

September 30, 2019

Via Electronic Filing

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

**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**

**Brief of Sunrun Inc. in Support of Petitions for Interlocutory Commission
Review and Answer to Material Questions of Sunrun Inc. and Natural
Resources Defense Council**

Secretary Chiavetta:

Enclosed please find the *Brief of Sunrun Inc. in Support of Petitions for Interlocutory Commission Review and Answer to Material Questions of Sunrun Inc. and Natural Resources Defense Council* for filing in the above-referenced proceeding. Please contact me if you have any questions concerning this matter.

Sincerely,

/s/ James M. Van Nostrand

James M. Van Nostrand
Keyes & Fox LLP

Counsel to Sunrun Inc.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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

**BRIEF OF SUNRUN INC. IN SUPPORT OF PETITIONS FOR INTERLOCUTORY COMMISSION
REVIEW AND ANSWER TO MATERIAL QUESTIONS OF SUNRUN INC. AND NATURAL
RESOURCES DEFENSE COUNCIL**

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DATED: September 30, 2019

**BEFORE THE
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REVIEW AND ANSWER TO MATERIAL QUESTIONS OF SUNRUN INC. AND NATURAL
RESOURCES DEFENSE COUNCIL**

Pursuant to 52 Pa.Code § 5.302, Sunrun Inc. (“Sunrun”) hereby submits this brief supporting the petitions for interlocutory Commission review and answer to material questions by Sunrun and Natural Resources Defense Council (“NRDC”). For the reasons set forth below, Sunrun requests the Pennsylvania Public Utility Commission (“Commission”) to issue an order answering the material questions in the affirmative.

I. Introduction and Statement of the Case

On May 24, 2019, PPL Electric Utilities Corporation (“PPL” or “Company”) filed a Petition for Tariff Modification and Waiver of Commission Regulations to Implement Its Distributed Energy Resources Management Plan (“Petition”).¹ PPL’s distributed energy resources (“DER”) management plan (“DER Management Plan”) would, among other things, require customers applying to interconnect new DERs to PPL’s distribution system to (1) use Company-approved smart inverters that are compliant with Institute of Electrical and Electronic Engineers (“IEEE”) Standard 1547-2018 and forthcoming Underwriters Laboratories (“UL”) Standard 1741 certified to IEEE Standard 1547-2018; and (2) install devices that enable PPL to monitor and proactively manage a customer’s DER.² 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 through an extensive “communications and control” approach that could involve, among other things, curtailment or disconnection of DERs from the grid. The proposed DER Management Plan, however, does not contemplate any compensation to DER customers for the

¹ Docket No. P-2019-3010128, *Petition of PPL Electric Utilities Corporation for Approval of Tariff Modifications and Waivers of Regulations Necessary to Implement its Distributed Energy Resources Management Plan* (May 24, 2019).

² *Id.* at 2.

services and value they contribute to the grid, and raises foundational technical and public policy questions of statewide importance for DER markets across the Commonwealth.

Sunrun, NRDC, and the Office of Consumer Advocate (“OCA”) intervened and filed answers in response to the Petition requesting that the Commission deny the Petition, or in the alternative, that the issues raised in the Petition be addressed on a statewide basis.³ Sustainable Energy Fund (“SEF”) filed comments requesting the Commission deny the Petition,⁴ and seven non-intervenor entities filed comments in support of NRDC’s Answer and recommending that the Commission deny the Petition.⁵

This matter was assigned to the Office of Administrative Law Judge (“OALJ”) and the Office of Special Assistants on August 6, 2019.⁶ It is Sunrun’s understanding that as a matter of administrative practice pursuant to 66 Pa.C.S. § 331(b), PPL’s Petition and the parties’ answers protesting the Petition resulted in this docket being automatically designated as a contested case proceeding and thus assigned to the OALJ and to a Presiding Judge. On September 20, 2019, Sunrun and NRDC submitted petitions for interlocutory Commission review and answer to material questions to bring this matter to the Commission’s attention and provide the Commission the opportunity to determine whether the issues raised in PPL’s Petition should be addressed on a statewide basis (with a corresponding dismissal of the Petition) or proceed to be considered pursuant to a standard administrative litigation process.

