



July 30, 2019

**VIA ELECTRONIC FILING**

Rosemary Chiavetta,  
Secretary Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street, 2nd Floor North  
P.O. Box 3265  
Harrisburg, PA 17105-3265

Re: Petition of PPL Electric Utilities Corporation for Approval of Tariff Modifications and Waivers of Regulations Necessary to Implement its Distributed Energy Resources Management Plan Docket No, P-2019-3010128

Dear Secretary Chiavetta:

Enclosed for filing are an Answer to the Petition of PPL Electric Utilities Corporation for Approval of Tariff Modifications and Waivers of Regulations Necessary to Implement its Distributed Energy Resources Management Plan filed by the Natural Resources Defense Council in the above-referenced proceeding and a Notice of Intervention. Copies will be provided as indicated on the Certificate of Service.

Respectfully submitted,

\_\_\_\_\_/s/\_\_\_\_\_  
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**NATURAL RESOURCES DEFENSE COUNCIL**

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**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of PPL Electric Utilities :  
Corporation for Approval of Tariff :  
Modifications and Waiver of : Docket No. P-2019-3010128  
Regulations Necessary to Implement :  
its Distributed Energy Resources :  
Management Plan :

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ANSWER OF NATURAL RESOURCES DEFENSE COUNCIL TO  
PETITION OF PPL ELECTRIC UTILITIES CORPORATION

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DATE: July 30, 2019

1. Pursuant to 52 Pa. Code §5.61(e), Natural Resources Defense Council (“NRDC”) hereby submits this Answer to the Petition of PPL Electric Utilities Corporation (“PPL” or “the Company”) for Approval of Tariff Modifications and Waivers of Regulations Necessary to Implement its Distributed Energy Resources Management Plan. NRDC respectfully requests that the Pennsylvania Public Utility Commission (“Commission”) deny the Petition or, in the alternative, suspend the proposed tariff revisions and establish necessary proceedings to allow interested parties an opportunity to thoroughly examine the major policy and technical issues raised by PPL’s Petition.<sup>1</sup>

### INTRODUCTION

2. By its filing, PPL seeks to implement, through a seemingly simple proposed two-page tariff revision, sweeping changes to the operating environment in which distributed energy resources (“DERs”) are currently deployed in Pennsylvania. PPL’s Petition seeks to unilaterally impose technical requirements that it claims would allow it to better “integrate, monitor, and manage” DERs. Under the Company’s proposal, customers applying to interconnect new DERs with PPL’s distribution system would be required to: (1) use Company-approved smart inverters<sup>2</sup> that are compliant with certain standards under development by the Institute of Electrical and Electronics Engineers (“IEEE”) and Underwriters Laboratories (“UL”) – specifically, IEEE Standard 1547-2018

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<sup>1</sup> NRDC expresses its appreciation to the Interstate Renewable Energy Council (“IREC”) and GridLab for the technical expertise these organizations shared in the development of these comments.

<sup>2</sup> A “smart inverter” is defined in one state’s legislation as “a device that converts direct current into alternating current and can autonomously contribute to grid support during excursions from normal operating voltage and frequency conditions by providing each of the following: dynamic reactive and real power support, voltage and frequency ride-through, ramp rate controls, communication systems with ability to accept external commands, and other functions from the electric utility.” 220 ILCS 5/16-107.6(a).

and forthcoming UL Standard 1741 which, in turn, will determine which inverters satisfy the new IEEE Standard 1547, and (2) install devices that enable PPL to “monitor and proactively manage DERs.” (Petition, p. 2) Notably, the Petition proposes to implement a DER Management Plan that would go far beyond simply requiring the use of smart inverters, a requirement that is already in place in two states – Hawaii and California, under interconnection Rule 14H and interconnection Rule 21, respectively, require new PV facilities to install smart inverters with specific grid support functions activated to increase the grid’s ability to integrate DER while improving safety and reliability. Rather, PPL’s Petition includes measures that would (1) enable it to “manage” DERs through communications and control measures (rather than relying on a smart inverter’s autonomous features), and (2) give PPL unlimited discretion to change settings and potentially curtail a DER’s real power production.

