mr. HAQUE. Physics.

Mr. NORRIS. It is a more complex answer.

Mrs. FEDORCHAK. You only get one choice: grid mechanics or partisan politics?

Mr. NORRIS. So I think there are cost considerations that come into play as well. But other than that, physics.

Mrs. FEDORCHAK. OK.

Mr. BLACK. Physics. And finance. But physics, yes.

Mrs. FEDORCHAK. Thank you. I am glad you brought up finance, because I want to talk about that next. As it relates to cost, there is a lot to talk about this is the lowest cost, that is the lowest cost.

As it relates to cost, does the cost per kilowatt cover the full cost of any generation source? And if not, what is the left-out of that? What goes into the bill that customers pay? Because I had a lot of customers tell me as a regulator, "If everything is so cheap, why is my bill going up?"

So, Mr. Brickhouse, what else besides the cost per kilowatt do you include in your bills to customers?

Mr. BRICKHOUSE. We include the hundreds of millions of dollars a year of costs related to environmental compliance. So that is one area. And then, when we talk to our members, a good example for Basin is that our existing generation assets are on our books for $800 of KW installed. A new generation of a dispatchable baseload sort would cost about $2,600 of KW installed. So there is a cost aspect to that as well.

Mrs. FEDORCHAK. Mr. Black, what goes into your customer bills that we haven't talked about?

Mr. BLACK. So certainly the wires cost. You know, transmission distribution. The variable O&M and the capital required to run our plants and keep them up to compliance, you know, EPA requirements along those lines. So, you know, it is the capital and the variable aspects of fuel and such. And so it is a lot of components.

And I would say it differs a little bit, too, in the structure that you have. Obviously, we are a vertically integrated structure. We build, and then they pay, you know, a share of the capital costs in our bills as opposed to, sort of, the market component maybe that PJM has that is broken out. It is a little more complex, I think.

Mrs. FEDORCHAK. OK. Thank you. Mr. Haque, the one most disappointing thing for me in this new role is that partisan politics gets way too involved in the management of the grid, in my opinion.

You are the smart person, you are the one ultimately keeping the grid running in the PJM area. MISO does it. STP does it. What do you wish that Federal and State policymakers understood or knew more about before they made policies affecting energy?

Mr. HAQUE. All policy choices that exacerbate our supply/demand challenges will have direct consumer impact. They will have impact on reliability degradation, they will have impact on cost. And I would say the other thing is that, again, I think we are all collectively trying to find this balance of, you know, our North Star is reliability, but we are very conscious of costs. And, you know, I have got two little boys at home. I mean, I would want them to breathe cleaner air as well. And so we are trying to find this, sort of, balance and sweet spot between all three of these.

But in order to find that balance and sweet spot, we also have to understand the physics of these resources and what they can provide to the grid. That is also essential.

Mrs. FEDORCHAK. Mr. Brickhouse—and I have 1 minute left, so I will ask two more questions. You are seeing significant demand increase. Do you expect that you can meet that demand with renewables alone?

Mr. BRICKHOUSE. No.

Mrs. FEDORCHAK. How about you, Mr. Black?

Mr. BLACK. No, not renewables alone.

Mrs. FEDORCHAK. Mr. Haque, do you think that we can meet the demand for what we are seeing in terms of AI manufacturing——

Mr. HAQUE. Not based on our forecast, no.

Mrs. FEDORCHAK. All right. Sir, I forgot your name because I don't have it in front of me. Mr. Norris, do you think we can meet demand with renewables alone?

Mr. NORRIS. No, but that also includes storage and nuclear and thermal resources, so yes.

Mrs. FEDORCHAK. With all of those you think we can.

Mr. NORRIS. And demand response and energy efficiency too.

Mrs. FEDORCHAK. OK. Well, I have only got 10 seconds, so I yield back. Thank you.

Mr. LATTA. Thank you. The gentlelady yields back.

And the Chair now recognizes the gentleman from Pennsylvania for 5 minutes for questions.

Mr. JOYCE. First, I want to thank Chairman Latta for allowing me to waive on to this important hearing. When it comes to energy generation, I believe in all of the above, but all of the above—I believe that we can all agree we need to utilize accessible, affordable energy, and that is the coal and the natural gas that is under the feet of my constituents.

Our generation is not created equal. The capacity factors of wind and solar are simply too small to provide the reliable energy that our grid requires. What we need in simple terms is more baseload generation. We need more coal, more gas, and more nuclear. It doesn't matter how many gigawatts of wind and solar capacity that are built if they are not generating them when you need them. Unfortunately, we were doing worse than not building dispatchable generation. We are actually retiring it. We are shutting it down.

PJM, which is the Nation's largest RTO—it includes my district in Pennsylvania—released a report in 2023 projecting 40 gigawatts of reliable, dispatchable generation will retire by 2030. PJM labels the majority of these retirements as, quote, ″policy-driven decisions.″ This is at a time when demand is growing. Tech leaders like Elon Musk have said AI could lead energy demand to be as much as twice as what it currently is today.

Pennsylvania is in a great position to benefit from the investment in the jobs of the AI revolution. We have already begun to see this benefit with agreements between AWS and Talen Energy at the Susquehanna nuclear generation facility, and the reopening of Three Mile Island thanks to the power purchase agreement between Constellation Energy and Microsoft.

Mr. Haque, successfully deploying and empowering new AI data centers at the speed demanded to compete on the global stage will be heavily dependent on the actions taken by FERC to address colocation. How is PJM approaching the issue of colocation, both in its work with FERC and on its own?

Mr. HAQUE. Thank you, Representative. It is still an evolving story. And the FERC recently actually had—they issued an order that requires us and the transmission owners to come to them with a potential solution. We are in the throes of working with our membership and our States to try and figure out what that solution should look like. I would have more information for you in 30, 60 days, but we are working that solution right now with, again, our States and members.

Mr. JOYCE. Mr. Haque, I hope you will agree with me that we need more generation built within PJM. And what are the tools in PJM's toolbox to encourage the investment and the building of new generation?

Mr. HAQUE. The tools in the toolbox, depending on whether you are a restructured or deregulated State or a vertically integrated

State—Pennsylvania is a restructured or deregulated State—who are reliant on markets to try and incentivize new investment.

Now, you know, we have a capacity market that is meant to be a residual market. So parties like the ones you are referencing—you actually referenced TMI and Microsoft—they can enter into bilateral transactions in order to make sure that they have—Microsoft in this instance—has the power that they need. And the capacity market can be relied upon to send what I would say are directional price signals as well as to incentivize new investment.

Mr. JOYCE. So, Mr. Haque, are capacity auctions one of the tools in your toolbox? And do you believe that capacity auctions are working to incentivize building new generation? And if not, what can be used to attract that new generation, that new investment?

Mr. HAQUE. Yes, so Representative, for our deregulated States, the capacity market is the primary tool that is utilized to try and incentivize new investment to the marketplace. However, I continue to think that, as we see this proliferation and demand driven by data centers, driven by the onshoring or U.S. manufacturing, I think you will see more, again, bilateral transactions that occur within the footprint.

And the other thing I would say is, you know, there are tools that can be utilized that have not been utilized yet. For instance, we have got the potential if we clear 3 years below our reserve margin that we can use a competitive procurement mechanism. That is a tool that is a currently in our toolbox that we can utilize. States have taken action, as well, depending on the resource types that they prefer in order to try and advance new generation. And those actions can find their way into our marketplace as well.

Mr. JOYCE. As we see the expansion of AI, we are going to rely more on you expanding those tools in your toolbox.

Mr. Chairman, I thank you for allowing me to waive on, and I yield back.

Mr. LATTA. The gentleman's time has expired, and yields back.

The Chair now recognizes the gentleman from Georgia's First District for 5 minutes of questions.

Mr. CARTER OF GEORGIA. Thank you, Mr. Chairman. I appreciate the opportunity to waive on to this committee, and thank all of you for being here. I suspect I am the last one to ask questions. So you are almost done.

Business is booming. We need more electricity. We are counting on y'all. I don't want you to feel any pressure, but we were counting on you, OK? We need you.

My own State of Georgia, 11 years in a row, the number 1 State to do business in. I am very proud of that, and there is a reason for that: Because we have created a pro-business environment. Our legislature, our Governors, they have created a pro-business environment. And we have available energy. We have affordable, reliable energy. That is another reason why people and businesses want to locate to Georgia.

I know firsthand that the demand for more electricity is one of the top challenges that we face right now, and we will continue to face that going forward.

Mr. Black, in your written testimony, you also note that the State of Georgia is open for business. In fact, companies are flocking to Georgia because we have good policies, as I say, for business.

Mr. Black, what is unique about Georgia? What should Congress do to make sure that Georgia can remain open for business?

Mr. BLACK. Yes. So the load coming to Georgia is remarkable. I mean, we have line of sight on 10,000 megawatts. I know we have said a lot of numbers today, but that is a lot of electricity. In the queue, another 50,000 of proposed and projects that may come our way.

I believe some of the structures, sort of, the electricity structure that we have is incredibly important. It will result in firm gas pipelines. It will result in firm electric transmission. But those pipelines and the need for those and some of the reforms we have talked about in and around NEPA and the Clean Water Act and some judicial reform to get the pipelines done in time is essential.

Mr. CARTER OF GEORGIA. OK.

Mr. BLACK. That is a national issue.

Mr. CARTER OF GEORGIA. Let me ask you something. And if I get any of this wrong, you are the expert, so please correct me, OK?

But I think it is important to note that the State of Georgia is the only State that has built nuclear reactors in the last 30 years. We have two new nuclear reactors at Plant Vogtle, and I believe that Plant Vogtle right now, with the four nuclear reactors that are there, is providing about 22 percent of the electricity needs in the State. And if you combine that with Plant Hatch, which is in my district, in the First District, they are providing about 8 percent. Therefore, about 30 percent of the energy in the State of Georgia is coming from nuclear.

Mr. BLACK. That sounds accurate, yes.

Mr. CARTER OF GEORGIA. Yes. So let me ask you something, because I heard SMRs. A lot of people have been talking about SMRs. But we don't have any under construction right now, do we? Does anybody on the panel know of any that we have under construction?

Mr. BLACK. Not domestically that I am aware of, no.

Mr. CARTER. OK.

Mr. BLACK. AP1000s, as you know——

Mr. CARTER OF GEORGIA. Well, the reason I ask this is because—and hang with me here, if you will. If Georgia Power were to build more nuclear, would it be SMRs, or will you continue with the reactors like you have at Plant Vogtle? Because it is my understanding that you would rather do that than to do the SMRs.

Mr. BLACK. Well, we learned a lot, and we have, I think, understand the risks and the time. I mean, the improvement from three to four was about 20 percent.

Mr. CARTER OF GEORGIA. That is what I understand.

Mr. BLACK. It is remarkable. So, you know, if you could go five, six, seven, you know, either in our State or some other States within the country, the AP1000, I think the risk—the cone of risk, if you will, is much smaller than some technology we haven't quite developed fully.

Mr. CARTER OF GEORGIA. Well, I would submit to you that Georgia following through on that project—even though it was chal-

lenging, no question about that—but I would submit to you that following through on that project gave the blueprint, if you will, for nuclear reactors in the United States. Because, as you say, we had a 20 percent saving between number three and four and learned a lot of important lessons that can be shared.

Mr. BLACK. Yes, absolutely. Hard but worth it. And, again, the fact that it is on all the time is such a remarkably important element.

Mr. CARTER OF GEORGIA. And it is the largest provider of clean energy in the United States. Is that correct?

Mr. BLACK. That is correct. Number 1.

Mr. CARTER OF GEORGIA. Number 1.

Mr. BLACK. Yes.

Mr. CARTER OF GEORGIA. Plus, Georgia is the number 7 State in the country for solar.

Mr. BLACK. Why are we the number 7 State?

Mr. CARTER OF GEORGIA. Georgia is the number 7 State. Is that correct?

Mr. BLACK. That is. It is in the top 10. There are a number of States in the Southeast that have solar resources. I think we are finding—I think it is important to be resource agnostic but resource aware, and we are able to find ways to get solar on because it is an asset and a resource within our State we can bring on the system—

Mr. CARTER OF GEORGIA. Well, Mr. Chairman, I thank you for the opportunity to come in here and brag about my home State of Georgia, as I have done for the last 5 minutes.

So thank you all very much for being here.

Mr. WEBER. But the gentleman of Georgia, Texas is number 1, just so you know.

Mr. LATTA. Well, let's not get into that.

OK. The gentleman's time has expired, and yields back.

And seeing no other Mmbers wishing to ask questions of our witnesses today, I remind Members if they do have additional written questions that they might be submitting to you, that we would ask that you get those back to us within 10 business days.

And I ask unanimous consent to insert in the record the documents included on the staff hearing documents list.

Without objection, so ordered.

Without objection, the subcommittee is adjourned.

And, again, thank you to our witnesses for appearing today.

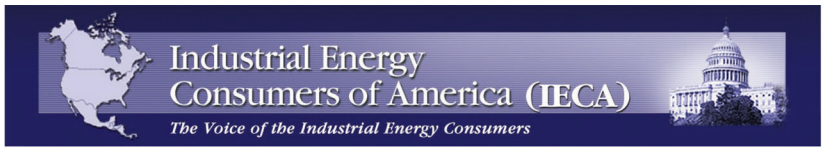
[Whereupon, at 1:03 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

U.S. House Committee on Energy and Commerce
Subcommittee on Energy
"Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity"
March 5, 2025
Documents for the Record

1. Letter from Industrial Energy Consumers of America, addressed to Chairman Latta and Ranking Member Castor, submitted by the Majority.
2. Letter from The Real Estate Roundtable, addressed to Chairman Guthrie, submitted by the Majority.
3. A letter from the National Association of State Energy Officials, addressed to Chairman Latta and Ranking Member Castor, submitted by the Majority.
4. A letter from IHI, addressed to Chairman Guthrie, Ranking Member Pallone, Chairman Latta, and Ranking Member Castor, submitted by the Majority.
5. Letter from Americans for Prosperity, addressed to Chairman Guthrie, Chairman Latta, and Ranking Member Castor, submitted by the Majority.
6. Letter from Stop MPRP, Inc., addressed to Chairman Latta, submitted by the Majority.
7. Report from Brattle entitled "A Wide Array of Resources is Needed to Meet Growing U.S. Energy Demand," submitted by Ranking Member Pallone.
8. Report from NERA entitled "Electricity Price Impacts of Technology-Neutral Tax Incentives With Incremental Electricity Demand from Data Centers," submitted by Ranking Member Pallone.[1]
9. Letter from the American Gas Association, addressed to Chairman Guthrie, submitted by the Majority.
10. Report from the Nicholas Institute for Energy, Environment & Sustainability, Duke University, entitled "Rethinking Load Growth Assessing the Potential for Integration of Large Flexible Loads in US Power Systems," submitted by the Minority.[1]

[1] The information has been retained in committee files and is included in the Documents for the Record at http://docs.house.gov/meetings/IF/IF03/20250305/117979/HHRG-119-IF03-20250305-SD035.pdf.



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March 3, 2025

The Honorable Bob Latta
Chairman
House Subcommittee on Energy
Washington, DC 20515

The Honorable Kathy Castor
Ranking Member
House Subcommittee on Energy
Washington, DC 20515

Re: Comments for the Record on Hearing on "Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity"

Dear Chairman Latta and Ranking Member Castor:

Had it not been for the costly sacrifice made by the manufacturing sector due to forced reduction in the use of natural gas this winter, the U.S. would have experienced brown outs or black outs. The natural gas that we would have used kept the lights on and people's homes warm. This sacrifice came at great costs to manufacturing companies.

On behalf of the member companies of the Industrial Energy Consumers of America (IECA), of which 100 percent are manufacturing companies, we urge the Committee to support legislation to expedite expanding natural gas pipeline capacity. The manufacturing sector consumes 26 percent of U.S. natural gas, which is used as feedstock and fuel, and 25 percent of U.S. electricity. Electricity cannot be used to displace our demand for natural gas.

This winter, across the country, because of inadequate natural gas pipeline capacity, manufacturing companies were forced to use less natural gas or were completely curtailed.[1] When there is inadequate pipeline capacity or power supply, manufacturing companies are always the first to be curtailed at significant costs of millions of dollars per day. While some manufacturers have back up sources such as fuel oil, propane, or coal for boilers, most do not. Cutting or shutting down production plays havoc on U.S. supply chains, including the production of national defense goods.

Each year, the crisis for U.S. manufacturing has become more severe. This winter, because of inadequate pipeline capacity, manufacturers have paid as much as $120 MMBtu for spot natural gas. That is much higher than what the EU or Asia paid for imported LNG. Higher prices due to constrained pipeline capacity also significantly increased electricity prices. Because we are price sensitive and compete globally, competitiveness is impacted.

[1] 44 Natural Gas Pipelines Require Manufacturers To Reduce/Curtail Use of Natural Gas Due to Inadequate Pipeline Capacity, https://www.ieca-us.org/wp-content/uploads/02.06.25_Pipeline-Capacity-Shortage_ENR.pdf

Congress wants manufacturing companies to reshore jobs and investments. That cannot happen without substantial increases in pipeline capacity. And much higher demand is forecasted due to power generation needed for the electrification of the economy, data centers, and increasing LNG exports.

LNG has a special negative impact because they maximize exports when the U.S. has its highest winter heating season demand. The LNG exports accelerate the reduction of U.S. natural gas inventory, which results in higher prices for both natural gas and electricity. The problem gets worse with additional LNG export capacity. The LNG 25-year contracts shift supply and price risks from countries that buy LNG to U.S. consumers. LNG contracts guarantee that other countries will receive our natural gas, and this reduces U.S. reliability and energy independence. The 25-year contracts are also being used to lock up what little pipeline capacity is available for domestic consumers. Manufacturers cannot do 25-year contracts.

It is for this reason that we have proposed an America First LNG Inventory Policy that would insulate U.S. consumers from the impacts of LNG exports.[2]

We urge this Subcommittee to support energy permitting reform and the America First LNG Inventory Policy. Thank you for your support of the manufacturing industry who employs 12.8 million people and contributes $2.8 trillion to the U.S. GDP. Thank you in advance.

