

183 FERC ¶ 61,192  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Part 141

[Docket Nos. RM22-16-000, AD21-13-000; Order No. 897]

One-Time Informational Reports on Extreme Weather Vulnerability Assessments  
Climate Change, Extreme Weather, and Electric System Reliability

(Issued June 15, 2023)

**AGENCY:** Federal Energy Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Federal Energy Regulatory Commission (Commission) is adopting a reporting requirement to direct transmission providers to file one-time informational reports describing their current or planned policies and processes for conducting extreme weather vulnerability assessments. The Commission defines an extreme weather vulnerability assessment as any analysis that identifies where and under what conditions jurisdictional transmission assets and operations are at risk from the impacts of extreme weather events, how those risks will manifest themselves, and what the consequences will be for system operations. Specifically, the Commission requires transmission providers to file a one-time informational report on whether, and if so how, they establish a scope, develop inputs, identify vulnerabilities and exposure to extreme weather hazards, and estimate the costs of impacts in their extreme weather vulnerability assessments, as well as how they use the results of those assessments to develop risk mitigation measures.

**DATES:** This rule will become effective **[INSERT DATE 90 DAYS AFTER DATE**

**OF PUBLICATION IN THE FEDERAL REGISTER].** Each transmission provider must file the one-time informational report required by this final rule by **[120 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].**

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**SUPPLEMENTARY INFORMATION:**

183 FERC ¶ 61,192  
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FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Willie L. Phillips, Acting Chairman;  
James P. Danly, Allison Clements,  
and Mark C. Christie.

One-Time Informational Reports on Extreme Weather Docket Nos. RM22-16-000  
Vulnerability Assessments  
Climate Change, Extreme Weather, and Electric AD21-13-000  
System Reliability

ORDER NO. 897

FINAL RULE

(Issued June 15, 2023)

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## I. Introduction

1. In this final rule, the Federal Energy Regulatory Commission (Commission) directs transmission providers to file one-time informational reports, pursuant to section 304 of the Federal Power Act (FPA),<sup>1</sup> describing their current or planned policies and processes for conducting extreme weather vulnerability assessments of their Commission-jurisdictional transmission assets and operations. For the purpose of these reports, we define an extreme weather vulnerability assessment as an analysis that identifies where and under what conditions jurisdictional transmission assets and operations are at risk from the impacts of extreme weather events, how those risks will manifest themselves, and what the consequences will be for system operations.

2. As explained in the Notice of Proposed Rulemaking (NOPR),<sup>2</sup> we find that while weather events have impacted the transmission grid throughout its history, the frequency and severity of extreme weather events is increasing.<sup>3</sup> A robust and growing body of scientific evidence attributes this trend to climate change and indicates that this trend will

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<sup>1</sup> 16 U.S.C. 825c.

<sup>2</sup> *One-Time Informational Reps. on Extreme Weather Vulnerability Assessments*, Notice of Proposed Rulemaking, 87 FR 39,414 (July 1, 2022), 179 FERC ¶ 61,196 (2022) (NOPR).

<sup>3</sup> See NAT'L OCEANIC AND ATMOSPHERIC ADMIN., NAT'L CENTERS FOR ENVTL. INFO., *U.S. Billion-Dollar Weather and Climate Disasters* (2023), <https://www.ncei.noaa.gov/access/billions/>; ENVTL. PROT. AGENCY, *Climate Change Indicators: Weather and Climate* (May 12, 2021) (EPA Climate Change Indicators), <https://www.epa.gov/climate-indicators/weather-climate>; see also NOPR, 179 FERC ¶ 61,196 at P 2.

persist.<sup>4</sup> For the reasons discussed below, we find that that the trend threatens livelihoods, electric system reliability, and the Commission’s ability to ensure just and reasonable jurisdictional rates. Our actions in this final rule will result in a fuller record as to whether and how transmission providers assess and mitigate vulnerabilities to extreme weather and will enable coordination among transmission providers as well as information sharing on best practices.

3. As discussed further below, in this final rule, we direct each transmission provider<sup>5</sup> to file, in the above-captioned dockets, a one-time informational report on its extreme weather vulnerability assessment and risk mitigation efforts within 120 days of the publication of this final rule in the *Federal Register*. This one-time informational report should include whether, and if so how, transmission providers: 1) establish a scope; 2) develop inputs; 3) identify vulnerabilities and exposure to extreme weather

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<sup>4</sup> INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Climate Change 2022: Impacts, Adaptation, and Vulnerability* (2022); NAT’L ACADS. OF SCIENCES, ENG’G, AND MED., *Attribution of Extreme Weather Events in the Context of Climate Change* (2016); Herring, S. C., N. Christidis, A. Hoell, M. P. Hoerling, and P. A. Stott, Eds., *Explaining Extreme Events of 2020 from a Climate Perspective*, 103 BULL. AM. METEOR. SOC’Y 3 (2022).

<sup>5</sup> See *infra* PP 47-50. In this final rule, unless otherwise noted, we use the term “transmission provider” to mean any public utility that owns, controls, or operates facilities used for the transmission of electric energy in interstate commerce. See 16 U.S.C. 824(e); 18 CFR 35.28 (2022). To be clear, this term encompasses public utility transmission owners that are members of Regional Transmission Organizations (RTO) and Independent System Operators (ISO). Accordingly, the reports we are proposing herein would be filed by either the public utility members of RTOs/ISOs, the RTOs/ISOs themselves, or both, as well as other public utility transmission providers outside of RTO/ISO regions.

hazards; 4) estimate the costs of impacts in their extreme weather vulnerability assessments; and 5) use the results of those assessments to develop risk mitigation measures. This final rule only seeks to gather information on current and planned policies and processes from transmission providers, not to establish new requirements.

4. We largely adopt the Commission’s proposal in the NOPR issued on June 16, 2022, with certain modifications. Among other things, we have revised aspects of the NOPR proposal to ask how each transmission provider defines extreme weather in its vulnerability assessments and how RTOs/ISOs account for differences between transmission owner members’ assessment assumptions and results. Additionally, we revise questions 8 and 19, which were proposed in the NOPR, by replacing references to disadvantaged and vulnerable communities, and affected and frontline communities, respectively, with the term “affected communities.” We use the term “affected communities” in this final rule to include disadvantaged,<sup>6</sup> vulnerable, and frontline communities,<sup>7</sup> and any other community or stakeholder group respondents consider in

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<sup>6</sup> Exact definitions and thresholds used to identify disadvantaged communities vary. However, we note that the California Public Utilities Commission (CPUC) explains that “[d]isadvantaged communities refers to the areas throughout California which most suffer from a combination of economic, health, and environmental burdens. These burdens include poverty, high unemployment, air and water pollution, presence of hazardous wastes as well as high incidence of asthma and heart disease.” CPUC, *Disadvantaged Communities* (last visited May 17, 2023), <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/disadvantaged-communities#:~:text=Disadvantaged%20communities%20refers%20to%20the,of%20asthma%20and%20heart%20disease>.

<sup>7</sup> Georgetown Climate Center explains that “[f]rontline communities include people who are both highly exposed to climate risks (because of the places they live and

their extreme weather vulnerability assessments that may be affected, currently or in the future, by the impacts of extreme weather on jurisdictional electric transmission assets and operations.

## II. Background

5. The NOPR, as supplemented by the record in this proceeding, as well as recent events illustrate the increasing frequency and severity of extreme weather events and their impact on reliability and rates.

6. While the nature of extreme weather and the extent of transmission impairments will vary across different regions of the U.S., no region will be unaffected. Indeed, in its 2022 Long-Term Reliability Assessment, the North American Electric Reliability Corporation (NERC) lists the need for the industry and policymakers to include extreme weather scenarios in resource and system planning among its top recommendations to address reliability risks.<sup>8</sup> Similarly, the Government Accountability Office (GAO) issued a report in May 2021 stating that climate change is expected to have far-reaching effects on the electric grid that could cost billions of dollars and could affect the ability of grid

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the projected changes expected to occur in those places) and have fewer resources, capacity, safety nets, or political power to respond to those risks (e.g. these people may lack insurance or savings, inflexible jobs, low levels of influence over elected officials, etc.).” Georgetown Climate Center, *Equitable Adaptation Legal & Policy Toolkit* (last visited May 18, 2023), <https://www.georgetownclimate.org/adaptation/toolkits/equitable-adaptation-toolkit/introduction.html>.

<sup>8</sup> NERC, *2022 Long-term Reliability Assessment* 8 (Dec. 2022), [https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC\\_LTRA\\_2022.pdf](https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2022.pdf).



operators to transmit electricity.<sup>9</sup> GAO identified potential impacts of climate change-driven extreme weather to the grid in every region of the U.S. and discussed the risk that, absent measures to increase resilience, more frequent and severe weather associated with climate change is likely to increase the cost of outages, imposing billions of dollars in costs on utility customers.<sup>10</sup> GAO recommended that the Commission take steps to identify and assess climate change risks to the grid in order to ensure the Commission is well-positioned to determine the actions needed to enhance resilience to those risks.<sup>11</sup>

7. In early 2023, the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information released the final update to its 2022 figures on weather and climate disasters. That update identifies each disaster that caused damages exceeding one billion dollars,<sup>12</sup> using insurance data to estimate damage costs.<sup>13</sup> The update shows that the U.S. experienced 18 separate billion-dollar weather and

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<sup>9</sup> GAO, *Electricity Grid Resilience: Climate Change Is Expected to Have Far-Reaching Effects and DOE and FERC Should Take Actions* (Mar. 2021), <https://www.gao.gov/assets/gao-21-423t.pdf>.

<sup>10</sup> *Id.* at 4.

<sup>11</sup> *Id.* at 8.

<sup>12</sup> NOAA, Adam Smith, *2022 U.S. Billion-Dollar Weather and Climate Disasters in Historical Context* (last visited June 1, 2023), <https://www.ncei.noaa.gov/access/billions/>.

<sup>13</sup> See Adam B. Smith, Richard W. Katz, *U.S. Billion-dollar Weather and Climate Disasters: Data Sources, Trends, Accuracy, and Biases*, 67 NAT. HAZARDS 387 (Feb. 3, 2013), <https://www.ncei.noaa.gov/monitoring-content/billions/docs/smith-and-katz-2013.pdf>.

climate disasters in 2022, as well as a macro-level trend of increasingly costly, numerous, and intense disasters. NOAA reports that 2022 had the third highest number of billion-dollar weather and climate disasters since it began tracking in 1980, tied with 2011 and 2017, and that, at \$165 billion in damages, 2022 also ranked third highest in total damage costs, behind 2017 and 2005.<sup>14</sup>

8. Reliable electric service is vital to the nation's economy, national security, public health, and safety. Yet, in the past three years alone, region-wide heat waves, cold snaps, hurricanes, and wildfires have resulted in outages or other significant reliability impacts, often while contributing to substantial consumer costs.<sup>15</sup>

9. In December 2022, Winter Storm Elliot impacted a swath of the U.S. with record cold temperatures and blizzard conditions in some areas, causing 1.6 million customers to

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<sup>14</sup> NOAA, Adam Smith, *2022 U.S. Billion-Dollar Weather and Climate Disasters in Historical Context* (last visited June 1, 2023), <https://www.ncei.noaa.gov/access/billions/>. NOAA notes that increasing population and material wealth throughout the country, especially in regions vulnerable to extreme weather events, is an important factor in the rising costs described. NOAA also notes that 2022's figures may rise by several billion additional dollars when the costs of Winter Storm Elliot in the Central and Eastern United States are fully accounted for. Furthermore, this total only captures the costs of those weather and climate disasters that exceeded \$1 billion in damages, based on insurance data.

<sup>15</sup> Indeed, NERC found that all of the days in 2021 with the highest severity risk index, a quantitative measure of the relative severity of risks to the bulk-power system, were attributed to some type of weather occurrence. NERC, *2022 State of Reliability Report 20* (2022), [https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC\\_SOR\\_2022.pdf](https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/NERC_SOR_2022.pdf).

lose power.<sup>16</sup> PJM Interconnection, L.L.C. (PJM) and Midcontinent Independent System Operator, Inc. (MISO) saw high load forecast errors during this period due to the unprecedented nature and scale of that storm. As unusually low temperatures drove electricity demand up, almost 65 GW of generating capacity was forced offline between these two RTOs/ISOs.<sup>17</sup> These outages highlight, first, the difficulty in preparing for extreme weather patterns that increasingly diverge from historical trends, and second, how extreme weather events can often drive the need for potentially lifesaving energy when it is most difficult for the bulk-power system to deliver it.

10. Hurricane Ian, a strong Category 4 storm in September 2022, left 2.6 million customers without power and caused an estimated \$113 billion of damage.<sup>18</sup> Hurricane Ida resulted in outages for more than one million customers across eight states in August

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<sup>16</sup> FERC, *2022 State of the Markets* (Mar. 16, 2023), <https://www.ferc.gov/media/report-2022-state-market>.

<sup>17</sup> See MISO, *Overview of Winter Storm Elliott December 23, Maximum Generation Event 10* (Jan. 17, 2023), <https://cdn.misoenergy.org/20230117%20RSC%20Item%2005%20Winter%20Storm%20Elliott%20Preliminary%20Report627535.pdf>; PJM, *Winter Storm Elliott 11* (2023), <https://pjm.com/-/media/committees-groups/committees/mic/2023/20230111/item-0x---winter-storm-elliott-overview.ashx>.

<sup>18</sup> NOAA National Centers for Environmental Information, *September 2022 National Climate Report: Hurricane Ian Special Summary* (Oct. 2022), <https://www.ncei.noaa.gov/access/monitoring/monthly-report/national/202209/supplemental/page-5>.

2021,<sup>19</sup> with the most severe impacts in Louisiana, which saw the collapse of a transmission tower and an outage of more than 2,000 miles of transmission lines outside of New Orleans.<sup>20</sup> Some customers were without electricity for nearly a month after Hurricane Ida's landfall.<sup>21</sup> In July 2021, wildfires in Oregon limited the ability to import electricity into California as temperatures soared above 100 degrees Fahrenheit, ultimately triggering emergency demand response measures to avoid reliability impacts.<sup>22</sup> During Winter Storm Uri in February 2021, more than four and half million people in Texas alone lost power, and in some cases the outages contributed to loss of life.<sup>23</sup> Winter Storm Uri caused over 65 GW of unplanned generation outages, the nation's

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<sup>19</sup> U.S. ENERGY INFO. ADMIN., *Hurricane Ida Caused At Least 1.2 Million Customers to Lose Power* (Sept. 15, 2021), <https://www.eia.gov/todayinenergy/detail.php?id=49556>.

<sup>20</sup> See S. Van Voorhis, *Transmission Tower Destroyed by Ida Likely to Complicate Power Restoration in New Orleans, Experts Say*, UTIL. DIVE (Aug. 31, 2021), <https://www.utilitydive.com/news/transmission-tower-destroyed-by-ida-likely-to-complicate-power-restoration/605826/>.

<sup>21</sup> U.S. DEP'T OF ENERGY, *Hurricanes Ida and Nicholas Update # 20* (Sept. 23, 2021), [https://www.energy.gov/sites/default/files/2021-09/TLP-WHITE\\_DOE%20Situation%20Update\\_Hurricane%20Ida\\_20.pdf](https://www.energy.gov/sites/default/files/2021-09/TLP-WHITE_DOE%20Situation%20Update_Hurricane%20Ida_20.pdf).

<sup>22</sup> See Cal. Indep. Sys. Operator Corp., *California ISO Issues Flex Alert for Monday, July 12 Due to Wildfires, Heat* (July 11, 2021), <https://www.caiso.com/Documents/California-ISO-Issues-Flex-Alert-for-Monday-July-12-due-to-Wildfires-Heat.pdf>.

<sup>23</sup> FERC, *FERC-NERC-Regional Entity Staff Report: The February 2021 Cold Weather Outages in Texas and the South Central United States* 9 (Nov. 16, 2021), <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and>.

largest controlled firm load shed, at 23,418 MW, and drove energy prices to historic levels across Texas and the South-Central U.S.<sup>24</sup> In August 2020, California experienced rolling outages during a West-wide extreme heat event that impacted nearly 500,000 customers.<sup>25</sup>

11. The record shows that extreme weather events can also increase electricity prices because grid operators are forced to dispatch higher-priced generators to account for transmission line outages.<sup>26</sup> The level of increased electricity prices depends on a number of variables, including the clearing price for electricity, the duration of the

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<sup>24</sup> *Id.* at 8-9; see also Elec. Reliability Council of Texas, *Review of February 2021 Extreme Cold Weather Event* 22 (2021), [https://www.ercot.com/files/docs/2021/03/03/Texas\\_Legislature\\_Hearings\\_2-25-2021.pdf](https://www.ercot.com/files/docs/2021/03/03/Texas_Legislature_Hearings_2-25-2021.pdf) (average system wide pricing during event greater than \$6000/MWh compared to \$18-20/MWh in more typical conditions); Sw. Power Pool, Inc, *A Comprehensive Review of SPP's Response to the February 2021 Winter Storm* 72 (2021), <https://spp.org/documents/65037/comprehensive%20review%20of%20spp's%20response%20to%20the%20feb.%202021%20winter%20storm%202021%2007%2019.pdf> (“SPP experienced historically high market settlements for the impacted operating days”); Midcontinent Indep. Sys. Operator, *The February Arctic Event: Event Details, Lessons Learned, and Implications for MISO's Reliability Imperative* 45 (2021), <https://cdn.misoenergy.org/2021%20Arctic%20Event%20Report554429.pdf> (Independent Market Monitor reports average energy prices rose 226 percent in February because of the Arctic Event in February).