The four intervening parties and seven non-party stakeholders in this proceeding unanimously agree that PPL’s Petition should be denied in favor of having the issues raised in the Petition addressed, if at all, pursuant to a process with statewide applicability. Sunrun respectfully requests that the Commission issue an order denying PPL’s Petition and instead institute, at such time as the Commission determines is appropriate, a statewide proceeding to investigate these issues.

³ Docket No. P-2019-3010128, *Answer of Sunrun Inc. to Pet. of PPL* (July 30, 2019); *Answer of Nat. Res. Def. Council to Pet. of PPL* (July 30, 2019); *Answer of the Office of Consumer Advocate to Pet. of PPL* (July 30, 2019).

⁴ *Comments of Sustainable Energy Fund* (July 30, 2019); SEF’s late intervention was granted at the Prehearing Conference at which SEF recommended the Petition be denied, or in the alternative, issues raised in the Petition be addressed on a statewide basis.

⁵ See Docket No. P-2019-3010128.

⁶ See Docket No. P-2019-3010128; see also 66 Pa.C.S. § 331(b).

II. Legal Standard for Interlocutory Review

The standards for interlocutory review of a material question are set forth in 52 Pa. Code §§ 5.302 and 5.303 and in Commission precedent. Section 5.302(a) requires that the petitioner state “the compelling reasons why interlocutory review will prevent substantial prejudice or expedite the conduct of the proceeding.” The Commission has determined that a showing supportive of interlocutory Commission review may be accomplished by a petitioner by its proving that, without such interlocutory review, some harm would result which would not be reparable through normal avenues, that the relief sought should be granted now, rather than later, and that granting interlocutory review would prevent substantial prejudice or expedite the proceeding.⁷

III. Argument

A. First Material Question

Sunrun and NRDC’s first material question asks: “Does PPL’s Petition implicate technical and public policy questions of statewide concern?”

Suggested answer: Yes.

By its Petition, PPL is seeking waiver of nine Commission regulations that currently stand in the way of implementing its proposed DER Management Plan.⁸ These regulations were adopted—at the direction of the General Assembly—pursuant to a statewide stakeholder process. The Alternative Energy Portfolio Standards Act—the statute pursuant to which the Commission developed the regulations from which PPL seeks a waiver—expressly directs the Commission to “convene a stakeholder process to develop Statewide technical and net metering rules for customer generators.”⁹ That PPL would require waiver of such a broad set of regulations governing net metering, interconnection, smart inverter standards, and related matters to implement its proposed DER Management Plan demonstrates that the issues raised in PPL’s Petition implicate technical and public policy questions of statewide concern. PPL’s Petition also implicates important financial and consumer protection issues, including how customers would be compensated for the grid services PPL seeks to obtain through implementation of its DER Management Plan. DERs are capable of delivering numerous grid services that provide value to all ratepayers;

⁷ *Commonwealth of Pennsylvania, et al.; v. IDT Energy, Inc.*, Docket No. C-2014-2427657 (Order entered Dec. 18, 2014); *Pa. Pub. Util. Comm’n v. Philadelphia Gas Works*, Docket Nos. P-2009-2097639, *et al.* (Order entered April 15, 2010).

⁸ Petition at pp. 22-25 (requesting waiver of 52 Pa. Code §§ 75.13(c), 75.13(k), 75.22, 75.34, 75.35, 75.37, 75.38, 75.39, and 75.40 and “any additional waivers of the Commission’s regulations it deems necessary to implement the DER Management Plan”).

⁹ See Alternative Energy Portfolio Standards Act (“AEPS”) of 2004, 73 P.S. § 1648.5.

however, these services must be compensated in order to incentivize customer adoption of renewable energy resources, ensure customer protection, and stimulate a healthy DER market in Pennsylvania.