Sincerely,

Paul N. Cicio
Paul N. Cicio
President & CEO

cc: House Committee on Energy and Commerce

The Industrial Energy Consumers of America is a nonpartisan association of leading manufacturing companies with $1.3 trillion in annual sales, over 12,000 facilities nationwide, and with more than 1.9 million employees. One hundred percent of IECA members are manufacturing companies whose competitiveness is largely determined by the cost and reliability of natural gas and electricity. IECA's sole mission is to reduce and avoid energy costs and increase energy reliability through advocacy in Congress and regulatory agencies, such as the Federal Energy Regulatory Commission (FERC). IECA membership represents a diverse set of industries including chemicals, plastics, steel, iron ore, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, consumer goods, building products, automotive, independent oil refining, and cement.

[2] America First LNG Inventory Policy, https://www.ieca-us.org/wp-content/uploads/LNG-Inventory-Policy-to-Insulate-the-US-Market-from-LNG-Export-Impacts.pdf

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The Real Estate Roundtable

February 26, 2025

The Hon. Tom Cole, Chairman
The Hon. Rosa DeLauro,
Ranking Member
Appropriations Committee
U.S. House of Representatives

The Hon. Susan Collins, Chair
The Hon. Patty Murray,
Ranking Member
Appropriations Committee
U.S. Senate

The Hon. Brett Guthrie, Chairman
The Hon. Frank Pallone,
Ranking Member
Energy & Commerce Committee
U.S. House of Representatives

The Hon. Mike Lee, Chairman
The Hon. Martin Heinrich,
Ranking Member
Energy & Nat. Resources Comm.
U.S. Senate

The Hon. James Comer, Chairman
The Hon. Gerald Connolly,
Ranking Member
Oversight & Gov't Reform Comm.
U.S. House of Representatives

The Hon. Jay Obernolte, Chair
The Hon. Ted Lieu, Co-Chair
Bipartisan Task Force on AI
U.S. House of Representatives

Dear Republican and Democratic Leaders:

As Congress works with the Administration to identify and cut wasteful expenditures, we respectfully request your oversight regarding almost a quarter of a billion dollars in federal grants issued by the Department of Energy (DOE).

Our members own, develop, construct, finance, and manage all types of income-producing properties in every U.S. market and abroad. We provide housing for our citizens, offices for our businesses, and classrooms for our students. Patients heal in our health care facilities and innovation happens in our laboratories. Our data centers are critical for AI technologies and crypto asset markets; our cell towers enable communication; and our warehouses support supply chains for storing and transporting goods. Our members own shopping centers where commerce happens, and hotels where we connect with family and friends. Our members' buildings touch virtually every aspect of life in America. Addendum 1 summarizes the massive economic benefits that real estate delivers for the economy.

Market Square West • 801 Pennsylvania Ave., NW • Suite 720 • Washington, DC 20004 • Phone: 202-639-8400 • Fax: 202-639-8442 • www.rer.org

Last year, DOE committed $240 million to 19 cities, municipalities, and states across the country to create and enforce local laws known as Building Performance Standards (BPS). DOE claimed the *Inflation Reduction Act* provided authority for these grants. BPS laws are like "EV mandates" for buildings. They impose fines and penalties on all types of properties if they fail to meet "targets" for greenhouse gas emissions, and unless they "electrify" by abandoning use of natural gas heaters, boilers, stoves, and other equipment. The Real Estate Roundtable has developed a comprehensive, peer reviewed policy guide explaining some of the flaws that render these climate-related laws unreasonable.

For example: State and local BPS laws – including those supported by federal taxpayer dollars – levy monetary penalties on buildings even if properties meet the federal government's ***own*** voluntary standards for high performance real estate.

Our members have collaborated with federal agencies for years to develop industry-driven, non-regulatory guidelines signaling the best performing U.S. real estate assets to domestic and global markets. Our public-private partnerships with DOE and the U.S. Environmental Protection Agency (EPA) serve multiple business and economic purposes. They incentivize buildings to reduce energy consumption and cut waste – thus saving families and businesses money on their utility bills. These programs encourage the real estate sector to do more with less so buildings minimize strain on the power grid – thereby conserving electricity our nation needs to lead the world in artificial intelligence, mine crypto assets, and generate a domestic manufacturing boom. Buildings branded with DOE's and EPA's imprimatur also attract investors seeking profitable assets that deliver high quality, modern spaces competing with the best real estate in the world. Our industry's public-private partnerships with the federal government are opportunities to unleash America's energy dominance and independence.

We ***support*** these collaborative EPA and DOE voluntary programs. However, we ***oppose*** DOE grants made by the last administration to encourage excessive and costly state and local "emissions targets" that regulate buildings. Issues warranting Congressional oversight include:

- Whether it is appropriate for a federal grant program to make an end run around federal limits on regulatory power. Should states and localities receive federal money to develop and enforce climate laws on buildings that no U.S. agency has authority from Congress to implement in the first place? In our view, the answer is "no."

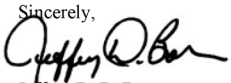
- Whether it is appropriate for a federal grant program to support state and local climate laws imposing monetary fines on buildings, even if those assets meet federal criteria for top energy efficiency performers. What reasonable policy basis justifies spending federal money to create building performance laws that inflict penalties on properties lauded by the U.S. government itself? In our view, there is no reasonable basis.

- Whether the particular BPS grants at issue exceed the scope of legislative authority based on the plain text of the *Inflation Reduction Act*. In our view, these BPS grants fall outside statutory authority conferred by Congress.

At minimum, any state or locality that receives federal grants to develop onerous BPS laws should not levy monetary fines on buildings participating in federal partnership programs with the private sector. If these jurisdictions insist on imposing such fines, they should return federal taxpayer dollars.

The attachment and addenda provide more details explaining this issue. We welcome opportunities to meet with your Committees to explore avenues for investigation and hearings. Thank you for considering our request. Please contact Duane J. Desiderio, Senior Vice President and Counsel with The Real Estate Roundtable (www.rer.org), if you have further questions.

Sincerely,



Jeffrey D. DeBoer
President and Chief Executive Officer

Cc:
Members of:
U.S. House Committee on Appropriations
U.S. Senate Committee on Appropriations
U.S. House Committee on Energy & Commerce
U.S. Senate Committee on Energy & Natural Resources
U.S. House Committee on Oversight & Government Reform
U.S. House Bipartisan Task Force on Artificial Intelligence

The Case for Congressional Oversight Regarding Federal Grants for
State and Local Building Performance Standards (BPS)

- ***State and Local BPS Laws are "EV Mandates" – Directed at Buildings.***

We urge Congress's attention to federal grants to states and localities that undermine US-EPA and US-DOE guidelines through excessive climate regulatory laws known as Building Performance Standards (BPS). State and local BPS laws impose costly, burdensome, and unreasonable restrictions on properties to reach "net zero emissions." A key fault of these laws is they fail to account for choices and behaviors of the people who occupy and primarily consume power in buildings. While commercial property owners are responsible for central systems they do not set thermostats, turn off lights, or run appliances in leased spaces controlled by tenants. In practice, reaching a "net zero" BPS mandate requires renter households, small business tenants, and building owners to eventually stop using gas appliances and switch to equipment that runs on electricity instead.

BPS laws are thus like "EV mandates" for building owners and their occupants. A leading real estate data analytics firm described excessive state and local BPS mandates as approaching a European-like framework similar to the Paris Treaty's "net zero" emissions goals.[1] Of course, no law passed by Congress imposes a "net zero" standard or natural gas ban on private sector buildings. Some cities and states may go down this path. If they do, federal grants should not support their efforts.

- ***States and Localities Should Not Receive Federal Grants for BPS Laws That Penalize "High Performance Buildings" Meeting Federal Guidelines.***

Certain jurisdictions are using federal taxpayer money to create laws that levy fines on apartments, offices, stores, health care facilities, hotels, and other commercial properties – without any exemption or relief for a building that satisfies the federal government's own ambitious energy efficiency standards.

DOE announced its first round of federal BPS grant recipients on August 29, 2024, with a second round of applications from state and local governments closing on September 13, 2024.[2] Addendum 2 describes a sample of these state and local awards.

Congress did not intend these grants to be blank checks. A jurisdiction opting to take money ***from the federal government*** should not have unbridled discretion to develop climate-related regulations that punish buildings recognized ***by the federal government.*** Such real estate assets merit praise – not fines. Congressional review is warranted where, as here, U.S. grant dollars are being used to promote laws penalizing building cited by federal agencies as examples of industry leadership.

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[1] See Green Street, "ESG & Property Insights: Your 'E' Sensitivity Training."
[2] See Daily Energy Insider, "DOE awards $240 million to municipalities to improve building codes, energy efficiency" (Aug. 29, 2024). DOE issued these grants under authority it claimed under the *Inflation Reduction Act* (*IRA*). The agency provided no criteria as to the terms or substance of state and local BPS laws that merited federal funding. See letter from The Real Estate Roundtable to former U.S. Energy Secretary Jennifer Granholm (Oct. 8, 2024). See also RTO Insider, "DOE Awards $240M for City, State Building Performance Standards" (August 28, 2024); Utility Dive, "State, local building energy codes get makeovers with over $240M from US DOE" (Aug. 28, 2024).

- ***The U.S. Real Estate Industry Strongly Supports Our Voluntary, Market-Driven Partnerships with EPA and DOE.***

The United States government has created the best system of voluntary guidelines in the world recognizing high performance, energy efficient buildings. Our industry is proud of the public-private partnerships we have forged over many years with non-partisan, non-regulatory programs like ENERGY STAR for buildings run by EPA and the Better Buildings Initiative run by DOE.

These programs are market-driven and science-based. They give our members standardized tools and data to monetize and forecast massive energy savings – which translate to utility bill savings for families and businesses. These EPA and DOE programs help reduce the strain on our power grids. They also provide a competitive edge for our industry to attract global capital from overseas investors seeking modern, profitable, and resilient real estate assets. ***We urge Congress's strong support and continued ample appropriations for these non-regulatory EPA and DOE industry partnership programs.***

At minimum, DOE should place a condition that no BPS law supported by a federal grant can impose monetary penalties on a building certified under EPA's ENERGY STAR program, or included in a company's real estate portfolio participating in DOE's Better Buildings Initiative. If a jurisdiction declines such a reasonable grant condition, it should return any money it already received and/or not receive any future disbursements.

- ***BPS Mandates Do Not Adequately Consider Grid Reliability – Or Whether They Will Even Prove Effective in Cutting Overall Emissions.***

BPS laws, and their hyper-focus on building electrification and emissions reduction, overlook their impact on the electric grid's ability to deliver reliable power to the community.

"Uncertainty abounds as to how much electricity demand will grow in the future and where it will come from. We are at the start of a new demand era, with no historical trend line to consult and a wide range of potential outcomes."[3] A recent report from the Bipartisan House Task Force on Artificial Intelligence concluded, "the growing demands of AI are creating challenges for the grid."[4] Proper planning is critical now to ensure expanded power supplies are available for AI innovation and adoption. "While new data centers take one to two years to construct, new power plants take five to ten years, and new power transmission lines take fifteen to twenty years."[5] Aside from AI, energy-intensive U.S. domestic manufacturing and continued consumer interest in electric vehicles will result in unprecedented electricity demand growth.[6]

BPS policy makers, however, would place even more strain on the power grid with fleets of electric buildings on every street corner. We request Congress to investigate BPS laws in an effort to galvanize states and localities to evaluate fully whether their electric grids have the basic capacity to achieve widespread building electrification. Any state or locality receiving a federal BPS grant should be compelled to assess how their laws impact the electric grid and report accordingly to Congress, DOE, and its citizens.

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[3] Wood Mackenzie, *Gridlock: the demand dilemma facing the US power industry* (Oct. 2024), at p. 3.
[4] 118th Congress, Bipartisan House Task Force Report on Artificial Intelligence (Dec. 2024) at p. 173.
[5] *Id.*
[6] Wood Mackenzie, *supra* note 3.

Furthermore, BPS jurisdictions largely neglect whether their laws singling out buildings will actually reduce emissions ***overall***. EPA data show that grid operators across the country rely predominantly on natural gas, coal, and other fossil fuels to provide electricity.[7] In most jurisdictions, grid-related emissions far exceed direct building emissions, and onerous BPS mandates on buildings will not result in climate benefits while emissions from electric plants only increase to handle insatiable demands for power. EPA evidence showing this fact is an afterthought for most state and local BPS lawmakers.

A 20-point policy guide developed by The Real Estate Roundtable ("RER") discusses these and other shortcomings inherent to many BPS laws, such as their potential to worsen the affordable housing crisis.[8] We urge Congress to investigate whether state and local building performance mandates – particularly those supported by federal grants – fairly and adequately address grid reliability, the fuel mix for electricity generation, housing affordability, and other policy matters addressed in RER's peer reviewed policy guide.

- ***DOE Exceeded its Statutory Authority in Issuing BPS Grants.***

The legality of DOE's grants is questionable. Any purported authority here derives from §§ 50131(a)(2) and (c) of the *Inflation Reduction Act.* (See statutory text at Addendum 3.) The statute gives DOE authority to issue state and local grants "for zero building energy ***code*** adoption" pertaining to "***new and renovated*** residential and commercial buildings." However, DOE did ***not*** disburse the $240 million in grants for ***codes***. The money went to ***BPS laws,*** beyond § 50131's scope.

In real estate circles, it is well-understood that building "codes" are ***not*** building "performance standards." "Codes" cover "new and renovated buildings," consistent with the statutory text at issue. "Codes" do not impose regulations on how ***existing*** buildings function or operate. That is where "performance standards" come in. BPS mandates apply to ***existing*** buildings – but the statutory authority only extends to "***new and renovated"*** construction. Insofar as the $240 million grants support "performance standards" for ***existing*** buildings, these awards exceed § 50131's bounds.

DOE itself recognizes the basic distinction between "codes" and "performance standards." So does the Institute for Market Transformation (IMT), the NGO that has "played a key role in every building performance standard in the U.S. to date." IMT itself received a $5.5 million federal grant to provide "tailored technical assistance" to 11 jurisdictions across the country to develop BPS laws.[9] Addendum 4 sets forth DOE and IMT sources explaining the difference between "codes" versus "BPS" laws.

As part of its oversight, we urge Congress to consider the legality of BPS grants in light of the *IRA*'s plain text in § 50131 and recent U.S. Supreme Court case law on principles of statutory interpretation.[10]

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[7] See EPA, Emissions & Generation Resource Integrated Database (eGRID) (Power Profiler tool shows all regions of the U.S. combust more fossil fuels than non-fossil fuels to generate electricity).

[8] The Real Estate Roundtable, *Lessons Learned to Shape Fair and Reasonable Building Performance Standards: 20-Point Policy Guide* (Oct.2024).

[9] IMT, press release, "Department of Energy Awards IMT $5.5 Million for Building Performance Standards Work" (Sept. 19, 2024). IMT states it is offering BPS assistance to States of California and Oregon; Berkeley, CA; Boston; Chicago; Denver; Kansas City, MO; Montgomery County, MD; New York City, San Francisco; St. Louis; and Washington, DC). A number of these jurisdictions received their own direct grants under *IRA* § 50131(a)(c) at issue. See Addendum 2.

[10] E.g., *West Virginia v. EPA* (597 U.S. 697 (2022) (agency must point to "clear congressional authorization" to support the power it claims); *Loper Bright Enterprises v. Raimondo* (603 U.S. 369) (2024) (no agency deference is due to its interpretation of ambiguous statutory language).

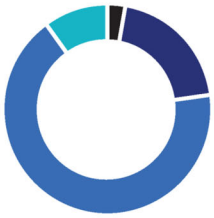
The Real Estate Roundtable

ADDENDUM 1

About The Real Estate Roundtable
www.rer.org

The Real Estate Roundtable brings together leaders of the nation's top publicly-held and privately-owned real estate ownership, development, lending, and management firms with the leaders of major national real estate trade associations to jointly address key national policy issues relating to real estate and the overall economy.

Who We Are



Asset Managers
3%

Financial Services
20%
58% Banks (Commercial & Investment)
16% Mortgage Bankers
26% Insurers

Owners
67%
55% Private
14% Office
11% Housing
44% Public
12% Retail
4% Industrial
46% Mixed
12% Hotel
2% Other

Real Estate Trade Organizations
10%
American Hotel & Lodging Association (AHLA)
American Resort Development Association (ARDA)
Association of Foreign Investors in Real Estate (AFIRE)
Building Owners and Managers Association Int'l. (BOMA)
CRE Finance Council (CREFC)
CREW Network (CREW)
International Council of Shopping Centers (ICSC)
Mortgage Bankers Association (MBA)
NAIOP, the Commercial Real Estate Development Association (NAIOP)
National Apartment Association (NAA)
National Association of Home Builders (NAHB)
National Association of Real Estate Investment Managers (NAREIM)
Nareit (NAREIT)
National Association of Realtors® (NAR)
National Multifamily Housing Council (NMHC)
Pension Real Estate Association (PREA)
Real Estate Executive Council (REEC)
Urban Land Institute (ULI)

Real Estate's Impact on the U.S. economy:
(*See* Commercial Real Estate by the Numbers: 2024)

- **$22.5 trillion:** Total value of America's commercial real estate
- **$2.5 trillion:** Real estate's contribution to U.S. GDP
- **14.1 million:** U.S. jobs directly supported by real estate
- **$600 billion:** Yearly property taxes paid by CRE owners to local governments
- **$900 billion:** Amount invested in U.S. real estate by pension funds, educational endowments, and charitable foundations

ADDENDUM 2

"Round 1" federal BPS grant recipients include the following cities and states. To our knowledge none of these jurisdictions commit to exempting buildings, deemed as "high performers" by the US-EPA or US-DOE, from monetary fines or penalties.

- **Chula Vista, CA:** Received a $10 million grant "to be provided over the next nine years" focused on "improving the performance of the city's 750 multifamily, commercial, and industrial buildings 20,000 square feet or larger."

- **Colorado:** Received a $20 million BPS grant from US-DOE to provide "technical assistance" to upgrade buildings in "low-income disadvantaged communities."

- **Denver, CO:** Received a $7.5 million grant from DOE "to implement its existing BPS and start working on future, more rigorous standards."

- **Evanston, IL:** Received a $10.7 million grant, "subject to negotiation with the U.S. Department of Energy, will support the adoption and implementation of building performance standards that will reduce emissions" and "require buildings to phase out onsite fossil fuel combustion."