<sup>25</sup> See Cal. Indep. Sys. Operator Corp., *Final Root Cause Analysis: Mid-August 2020 Extreme Heat Wave* 35 (Jan. 13, 2021), <http://www.caiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf>.

<sup>26</sup> See, e.g., Dale et al., *Assessing the Impact of Wildfires on the California Electricity Grid: A report for California's Fourth Climate Assessment* 16-18 (Aug. 2018), [https://www.energy.ca.gov/sites/default/files/2019-12/Forests\\_CCCA4-CEC-2018-002\\_ada.pdf](https://www.energy.ca.gov/sites/default/files/2019-12/Forests_CCCA4-CEC-2018-002_ada.pdf) (estimating multi-million-dollar cost increases per event due to disruption of transmission paths caused by wildfires).

outage, and the load.<sup>27</sup> For example, Winter Storm Uri had a significant impact on consumers as energy prices rose to historic levels in the wholesale markets serving Texas and the South-Central region during the event.<sup>28</sup> Above-average temperatures exacerbate reliability risks by contributing to prolonged periods of high electricity demand, decreased transmission capacity, and higher forced outage rates for generation and other elements of the bulk-power system. The historic 2021 drought across much of the western U.S. also reduced hydropower generation, a key component of the generation fleet in that region, to 48% below the 10-year average in California and 14% below the 10-year average in the Pacific Northwest.<sup>29</sup> Heavy precipitation during winter 2022-2023 has since reduced the area of the western U.S. classified as “in drought” from 74% to

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<sup>27</sup> *Id.*

<sup>28</sup> See Elec. Reliability Council of Tex., *Review of February 2021 Extreme Cold Weather Event* 22 (2021), [https://www.ercot.com/files/docs/2021/03/03/Texas\\_Legislature\\_Hearings\\_2-25-2021.pdf](https://www.ercot.com/files/docs/2021/03/03/Texas_Legislature_Hearings_2-25-2021.pdf) (average system wide pricing during event greater than \$6000/MWh compared to \$18-20/MWh in more typical conditions); Sw. Power Pool, Inc., *A Comprehensive Review of SPP’s Response to the February 2021 Winter Storm* 72 (2021), <https://spp.org/documents/65037/comprehensive%20review%20of%20spp's%20response%20to%20the%20feb.%202021%20winter%20storm%202021%2007%2019.pdf> (“SPP experienced historically high market settlements for the impacted operating days . . .”); MISO, *The February Arctic Event: Event Details, Lessons Learned, and Implications for MISO’s Reliability Imperative* 45 (2021), <https://cdn.misoenergy.org/2021%20Arctic%20Event%20Report554429.pdf> (Independent Market Monitor reports average energy prices rose 226% in February because of the Arctic Event in February).

<sup>29</sup> U.S. ENERGY INFO. ADMIN., *Drought Effects on Hydroelectricity Generation in Western U.S. Differed by Region in 2021* (Mar. 30, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=51839>.

25%<sup>30</sup> and increased snowpack from 22% of the historic median to 232%.<sup>31</sup> However, although the U.S. Energy Information Administration (EIA) forecasts a 72% increase in California hydropower generation in 2023, it forecasts total hydropower generation to remain roughly equal to 2022 levels due to continued below normal precipitation and a mixed water supply forecast in the Pacific Northwest.<sup>32</sup>

12. On June 1-2, 2021, in the aftermath of Winter Storm Uri's impact on the South-Central U.S., Commission staff hosted a technical conference on Climate Change, Extreme Weather, and Electric System Reliability. The technical conference and comments underscored the importance of planning appropriately for extreme weather. But the record did not provide the Commission with a clear understanding of whether and to what extent transmission providers are currently conducting, or planning to conduct, extreme weather vulnerability assessments, the method(s) used to conduct those assessments, and what is done with the information from those assessments.<sup>33</sup>

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<sup>30</sup> Jennifer Yachnin, *NOAA Reports Big Decrease in Western Drought Conditions*, E&E NewsPM (4:15PM May 9, 2023).

<sup>31</sup> FERC, *Summer Energy Market and Electric Reliability Assessment 3*, 43-44 (May 2023), <https://www.ferc.gov/media/report-2023-summer-energy-market-and-electric-reliability-assessment>.

<sup>32</sup> EIA, *Mixed Water Supply Condition Across Western States Affects 2023 Hydropower Outlook* (May 2023), <https://www.eia.gov/todayinenergy/detail.php?id=56440>.

<sup>33</sup> Based on the record developed during the technical conference, these assessments did not appear to be widespread among transmission providers at that time. In addition, of the six jurisdictional RTOs/ISOs, only New York Independent System Operator, Inc. appeared to have conducted such an assessment. Yet not every RTO/ISO or transmission provider has indicated whether or not it performs these assessments.

13. On June 16, 2022, the Commission issued the NOPR in this proceeding and proposed to require transmission providers to report on whether and how they assess and mitigate the risks of extreme weather to jurisdictional transmission assets and operations. In response to the NOPR, the Commission received 18 comments from a diverse set of stakeholders.

14. On July 12, 2022, the Commission issued an errata notice to correct a series of NOPR question paragraphs with numbering errors.<sup>34</sup> In this final rule, we refer to the questions as listed in Appendix A.

### **III. Need for Reports**

#### **A. NOPR Proposal**

15. In the NOPR, the Commission stressed that the trend of the increasing frequency and severity of extreme weather events threatens livelihoods, electric system reliability, and the Commission's ability to ensure just and reasonable jurisdictional rates. The Commission found that it does not yet know enough about how transmission providers assess and mitigate the threat of extreme weather to their transmission assets and operations. Accordingly, the Commission proposed to require one-time informational reports on extreme weather vulnerability assessments and mitigation efforts pursuant to

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Therefore, we believe that this one-time informational reporting requirement will provide the necessary information for the Commission to understand the extent to which transmission providers are currently performing these assessments.

<sup>34</sup> *One-Time Informational Reps. on Extreme Weather Vulnerability Assessments*, Errata Notice, 180 FERC ¶ 61,020, at 1 (2022).



FPA section 304, which allows the Commission to order reports as “necessary or appropriate to assist the Commission in the proper administration of [the FPA].”<sup>35</sup> The Commission preliminarily found that the proposed reports could also facilitate coordination among transmission providers and promote information sharing about extreme weather vulnerability assessments.

## **B. Comments**

16. Most commenters support the Commission’s proposal to require transmission providers to file one-time informational reports on extreme weather vulnerability assessments, including: Ameren Services Company (Ameren), Bureau of Reclamation, Edison Electric Institute (EEI), Electric Power Supply Association (EPSA), Electric Reliability Organization Enterprise (ERO Enterprise),<sup>36</sup> Environmental Defense Fund and Columbia Law School’s Sabin Center for Climate Change Law (EDF/Sabin Center), Eversource Energy Service Company (Eversource), Indicated PJM Transmission Owners (PJM TO),<sup>37</sup> MISO Transmission Owners (MISO TO),<sup>38</sup> National Association of Mutual

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<sup>35</sup> 16 U.S.C. 825c.

<sup>36</sup> ERO Enterprise includes NERC and the six Regional Entities.

<sup>37</sup> PJM TOs include: Exelon Corporation; the FirstEnergy Transmission Companies, including American Transmission Systems, Incorporated, Jersey Central Power & Light Company, Mid-Atlantic Interstate Transmission LLC, West Penn Power Company, The Potomac Edison Company, Monongahela Power Company; PPL Electric Utilities Corporation; Public Service Electric and Gas Company; and Virginia Electric and Power Company d/b/a Dominion Energy Virginia.

<sup>38</sup> MISO TOs consist of: Ameren Services Company, as agent for Union Electric Company d/b/a Ameren Missouri, Ameren Illinois Company d/b/a Ameren Illinois and Ameren Transmission Company of Illinois; American Transmission Company LLC; Big

Insurance Companies (NAMIC), National Mining Association, PJM, Public Interest Organizations,<sup>39</sup> San Diego Gas & Electric Company (SDG&E), and WE ACT for Environmental Justice (WE ACT).<sup>40</sup> ERO Enterprise notes that extreme weather events, particularly extreme heat and cold conditions, have threatened reliability multiple times over the past decade, and that the grid is increasingly vulnerable to the effects of extreme

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Rivers Electric Corporation; Central Minnesota Municipal Power Agency; City Water, Light & Power (Springfield, IL); Cleco Power LLC; Cooperative Energy; Dairyland Power Cooperative; Duke Energy Business Services, LLC for Duke Energy Indiana, LLC; East Texas Electric Cooperative; Entergy Arkansas, LLC; Entergy Louisiana, LLC; Entergy Mississippi, LLC; Entergy New Orleans, LLC; Entergy Texas, Inc.; Great River Energy; GridLiance Heartland LLC; Hoosier Energy Rural Electric Cooperative, Inc.; Indiana Municipal Power Agency; Indianapolis Power & Light Company; International Transmission Company d/b/a ITC Transmission; ITC Midwest LLC; Lafayette Utilities System; Michigan Electric Transmission Company, LLC; MidAmerican Energy Company; Minnesota Power (and its subsidiary Superior Water, L&P); Missouri River Energy Services; Montana-Dakota Utilities Co.; Northern Indiana Public Service Company LLC; Northern States Power Company, a Minnesota corporation, and Northern States Power Company, a Wisconsin corporation, subsidiaries of Xcel Energy Inc.; Northwestern Wisconsin Electric Company; Otter Tail Power Company; Prairie Power, Inc.; Republic Transmission, LLC; Southern Illinois Power Cooperative; Southern Indiana Gas & Electric Company (d/b/a CenterPoint Energy Indiana South); Southern Minnesota Municipal Power Agency; Wabash Valley Power Association, Inc.; and Wolverine Power Supply Cooperative, Inc.

<sup>39</sup> Public Interest Organizations consist of: Sustainable FERC Project, Natural Resources Defense Council, Sierra Club, Southern Environmental Law Center, and Western Resource Advocates.

<sup>40</sup> Ameren Comments at 1, 4; Bureau of Reclamation Comments at 1; EDF/Sabin Center Comments 3-4; EEI Comments at 3; EPSA Comments at 3; ERO Enterprise Comments at 2, 4-5; Eversource Comments at 3; MISO TOs Comments at 2, 4; NAMIC Comments at 2; National Mining Association Comments at 2; PJM Comments at 3; PJM TOs Comments at 2; Public Interest Organizations Comments at 1; SDG&E Comments at 1; WE ACT Comments at 2.

weather.<sup>41</sup> Public Interest Organizations state that in February 2022, the United Nations Intergovernmental Panel on Climate Change (IPCC) reported that the effects of climate change are already pervasive and acknowledged that more frequent and intense extreme weather events are putting stress on the grid.<sup>42</sup> Public Interest Organizations argue that it is imperative that the Commission understand the impacts of extreme weather on the transmission system and how transmission providers are addressing them.<sup>43</sup> EEI agrees that the informational reports can help the Commission understand the extent to which transmission providers are assessing extreme weather vulnerabilities and help inform transmission providers when developing their own extreme weather vulnerability assessment practices.<sup>44</sup> EPSA notes that data from recent seasonal assessments highlights that extreme weather impacts not only all regions but all resource types in some manner. EPSA argues that information on whether and how transmission providers are assessing weather and other reliability risks over the near- and longer-term will be critical in establishing a reality-based understanding of how transmission providers are addressing these issues, what may need to be reformed, and whether to reassess reliability

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<sup>41</sup> ERO Enterprise Comments at 4.

<sup>42</sup> Public Interest Organizations Comments at 1-2 (citing IPCC, *Climate Change 2022: Impacts, Adaptation and Vulnerability—Summary for Policymakers* 7 (Feb. 27, 2022), [https://report.ipcc.ch/ar6wg2/pdf/IPCC\\_AR6\\_WGII\\_SummaryForPolicymakers.pdf](https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf)).

<sup>43</sup> *Id.* at 2.

<sup>44</sup> EEI Comments at 3.

planning criteria, capacity accreditation approaches, and new products or services to mitigate extreme weather reliability risks.<sup>45</sup> EDF/Sabin Center highlight a 2020 study that found that failing to build resilience into infrastructure from the start could lead to a 25% increase in transmission and distribution spending each year by 2090.<sup>46</sup> Conversely, the same study found that building such infrastructure for projected climate conditions can halve the expected annual costs of climate change experienced by 2090.<sup>47</sup>

17. Several commenters express concern over the impact extreme weather will have on jurisdictional rates. Public Interest Organizations aver that the extent to which transmission providers assess their vulnerabilities to extreme weather events is unclear, and without access to this information, the Commission cannot assess whether and how those practices are leading to unjust and unreasonable rates.<sup>48</sup> NAMIC states that extreme weather, coupled with inadequate resiliency, will impact insurance markets and the public in addition to the power sector. NAMIC asserts that federal and state energy

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<sup>45</sup> EPSA Comments at 7.

<sup>46</sup> EDF/Sabin Center Comments at 10 (citing Charles Fant et al., *Climate Change Impacts and Costs to U.S. Electricity Transmission and Distribution Infrastructure*, 195 ENERGY 116,899, at 1, 7 (Mar. 2020)).

<sup>47</sup> *Id.* (citing Charles Fant et al., *Climate Change Impacts and Costs to U.S. Electricity Transmission and Distribution Infrastructure*, 195 ENERGY 116,899, at 7 (Mar. 2020)).

<sup>48</sup> Public Interest Organizations Comments at 4 (arguing that if transmission providers do not assess their vulnerability to extreme weather, or do so inadequately, consumers ultimately bear the cost of increased outages and replacing damaged facilities).

regulators' failure to ensure grid resiliency will negatively impact consumers and the broader economy.<sup>49</sup>

18. Commenters also agree that the Commission has authority to direct reports on extreme weather vulnerability assessments.<sup>50</sup> Public Interest Organizations agree with the Commission that if transmission providers do not assess their vulnerability to extreme weather, or do so inadequately, consumers ultimately bear the cost of increased outages and replacing damaged facilities.<sup>51</sup> ERO Enterprise notes that, while the Commission proposed these reports to aid in its statutory obligations under FPA section 215, the reports will also aid ERO Enterprise in carrying out its own statutory obligations with respect to reliability.<sup>52</sup>

19. Many commenters argue that the one-time reports will offer a record to develop best practices.<sup>53</sup> SDG&E contends that the proposed one-time reports could be a useful means of sharing information and best practices and aiding transmission provider efforts to manage reliability risks.<sup>54</sup> Similarly, ERO Enterprise agrees that the proposed reports

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<sup>49</sup> NAMIC Comments at 2.

<sup>50</sup> EDF/Sabin Center Comments at 11-13; Public Interest Organizations Comments at 3-4.

<sup>51</sup> Public Interest Organizations Comments at 4 (citing NOPR, 179 FERC ¶ 61,196 at P 16).

<sup>52</sup> ERO Enterprise Comments at 6.

<sup>53</sup> *E.g.*, Eversource Comments at 3; Xcel Comments at 5-6.

<sup>54</sup> SDG&E Comments at 3.

would improve transparency and information sharing between transmission providers, which could ultimately benefit reliability.<sup>55</sup>

**C. Commission Determination**

20. FPA section 304 authorizes the Commission to require the filing of special reports the Commission “prescribe[s] as necessary or appropriate to assist the Commission in the proper administration of [the FPA].”<sup>56</sup> FPA section 215 provides the Commission with jurisdiction for overseeing the development and enforcement of reliability standards for the bulk-power system.<sup>57</sup> Additionally, FPA sections 205 and 206 require that the Commission ensure that the rates, terms, and conditions of Commission-jurisdictional services are just and reasonable and not unduly discriminatory or preferential.<sup>58</sup>

21. As discussed above, the frequency and severity of extreme weather events have been increasing, are likely to continue to increase, and, thereby, will likely continue to jeopardize system reliability and affect jurisdictional electric rates.

22. The record shows that extreme weather events can significantly impact reliability of the bulk-power system. The events outlined above exemplify the reliability impacts of Hurricane Ian in September 2022, Winter Storm Elliott in December 2022, Winter Storm

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<sup>55</sup> ERO Enterprise Comments at 5-6.

<sup>56</sup> 16 U.S.C. 825c.

<sup>57</sup> *Id.* 824o; *see* NOPR, 179 FERC ¶ 61,196 at P 15.

<sup>58</sup> 16 U.S.C. 824d, 824e; *see* NOPR, 179 FERC ¶ 61,196 at P 15.

Uri in February 2021, and Hurricane Ida in August 2021, as well as the wildfires in July 2021 and the extreme west-wide heat event in August 2020.