3. While NRDC supports many of the goals described in PPL’s Petition – such as moving to a more dynamic grid; increasing the number of DERs that can be interconnected; improving system efficiency, power quality, and reliability; and reducing the need for capital investments by the utility – the approach proposed in PPL’s Petition is the wrong way to achieve those goals, as it would shortcut a valuable and necessary stakeholder process. Most states are thoughtfully considering the new IEEE Standard 1547-2018 and are developing interconnection requirements in a collaborative way with their regional transmission organization (“RTO”), utilities, industry, and other stakeholders. In contrast, the unilateral action proposed in PPL’s Petition would impose unnecessarily stringent rules that, without any meaningful process to understand the ramifications of what PPL is proposing, will likely stifle the nascent DER market in Pennsylvania without any technical justification. PPL has offered no basis for moving forward

so quickly on a unilateral basis, which seems particularly unfounded given the low penetration rate for DERs in Pennsylvania and the unfinished state of equipment standards for smart inverters. Notably, the Petition fails to mention any supporting precedent from other states; in fact, the two states that have considered approval of utility-proposed DER management systems, California and Illinois, have declined to approve the “communications and control” requirements sought by PPL, even though these states have much higher solar penetration.

4. The relief requested by PPL should be denied for the following reasons:
  - (1) the Petition is premature, given relatively low levels of DER penetration in Pennsylvania;
  - (2) the Petition is not ripe for action, given that UL Standard 1741 has yet to be updated and, in the meantime, the absence of equipment certified to be compliant with that Standard;
  - (3) the Petition raises significant policy issues that warrant further consideration by the Commission given the precedential nature of the relief sought by PPL and the potential impact on the nascent DER market in Pennsylvania; and
  - (4) the Petition raises significant technical issues that warrant a full and complete investigation by the Commission, and broad participation of stakeholders interested in the continued development of the DER market in Pennsylvania.

These issues are discussed in greater detail below.

#### COMMENTS

##### **A. PPL’s Petition is Premature Given the Early Stage of DER Market Development in Pennsylvania**

5. There is no basis for considering a DER Management Plan in PPL’s service territory, given the early state of DER deployment in Pennsylvania. As a point of reference, Pacific Gas and Electric (“PG&E”) in California, with 370,000 rooftop solar customers (20 percent of the U.S. total) and 4,000 MW of DG capacity, has not yet implemented a DER

management system, concluding that it is “too early.”<sup>3</sup> On a customer basis, the penetration of DERs in PG&E’s service territory is 6.9 percent, compared to PPL’s 0.5 percent. PG&E is anticipating 5,000 new solar customers and 55 MW of distributed generation *per month* with an average interconnection time of 3 days. In contrast, PPL’s Petition anticipates about 1,000 to 1,500 new DER interconnections *per year* (Petition, p. 6), or a growth rate that is about 2 percent of that experienced by PG&E.

6. With respect to the timing for implementation of a DER management system, PG&E’s Electric Program Investment Charge (EPIC) Final Report,<sup>4</sup> issued just six months ago, reaches the following conclusions:

- **“A comprehensive [DER Management System] DERMS is still not readily available.** PG&E determined it is still too early to invest in a comprehensive DERMS based on the experience through this demonstration, the expected near-term impacts of DERs on the system, and the state of the industry.”<sup>5</sup>
- **“Unified standards, protocols, testing, and exchanges are needed as DERMS requirements and market structures become more defined.** Due to the nascent state of the industry, comprehensive standards and regulations do not yet exist.”<sup>6</sup>
- “PG&E currently lacks the foundational technology not only to enable a DERMS but also to provide modeling and situational awareness capabilities that are needed to operate an increasingly complex grid.”<sup>7</sup>
- “Outstanding policy, regulatory, and program ambiguity make it imprudent to implement a full-scale DERMS immediately.”<sup>8</sup>

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<sup>3</sup> According to a “key takeaway” in its *Final Report* on a proposed Electric Program Investment Charge (EPIC), “PG&E determined it is still too early to invest in a comprehensive DERMS based on the experience through this demonstration, the expected near-term impacts of DERs on the system, and the state of the industry.” Pacific Gas and Electric Company, Electric Program Investment Charge (EPIC), *EPIC Final Report* (January 18, 2019), p. 6.