- **Hawaii:** Received an $18.1 million grant to "develop and adopt a building performance standard with an objective of simultaneously reducing costs and making resources, jobs, and training available in disadvantaged communities."

- **Kansas City, MO:** Received a $9 million grant to develop a new BPS law that will "require buildings to meet specific energy and greenhouse gas emissions targets" and "elevate the performance of existing structures through ongoing upgrades and improvements."

- **Milwaukee, WI:** Received a $9 million grant "to develop a building performance standard informed by an existing data-driven buildings analysis program and engagement with local community stakeholders."

- **Lakewood, CO:** A suburb of Denver, received a $5 million BPS grant "to develop and implement a local standard in line with the state BPS."

- **Massachusetts:** Received a $19.9 million grant "to support implementation of building performance standards through direct technical support and capacity building among existing building trades programs in Justice40 communities and the creation of a Building Performance Exchange hub."

- **New York City:** Received a $19.9 million "federal funding infusion" to implement Local Law 97 (LL 97), requiring most NYC buildings to achieve "stricter limits" of 40% emissions reductions by 2030, with the ultimate goal to reach "net zero" emissions by 2050. On December 20, 2024, DOB published the final version of its latest package of rules to implement Local Law 97 that do not exempt buildings from fines if they meet US-EPA or US-DOE performance criteria.

- **Ohio cities of Cincinnati, Cleveland, Columbus and Dayton:** Received a joint $10 million grant to develop a BPS law and create a "High Performance Buildings Hub" to "support" building owners with meeting BPS targets.

- **Philadelphia, PA:** Received $19.8M "to develop a building performance standard to maximize emissions reductions from large buildings, while providing support programs that will ensure equitable outcomes with high compliance rates."

- **San Francisco and Berkeley, CA:** Received a joint $19.9 million grant "to electrify large commercial and multi-family buildings" and "implement equitable Building Performance Standards (BPS) aimed at modernizing buildings and reducing carbon emissions."

- **Seattle:** Received a $17.2 million BPS grant that will "span across nine years (2025-2033)" with a a focus on supporting buildings in overburdened communities and building an equitable climate workforce." DOE grant dollars will be used, among other things, to create a BPS "customer support hub" and consult with building owners on net zero GHG emissions "compliance pathways."

The Real Estate Roundtable

ADDENDUM 3

***Inflation Reduction Act,* §§ 50131 (a), (c) (see pp. 225-226 here).**

PART 3—BUILDING EFFICIENCY AND RESILIENCE

SEC. 50131. ASSISTANCE FOR LATEST AND ZERO BUILDING ENERGY CODE ADOPTION.

(a) APPROPRIATION.—In addition to amounts otherwise available, there is appropriated to the Secretary for fiscal year 2022, out of any money in the Treasury not otherwise appropriated—

….

(2) $670,000,000, to remain available through September 30, 2029, to carry out activities under part D of title III of the Energy Policy and Conservation Act (42 U.S.C. 6321 through 6326) in accordance with subsection (c).

(c) ZERO ENERGY CODE.—The Secretary shall use funds made available under subsection (a)(2) for grants to assist States, and units of local government that have authority to adopt building codes—

(1) **to adopt a building energy code** (or codes) for residential and commercial buildings that meets or exceeds the zero energy provisions in the 2021 International Energy Conservation Code or an equivalent stretch code; and

(2) to implement a plan for the jurisdiction to achieve full **compliance with any building energy code** adopted under paragraph (1) **in new and renovated residential and commercial buildings,** which plan shall include active training and enforcement programs and measurement of the rate of compliance each year.

ADDENDUM 4

The U.S. Department of Energy recognizes that a building energy "code" is not a building "performance standard":

> ***"Unlike building energy codes,*** which set minimum requirements for energy-efficient construction at the time of construction and major renovation, a Building Performance Standard (BPS) is designed to ensure buildings meet specific levels of performance over their lifetime. ***Given the different goals of codes and BPS,*** it is possible that buildings constructed and occupied within the years preceding, during, or immediately following the adoption of BPS may be ***compliant with the applicable energy code but unable to meet the BPS targets*** …."[11]

- DOE, Office of Energy Efficiency and Renewable Energy, *Energy Codes and Building Performance Standards* (2023) (emphasis supplied).

The Institute for Market Transformation (IMT) likewise recognizes that a building energy "code" is not a building "performance standard":

> "Leading jurisdictions are seeking to address climate and decarbonization goals on ***two policy fronts:*** energy codes and building performance standards. The combination seems like a perfect match, with ***one addressing new construction and one addressing the existing building stocks."***

- IMT, *The Intersection of Energy Codes and Building Performance Standards* (2022) (emphasis supplied).

[11] DOE, Office of Energy Efficiency and Renewable Energy, *Energy Codes and Building Performance Standards* (2023) (emphasis supplied).

NASEO
National Association of State Energy Officials

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General Counsel
JEFFREY C. GENZER

March 4, 2025

The Honorable Bob Latta
Chairman, Subcommittee on Energy
House Energy and Commerce Committee
U.S. House of Representatives
Washington, DC 20515

The Honorable Kathy Castor
Ranking Member, Subcommittee on Energy
House Energy and Commerce Committee
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Latta, Ranking Member Castor, and Members of the Subcommittee:

On behalf of the **National Association of State Energy Officials (NASEO)**, thank you for the opportunity to submit this letter for the record of the Subcommittee's hearing entitled, *"Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity."* NASEO represents the 56 governor-designated energy directors and their offices from every state and territory, and our members are committed to ensuring that every American community has access to **reliable, resilient, and affordable** energy.

State-Federal Coordination
NASEO commends the Subcommittee's leadership in exploring policies to modernize the nation's electric grid and meet rapidly growing demand. **Collaboration between federal agencies and State Energy Offices** is critical for ensuring effective solutions that secure affordable, reliable electricity while boosting **economic growth** and **job creation**. State Energy Offices, supported through the U.S. Department of Energy's (DOE) State Energy Program (SEP), bring on-the-ground expertise, program design, and policy leadership to bear on complex energy challenges. Their generally **non-regulatory** role, spanning all energy sources—petroleum, natural gas, and electricity—makes them well-positioned to forge partnerships with utilities, local governments, and private-sector stakeholders.

Meeting Rising Power Demand
States are taking decisive steps to ensure adequate and reliable **electricity supply** to meet the needs of growing industries such as data centers and manufacturing, as well as the accelerating electrification of transportation. **Load planning**, **infrastructure permitting**, and thoughtful integration of both **conventional** and **emerging** generation sources are indispensable to sustaining economic momentum. By leveraging SEP resources, states design and implement strategies that anticipate future consumption, reinforce critical infrastructure, and enhance grid and fuels resilience against weather events, cyber threats, and aging equipment failures.

Innovative Technologies and Partnerships
States are at the forefront of deploying next-generation solutions in **artificial intelligence**, advanced data management, and **clean energy** technologies that can improve system operations and reliability. To support these objectives, NASEO and a geographically diverse group of State Energy Offices launched the **Advanced Nuclear First Mover Initiative (Initiative)** on February 5, 2025. This effort has participation by the State Energy Offices of Indiana, Kentucky, Maryland, New York, Pennsylvania, Tennessee, Utah, Virginia, West Virginia, and Wyoming. By exploring new approaches to **reduce financial and technology risks**, **streamline federal permitting**, **define supply chain needs**, and **develop state-federal-private financing structures**, the Initiative seeks to ensure that **advanced nuclear** can provide **firm, clean power** to bolster reliability, affordability, and sustainability.

Governors from these states have voiced their strong support for this initiative and cited the importance of advanced nuclear technologies in meeting rising energy demand while spurring economic development. Ultimately, this Initiative strives to **reduce the cost** of delivering advanced nuclear technologies while **strengthening reliability** and maintaining affordability for households and businesses alike.

States across the country, especially in the west, have been accelerating their work to **promote geothermal energy**. The western governors on a bipartisan basis and their State Energy Offices are pushing to identify sites and reduce permitting problems. And DOE has identified geothermal energy potential in several southern states as well. We urge the Committee to look at ways to reduce federal permitting challenges at agencies in coordination with the House Committee on Natural Resources. Interconnection of these sites is critical and the regional transmission facilities can play a significant role in accelerating this resource. The State Energy Offices in the region are working together to coordinate with private developers and utilities to bring these resources to the grid.

Electric Transmission and Distribution Planning
NASEO is working closely with the individual states to accelerate electricity transmission and distribution planning and implementation through the expanded statutory authority under SEP. The State Energy Offices are supporting streamlined permitting, planning, site banking, coordination with the DOE Office of Electricity, work with the North American Electric Reliability Corporation (NERC), interaction with the Federal Energy Regulatory Commission (FERC), coordination with state utility commissions, electric utilities, economic development agencies, developers, residential and commercial energy users, and others to support a more robust transmission and distribution system. Holistic approaches are the hallmark of this initiative. Support from the Committee is essential as we move forward to create a responsive 21st century electric system. NASEO commends Chairman Latta and Representative Matsui for their leadership last Congress and introduction of the SECURE Grid Act, which would empower states to more fully assess threats to the transmission and distribution systems.

Role of State Energy Offices in Energy Security
Finally, **energy security** – electricity, natural gas, petroleum products – remains central to the mission of every State Energy Office. From preparing for and responding to natural and manmade disasters, to addressing evolving cyber threats, our members serve as key partners to federal agencies, utilities, fuel providers, and local governments. They coordinate energy emergency and resilience plans, conduct energy emergency exercises, provide critical response and recovery support during emergencies, and maintain DOE-recognized State Energy Security Plans—supported by **SEP cost-match** funding–to prepare for and mitigate energy supply

disruptions. State Energy Offices' energy emergency planning and response actions cover all hazards and all fuels – electricity, natural gas, and petroleum products. When energy supply disruptions occur—resulting from hurricanes, cyberattacks on pipelines, wildfires, or severe winter storms—State Energy Offices help **minimize economic impacts**, protect consumers, and restore critical services quickly to save lives and livelihoods.

Recommendations
Considering these urgent challenges and opportunities, NASEO respectfully requests that the Subcommittee:

1. **Support Continued State-Federal Collaboration.** Robust funding for the State Energy Program–SEP–and other key federal initiatives will enable states to innovate, expand advanced technologies such as **advanced nuclear**, **grid-scale storage**, and **geothermal energy,** and enhance their emergency preparedness activities.
2. **Facilitate Infrastructure Permitting and Deployment.** Streamlining siting and approval processes for both **traditional** and **emerging** generation resources—along with necessary transmission investments—will be essential to delivering reliable, affordable electricity.
3. **Advance Modernization and Security.** Encourage policies that promote **grid resilience** and **cybersecurity**, expand systems capable of meeting higher demand, and support crucial R&D in **artificial intelligence** and **clean energy** solutions.

Conclusion
Thank you for convening this important hearing and for focusing on the strategies needed to scale our electricity system for growth. NASEO stands ready to work with you, DOE, and public-private stakeholders to ensure that **American families and businesses** have the **reliable, affordable, and clean** electricity they need today and in the future. If you have any questions or would like additional information, please contact me at 703-395-1076 or DTerry@NASEO.org.

Best regards,

David Terry, President, NASEO
National Association of State Energy Officials
1300 17th Street, North
Arlington, Virginia 22209

The Honorable Brett Guthrie
Chairman
House Energy and Commerce Committee
2125 Rayburn HOB
Washington, DC 20515

The Honorable Frank Pallone
Ranking Member
House Energy and Commerce Committee
2322A Rayburn HOB
Washington, DC 20515

The Honorable Robert Latta
Chairman
House Energy and Commerce subcommittee on Energy
2125 Rayburn HOB
Washington, DC 20515

The Honorable Kathy Castor
Ranking Member
House Energy and Commerce subcommittee on Energy
2322A Rayburn HOB
Washington, DC 20515

Dear Chairmen Guthrie and Latta and Ranking Members Pallone and Castor:

IHI Americas respectfully requests this letter be entered in the hearing record of the subcommittee on Energy's Wednesday, March 5, 2025, hearing titled "Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity."

IHI Americas is a wholly owned subsidiary of IHI Corporation which is a 170-year-old Japanese company. IHI is a heavy industry corporation that makes jet engines, ships, boilers, gas turbines, liquid natural gas (LNG) terminal equipment, nuclear energy components including both conventional and small modular reactors, and carbon solution technologies utilizing ammonia as clean fuel.

Demand for electricity is increasing year over year, and the International Energy Agency predicts that "US electricity demand to grow at an average annual rate of 2% over the 2025-2027 period, which is equivalent to adding the total electricity demand of California over the next three years.[1]" Most US coal power plants are operating at far less than their actual capacity. Adding ammonia as a secondary fuel will enable the plant to increase its electricity output without increasing its CO2 emissions.

In June 2024, IHI Corporation demonstrated a new technology that uses ammonia as a fuel and to co-fire it in existing 1,000MW coal powered electricity plant[2]. In this demonstration test, 20% substitution of fuel ammonia for operation of rated output of one-gigawatt has been

[1] https://www.iea.org/reports/electricity-2025/executive-summary

[2] https://www.powermag.com/global-first-jera-ihi-launch-testing-of-fuel-ammonia-at-coal-power-plant/

achieved successfully. This effort yielded favorable environmental outcomes. It is confirmed that carbon dioxide emissions at the unit fell around 20%, nitrogen oxide(NOx) emissions were equal to or less than when mono-firing coal before ammonia substitution, and sulfur oxide (SOx) emissions were down about 20%. We are now engaging with US coal plant operators to bring this technology here.

In our discussions with US coal power plant operators, several across the country have expressed the common challenge that they have is the ability to make investment decisions under market and regulatory uncertainty.

We believe including ammonia co-firing should be an eligible deduction under IRC § 45Q[3]. Presently, 45Q applies to only CO2 capture (CCS). However, the goal of this tax credit is to reduce CO2 emissions from power plants. We believe Congress should adopt a technology neutral definition that empowers utilities to choose not to produce CO2 in the first place instead of dictating that CO2 first needs to be produced, then captured and stored.

We thank you for your attention to our thoughts and would be happy to answer any questions that you or the subcommittee members may have.

Sincerely,

Naoki Kono

Naoki Kono

Vice President , Public Policy and Government Affairs Department,

IHI Americas Inc.

[3] https://www.govinfo.gov/content/pkg/USCODE-2023-title26/pdf/USCODE-2023-title26-subtitleA-chap1-subchapA-partIV-subpartD-sec45Q.pdf

March 4th, 2025

The Honorable Brett Guthrie
Chairman
House Committee on Energy & Commerce

The Honorable Bob Latta
Chairman, Subcommittee on Energy
House Committee on Energy & Commerce

The Honorable Kathy Castor
Ranking Member, Subcommittee on Energy
House Committee on Energy & Commerce

Chairman Guthrie, Chairman Latta, & Ranking Member Castor:

On behalf of the Americans for Prosperity grassroots activists nationwide, especially those in Kentucky, Ohio and Florida, we applaud your efforts in scheduling the hearing "Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity." As you are aware, the need for reliable, affordable, and accessible electricity is a growing issue our country faces as new technologies come online. Today's generation, transmission, and distribution systems face increasing challenges; and the American people deserve to know that the systems powering their lives are both adequate and reliable for current and future grid demand.

Initially, we want to acknowledge the expertise that Representative Julie Fedorchak brings to this Subcommittee. With over a decade of experience in utility regulation, her service on the North Dakota Public Service Commission has provided an insight into the complexities of the electric power grid that few on Capitol Hill can match. Her leadership abilities were recognized by her peers at the National Association of Regulatory Utility Commissioners (NARUC) where she served as President, completing her term in November, 2024. AFP strongly encourages this Subcommittee to lean on Representative Fedorchak's knowledge as it crafts legislation that will impact ratepayers across the country.

For some time, our national policy has focused on the transition from fossil fuel based electric power generation to carbon-neutral and carbon-free generation. That transition has presented both opportunities for innovation and challenges to grid reliability. Environmental regulations, particularly from previous administrations' Environmental Protection Agency (EPA), have resulted in emissions and new source performance standards that have cost billions of dollars to achieve and have contributed to the skyrocketing utility bills across the nation.

Most recently, the Inflation Reduction Act contains numerous provisions that provide for production and investment tax credits that allow a utility to install intermittent power generation

at the expense of grid reliability. Not only is grid reliability compromised, but firm baseload fossil fuel generated power has been taken offline at alarming speed.

Americans for Prosperity believes that an "all of the above" approach to energy generation is needed to achieve energy abundance. Instead of subsidizing one form of energy generation over another, we believe that all sources of generation should be allowed to thrive in the marketplace and operate on the grid. If our nation is going to meet the increasing demands that are placed on the grid, no generation source can be left behind.

Key players in the electricity space are the states. Under the Federal Power Act, states have certain responsibilities in the electricity space, specifically, the construction of generation and transmission assets. Across the country, there is an array of differing state priorities that can lead to disparate impacts on ratepayers, particularly if their electric service provider operates in multiple jurisdictions. And while efforts at the state level strive to mitigate negative impacts on ratepayers in each jurisdiction, the current complexity in the electricity space lends itself to unforeseen outcomes.

Across all 50 states, Americans for Prosperity is one of the largest grassroots organizations dedicated to free market principles, the competitive spirit, and innovation in the economy. To better add value to today's hearing, we offer the following insights from our educational efforts at the state level.

- AFP's state chapter in Wisconsin is educating ratepayers in that state on a proposed "Right of First Refusal" (ROFR) bill. In the electric transmission space, a ROFR gives an incumbent transmission provider rights of first refusal in building new transmission lines. This process eliminates competitive bidding on those transmission projects which in turn, can increase costs to ratepayers.

- AFP's state chapter in Arkansas has been working diligently to educate state legislators on the pitfalls of ROFR legislation. ROFR laws stand in direct contrast to the free-market principles that lead to accountability, reliability, and affordability for ratepayers, including those especially in Arkansas.

- AFP's state chapter in Arkansas has also been educating state legislators on the concept of "Only Pay for What You Get." This would require the utility regulatory commission in the state to only allow a utility to recover costs and expenses from ratepayers that contribute to system reliability.