PPL's Petition in fact acknowledges that the motivation for the extraordinary relief it requests in its Petition is not actually unique to PPL, but instead is broadly applicable to all utilities across the Commonwealth. The Petition states:

[T]he electric transmission and distribution systems *in Pennsylvania* and the United States are currently undergoing significant changes. In particular, the increasing deployment and use of DERs, such as solar panels and batteries, are upending the traditional electric grid model of large-scale generation located at significant distances from customers. By allowing customers to both consume and produce electricity at what were traditionally points of delivery, DERs force the electric distribution system to perform in a way for which it was not originally designed and, as a result, place an increasing stress on the grid. However, even as the deployment of DERs *in Pennsylvania* continues to increase, the Company still must provide reasonable, safe, and reliable electric service to all of its customers, including those who have not installed DERs. This can be particularly difficult because electricity cannot be readily stored. As a result, ***PPL Electric and all electric utilities*** must simultaneously balance distribution system demand and supply.¹⁰

The issues cited in PPL's Petition are not unique to Pennsylvania, but are faced by utilities throughout the country. And they are commonly addressed through statewide processes rather than by one utility unilaterally seeking to impose requirements applicable only within its service territory. As stated in the accompanying Affidavit of Richard (Ric) O'Connell, Executive Director of GridLab, "most states are thoughtfully considering standards for smart inverters, and developing interconnection requirements, in a collaborative way, with the participation of all utilities, the applicable regional transmission organization ("RTO"), industry, and other stakeholders." (O'Connell Affidavit, page 2)¹¹

A statewide proceeding is the most efficient and fair means for the Commission to investigate and address these issues, and is the only forum available to allow all interested stakeholders to participate and provide input on the many critical issues implicated by PPL's Petition. The Commission's determinations on these issues will have far reaching implications for the DER market in Pennsylvania and a consistent statewide policy framework that is the result of broad stakeholder input on the many important issues raised in PPL's Petition is essential in order to foster a robust DER market in the Commonwealth. Indeed, the Interstate Renewable Energy Council ("IREC")

¹⁰ Petition at p. 1 (emphasis added).

¹¹ The Affidavit of Richard (Ric) O'Connell is attached as Exhibit A and incorporated as a part of this brief. Including Exhibit A, this brief observes the page limitation set forth in 52 Pa. Code § 5.302(b).

observes that broad stakeholder engagement is critical to state adoption and implementation of the new IEEE standard and UL certification:

State adoption and implementation of this Standard will require the attention of state regulators – who will be tasked with formally adopting the new Standard at the state level – as well as utilities who will integrate them into internal interconnection protocols. In addition, DER industry representatives, technology manufacturers, state and federal agencies, national laboratories and advocates will play key roles in the consideration and adoption of the new Standard. In contrast with the 2003 Standard, which provided one set of requirements for all DERs, IEEE Std 1547-2018 features a menu of options that need to be considered and selected.¹²

Other states considering the new IEEE 1547-2018 standard are following IREC’s recommendations and developing interconnection and other implementation requirements in a collaborative way with utilities, the DER industry, and other stakeholders. For instance, the Maryland Public Service Commission instituted an interconnection working group to explore, among other matters, the appropriate timeline for instituting the updated standards. After extensive stakeholder input, the Maryland working group recommended an implementation date of January 1, 2022.¹³

B. Second Material Question

Sunrun and NRDC’s second material question asks: “Should PPL’s Petition be denied in favor of addressing such issues on a statewide basis at a time deemed appropriate by the Commission?”

Suggested answer: Yes.

Whether this proceeding is allowed to continue through the standard administrative litigation process, as PPL demands, represents a fundamental policy decision for the Commission, with serious repercussions on the continued development of the DER market in Pennsylvania. The effect of considering PPL’s Petition in this manner would signify a determination by the Commission that issues relating to the technical standards for integration of DERs are going to be decided on a utility-by-utility basis, with each of the electric distribution companies in the Commonwealth having the ability to impose its own set of equipment requirements on DERs (which, in PPL’s case, would require communications devices that enable PPL to monitor and control customers’ DERs). Such a process would lead to, among other undesirable outcomes, inconsistent interconnection and advanced inverter standards for

¹² See Interstate Renewable Energy Council, *Making the Grid Smarter: Primer on Adopting the New IEEE 1547-2018 Standard for Distributed Energy Resources* at p. 4 (Jan. 2019) available at https://irecusa.org/wp-content/uploads/2019/01/IEEE-FINAL_012919.pdf.