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

<sup>5</sup> *Id.*, p. 6 (emphasis in original).

<sup>6</sup> *Id.*, p. 8 (emphasis in original).

<sup>7</sup> *Id.*, p. 7.

<sup>8</sup> *Id.*, p. 11.

7. In PG&E's current general rate case filing, it specifically is not asking for approval of a DER Management System, stating that "DERMS is an emerging technology whose parameters have not yet been fully defined . . ."<sup>9</sup> Given that a leading utility in the country with respect to DER penetration (PG&E) – with a penetration rate 14 times higher than PPL's – has concluded that it would be "imprudent" to implement a DER management system in the face of "[o]utstanding policy, regulatory and program ambiguity," PPL's Petition is clearly premature.

8. The other state that has considered the issue – Illinois – is acting pursuant to its Future Energy Jobs Act ("FEJA"), which authorized utilities to develop a tariff that, upon commission approval, would provide a rebate to retail customers owning or operating DERs that meet specific criteria set forth in a separate section of FEJA which, in turn, required an interconnection by means of an inverter or smart inverter. Pursuant to FEJA, Illinois utilities must provide a \$250/kW rebate to customers that adopt smart inverters. FEJA defines when a utility may control or operate a smart inverter – generally "for the purpose of preserving reliability during distribution system reliability events" – and further provides that additional uses of the smart inverter, such as voltage and reactive power (volt-ampere reactive or "var") support, regulation, and other grid services, must be separately compensated.<sup>10</sup>

9. Two Illinois utilities, Ameren and Commonwealth Edison, submitted proposed tariffs with the required smart inverter modes (or functions) and settings that would, according to the utilities, permit them to operate and control the smart inverter

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<sup>9</sup> CPUC Docket No. A.18-12-009, Exhibit PG&E-4 Chapter 19 at 19-18, footnote 11.

<sup>10</sup> 220 ILCS 5/16-107.6(b).

solely “for the purpose of preserving reliability during distribution system reliability events.” The utilities maintained that in order to fulfill this requirement, the smart inverter must be able to perform the following “communications and control” functions: (1) modify their real power (Watt) and reactive power (volt-ampere reactive or “var”) output; (2) respond to voltage and frequency excursions; (3) provide ramp rate controls; and (4) receive and respond to communication signals.<sup>11</sup>

10. The Illinois Commerce Commission was thus faced with determining what functions were necessary to “preserve reliability during distribution system reliability events” – and thus within the scope of the services compensated by the \$250/kW rebate – versus additional services that required separate compensation. The Illinois Commission largely rejected the “communications and control” requirements proposed by the utilities, stating as follows in the Commonwealth Edison (“ComEd”) order:

“The Commission agrees with the various intervenors that giving ComEd this type of unfettered control of customer-owned equipment, at ComEd’s sole discretion, should be rejected. The Commission finds that ComEd’s proposal imposes an unreasonable amount of risk and uncertainty to DER customers and owners, and as such, risks stifling needed investment in DG. The risks of curtailment due to ComEd’s active control of a customer’s smart inverter cannot be quantified. Also, at this time, it is unclear how or why ComEd would need to take active control of a customer’s smart inverter, or to what extent ComEd’s actions would constitute an ‘additional use’ thus meriting additional compensation.”<sup>12</sup>

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<sup>11</sup> Illinois Commerce Commission, Case 18-0537, Ameren Illinois Company d/b/a Ameren Illinois, *Petition for Approval of Rider CGR-Customer Generation Rebate and Rider CGC-Customer Generation Charge pursuant to 220 ILCS 5/16-107.6*; Illinois Commerce Commission, Case 18-0753, Commonwealth Edison, *Petition for Approval of Rider DG REBATE Renewable Energy Distributed Generation Rebate and Rider DG REBATE ADJUSTMENT – Renewable Energy Distributed Generation Rebate Adjustment*.