- AFP's state chapter in Illinois has also worked with state legislators to urge opposition to ROFR laws that are anti-competitive and forcibly compel ratepayers to cover the costs of these projects without deference to the final cost. Competition is essential in all construction, and particularly so with respect to new transmission lines, as many of the materials needed to build these systems have increased drastically in cost.

- AFP's state chapter in Montana has worked to educate state legislators on legislation that would repeal ROFR. Recently, the Montana Senate passed a bill that would repeal

ROFR for public utilities that are regulated by the Montana Public Service Commission.

These are just some of the lessons learned by AFP's state chapters advocating and educating on behalf AFP grassroots activists across the country.

Due to this Committee's role in the House with respect to its jurisdiction over the Federal Energy Regulatory Commission (FERC), the Nuclear Regulatory Commission (NRC), and the U.S. Department of Energy (DOE), we encourage Members to be cognizant of federal actions that attempt to thwart competition, compromise grid reliability, and result in increased costs to ratepayers in the electricity space.

We look forward to the legislative developments following this hearing and appreciate the opportunity to comment on this important issue.

Respectfully Submitted,

Brent Gardner
Chief Government Affairs Officer
Americans for Prosperity

March 4, 2025

The Honorable Bob Latta
Chairman, Subcommittee on Energy
House Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Re: Hearing on “Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity”

Dear Chairman Latta and Members of the Subcommittee,

On behalf of Stop MPRP, Inc., I appreciate the opportunity to submit this letter for the record in advance of the upcoming hearing on "Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity." Stop MPRP, Inc. is a non-partisan grassroots organization dedicated to opposing the Maryland Piedmont Reliability Project (MPRP), a misguided and unnecessary transmission project that threatens to devastate farmland, forests, and rural communities while failing to provide meaningful solutions for energy reliability and affordability.

The MPRP represents an outdated and destructive approach to meeting projected electricity demand. This project would cut through Maryland’s historic and agricultural landscapes, displacing farmers, devaluing properties, and destroying vital natural resources. Yet, this disruption is based on speculative demand forecasting that fails to account for modern grid optimization and demand-side management solutions.

The notion that new transmission corridors must be built across private land is a false premise. As research increasingly demonstrates, the United States has the capacity to meet growing electricity demand through a combination of strategic upgrades to existing transmission infrastructure and policies that require data centers—the primary driver of recent demand surges—to co-locate their own generation. Studies, including recent testimony before this Subcommittee, have shown that optimizing existing grid capacity, implementing demand flexibility measures, and siting new transmission along existing corridors such as highways and railways can eliminate the need for greenfield projects like MPRP.

We urge Congress to advance policies that prioritize:

- Upgrading and optimizing existing transmission infrastructure before approving any new greenfield projects, ensuring that all feasible alternatives are exhausted before land is seized for transmission expansion.
- Requiring data centers and other large energy consumers to co-locate generation rather than burdening ratepayers and rural communities with unnecessary new infrastructure.
- Enhancing demand management programs to reduce peak electricity loads, leveraging advancements in load flexibility and distributed energy solutions to alleviate grid stress.
- Reforming transmission planning to protect rural communities and agricultural land by directing infrastructure siting along existing rights-of-way rather than taking privately owned land.

The American energy future should not come at the expense of landowners, farmers, and communities that have stewarded this land for generations. Instead, we must pursue forward-thinking solutions that modernize our energy system while preserving property rights, protecting natural resources, and ensuring affordable electricity for all.

We respectfully request that the Subcommittee consider these concerns as part of your ongoing efforts to shape a reliable and equitable energy policy. Thank you for your leadership on this issue, and we welcome the opportunity to further engage with you on policies that align energy growth with responsible land stewardship.

Respectfully submitted,

Joanne Frederick
President
Stop MPRP, Inc.
joanne.frederick@stopmprp.org
443.789.1382

BRATTLE ECONOMIC ANALYSIS OF CLEAN ENERGY TAX CREDITS - PREPARED FOR CONSERVAMERICA

A Wide Array of Resources is Needed to Meet Growing U.S. Energy Demand

Prepared By
Sam Newell
Wonjun Chang
Paige Vincent

February 2025

Brattle

Disclaimer, Approach, and Qualifiers

DISCLAIMER

The following analysis contains forward-looking information and assumptions with respect to conditions which may exist or events which may occur in the future. The analysis is based on methodologies that simplify and may not always accurately represent the relationship between assumptions and outcomes. Except for statements of historical fact, the analysis cannot and does not provide assurances that the assumptions and methodologies used will prove to be correct or that the forecasts will match actual results of operations.

The analysis and assumptions used herein are also dependent upon future events that are not within our control or the control of any other person, and do not account for numerous market and regulatory uncertainties. Actual future results may differ, perhaps materially, from those indicated. The Brattle Group does not make, nor intend to make any representation with respect to the likelihood of any future outcome, cannot, and does not, accept liability for losses suffered, whether direct or consequential, arising out of any reliance on this analysis. The analysis was prepared by The Brattle Group experts Sam Newell and Wonjun Chang and reflects their analyses and opinions and does not necessarily reflect those of The Brattle Group's clients or other consultants.

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APPROACH

Analyze the economic impacts of potential full removal of Clean Electricity Production Tax Credit (PTC) from §45Y and Investment Tax Credits (ITC) from §45E, affecting all new solar, wind, and storage coming online after 2025, all else equal.

Electricity demand is forecasted by compiling regional and utility forecasts from 2024.

Electricity supply and costs are modeled using a standard electric sector "capacity expansion" model.
- A Brattle proprietary best-in-class model, gridSIM
- Calibrated to today's fleet/prices/plans
- Simulates the future with least-cost investment and plant operation to meet currently-forecasted demand, given resource options and their costs with or without clean energy credits
- Accounts for transmission constraints, limited buildout by technology and geography accounting for land use, supply chain, and transmission interconnection pace
- Assumes states w/ clean energy mandates abide by them, but not EPA GHG rules under CAA §111

The broader effects on the economy (GDP, jobs) are modeled using a standard macroeconomic model.
- A Brattle proprietary model, BEYOND
- High-level representation of all sectors and regions: how they interact and change given electric sector impacts
- Uses standard inputs from open-source government data

QUALIFIERS

Focuses on most prevalent supply resources for meeting demand, understating the role increased energy efficiency and demand response can play; also does not quantify effects on less prevalent/ immediate recipients of credits, such as geothermal, mechanical storage, and new nuclear

Modeling optimistically assumes all new demand still enters even at higher electricity cost absent electricity credits, although the discussion addresses the possibility of not meeting all of that growth

Does not account for clean air benefits of clean energy credits

Does not account for technology development benefits furthered by development incentives for wind, solar, and storage that are less mature and still improving significantly in cost and performance

This is a "gross" economic analysis that does not account for economic benefits of alternative uses of tax dollars, deficit reduction, or taxpayer savings if clean energy credits were removed

Specific benefits are uncertain due to uncertainties in market and system conditions - such as demand growth, gas prices, resource costs, the pace of generation interconnection, and supply chain limits; results should be considered indicative

Executive Summary

Annual peak electricity demand in the U.S. is expected to increase 30% over the next decade, and a wide variety of resources is needed to support that and the associated economic growth; renewables and storage are ready now

A portfolio of all forms of energy resources can meet demand reliably and most cost effectively, but not all are available today

- Solar and wind are ready now at lowest cost
- Battery storage is ready now and provides capacity and quick-start capabilities
- Natural gas provides flexible backup, but with fewer MW currently in development and ~4-5 year development cycle
- Existing nuclear provides baseload; advanced nuclear will take more than a decade to commercialize widely
- Coal is less economic and declining

Source: Brattle's BEYOND model of the US economy, given outputs from gridSIM.
Notes: This analysis does not account for economic effects of alternative uses of tax dollars, deficit reduction, or taxpayer savings in the event that clean energy credits are removed. GDP and consumption values are expressed in $2024 dollars.

Elimination of clean energy credits would raise customer rates, reduce economic growth and eliminate jobs

- Average annual residential bill would increase
- GDP and jobs would decrease because of higher electricity rates and less construction, mostly in rural areas, leading to a total market impact of $820 B

Eliminating or altering clean energy credits would dramatically reduce investment in low-cost solar and wind generation, hurting economic growth

- Solar and wind investment through 2035 would be 50% lower, along with some decrease in storage
- Limited additional gas-fired generation is available until early 2030s, creating potential for a shortfall of supply to meet power need

Economic growth would be limited

American Demand for Power is Growing

Realizing economic growth will depend on how quickly new electric generation capacity can be added

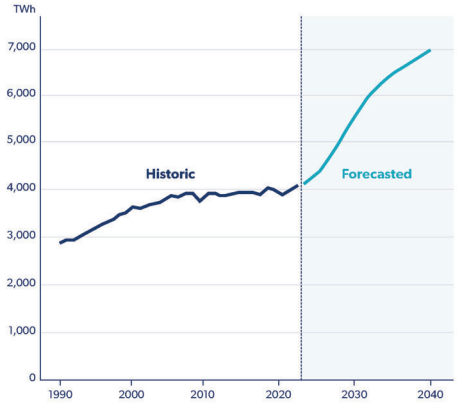
Electricity demand is surging to support an economic boom

- Data centers for AI
- Manufacturing reshoring
- Electrification of industry and other uses
- Growing oil and gas extraction

Serving this growth requires a lot more supply

- Peak demand growth rates exceed 5x that of the past decade
- By 2030, the U.S. will need to serve 20% higher annual peak or 150 GW
- By 2035, the peak will grow by 30%

By 2035, the U.S. will need 50% more annual electric energy production than today



Sources: a compilation of 2024 RTO and utility load forecasts for their own territories

All Supply Sources Are Needed to Meet Growing Demand Effectively

A wide array of resources is needed to provide enough power reliably and cost effectively

Nearly 2,000 GW of wind, solar, and storage projects in transmission interconnection queues

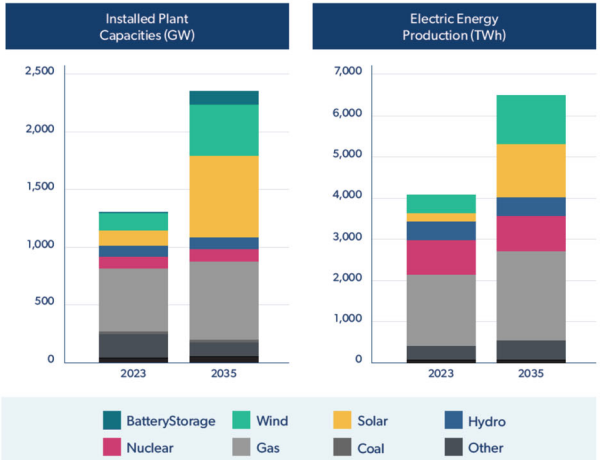
- Not all will be built, but a lot can be
- Even though these are intermittent or energy-limited, they produce a lot of low-cost energy and help meet demand growth

Much less gas fired generation is under development due to years of slow demand and limited turbine supply

- It will take years for the supply chain to develop and years for plants to be permitted, built and operational

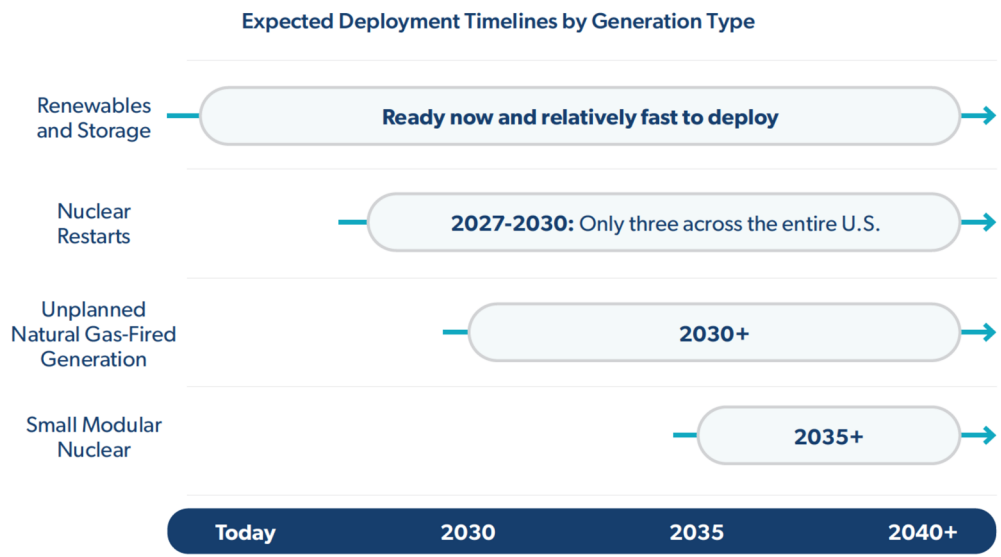
Current and Future Energy and Capacity

with current law and projected market conditions



Source: Brattle simulations of U.S. electricity investment and operations using gridSIM model, populated from EIA and other data sources

Solar, Wind and Storage Projects Are Already in Development and Can Meet Demand Now – Other Resources Are Available in Later Years

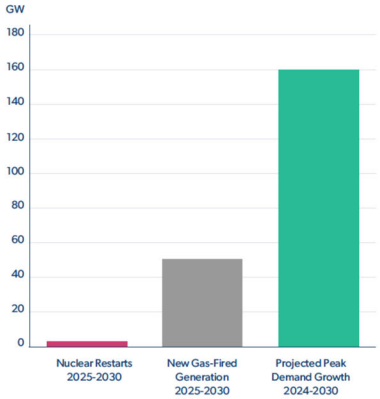


Note: all new supply has been facing multi year interconnection studies and network upgrades. Wind, solar, and storage projects are ahead of many other resources in that process.

Because of a Number of Factors, Gas and Nuclear Alone Cannot Meet Projected Demand Growth in the Near Term

- Long lead time for gas turbines
- Prolonged development and construction timelines
- Increasing price of gas turbines
- Transmission queues and delays
- Very long lead time for new nuclear

New-Build Gas-Fired Generation and Nuclear Restarts Likely Insufficient to Meet Projected Peak Demand



Source and notes: Rough estimate of max gas fired additions derived from statements from turbine manufacturers; does not include uprates to existing plants; Projected peak demand growth calculated from compilation of RTO and utility forecasts; does not account for the need to replace retirements.

Loss of Clean Energy Credits Would Dramatically Reduce Investment in American Energy Infrastructure

Solar and wind development would diminish markedly

- 50% less solar and wind would be built by 2035
- Reduces supply of low-cost energy and the main generation in development that is available now to meet growing power demand

New unplanned gas generation not built until roughly 2030+

Overall, capital investment would decrease, power prices would rise and consumers would be impacted

- $520 billion[1] less solar and wind investment through 2035 absent clean energy credits
- Power demand customers would still need generation, but without credits, they would pay higher prices
- As a result, the average American's electric bill would increase
- Risk of limiting growth of industry that demands much electricity

Estimated Impacts on New Investment in New Plants (GW)

	2026-30	2031-35	Total
Solar			
With Tax Credits	145	405	550
Without	121	121	242
Impact	-23	-284	-308
Wind			
With Tax Credits	181	73	254
Without	88	29	116
Impact	-93	-44	-137
Storage			
With Tax Credits	71	35	106
Without	83	17	100
Impact	12	-18	-6
Gas			
With Tax Credits	56	81	137
Without	56	124	180
Impact	0	43	43

1. Values are cumulative nominal undiscounted dollars.

Electricity Costs Would Increase for All American Consumers

By 2035 loss of tax credits would increase going-forward generation system costs by 14% and be passed on to all American consumers

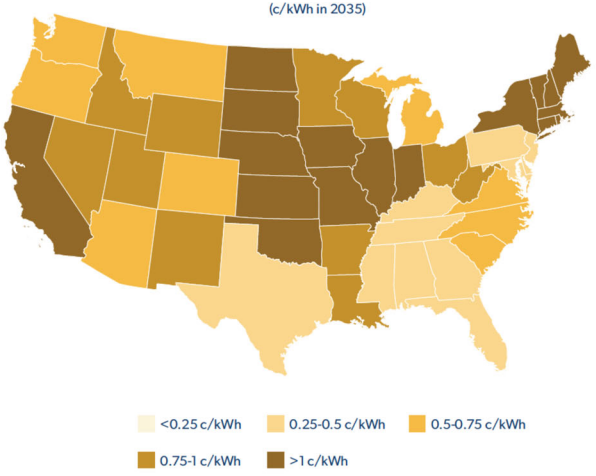
Residential electric bills would increase by an average of $83 per year, and as much as $152 per year in seven states[1].

Much like other energy costs, these rate impacts will place a heavier burden on lower and middle-income households

Year	Customer Costs (all classes)	Average Rates
2030	↑ **$26** Billion/Year	**+0.5** c/kWh
2035	↑ **$51** Billion/Year	**+0.8** c/kWh

1. The seven states with the potential increase of up to $152 per year are North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Iowa, and Missouri due to their high wind capacity.

Customer Electricity Cost Increases if Remove Clean Energy Credits
(c/kWh in 2035)



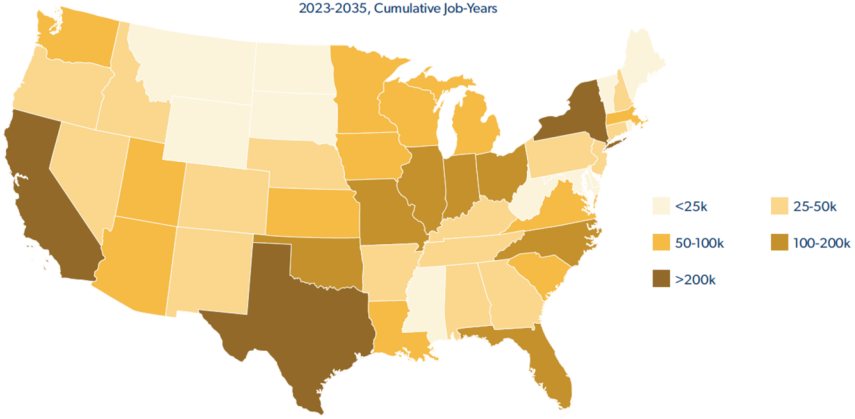
Source: Brattle's gridSIM simulations

...And Eliminate Jobs Across the Country

3.8 million jobs-years lost cumulatively throughout the economy through 2035 as employers spend more on electricity, capital investment declines and higher electricity rates impact consumer spending in other sectors; or worse if tightened electricity supply limits growth of industry that depends on electricity supply expansion

Employment Impacts from Loss of Clean Energy Credits

2023-2035, Cumulative Job-Years



Source: Brattle's BEYOND model of the US economy, given outputs from gridSIM.
Notes: This analysis does not account for economic effects of alternative uses of tax dollars, deficit reduction, or taxpayer savings in the event that clean energy credits are removed.