¹³ Maryland Pub. Serv. Comm’n, Docket No. PC 44, Interconnection Workgroup, *Phase II Final Report* at p. 5 (July 22, 2019) (following extensive stakeholder engagement, the interconnection working group final report recommended “a January 1, 2022 requirement to use smart inverters in Maryland and several other companion regulations including requiring utilities to develop inverter setting policies and also post a list of smart inverters they have approved on their websites”).

each utility and different DER market participation structures across utility territories, thereby interjecting inconsistency and unpredictability into the market. The sanctioning of such a chaotic process by the Commission would, in and of itself, have a substantial chilling effect on the still nascent DER market in Pennsylvania. As stated by Mr. O’Connell in the accompanying Affidavit;

Such a disjointed, unsystematic process would likely result in unpredictable and inconsistent regulatory requirements, the practical effect of which would be to create substantial uncertainty—and risk—in the DER market in Pennsylvania and thereby severely hamper, if not undermine completely, the prospects for a robust DER market in the state. (O’Connell Affidavit, page 2).

Another aspect of PPL’s Petition could have a similar chilling effect on the development of the DER market in Pennsylvania. As noted above, PPL proposes under its DER Management Plan to take an active role in “managing” the DERs that are interconnected to its network through an extensive “communications and control” approach. But the failure of PPL’s proposed DER Management Plan to address the necessary agreements for control of DERs—including how much curtailment is acceptable—is problematic and, according to Mr. O’Connell “would make it extremely difficult, if not impossible, for third-party DER providers to finance their system, given the unpredictability of the revenue stream from DER output.” (O’Connell Affidavit, page 3) The impact is compounded by the failure of PPL’s proposed DER Management Plan to address how DER owners and operators would be compensated for the value that DERs would contribute to the grid through the implementation of PPL’s Plan. As stated by Mr. O’Connell, PPL’s proposed DER Management Plan “is entirely one-sided, in favor of the utility,” and “[t]his asymmetry, if approved, would severely hamper the development of a robust DER market in Pennsylvania.” (O’Connell Affidavit, pages 3-4)

These are issues about which Mr. O’Connell is uniquely qualified to comment. As Executive Director of GridLab, he leads a team of experts providing comprehensive technical expertise to policy makers, advocates and other energy decision makers on the design, operation and attributes of a flexible and dynamic grid. (O’Connell Affidavit, page 1). In this role, Mr. O’Connell has deep familiarity with state proceedings across the country considering DER interconnection requirements, the importance of uniform state policies in the development of successful and robust markets for DERs, and the potential impact of utility control of DERs on the ability of project owners and operators to obtain financing.

PPL has offered no basis for moving forward prematurely and unilaterally with its proposed DER Management Plan. As discussed in the next section, the circumstances in the industry do not warrant such

extraordinary relief, given the unfinished state of the process for developing equipment standards for smart inverters. Nor do the relatively low penetration rates for DERs in Pennsylvania and in PPL's service territory suggest any urgency for consideration of a comprehensive DER management plan. Rather, the issues raised in PPL's Petition should be resolved through a process that results in rules applicable on a statewide basis that are the result of a transparent and robust stakeholder process.

The Commission has broad authority to determine questions of law, policy and discretion without a hearing and, accordingly, can deny PPL's Petition at this juncture.¹⁴ Accordingly, PPL's Petition should be denied in favor of addressing the issues raised in the Petition in a proceeding with statewide applicability at such time as the Commission determines appropriate.

C. Third Material Question

Sunrun's third material question asks: "Should the Commission initiate a separate statewide proceeding now to allow all interested stakeholders to provide input on whether current circumstances warrant addressing any or all of the issues raised in PPL's Petition?" NRDC's third material question asks "Should the Commission initiate a statewide stakeholder process allowing for Commonwealth-wide input on whether current circumstances warrant addressing any or all of the issues raised in PPL's Petition at the present time?"