<sup>12</sup> Illinois Commerce Commission, Case 18-0753, Commonwealth Edison, *Petition for Approval of Rider DG REBATE Renewable Energy Distributed Generation Rebate and Rider DG REBATE ADJUSTMENT – Renewable Energy Distributed Generation Rebate Adjustment*, Order (issued November 26, 2018), p. 41.

11. Thus, neither state that has considered a utility proposal to implement a comprehensive DER management system featuring utility “communications and control” functions with respect to DERs – as PPL’s Petition is proposing here – has adopted it. As recognized by PG&E in its EPIC Final Report, such an initiative is simply premature in the absence of uniform standards, protocols and testing procedures for smart inverters. Moreover, the notion of a utility exercising “control” over the operation of DERs without a clear agreement and understanding of the circumstances warranting such an intervention creates risk and uncertainty for DER owners and operators. NRDC urges the Commission to consider the actions of PG&E in California and the Illinois Commerce Commission, and reject PPL’s request for approval of a DER Management Plan as premature and unwarranted in Pennsylvania.

**B. PPL’s Petition is not Ripe for Action by the Commission Given that the Proposed Standards Have Not Been Adopted by the Governing Technical Body**

12. PPL’s Petition proposes that customers applying to interconnect new DERs with its distribution system be required to use “Company-approved smart inverters that are compliant with IEEE 1547-2018 and *forthcoming* UL Standard 1741.” (Petition, page 2; emphasis added) While IEEE 1547-2018 was adopted in April 2018, the revisions being considered for UL Standard 1741 are still under review. As stated in the Petition, UL Standard 1741 governs the physical testing procedures that manufacturers must perform to certify that a DER inverter meets IEEE Standard 1547-2018. (Petition, page 12) UL Standard 1741 will not be released until later in 2019 and, according to PPL’s Petition, DER inverter and communications devices will not be certified as compliant with IEEE Standard 1547-2018 using the new UL Standard 1741 until 2020. (Petition, page 12) (It should be noted that according to GridLab and the Interstate

Renewable Energy Council (IREC), however, equipment that is UL Standard 1741-certified to IEEE Standard 1547-2018 will not be available until 2021.) Whatever the date, PPL states in its Petition that until the revisions to UL Standard 1741 are finalized, it “may adopt screening requirements that are different and stricter than what is ultimately adopted by UL.”<sup>13</sup> (Petition, page 2, note 4)

13. Based on these statements, it appears that PPL misunderstands IEEE Standard 1547 and UL Standard 1741. IEEE Standard 1547 is an interconnection standard that includes DER capability requirements; UL Standard 1741 is an equipment standard that references the IEEE Standard 1547.1 testing standard for the capabilities that the equipment (i.e., smart inverters) must have. In other words, these standards are equipment specifications that define required capabilities; the behavior of that equipment needs to be set by the interconnecting utility (e.g. how ride through is implemented, what voltage management functions are enabled). In its Petition, PPL includes no detail on the required settings, which is a critical element inasmuch as the interconnection agreement needs to specify the actual settings. In other states, these settings have been developed through a robust stakeholder process, which PPL apparently does not contemplate.

14. Moreover, PPL cannot require capabilities that are “stricter” than UL 1741, inasmuch as the equipment will be unable to perform it. If PPL tries to make its own requirements for certification different from UL Standard 1741, or tries to apply IEEE Standard 1547-2018 before certified equipment is available, it will effectively shut down new installations

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<sup>13</sup> To achieve this, the Petition states that “to the extent that the new UL Standard 1741 is not published by the time the Commission approves this Petition, PPL Electric respectively requests a waiver of the Commission’s requirement that ‘certified’ comply with the 2001 version of UL Standard 1741.” (Petition, p. 25)

until around mid-2021 when the market can supply IEEE Standard 1547-2018 capable equipment certified to UL Standard 1741. PPL's small territory is incapable on its own of jumpstarting the inverter market to test to PPL's specific needs.