...And Depress U.S. Economic Growth

Higher electric rates and the loss of solar/wind projects would affect the broader economy

Cumulatively from 2025 through 2035, under the optimistic assumption that all forecast demand growth will still be met, estimated economic impacts are:

Direct spending in the power sector: -$250 billion

- Almost 450 GW less renewables would be built, mostly in rural communities

GDP: -$510 billion

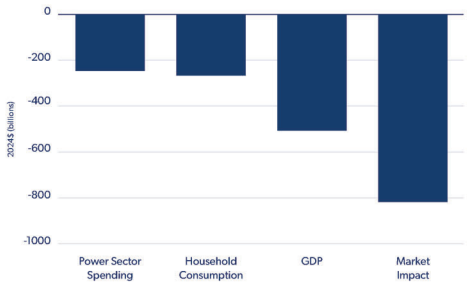
- Production would decrease due to less construction, higher electricity bills crowding out spending on other goods and wages, and less tax revenue
- Impacts would be felt throughout the economy

Household consumption: -$270 billion

- Higher household electricity bills, reduces spending on other goods
- Economic contraction (described above) results in lower household income

Source: Brattle's BEYOND model of the US economy, given outputs from gridSIM.
Notes: This analysis does not account for economic effects of alternative uses of tax dollars, deficit reduction, or taxpayer savings in the event that clean energy credits are removed.
GDP and consumption values are expressed in $2024 dollars.

Economic Impacts of Removing Clean Energy Credits
2025-2035, Cumulative Billions in 2024 dollars



Total market impact: -$820 billion

- This is the change in all goods and services transacted throughout all value chains, including inputs and intermediates, not just final products

Brattle

The Power of Economics™

AGA
American Gas Association

March 5, 2025

Chairman Brett Guthrie
Ranking Member Frank Pallone
U.S. House of Representatives
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

Re: House Committee on Energy and Commerce Subcommittee on Energy Hearing titled "Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity"

Dear Chairman Guthrie and Ranking Member Pallone:

The American Gas Association ("AGA") respectfully submits this letter to the Energy and Commerce Subcommittee on Energy ("Committee") to highlight the importance of the natural gas system to the reliability and resiliency of the electric system, as well as to residential, commercial, and industrial customers that directly use natural gas. This letter also provides an overview of one of AGA's reliability and resiliency efforts to meet the growing national demand for energy while maintaining affordability for consumers. More than 189 million Americans and 5.8 million businesses use natural gas because it is affordable, reliable, and safe. Importantly, on the coldest day of the year, the natural gas system delivers 3 times more energy than the electric system delivers on the hottest day of the year. The overall goal should be to preserve and enhance reliability and affordability for all customers, both gas and electric.

AGA, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 79 million residential, commercial, and industrial natural gas customers in the U.S., of which 94 percent — more than 74 million customers — receive their gas from AGA members. AGA is an advocate for natural gas utility companies and their customers and provides a broad range of programs and services for member natural gas pipelines, marketers, gatherers, international natural gas companies, and industry associates. Today, natural gas meets one-third of the United States' energy needs.[1]

A resilient energy system is essential to the operation of nearly every critical function and sector of the U.S. economy as well as the communities that depend upon its services. Disruptions to the U.S. energy system have the potential to create widespread economic and social impacts, including losses in productivity, health, and safety issues, and — in the most extreme cases —

[1] For more information, please visit www.aga.org.

Matthew J. Agen, Chief Regulatory Counsel, Energy, Office of General Counsel
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loss of life. The highest priority for a natural gas local distribution company ("LDC") is the delivery of natural gas to its customers safely, reliably, responsibly, and at just and reasonable rates.[2] LDCs across the country are obligated, in accordance with applicable state law and regulatory requirements, to distribute natural gas to retail, residential, commercial, governmental, and industrial customers — including electric generators.[3] These requirements underscore the fact that residential and business customers require uninterrupted service for human need purposes, such as home heating, and business purposes.

The natural gas and electric sectors are mutually dependent on each other and over the last several years, AGA and its members have actively engaged in a variety of forums to discuss issues related to the reliability and resilience of the energy system, as well as gas-electric coordination matters. Enhancing gas-electric coordination, particularly for winter weather preparedness remains a critical priority for AGA and its members. As electricity demand is expected to increase, the electric sector will become even more dependent on natural gas and other commodities to generate electricity. In light of this, investing in appropriate energy infrastructure will be pivotal to reliably meet demand growth.

As the power system becomes more reliant on natural gas fueled generation for reliability, pipelines and storage facilities are essential to provide that service. A robust natural gas system is critical in providing gas and electric system reliability during extreme weather events. Currently, approximately 25 percent of the natural gas used for power generation is delivered by natural gas utilities; utilities use on- and off-system storage, as well as pipeline transportation, to ensure natural gas service to customers behind the city gate. As the energy system evolves, new and updated infrastructure may be required to ensure service and meet the additional demands on the system, from residential, business, industrial, and electric generation customers.

The Committee should be aware that the National Association of Regulatory Utility Commissioners ("NARUC") Gas-Electric Alignment for Reliability ("GEAR") task force was established to address the gas-electric challenges facing the energy industry today. Late last year, the GEAR task force unanimously recommended the creation of the Natural Gas Readiness Forum — an industry-led voluntary effort aimed at improving the communication, preparation, and readiness of the energy sector, via a multi-state forum of stakeholders from the various elements of the natural gas and electric value chains, as well as federal and state regulators. The GEAR working group recommended that the Natural Gas Readiness Forum be administered by AGA.

AGA convened the first Natural Gas Readiness Forum meeting on December 16 and 17, 2024 in Atlanta, Georgia. The two-day event included representatives from across the natural gas value chain including representatives from the Federal Energy Regulatory Commission,

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[2] Elements of an LDC's retail services are regulated at the state level and not by the federal government. *See, e.g.*, 15 U.S.C. § 717(b) ("The provisions of this chapter . . . shall not apply . . . to the local distribution of natural gas or to the facilities used for such distribution or to the production or gathering of natural gas.").

[3] Most laws or regulations that govern utility service include the concept of the "obligation to serve." In short, this duty stems from the reality that when a franchise service territory is granted by a state or regulatory entity, a public interest is established in maintaining reliable service.

Department of Energy, North American Electric Reliability Corporation, regional transmission operators, electric generators, energy trade associations, state regulatory utility commissions and state energy offices. AGA will continue to convene such meetings to ensure preparedness of the natural gas value chain.

The American Gas Association thanks the Energy and Commerce Subcommittee on Energy for continuing discussions on reliability and its efforts to identify solutions to the challenges facing the energy industry today. AGA offers its assistance as a resource to the Committee to achieve those solutions. If you have any questions regarding this submission, please do not hesitate to contact the undersigned.

Respectfully,

Matthew J. Agen
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Subcommittee on Energy
Hearing on
"Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity"
Wednesday, March 5, 2025

Mr. Todd Brickhouse
Chief Executive Officer and General Manager
Basin Electric Power Cooperative

The Honorable Robert E. Latta (R-OH)

1. We all agree on the importance of modernizing our infrastructure to ensure we reliably get power to AI data centers. As the co-chair of the Grid Innovation Caucus, I am interested in grid-enhancing technologies that improve the performance of the transmission system. An example is the use of advanced power conductors that can double capacity of the grid using the same right of way.

    a. Can you please comment on this approach to ensure we get the most out of the current grid by deploying modern technology?

RESPONSE: Basin Electric continuously evaluates conductor materials to meet our members' evolving needs and has invested in facilities that utilize grid-enhancing technologies (GETs), including advanced conductors and Dynamic Line Rating (DLR) systems. We have implemented carbon fiber composite core, one type of advanced conducting, on three recently energized transmission projects: the 230-kV, 26-mile Neset-North Shore line and the 345-kV, 15-mile PGS-Judson and 33-mile Roundup- Kummer Ridge lines. We also plan to evaluate the use of advanced conductors for future transmission projects. The U.S. Department of Energy (DOE) has been a key partner for many electric cooperatives across the country in pursuing similar projects, particularly through the Grid Resilience and Innovation Partnerships program.

Advanced electrical conductors offer greater strength and thermal capacity than traditional conductors, which can reduce the size and quantity of grid structures required. This can lower costs for members and reduce impacts on landowners. These technologies can also significantly increase the capacity of existing transmission infrastructure and improve operational flexibility, especially during cooler temperatures or favorable weather conditions.

However, increasing thermal ratings is just one part of a more complex transmission system. As loading increases, new challenges may emerge, such as voltage stability concerns, increased reactive power demands, and potential transient instability. These issues typically require additional infrastructure investments such as capacitors and reactors.

While Basin Electric views GETs as essential tools to modernize the grid, we believe that optimizing transmission system performance requires a holistic, system-wide approach that accounts for all physical and dynamic constraints, not just thermal limitations. This approach will naturally vary from one cooperative to another, depending on their unique systems and operational needs. Therefore, flexibility in the implementation of GETs is critical. Ultimately, a

combination of GETs and news transmission facilities will be necessary to meet the future demands of the electric grid.

2. Economic Development and Forecasting Consistency: Accurate and transparent Electricity load forecasting is a linchpin of modern economic development. States rely on these forecasts to plan new industrial parks, data centers, and manufacturing hubs, while utilities use them to schedule grid expansions and major infrastructure investments. Despite the vital role of load forecasts in spurring economic growth, practices vary widely among states, often leading to inconsistent data, misaligned investment signals, and unnecessary risk for both utilities, and both large and residential customers. Concerns have been raised that a patchwork of forecasting methodologies can exacerbate speculation in large-load interconnection requests, inflate demand projections, and drive up costs.

    a. Recognizing these issues cross both state and federal jurisdictions and regional differences, how do you think Congress can play a role in establishing a baseline of consistency across state jurisdictions that will help align economic development strategies with reliable, cost-effective grid planning?

RESPONSE: Forecasts can be developed by anyone and can vary significantly. To accurately assess the needs of the electric grid, Congress should work closely with regional transmission organizations (RTOs), independent system operators, and electric utilities.

3. Regarding planning for transmission, what specific impediments have you identified to current state and regional planning for the siting of transmission projects?

RESPONSE: Basin Electric participates in transmission planning processes within Southwest Power Pool, Midcontinent Independent System Operator, and our western Common Use system. These processes have generally been effective in identifying system needs and proposing solutions to address regional reliability and economic concerns.

However, we face an unprecedented scale and pace of interconnection requests. In some regions, requests to interconnect new load and generation resources could effectively double the existing system footprint, dramatically increasing the demand on the transmission system. The scale of infrastructure needed is rapidly outpacing the ability to site, permit, and build new transmission in time to meet rising demand.

    a. What are examples of impediments you have identified, and what is necessary for system planners to overcome these impediments?

RESPONSE: The primary challenges we encounter fall into two categories: planning-level bottlenecks and execution-level hurdles.

Volume and Complexity of Interconnection Requests: The growing number and magnitude of new load and generation interconnection requests place significant pressure on planners to identify transmission upgrades in a timely and strategic manner.

Compressed Timeframes: Developers often seek near-term interconnections, but permitting and construction timelines rarely align with those expectations, especially under current market conditions.

Supply Chain Delays: Lead times for critical equipment, such as power circuit breakers and large power transformers, have extended beyond five years in some cases, introducing additional uncertainty and delays.

Public Opposition: Local opposition can delay or derail projects, especially when it surfaces late in the routing process. This is often rooted in concerns about land use, environmental impact, and perceived lack of transparency.

Communication Gaps: There is often a disconnect between the goals of utilities and RTOs and how those efforts are perceived by the public. Clear, consistent messaging about the necessity and benefits of transmission development is crucial to building understanding and public support.

To overcome these challenges, system planners must pair technical solutions with stronger public engagement and improved coordination across permitting agencies, regulators, and community stakeholders.

b. What reforms do you recommend to improve state and regional planning to overcome these impediments?

RESPONSE: *Earlier and Deeper State Engagement*: States should be more integrated into the early stages of RTO planning processes to better understand system needs, project benefits, and timelines. RTOs operate under an open and transparent framework, and in our region, increased participation by state regulators has improved alignment between system planning, permitting and state policy decisions.

Improved Interregional Coordination (Seams Planning): Coordination between RTOs remains a challenge, especially around cost allocation. Projects that span regional seams often stall because one region is unwilling to pay for perceived benefits received by another. While progress is being made, if voluntary coordination does not continue to improve, a more formalized approach may be needed to ensure equitable solutions and regional accountability.

4. In the last Congress and the previous administration, there was a lot of talk about transmission policy reform.

a. How does Basin plan transmission in your region and with other regions? What should Members understand about the nature of transmission planning as it exists today?

RESPONSE: Basin Electric follows the transmission planning requirements laid out in Federal Energy Regulatory Commission (FERC) Orders 890 and 1000 within each RTO in which we operate. This process ensures robust stakeholder engagement, technical rigor, and transparency in the development of both near-term and long-term system plans. These plans are primarily driven by regional reliability needs and economic congestion relief.

However, the planning framework is inherently regional in scope. While it functions well at that level, it does not account for broader, national reliability or infrastructure perspectives. As system demands grow across interconnected regions, gaps may emerge that regional planning alone cannot fully address.

b. Does a top-down approach, through FERC, serve the interests of utilities and the grid operators that are already expending tremendous time and engineering resources on designing new transmission?

RESPONSE: There could be value in supplementing existing regional planning with a national transmission planning study. Such an effort would help identify interregional infrastructure gaps, align broader North American reliability strategies, and support long-term national economic and energy security goals.

That said, any top-down approach must build on and not replace the detailed, region-specific work already being done by utilities and RTOs. National coordination should complement local expertise and regional planning structures, not override them. Ultimately, the goal of any planning framework—whether national or regional—must be to support load-serving entities in reliably and affordably meeting the needs of consumers. A top-down approach should always remain grounded in this core objective.

5. As you know, a diverse fuel supply, including natural gas, is helping to ease the grid constraints that we are experiencing in many regions of the country.

   a. Would you please discuss how the attributes of natural gas, for example, the ability to provide "peaking power" and load management, help to manage the grid?

RESPONSE:
Fast Startup and Grid Synchronization: Natural gas generators can start up rapidly, often synchronizing with the grid in under 10 minutes. They typically have short minimum run times and down times, enabling them to operate for brief periods and cycle between online and offline modes multiple times per day.

Operational Flexibility: These generators are highly responsive, capable of ramping up or down quickly to meet real-time grid demands. Their flexibility makes them ideal for providing ancillary services and supporting grid stability during fluctuating conditions. They can be utilized for both short-term dispatch and extended run durations as needed.

Fuel Procurement and Transport: Natural gas fuel can be secured through long-term contracts with daily ratable delivery or purchased on the spot market. Transportation and storage options include interruptible service or firm service at a premium, offering a range of cost and reliability trade-offs.

Predictable Maintenance: Maintenance schedules are typically based on a generator's run hours and number of starts, allowing operators to plan outages with more precision. This predictability supports system reliability and minimizes unplanned downtime.

Scalable Capacity: Natural gas generators are available in a wide range of capacities, from small 5-megawatt (MW) units to large-scale installations exceeding 1,500 MW. This scalability enables grid operators to select the most appropriately sized resource for specific demand scenarios.

Environmental Advantage: Compared to coal or diesel-fired units, natural gas generators produce significantly lower emissions of nitrogen oxides (Nox), sulfur dioxide (SO2), and carbon dioxide (CO2), making them a more efficient option for meeting air quality standards and requirements.

b. What role is natural gas playing behind the meter, through onsite generation and backup power?

RESPONSE: Natural gas provides opportunities to reduce load and provide supplemental power when managed behind the meter. This approach can provide the reductions needed to meet capacity requirements when managed optimally.

The Honorable John James (R-MI)

1. Governor Whitmer signed Senate Bill 271 in November 2023 to require Michigan to achieve "net zero" emissions by 2040. Now, the Democrats will say that this will create jobs and opportunities will be abundant. But the reality in my home state of Michigan tells a different story. These policies and laws strike fear and create hesitancy for manufacturers to consider setting up shop in Michigan before they consider states like North Carolina or Ohio.

   Michigan remembers the Great Recession, where 50% of all the jobs lost in all of America were lost in OUR state alone. We lost jobs to Mexico and China. SB 271 and the Green New Scam agenda plan cannot meet demand for industry or to stand up data centers. What's worse, the Biden administration's harmful regulations limited the ability to build new natural gas plants needed to meet growing demands.

   President Trump has a mandate to usher in innovation and reindustrialization, especially in Michigan where his message was accepted loud and clear. We need reliable energy to get this done. If we want to continue pursuing unreliable and unrealistic energy agendas then we can expect less manufacturing jobs and less innovation to come and stay in states like Michigan.

   a. You discussed various regulations that the Biden EPA put on the power plant sector that would severely limit the ability to build new natural gas plants needed to meet growing demand and impose massive compliance costs on existing plants. While I'm confident the Trump EPA will seek to reverse these harmful restrictions, how does the lack of clear and durable federal rules impact Basin Electric and other co-ops?

RESPONSE: As previously noted in the submitted written testimony (Page 3), Basin Electric is planning to construct the Bison Generation Station (BGS), which is an approximately 1,470 MW natural gas-fired combined-cycle power plant. The project has an estimated budget of $4 billion and is expected to come online in 2030.

However, uncertainty surrounding the potential repeal or continuation of Biden-era regulations—specifically the Power Plant Greenhouse Gas Rule—poses significant challenges. As Basin Electric proceeds with permitting and construction, it is unknown whether or not the plant will be limited to a 40% capacity factor, as would be required under the current rule, or be permitted to operate as a base-load unit.