Suggested answer: Yes.

The Commission may want to consider commencing a process to provide an opportunity for all interested stakeholders to provide input on whether current circumstances warrant addressing any or all of the issues raised in PPL's Petition. For the reasons stated in its Answer to PPL's Petition in this proceeding; however, it is Sunrun's position that current circumstances do not support proceeding beyond that initial inquiry to examine the comprehensive range of issues raised in PPL's Petition. While these issues should be considered only in the context of a separate statewide proceeding—for the reasons stated above with respect to the First Material Question—it is premature to proceed with that examination now.

First, the smart inverter standards that PPL seeks to implement in its DER Management Plan *are not yet approved*, and it will be years before the standard can be implemented in Pennsylvania. While IEEE Standard 1547-2018 was adopted in April 2018, the revisions being considered for UL Standard 1741 are still under review. (UL

¹⁴ See *Painter v. Pa. Pub. Util. Comm'n*, 116 A.3d 749 (Pa. Cmwlth. 2015) ("It is a fundamental proposition of law that a hearing or trial procedure is necessary only to resolve disputed questions of fact and is not required to decide questions of law, policy or discretion.").

Standard 1741 governs the physical testing procedures that manufacturers must perform to certify that a DER inverter meets IEEE Standard 1547-2018.) As stated in Mr. O’Connell’s Affidavit:

UL Standard 1741 will not be released until later in 2019, and DER inverter and communications devices will not be certified as compliant with IEEE Standard 1547-2018 using the new UL Standard 1741 *until 2021* at the earliest. (O’Connell Affidavit, page 3; emphasis in original).

In the meantime, PPL states in its Petition that it “*may adopt screening requirements that are different and stricter than what is ultimately adopted by UL.*”¹⁵ The practical effect of this strategy, according to Mr. O’Connell, would be to virtually shut down the market for DERs in PPL’s service territory for two years:

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, DER installations in PPL’s service territory will effectively be shut down until mid-2021, when the market can supply IEEE Standard 1547-2018-capable equipment that has been certified according to UL 1741. PPL’s small service territory simply is incapable of jumpstarting the inverter market to test to its specific needs. (O’Connell Affidavit, page 3).

As noted in Mr. O’Connell’s Affidavit, the absence of unified standards, protocols and testing requirements in the industry was a factor contributing to Pacific Gas & Electric’s finding that it was “too early” to consider adoption of a DER management plan, even though that utility has 370,000 rooftop solar customers on its system—a DER penetration rate of 6.9 percent—and an anticipated growth rate of 5,000 new solar customers per month. (O’Connell Affidavit, page 3). Given the currently incomplete process underway to adopt and implement industry standards for smart inverters, it would be premature for the Commission to embark now on the comprehensive review of the issues raised in PPL’s Petition.

Second, the DER industry in Pennsylvania is relatively nascent compared to many other states in the U.S., and the current circumstances do not warrant the examination now of the issues raised by a comprehensive DER management scheme. As noted in Mr. O’Connell’s Affidavit, even California does not require the sort of “communications and control” requirements proposed by PPL. (O’Connell Affidavit, page 3) (While California’s Rule 21 interconnection standards require smart inverters to be capable of communications, no communications are currently required.) Similarly, the Illinois Commerce Commission rejected the requests of utilities in that state for communications and control requirements similar to those proposed by PPL here. (*Id.*) Rather than requiring such

¹⁵ PPL Petition at p. 2, FN 4 (*emphasis added*); see also Petition at p. 25 (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”).

communications and control requirements, it is possible to implement smart inverter standards with autonomous features, as California and Illinois have done. (*Id.*) At such time as the Commission undertakes a thorough examination of these issues in an appropriate statewide proceeding, it will be in a position to examine the applicability of industry-approved standards for smart inverters—after the process for implementing the standards is complete—and consider a DER management protocol that reflects the circumstances prevailing in Pennsylvania versus other states with more advanced DER markets.

While the Commission may want to consider instituting a proceeding to solicit input from all interested stakeholders on whether current circumstances warrant addressing any or all of the issues raised in PPL’s Petition, there is no need to take the further step of proceeding with the comprehensive examination of those issues.