15. More fundamentally, PPL has identified no compelling circumstances that would justify incorporating a standard that has yet to be finalized and implemented. As described in the preceding section, the current and anticipated penetration levels of DER in Pennsylvania do not provide a basis for such extraordinary relief, given its possible adverse effects on the DER market in Pennsylvania. PPL states simply that "proactively implement[ing] IEEE 1547-2018" would capture "the benefits of the new inverter technology," and would reduce the time to implement this IEEE standard once UL Standard 1741 becomes effective. (Petition, page 13) Assuming for the sake of argument that there is a basis for requiring the use of smart inverters in Pennsylvania at this time, PPL should propose the adoption of IEEE Standard 1547-2018 on a reasonable timeline that allows customers to obtain certified equipment. That Standard was developed to provide a national standard for states/utilities seeking to require grid support from DER – and smart inverters specifically – and PPL, like other utilities in the country, should incorporate that Standard. With respect to testing requirements for smart inverters, UL Standard 1741 SA is already in place, and has been adopted by California and Illinois, the two other states that have considered this issue.

**C. PPL's Petition Raises Significant Policy Issues, Given Its Potential Impact on the Continued Development of the DER Market in Pennsylvania**

16. The DER Management Plan proposed in PPL's Petition has serious implications on the prospects for the continued development of the DER market in Pennsylvania. The impacts arise primarily from the "communications and control" requirements that would be imposed under the Plan, and the lack of specificity and clarity

about how the Plan would affect the operation – and, in turn, the profitability – of DERs in Pennsylvania. The impacts take two forms: (1) the potential dampening effect on revenues from DER operation, to the extent PPL “controls” or “manages” the DER in a manner that reduces revenues to the DER, and (2) the failure to properly compensate DERs for the value that they would provide to the grid under the proposed DER Management Plan.

These two aspects are discussed in turn below.

*a. Utility “Proactive Management” of DERs May Result in Reduced Economic Returns for DERs, Potentially Dampening the Market for DERs in Pennsylvania*

17. A major thrust of PPL’s Petition is its express intention under the proposed DER Management Plan to take an active role in “managing” the DERs that are interconnected to its network. References to PPL’s proposed “direct control” of DERs in the Petition include the following:

- “The Distributed Energy Resource Interconnection Service (DERIS) shall be applied to all new DER interconnections to the distribution system to enable the Company to monitor and **manage the flow of electric energy from DER resources to the distribution system**” (Appendix A, *Pro Forma* Tariff Supplement, Distributed Energy Resource Interconnection Service (DERIS), p. 1)
- “[A] DER Management Device **will be directed by the Company** and must be installed and connected to the data port of the smart inverter.” (Appendix A, *Pro Forma* Tariff Supplement, Distributed Energy Resource Interconnection Service (DERIS), p. 2)
- “The instant Petition is an affirmative step by the Company . . . to better integrate and **manage** the increased deployment of DERs in its service territory (Petition, p. 1);
- “[C]ustomers applying to interconnect new DERs with PPL Electric’s distribution system will be required to . . . (2) install devices that enable PPL Electric to monitor and **proactively manage** DERs” (Petition, p. 2);
- “PPL Electric’s DER Management Plan will enable the Company to better integrate, monitor, and **manage** DER resources throughout PPL Electric’s service territory (Petition, p. 14);

- “Under the DER Management Plan, DER management devices must be installed and connected to the local communication interface of the DER system so that the Company can monitor and **manage** the DERs and **take advantage of the DERs’ grid support functions**” (Petition, p. 15);
- “PPL Electric is requesting the ability to monitor and **manage** DERs through the DER management devices by **engaging their smart inverter grid support capabilities**” (Petition, p. 16)
- “[A]llowing PPL Electric to monitor and **manage** DERs eliminates the issue of ‘load masking’ because it provides real time visibility into individual and aggregate DER generation output” (Petition, p. 20);
- The Petition expressly refers to PPL’s ability to curtail DERs: “PPL **could remotely curtail the DERs** in the vicinity of the Company’s employees who may be working nearby to keep the distribution lines de-energized during maintenance and repair work” (Petition, p. 18); and
- “[T]he Company’s Plan would enable PPL Electric to **locate and disconnect DERs** in these unintentional islanding scenarios” (Petition, p. 19);

18. As noted above, no other state is requiring such an extensive “communications and control” approach to DERs, and no other electric utility is implementing such an approach. Rather, most grid-friendly functions of smart inverters are “autonomous” – the smart inverters can respond to voltage or frequency without the need for direct control. PPL’s Petition makes no mention of necessary agreements for control of DERs, including how much curtailment is acceptable. Practically, this means that third-party DER providers will be unable to finance systems. And DER owners will be exposed to significant risk of lost production, meaning their investments in their DER system may not provide the expected return.