23. Generally, as the Commission explained in the NOPR, the failure to assess and mitigate the risks of extreme weather could increase the frequency of loss of load events, burden consumers with more frequent outages and costs, and lead to higher prices for wholesale electricity.<sup>59</sup> SDG&E notes that the frequency, intensity, and duration of wildfires in southern California are increasing due to climate change, which threatens public safety and also requires mitigation efforts in the form of public safety power shutoff.<sup>60</sup> Public Interest Organizations similarly argue that more frequent and intense extreme weather events will put stress on the grid, leading to the loss of power and increasing consumer prices. Public Interest Organizations agree with the NOPR that the failure of transmission providers to adequately assess their vulnerabilities to such extreme weather events will result in increased outages and consumer costs.<sup>61</sup> EDF/Sabin Center also agree that the increasing frequency, severity, and duration of extreme weather poses a reliability threat to the bulk-power system.<sup>62</sup> NERC reports on short- and long-term

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<sup>59</sup> NOPR, 179 FERC ¶ 61,196 at P 16; *see also* GAO, *Electricity Grid Resilience: Climate Change Is Expected to Have Far-Reaching Effects and DOE and FERC Should Take Actions* 4, 5-6 (Mar. 2021), <https://www.gao.gov/products/gao-21-423t>; Public Interest Organizations Comments at 4; EDF/Sabin Center Comments at 10.

<sup>60</sup> SDG&E Comments at 3.

<sup>61</sup> Public Interest Organizations Comments at 1-2, 4.

<sup>62</sup> EDF/Sabin Center Comments at 3-4.

reliability issues highlight the impact of extreme weather on system reliability, as well as the Commission's concern that such events are likely to increase in frequency and severity.

24. The record shows that extreme weather events can also impact jurisdictional rates. EDF/Sabin Center agree that considering and planning for the impacts of extreme weather can help reduce the need for costly future retrofits.<sup>63</sup> Public Interest Organizations point out that consumers will bear the costs of increased outages and replacing facilities damaged during extreme weather events, which flow through into transmission rates.<sup>64</sup>

25. As discussed above, the record before the Commission demonstrates a lack of consistency in whether and how transmission providers plan for the impacts of extreme weather.<sup>65</sup> Based on the foregoing, we find that requiring transmission providers to file one-time informational reports is justified because the reports will allow the Commission to understand whether and how transmission providers assess their vulnerabilities to extreme weather events and enhance the Commission's ability to fulfill its obligations to ensure system reliability and just and reasonable rates.

26. In addition to our finding that the reports will assist the Commission in administering the FPA, the record shows that the reports will provide the opportunity to

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<sup>63</sup> *Id.* at 10.

<sup>64</sup> Public Interest Organizations Comments at 4.

<sup>65</sup> *See supra* P 12.



facilitate coordination among transmission providers and promote information sharing about vulnerability assessments, including best practices for vulnerability assessments among transmission providers. Several commenters, including SDG&E, Xcel, and Eversource explained that the reports could be used to establish such best practices. For instance, as explained by ERO Enterprise, the proposed reports will improve transparency and information sharing between transmission providers, which could ultimately benefit reliability.<sup>66</sup>

27. Several commenters acknowledged the value of extreme weather vulnerability assessments, such as helping transmission providers mitigate extreme weather risks to the bulk-power system.<sup>67</sup> While we expect that the reports will promote information sharing about how transmission providers conduct extreme weather vulnerability assessments, in this final rule we do not require transmission providers to conduct extreme weather vulnerability assessments.

28. Some commenters ask that the Commission indicate how it plans to use the information provided in the reports and establish additional procedures, such as disseminating best practices or setting extreme weather vulnerability assessment requirements.<sup>68</sup> We do not set forth in this final rule what additional steps, if any, the

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<sup>66</sup> ERO Enterprise Comments at 5-6.

<sup>67</sup> EDF/Sabin Center Comments at 8-9; ERO Enterprise Comments at 4-5.

<sup>68</sup> *See, e.g.*, EEI Comments at 7-8; Eversource Comments at 5; MISO TOs Comments at 3-5; PJM TOs Comments at 2-3; Xcel Comments at 5-6.

Commission may take in the future in response to the informational reports. After the reports are filed and the public comments on them, the Commission will consider any further action.

#### **IV. Discussion on Required Reports**

##### **A. Reporting Requirement**

##### **1. NOPR Proposal**

29. In the NOPR, the Commission proposed to require transmission providers to file one-time informational reports describing their current or planned policies and processes for conducting extreme weather vulnerability assessments and mitigating identified extreme weather risks within 90 days of the publication of any final rule in this proceeding in the *Federal Register*.

30. For the purposes of this rulemaking, the Commission proposed to define an extreme weather vulnerability assessment as any analysis that identifies where and under what conditions jurisdictional transmission assets and operations are at risk from the impacts of extreme weather events, how those risks will manifest themselves, and what the consequences will be for transmission system operations. The Commission further stated that the extreme weather threats analyzed by these reports may include those extreme weather events exacerbated by climate change (e.g., extended heat waves or storm surge due to sea level rise).<sup>69</sup>

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<sup>69</sup> NOPR, 179 FERC ¶ 61,196 at P 20.

31. The Commission explained that transmission providers may use such extreme weather vulnerability assessments to develop mitigation solutions in the form of extreme weather resilience plans, which outline measures to reduce risks to vulnerable assets and operations. The Commission further explained that extreme weather resilience efforts can take many forms but generally involve both measures to prevent or minimize damage to vulnerable assets (e.g., investments in asset hardening or relocation) and to manage the consequences of such damage when it occurs (e.g., investments in system recoverability).<sup>70</sup>

32. The Commission stated that it did not intend in the NOPR to require transmission providers to conduct extreme weather vulnerability assessments where they do not do so already, or to require transmission providers to change how they conduct or plan to conduct such assessments.<sup>71</sup> Instead, the Commission expressly stated that the goal of this proceeding is to gather information, not to establish new requirements. In addition, the Commission did not propose for transmission providers to file their actual vulnerability assessments, the results of their extreme weather vulnerability assessments,

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<sup>70</sup> R.M. Webb, M. Panfil, and S. Ladin, *Climate Risk in the Electric Sector: Legal Obligations to Advance Climate Resilience Planning by Electric Utilities* 10 (Dec. 2020), <https://perma.cc/V25A-KBNP>.

<sup>71</sup> Similarly, while the NOPR proposed that transmission providers may describe what they “plan” to do with respect to various issues, the Commission explained that the proposed reporting requirement was meant only to capture plans that have already been made, but not yet been implemented. The NOPR emphasized that transmission providers would not be required to speculate on how they would conduct extreme weather vulnerability analysis where they have no firm plans to do so.

or lists of affected assets and operations, specific vulnerabilities, or asset- or operation-specific mitigation strategies in the informational reports. Rather, the Commission proposed that the one-time informational reports focus on describing current or planned policies and processes to assess and mitigate extreme weather risks.

33. Finally, the Commission stated that while individual extreme weather vulnerability assessments may not follow the same processes or include the same analyses, the topic areas included in the NOPR (and adopted in this final rule)—Scope, Inputs, Vulnerabilities and Exposure to Extreme Weather Hazards, Costs of Impacts, Risk Mitigation—reflect typical practices and considerations in the development of extreme weather vulnerability assessments. If respondents’ policies and processes for developing their own extreme weather vulnerability assessments differ from those the Commission described, the Commission proposed to require that transmission providers still describe in their one-time reports the policies and processes that most closely align with the topics discussed.

## **2. Comments**

34. Commenters generally support the proposed reporting requirement in the NOPR. EPSA argues that it is important to have transparency and current data available to inform discussions on assessment, planning, operational, and market approaches to ensuring grid reliability.<sup>72</sup> EPSA and EEI specifically support the five areas of inquiry set out in the

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<sup>72</sup> EPSA Comments at 3.

NOPR.<sup>73</sup> MISO, however, argues the reporting requirement is redundant because it submitted pre- and post-conference comments in Docket No. AD21-13-000 detailing its current and planned actions under its Reliability Imperative, on which MISO continues to focus.<sup>74</sup> MISO further explains that it, with ERO Enterprise, participated in a Commission technical conference on generator winter readiness.<sup>75</sup> MISO asserts that preparing the report would be complex and, because of resource constraints related to its ongoing reliability work, it requests a four-week extension if the Commission moves forward with requiring these reports.<sup>76</sup>

35. With respect to who has to file the reports, Ameren agrees with the NOPR that public utility transmission providers, including both RTOs/ISOs and transmission owner members, are the appropriate entities covered under the reporting obligation.<sup>77</sup> Ameren explains that requiring RTOs/ISOs to file, in addition to having the transmission-owning members of the RTOs/ISOs file, makes sense because the RTOs/ISOs have a wider view than individual transmission owner members.

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<sup>73</sup> EEI Comments at 5; EPSA Comments at 7.

<sup>74</sup> MISO Comments at 1-2.

<sup>75</sup> *Id.* at 3.

<sup>76</sup> *Id.* at 10.

<sup>77</sup> Ameren Comments at 4.

36. However, other commenters suggest allowing transmission providers to file their informational reports either individually or jointly with their RTO/ISO.<sup>78</sup> Public Interest Organizations suggest that RTOs/ISOs could report on the effects of extreme weather on their market in a single RTO/ISO filing.<sup>79</sup> PJM adds that RTO/ISO transmission owner members could supplement joint reports with additional information on their own transmission facilities.<sup>80</sup> PJM TOs, Eversource, and EEI contend that joint reports have two benefits: they would incorporate regional extreme weather assessment practices absent from individual reports and align the reporting process with the joint nature of system planning and operation.<sup>81</sup> PJM TOs similarly contend that joint reports would provide the Commission with a more holistic view of extreme weather assessment and preparation because they would incorporate the perspectives of RTOs/ISOs and their transmission owner members in a single report.<sup>82</sup> MISO TOs state that much of the information the Commission proposes to collect is aggregated at the RTO/ISO level and that RTOs/ISOs are more capable of providing much of the information than their

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<sup>78</sup> EEI Comments at 6-7; Eversource Comments at 6; PJM Comments at 8; PJM TOs Comments at 6-7.

<sup>79</sup> Public Interest Organizations Comments at 7.

<sup>80</sup> PJM Comments at 8.

<sup>81</sup> EEI Comments at 6; Eversource Comments at 6; PJM TOs Comments at 6-7.

<sup>82</sup> PJM TOs Comments at 6-7.

transmission owner members.<sup>83</sup> MISO TOs explain that MISO itself does most weather forecasting and risk mitigation for its region, evaluates issues like winter readiness and resource availability, and coordinates with neighboring entities.<sup>84</sup> MISO TOs add that RTOs/ISOs can provide information on vulnerability assessments over wide areas and among planning regions.<sup>85</sup>

37. Commenters have different views on the proposed definitions of an extreme weather vulnerability assessment and an extreme weather event. EPSA, Ameren, EEI, and Eversource, support the NOPR's definition of an extreme weather vulnerability assessment, and Ameren, EEI, and Eversource state that the definition is sufficiently flexible to allow transmission providers to describe their practices and processes, even if they differ from the NOPR's conceptualization of extreme weather vulnerability assessments.<sup>86</sup> Other commenters, by contrast, suggest that the definition of extreme weather vulnerability assessment may be too narrow. Xcel states that the NOPR's definition may be too narrow and exclude other types of studies that inform transmission providers' responses to extreme weather risks.<sup>87</sup> For example, Xcel states that utilities

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<sup>83</sup> MISO TOs Comments at 6.

<sup>84</sup> *Id.* at 6-7.

<sup>85</sup> *Id.* at 7.

<sup>86</sup> Ameren at 5; EEI Comments at 3-4; EPSA Comments at 7; Eversource Comments at 3.

<sup>87</sup> Xcel Comments at 3-4.

are constantly collecting and evaluating operating and performance data, and may perform studies on specific extreme weather system impacts that could inform the utility's response.<sup>88</sup> Given this, Xcel requests the Commission be prescriptive about the types of studies and evaluations it is seeking reports on.<sup>89</sup> Xcel states that doing so would prevent transmission providers from failing to report or underreporting.<sup>90</sup> Public Interest Organizations similarly request that the Commission expand the definition of extreme weather vulnerability assessment.<sup>91</sup>

38. PJM TOs request that the Commission provide guidance on what constitutes an extreme weather event.<sup>92</sup> PJM TOs point out that the NOPR neither defines the term "extreme weather" nor provide guidance or criteria for what constitutes an "extreme weather" event.<sup>93</sup> As a result, PJM TOs contend that in response to a final rule, transmission providers would have to determine, for example, whether winter storms in the northeast or hurricanes in the southeast are "extreme weather events" or ordinary weather events.<sup>94</sup> PJM TOs suggest the Commission could distinguish weather events

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<sup>88</sup> *Id.* at 4.

<sup>89</sup> *Id.* at 5.

<sup>90</sup> *Id.* at 5-6.

<sup>91</sup> Public Interest Organizations Comments at 7.

<sup>92</sup> PJM TOs Comments at 3.

<sup>93</sup> *Id.*

<sup>94</sup> *Id.* at 4.



between those that may be deemed “predictable” or “expected” based on historical trends and those that are associated with climate change.<sup>95</sup> Given that intermittent generation will increase in the future, PJM TOs contend that cloud cover or lack of wind, especially over extended periods of time, may need to be included in the definition of extreme weather events and in planning studies.<sup>96</sup> PJM TOs argue that although transmission providers already incorporate weather events into transmission planning and vulnerability assessments, extreme and ordinary weather events will vary greatly depending on geography.<sup>97</sup> At the same time, PJM TOs caution that the Commission should not starkly delineate extreme weather impacts from other low-probability, high impact events that transmission providers should also plan for to improve overall grid resiliency.<sup>98</sup>

39. Other commenters argue that extreme weather should be defined broadly. PJM and Xcel assert that the definition for extreme weather should allow for regional flexibility as to what types of extreme weather events should be included in the one-time reports.<sup>99</sup> PJM suggests including windstorms, ice/snowstorms, and geo-magnetic disturbance within the definition of “extreme weather events.”<sup>100</sup>

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<sup>95</sup> *Id.*

<sup>96</sup> *Id.* at 4-5.

<sup>97</sup> *Id.* at 3-4.

<sup>98</sup> *Id.* at 5.

<sup>99</sup> PJM Comments at 6; Xcel Comments at 6.

<sup>100</sup> PJM Comments at 6.

40. Some commenters suggest expanding the reporting requirement. EDF/Sabin Center suggest adding climate-related risks to the scope of the reporting requirement because the reasons the Commission cites in the NOPR for requiring reports on extreme weather vulnerability assessments apply equally to climate-related impacts to the grid.<sup>101</sup> EDF/Sabin Center argue that changing climate baselines will impact the operation of transmission infrastructure, as well as generation and distribution assets, in ways that could impair the reliability of the electric system. EDF/Sabin Center explain that increasing air and water temperatures can reduce the capacity of the bulk-power system to generate and transmit electricity and decrease asset lifetimes.<sup>102</sup> EDF/Sabin Center also explain that shifting precipitation patterns could reduce hydroelectric operations by reducing snowmelt and increasing drought.<sup>103</sup> Finally, EDF/Sabin Center explain that, as

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<sup>101</sup> EDF/Sabin Center Comments at 3, 13-14.

<sup>102</sup> *Id.* at 4-6 (citing Jayant Sathaye et al., *Estimating Risk to California Energy Infrastructure from Projected Climate Change* 25-27 (2011), <https://doi.org/10.2172/1026811>; Craig D. Zamuda et al., *Energy Supply, Delivery, and Demand*, in *IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME II* 174, 181 (D.R. Reidmiller et al. eds., 2018), <https://perma.cc/ZP2G-JJRK>; Dennis Wamsted and Seth Feaster, *May Heat Wave Exposes Myth of Fossil Fuel Reliability as Texas Coal- and Gas-fired Generators Fail Early Season Performance Test*, INST. FOR ENERGY ECONS. AND FIN. ANALYSIS (June 27, 2022), <https://ieefa.org/resources/may-heat-wave-exposes-myth-fossil-fuel-reliability-texascoal-and-gas-fired-generators>; U.S. DEP'T OF ENERGY, U.S. ENERGY SECTOR VULNERABILITIES TO CLIMATE CHANGE AND EXTREME WEATHER 10–11 (2013), <https://perma.cc/FMB6-RSRK>).

<sup>103</sup> *Id.* at 6 (citing D.R. Easterling et al., *Precipitation Change in the United States*, in *CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME I* 207, 207, 217 (D.J. Wuebbels et al. eds., 2017), <https://perma.cc/MV9S-NMAS>; U.S. DEP'T OF ENERGY, OFFICE OF ENERGY POLICY AND SYSTEMS ANALYSIS, *Climate Change and the Electricity Sector: Guide for Climate Resilience Planning* 10-11

sea levels rise, more bulk-power systems will be at risk of nuisance flooding, storm surge, and permanent inundation.<sup>104</sup>

41. EDF/Sabin Center also argue that the reporting requirement should be expanded to include information on whether and how transmission providers incorporate risks to interconnected generators, electric demand, and distribution system assets in their assessments.<sup>105</sup> In particular, EDF/Sabin Center contend that questions 6, 8, 14, and 15 should specifically request information on whether the transmission provider includes generation assets and operations in its assessments and whether the transmission provider considers interdependencies of its assets with independently-owned generation assets.<sup>106</sup> EDF/Sabin Center note that relationships between transmission providers and generation owners can take a number of different forms that could affect whether and how the transmission provider assesses climate risks to generating units.<sup>107</sup>

42. Public Interest Organizations similarly request that the Commission expand the reporting requirement to include generation assets and demand side resources;

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(Sept. 2016), [https://toolkit.climate.gov/sites/default/files/Climate%20Change%20and%20the%20Electricity%20Sector%20Guide%20for%20Climate%20Change%20Resilience%20Planning%20September%202016\\_0.pdf](https://toolkit.climate.gov/sites/default/files/Climate%20Change%20and%20the%20Electricity%20Sector%20Guide%20for%20Climate%20Change%20Resilience%20Planning%20September%202016_0.pdf) (DOE Guide for Resilience Planning)).