D. Answering the Material Questions Will Prevent Substantial Prejudice to Sunrun and Expedite the Conduct of this Proceeding.

Answering the above questions in the affirmative will prevent substantial prejudice to Sunrun and expedite the conduct of this proceeding. As a DER developer in PPL and other utility territories in Pennsylvania, state policy on advanced inverter standards, interconnection requirements, DER communication protocols, compensation regimes for DER services, and related matters implicated by PPL’s Petition and DER Management Plan directly impact Sunrun’s interests. Allowing PPL’s Petition to proceed under a standard administrative litigation process would be highly prejudicial to Sunrun (as well as other DER developers and other stakeholders) and would establish a dangerous precedent signaling that foundational technical and public policy matters raised in PPL’s Petition are to be addressed on a piecemeal, utility-by-utility basis throughout the Commonwealth, without the benefit of policy guidance from the Commission on these highly consequential issues. As noted in Mr. O’Connell’s Affidavit, the consideration of these issues on a utility-by-utility basis would, in and of itself, “create substantial uncertainty—and risk—in the DER market in Pennsylvania and thereby severely hamper, if not undermine completely, the prospects for a robust DER market in the state.” (O’Connell Affidavit, page 2).

Addressing these issues on a utility-by-utility basis through a standard administrative litigation process would require Sunrun (and other DER developers) to participate in multiple litigated proceedings and invites the adoption of inconsistent advanced inverter implementation timelines and standards, interconnection rules, frameworks for DER integration and compensation, and related rules and procedures. A piecemeal, utility-by-utility approach to resolving these highly consequential and foundational issues will insert significant uncertainty and have

serious negative repercussions for the still nascent DER market in the state and would be highly prejudicial to Sunrun.¹⁶

Moreover, while Sunrun is currently the only DER developer intervenor in this proceeding, in addition to Sunrun, NRDC, OCA, and SEF, seven other entities submitted comments in opposition to PPL's Petition.¹⁷ Seven of those entities—including major stakeholders in the solar industry such as the Pennsylvania Solar Energy Industries Association, the Interstate Renewable Electricity Council, Inc., Grid Lab, and other DER developers—submitted comments specifically in support of the Answer submitted by NRDC.¹⁸ The fact that each entity—including the four intervening parties and seven interested stakeholders—submitted comments in unanimous opposition to PPL's Petition demonstrates broad and significant stakeholder interest in these matters. This level of interest further underscores the importance of the Commission providing the opportunity for robust stakeholder input, including input on the appropriate timeframe within which to address the issues raised in PPL's Petition, through a proceeding applicable on a statewide basis to prevent substantial prejudice to all interested stakeholders.

Answering the material questions in the affirmative is necessary to prevent harm to Sunrun that would result from litigating issues raised in PPL's Petition through a standard administrative litigation process. Moreover, allowing PPL's Petition to proceed through such process would establish a precedent for other utilities to follow a similar path in Pennsylvania, thereby requiring Sunrun (and other DER developers) to participate in multiple litigated proceedings, and very likely result in disparate rules and requirements for DERs in each individual utility territory. Such an outcome would be highly prejudicial to Sunrun and such harm is not reparable through processes available under the standard administrative litigation process. Such harm can only be avoided by denying PPL's Petition and addressing these foundational issues in a statewide proceeding at such time as the Commission determines appropriate.

¹⁶ O'Connell Affidavit, page 3.

¹⁷ See Docket No. P-2019-3010128, *Trinity Solar, Comments in Support of Answer Filed by Natural Resources Defense Council* (July 30, 2019); *Grid Lab, Comments in Support of Answer Filed by Natural Resources Defense Council* (July 30, 2019); *Solar Unified Network of Western Pennsylvania, Comments in Support of Answer Filed by Natural Resources Defense Council* (July 30, 2019); *Independent Energy Solutions, LLC, Comments in Support of Answer Filed by Natural Resources Defense Council* (July 30, 2019); *Interstate Renewable Energy Council, Inc., Comments in Support of Answer Filed by Natural Resources Defense Council* (July 30, 2019); *Pennsylvania Solar Energy Industries Association, Comments in Support of Answer Filed by Natural Resources Defense Council* (July 30, 2019); and *Exact Solar, Comments in Support of Answer Filed by Natural Resources Defense Council* (July 30, 2019).

