Environmental Defense Fund (“EDF”) appreciates the opportunity to comment in this proceeding. EDF is a non-profit organization dedicated to using market-based principles to solve our most challenging environmental problems. EDF has over 16,000 members in Pennsylvania.

EDF commends the Commission for its continued effort in deliberating the efficacy and appropriateness of alternatives to traditional ratemaking principles for public utilities. We respectfully submit these brief comments in response to the Commission’s May 3, 2018, Proposed Policy Statement Order on Fixed Utility Distribution Rates (Order)¹ as well as the Commission’s Secretarial Letter from August 14, 2018,² which “recognizes the importance and complexity of the issues” raised in the passage of Act 58 of 2018³ relating to alternative ratemaking for utilities.

Our comments are two-fold. First, we respectfully recommend the Commission provide more detailed direction to utilities on policy goals that future electricity rates are expected to advance. Second, we recommend that the Commission initiate a separate proceeding to

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³ Act 58 amends the Pennsylvania Public Utility Code at 66 Pa. C.S. § 1330, was enacted on June 28, 2018 and became effective on August 27, 2018.
investigate how grid modernization can significantly enhance the state’s ability to make progress on the same policy objectives.

Both the Order as well as Act 58 offer a broad list of issues the Commission would like to see addressed by future electricity rates. However, we believe that the Commission would enable a more targeted and productive discussion if it articulated clear goals based on state-specific needs, against which it plans to evaluate alternative ratemaking and rate design proposals. A more focused approach would also streamline and facilitate stakeholder engagement. As the electric power system evolves from a one-way grid into an increasingly dynamic and interconnected network, multiple jurisdictions are in engaged in similar efforts exploring how future rate design can best address the changes taking place within the energy industry. For example, Maryland’s Public Service Commission provided specific objectives for its effort in transforming the state’s electric distribution systems including rate design.4 Similarly, both New York and Hawaii put forth specific goals to advance their rate design reforms.5

The Order and Vice Chairman Place’s motion highlight various trends that are transforming the electric system today (e.g., rapid technological advances, increased penetration of DERs and electric vehicles, and the need for resilience). While rate design is a powerful tool, it alone may not suffice to efficiently address the fundamental shift in our power system

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economics in accordance with ambitious policy goals. We note that several states across the country are grappling with similar challenges have recognized grid modernization as an integral piece to addressing these emerging trends in line with desired policy objectives. With Illinois, Ohio, D.C., Rhode Island, Hawaii, New Hampshire, and Maryland joining California and New York, the mix of states pursuing grid modernization is growing.\textsuperscript{6}

Grid modernization has been widely discussed in Pennsylvania and utilities have accomplished some aspects of grid modernization through their smart grid deployment plans and Long-Term Infrastructure Improvement Plan (LTIIPs). However, the LTIIPs, only cover certain types of eligible property and prior to Act 58, the Commission did not have the tools to incentivize utilities to do comprehensive grid modernization. With the passage of Act 58, the Commission now has the authority to approve rate plans with performance incentives for implementing important state energy policies. Prior to Act 58, utilities could use annual rate adjustment mechanisms to recover their costs for smart meter deployment and for distribution investment needs, related to LTIIPs. Now that the Commission has this new ratemaking authority, EDF recommends the Commission consider opening a new docket to investigate how grid

modernization investments and policies can help further the same goals that rate design efforts are seeking to achieve.

Grid modernization can be responsive to multiple issue facing the utility industry that are cited in the Order. Generally speaking, strategic grid modernization investments can provide enhanced capabilities, including efficient integration of distributed energy resources, system efficiency and creating new opportunities for energy efficiency and peak demand reduction. For example, Integrated Volt/VAR Control (IVVC), which has been an integral component of grid modernization efforts across the country, involves the management of various electric distribution system assets and advanced control technologies to “right-size” the voltage delivered to end-use electric customers. Customers across circuits with active IVVC management use less energy without needing to make changes to their individual consumption behavior or sacrifice the quality of their electricity service.7

While grid modernization investments may meet a host of objectives, it is important that basic guardrails be in place to ensure that “long-term costs of serving existing and new loads”8 be minimized and customer benefits maximized. These include aligning regional policy objectives with long-range deployment plans, ensuring all benefit streams are pursued, and verifying that the results of these investments are measured against the expected outcomes once they are in place. Clear guidance by the Commission can further empower utilities and

