



reliability and affordability must, therefore, be maintained at all times before, during, and after decarbonization efforts.

Current wholesale electricity market constructs are lagging the pace of this grid transformation and are making it more difficult for decarbonization goals to be achieved while maintaining reliability and affordability, particularly during extreme weather events. This is extremely troubling to Buckeye, whose primary mission is to provide reliable and affordable power to its member cooperatives, and in turn, their member-consumers. Addressing these concerns in its comments, Buckeye:

explains why existing market constructs should be modified to compensate generation resources for reliability attributes that are otherwise not recognized and why higher reliability standards should be imposed;

emphasizes the need for immediate action to prevent controllable, dispatchable, fuel-secure thermal generation from being retired prematurely resulting in decreased reliability and increased costs for consumers;

maintains that a diverse resource portfolio that includes fuel-secure thermal resources must be maintained and may need to be located within each RTO/ISO;

explains why there will need to be sufficient time for the electric industry to adapt to infrastructure changes that reflect planning horizons realistically in order not to jeopardize service reliability and affordability;

describes why better coordination between electric and gas industries involving pipeline usage and natural gas demand is essential because of the growing dependence on natural gas generation and the increased likelihood of extreme winter weather events; and

stresses that in the longer-term, grid reliability and affordability must be maintained from existing resources, including fuel-secure thermal resources, until new technology develops that will allow decarbonization of the electric sector (in whatever form that takes) and other sectors of the economy to occur on a reliable and affordable basis.



Buckeye has maintained a mix of energy resources that, in combination with the PJM market, ensures reliability and stable pricing for the end-use consumers in the service territories of Ohio's electric cooperatives.

Buckeye operates in a marketplace that is increasingly dependent on and affected by facilities, power supplies and policies that go beyond Buckeye's and its members' individual system operations and choices. The technical conference and the issues in this docket center on "the threat to electric system reliability posed by climate change and extreme weather events." Buckeye welcomes the opportunity to address these important issues. Buckeye comments on several of the concerns raised by the Commission in this docket that have the potential for the greatest impact on its and its members' systems and operations, referencing the numbering and ordering contained in the appendix to the Supplemental Notice.

### **III. COMMENTS**

- 1. What are the most significant near-, medium-, and long-term challenges posed to electric system reliability due to climate change and extreme weather events?*

Ensuring reliable and affordable electricity to consumers in the face of extreme weather events and a rapidly changing generation mix is imperative for those responsible for planning and managing the electric grid.<sup>7</sup> Weather-related events this past year in wide regions of the United

other sectors of the economy, particularly the transportation sector, will lead to increased electrification and amplify stresses on the grid. At the same time that demand is increasing, historically reliable generation resources supporting the grid, such as coal and nuclear facilities, are exiting the market in ever-increasing numbers and being replaced by intermittent renewable resources and load-following generation facilities reliant on “just-in-time” fuel delivery.

It should be recognized that it may not be possible to decarbonize the electric generation and transportation sectors fully while maintaining grid resiliency and affordability, at least in the short- and medium-term, unless existing fuel-secure fossil fuel and other thermal resources remain in service. However, substantial progress towards decarbonization can still be achieved. While new technologies, such as battery storage and small scale nuclear, are developed to allow for full decarbonization that can provide reliable electric service on an economical basis, fuel-secure fossil fuel and other thermal resources are needed to meet peak demands during extreme weather events at affordable prices. Failure to maintain larger, utility-scale fuel-secure thermal resources during this transition may lead to a situation where smaller, less efficient, and more carbon emitting resources, such as on-site diesel generators, are needed to maintain reliability during peak load and extreme weather events when intermittent resources may not be available.<sup>8</sup> Such an outcome would potentially nullify decarbonization progress achieved during normal/non-emergency operations of intermittent resources.

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<sup>8</sup> For example, during the blackouts that occurred in the CAISO in August of 2020, California Governor Gavin Newsome issued an emergency decree that allowed some customers and utilities to rely on diesel generators to provide back-up electricity as

As the electric grid transforms to meet the expectations of consumers and the demands of the marketplace, it is critical that the resiliency, reliability, and affordability of electric service is maintained. Unless a proper balance between resource adequacy and affordability can be struck, the benefits of decarbonizing the grid to address climate change and extreme weather events, however well-intended, can lead to harmful or even catastrophic missteps and unintended consequences.

Buckeye recognizes the importance of the Commission's desire to address threats to electric system reliability posed by climate change and extreme weather events. However, it cannot be assumed that decarbonization efforts, even if successful, will eliminate the impacts of climate change and extreme weather events entirely. Therefore, it is important that the grid maintain resiliency at all times before, during and after decarbonization efforts. Efforts to decarbonize the electric grid should not compromise grid resiliency or the affordability of electric service to all.

These concerns are fundamental to electric service over the nation's grid and present unique challenges in the near-, medium- and long-term.<sup>9</sup> Successful decarbonization of the grid under all circumstances, requires careful planning and that orderly change and necessary safeguards are in place to ensure demand can be met reliably and so that "lights are kept on" at an affordable cost.