<sup>104</sup> *Id.* at 7 (citing DOE Guide for Resilience Planning at 89-90).

<sup>105</sup> *Id.* at 3, 16.

<sup>106</sup> *Id.* at 16.

<sup>107</sup> *Id.* at 16-17.

specifically, they request that the definition include any analysis concerning where and under what conditions generation assets or demand-side resources within the transmission provider's footprint are at risk from the impacts of extreme weather events, how those risks will manifest themselves, and what the consequences will be for the ability to serve load. Public Interest Organizations argue that the reporting requirement should be expanded because "even if a transmission provider does not also own generation or demand-side resources, it will need to understand the effect of extreme weather on those resources because they are often large contingencies within its footprint."<sup>108</sup> In addition, Public Interest Organizations aver that the NOPR only mentions disadvantaged communities in the context of transmission providers' stakeholder outreach; they argue that, instead, the Commission should require transmission providers to file information on whether, and if so how, they consider the effects on these communities in each section of the NOPR.<sup>109</sup>

43. Some commenters raise concerns that a one-time reporting requirement may be insufficient. Ameren agrees that a one-time reporting requirement is appropriate but expresses concern that report collection alone may not make information and insights accessible enough to the industry and suggests that the Commission also convene a forum on extreme weather vulnerability assessments and barriers to transmission providers

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<sup>108</sup> Public Interest Organizations Comments at 7.

<sup>109</sup> *Id.* at 11.

improving assessments.<sup>110</sup> Similarly, Bureau of Reclamation asserts that one-time informational reports may be useful to establish a baseline regarding extreme weather event information, but it is unlikely that one-time submissions alone will satisfy the Commission's desire for this information.<sup>111</sup> EPSA urges that, in order to move forward as expeditiously as possible, the Commission convene a technical conference soon after the reports are filed in order to (1) assess the information gathered, (2) highlight best practices, and (3) publicly discuss information sharing avenues.<sup>112</sup> WE ACT contends that the Commission should assess any gaps or deficiencies revealed by the reports and require transmission providers to develop appropriate mitigation strategies that promote resilience and affordable rates.<sup>113</sup>

44. Commenters offer the following comments on the reporting burden. EPSA states that the reporting requirement will minimally burden transmission providers.<sup>114</sup> It explains that this is because the Commission is only seeking information on policies and processes already in place or planned by each transmission provider and concerning only one aspect of reliability risks, and does not seek the results or conclusions reached by any

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<sup>110</sup> Ameren Comments at 4, 6.

<sup>111</sup> Bureau of Reclamation Comments at 1.

<sup>112</sup> EPSA Comments at 4.

<sup>113</sup> WE ACT Comments at 5.

<sup>114</sup> EPSA Comments at 7.

individual transmission provider.<sup>115</sup> Ameren, EEI, and Eversource agree that transmission providers should not have to hypothesize how they might conduct an extreme weather vulnerability assessment if they have no plans of doing so.<sup>116</sup>

45. Bureau of Reclamation recommends that the Commission use an online or electronic database or form with fillable fields to collect the information to enhance the quality, utility, and clarity of the information collected and to minimize the burden on responding entities.<sup>117</sup> Xcel also requests that the Commission specify in what form or format transmission providers should file their reports to minimize the burden of the data request.<sup>118</sup>

46. Lastly, EDF/Sabin Center offer several suggestions on best practices for conducting extreme weather vulnerability assessments. EDF/Sabin Center explain that resilience planning should prevent maladaptation by identifying measures consistent with reducing greenhouse gas emissions that exacerbate climate risks.<sup>119</sup> EDF/Sabin Center explain that forward-looking climate resilience planning with a long-range view that considers interactions between sectors can identify climate-related risks that other planning processes that rely on historic weather data may miss, and ensure that

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<sup>115</sup> *Id.* at 7-8.

<sup>116</sup> Ameren Comments at 5; EEI Comments at 4; Eversource Comments at 3.

<sup>117</sup> Bureau of Reclamation Comments at 2.

<sup>118</sup> Xcel Comments at 5.

<sup>119</sup> EDF/Sabin Center Comments at 10.

transmission providers make informed investments based on future conditions within the lifespan of their assets.<sup>120</sup>

### 3. Commission Determination

47. We adopt the NOPR proposal to require one-time informational reports from all transmission providers, including RTOs/ISOs and their transmission owner members, and adopt, with modification, the questions proposed in the NOPR.<sup>121</sup> We find that the reporting requirement is necessary for the Commission's proper administration of the FPA by providing the Commission with information related to its statutory responsibilities regarding reliability and rates.<sup>122</sup> We also find that the reporting requirement will also promote information sharing and best practices about extreme weather vulnerability assessments as well as coordination among transmission providers. The questions for transmission providers as modified by this final rule are listed in Appendix A below.<sup>123</sup>

48. We modify the proposal to allow each transmission owner that is a member of an RTO/ISO to either file its one-time informational report individually or jointly with its RTO/ISO. That is, a transmission owner member of an RTO/ISO and an RTO/ISO may

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<sup>120</sup> *Id.*

<sup>121</sup> NOPR, 179 FERC ¶ 61,196 at P 1.

<sup>122</sup> 16 U.S.C. 825c. FPA section 304(a) states "Such reports shall be made under oath unless the Commission otherwise specifies." We specify that the one-time informational reports filed under this final rule need not be made under oath. *Id.* 825c(a).

<sup>123</sup> *See infra* Appendix A – Report Questions.

satisfy its reporting requirement by filing a joint one-time informational report without needing to also file separate one-time informational reports. For example, an RTO/ISO could work with all of its interested transmission owner members to complete and submit a joint one-time report.

49. We find that RTOs/ISOs and their transmission owner members will have a unique view of their own practices with respect to assessing and mitigating vulnerabilities. By allowing joint one-time informational reports from RTOs/ISOs and their transmission owner members, any joint reports will provide the perspectives of multiple entities in a single filing, align the reporting process with the joint and collaborative nature of system planning and operation, and potentially streamline the reporting process.<sup>124</sup>

50. In a joint informational report, the RTO/ISO itself must also convey information about its own extreme weather vulnerability assessment as well as information provided by its transmission owner members about any extreme weather vulnerability assessments they conduct. Joint informational reports must include each participating transmission owner member's response to every question listed in this final rule. Joint filers must list the RTO/ISO and transmission owner members that participated in the development of the joint informational report.

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<sup>124</sup> See EEI Comments at 6; Eversource Comments at 6; PJM TOs Comments at 6-7.



51. To reiterate the expectation stated in the NOPR, we do not intend to require transmission providers to conduct extreme weather vulnerability assessments where they do not do so already, or to require transmission providers to change how they conduct or plan to conduct such assessments.<sup>125</sup> The goal of this proceeding is to allow the Commission to understand whether and how transmission providers currently assess their vulnerabilities to extreme weather events, not to establish new requirements.<sup>126</sup> If a transmission provider does not currently assess its vulnerabilities to extreme weather events, it should report that in its responses. If transmission providers' policies and processes for developing their own extreme weather vulnerability assessments differ from those described in the questions in Appendix A, transmission providers must still describe their relevant policies and processes, or indicate their lack thereof, in their responses. We note that the final rule does not require transmission providers to file the results of their extreme weather vulnerability assessments or include lists of affected assets and operations, specific vulnerabilities, or asset- or operation-specific mitigation.<sup>127</sup>

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<sup>125</sup> While we require transmission providers to describe what they “plan” to do with respect to various issues, this is meant only to capture plans that have been made but not yet implemented; transmission providers are not required to speculate on how they would conduct extreme weather vulnerability analysis where they have no plans to do so.

<sup>126</sup> See NOPR, 179 FERC ¶ 61,196 at P 22.

<sup>127</sup> *Id.*

52. For the purposes of the required reporting, we adopt the definition of extreme weather vulnerability assessment proposed in the NOPR: an extreme weather vulnerability assessment is any analysis that identifies where and under what conditions jurisdictional transmission assets and operations are at risk from the impacts of extreme weather events, how those risks will manifest themselves, and what the consequences will be for system operations. We find that this definition provides sufficient guidance to transmission providers on which analyses should be described in their reporting. Further, this definition ensures that the Commission receives information regarding the transmission assets and operations that are within its jurisdiction; it also ensures that the Commission receives information relevant to its statutory responsibilities regarding reliability and rates.

53. Further, as noted by Ameren, EEI, and Eversource, this definition provides flexibility for transmission providers to describe their practices and processes. In contrast, Xcel expresses concern that the Commission's definition of an extreme weather vulnerability assessment may be too narrow. We disagree with Xcel. As a threshold matter, this definition of extreme weather vulnerability assessment was crafted to guide transmission providers filing in compliance with the one-time reports required by this final rule. These reports are meant to aid the Commission's understanding of these issues with respect to jurisdictional transmission assets and operations.<sup>128</sup> In that context, we

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<sup>128</sup> Our use of this definition for these reports in no way limits the ability of transmission providers or others to assess vulnerabilities to other assets and operations, such as those for generation and distribution systems.

find that the definition the Commission proposed for extreme weather vulnerability assessments properly focuses the reporting requirement on analyses that evaluate impacts of extreme weather and provides flexibility for respondents to report on their analyses that fall within this description.

54. To preserve the flexibility of the definition of extreme weather vulnerability assessments and to avoid making the reporting requirement too narrow, we decline to define the term “extreme weather,” as requested by some commenters. One of the purposes of the required reports is to share information and best practices, including on how transmission providers define extreme weather for purposes of assessing vulnerabilities. A specific definition of “extreme weather” would hinder this purpose by unnecessarily narrowing the reporting.

55. However, to further the purpose of the sharing of information and best practices for extreme weather vulnerability assessments, we will require each transmission provider to explain how it defines extreme weather in its vulnerability assessments by responding to a new question, question 3, in the list of questions in Appendix A. In responding to question 3, a transmission provider will explain whether, and if so how, it defines extreme weather events in relation to ordinary or historical weather events or patterns for the purposes of their extreme weather vulnerability assessments. For instance, a transmission provider’s definition of extreme weather may be consistent with the explanation from NOAA that extreme weather can be considered as a weather event in which the magnitude of one or more variables (such as temperature, precipitation,

drought, flooding, or duration) falls outside a certain threshold relative to historical measurements, or one whose estimated probability of occurrence falls below a certain historical value.<sup>129</sup>

56. We find that this approach to the term “extreme weather” and the new question will promote information sharing and best practices and further the overall goal of the required reporting to assist the Commission in fulfilling its statutory responsibilities regarding reliability and rates. We note that some commenters identified best practices in their comments<sup>130</sup> and we believe that the one-time informational reports will foster such information sharing. We find that this modification to the NOPR proposal also accommodates the flexibility requested by PJM to consider events such as windstorms, ice/snowstorms, and geo-magnetic disturbance as extreme weather events.

57. We decline to adopt EDF/Sabin Center’s recommendation to require transmission providers to report on whether, and if so how, they evaluate climate risks beyond those risks caused by extreme weather. The focus of this rulemaking and the one-time informational reports is on risks and mitigation of the effects of extreme weather events such as those described above. Although we acknowledge that climate change is expected to exacerbate the frequency and severity of extreme weather events, we believe

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<sup>129</sup> David Herring, *What Is an ‘Extreme Event’? Is There Evidence that Global Warming Has Caused or Contributed to Any Particular Extreme Event?*, NOAA (Oct. 29, 2020), <https://www.climate.gov/news-features/climate-qa/what-extreme-event-there-evidence-global-warming-has-caused-or-contributed>.

<sup>130</sup> EDF/Sabin Center Comments at 9-10.

that climate risks manifest in wider, more gradually onsetting risks that are not the focus of this proceeding.<sup>131</sup> In addition, question 9 requires respondents to describe the “methods and processes the transmission provider uses, or plans to use, to determine the meteorological data needed for its assessment” and question 10 requires respondents to describe how they determine whether to use scenario analysis. We adopt these questions in this final rule and, as discussed further in the Inputs section, expect respondents to discuss in their reports the extent to which they incorporate or consider climatic trends in determining the meteorological data needed and identifying and/or developing extreme weather projections or scenarios for their assessments, if applicable.

58. Public Interest Organizations and EDF/Sabin Center seek to expand the scope of the reporting requirement beyond transmission assets and operations to include analysis of generation, distribution, and demand side resources. We decline to expand the reporting requirement. As discussed above, the focus of this rulemaking is extreme weather impacts to jurisdictional transmission assets and operations. We have chosen to focus this rulemaking on jurisdictional transmission providers because of the key role that the transmission system can play in ensuring reliability and resilience. In addition, expanding the scope of this final rule would result in adding a significant number of additional respondents; increase the burden on respondents that own transmission as well

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<sup>131</sup> Respondents may of course voluntarily describe the extent to which they analyze climate risks, if they so desire.

as generation and/or distribution; and increase the burden on the Commission to review and analyze the responses.

59. We further disagree with MISO's assertion that the NOPR's proposed reporting requirement would provide the Commission with little new information on how transmission providers assess and mitigate the impacts of extreme weather to their systems. We instead find that the information provided through these reports will help the Commission carry out its responsibilities under the FPA to oversee the development and enforcement of reliability standards for the bulk-power system and ensure that the rates, terms, and conditions of Commission-jurisdictional services are just and reasonable and not unduly discriminatory or preferential.

60. Regarding commenters' assertions that a one-time information collection may not be sufficient, and that the NOPR's proposed reporting requirement could likely lead to additional information collections or technical conferences, we reiterate that we are neither requiring a recurring reporting requirement nor are we establishing further proceedings at this time. We are not persuaded by commenters that request that the Commission also commit at this time to convene a technical conference or forum to address these issues after the reports are filed. The Commission will assess whether further actions are appropriate after reviewing the reports. As discussed herein, and consistent with the Commission's broad discretion in formulating its procedures, we find

that the approach in this final rule that requires transmission providers to file the one-time informational reports to be appropriate.<sup>132</sup>

61. Finally, we decline Bureau of Reclamation's request that the Commission collect informational reports using an online form. Respondents must file reports using the Commission's eFiling portal, as they would with any other submission to the Commission. Likewise, in response to Xcel's request for guidance on report formatting, we confirm that transmission providers should provide narrative responses to each individual question listed in Appendix A. They may file their reports in these dockets using a file format allowable under the eFiling portal.

## **B. Scope**

### **1. NOPR Proposal**

62. In the NOPR, the Commission proposed to require each transmission provider to explain, as a threshold matter, whether it conducts extreme weather vulnerability assessments. Further, the Commission proposed to require each transmission provider to file information on the policies and processes it employs, or plans to employ, in determining the scope of its extreme weather vulnerability assessments. Specifically, through the questions on scope, the Commission proposed to seek a description of the types of extreme weather events for which the transmission provider conducts, or plans to

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<sup>132</sup> See, e.g., *Vt. Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc.*, 435 U.S. 519, 524-25 (1978) (agencies have broad discretion over the formulation of their procedures); *Stowers Oil & Gas Co.*, 27 FERC ¶ 61,001 (1984) (stating that the Commission is generally the master of its own calendar and procedures).

conduct, vulnerability assessments, if any, as well as a description of how the transmission provider determined which extreme weather hazards and which transmission assets and operations to examine. The Commission also proposed to seek a description of how the transmission provider determines the assessment's geographic or regional scope, and whether the transmission provider also considers, or plans to consider, external interdependencies (such as other critical infrastructure sectors and supply chain-related vulnerabilities). The Commission further proposed to seek information on whether, and to what extent, the transmission provider coordinates, or plans to coordinate, with neighboring utilities or other relevant entities while completing their assessment. Finally, the Commission proposed to seek information on whether, and to what extent, the transmission provider engages, or plans to engage, with stakeholders in the scoping phase of the assessment, inclusive of processes used to identify and engage with relevant groups, including disadvantaged and vulnerable communities, and incorporate relevant feedback.<sup>133</sup>

## 2. Comments

63. Commenters generally support the questions in the NOPR on the scope of the extreme weather vulnerability assessments. Ameren agrees that the six scope-related questions—ranging from a description of the types of extreme weather events for which the transmission provider conducts, or would conduct, extreme weather vulnerability assessments, to whether and to what extent the transmission provider considers, or plans

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<sup>133</sup> NOPR, 179 FERC ¶ 61,196 at P 28.



to consider, external interdependencies—are reasonable.<sup>134</sup> WE ACT supports transmission providers incorporating broad geographic or regional scopes and assessing long-term extreme weather events such as drought.<sup>135</sup> WE ACT also praises the Commission for highlighting PG&E as a case study for exemplifying the consideration of external interdependencies including utilities and community- and customer-level resilience.<sup>136</sup>

64. Some commenters contend that the scope of the extreme weather vulnerability assessment should be modified in various ways. EDF/Sabin Center argue that transmission providers should be required to specifically report on the frequency with which assessments are conducted or updated.<sup>137</sup> WE ACT asserts that transmission providers should also assess vulnerabilities to upstream and downstream interdependencies, such as water, telecommunications, and community and customer-level resilience.<sup>138</sup> Public Interest Organizations similarly argue the Commission should require transmission providers to report on gas-electric coordination, including “natural gas production, storage, and transportation systems” as critical interdependencies with the

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<sup>134</sup> Ameren Comments at 7.