This regulatory uncertainty presents a significant risk not only to Basin Electric but also to other cooperatives planning new generation. The lack of clear, consistent, and durable federal environmental rules across administrations makes long-term resource planning extremely difficult. Basin Electric and other utilities must make multi-billion-dollar investments in infrastructure expected to operate for decades, without knowing how the future regulatory shifts may affect their viability. Ultimately, this uncertainty translates to wasted resources and increased costs for consumers.

Responses to Questions for the Record of
Asim Z. Haque, Sr. Vice President – Governmental and Member Services
PJM Interconnection, LLC

Energy and Commerce Committee
Subcommittee on Energy's Hearing on March 5, 2025
"Scaling for Growth: Meeting the Demand for Reliable, Afford Electricity"

The Honorable Robert E. Latta

1. We all agree on the importance of modernizing our infrastructure to ensure we reliably get power to AI data centers. As the co-chair of the Grid Innovation Caucus, I am interested in grid enhancing technologies that improve the performance of the transmission system. An example is the use of advanced power conductors that can double capacity of the grid using the same right of way.

a. Can you please comment on this approach to ensure we get the most out of the current grid by deploying modern technology?

Response: *It is imperative that grid operators consider every tool in the toolbox to maximize the efficiency of the grid and PJM is doing so. As you may know, FERC's Order No. 1920 now requires transmission providers to consider using grid-enhancing technologies ("GETs") when planning the grid of the future, including the use advanced conductors. In fact, last year, PJM launched a new web page (link) that discusses various Grid Optimization Solutions, including GETs and Alternative Transmission Technologies (ATTs), designed to serve as a reference for the PJM region and the electric industry. For PJM, Grid Optimization Solutions include any novel technology, such as GETs or ATTs, or other transmission innovations that can enhance grid operations. To aid in the understanding of GETs on the PJM system, PJM developed the reference guides to highlight background information and technical considerations for certain technologies including:*

- *Advanced Conductors*
- *Advanced Power Flow Controllers*
- *Dynamic Line Ratings*
- *Topology Control & Optimization*

2. Within PJM, the ability to provide capacity to meet resource needs, including the needs of large load customers, appears to be dependent on generation owners participating in capacity auctions. If new power generators decide to enter into a contract with a single customer or group of customers, then the generation would not be available to meet the energy and capacity needs of individual customers, including residential and small business customers, and PJM has limited ability to ensure that new market entrants serve all customers.

a. Is this correct? If so, how do you ensure you have generation to meet energy and capacity needs? And if you disagree, please explain why.

Response: *PJM's voluntary capacity market (also known as the Reliability Pricing Model) is designed to ensure that sufficient generating capacity is available at a defined point in the future, historically, three years prior to the delivery date. At present, we are forecasting a material increase in demand for electricity, but we are also expecting the continued retirement of baseload resources. In such a situation, with decreasing supply and increasing demand, the price of the product (i.e., capacity) will certainly increase. This increased price has historically served as a price signal to encourage the development of new, needed generation.*

You are also correct that power generators may offer their output to a single customer or group of customer via a bilateral contract, subject to conditions, including review and approval by PJM. To be clear, there is no requirement a generator's output be offered into the capacity market. Currently, FERC has a number of proceedings underway to investigate the impacts of "large load additions" to the grid, including impacts to reliability and costs to customers. PJM is an active party to this proceeding and we are expecting this guidance to be released by FERC later this year.

3. Regarding planning for transmission, what specific impediments have you identified to current state and regional planning for the siting of transmission projects?

a. What are examples of impediments you have identified and what is necessary for system planners to overcome these impediments?

Response: *Building energy infrastructure is extremely challenging, particularly in urban and dense areas including the 13 state territory serviced by PJM. Specifically, transmission developers regularly encounter delays associated with obtaining the necessary permits to construct a transmission line. These delays, at all levels of government (i.e., local, state, federal), often takes years to navigate. PJM has supported efforts to advance permitting reform at the federal level and continually works with its states to advance projects through the state-level siting approval processes. Additionally, grassroots community opposition to transmission infrastructure can add years to the development of a project, or terminate a project entirely. While early input from the community is essential, there should also be a recognition of the immense public benefit that this infrastructure will provide to all utility customers.*

b. What reforms do you recommend to improve state and regional planning to overcome these impediments?

Response: *As you are aware, FERC issued Order No. 1920 last year – a landmark rule that reformed nearly aspect of regional transmission planning, from the time horizon (i.e., 20 years) to a requirement that transmission planners consider a broad set of benefits when planning new facilities. However, this rule did not address the impediments that you reference above. While Congress has attempted to address the challenges associated with permitting and siting delays, these legislative attempts have been unsuccessful.*

4. In the last Congress and the previous administration, there was a lot of talk about transmission policy reform.

a. How does PJM plan transmission in your region and with other regions? What should Members understand about the nature of transmission planning as it exists today?

Response: *Transmission planning is a complex assignment and considers many variables. PJM continually plans for transmission both within our footprint and with our neighboring grid operators using a process known as the Regional Transmission Expansion Plan (RTEP). Through the RTEP, PJM identifies emerging needs of the grid, potential reliability violations, areas for market efficiency improvement, and public policy requirements. This process occurs through an open and transparent stakeholder process subject to the oversight and approvals of FERC.*

b. Does a top-down approach, through FERC, serve the interests of utilities and grid operators that are already expending tremendous time and engineering resources on designing new transmission?

Response: *PJM supports the regulatory oversight of FERC, as our primary regulator and recognizes that FERC has the responsibility of overseeing the many different grid operators across the country. Each grid is different, so PJM regularly advocates for flexibility in regulations to accommodate regional variations rather*

than a "one size fits all" approach. PJM appreciates when FERC acknowledges the need for such flexibility to save time and resources.

The Honorable John James

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Michigan remembers the Great Recession, where 50% of all the jobs lost in all of America were lost in OUR state alone. We lost jobs to Mexico and China. SB 271 and the Green New Scam agenda plan cannot meet demand for industry or to stand up data centers. What's worse, the Biden administration's harmful regulations limited the ability to build new natural gas plants needed to meet growing demands.

President Trump has a mandate to usher in innovation and reindustrialization, especially in Michigan where his message was accepted loud and clear. We need reliable energy to get this done. If we want to continue pursuing unreliable and unrealistic energy agendas then we can expect less manufacturing jobs and less innovation to come and stay in states like Michigan.

a. Michigan is under MISO, which is not under your purview with PJM, but could you shed light on how Michigan curtailment for large loads such as data centers and manufacturing would deter investment opportunities?

Response: *PJM notably serves the southwestern corner of Michigan (in the AEP service territory) and we operate several 345 kV transmission lines in the southern half of the state. In terms of curtailment of service to large load additions, the impacts would vary depending on the scope and specific details of the curtailment and the affected customers. FERC is presently reviewing this issue regarding the impact of "large load additions" in several open dockets and FERC has committed to issuing such guidance later this year.*

b. Ohio might not be able to defeat Michigan on the field, but they have beat us out on an amazing opportunity. Anduril, a leader in autonomous systems for the DoD, announced this year that Columbus, Ohio will be home to their new manufacturing facility. In your expert opinion, is there an ideal example of a state like Ohio in this case that is open for business and is attracting investments in production? What are they getting right?

Response: *As the former Chairman of the Ohio Public Utilities Commission, I can tell you that Ohio is always getting things right! Despite my bias, I believe that each state will attempt to secure new economic opportunities by making themselves more competitive than its neighbors. It should come as no surprise that states with business friendly policies should attract new investments and economic development.*

Tyler H. Norris
Duke University
[redacted]

May 7, 2025

Calvin Huggins
Legislative Clerk
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515
Calvin.Huggins1@mail.house.gov

Dear Mr. Huggins:

Thank you for the opportunity to respond to additional questions for the record following the March 5, 2025 hearing, "Scaling for Growth: Meeting the Demand for Reliable, Affordable Electricity." Please find my responses to the questions submitted by Members of the Subcommittee on Energy below, which I am submitting in my personal capacity and not on behalf of Duke University.

Sincerely,

Tyler H. Norris

Attachment

The Honorable Robert E. Latta

1. **We all agree on the importance of modernizing our infrastructure to ensure we reliably get power to AI data centers. As the co-chair of the Grid Innovation Caucus, I am interested in grid enhancing technologies that improve the performance of the transmission system. An example is the use of advanced power conductors that can double capacity of the grid using the same right of way.**

    a. **Can you please comment on this approach to ensure we get the most out of the current grid by deploying modern technology?**

Thank you for highlighting the important role of Grid-Enhancing Technologies (GETs), including advanced power conductors. As you know, these technologies are a linchpin for increasing the utilization of both the existing grid and the new transmission infrastructure we're building. As I noted in my testimony, our power system is dramatically underutilized in most hours – meaning that smarter use of our existing assets is one of the fastest and most cost-effective ways to integrate new load and generation and improve reliability. GETs such as Dynamic Line Ratings (DLR), Advanced Power Flow Controllers, and topology optimization tools allow operators to safely increase transmission throughput without new rights-of-way or lengthy siting processes. For example, DLR systems that integrate real-time weather and line condition data can unlock significant latent capacity on existing lines, especially during peak renewable production hours.

In addition, emerging operational technologies and practices such as Dynamic Contingency Management (DCM) have significant potential but have received less attention compared to other GETs. Traditionally, transmission systems are operated with substantial unused capacity to preserve N-1 reliability – ensuring that if one line fails, customers aren't affected. DCM allows operators to safely utilize more of the grid's existing capacity under normal conditions by providing a real-time "contingency buffer." Through intelligent software and fast-response coordination with inverter-based resources, flexible loads, and storage, DCM enables operators to manage contingencies dynamically, rather than relying solely on physical redundancy.

This approach has already been successfully deployed. For example, in the Calama region of Chile, DCM implemented by the company Splight reportedly increased system throughput by more than 100%, saved an estimated $3.4 million in one year, reduced renewable energy curtailments, avoided nearly 18,000 tons of CO_2 emissions, while preserving N-1 reliability. These systems operate in real time, leveraging digital twins, remote telemetry, and millisecond-level control of participating resources.

To fully unlock the latent capacity enabled by GETs and flexible grid operations, complementary steps will be necessary, including but not limited to:

- Creation of new interconnection and transmission service tiers: In FERC Docket No. EL25-49, PJM and stakeholders are exploring the need for new service classes for large co-located loads, such as data centers, that are willing to accept curtailment or flexible operating parameters. These kinds of fit-for-purpose service products can accelerate access to existing grid capacity while preserving fairness and system reliability. They also align with the operational models enabled by DCM.

- More widespread and standardized participation of flexible loads: One critical enabler will be adoption of interoperability standards such as OpenADR, which allow utilities, ISOs, and building or industrial loads to exchange dynamic price and reliability signals in a uniform way. Broader adoption of OpenADR will reduce integration costs, prevent stranded assets, and help scale demand-side flexibility as a system resource.

Broader deployment of GETs, particularly when paired with flexible service arrangements and standardized communications, represents one of the most promising frontiers for modernizing the grid. These tools allow us to maximize existing infrastructure, reduce costs and timelines for interconnection, and expand access for emerging electricity demands such as AI data centers, without compromising reliability.

2. **The report that you co-authored, and referenced in testimony, concludes that 76 GW or 98 GW of headroom may be available (depending on assumed level of load curtailment). This analysis is premised on real-time operations as opposed to long-term planning. The report states that the analysis does not include real-time operational factors: "The analysis does not consider the technical constraints of power plants that impose intertemporal constraints on their operations (e.g., minimum downtime, minimum uptime, startup time, ramping capability, etc.) and does not account for transmission constraints."**

    a. **Why were these constraints excluded, and do you have any sense on how they may affect the ultimate conclusion in the report if they were included?**

Our analysis was intentionally scoped as a first-order assessment of potential headroom that exists on the U.S. grid in most hours, based on reasonable simplified assumptions that could be scaled across 22 balancing authorities to offer an estimate of national technical potential. This approach was chosen because developing realistic simulations of hourly or sub-hourly grid operations, complete with unit-level constraints, reserve requirements, and network flows, would have required substantially more time and computational resources than was feasible within the scope and timeline of the project. We judged it more valuable, given the urgency of the load growth challenge, to deliver a timely analysis that could identify where the grid may be underutilized and where further investment in flexibility or modeling is most warranted.

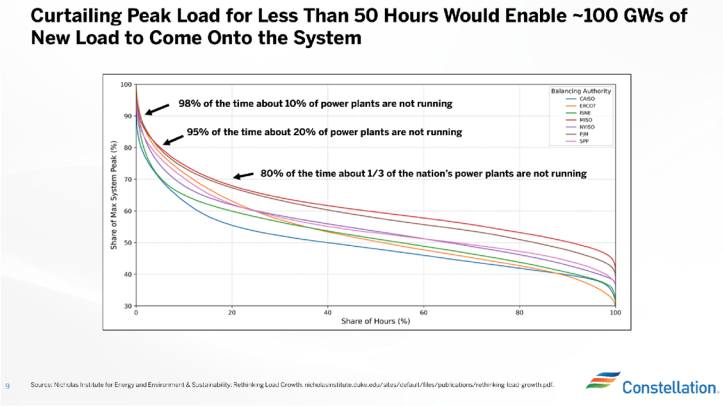
While we expect some reduction in estimated headroom when adding intertemporal and transmission constraints, other factors may push in the opposite direction. These include reserve capacity not counted in our first-order estimates, potentially lower actual peak loads than assumed, and non-constant load shapes that may reduce the absolute MWh of curtailed load. To illustrate this interplay, our team recently conducted a more detailed simulation for the combined Duke Energy Carolinas and Duke Energy Progress systems. This analysis incorporated intertemporal constraints of thermal generators and pumped hydro storage and identified nearly twice as much headroom as our first-order estimate. However, that same simulation did not fully account for the average rate of planned and unplanned generator outages, underscoring how modeling choices can push results in either direction. Localized transmission constraints are likely to be the most binding limitations in some areas, particularly if large new loads are highly concentrated rather than dispersed. Ultimately, while we expect some downward adjustment to headroom estimates in some areas as more detailed simulations are performed, we also anticipate that flexibility, on the part of new loads and the grid itself, will be a substantial offsetting force.

    b. **Given the exclusion in the report of key planning considerations such as ensuring adequate transmission capacity, ramping capacity, and ramp-feasible reserves, should policymakers take away from this study a conclusion that, in concept, certain grids in the United States may have headroom to accommodate new loads?**

Yes – with sufficient load flexibility, policymakers can confidently conclude that many U.S. balancing authorities can accommodate substantial new demand with the infrastructure already in place. As Constellation Energy CEO Joseph Dominguez stated during the company's recent Q1 2025 earnings call, "In most hours, we dramatically underutilize the grid… Eighty percent of the time, one-third of the grid isn't

being used. That means we have plenty of room in most hours to accommodate new [load]."[1] Mr. Dominguez presented a figure from our report (Figure 1 below) and further noted, "Demand response is an incredibly powerful tool to meet all this new data center demand. What it will do is utilize the slack in the system and cover those peak hours where there is a gap."

Figure 1: Constellation Energy Corporation Q1 2025 Earnings Call, Presentation Slide #9



c. What additional work is being done to examine this "headroom" potential?

Our research team at Duke's GRACE Lab is currently conducting more detailed simulations of individual balancing authorities using enhanced modeling techniques. This analysis will utilize modeling frameworks developed by GRACE Lab with support from the U.S. Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E) and build on GRACE Lab's existing protocol for constructing realistic representations of power plants, transmission networks, and load distribution based on publicly available data. We anticipate sharing updated findings over the next year and would be pleased to brief your office and the House Energy & Commerce Committee when results are available.

d. In terms of analyzing headroom and maximizing the benefit of investment within this headroom or to meet incremental needs, is an integrated utility planning construct the best way to evaluate such investments for generation and related infrastructure?

Integrated planning frameworks, such as the Integrated Resource Planning (IRP) process used by vertically integrated utilities, can be valuable tools for aligning infrastructure investments with long-term load growth. They offer a structured approach for assessing generation needs, reserve margins, and transmission expansion.

That said, vertically integrated models are not the only structures capable of addressing growing demand. In ISO and RTO markets, system operators often play a role in assessing reliability and reserve adequacy over time, though these responsibilities vary by region and market design. Energy-only markets like ERCOT are

[1] Constellation Energy Corporation. Earnings Conference Call First Quarter 2025. May 6, 2025. https://investors.constellationenergy.com/events/event-details/q1-2025-constellation-energy-corporation-earnings-conference-call

less planning-centric but have demonstrated a strong track record of timely investment by leveraging clear, transparent price signals that guide private capital toward new generation and flexibility.

These models have advantages and limitations. Vertically integrated utilities can coordinate generation and transmission investments, but their cost-of-service model may create incentives to favor new capital projects over more efficient use of existing infrastructure. This can result in underutilization of the grid's latent capacity. Organized markets can be slower to build new transmission due to coordination and siting challenges, but their competitive structure often promotes faster deployment of new generation and storage – especially where price signals are strong and clear, as in ERCOT.

Ultimately, no matter the market structure, what matters most is ensuring that planning and procurement processes – whether centralized or decentralized – have the tools and incentives to recognize available headroom, account for the value of flexible load, and invest in modern operational capabilities like grid-enhancing technologies and dynamic contingency management. Different regions may pursue different mixes of planning and market-based approaches, but all will benefit from more dynamic and flexible strategies for integrating new load.

3. Regarding planning for transmission, what specific impediments have you identified to current state and regional planning for the siting of transmission projects?

a. What are examples of impediments you have identified and what is necessary for system planners to overcome these impediments?

b. What reforms do you recommend to improve state and regional planning to overcome these impediments?

While my testimony focused primarily on near-term tools for integrating new load, I emphasized that proactive transmission planning is a critical long-lead resource. In a landscape marked by supply chain constraints, rising equipment costs, and accelerating infrastructure needs, more anticipatory and cost-effective planning is essential. FERC Order No. 1920 was a major step in the right direction, requiring long-term, scenario-based planning that considers a broader set of benefits and improves state coordination. To further improve outcomes, we can address the following challenges and opportunities:

- Align incentives through independent oversight: Local planning is often led by incumbent utilities with incentives to favor capital expansion over shared, cost-effective upgrades. Independent transmission monitors could help ensure transparency and objectivity.
- Modernize benefit-cost frameworks: Many planning processes still undervalue long-term and system-wide benefits like emissions reduction, economic development, and load integration. Multi-value planning, as advanced by Order 1920 and groups like Brattle and Grid Strategies, should become standard.
- Treat GETs as first-order resources: Solutions like Dynamic Line Ratings and Dynamic Contingency Management can unlock latent capacity on existing infrastructure and should be fully integrated into planning models.
- Address developer siting uncertainty: As I shared at FERC's 2024 interconnection workshop,[2] one of the biggest planning challenges is predicting where new generation will locate. Making more network data publicly available, including buses pre-screened for non-thermal constraints, could help developers better align with underutilized grid capacity.