19. As noted above, the Illinois Commerce Commission noted the chilling effect that utility “control” over DERs could have on the development of the DER market:

“[G]iving ComEd this type of unfettered control of customer-owned equipment, at ComEd’s sole discretion, should be rejected [because it] . . . imposes an unreasonable amount of risk and uncertainty to DER customers and owners, and as such, risks stifling needed investment

in DG. The risks of curtailment due to ComEd's active control of a customer's smart inverter cannot be quantified."<sup>14</sup>

20. Moreover, PPL apparently intends to reserve the right to unilaterally change its DER standards without any consultation with DER owners or other stakeholders: "PPL Electric's external website . . . will be updated to appropriately reflect the changes to its DER standards." (Petition, pp. 16-17) The proposed tariff sheets attached to the Petition further provide that the installation of an approved DER system in accordance with the DER Interconnection Service program represents acknowledgement that "customer and owner agree to allow PPL Electric to monitor and manage the DER system in accordance **with Company policy** and the PA PUC's approval" in this docket, with such policy apparently evolving as PPL deems necessary.<sup>15</sup> It should be noted that the Illinois Commerce Commission rejected a similar proposal by Commonwealth Edison, which reserved the right to update the initial functions and smart inverter settings to respond to future grid changes, with such revisions to be effective on one day's notice. The ICC's order states as follows:

"The Commission agrees with various intervenors' concerns regarding ComEd's ability to make future unilateral changes to the default settings by filing new Informational Sheets without outside input or oversight. While the Commission agrees ComEd needs the ability to update settings to respond to future grid changes, the Commission finds ComEd's proposal unreasonable and imprudent at this time.

The record lacks evidence for determining what factors may trigger the need for changes. Additionally, ComEd's proposal raises concerns of whether those changes may or may not constitute an additional use meriting additional compensation, and what risks those changes may impose on participating customers. Moreover, as some intervenors point

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<sup>14</sup> Illinois Commerce Commission, Case 18-0753, Commonwealth Edison, *Petition for Approval of Rider DG REBATE Renewable Energy Distributed Generation Rebate and Rider DG REBATE ADJUSTMENT – Renewable Energy Distributed Generation Rebate Adjustment*, Order (issued November 26, 2018), p. 41.

<sup>15</sup> Appendix A, *Pro Forma* Tariff Supplement, Distributed Energy Resources Interconnection Service ("DERIS"), p. 2 (emphasis added).

out, the lack of certainty itself may cause risk to participating customers. Also, it is unclear what recourse a participating customer may have should ComEd's unilateral change be unreasonable or create further risk."<sup>16</sup>

21. In addition to the uncertainty created by the possible curtailment of DER operation, PPL's Petition does not address the cost of the DER management device, or who pays for the data service. If the customer is required to pay for the data service, this is another cost that can be expected to have a chilling effect on DER deployment in Pennsylvania.

*b. The Value that DERs May Provide to the Grid under a DER Management System Need to be Compensated*

22. On the flipside of the economic risks that would be placed on DERs under PPL's proposed DER Management Plan, PPL's Petition makes numerous references to the value that the Plan would confer to the grid. Yet nowhere in the Petition does PPL mention how DER owners and operators would be compensated for this value. References in the Petition to the value that DERs can be expected to provide to the grid under the proposed DER Management Plan include the following:

- "PPL Electric's proposal is designed to **produce substantial electric service, safety and reliability benefits** for PPL Electric and its customers . . . ." (Petition, p. 2)
- "[T]he proposal will enable PPL Electric to (1) **improve system efficiency, power quality, and reliability**, . . . and (4) **reduce capital investments by the Company** where DER installations have traditionally required capital-intensive system enhancement or upgrades" (Petition, pp. 2-3)
- The requirement for DER inverters to be "smart" means they are "**capable of providing grid support functionality** and communications using revised specifications" (Petition, p. 11)

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<sup>16</sup> Illinois Commerce Commission, Case 18-0753, Commonwealth Edison, *Petition for Approval of Rider DG REBATE Renewable Energy Distributed Generation Rebate and Rider DG REBATE ADJUSTMENT – Renewable Energy Distributed Generation Rebate Adjustment*, Order (issued November 26, 2018), p. 35.

- “Consistent adherence to the updated standards . . . will **improve distribution system management capabilities** . . . and could **reduce utility investments** supporting DER interconnection” (Petition, p. 13)
- “Under the DER Management Plan, DER management devices must be installed and connected to the local communication interface of the DER system so that the Company can monitor and **take advantage of the DERs’ grid support functions**” (Petition, p. 15)
- “PPL Electric’s DER Management Plan is designed to **provide several substantial benefits** to customers, the Company, and the Commonwealth by **improving the safety, quality, efficiency, stability, and reliability of the Company’s operations and services** . . . .” (Petition, p. 17)
- “[B]y utilizing the grid support functionality, PPL Electric can **improve system efficiency**” (Petition, p. 19)
- “[T]he Company’s proposals can improve power quality at customer sites and on distribution circuits by **leveraging DER voltage support functions, potentially avoiding the need to deploy traditional voltage regulation infrastructure**” (Petition, p. 19)
- “[T]he DER Management Plan will **improve system stability and reliability**” (Petition, p. 19)
- “With the ability to have real-time visibility to DER generation and an understanding of masked load, PPL Electric can **more effectively design and operate the system**” (Petition, p. 20)

23. The operation of PPL’s proposed DER Management Plan, as described in its Petition, thus envisions DERs providing a number of valuable functions that are beneficial to the grid through the use of smart inverters, coupled with the “communications and control” elements that are integral to the proposed Plan. Nothing in the Plan, however, seems to contemplate that DER owners and operators would be compensated for the value that DERs contribute to the grid through implementation of the Plan. Although Pennsylvania has not gone down the path of other states in transitioning from a net metering scheme grounded in the retail rate to a “value of solar” methodology (or similar

approach that compensates DERs according to the value they provide to the grid),<sup>17</sup> implementation of a DER management system as intrusive as that envisioned in PPL's proposed DER Management Plan would likely require a different form of DER compensation that acknowledges, and quantifies, the value of the various contributions that DERs would make to the grid under such a "communications and control" approach. The Illinois statute, for example, draws a distinction between the benefits conferred by autonomous operation of smart inverters – which is compensated by the utility through a \$250/kW rebate – and "additional services" associated with proactive management and control by the utility, which must be separately compensated.<sup>18</sup> As it is currently proposed, however, PPL's proposed DER Management Plan is entirely one-sided, in favor of the utility: PPL would "proactively manage" DERs and potentially reduce their economic value through curtailments or other claimed operational requirements, while not compensating the value that DERs contribute to the grid through the services associated with such proactive management. Such an approach would surely stymie any further development of the DER market in Pennsylvania.

**D. PPL's Petition Raises Significant Technical Issues That Should Be Evaluated for Statewide Implementation Rather than in Individual Utility Service Territories**

- a. *The Waivers of Regulations Sought in PPL's Petition Would Strip Away Fundamental Protections for DER Owners and Operators*

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<sup>17</sup> In New York, for example, the New York Public Service Commission in its Value of Distributed Energy Resources (VDER) proceeding (Case 15-E-0751) is transitioning from using retail rates to compensate DERs to a "value stack" that measures the contribution of DERs to the grid according to their capacity value, energy value, demand reduction value, locational system relief value, and environmental attributes, among other things.

<sup>18</sup> 220 ILCS 5/16-107.6(b).