<sup>135</sup> WE ACT Comments at 5-6.

<sup>136</sup> *Id.*

<sup>137</sup> EDF/Sabin Center Comments at 14-15.

<sup>138</sup> WE ACT Comments at 5-6.

bulk-power system.<sup>139</sup> PJM contends that transmission providers should be required to describe any steps being taken to enhance gas-electric coordination to better integrate the development of new natural gas infrastructure with the development of new generation infrastructure.<sup>140</sup> EDF/Sabin Center similarly assert that some questions, such as question 6, should be expanded to request specific information on whether and how the transmission provider coordinates with distribution system operators and considers interdependencies with the distribution system.<sup>141</sup>

65. EDF/Sabin Center and WE ACT assert that transmission providers should engage in a process of vulnerability assessment and resilience planning regularly, assessing climate-related vulnerabilities and any updates to methodologies, while evaluating measures to reduce those vulnerabilities.<sup>142</sup> WE ACT supports periodic reports and states that they may allow the Commission to stay up-to-date with climate science and evolving extreme weather vulnerability assessment methodologies.<sup>143</sup> EDF/Sabin Center state that although these risks will vary on a regional basis, there are certain general principles for

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<sup>139</sup> Public Interest Organizations Comments at 8.

<sup>140</sup> PJM TOs Comments at 7-8.

<sup>141</sup> EDF/Sabin Center Comments at 17-18.

<sup>142</sup> *Id.* at 8-9; WE ACT Comments at 5.

<sup>143</sup> WE ACT Comments at 5.

assessing and planning for the impacts of climate change that all transmission providers should follow.<sup>144</sup>

66. Commenters argue that the reports should also highlight impacts on disadvantaged communities. Public Interest Organizations contend that transmission providers should report on how they engage with disadvantaged and vulnerable communities as stakeholders, arguing that these communities have distinct perspectives on how extreme weather impacts on the power system affect them, and that it is insufficient for transmission providers only to seek information on these communities from other stakeholders.<sup>145</sup> Public Interest Organizations further argue that the Commission should require transmission providers to report on any ways in which they consider the effect of extreme weather vulnerabilities on disadvantaged or vulnerable communities in their extreme weather vulnerability assessments.<sup>146</sup>

67. WE ACT agrees that transmission providers should report on their efforts to identify and engage with disadvantaged communities, as well as community and environmental justice groups, during the scoping phase of their extreme weather vulnerability assessments and how they incorporate feedback from such engagement into

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<sup>144</sup> *Id.*; EDF/Sabin Center Comments at 9 (stating that climate vulnerability assessments should (1) be based on scientifically credible climate projections that anticipate future conditions; (2) examine long time horizons and all possible climate change impacts that could occur over assets' useful lives; and (3) recognize interactions between the bulk-power system, distribution systems, load impacts, and other sectors).

<sup>145</sup> Public Interest Organizations Comments at 11.

<sup>146</sup> *Id.* at 3.

their assessment process.<sup>147</sup> WE ACT notes that communities of color and environmental justice and frontline communities experience disproportionately higher burdens from extreme weather due to higher energy burdens, lack of backup supplies and backup generators, higher reliance on electrical medical equipment, lower prioritization for power outage restoration, historic underinvestment in infrastructure, and disinvestment from redlining.<sup>148</sup> WE ACT asserts that transmission providers should report on the processes used to identify and engage them and to incorporate their feedback into the extreme weather vulnerability assessment.

### **3. Commission Determination**

68. We adopt the NOPR proposal to require transmission providers to report on how they determine the scope of their extreme weather vulnerability assessments. However, as explained below we modify the threshold reporting question, question 1, so that the question addresses frequency of assessments. We also add question 3 on the definition of extreme weather as discussed below. Otherwise, the Commission in this final rule is requiring transmission providers to respond to the set of questions regarding scope as proposed in the NOPR, set forth as question 2 and questions 4 through 8.

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<sup>147</sup> WE ACT Comments at 6.

<sup>148</sup> *Id.* at 1-2 (citing Reuters, *Creaky US Power Grid Threatens Progress on Renewables, EVs* (May 12, 2022 10:00 AM), <https://www.reuters.com/investigates/special-report/usa-renewables-electric-grid/>).

69. We modify the NOPR proposal to require transmission providers to report on the frequency with which they conduct extreme weather vulnerability assessments.<sup>149</sup> Such responses will help the Commission understand the extent to which transmission providers are performing extreme weather vulnerability assessments, a point noted by EDF/Sabin Center.<sup>150</sup>

70. With respect to commenters' assertions that the Commission should require transmission providers to report specifically on gas-electric coordination, we find that no modification of the NOPR proposal is necessary. Question 6 requires transmission providers to describe "whether and to what extent the transmission provider considers, or plans to consider, external interdependencies, such as interconnected utilities, other critical infrastructure sectors (e.g., water, telecommunications) and supply chain-related vulnerabilities, in the [extreme weather vulnerability] assessment." Natural gas delivery systems qualify as a type of external interdependency and would fall under this description. Therefore, to the extent that a transmission provider considers gas-electric interdependencies in its extreme weather vulnerability assessment, it should report on how it evaluates such interdependencies in its report.

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<sup>149</sup> For clarity, we have modified the NOPR's proposed threshold question into a standalone question, question 1, in the reporting requirement. Although the question was previously set forth in the body of the NOPR, this modification will help ensure respondents fully comply with the reporting requirement.

<sup>150</sup> EDF/Sabin Center at 8-9.

## C. Inputs

### 1. NOPR Proposal

71. In the NOPR, the Commission proposed to require each transmission provider to provide information about the inputs it uses, or plans to use, for any extreme weather vulnerability assessment. Specifically, through the questions on inputs, the Commission proposed to seek a description of methods and processes the transmission provider uses, or plans to use, to determine the meteorological data needed for its assessment. The Commission requested that the description include how the transmission provider determines whether it can rely on existing extreme weather projections, and if so, whether such projections are adequately robust. The Commission also proposed to seek a description of how the transmission provider determines whether to use scenario analysis, and if so, whether the analysis includes multiple scenarios. The Commission proposed that the transmission provider discuss the extent to which it reviews neighboring transmission providers' extreme weather vulnerability assessments, if available, to evaluate the consistency of extreme weather projections between transmission providers, as well as the timeframe(s) and discount rate(s) selected for the extreme weather vulnerability assessment. Finally, the Commission proposed to seek a description of the methods and processes the transmission provider uses, or plans to use, to create an inventory of potentially vulnerable assets and operations.<sup>151</sup>

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<sup>151</sup> See NOPR, 179 FERC ¶ 61,196 at P 34.

## 2. Comments

72. Commenters generally support the questions on extreme weather vulnerability assessment inputs proposed in the NOPR.<sup>152</sup> Ameren avers that the questions are generally appropriate and answerable in a narrative format. Eversource supports the flexibility the Commission proposed to grant to transmission providers to determine the timeframes selected for the reports.<sup>153</sup>

73. Several commenters, however, provide suggestions on specific questions. In response to question 11, regarding the extent to which a transmission provider reviews neighboring transmission providers' extreme weather vulnerability assessments, Public Interest Organizations recommend that the Commission require transmission providers to report on how they coordinate and share their assessment information with neighboring transmission providers, rather than only requiring transmission providers to report on how they review their neighbors' assessments.<sup>154</sup> Ameren also notes that question 11 assumes a level of information sharing and/or alignment on extreme weather events between neighboring transmission providers that may not exist.<sup>155</sup> Therefore, Ameren recommends the Commission also (1) ask transmission providers whether, and to what extent, they share information and align on events with neighboring transmission

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<sup>152</sup> Ameren Comments at 9; Public Interest Organizations Comments at 13.

<sup>153</sup> Eversource Comments at 3 (citing NOPR, 179 FERC ¶ 61,196 at P 32).

<sup>154</sup> Public Interest Organizations at 3, 13.

<sup>155</sup> Ameren Comments at 9-10.

providers, and (2) ask RTOs/ISOs how they account for differences in transmission owner members' assumptions about extreme weather events.<sup>156</sup>

74. Public Interest Organizations recommend that the Commission “add more specificity to the inputs the transmission provider must report on.”<sup>157</sup> Public Interest Organizations recommend that the Commission require transmission providers to explain whether they use historical or forward-looking weather data, whether and how they account for how climate change increases the frequency and magnitude of extreme weather events, and whether and how they account for the increasing frequency and severity of extreme weather in their analyses.<sup>158</sup>

75. EDF/Sabin Center assert that transmission providers should be required to describe the sources or data underlying the climate projections they use, how they determine whether existing projections are adequate or whether new projections are required, and whether they have a process for identifying or generating new projections or updating previously-used ones to make them more robust.<sup>159</sup> EDF/Sabin Center also assert that a question should be added to the inputs section requesting information on “methods, processes, and data sources the transmission provider uses to determine

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<sup>156</sup> *Id.* at 10.

<sup>157</sup> Public Interest Organizations Comments at 3.

<sup>158</sup> *Id.* at 13.

<sup>159</sup> EDF/Sabin Center Comments at 15.



anticipated electric demand.”<sup>160</sup> Additionally, EDF/Sabin Center argue that the questions about scenario analysis will not enable the Commission to determine whether transmission providers analyze worst-case scenarios.<sup>161</sup> EDF/Sabin Center recommend that the Commission request information on whether and how transmission providers determine which scenarios to use in their assessments.<sup>162</sup>

76. PJM states that it currently uses forecasting data to perform vulnerability analyses for the development of operating plans, generation owner/operator and transmission owner outage coordination, and interregional coordination. PJM argues that these assessments should be used as the framework for any extreme weather vulnerability assessment and be reviewed to incorporate appropriate levels of extreme weather testing.<sup>163</sup>

### **3. Commission Determination**

77. We adopt, with one modification, the NOPR proposal to require each transmission provider to report on the inputs it uses, or plans to use, for its extreme weather vulnerability assessment. Thus, we require transmission providers to respond to the set of questions regarding inputs as proposed in the NOPR, set forth as questions 9 through 13, with

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<sup>160</sup> *Id.* at 17-18.

<sup>161</sup> *Id.* at 15.

<sup>162</sup> *Id.*

<sup>163</sup> PJM Comments at 5 (citing PJM Technical Conference Comments, Docket AD21-13, at 3).

modification to question 11 requiring that each RTO/ISO provide a description of how it accounts for differences between transmission owner members' extreme weather vulnerability assessment assumptions and results.

78. We find that this revision, as proposed by Ameren, will allow RTOs/ISOs to describe how they account for differences in transmission owner members' assumptions about extreme weather events. Such information will give the Commission and the public a better understanding of how RTOs'/ISOs' own extreme weather vulnerability assessments address the variations in assumptions among their members. As Ameren expressed in its comments, this information will also avoid assuming that transmission providers use any information from neighboring transmission providers.

79. In response to Public Interest Organizations' and Ameren's concerns that the Commission should require transmission providers to report on coordination with neighboring transmission providers, we note that question 7 requires such reporting. It requires reporting on coordination with neighboring transmission providers as well as with neighboring utilities and other entities that could be relevant to the extreme weather vulnerability assessment. Additionally, question 11 requires reporting on the extent to which transmission providers review neighboring transmission providers' extreme weather vulnerability assessments. In response to commenters' requests that the Commission require reporting on whether, and to what extent, transmission providers share information with neighboring transmission providers, in question 19 transmission

providers must explain how they inform, or plan to inform, relevant stakeholders of identified extreme weather risks, including neighboring transmission providers.

80. We decline to require transmission providers to provide more specific information regarding the inputs used in their assessments. The questions regarding inputs address more broadly the policies and processes each transmission provider uses to select inputs as part of its extreme weather vulnerability assessment. For instance, question 9 requires a transmission provider to report on how it determines whether it can rely on existing extreme weather projections and whether its extreme weather projections are adequately robust. To the extent that a transmission provider considers historical versus forward-looking data as a factor in determining whether a projection is reliable and/or adequately robust, it may describe such considerations in its report.

81. Similarly, we decline to require reporting on whether and how transmission providers account for the increasing frequency and severity of extreme weather, as requested by Public Interest Organizations. To the extent that a transmission provider considers increasing frequency and severity of extreme weather events in evaluating extreme weather projections or in their scenario analysis, we find question 9 on extreme weather projection and question 10 on scenario analysis will allow the Commission to understand whether transmission providers account for these considerations.

**D. Vulnerabilities and Exposure to Extreme Weather Hazards****1. NOPR Proposal**

82. In the NOPR, the Commission proposed to direct each transmission provider to provide information about the methods or processes it uses, or plans to use, to assess the vulnerability of its transmission assets and operations to extreme weather events.

Specifically, through the questions on this topic, the Commission proposed to require each transmission provider to describe how it: (1) identifies the transmission assets or operations vulnerable to the extreme weather events for which it conducts assessments; (2) uses, or plans to use, screening analyses to test for potential vulnerabilities; and (3) examines, or plans to examine, the sensitivities of the transmission assets and operations being studied to types and magnitudes of extreme weather events.<sup>164</sup>

**2. Comments**

83. While Ameren supports the type of information the NOPR proposes to require, it also expresses concern that making information on how transmission providers identify vulnerable assets publicly available could expose vulnerabilities in transmission providers' processes that could be taken advantage of.<sup>165</sup> Therefore, Ameren suggests the Commission reconsider these questions to prevent the potential for information to be released that could be used by bad actors.<sup>166</sup>

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<sup>164</sup> NOPR, 179 FERC ¶ 61,196 at P 39.

<sup>165</sup> Ameren Comments at 11.

<sup>166</sup> *Id.*

### **3. Commission Determination**

84. We adopt the NOPR proposal to require transmission providers to report on the methods or processes they use, or plan to use, in their extreme weather vulnerability assessments to identify vulnerabilities and determine exposure to extreme weather hazards of their transmission assets and operations. Thus, we require transmission providers to respond to questions 14 and 15 regarding this topic.

85. As discussed below, the one-time informational reports do not require submission of the extreme weather vulnerability assessments themselves and should avoid the need for respondents to file Critical Energy/Electric Infrastructure Information.<sup>167</sup> We find that Ameren has not explained why disclosing information on how transmission providers identify assets that are vulnerable to extreme weather could, by itself, expose vulnerabilities that could be exploited by a bad actor.

#### **E. Costs of Impacts**

##### **1. NOPR Proposal**

86. The Commission proposed to require each transmission provider to provide information on whether, and if so how, it estimates, or plans to estimate, the costs associated with extreme weather impacts in its extreme weather vulnerability assessments. Specifically, through the questions on costs of impacts, the Commission proposed to seek a description of the methodology or process, if any, the transmission provider uses, or plans to use, to estimate the potential costs of extreme weather impacts

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<sup>167</sup> See *infra* P 109.

on identified vulnerable transmission assets and operations. If the transmission provider estimates such potential costs, the Commission further proposed to seek a description of: (a) direct costs, such as replacements or repair costs, restoration costs, associated labor costs, or opportunity costs of lost sales; and (b) indirect costs, such as costs associated with loss of service to electric customers and other utilities that purchase power from the transmission provider, including equipment damage, spoilage, and health and safety effects, in calculating the costs of extreme weather impacts.<sup>168</sup>

## 2. Comments

87. Commenters generally support the Commission's proposal.<sup>169</sup> EEI states that additional flexibility may be necessary with respect to how transmission providers can define direct costs and indirect costs as they relate to extreme weather impacts.<sup>170</sup> EEI elaborates that there is currently no broad agreement across the industry on methodologies for calculating the costs of extreme weather impacts.<sup>171</sup> Therefore, EEI requests that the Commission clarify that it will not require reporting of such information where agreed-upon methodologies are not yet developed.<sup>172</sup> Ameren's comments similarly underscore the need for flexibility, noting that some transmission providers may

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<sup>168</sup> NOPR, 179 FERC ¶ 61,196 at P 43.

<sup>169</sup> *See, e.g.*, Ameren Comments at 12.

<sup>170</sup> EEI Comments at 5-6.

<sup>171</sup> *Id.* at 6.

<sup>172</sup> *Id.*

use value of lost load to assess impacts without directly quantifying economic losses.<sup>173</sup>

Therefore, Ameren suggests that the Commission may want to consider seeking information on that approach and thresholds used.<sup>174</sup>

88. WE ACT notes that low-income communities and communities of color, who already experience higher energy burdens, will be disproportionately impacted by rising energy costs due to rebuilding the grid from and adapting it to extreme weather.<sup>175</sup>

Public Interest Organizations assert that the Commission should revise the NOPR proposal to require information about how transmission providers consider extreme weather impacts on disadvantaged and vulnerable communities in each section of the report and to report on how they consider the costs of extreme weather vulnerabilities to these communities, at each time interval of the outage, for example, 15 minutes out, hourly, or daily.<sup>176</sup>

### **3. Commission Determination**

89. We adopt, with one modification, the NOPR proposal to require transmission providers to report on how they estimate, or plan to estimate, the costs associated with extreme weather impacts in their extreme weather vulnerability assessments. Thus, we

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<sup>173</sup> Ameren Comments at 12.