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7 To provide a specific example, in North Carolina, EDF negotiated a commitment from Duke Energy Carolinas to perform a cost-benefit study for full deployment of voltage optimization. The recently released report shows that it would be cost-effective for the utility to invest $1 billion in voltage optimization over the next 26 years, and that this would produce $2 billion in benefits, including 115,000 tons of CO2 reductions annually. 2018 Smart Grid Technology Plans of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC, Docket No. E-100, Sub 157, available at: https://starw1.ncuc.net/NCUC/ViewFile.aspx?id=637b938c-008b-4b25-bc20-b50d9d9f5034
8 Order, p. 29
stakeholders to identify and prioritize grid updates and support the development of near- and long-term action items.

The extensive record of this docket, offers multiple potential objectives that the Commission could elevate and pursue. In the Order, for example, the Commission expresses interest in addressing the challenge of balancing DER adoption with system efficiency while protecting customers from rate increases. These concerns as well as the “first-order principles” cited in the Order are directly related to the electric grid and the increasingly complex tasks it is charged with. It is evident that the more we ask of our grid, the better the transmission and distribution system needs to be. Considerable investments will need to be made to upgrade our aging grid and accommodate DERs and electric vehicles as well as the anticipated load growth from both the transportation and heating sectors. It is therefore paramount that these upgrades be evaluated against specific Commission goals in a distinct docket with meaningful stakeholder input. Noting Vice Chairman Place’s note on substantial infrastructure spending, we note that a

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9 Order, p. 28
10 Investments in transmission and distribution upgrades are reaching unprecedented levels. According to Edison Electric Institute’s briefing from 2017, investor-owned electric companies have been investing $52.8 billion in the grid’s transmission and distribution infrastructure in 2016. These investments are more than double compared to a decade ago. See From Growth to Modernization: The Changing Capital Focus of the US Utility Sector, 2016, available at https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-er-from-growth-to-modernization.pdf; Edison Electric Institute Wall Street Briefing. Delivering America’s Energy Future Electric Power Industry Outlook, February 2017, available at http://www.eei.org/resourcesandmedia/industrydataanalysis/industryfinancialanalysis/Documents/Wall_Street_Briefing.pdf
dedicated Commission review process would further ensure that infrastructure is truly needed in a rapidly changing technology environment.

A targeted grid modernization proceeding could further position the Commission to proactively address “environmentally beneficial electrification,” which is an emerging practice that reduces emissions through electrifying end-uses that historically have been powered by fossil fuels, like transportation and space or water heating.\(^\text{13}\) The Order alludes to this trend stating that “[i]ncreased penetration of distributed energy resources and electric vehicles present both a challenge and an opportunity for regulators and utilities.”\(^\text{14}\) In addition to the integration of new technologies including DERs, energy efficiency, and demand response, the grid will also need to be able to orchestrate and optimize new electrified loads such as electric vehicles and grid-integrated water heaters. Therefore, electrification trends present long-term questions for regulators tasked with the evaluation of business plans that involve the funding of energy infrastructure that is expected to last for many decades but which could become stranded assets.


\(^\text{14}\) Order, page 27.
much sooner. As such, environmentally beneficial electrification has direct implications for a variety of issues mentioned in the Order including the ability to promote system efficiency and to “avoid future capital investments.”\textsuperscript{15} To maximize public benefits associated with electrification and manage future load growth efficiently, it is crucial that the Commission identify specific objectives and policy outcomes against which the grid investments as well as rate design proposals can be measured.

There are various ongoing efforts to ensure that electrification, and the integration and operation of newly electrified loads, is pursued in a way that increases energy efficiency and reduces GHG emissions, while lowering costs for customers. The Electric Power Research Institute, Inc. (EPRI), an independent, non-profit research organization, for example, has supported what it terms “Efficient Electrification” as “an Integrated Energy Network to help achieve the most efficient use of energy, the cleanest production, delivery and use of that energy, and measureable benefits to consumers, workers, drivers, and others.”\textsuperscript{16}

EDF recommends a methodical and inclusive process to arrive at decisions for modernizing the grid. Such a process should begin with the agreement on the policy objectives that would be advanced by grid investments. It should further include ample opportunity for meaningful stakeholder engagement, by using working groups, workshops/technical conferences, independent facilitators/mediators and several opportunities for written comments. A review of these cases shows how other states are implementing these techniques. These cases demonstrate that using these methods for coordinated input results in fair, targeted and reasonable policies that, crucially, advance state objectives:

\textsuperscript{15} Order, page 27.
• the California Public Utilities Commission held two stakeholder processes to develop a framework for utilities to file distribution resources plans (DRPs), which lay out how the utilities will manage their distribution grids to provide reliable electric service incorporating distributed energy resources. The utilities are required to file regular DRPs, which are subject to Commission and stakeholder review.  