24. In order for PPL to implement its proposed DER Management System, it is seeking waivers of regulations that protect DER owners and operators from actions of utilities that would potentially undermine the value proposition of DERs. Section 75.13(k), for example, prohibits a utility from “requir[ing] additional equipment or impose any other requirement unless the additional equipment or other requirement is specifically authorized under this chapter or by order of the Commission.” Chapter 75 currently does not require the installation of a DER management device, nor does it authorize a utility to impose the additional requirements PPL seeks (i.e., enabling PPL to “monitor and manage” the DER, and requiring the DER to use a standardized, non-proprietary communications protocol specified by PPL). PPL’s Petition proposes to circumvent the rulemaking process necessary to properly amend Chapter 75, and instead would allow one utility (PPL) to require equipment and impose operating requirements that differ from every other electric utility in Pennsylvania.

*b. The Relief Requested by PPL Should Be Considered, If at All, in a Generic Rulemaking Process Involving All Electric Utilities, DER Owners and Operators, and other Stakeholders*

25. For the reasons stated in the preceding sections, implementing a DER Management System in Pennsylvania is premature, given the current levels of penetration in the state and the lack of comprehensive standards and regulations in the industry. At such time as consideration of a DER Management System is warranted, it should be done through a generic rulemaking process to amend Chapter 75 rather than implemented piecemeal by an individual utility, which would create the possibility of disparate interconnection requirements across the Commonwealth. A rulemaking process by its nature will result in broader participation, including other electric distribution companies (EDCs) and default service providers (DSPs), DER owners and operators, and other industry stakeholders. This process will produce a complete record for the

Commission's consideration, and provide a more informed basis for a decision than the unsupported representations included in PPL's Petition.

*c. PPL's Petition Fails to Articulate a Basis for Requiring the Requested Communications Capability*

26. PPL has failed to demonstrate that there is a current need for communications capability. As noted above, states with much higher DER penetrations than Pennsylvania do not have communications or control requirements. California has a requirement in Rule 21 (its interconnection standard) that smart inverters be capable of communications, but no communications are currently required. In Illinois, the utilities asked for similar communications and control, and the commission rejected those requests, as noted above. The circumstances cited in the Petition in support of requiring communications capability are not compelling:

- As far as addressing the issue of "load masking" identified in the Petition (p. 20), this function can be accomplished through forecasting of DER output, which is much lower cost than direct communications to read production from thousands of DER devices. Many utilities and the California Independent System Operator (CAISO) use forecasting to estimate DER output on a day-ahead and real time basis.
- Nor does the "unintentional islanding" cited in the Petition (p. 18) require the use of a communications system. In fact, IEEE Standard 1547 specifically disallows unintentional islanding.
- Finally, there is no mention of using third party aggregators (e.g. SunRun, others) for communications instead of communicating directly with individual DERs. Given that DER installed by third party will have a communications system in place, PPL could communicate directly with aggregators; requiring that a second communications system would be duplicative, and a waste of customer and ratepayer funds.

REQUESTED RELIEF

27. For the foregoing reasons, NRDC urges the Commission to deny PPL's Petition. Alternatively, if the Commission wishes to examine the issues raised in PPL's Petition, NRDC urges the Commission to suspend the tariff filing, and commence the necessary process to allow

interested parties an opportunity to thoroughly examine the major policy and technical issues raised by PPL's Petition. For example, a stakeholder process could review the interconnection requirements and determine the appropriate settings for various grid services, in consultation with PJM. Such a process would provide PPL with an opportunity to identify its concerns, and would allow the parties to explore the actions other states have taken with respect to autonomous features, without requiring communications and control. In the event the Commission wishes to move forward with implementing smart inverter standards, the parties could consider the approaches taken by California and Illinois, the two states that have implemented smart inverter standards. (In that regard, Illinois is a better proxy for Pennsylvania than California, as it has a lower DER penetration and is also in PJM.) Finally, if the Commission wishes to consider implementing smart inverter requirements earlier than the new IEEE Standard 1547-2018, NRDC urges the Commission to consider following the Illinois precedent in requiring utilities to provide an incentive to customers that install smart inverters, and have those smart inverters follow the existing UL Standard 1741SA.

Respectfully submitted,

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