<sup>174</sup> *Id.*

<sup>175</sup> WE ACT Comments at 3.

<sup>176</sup> Public Interest Organizations Comments at 11.

require transmission providers to respond to the questions regarding costs of impacts as proposed in the NOPR, set forth as questions 16 and 17.

90. In response to EEI's concerns around flexibility regarding the reporting of costs, as stated in the NOPR,<sup>177</sup> transmission providers that neither currently estimate nor plan to estimate the costs associated with extreme weather impacts in their extreme weather vulnerability assessments—or that do not conduct extreme weather vulnerability assessments at all—are not required to develop new methods to comply with this reporting requirement and may simply state that they do not perform such cost estimations. In response to Ameren's similar concerns about flexibility, we clarify that transmission providers should describe any methodologies or processes used to estimate the potential costs of extreme weather impacts on identified vulnerable transmission assets and operations, such as value of lost load, including those that do not directly quantify economic losses.

**F. Risk Mitigation**

**1. NOPR Proposal**

91. In the NOPR, the Commission proposed to require each transmission provider to report on the policies and processes it uses, or plans to use, to determine and implement appropriate measures for mitigating extreme weather risks identified by its vulnerability assessments. Specifically, through the questions on risk mitigation, the Commission proposed to require transmission providers to provide information regarding how they

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<sup>177</sup> NOPR, 179 FERC ¶ 61,196 at P 43.



currently, or plan to: (1) use extreme weather vulnerability assessment results to identify appropriate mitigation actions, including methods for determining highest impact and lowest cost mitigation measure portfolios; (2) inform relevant stakeholders and government agencies of vulnerabilities and mitigation plans; (3) incorporate extreme weather risk mitigation into local and regional transmission planning processes; and (4) measure the success of risk mitigation measures and incorporate findings into future mitigation actions.<sup>178</sup>

## 2. Comments

92. Ameren supports the NOPR's proposed questions on risk mitigation. Ameren states that Winter Storm Uri provides a recent example of the widespread effects of an extreme weather event. Ameren argues that it is incumbent on transmission providers to assess these and other types of extreme weather events and plan to have robust transmission systems and operational arrangements in place.<sup>179</sup> Public Interest Organizations generally support the proposed questions on risk mitigation.<sup>180</sup>

93. Public Interest Organizations and WE ACT support requiring information on how transmission providers inform disadvantaged, vulnerable, and frontline communities of extreme weather risks and mitigation measures.<sup>181</sup> Public Interest Organizations

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<sup>178</sup> *Id.* P 48.

<sup>179</sup> Ameren Comments at 13.

<sup>180</sup> Public Interest Organizations Comments at 14.

<sup>181</sup> *Id.* at 15; WE ACT Comments at 6.

recommend that the Commission expand the list of relevant stakeholders in question 19 to include disadvantaged and vulnerable communities and market monitors.<sup>182</sup> Public Interest Organizations further urge the Commission to require transmission providers to discuss whether they consider performance impacts in specific disadvantaged or vulnerable communities when evaluating extreme weather risk mitigation measures.<sup>183</sup>

94. PJM suggests that the questions should not necessarily be limited to “extreme weather risks and mitigation measures” but should also include additional questions such as how local and regional planning address the potential need for storm hardening of certain facilities and the steps being taken to reduce the criticality of CIP-14 facilities<sup>184</sup> through their planning processes.<sup>185</sup>

### **3. Commission Determination**

95. We adopt the NOPR proposal to require transmission providers to report on the policies and processes they use, or plan to use, to determine and implement appropriate measures to mitigate risks identified by their extreme weather vulnerability assessments.

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<sup>182</sup> Public Interest Organizations Comments at 15.

<sup>183</sup> *Id.* at 11.

<sup>184</sup> CIP-14 facilities are transmission stations and substations, and their associated primary control centers, that if rendered inoperable or damaged as a result of a physical attack could result in widespread instability, uncontrolled separation, or cascading within an interconnection.

<sup>185</sup> PJM Comments at 7-8.

Thus, we require transmission providers to respond to the set of questions regarding risk mitigation as proposed in the NOPR, set forth as questions 18 through 21.

96. With respect to the list of relevant stakeholders in question 19, that list was intended to provide examples of relevant stakeholders, it was not intended to be exhaustive of all potential stakeholders. To the extent that transmission providers inform, or plan to inform, all affected communities, market monitors, or any other relevant stakeholder groups not listed in question 19 of identified extreme weather risks and selected mitigation measures, they should report on how they currently, or plan to, do so.

97. Regarding PJM's request to require reporting on how local and regional transmission planning processes address the need for storm hardening, we find no modification of the NOPR proposal is necessary. Question 20 requires respondents to report "[a] description of the extent to which the transmission provider incorporates, or plans to incorporate, identified extreme weather risks and mitigation measures into local and regional transmission planning processes." Therefore, to the extent transmission providers incorporate, or plan to incorporate, identified risk mitigation measures into, and seek to address that risk through, local or regional transmission planning processes, they should report on that.

**G. Compliance Issues****1. Deadline for Filing the One-Time Informational Reports****a. NOPR Proposal**

98. The Commission proposed to require transmission providers to file the one-time informational reports within 90 days of the publication of any final rule in this proceeding in the *Federal Register*.

**b. Comments**

99. Commenters have different views about the proposed 90-day deadline for filing the one-time reports. Eversource, EEI, and MISO request that the Commission extend the submission period to at least 120 days after the publication of a final rule. Eversource states that a 120-day deadline would balance the urgency of the issues and the sensitivity of the information.<sup>186</sup> Eversource and EEI argue that a transmission provider's policies and practices would have to be internally vetted to avoid disclosing sensitive information.<sup>187</sup> EEI states that, in some cases, subject to the transmission provider's development of such policies and practices, the reporting requirement may require it to expend significant time and resources.<sup>188</sup> MISO asserts that preparing the report will be complex and that its work on the Reliability Imperative causes resource constraints, and

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<sup>186</sup> Eversource Comments at 3-4.

<sup>187</sup> *Id.*; EEI Comments at 8.

<sup>188</sup> EEI Comments at 8.

therefore requests a four-week extension.<sup>189</sup> PJM TOs prefer a longer timeline of 180 days, which they argue is more reasonable if transmission providers are required to develop and implement new protocols and metrics or acquire new software and technology to assess their extreme weather vulnerabilities.<sup>190</sup> On the other hand, EPSA argues that the information the Commission proposes to collect could be gathered more quickly than proposed.<sup>191</sup>

**c. Commission Determination**

100. We extend the submission deadline proposed in the NOPR and, accordingly, we alter the proposed compliance schedule. Specifically, we require transmission providers to file in the above-captioned dockets (that is, RM22-16-000 and AD21-13-000) the one-time reports within 120 days after the publication of this final rule in the *Federal Register*. We agree with commenters that extending the deadline could improve the quality of responses and facilitate coordination. We do not require transmission providers to develop new metrics, and therefore, we find that an extension beyond 120 days is unnecessary.<sup>192</sup>

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<sup>189</sup> MISO Comments at 4.

<sup>190</sup> PJM TOs Comments at 5-6.

<sup>191</sup> EPSA Comments at 8.

<sup>192</sup> See NOPR, 179 FERC ¶ 61,196 at P 22.

## 2. Public Comment on the One-Time Informational Reports

### a. NOPR Proposal

101. The Commission proposed to seek public comment on the reports 30 days after they are filed.

### b. Comments

102. EEI, Eversource, and Ameren do not support the Commission's proposal to seek public comments on the reports, while EDF/Sabin Center request that the comment period be extended to 60 days after the reports are filed.<sup>193</sup> EEI and Eversource claim that, generally, the Commission does not allow public comment on informational reports provided to the Commission and doing so would be a departure from Commission precedent.<sup>194</sup> EEI and Eversource state that informational reporting, including the one-time report proposed in the NOPR, is inappropriate for public comment because it threatens to turn good-faith and impartial information sharing into a de facto adversarial proceeding in which entities are compelled to defend themselves.<sup>195</sup> Eversource adds that an adversarial proceeding may undermine the Commission's use of the reports to assist its administration of the FPA and industry efforts to improve extreme weather policies

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<sup>193</sup> Ameren Comments at 14; EDF/Sabin Center Comments at 19; EEI Comments at 8-9; Eversource Comments at 4-5.

<sup>194</sup> Eversource Comments at 4.

<sup>195</sup> EEI Comments at 8-9; Eversource Comments at 4-5.

and procedures.<sup>196</sup> Ameren asserts that comments on the substance of a particular transmission provider's report are likely of little value because the proposed rule seeks descriptive information about the transmission provider's policies and practices without a standard by which to measure or judge them.<sup>197</sup> Ameren contends that the Commission did not contemplate an opportunity for transmission providers to respond to comments on the transmission provider's explanations or propose reforms. Eversource and Ameren add that if the Commission decides to pursue future reforms, including updates to its regulations, based on the information filed in the one-time reports, that proceeding would be the appropriate place to seek comments.<sup>198</sup>

103. Conversely, EPSA states that while the public should be afforded the opportunity to comment on Commission action, that part of the timeline is extremely compressed for any entity that may be impacted by multiple transmission providers.<sup>199</sup> EDF/Sabin Center assert that the Commission should allow at least 60 days for stakeholders to review and submit comments on the one-time reports.<sup>200</sup> WE ACT asserts that the reports should be available for public scrutiny, and notes that the Commission's Office of

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<sup>196</sup> Eversource Comments at 4-5.

<sup>197</sup> Ameren Comments at 14.

<sup>198</sup> *Id.*; Eversource Comments at 5.

<sup>199</sup> EPSA Comments at 3-4.

<sup>200</sup> EDF/Sabin Center Comments at 18-19.

Public Participation could play an important role in facilitating vigorous and meaningful public engagement.<sup>201</sup>

**c. Commission Determination**

104. We adopt the NOPR proposal to provide for public comment on the one-time informational reports.<sup>202</sup> We modify the due date for public comments so that public comments are due 60 days after the due date for filing the informational reports. By allowing the filing of comments 60 days after the due date for the filing of informational reports (rather than 30 days after as proposed), we address EPSA's concern that the comment period is extremely compressed for any entity that may be impacted by multiple transmission providers.

105. Given the impacts of extreme weather on transmission assets and operations, we believe that the Commission, transmission providers, and the stakeholder community at large will benefit from comments on the informational reports by establishing a more robust record. In turn, a record that includes public comments would better meet the goals of this reporting requirement to provide the Commission with information related to its statutory responsibilities regarding reliability and rates as well as to promote information sharing and best practices.

106. In response to EEI's and Eversource's statement that, generally, the Commission does not allow public comment on informational reports provided to the Commission and

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<sup>201</sup> WE ACT Comments at 5.

<sup>202</sup> NOPR, 179 FERC ¶ 61,196 at PP 10, 19.



that doing so would be a departure from Commission precedent, we note that the Commission has previously allowed public comment on informational reports filed with the Commission.<sup>203</sup> We disagree with Ameren's claim that public comments are likely of little value. As stated above, we believe public comment will in fact be beneficial because it will help establish a more robust record.

### **3. Treatment of Confidential Information**

#### **a. NOPR Proposal**

107. The Commission suggested that transmission providers should not need to file Critical Energy/Electric Infrastructure Information (CEII) given the focus of the one-time informational reports on policies and processes for assessing vulnerabilities rather than the assessments themselves. The Commission proposed that to the extent transmission providers believe that information they file warrants protections, they may make a request for such treatment pursuant to §§ 388.112 and 388.113 of the Commission's regulations.<sup>204</sup>

#### **b. Comments**

108. Commenters raised concerns about the sensitive nature of information about proposed or existing critical infrastructure. EEI and Eversource state that, because vulnerability assessments contain highly-sensitive information, they agree with the

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<sup>203</sup> *E.g., Modernizing Wholesale Elec. Mkt. Design*, 179 FERC ¶ 61,029, at P 1 (2022); *Grid Resilience in Reg'l Transmission Orgs. and Independent System Operators*, 162 FERC ¶ 61,012, at P 19 (2018).

<sup>204</sup> 18 CFR 388.112-113 (2022); NOPR, 179 FERC ¶ 61,196 at P 22.

Commission's decision to require transmission providers to report process-related information, rather than outcomes.<sup>205</sup> EEI states that transmission providers should be able to request protective treatment for certain information they file in their reports.<sup>206</sup> ERO Enterprise requests that the Commission share on a confidential basis with ERO Enterprise all reliability information filed to the Commission in these dockets that is afforded privileged treatment.<sup>207</sup> Eversource contends that the Commission should grant requests for privileged treatment in information contained in the reports marked as Critical Energy/Electric Infrastructure Information, or as confidential business or commercial information.<sup>208</sup>

**c. Commission Determination**

109. We reiterate that the Commission did not propose to require that transmission providers file extreme weather vulnerability assessments. Instead, the Commission proposed that the one-time informational reports focus on describing the current or planned policies and processes that respondents have in place, or plan to implement, to assess and mitigate extreme weather risks.<sup>209</sup> As stated in the NOPR, we continue to believe that this focus of the one-time informational reports should avoid the need for

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<sup>205</sup> EEI Comments at 4; Eversource Comments at 3.

<sup>206</sup> EEI Comments at 5.

<sup>207</sup> ERO Enterprise Comments at 6.

<sup>208</sup> Eversource Comments at 5.

<sup>209</sup> NOPR, 179 FERC ¶ 61,196 at P 22.

respondents to file privileged information or CEII.<sup>210</sup> However, to the extent a transmission provider believes that information it will file warrants protections, it may make a request for privileged or CEII treatment pursuant to §§ 388.112 and 388.113 of the Commission's regulations, and the Commission will address requests for privileged information or CEII consistent with applicable Commission regulations.<sup>211</sup> But again, we reiterate that we do not expect privileged information or CEII will need to be included in these one-time reports.

## **H. Issues Outside the Scope of this Final Rule**

### **1. Comments**

110. National Mining Association expresses concern that the retirement of coal generation could exacerbate extreme weather risks to the bulk-power system.<sup>212</sup> National Mining Association asserts that baseload coal generation is essential to ensuring grid reliability, especially during adverse weather events such as those contemplated by the

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<sup>210</sup> *Id.*

<sup>211</sup> 18 CFR 388.112-113. Section 388.112 of the Commission's regulations specifies that any person submitting a document to the Commission may request privileged treatment for some or all of the information contained in a particular document that it claims is exempt from the mandatory public disclosure requirements of the Freedom of Information Act, and that should be withheld from public disclosure. *See* 5 U.S.C. 552. Section 388.113 of the Commission's regulations governs the procedures for submitting, designating, handling, sharing, and disseminating Critical Energy/Electric Infrastructure Information submitted to or generated by the Commission.

<sup>212</sup> National Mining Association Comments at 2-3.

Commission.<sup>213</sup> Ampjack states that today's grid calls for a new holistic approach that brings together all utilities to fully maximize existing transmission line assets to increase capacity and optimize operating revenue.<sup>214</sup>

111. WE ACT argues that the Commission should reframe its approach to regulation to center on environmental justice and encourage a more holistic and accurate accounting of extreme weather impacts, inclusive of acknowledging inequitable energy burdens and how distributed renewables can increase resilience and lower costs for ratepayers.<sup>215</sup>

112. Public Interest Organizations contend that RTO/ISOs should be required to describe what, if any, effect extreme weather has on their markets.<sup>216</sup> Public Interest Organizations also recommend that the Commission require RTOs/ISOs to explain how they use extreme weather vulnerability assessment results to revise their market rules to mitigate extreme weather risks.<sup>217</sup> Public Interest Organizations argue that, because extreme weather impacts market functions, the Commission needs to understand how RTOs/ISOs use information on extreme weather risks in market formation.<sup>218</sup>

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<sup>213</sup> *Id.* at 7.

<sup>214</sup> Ampjack Comments at 4.

<sup>215</sup> WE ACT Comments at 3.

<sup>216</sup> Public Interest Organizations Comments at 7.

<sup>217</sup> *Id.* at 15.

<sup>218</sup> *Id.*

## 2. Commission Determination

113. The NOPR focuses on whether and how transmission providers are assessing and mitigating extreme weather risks to Commission-jurisdictional transmission assets and operations. Therefore, these comments are outside the scope of this proceeding and will not be addressed here.

## V. Information Collection Statement

114. The information collection requirements contained in this final rule are subject to review by the Office of Management and Budget (OMB) under section 3507(d) of the Paperwork Reduction Act of 1995.<sup>219</sup> OMB's regulations require approval of certain information collection requirements imposed by agency rules.<sup>220</sup> Upon approval of a collection of information, OMB will assign an OMB control number and an expiration date. Respondents subject to the filing requirements of a rule will not be penalized for failing to respond to the collection of information unless the collection of information displays a valid OMB control number.