• the Connecticut Public Utilities Regulatory Authority (PURA) opened a docket to investigate utility grid planning through an open stakeholder proceeding. PURA issued a scope of Phase I of the proceeding, describing that PURA would rely on stakeholder input to determine cost drivers of the distribution system, the changing nature of customer demand and technology adoption, and desired functions of a modernized grid.

• the Hawaii Public Utilities Commission dismissed an application by the Hawaiian Electric Companies (HECO) for approval of smart grid investments, and issued guidance on how HECO should develop a grid modernization strategy, with an emphasis on providing sufficient opportunity for stakeholder review and comment. HECO submitted an initial grid modernization for stakeholder comment and a workshop, then revised the plan to incorporate many of the stakeholders’ comments. HECO then filed a revised plan, which underwent a new round of stakeholder comment, and the Commission approved HECO’s revised grid modernization plan on February 7, 2018.

• the Illinois Commerce Commission requires Commonwealth Edison and Ameren to work with stakeholders and file detailed plans and reports describing how smart investments will help.

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18 PURA Investigation Into Distribution System Planning of the Electric Distribution Companies, Docket No. 17-12-03 (PURA Investigation) (December 11, 2017), full docket available at: http://www.dpuc.state.ct.us/dockcurr.nsf/(Web+Main+View/All+Dockets)?OpenView&StartKey=17-12-03

19 Id. (Notice of Scope of Proceeding)(March 9, 2018), available at: http://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110c3e852576190052b64d/32f2c61d6f14916d8525824b0067f37a?OpenDocument


grid investments will benefit Illinois customers. The ICC also opened a docket, to be managed by an independent facilitator hired by the ICC, for broad stakeholder participation to chart the course for future grid modernization in Illinois.

- the **Iowa** Utilities Board required Interstate Power and Light Company (IPL) to file a grid modernization plan identifying its objectives and timelines for specific grid modernization activities, the projected cost of these activities, estimates for resulting distribution efficiencies, and anticipated customer benefits. The plan should also specify how IPL will inform stakeholders about the company's grid modernization efforts, including specific areas where stakeholder involvement is particularly important to the success of an initiative.

- the **Maryland** Public Service Commission opened a grid modernization proceeding in 2017, following technical conferences on rate design and distributed energy resources where the Commission received stakeholder input. The proceeding is known as “Transforming Maryland’s Electric Grid.” The Commission identified six subject areas and organized working groups for each to allow for stakeholder input. The Commission also ordered that an independent consultant be hired to assist in evaluating how distributed energy resources should be integrated into the distribution grid.

- the **Michigan** Public Service Commission ordered Consumers Energy and DTE Electric Co. to develop and file a detailed five-year distribution investment and O&M plan including: (i) detailed descriptions of distribution system conditions; (ii) system goals and related reliability metrics; (iii) local system load forecasts; (iv) maintenance and upgrade plans for projects and project categories (including AMI and other emerging technologies); (v) a discussion of goals and metrics; and (vi) benefit/cost analyses considering both capital and O&M costs. The Commission

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also ordered the utilities to participate in a stakeholder review process for these plans.26

- the **Minnesota** Public Utilities Commission (MPUC) opened a docket on grid modernization, resulting in the development of state-wide principles and specific utility plans for grid modernization investments, distribution system planning, and hosting capacity analysis.27 The MPUC also requires Xcel Energy to file biennial reports that identify and discuss the costs and benefits of the grid modernization investments in progress and that the company plans to make, with the reports subject to stakeholder and Commission review.28

- the **Missouri** Public Service Commission opened a docket in 2017 to explore grid modernization and new technologies.29 The Commission provided for a robust stakeholder input process with several working group meetings, presentations, technical conferences and opportunities for comment, and the case is still in progress.30