[2] Norris, T. H. (2024). Pre-Workshop Comments to Federal Energy Regulatory Commission. Staff-led Workshop on Innovations and Efficiencies in Generator Interconnection. FERC Docket No. AD24-9-000. August 26, 2024. https://nicholasinstitute.duke.edu/publications/comments-ferc-workshop-innovations-efficiencies-generator-interconnection

- Improve and streamline energy-only interconnection (ERIS): As I further discussed at FERC's 2024 interconnection workshop, getting more generators online through ERIS can provide valuable data to inform transmission planning. One of the central challenges for proactive grid planning is accurately predicting where new generators will seek to interconnect. The presence of more interconnected generators (and generators with executed interconnection agreements) helps address this information gap and improve certainty regarding where new generators are located on the grid and their expected production costs. This enhanced coordination between generation and transmission planning could lead to more efficient grid development, helping transmission providers to identify better and prioritize the highest-value upgrades.
- Invest in tools and workforce: Modern scenario planning requires robust modeling platforms and trained engineers. Federal and state support for power system education and analytical capacity is essential.

The Honorable Doris Matsui

1. Given the unprecedented growth in electricity demand and the lack of transmission available to serve that demand, what should utilities and the federal government do to accelerate the use of technologies, such as advanced conductors, that will quickly and cost effectively increase the capacity and efficiency of the existing grid along current rights of way?

Thank you, Congresswoman Matsui, for raising this important question. As the grid faces unprecedented demand growth driven by AI, electrification, and large-scale industrial development, we must ensure that we're not only expanding the grid but also getting much more out of what we already have. Technologies such as advanced conductors, Dynamic Line Ratings (DLR), power flow controllers, and Dynamic Contingency Management (DCM) can significantly increase the capacity and efficiency of existing transmission lines – often faster and at lower cost than building new infrastructure.

Despite their potential, the deployment of these technologies remains limited. There are several concrete steps that utilities and the federal government can take to accelerate their adoption:

- Incorporate GETs into routine transmission planning and cost recovery frameworks: Regulators should require that utilities evaluate GETs on equal footing with traditional upgrades in transmission planning processes. FERC Order No. 1920 opens the door to more multi-value assessments, but follow-through is needed to ensure GETs are consistently considered in comparative evaluations.
- Establish clear incentives and accountability for utilities: Where utilities lack performance-based incentives to improve utilization, GET deployment lags. Federal or state performance metrics, such as targets for increasing asset utilization or reducing congestion costs, could encourage adoption, especially when paired with cost-recovery clarity.
- Fund public benefit pilots and accelerate technical standards: DOE and FERC can expand support for pilot deployments that de-risk GETs and demonstrate real-world value, particularly in high-priority areas with constrained interconnection capacity. Supporting open standards and data interoperability for tools like DLR and DCM can also lower adoption barriers.
- Encourage states and RTOs to prioritize congestion relief through existing corridors: Many of the most congested grid bottlenecks are already known. A coordinated push –leveraging federal support, state planning, and RTO tariff reforms – can target upgrades in these areas using advanced conductors and other GETs within existing rights of way.
- Invest in planning tools and the transmission workforce: Effective GET deployment requires sophisticated modeling, situational awareness, and trained engineers. Federal funding to modernize utility and RTO planning tools, along with support for university-based power system education, will help ensure successful integration.

Responses to Questions for the Record
Mr. Noel Black , Senior Vice President of Government Affairs
Southern Company Services

Energy and Commerce Committee
Subcommittee on Energy
Hearing on March 5, 2025
"Scaling for Growth: Meeting the Demand for Reliable, Afford Electricity"

Questions for the Record from The Honorable Robert E. Latta

1. **We all agree on the importance of modernizing our infrastructure to ensure we reliably get power to AI data centers. As the co-chair of the Grid Innovation Caucus, I am interested in grid enhancing technologies that improve the performance of the transmission system. An example is the use of advanced power conductors that can double capacity of the grid using the same right of way.**

   Can you please comment on this approach to ensure we get the most out of the current grid by deploying modern technology?

   Response:
   Grid-enhancing technologies (GETs) such as advanced reconductoring have the potential to bring additional capacity to the transmission system. GETs includes a portfolio of transmission grid-connected technologies focused on increasing grid capacity and enabling the reliable integration of inverter-based generation resources such as solar and battery energy storage systems (BESS). Therefore, GETs are part of the solution to serve the growing energy demands of data centers and other large load customers, so the grid has the capacity to serve them both for producing the power they need to consume and the delivery of that power to the end-use customers. Southern Company has a vast GETs portfolio. Some types of GETs have been tested and are in scaled deployment across Southern Company's transmission grid such as advanced conductors, and some are still in the early stages of development such as dynamic line rating (DLR). Southern Company remains committed to collaborating with industry partners like the Electric Power Research Institute (EPRI), other utilities, and vendors to test and evaluate all GETs that could benefit customers and increase the transmission capacity to serve them without compromising grid reliability.

   Each type of GETs has different use cases and considerations for deployment to ensure it is the appropriate solution for customers and the grid. Advanced conductors are already being deployed at scale across the Southern Company transmission grid to help increase grid capacity where needed to ensure grid reliability and serve customers. When an advanced reconductor opportunity is considered, it's also important to note that transmission lines are an interconnected network on which capacity additions must be considered holistically. Road widening offers a good analogy: when a highway is widened to alleviate a chokepoint, the chokepoint does not disappear, it simply moves to another part of the highway network – and that second chokepoint may (or may not) be less troublesome than the initial one. The transmission system is much the same. Reconductoring one transmission line might create more capacity on that one segment, but added capacity is only beneficial if it is matched by equal capacity upgrades on every connected line impacted by the flow of electricity. Such a prospect is neither an easy nor cost-free solution. Efforts are underway on many parts of the transmission system to evaluate whether advanced grid technologies can be a cost-effective solution or whether wholly new construction is necessary. Cost-effective solutions for transmission are highly location-specific, meaning that grid technologies will play a meaningful role in grid expansion, but are not a singular solution for meeting transmission needs.

Grid-enhancing technologies can play a role in efficient transmission system operation and may create additional transmission capacity under certain conditions. But these types of technologies cannot simply be deployed across the entirety of the transmission system and create new capacity everywhere. Rather, they are useful in certain instances to assist in transmission system operation. The current demands on the grid, and load growth that energy providers across the country are expecting/experiencing, requires an "all of the above" approach so it's important to consider these technologies as part of the solution set but not the only focus. It requires investment in new generation, new distribution, and new transmission.

2. **Economic Development and Forecasting Consistency: Accurate and transparent electricity load forecasting is a linchpin of modern economic development. States rely on these forecasts to plan new industrial parks, data centers, and manufacturing hubs, while utilities use them to schedule grid expansions and major infrastructure investments. Despite the vital role of load forecasts in spurring economic growth, practices vary widely among states, often leading to inconsistent data, misaligned investment signals, and unnecessary risk for both utilities, and both large and residential customers. Concerns have been raised that a patchwork of forecasting methodologies can exacerbate speculation in large load interconnection requests, inflate demand projections, and drive- up costs.**

   Recognizing these issues cross both state and federal jurisdictions and regional differences, how do you think Congress can play a role in establishing a baseline of consistency across state jurisdictions that will help align economic development strategies with reliable, cost-effective grid planning?

   Response:
   Planning the Utility Grid
   Planning the utility grid and ensuring all customers benefit from load growth requires accurate forecasts, combined with appropriate risk mitigation. This combined approach supports the prudent expansion of generating capacity and transmission networks. Forecasts must take into account the unique jurisdictional aspects of the customer base that the utility serves, and the state public service commission oversees. By working within the state jurisdiction, appropriate risk mitigations such as pricing, minimum bills, and upfront payments can be developed to protect ratepayers if expansion plans of new loads do not match forecasts. This approach is most effective in vertically integrated markets where the state regulatory commission has a complete top-to-bottom view and review of the utility plans and mitigations.

   Load Forecasting
   Load forecasting is critical to sound integrated resource and system planning. As a highly technical practice, load forecasting involves specific statistical and econometric techniques. The approach will differ by utility based on each utility's own load forecasting experts who know its system best. However, the high-level objective of all load forecasters remains the same: understanding demand sufficiently to ensure reliability. National load forecasting models, though potentially helpful for macro-policy discussions, lack the granularity of individual utility load forecasts.

Regulated Utility Model
In the regulated utility model, state public service commissions with specific subject matter expertise oversee these activities for utilities subject to their regulation. This model provides certainty to utilities and benefits customers. It can flexibly adapt to changing industry practices while ensuring that utilities with an obligation to serve engage in prudent planning and execution of investments to meet the needs of the grid and customers.

Congressional Support
Congress can be supportive by understanding that load forecasting efforts serve different purposes. The question being asked or the goal at hand must be matched to the right kind of forecast. To this end, Congress can rely on companies like Southern Company and other utilities to be good partners in explaining the needs of specific states and regions and providing the best information about energy demand for the areas we serve. All planning processes benefit from good information. The Department of Energy (DOE) has a long track record through various data collection mechanisms, energy consumption surveys, and annual energy outlooks that provide valuable information to supplement local forecasts. Continuing to invest in and maintain DOE's current activities and exploring potential new data resources would be valuable to the industry. Combining cost-effective federal data collection and top-level outlooks with the strength of state jurisdiction planning and risk mitigation will greatly enhance the ability to meet the challenge of load growth for the new industrial and digital age, benefiting all customers.

3. **AI's Impact on Demand Growth: How do you anticipate AI-driven applications – such as advanced data analytics, machine learning, and robotics – will change overall electricity load profiles, and what specific policies or grid modernization efforts might be needed to manage these new demand patterns?**

Response:
As discussed during the hearing, electricity load profiles are already changing due to data centers. The specific AI-driven applications you note are not uniform in their impact: advanced data analytics and machine learning are increasing energy demand, while advanced robotics have the potential to bring efficiency to business applications and, therefore, reduce demand at some point. For the foreseeable future, though, data centers and AI mean one thing: more demand for electricity. Some AI data center loads exhibit unique behaviors that, if unmitigated, can impact the overall grid's reliability and stability. Utilities' structures where bulk electric grid planning and operations is closely connected to their customers, are particularly well-positioned to identify and mitigate these unique behaviors.

These customers also present challenges not just because of their size but because they have constant demand, that is, they demand about the same amount of energy in every hour of the day. These expected "high load factor" customers require tailored contracts and pricing arrangements. Utilities need the flexibility – within their states and the regions they operate – to manage these customers and integrate them thoughtfully and as approved by state regulators. Transparent information from the data centers to the utilities about the operational characteristics of their demand/load will also be critical to ensure accurate forecasts and therefore appropriate infrastructure development.

The size of these new customers and their high load factors will also require investment into the grid and advanced planning to meet the energy and capacity needs created by their service requirements. Fortunately, state-regulated integrated resource planning is well-suited to facilitate new generation, transmission, and distribution investment in a cost-effective manner. Integrated resource plans are regularly submitted to state public service commissions and reviewed through established processes, followed by generation procurement and investment to meet the identified needs.

4. **Does your company have the tools that it needs to build the generation necessary to meet both the energy demands of large customers and the energy needs of your everyday customers? And please explain why?**

Response:
Yes. As described in response to the previous question, state-regulated integrated resource planning, as well as the associated procurement and investment, are the most important tools to build necessary generation and infrastructure prudently and timely. Integrated resource planning processes must be flexible and allow for timely generation procurement, and our company is fortunate to operate under structures in the states we serve that allow us to do exactly that. Moreover, our holistic planning process ensures that we are both appropriately forecasting for this demand and ensuring a robust and diverse portfolio is then developed and deployed to meet the energy needs of all of our customers affordably and reliably. The result: abundant energy supply designed to keep the lights on and the gas flowing.

Importantly, as a result of the state regulated IRP construct and the bilateral market in which our regulated utilities operate, Southern Company has demonstrated it is one of the best positioned companies in the industry to invest in large generation and associated energy infrastructure projects, including long-term contractual commitments which enable the construction of new natural gas pipelines. (Some in our industry operating in "centralized markets" are limited in their ability to make long-term commitments due to a misalignment in market incentives.) The bilateral market provides an advantageous contracting environment allowing us to quickly develop customized solutions and respond to rapidly changing market demands. The partnership(s) with our state regulatory agencies and our commitment to treat electricity as a necessity instead of a commodity ensure we take prudent steps to make certain our customers are the ultimate beneficiaries.

Against this backdrop, there are areas for positive policy development, including permitting reform such as revisions to the Clean Water Act, NEPA, and the Endangered Species Act to ensure that energy companies can timely build energy infrastructure to meet growing demand for power.

5. **When a generation customer connects to the system what is expected from them and what are the impacts to the system? Is Southern Company's interconnection process working quickly to get projects studied then interconnected if a customer decides to move forward?**

Response:
With regard to Southern Company's generator interconnection queue, we maintain a very efficient and effective process which results in the customers executing an interconnection agreement under our Open Access Transmission Tariff within 15-18 months, starting from the time a generator customer's application to interconnect is received. Construction timelines vary of certain transmission system upgrades required to support a generator's actual interconnection to the grid based on the complexity of the configuration, size of the facility, and location on the grid; however, it typically takes 36-48 months from execution of the interconnection agreement to the in-service date of the transmission system upgrades which allows a generator to achieve commercial operation.

As far expectations from the generator customer connected to the grid, Southern Company requires a generator to comply with all posted technical and operational requirements consistent with current NERC and IEEE standards. These include meeting certain operating requirements such as power quality standards and maintaining proper reactive and voltage support in order to support the efficient and reliable operation of the Southern Company transmission system.

A) **Please explain the importance of natural gas pipelines and specifically firm gas.**

Response:
Natural gas pipelines (and associated storage) are a critical component to reliably deliver natural gas to meet the increased energy demand growth we are seeing across the country. Natural gas is preferable in many power generation applications because of its emissions profile and competitive prices compared to other fuels, as well as the flexibility it provides as a dispatchable fuel source that can be utilized for both peaking and baseload power generation. These natural gas pipelines are essential in providing access to the abundant supplies of natural gas in the United States by transporting gas from major supply basins to areas of specific demand.

The term "firm gas" refers to a gas supply service offered by pipelines *guaranteeing* delivery during all time periods covered by the agreement. Firm gas deliveries are prioritized and not subject to interruptions or curtailments, except in very extreme circumstances. In contrast, "interruptible gas" refers to a gas supply service which can be curtailed or interrupted during periods of high demand or low supply.

The cost of interruptible gas service is significantly less than firm gas service because of its inherent lack of reliability as it is only paid for when it can be utilized."
Underpinned by our duty to serve and belief that electricity is *essential* and not just a commodity, Southern maintains firm gas contracts to ensure fuel delivery for our gas generation resources and reliable electric service for our customers.

Importantly, due to the significant cost of natural gas pipeline infrastructure, long-term commitments for "firm gas supply" are required prior to construction in order to secure appropriate financing. In other words, pipeline customers must commit to procuring set amounts of natural gas over a long-term period, often in the range of twenty years.

Southern Company's vertically integrated, state regulated market structure holds us accountable for ensuring that gas is available, and we are therefore held accountable for procuring firm fuel, including firm gas. We similarly invest in gas storage systems, as appropriate, to ensure that sufficient gas is available if there are constraints on the pipelines. Notably, our customer rates are competitive with other utilities who do not procure "firm gas."

Increasing energy demand, the need for firm gas supply, and the need for natural gas pipelines are all interconnected. Natural gas generation is essential to meeting rapid load growth. Natural gas infrastructure to support the needed firm gas supply required is imperative for the future of grid reliability.

B) **What areas of the country develop firm gas? What happens if firm gas is not developed?**

Response:
Markets like the vertically integrated, state regulated Southeast are held accountable for investing in a firm gas supply to ensure reliable and affordable energy for customers. Most other areas of the country – especially some RTOs – are not incentivized to invest in large natural gas infrastructure projects and associated storage assets, which is one of the main reasons that many of those areas (e.g., New England) remain pipeline constrained: the lack of firm gas commitments has resulted in insufficient gas infrastructure development.

When the existing gas infrastructure cannot keep up with the increased demand for natural gas, end-use customers will ultimately be forced to bear the burden of increased reliability risk and the associated consequences. History has shown that these consequences can be dire for those who lose electricity and natural gas in their homes during times of extreme weather. Electricity and natural gas have become essential, and cannot be viewed upon only as a commodity.

6. The Southeast is not in an RTO. Why not?

Response:
Meeting energy needs in a load growth environment requires the ability to plan the system and deploy capital in a timely manner to develop necessary infrastructure. RTO/ISO planning processes remain inferior to state-based integrated resource planning processes in this regard; moreover, even in constructs where integrated resource planning occurs at the state level with the RTO structure overlaid on that planning, it introduces complexity and slows down the ability to make necessary investments. RTOs rely on scarcity to incentivize investment while vertically integrated, state regulated markets like that in the Southeast favor energy abundance to ensure reliable, affordable energy for customers. Recent headlines report that RTO capacity markets continue to be challenged in incentivizing infrastructure investment while simultaneously reporting unprecedented forecasts for load growth. The state regulated integrated resource planning construct has proven to be the best model to meet this challenge.

The drawbacks mentioned above, paired with the high administrative costs of RTO/ISO participation that our customers would have to pay, result in a simple conclusion: RTO/ISO participation does not benefit our customers.