115. This final rule, pursuant to FPA section 304, requires transmission providers<sup>221</sup> to file one-time reports on their extreme weather vulnerability assessment policies and

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<sup>219</sup> 44 U.S.C. 3507(d) (2022).

<sup>220</sup> 5 CFR 1320.11 (2022).

<sup>221</sup> As noted above, in this final rule, unless otherwise noted, we use the term "transmission provider" to mean any public utility that owns, controls, or operates facilities used for the transmission of electric energy in interstate commerce. *See* 16 U.S.C. 824(e); 18 CFR 35.28. To be clear, this term encompasses public utility transmission owners that are members of RTOs/ISOs. Accordingly, the reports we are proposing herein would be filed by either the public utility members of RTOs/ISOs, the

processes. The Commission believes requiring transmission providers to submit a one-time informational report on their current or planned efforts to assess the vulnerabilities of their jurisdictional transmission assets and operations to extreme weather events will assist in the proper administration of the FPA.

Title: One-Time Informational Reports on Extreme Weather Vulnerability Assessments

Action: Newly Implemented FERC-1004 collection of information in accordance with Docket Nos. RM22-16-000 and AD21-13-000.

OMB Control No.: 1902-TBD

Respondents: Transmission providers (including public utility transmission owners that are members of RTOs/ISOs and the RTOs/ISOs themselves).

Frequency of Information Collection: One time.

Necessity of Information: The Commission seeks to address the increasing risks of extreme weather to bulk-power system reliability and jurisdictional rates, and to better understand how transmission providers assess and mitigate those risks. The Commission believes the informational reports directed by this rulemaking will assist the Commission in the proper administration of the FPA.

Internal Review: The Commission has reviewed the reporting requirement and has determined that such a requirement is necessary. These requirements conform to the Commission's need for efficient information collection, communication, and

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RTOs/ISOs themselves, or both, as well as other public utility transmission providers outside of RTO/ISO regions.

management within the energy industry. The Commission has specific, objective support for the burden estimates associated with the information collection requirements.

Interested persons may obtain information on the reporting requirements by contacting Ellen Brown, Office of the Executive Director, Federal Energy Regulatory Commission, 888 First Street, NE, Washington, DC 20426 via email ([DataClearance@ferc.gov](mailto:DataClearance@ferc.gov)) or telephone ((202) 502-8663).

Public Reporting Burden: Our estimates are based on the NERC Compliance Registry as of April 7, 2023 and each RTO/ISO’s list of participating transmission owners per their websites, which indicates that there are 47 transmission providers<sup>222</sup> (including the six RTOs/ISOs) and 81 transmission owners that are registered with NERC within the United States and are subject to this rulemaking.<sup>223</sup>

116. The Commission estimates that the burden<sup>224</sup> and cost of the FERC-1004 are as follows:

<b>FERC-1004, Final Rule in Docket Nos. RM22-16-000 and AD21-13</b>				
<b>A. Area of Modification</b>	<b>B. Annual Number of</b>	<b>C. Annual Estimated</b>	<b>D. Average Burden Hours</b>	<b>E. Total Estimated Burden Hours &amp;</b>

<sup>222</sup> The transmission service provider (TSP) function is a NERC registration function which is similar to the transmission provider that is referenced in the pro forma Open Access Transmission Tariff. The TSP function is being used as a proxy to estimate the number of transmission providers that are impacted by this proposed rulemaking.

<sup>223</sup> The number of entities listed from the NERC Compliance Registry reflects the omission of the Texas RE registered entities.

<sup>224</sup> “Burden” is the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. For further explanation of what is included in the information collection burden, refer to 5 CFR 1320.3 (2022).

	<b>Respondents</b>	<b>Number of Responses (1 per respondent)</b>	<b>&amp; Cost<sup>225</sup> per Response</b>	<b>Total Estimated Cost (Column C x Column D)</b>
Report on Extreme Weather Vulnerability Assessment (one-time)	128 (47 TPs <sup>226</sup> and 81 TOs)	128	Year 1: 94.5 hours; \$8,599.50 Subsequent Years: 0 hours per year; \$0	Year 1: 12,096 hours; \$1,100,736 Subsequent Years: 0 hours per year; \$0

## **VI. Environmental Analysis**

117. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.<sup>227</sup> The actions proposed to be taken here fall within categorical exclusions in the Commission's regulations for rules regarding information gathering, analysis, and dissemination, and for rules regarding sales, exchange, and transportation of natural gas that require no construction of facilities.<sup>228</sup> Therefore, an environmental review is unnecessary and has not been prepared in this rulemaking.

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<sup>225</sup> Commission staff estimates that respondents' hourly wages plus benefits are comparable to those of FERC employees. Therefore, the hourly cost used in this analysis is \$91.00 (or \$188,922 per year).

<sup>226</sup> The number of entities listed from the NERC Compliance Registry reflects the omission of the Texas RE registered entities.

<sup>227</sup> *Reguls. Implementing the Nat'l Env't Pol'y Act*, Order No. 486, 52 FR 47,897 (Dec. 17, 1987), FERC Stats. & Regs. ¶ 30,783 (1987) (cross-referenced at 41 FERC ¶ 61,284).

<sup>228</sup> See 18 CFR 380.4(a)(2)(ii), 380.4(a)(5) & 380.4(a)(27) (2022).



## VII. Regulatory Flexibility Act

118. The Regulatory Flexibility Act of 1980 (RFA)<sup>229</sup> generally requires a description and analysis of proposed rules that will have significant economic impact on a substantial number of small entities. The RFA mandates consideration of regulatory alternatives that accomplish the stated objectives of a proposed rule and minimize any significant economic impact on a substantial number of small entities.<sup>230</sup> The Small Business Administration (SBA) sets the threshold for what constitutes a small business. Under SBA's size standards,<sup>231</sup> transmission providers (including RTOs/ISOs) and transmission owners fall under the category of Electric Bulk Power Transmission and Control (NAICS code 221121),<sup>232</sup> with a size threshold of 950 employees (including the entity and its associates).<sup>233</sup>

119. We estimate that there are 128 total transmission providers and owners that (including the six RTOs/ISOs) are affected by the final rule. Using the list of

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<sup>229</sup> 5 U.S.C. 601-612.

<sup>230</sup> *Id.* 603(c).

<sup>231</sup> 13 CFR 121.201 (2022).

<sup>232</sup> The North American Industry Classification System (NAICS) is an industry classification system that Federal statistical agencies use to categorize businesses for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. economy. United States Census Bureau, North American Industry Classification System, <https://www.census.gov/eos/www/naics/>.

<sup>233</sup> The threshold for the number of employees indicates the maximum allowed for an entity and its affiliates to be considered small. 13 CFR 121.201.

transmission service providers from the NERC Registry (dated April 7, 2023), we estimate that approximately 19% of those entities are small entities. We estimate an additional average one-time cost of \$8,599.50 for each of the 128 entities affected by the final rule.

120. According to SBA guidance, the determination of significance of impact “should be seen as relative to the size of the business, the size of the competitor’s business, and the impact the regulation has on larger competitors.”<sup>234</sup> We do not consider the estimated cost to be a significant economic impact. As a result, pursuant to section 605(b) of the RFA,<sup>235</sup> the Commission certifies that the final rule will not have a significant economic impact on a substantial number of small entities.

### **VIII. Document Availability**

121. In addition to publishing the full text of this document in the *Federal Register*, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through the Commission’s Home Page (<http://www.ferc.gov>).

122. From the Commission’s Home Page on the Internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this

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<sup>234</sup> U.S. SMALL BUS. ADMIN., *A Guide for Government Agencies How to Comply with the Regulatory Flexibility Act* 18 (August 2017), <https://cdn.advocacy.sba.gov/wp-content/uploads/2019/06/21110349/How-to-Comply-with-the-RFA.pdf>.

<sup>235</sup> 16 U.S.C. 605(b).

document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

123. User assistance is available for eLibrary and the Commission's website during normal business hours from the Commission's Online Support at (202) 502-6652 (toll free at 1-866-208-3676) or email at [ferconlinesupport@ferc.gov](mailto:ferconlinesupport@ferc.gov), or the Public Reference Room at (202) 502-8371, TTY (202) 502-8659. E-mail the Public Reference Room at [public.referenceroom@ferc.gov](mailto:public.referenceroom@ferc.gov).

**IX. Effective Date and Congressional Notification**

124. This rule will become effective **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Each transmission provider must file the one-time informational report required by this final rule by **[INSERT DATE 120 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The Commission has determined, with the concurrence of the Administrator of the Office of Information and Regulatory Affairs of OMB, that this rule is not a "major rule" as defined in section 351 of the Small Business Regulatory Enforcement Fairness Act of 1996.

By the Commission. Chairman Phillips and Commissioner Clements are concurring with a joint statement attached.  
Commissioner Danly is concurring in part with a separate statement attached.

( S E A L )

Kimberly D. Bose,  
Secretary.

Note: The following appendices will not appear in the Code of Federal Regulations.

**X. Appendix A: Report Questions**

For the reasons discussed in this final rule we direct transmission providers to file a one-time informational report related to their extreme weather vulnerability assessment policies and processes, if any. The report must respond to the following questions.

Q1) As a threshold matter, state whether the transmission provider conducts extreme weather vulnerability assessments, and if so, how frequently it conducts those assessments.

**A. Scope**

Q2) A description of the types of extreme weather events for which the transmission provider conducts, or plans to conduct, extreme weather vulnerability assessments, if any. For transmission providers that conduct, or plan to conduct, such assessments, a description of how the transmission provider determined which extreme weather hazards to include in the assessment (e.g., extreme storms such as hurricanes and the associated flooding and high winds, wildfires, extreme prolonged heat or cold, or drought conditions);

Q3) A description of how the transmission provider defines an extreme weather event for the purposes of its extreme weather vulnerability assessment, including what thresholds it uses relative to historical measurements or probabilities of occurrence, if applicable;

Q4) A description of how the transmission provider selects, or plans to select, the set of assets and operations that will be examined;

- Q5) A description of how the transmission provider determines, or plans to determine, the geographic or regional scope of the analysis;
- Q6) A description of whether and to what extent the transmission provider considers, or plans to consider, external interdependencies, such as interconnected utilities, other critical infrastructure sectors (e.g., water, telecommunications) and supply chain-related vulnerabilities, in the assessment;
- Q7) A description of whether and to what extent the transmission provider coordinates, or plans to coordinate, with neighboring utilities and/or entities in other sectors that could potentially be relevant to the assessment;
- Q8) A description of whether and to what extent the transmission provider engages, or plans to engage, with stakeholders in the scoping phase of the assessment, including the processes used to identify and engage relevant stakeholder groups and incorporate stakeholder feedback into the extreme weather vulnerability assessment, including all affected communities.

**B. Inputs**

- Q9) A description of methods and processes the transmission provider uses, or plans to use, to determine the meteorological data needed for its assessment. In particular, how the transmission provider determines whether it can rely on existing extreme weather projections, and if so, whether such projections are adequately robust;
- Q10) A description of how the transmission provider determines whether to use scenario analysis, and if so, whether to do so with multiple scenarios;

- Q11) The extent to which it reviews neighboring transmission providers' extreme weather vulnerability assessments, if available, to evaluate the consistency of extreme weather projections between transmission providers. Further, for RTOs/ISOs, a description of how it accounts for differences between transmission owner members' extreme weather vulnerability assessment assumptions and results;
- Q12) The timeframe(s) and discount rate(s) selected for the extreme weather vulnerability assessment;
- Q13) A description of the methods and processes the transmission provider uses, or plans to use, to create an inventory of potentially vulnerable assets and operations.

**C. Vulnerabilities and Exposure to Extreme Weather Hazards**

- Q14) A description of how the transmission provider identifies the transmission assets or operations vulnerable to the extreme weather events for which it conducts assessments;
- Q15) A description of how the transmission provider uses, or plans to use, screening analyses to test for potential vulnerabilities, as well as how the transmission provider examines, or plans to examine, the sensitivities of the transmission assets and operations being studied to types and magnitudes of extreme weather events.

**D. Costs of Impacts**

- Q16) A description of the methodology or process, if any, the transmission provider uses, or plans to use, to estimate the potential costs of extreme weather impacts on

identified vulnerable assets and operations;

Q17) If the transmission provider estimates such potential costs, a description of the types of: (a) direct costs, such as replacements or repair costs, restoration costs, associated labor costs, or opportunity costs of lost sales, and (b) indirect costs, such as costs associated with loss of service to electric customers and other utilities that purchase power from the transmission provider, including equipment damage, spoilage, and health and safety effects, in calculating the costs of extreme weather impacts.

**E. Risk Mitigation**

Q18) A description of how the transmission provider uses, or plans to use, the results of its assessment to develop measures to mitigate extreme weather risks, including:

- i. How the transmission provider determines which risks should be mitigated and the appropriate time horizon for mitigation;
- ii. How the transmission provider determines appropriate extreme weather risk mitigation measures, including any analyses used to determine the lowest-cost or most impactful portfolio of measures;

Q19) A description of how the transmission provider informs, or plans to inform, relevant stakeholders—such as neighboring transmission providers, RTOs/ISOs of which the transmission provider is a member, electric customers, all affected communities, emergency management agencies, local and state administrations, and state utility regulators—of identified extreme weather risks and selected



mitigation measures;

- Q20) A description of the extent to which the transmission provider incorporates, or plans to incorporate, identified extreme weather risks and mitigation measures into local and regional transmission planning processes;
- Q21) A description of how the transmission provider measures, or plans to measure, the progress and success of extreme weather risk mitigation measures (e.g., through reduced outages) and how it incorporates these observations into ongoing and future extreme weather risk mitigation actions.

**XI. Appendix B: Edits Demonstrating Modifications to Report Questions**  
**Proposed in the NOPR**

The following compares the reporting requirement proposed in the NOPR with the reporting requirement adopted in this final rule. Deletions from the NOPR proposal appear in brackets and additions appear in italics. Please note that this convention does not apply to question numbers, which appear as they do in the final rule:

*For the reasons discussed in this final rule we direct transmission providers to file a one-time informational report related to their extreme weather vulnerability assessment policies and processes, if any. The report must respond to the following questions.*

Q1) *As a threshold matter, state whether the transmission provider conducts extreme weather vulnerability assessments, and if so, how frequently it conducts those assessments.*

**A. Scope**

[As a threshold matter, we propose that each transmission provider state whether it conducts extreme weather vulnerability analyses. Further, we propose to require each transmission provider to provide the following information on the policies and processes they employ, or plan to employ, for determining the scope of extreme weather vulnerability assessments:]

Q2) A description of the types of extreme weather events for which the transmission provider conducts, or plans to conduct, extreme weather vulnerability assessments, if any. For transmission providers that conduct, or plan to conduct, such

- assessments, a description of how the transmission provider determined which extreme weather hazards to include in the assessment (e.g., extreme storms such as hurricanes and the associated flooding and high winds, wildfires, extreme prolonged heat or cold, or drought conditions);
- Q3) *A description of how the transmission provider defines an extreme weather event for the purposes of its extreme weather vulnerability assessment, including what thresholds it uses relative to historical measurements or probabilities of occurrence, if applicable;*
- Q4) A description of how the transmission provider selects, or plans to select, the set of assets and operations that will be examined;
- Q5) A description of how the transmission provider determines, or plans to determine, the geographic or regional scope of the analysis;
- Q6) A description of whether and to what extent the transmission provider considers, or plans to consider, external interdependencies, such as interconnected utilities, other critical infrastructure sectors (e.g., water, telecommunications) and supply chain-related vulnerabilities, in the assessment;
- Q7) A description of whether and to what extent the transmission provider coordinates, or plans to coordinate, with neighboring utilities and/or entities in other sectors that could potentially be relevant to the assessment;
- Q8) A description of whether and to what extent the transmission provider engages, or plans to engage, with stakeholders in the scoping phase of the assessment,

including the processes used to identify and engage relevant stakeholder groups and incorporate stakeholder feedback into the extreme weather vulnerability assessment, [especially with regard to disadvantaged or vulnerable] *including all affected* communities.

**B. Inputs**

- Q9) A description of methods and processes the transmission provider uses, or plans to use, to determine the meteorological data needed for its assessment. In particular, how the transmission provider determines whether it can rely on existing extreme weather projections, and if so, whether such projections are adequately robust;
- Q10) A description of how the transmission provider determines whether to use scenario analysis, and if so, whether to do so with multiple scenarios;
- Q11) The extent to which it reviews neighboring transmission providers' extreme weather vulnerability assessments, if available, to evaluate the consistency of extreme weather projections between transmission providers. *Further, for RTOs/ISOs, a description of how it accounts for differences between transmission owner members' extreme weather vulnerability assessment assumptions and results;*
- Q12) The timeframe(s) and discount rate(s) selected for the extreme weather vulnerability assessment;
- Q13) A description of the methods and processes the transmission provider uses, or plans to use, to create an inventory of potentially vulnerable assets and operations.

**C. Vulnerabilities and Exposure to Extreme Weather Hazards**

- Q14) A description of how the transmission provider identifies the transmission assets or operations vulnerable to the extreme weather events for which it conducts assessments;
- Q15) A description of how the transmission provider uses, or plans to use, screening analyses to test for potential vulnerabilities, as well as how the transmission provider examines, or plans to examine, the sensitivities of the transmission assets and operations being studied to types and magnitudes of extreme weather events.