#### Near-term

A vital near-term goal should be to maintain a reliable mix of generation resources and resilient transmission facilities to ensure the electric system can respond to extreme weather

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<sup>9</sup> As far as the time frames discussed in these Comments, for "short-term," Buckeye is considering the time period through 2035; for "medium-term," from 2035 through 2050; and for "long-term," for the period after 2050.

events. Recent extreme weather events in Texas and California over the past twelve months have vividly shown that the current mix of resources and market constructs are sometimes inadequate to provide the resiliency and reliability that is needed. Immediate steps should be taken to ensure that reliability can be met through a diverse portfolio of controllable, dispatchable, fuel-secure, and affordable generating resources. To accomplish this, improved planning and compensation arrangements are needed for a range of reliable thermal resources to remain operational.

Another near-term goal benefiting the electric grid should be to impose higher reliability standards to plan for extreme weather events. PJM's current resource adequacy process is based on a Loss of Load Expectation (LOLE) of on average, 1 day in 10 years (or 0.1 days per year).<sup>10</sup> PJM uses this reliability index to determine appropriate Installed Reserve Margin,<sup>11</sup>

reliability that might require greater stockpiles of on-site fuel and improved inertia and frequency responses, for example, it will be necessary to assess the costs and design a fair market construct to compensate for these changes and improvements. It is possible that procuring adequate capacity for extreme events may result in some capacity being rarely used—but this capacity must nevertheless be adequately compensated to remain in service, and this is a necessary cost for a reliable electric system. As demonstrated recently, being unprepared for extreme weather and unusual events that can disrupt electric service, even if rare, can lead to catastrophic results that go beyond economic losses and can include loss of lives.

To plan effectively for extreme events in the long-term, an increase in excess *reliable* capacity will be needed in the near-term. This excess reliable capacity must be controllable, dispatchable and have adequate fuel security. Each additional megawatt of capacity in the market does not have the same resource adequacy and should not be treated the same. Recent events have shown that the increased reliance on intermittent renewable resources, like solar and wind, and resources that rely on just-in-time fuel delivery, like natural gas plants, present serious reliability concerns in extreme weather events.

Regulators cannot ignore the fact that federal and state policy decisions and subsidies as well as established RTO/ISO market constructs have







through the purchase of on-site back-up generators and on-site battery storage. Costs and benefits associated with the decarbonization transition must be analyzed accurately and honestly.

4.

*facilities critical to electric reliability . . . experience outages or significant operation limitations, either simultaneously or in close succession? How do these challenges differ mitigate the risk of common mode failures?*

Maintaining a diverse mix of generation resources within each RTO/ISO is essential to ensuring a reliable electric grid, particularly during extreme weather events. Recent events in California, Texas, and other regions of the country have demonstrated that reliance on a limited set of generation resources, such as intermittent renewable and natural gas generation resources, can result in a dangerous lack of reliability in extreme conditions.

In Texas this past winter, for instance, wind and solar power resources were unavailable (either due to extreme cold, lack of wind, or the sun being down) and natural gas plants failed to operate and generate needed power due to constraints in the just-in-time delivery of natural gas. In such circumstances, controllable generation with on-site fuel sources, such as coal and nuclear generating facilities, would have provided the necessary resilience to maintain power service. Problematically, however, many of these resources were, and are continuing to be, retired prematurely due to current market constructs and a lack of state and federal support.

In PJM alone, since 2007, more than 33,000 MW of coal generation has retired while 40,000 MW of new natural gas resources and 12,700 MW of wind and solar entered the market.<sup>12</sup> And this trend is continuing: PJM recently noted that “[c]urrently, 92% of the 145 gigawatts in

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<sup>12</sup> Statement of PJM Interconnection, *FERC: Technical Conference on Resource Adequacy in the Evolving Electricity Sector* (Mar. 23, 2021), p. 3.

the PJM interconnection queue – where generation projects apply to connect to the PJM system – are solar, wind, storage or combinations of wind/solar with storage resources, known as hybrids.”<sup>13</sup> Increased reserve margins of renewable energy and natural gas may meet some reserve margin requirements, but they cannot create the same reliability that fuel-secure resources like nuclear and coal generating plants provide. Particularly in the context of extreme weather events, historical and recent experience confirms that fuel security is critical to reliability and that each additional megawatt of capacity does not provide an equal measure of resiliency.

While geographic diversity may help in some circumstances, extreme weather events often affect large geographic areas. Reliance on resources outside a geographic zone or from another RTO/ISO is no panacea; indeed, it can provide a false-sense of security and create its own reliability risks. This issue was clearly seen in the CAISO blackouts that occurred in the summer of 2020. At that time, the CAISO could not meet its power needs because it was dependent on



provided reliable generation have not been the winners and are continuing to shut down prematurely thereby contributing to an increasing lack of reliability. This is an issue RTOs/ISOs are beginning to recognize as a serious problem.

PJM, ISO New England and New York ISO recently submitted joint “Foundational Market Objectives for a Reliable Future Grid” to the Commission for consideration as part of its March

resource adequacy.” Buckeye respectfully asks that the Commission consider the important issues and recommendations raised in these comments.

#### **IV. CONCLUSION**

WHEREFORE, Buckeye requests that the Commission give full consideration to these comments and concerns in connection with its examination of the issues surrounding the threat to electrical system reliability posed by climate change and extreme weather events.

Respectfully submitted,

/s/ Marvin T. Griff

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*Its counsel*

Dated: April 15, 2021

**CERTIFICATE OF SERVICE**

I hereby certify that on this 15<sup>th</sup> day of April 2021, I have caused a copy of the foregoing to be served upon each person on the official service list for this proceeding.

*/s/ Marvin T. Griff*