- a **New Mexico** hearing examiner issued a recommended decision rejecting Public Service Company of New Mexico’s grid modernization plan for failing to obtain stakeholder input and to fully consider alternatives.31

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26 In the Matter of the Application of Consumers Energy Company for Authority to Increase its Rates for the Generation and Distribution of Electricity and for Other Relief, Case No. U-17990 (Order)(October 11, 2017), available at: https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t0000001URMSAA4


• **New York** launched the Reforming the Energy Vision case in 2014 to modernize the grid, improve resiliency, integrate renewables and make energy more affordable. The Commission used independent experts to help manage the proceeding, and developed several processes for stakeholder input – working groups, stakeholder meetings, technical conferences and staff reports with opportunities for comment.  

• the Public Utilities Commission of **Ohio** (PUCO) in 2017 opened “Power Forward,” a broad stakeholder-driven effort to review grid modernization investments and regulatory innovations that will chart a path forward for future utility investments in the distribution grid. To date, the PUCO has held twelve days of technical conferences and issued a comprehensive report on August 29, 2018, including recommendations for further stakeholder collaboration. The Regulatory Assistance Project published recommendations relating to stakeholder engagement for this initiative, and these recommendations can be applied to any Commission inquiry into grid modernization.

• the **Oregon** Legislature passed SB 978 in 2017, requiring the Public Utilities Commission (PUC) to open an investigation into grid modernization. The PUC open its investigation in January 30, 2018, with an emphasis on stakeholder engagement.

• **Rhode Island** opened its “Power Sector Transformation” initiative in 2017 to modernize the grid. The Public Utilities Commission (PUC) launched the program with an investigation seeking stakeholder input on how the program should be designed and managed. The Commission hired an independent expert to facilitate and mediate stakeholder discussions, and held a series of working group meetings and technical conferences, and provided whitepapers and comment opportunities. This process culminated in a PUC report with detailed grid modernization

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33 Power Forward Ohio (Commission webpage), available at: [https://www.puco.ohio.gov/industry-information/industry-topics/powerforward/](https://www.puco.ohio.gov/industry-information/industry-topics/powerforward/)


recommendations. National Grid used the report to file its proposed grid modernization plan, which was approved in August 2018.

A typical Commission proceeding generally involves filing written comments, or involves a contentious proceeding such as a rate case. Such cases do not lend themselves to the extensive review and discussion that the rapid technological advances and long-term policy goals merit. The foregoing review of grid modernization proceedings in other states demonstrates the value utilities, regulators, consumer advocates, and other stakeholders see in a collaborative and integrated process to advance grid modernization. Regulators can leverage these open processes to develop key questions and objectives. Getting to an understanding of these basic tenets can serve as an overarching framework that supports the evaluation of challenges as well as the scale and pace of deployment. Building a framework at the outset also provides an opportunity to develop a shared understanding among stakeholders. More specifically, the hallmarks of a successful approach involve: (1) the Commission hiring an independent expert to facilitate/mediate the transparent and inclusive stakeholder discussions; (2) the Commission with stakeholder input identifies the major issues, principles and broader policy objectives; (3) establishing working groups to develop recommendations to resolve these issues, identify and prioritize grid updates and support the development of near-and long-term action items; (4) technical conferences and whitepapers as needed to explore issues in detail; and (5) a final report from the facilitator/mediator presenting the working groups’ recommendations to state commissions.

EDF recommends that the Commission follow these “best practices” in a grid modernization proceeding, especially the hiring of an independent facilitator/mediator. This would allow the Commission to bring in someone with invaluable expertise in the issues that require resolution, the complex technologies, and lessons learned in other states. Such an expert could advise the Commission and drive the parties to have meaningful, impactful discussions. This approach has been highly successful in the states that have used it.

We commend the hard work of the Commission and Staff in deliberating the future of electricity rates in light of the evolving energy landscape. EDF appreciates the opportunity to comment on this important step in the Commission’s effort to modernize the electric system and looks forward to working with the Commission and other stakeholders in this important proceeding.

Respectfully submitted,

/s/ John Finnigan
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CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing document upon parties of record in this proceeding in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

Dated this 19th day of October 2018.

/s/ John Finnigan
John Finnigan