**D. Cost of Impacts**

- Q16) A description of the methodology or process, if any, the transmission provider uses, or plans to use, to estimate the potential costs of extreme weather impacts on identified vulnerable assets and operations;
- Q17) If the transmission provider estimates such potential costs, a description of the types of: (a) direct costs, such as replacements or repair costs, restoration costs, associated labor costs, or opportunity costs of lost sales, and (b) indirect costs, such as costs associated with loss of service to electric customers and other utilities that purchase power from the transmission provider, including equipment damage, spoilage, and health and safety effects, in calculating the costs of extreme weather impacts.

**E. Risk Mitigation**

- Q18) A description of how the transmission provider uses, or plans to use, the results of its assessment to develop measures to mitigate extreme weather risks, including:
- i. How the transmission provider determines which risks should be mitigated and the appropriate time horizon for mitigation;
  - ii. How the transmission provider determines appropriate extreme weather risk mitigation measures, including any analyses used to determine the lowest-cost or most impactful portfolio of measures;
- Q19) A description of how the transmission provider informs, or plans to inform, relevant stakeholders—such as neighboring transmission providers, RTOs/ISOs of which the transmission provider is a member, electric customers, *all* affected [and frontline] communities, [shareholders and investors,] emergency management agencies, local and state administrations, and state utility regulators—of identified extreme weather risks and selected mitigation measures;
- Q20) A description of the extent to which the transmission provider incorporates, or plans to incorporate, identified extreme weather risks and mitigation measures into local and regional transmission planning processes;
- Q21) A description of how the transmission provider measures, or plans to measure, the progress and success of extreme weather risk mitigation measures (e.g., through reduced outages) and how it incorporates these observations into ongoing and future extreme risk mitigation actions.

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

One-Time Informational Reports on Extreme Weather Vulnerability Assessments	Docket Nos. RM22-16-000
Climate Change, Extreme Weather, and Electric System Reliability	AD21-13-000

(Issued June 15, 2023)

PHILLIPS, Chairman, and CLEMENTS, Commissioner, *concurring*:

1. Today’s final rule will facilitate better preparation for extreme weather by requiring transmission providers to file one-time informational reports with the Commission discussing vulnerability assessments that they carry out. We write separately to encourage transmission providers to include within those reports a discussion of the intersection of these assessments and disadvantaged and vulnerable communities.<sup>1</sup>

2. In this proceeding and in response to a recent Commission-led Roundtable on Environmental Justice and Equity in Infrastructure Permitting, commenters highlighted that disadvantaged communities may face disproportionate risks from the increasing frequency and severity of extreme weather events, including higher utility prices and

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<sup>1</sup> The Commission is requiring these reports pursuant to section 304 of the Federal Power Act. Section 304 empowers the Commission to seek information “necessary or appropriate to assist the Commission in the proper administration of [the FPA].” 16 U.S.C. 825c(a). Congress provided such reports could be on a broad range of topics. These topics include “among other things, full information as to assets and liabilities . . . generation, transmission, distribution, delivery, use, and sale of electric energy.” *Id.* Although some have asked that the Commission indicate what it plans to do with the information, as the final rule makes clear, “the Commission will assess whether further actions are appropriate after viewing the reports.” Final Rule at P 61; *see also J.P. Morgan Ventures Energy Corp.*, 142 FERC ¶ 61,150 at PP 11-12 (2013) (stating that “the Commission controls its own dockets and has substantial discretion to manage its proceedings.”); *Fla. Mun. Power Agency v. FERC*, 315 F.3d 362, 366 (D.C. Cir. 2003) (noting that administrative agencies enjoy broad discretion to manage their own dockets).

prolonged outages.<sup>2</sup> Panelists and commenters underscored that environmental justice communities are particularly vulnerable to Commission decisions on electric and gas rates, reliability, resiliency, and resource mix because they suffer from higher energy burden<sup>3</sup> and often are both more vulnerable to and more at risk of outages.<sup>4</sup> For example, during Winter Storm Uri, low-income Texans bore the brunt of prolonged power loss. Commenters noted that areas with lower household incomes and higher percentages of ethnic minorities remained without power for longer.<sup>5</sup>

3. Reports to the Commission could address how transmission providers respond to these impacts in several ways. First, in answering question eight regarding stakeholder engagement, we encourage transmission providers to specifically report on how they engage with disadvantaged and vulnerable communities as stakeholders, rather than merely discussing how they obtain information about these communities from other stakeholders.<sup>6</sup> Transmission providers should report on how they incorporate feedback from disadvantaged and vulnerable community stakeholders into their extreme weather vulnerability assessments.

4. Second, beyond addressing the questions set forth in this final rule, we encourage transmission providers to discuss how they estimate or evaluate the cost of extreme weather vulnerabilities of transmission assets and operations that will be specifically borne by disadvantaged and vulnerable communities. Such discussion would benefit from a description of how such estimates or evaluations are carried out, including what types of direct, indirect, and/or other costs are considered in such analyses, and whether and how duration of extreme weather impacts are included in such estimates or

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<sup>2</sup> See WE ACT Comments at 2-4; WE ACT Comments, Docket No. AD23-5-000, at 6-7 (filed May 16, 2023); Center for Biological Diversity Comments, Docket No. AD23-5-000, at 6 (filed May 12, 2023).

<sup>3</sup> Energy burden is defined as the percentage of a household's annual income spent on energy consumption. High energy burdens are often defined as allocating greater than 6% of income towards energy costs, while severe energy burdens are those greater than 10% of income. Dep't of Health and Human Servs., *LIHEAP Energy Burden Evaluation Study* 8 (2005), [www.acf.hhs.gov/sites/default/files/ocs/comm\\_liheap\\_energyburdenstudy\\_apprise.pdf](http://www.acf.hhs.gov/sites/default/files/ocs/comm_liheap_energyburdenstudy_apprise.pdf).

<sup>4</sup> Environmental Defense Fund Comments, Docket No. AD23-5-000, at 4 (filed May 15, 2023).

<sup>5</sup> Americans for a Clean Energy Grid Comments, Docket No. AD23-5-000, at 4-5 (filed May 15, 2023).

<sup>6</sup> See WE ACT Comments at 6; Public Interest Organizations Comments at 11.



evaluations. Providing the Commission and the public with information on how transmission providers evaluate impacts to disadvantaged and vulnerable communities in their footprints could be a first step in developing industry best practices for considering impacts to disadvantaged and vulnerable communities of extreme weather risks.<sup>7</sup>

5. Third, we encourage transmission providers, in responding to question 21, to include a description of how the transmission provider measures, or plans to measure the progress and success of mitigation measures, specifically in disadvantaged and vulnerable communities. The Final Rule requires transmission providers to describe how they inform affected and frontline communities, and other stakeholders, of risks identified by extreme weather vulnerability assessments and selected mitigation measures.<sup>8</sup> Including a specific description of how mitigation measures in disadvantaged and vulnerable communities will be evaluated will help provide the Commission with a more complete picture of how transmission providers address impacts generally.

For these reasons, we respectfully concur.

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Willie L. Phillips  
Chairman

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Allison Clements  
Commissioner

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<sup>7</sup> WE ACT argues that “transmission planners need to assess vulnerabilities and mitigate” the risks of extreme weather events “on the electric grid, including the negative consequences for areas of low-income and communities of color.” WE ACT Comments at 5.

<sup>8</sup> See Final Rule, Question 19 (requiring a “description of how the transmission provider informs, or plans to inform relevant stakeholders—such as . . . all affected communities”); P 4 (“We use the term ‘affected communities’ in this final rule to include disadvantaged, vulnerable, and frontline communities”).

FEDERAL ENERGY REGULATORY COMMISSION

One-Time Informational Reports on Extreme Weather Vulnerability Assessments     Docket Nos.     RM22-16-000  
Climate Change, Extreme Weather, and Electric System Reliability     AD21-13-000

(Issued June 15, 2023)

DANLY, Commissioner, *concurring in the result*:

1. Last June, I concurred with the Commission's Notice of Proposed Rulemaking (NOPR) requiring one-time informational reports on extreme weather vulnerability assessments.<sup>1</sup> I wrote separately to express that, while the question of the weather's effect on reliability is a subject that doubtless merits study and planning, misguided government policies (not weather) have been the root cause of the impending reliability crises facing our markets.<sup>2</sup>

2. Today, I write separately, not to repeat my assessment that the United States is heading toward a reliability crisis (a prediction that is widely shared),<sup>3</sup> but to caution the Commission that it should not lose sight of the limits of its authority under the Federal Power Act (FPA). I acknowledge that the Final Rule generally adopts the NOPR without significant modification,<sup>4</sup> and that in my concurrence, I agreed that informational reports

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<sup>1</sup> *One-Time Informational Reports on Extreme Weather Vulnerability Assessments*, 179 FERC ¶ 61,196 (2022) (Danly, Comm'r, concurring) (NOPR).

<sup>2</sup> *Id.* (Danly, Comm'r, concurring at PP 2-5).

<sup>3</sup> See *Full Committee Hearing to Examine the Reliability & Resiliency of Elec. Servs. in the U.S. in Light of Recent Reliability Assessments & Alerts Before the S. Comm. on Energy & Natural Res.*, 118th Cong. (2023), <https://www.energy.senate.gov/hearings/2023/6/full-committee-hearing-to-examine-the-reliability-and-resiliency-of-electric-services-in-the-u-s-in-light-of-recent-reliability-assessments-and-alerts> (statements of North American Electric Reliability Corporation President and CEO Jim Robb and PJM Interconnection, L.L.C. President and CEO Manu Asthana in response to Senator Hoeven citing FERC Commissioners Mark Christie and Danly).

<sup>4</sup> See *One-Time Informational Reports on Extreme Weather Vulnerability Assessments*, Final Rule, 183 FERC ¶ 61,192 (2023) (Final Rule).

may help the Commission identify opportunities to avoid adverse rate impacts.<sup>5</sup> However, a question repeated by *nearly a third* of the commenters has given me pause and forced me to reconsider the information requested: How exactly does the Commission intend to use the information provided in the one-time informational reports?<sup>6</sup> In posing that question, one must also ask the question of whether the Commission can or should request that information in the first instance.

3. While FPA section 304<sup>7</sup> empowers the Commission to require special reports, it does not give the Commission *carte blanche* to require public utilities to file special reports disclosing *anything* it sees fit. The Commission must find that the special report is “necessary or appropriate to assist [it] in the proper administration” of the FPA<sup>8</sup>—that

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<sup>5</sup> NOPR, 179 FERC ¶ 61,196 (Danly, Comm’r, at P 2).

<sup>6</sup> See Edison Electric Institute, August 31, 2022 Initial Comments, at 3 (“the Commission should . . . clarify how the one-time informational reports will be used.”); *id.* at 7 (“The Commission should specify how it plans to use the information contained in the onetime reports. While the Commission notes that the reports ‘will enhance the Commission’s understanding of whether, and if so, how transmission providers are assessing risks to transmission assets and operations as a result of extreme weather events,’ and that ‘it is important for the Commission to understand whether and to what extent such assessments are being conducted to assist the Commission in the proper administration of the [Federal Power Act],’ it does not detail how it plans to utilize the information included in the reports to accomplish these ends.”) (footnote omitted); Eversource Energy Service Co., August 30, 2022 Comments, at 5 (“Eversource also respectfully requests that the Commission clarify how it will use the one-time reports and the information contained therein.”); PJM Transmission Owners, August 30, 2022 Comments, at 2 (“The Commission should provide clarification regarding how the one-time reports will be used for developing future transmission planning requirements.”); *id.* (“[T]he Indicated PJM Transmission Owners would like to better understand how the Commission intends to use this data.”); MISO Transmission Owners, August 30, 2022 Comments, at 2. (“[T]he MISO Transmission Owners encourage the Commission to explain in the final rule how it intends to act on the information provided by respondents.”<sup>6</sup>); *id.* at 4 (“The Extreme Weather Reports NOPR does not explain how these one-time reports will assist the Commission in accomplishing its goals.”); Xcel Energy Services, August 29, 2022 Initial Comments, at 5 (“the Commission should provide clarity about how it intends to use the information provided under this NOPR, if adopted”); *id.* at 6 (“[T]he manner in which the Commission intends to use information obtained through this NOPR, if adopted, is unclear.”).

<sup>7</sup> 16 U.S.C. § 825c(a).

<sup>8</sup> *Id.*

is, the information sought must “aid the Commission in exercising its powers.”<sup>9</sup> For instance, information on a public utilities’ community service, which had no effect on the rates charged, would not “aid[] the Commission in exercising its powers.”

4. In addition, the Paperwork Reduction Act requires that the Commission only collect information that is “necessary for the proper performance of the functions of the agency, including whether the information [will] have practical utility”<sup>10</sup> Can the agency “use [the] information” it collects?<sup>11</sup> If the information proposed to be collected by an agency is found “unnecessary[,] for any reason, the [Commission] may not engage in the collection of [the] information.”<sup>12</sup>

5. The Final Rule declares that the one-time informational report on policies and processes related to extreme weather vulnerability assessments is “necessary or appropriate” for the Commission to oversee the development and enforcement of reliability standards under FPA section 215 and to ensure that rates, terms, and conditions are just and reasonable and not unduly discriminatory or preferential under FPA sections 205 and 206.<sup>13</sup> A persuasive case can be made that most of the information to be collected in the one-time informational reports could aid the Commission in exercising these powers. However, the practical utility of the information sought from two of the questions is uncertain at best: *first*, question 8, which asks how a transmission provider identifies and engages “affected communities” and incorporates those communities’ feedback into its extreme weather vulnerability assessment,<sup>14</sup> and *second*, question 19,

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<sup>9</sup> *FPC v. Panhandle E. Pipe Line Co.*, 337 U.S. 498, 505 (1949) (discussing the similar power set forth in section 10(a) of the Natural Gas Act (NGA)). “It is, of course, well settled that the comparable provisions of the [NGA] and the [FPA] are to be construed *in pari materia*.” *Ky. Utils. Co. v. FERC*, 760 F.2d 1321, 1325 n.6 (D.C. Cir. 1985) (citations omitted). Case law involving the FPA has stated similarly. *See Duke Power Co. v. FPC*, 401 F.2d 930, 947 & n.131 (D.C. Cir. 1968) (“utilities are required . . . to supply the Commission with *essential information*”) (emphasis added) (citing 16 U.S.C. §§ 825(b), 825(c)(a)).

<sup>10</sup> 44 U.S.C. § 3508; *id.* § 3502(11) (defining “practical utility” as meaning “the ability of an agency to use information, particularly the capability to process such information in a timely and useful fashion”).

<sup>11</sup> *Id.* § 3502(11).

<sup>12</sup> *Id.* § 3508.

<sup>13</sup> Final Rule, 183 FERC ¶ 61,192 at PP 20, 59.

<sup>14</sup> *Id.* App. A, Question 8.

which asks how a transmission provider informs “affected communities” of identified extreme weather risks and selected mitigation measures.<sup>15</sup>

6. How exactly are “affected communities” relevant here, and under what provision of the FPA? FPA sections 205 and 206 empower the Commission to ensure that *wholesale* transmission rates, terms, and conditions are just and reasonable and not unduly discriminatory or preferential. FPA section 215 empowers the Commission to oversee the development and enforcement of mandatory standards to ensure the reliability of the bulk-power system, which “*does not include facilities used in the local distribution of electric energy.*”<sup>16</sup> A “community,” defined as a “neighborhood, vicinity, or locality,”<sup>17</sup> does not exactly evoke an image of a customer paying wholesale transmission rates. Rather, one imagines local retail customers paying the local utility to deliver electricity on a distribution line to power one’s business or dwelling.

7. I wonder what we expect to hear back in response. Under what circumstances would a wholesaler *ever* engage with and inform a retail customer? Would we expect a wholesale food vendor, Sysco, for example, to engage with a restaurant’s retail customers on how it plans for potential disruptions of the beef supply, and to then inform those customers when supplies have been disrupted and then further consult with them on how limited supplies will be allocated? No. Put in the terms of the FPA, would engaging retail customers in forecasting or informing retail customers of risks and mitigation measures render otherwise unlawful wholesale transmission rates just and reasonable? Doubtful. Could it be that the Commission envisions that transmission providers will submit information on some type of “flex alert” initiative that encourages retail customers to voluntarily conserve electricity, which may relate to the adequate reliability of the bulk-power system under FPA section 215? Perhaps. But if so, why not just make that clear.

8. The Commission ought to be more judicious in use of FPA section 304. Its powers are not without limit. Congress has declared that the burdens of these reports should be minimized, and that the usefulness of information collected by the government maximized.<sup>18</sup> We should better explain why we are asking for this data or not collect it at all. The Commission should not require transmission providers to file information for which it has no use or is unwilling to explain why it is being asked for in the first place.

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<sup>15</sup> *Id.* App. A, Question 19.

<sup>16</sup> 16 U.S.C. § 824o (emphasis added).

<sup>17</sup> *Community*, Black’s Law Dictionary (11th ed. 2019).

<sup>18</sup> *See* 44 U.S.C. § 3501.

For these reasons, I respectfully concur in the result.

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James P. Danly  
Commissioner