¹⁸ *Id.*

Answering the material questions in the affirmative will also expedite the conduct of this proceeding. The standard administrative litigation process PPL seeks would fail to provide DER developers, utilities and other stakeholders the finality and predictability required for a sustainable DER market in Pennsylvania. A statewide proceeding would (1) allow all interested stakeholders to provide input and expedite the identification and resolution of the full scope of issues necessary to address advanced inverter standards, communication protocols, DER compensation and grid service frameworks, and other matters related to utility DER management plans; (2) provide consistency and predictability across utility territories, (3) ensure an administratively efficient process to address these issues for all utilities across the Commonwealth, and (4) reduce the potential for additional litigation and revisions to PPL and other utility DER management plans that are far more likely to result as new information, policy implications, and other issues emerge if these issues are addressed piecemeal on a utility-by-utility basis.

III. Conclusion

Sunrun requests the Commission grant Sunrun's petition for interlocutory Commission review and answer to material questions and issue an order answering the material questions in the affirmative. Pursuant to 52 Pa. Code § 5.302(c), a proposed ruling on the material questions is attached as Exhibit B.

Respectfully submitted this 30th day of September 2019.

/s/ James M. Van Nostrand

James M. Van Nostrand

Pennsylvania Bar # 327054

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Exhibit A

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of PPL Electric Utilities Corporation for	:	
Approval of Tariff Modifications and Waivers of	:	
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	:	

AFFIDAVIT OF RICHARD O’CONNELL

State of California)	
)	ss.
County of Contra Costa)	

1. My name is Richard (Ric) O’Connell. I am the Executive Director of GridLab. My address is 2120 University Avenue, Berkeley, CA 94704. I am providing this Affidavit in connection with Petitions for Interlocutory Review filed by Natural Resources Defense Council (“NRDC”) and Sunrun, Inc. (“Sunrun”), respectively, in the above-captioned proceeding.

2. GridLab was formed in 2017 to provide comprehensive technical expertise to policy makers, advocates and other energy decision makers on the design, operation and attributes of a flexible and dynamic grid. GridLab provides direct technical assistance for expert testimony in contested dockets, engineering reports, and modeling. GridLab’s technical assistance platform is supported by a network of over sixty independent consultants and firms with recognized power systems knowledge. On July 30, 2019, GridLab submitted Comments in Support of the Answer filed by NRDC in this proceeding.

3. As Executive Director of GridLab, I lead a team of experts providing comprehensive technical grid expertise to policy makers and advocates. Prior to joining GridLab in 2017, I was at Black & Veatch for 12 years, where I was instrumental in building the global renewable energy consulting practice. I provided engineering support for more than 8 gigawatts of utility scale solar projects worldwide, including several of the largest projects in the world. While at Black & Veatch, I also provided expertise to the Energy Foundation China program and had leadership roles on several high-profile policy studies including National Renewable Energy Laboratory’s *20% Wind Energy by 2030* and the California *Renewable Energy Transmission Initiative*. I have a BSEE from Duke University and a Master’s in Renewable Energy Policy from the University of Colorado at Boulder.

4. I have read the petition (“Petition”) of PPL Electric Utilities Corporation (“PPL” or “Company”) for Approval of Tariff Modifications and Waivers of Regulations Necessary to Implement its Distributed Energy Resources Management Plan, filed with the Commission on May 24, 2019. I am providing this Affidavit to provide the Commission with information that bears on its decision regarding the appropriate process and timing for addressing the matters raised in PPL’s Petition. Specifically, my Affidavit discusses (1) the likely impact on the market for distributed energy resources (“DERs”) in Pennsylvania if the Commission allows this proceeding to move forward, (2) some of the technical issues raised in PPL’s Petition, such as the current absence of formally approved industry standards that would provide a sound basis for a DER management plan, and (3) the “state of play” with respect to these issues around the country, and whether the rate of DER penetration in Pennsylvania warrants consideration of these issues at this time.