A) **Are there alternative enhancements to the Southeastern market that you are exploring?**

Response:
State-based integrated resource planning is uniquely agile and capable of evolving to meet rapid changes in the power sector. SEEM is one example of an enhancement to the Southeast bilateral market. We developed a market structure with partners (other energy providers in the Southeast) to allow for purchases and sales of energy across a broader footprint, enhancing the efficiency of our existing investments and the infrastructure of the region. SEEM was implemented without impacting or detracting from the benefits of integrated resource planning and the investments that come out of that process. Like integrated resource planning, SEEM is well-positioned to evolve to meet needs in a dynamic environment without the uncertainty, costly bureaucracy, and constant rule changes observed in many RTO structures. We will continue to evaluate enhancements to SEEM, with the need for enhancements determined based upon whether they provide benefits to our customers.

As an additional example, the vertically integrated, state-regulated, bilateral market in which Southern Company participates provides the most orderly and efficient way to interconnect generation. Unlike the RTO/ISO's, Southern Company's generator interconnection queue has no backlog of generators waiting for interconnection agreements and there have been no late studies over the past 5+ years. This is directly attributable to the orderly, IRP-driven model that exists in Southern Company's territory.

7. **Regarding planning for transmission, what specific impediments have you identified to current state and regional planning for the siting of transmission projects?**

Response:
We have not encountered any specific impediments through current state or regional planning for the siting of transmission projects. In the Southeast, transmission planning is primarily driven by state-regulated integrated resource planning (IRP) and resource procurement processes that often results in request for proposal (RFP) processes. Since transmission planning in the Southeast is driven by these state-regulated processes, state support for the resulting transmission projects and their siting requirements is largely assured.

A) **What are examples of impediments you have identified and what is necessary for system planners to overcome these impediments?**

Response:
This is not necessarily applicable to Southern Company or our operating companies. As explained above, we are not aware of current impediments through transmission

planning for the siting of transmission projects. However, we are concerned about transmission planning becoming overly bureaucratic due to federal regulatory impositions in Order Nos. 1000 and 1920 and the potential creation of "friction points" in the transmission planning process for those opposed to transmission expansion or that want a different system expansion to challenge the implementation of these IRP- and RFP-driven transmission planning. While this had not proven an impediment to date, we are concerned moving forward, particularly as we implement Order No. 1920.

B) **What reforms do you recommend to improve state and regional planning to overcome these impediments?**

Response:
Again, this is not necessarily applicable to Southern Company or our operating companies. As explained above, we are concerned about transmission planning becoming overly bureaucratic and litigious due to federal regulatory impositions. While this has not proven a problem to date due, we are particularly concerned that implementing Order No. 1920's extensive requirements and processes could prove to be an impediment to the rational and effective expansion of the transmission grid.

8. In the last Congress and the previous administration, there was a lot of talk about transmission policy reform.

A) How does Southern plan transmission in your region and with other regions? What should Members understand about the nature of transmission planning as it exists today?

Response:
Southern's system planning begins with state-regulated IRP and RFP processes that first identify system needs and then identifies least-cost, reliable options to satisfy those needs, holistically considering supply-side, transmission, distribution, and demand-side considerations. The results of these state-regulated IRP and RFP processes are then combined with long-term reservations made by third parties under Southern Company's Open Access Transmission Tariff to drive Southern's transmission planning. For Southern Company, this IRP/RFP-driven transmission planning is subject to significant state public service oversight, with Southern providing their state commissions Southern's 10-year transmission plan and with those commissions considering the cost, reliability, and other impacts of the resulting transmission projects.

Southern is one of nine Sponsors of the Southeastern Regional Transmission Planning Process (SERTP). The SERTP is located within 12 states and is one of the largest transmission planning regions in the Eastern Interconnection in terms of transmission line miles and peak customer demand. Southern's transmission plan is combined with those of the other SERTP Sponsors to produce the annual SERTP regional transmission plan. During that process, the SERTP Sponsors perform affirmative transmission planning to determine if there are more efficient or cost-effective solutions than those

identified through their underlying IRP- and RFP-driven processes. The SERTP Sponsors also coordinate with each of their 5 neighboring transmission planning regions (PJM, the South Carolina Regional Transmission Planning Process, the Florida Reliability Coordinating Council, SPP, and MISO) with respect to an interregional transmission facility that is located in both transmission planning regions and to identify possible interregional transmission facilities that could address transmission needs more efficiently than transmission facilities in their respective regional transmission plans. Southern also participates in traditional reliability transmission planning through existing SERC Reliability Corporation and Eastern Interconnection Assessment Group (ERAG) processes.

Southern's and the other SERTP Sponsors' IRP- and RFP-driven transmission planning allows them to proactively and holistically considers all reasonably available options to address identified system needs, allowing for the adoption of economic and reliable solutions for the benefit of consumers. Moreover, since this transmission planning is driven by these state-regulated processes, and since the states also provide significant oversight of the resulting transmission expansion, state support for the resulting transmission projects is largely assured, thereby significantly mitigating against potential siting impediments.

B) Does a top-down approach, through FERC, serve the interests of utilities and grid operators that are already expending tremendous time and engineering resources on design new transmission?

Response:
No. Top-down approaches have the potential to disrupt and delay the work on designing and investing in new transmission. Our current IRP- and RFP-driven transmission planning processes allow for the identification of transmission needs and the evaluation of alternatives within the context of broader system planning for our company. Any new overlays at FERC or top-down directives detract from the goal of identifying infrastructure that benefit customers and investing to develop the infrastructure. Moreover, top-down approaches often drive confusion, and even conflict, with existing processes, slowing down investment and in turn delaying the ability to serve loads that provide economic development benefits and jobs.

With respect to any notion about a national top-down transmission planning, Southern believes such a national transmission planning approach would be inappropriate and violate existing jurisdictional separation. Outside of the RTO/ISO regions, collaborative transmission planning exists at the regional level but always with the understanding that each participating utility is responsible for its own balancing authority so that it bears direct responsibility to its customers for the provision of reliable and economic service and so that its least-cost generation serves those customers. These regional efforts are constructive, collaborative, and often identify the best path forward for transmission paths that will benefit an entire region. This process would not be improved with more FERC oversight from a planning perspective.

C) Please explain the value and challenges of colocation, as well as the value of an

interconnected grid.

Response:
"Colocation" generally refers to a large customer siting its operations directly adjacent to and obtaining some portion, or potentially all, of its electricity needs, through direct service from an electric generating plant. (The projects most recently discussed in the news involve colocation at nuclear power plants.) Depending on the specific configuration, colocation can be risky from a reliability perspective, particularly if no connection to the existing grid is planned between either the load or the generating resource. The concentration of reliability risk is significant under such "islanding" conditions. However, if structured appropriately, short-term benefits may exist for large customers like data centers who needed expedited access to baseload power generation--especially in parts of the country outside of the Southeast that are experiencing resource adequacy issues and long interconnection queues.

The challenges of colocation are multi-faceted and complex because each potential colocation project is unique. Configuration can vary significantly in different regions of the country and is influenced by load characteristics, resource types, access to infrastructure, network configuration, market design, as well as various state and federal regulations. Economically, co-located facilities connected to the grid must still pay the appropriate connection charges to ensure that other grid-connected customers are not subsidizing the co-located entity. Independent co-located facilities with no connection to the grid also face significant capital costs to ensure there is enough backup generation to support planned maintenance periods as well as unexpected outages.

We believe the interconnected grid provides the strongest foundation to deliver electricity. Our customers value the reliable, abundant, available, and affordable energy resulting from our grid. Southern Company's energy grid is one of the most advanced grids in the country. As a vertically integrated, state regulated utility, Southern Company utilities are held accountable by our state public service commissions for investing in energy infrastructure that delivers reliable and affordable power to our customers. We operate nearly 27,000 miles of electric transmission across the southeast and have invested almost $25 Billion in power delivery capital since 2015 with plans for another $26 Billion on power delivery in our capital plan for the next five years.

The result: a grid that stands ready to support the federal government, large customers, and everyday Americans by keeping the lights on. That's why the best energy configuration for any customer--by far--is receiving service from the grid through traditional, regulated, retail electric service. This leverages Southern Company's robust infrastructure and planning capabilities that produce a holistically planned system that optimizes generation, transmission, and distribution. This conclusion is unassailable from a consideration of both physics and finance because grid service results in delivery of the most affordable, reliable power for all customers. It ensures an efficiently planned, engineered, and resilient system that result in optimal energy solutions for all customers— including large customers. However, in some energy markets outside of the Southeast where infrastructure investment is challenged, colocation projects, configured appropriately, may provide a short-term

expedited path to gain access to generation and Southern Company stands ready to deploy appropriate infrastructure to meet the needs in these areas as well. Southern Company Gas, through its gas utilities can support, via fuel delivery, on-site generation for a hyper-scaler. Southern Power brings a wealth of experience designing, deploying and operating natural gas, solar, and battery resources while Power Secure stands ready to deploy turn-key microgrid and distributed energy solutions tailored for individual customer needs."

D) Is colocation alone the solution for meeting rising energy needs?

Response:

No. Integrated resource planning and investment from that planning is the solution to meeting rising energy needs. Colocation as a singular solution is simply not the way to economically and reliably design and engineer a power system for all customers over the long-term, as explained in the response to the prior question. However, in some energy markets outside of the Southeast where infrastructure investment is challenged, colocation projects, configured appropriately, may provide a short-term expedited path to gain access to generation. However, each project is unique and bears its own individual risk profile.

i. Do colocation arrangements support an interconnected grid? Why or why not?

Response:

As noted previously, each colocation project is unique and must be evaluated accordingly. However, generally speaking colocation agreements are not supportive of an interconnected grid, especially if the co-located assets are not connected to the grid (otherwise known as islanded). Colocation arrangements can stress the grid resulting in inefficient operation if they are not otherwise incorporated in holistic planning processes, creating costs for other customers. Rising energy needs require expedient investment into assets that benefit all customers through the interconnected grid; colocation as a singular solution can conflict with that proposition and can result in a focus on resources (supply chains, labor, etc.) solely to benefit certain customers, rather than an optimized system benefiting all customers.

Though colocation arrangements can present short-term alternatives for large customers, there are also challenges that should be considered for the benefit of the grid—and all customers—over the long-term. The notion of siting generation close to the customer, for the customer's use, makes intuitive sense—but the reality is more complex. Colocation drives two sets of costs towards other customers: (1) the costs of the customer with co-located generation from the continued reliance on the broader grid and the potential inefficient operation of the broader grid; and (2) when a customer is not included in the broader cost of service for all other customers, the other customers lose the rate benefit from bringing the new customer online. In this situation, most customers lose by

paying costs that come from inefficient grid operation and losing the benefit of having the new large customer to share in the costs of the broader system.

This dynamic underscores the importance of an interconnected grid, with all customers planned for and served by a common set of generation, transmission, and distribution assets. If the risks to other customers are not accounted for, colocation can undermine the benefits of the grid, creating a clear winner in the form of the large customer rather than everyday customers who rely on utilities to provide safe and reliable service.

E) Please explain the value of firm transmission and the importance of firm transmission for reliability.

Response:
From a utility perspective, firm transmission is essential because it means that the utility is performing long-term transmission planning to ensure that the gird is capable of delivering generation to serve load. In the reliability context, what we mean by "firm" is that the system is planned, built, preserved, and operated to provide the highest level of certainty that the grid will be available when needed. Without this certainty that electricity can move across transmission lines, utilities cannot guarantee service to customers. There is a place for non-firm transmission – meaning the use of "headroom" on the system – but that is largely around the edges and unique to specific economic arrangements with customers. Firm transmission generally guarantees a delivery path for produced energy. Non-firm transmission service can result in interruptions to deliverability in the event of system congestion or if other factors are present in the operational environment. It follows that firm transmission better promotes overall reliability than non-firm transmission service. It also follows that systems that require firm transmission to be built along with affected system upgrades results is a more ubiquitous grid. A more ubiquitous grid provides better reliability, resilience, and flexibility.

F) Do PURPA qualified facility assets support an interconnected grid?

Response:
No. As an initial point of clarification, PURPA is a contractual arrangement with respect to the pricing of certain types of electric generation resources. Because such projects are structured as "must take" resources, the utility is not afforded the discretion of operating the resource in a manner that facilitates greater grid efficiency. Furthermore, because of the limited flexibility, the resource can at times act as a constraint on economic grid operations and dispatch. Ironically, decreased efficiency in electric operations is in direct contrast to one of primary goals of PURPA when first established.

PURPA, as a law, predates many of the integrated resource planning structures that exist today in certain states. Developed in response to specific set of conditions at the time of PURPAs inception, those conditions no longer exist as technologies have matured and

domestic energy production has increased. Given the constraints of the PURPA pricing regime, utilities favor technologies identical to those often offered via PURPA, but under a non-PURPA arrangements as it is more beneficial to their customers.

In integrated resource planning, generation resources are procured based on a holistic evaluation that consider numerous facets of customer benefits. PURPA, on the other hand, forces procurement under a specific pricing model if the qualifying facility can meet certain requirements. The regime "tips the scales" and results in procurement without consideration of need or costs compared to alternatives. Integrated resource planning supports an interconnected grid by procuring resources and identifying infrastructure needs based on a broad evaluation and through comparing costs of different generation and infrastructure options. PURPA does neither, and by extension, qualifying facilities do not support an interconnected grid.

i. Do such assets result in lower energy costs for customers or greater reliability?

Response:
No. PURPA projects do not create lower costs for customers. PURPA was established in 1978, when renewable sources of generation were not widely available or used. PURPA created a framework that required utilities to buy from such projects at set contracted prices, in large part serving as an incentive to support expansion of the renewables industry. These set prices are based on the utility's avoided cost or an avoided cost proxy and approved by state regulators. To the extent that prices are approved that are higher than what the utility could build itself or could acquire in a non-PURPA arrangement, it costs customers more.

PURPA projects therefore result in neither lower energy costs for customers nor greater reliability. The "must-take" procurement structure of PURPA conflicts with the goals of integrated resource planning, where alternatives are evaluated based on cost-effectiveness and reliability benefits, among a host of other considerations.

G) What permitting changes are necessary to get additional energy infrastructure built?

Response:
Generation and transmission involve different issues with respect to permitting. As stationary sources, generation primarily involves local siting and licensing. Southern Company has sensible state regulators who approve the construction of new generation resources based on need. Transmission is where the bulk of permitting challenges exist. Streamlining federal, state, and local permitting and zoning requirements will greatly help facilitate the necessary expansion of the nation's transmission systems.

H) You mentioned AP1000 technology in your testimony. Please explain the importance of this technology as we look to meet rising energy demand.

Response:

The AP1000 is the only nuclear technology currently being considered for deployment that is licensed by the NRC and has been built. The AP1000 design is finished, tested, and operating at or above the level of the legacy US nuclear fleet. Further, the "design once, build many" model allows us to capitalize on learnings from one plant to another, building them faster and cheaper each time until we reach "nth of a kind" costs. Just as Vogtle Unit 4 cost 15-20% less than Vogtle Unit 3, our comprehensive learnings can be applied to improve both the cost and schedule performance of the next AP1000 unit. Additionally, given the magnitude of the electricity demand growth, it seems more appropriate to deploy large (1.1 GW each) reactors rather than smaller units.

i. What will be necessary to get the next tranche of nuclear units developed?

Response:

Clear, defined, and obtainable risk mitigation is needed to gain momentum and traction to start the buildout of new nuclear in this country. These risks, which fall into three categories, are largely outside of the owner's control and are both daunting and consequential enough to preclude sufficient momentum for new projects to gain traction. The federal government can and should play a role in helping mitigate risk in three ways:

1. Lowering the overall cost of nuclear development, which can be done through a combination of production and investment tax credits, DOE loan guarantees, and grants;
2. protecting the credit rating of the utility during construction, which can be done through the ability to transfer the investment tax credits during construction; and
3. defining a mechanism to share the cost of overruns caused by unpredictable events, ensuring existing utility customers are protected from the impacts of unlikely events. It is important to note that in a vertically integrated, state regulated market structure all of the benefits of this support would go to the benefit of the customer.

I) Please explain how large loads served by system assets can benefit all retail customers within the construct of an integrated utility regulated by a state public utilities commission or public service commission.

Response:

In a state-regulated, vertically integrated utility construct, pricing for large load customers is developed and approved by the state commission in a manner that produces benefits greater than the costs to serve each large load customer. The commission-approved rate tariffs, rules and regulations, and costing principles result in the addition of large load customers benefitting all customers. Further, adding customers and load to the system, especially large loads with high energy usage, results in fixed costs (such as storm recovery costs and bulk power system costs) being distributed over a larger customer base, resulting in lower costs for all customers.

In addition to these benefits, economic development provides significant benefits to state residents, including job creation, business retention, and investments that support the long-term success of a state's communities.

J) The report co-authored by Mr. Norris and referenced in hearing testimony notes that, "[o]ther considerations important for planning – such as ensuring adequate transmission capacity, ramping capability, and ramp-feasible reserves, among others – are beyond the scope of this study and therefore the results cannot be taken as an accurate estimate of the load that can be added to the system."

i. In utility system planning for an integrated utility regulated by a state public utilities commission or public service commission, are these types of considerations evaluated and planned for? If so, how?

Response:
Assessments of grid needs on the transmission and distribution level consider all of these factors in evaluating whether new investment is necessary. We undertake a multi-faceted approach to planning and investment with input from numerous subject matter experts, and state public service commissions then evaluate the investments to determine whether they are or were prudent.

Accordingly, we consider the elements that were out of the scope in the Nicholas Institute paper. The modeling a utility does for its planning exercises *must* consider real-world considerations and limitations. To use the examples in your question, a utility cannot conduct long-term planning exercises that allow more transmission capacity than is available on its system, nor can a utility ignore the ramping capability of each of its generators or overlook each kind of reserve (e.g., spinning reserves, non-spinning reserves) the utility is obligated to have to keep its system operating. These "out of scope" elements are essential to the basic functioning of a utility; they are not abstract thoughts that the utility can choose to overlook when planning how to best and most cost-effectively serve its customers into the future.

Mr. Norris excludes key factors for planning to reach a conclusion that minimal investment in the grid is necessary to meet rising energy needs. Integrated system planning relies on extensive modeling that goes out decades into the future to evaluate where investment is needed or where smaller upgrades or enhancements can satisfy needs for a sustained period of time. These analyses also consider how investments now can avoid or decrease costs in the future by creating new capacity or headroom in the grid. The report focuses instead on an investment avoidance strategy that does not consider needs that will arise as a result of the lack of investment int the future, and almost certainly at higher costs.

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