5. In my opinion, allowing this proceeding to move forward in the manner proposed by PPL—through a standard administrative litigation process that treats PPL’s Petition as a routine filing of tariff revisions necessary to implement its DER Management Plan—would have very serious consequences on the future development of a DER market in Pennsylvania. It would represent a significant policy decision by the Commission that issues relating to the technical standards for integration of DERs are going to be decided on a utility-by-utility basis, with each of the electric distribution companies in the Commonwealth having the ability to impose its own set of equipment requirements on DERs (which, in PPL’s case, would require communications devices that enable PPL to monitor and control customers’ DERs). Such a disjointed, unsystematic process would likely result in unpredictable and inconsistent regulatory requirements, the practical effect of which would be to create substantial uncertainty—and risk—in the DER market in Pennsylvania and thereby severely hamper, if not undermine completely, the prospects for a robust DER market in the state. In contrast to this unilateral effort by PPL to impose requirements applicable only within its service territory, most states are thoughtfully considering standards for smart inverters, and developing interconnection requirements, in a collaborative way, with the participation of all utilities, the applicable regional transmission organization (“RTO”), industry, and other stakeholders.

6. Apart from the impact of the proceeding itself, the consequences for the DER market would be compounded by the requirements that PPL seeks to impose in its DER Management Plan. 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 [Institute of Electrical and Electronic Engineers] IEEE Standard

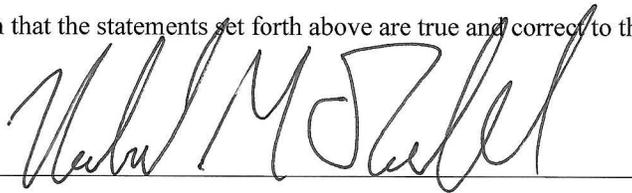
1547-2018 and *forthcoming* [Underwriters Laboratories] UL Standard 1741.” (Petition, page 2; emphasis added) While IEEE Standard 1547-2018 was adopted in April 2018, the revisions being considered by UL Standard 1741 are still under review. (UL Standard 1741 governs the physical testing procedures that manufacturers must perform to certify that a DER inverter meets IEEE Standard 1547-2018.) UL Standard 1741 will not be released until later in 2019, and DER inverter and communications devices will not be certified as compliant with IEEE Standard 1547-2018 using the new UL Standard 1741 *until 2021* at the earliest. In the meantime, PPL submits that it “may adopt screening requirements that are different and stricter than what is ultimately adopted by UL.” (Petition, page 2, note 4). 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, DER installations in PPL’s service territory will effectively be shut down until mid-2021, when the market can supply IEEE Standard 1547-2018-capable equipment that has been certified according to UL 1741. PPL’s small service territory simply is incapable of jumpstarting the inverter market to test to its specific needs.

7. Other aspects of PPL’s Petition are troubling as well. 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 through an extensive “communications and control” approach that could involve, among other things, curtailment or disconnection of DERs from the grid. The failure of PPL’s proposed DER Management Plan to address the necessary agreements for control of DERs—including how much curtailment is acceptable—would make it extremely difficult, if not impossible, for third-party DER providers to finance their system, given the unpredictability of the revenue stream from DER output. Conversely, PPL’s DER Management Plan fails to address how DER owners and operators would be compensated for the value that DERs would contribute to the grid through the implementation of PPL’s Plan. Implementation of a DER management system as intrusive as that envisioned in PPL’s proposed DER Management Plan would 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 the “communications and control” approach contemplated in PPL’s DER Management Plan. In short, 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 operations requirements, while not compensating the value that DERs contribute to the grid through the services associated with such

proactive management. This asymmetry, if approved, would severely hamper the development of a robust DER market in Pennsylvania.

8. Based on my experience and familiarity with state proceedings across the country considering DER interconnection requirements, the relief PPL is seeking in its Petition is unjustified. On a customer basis, the penetration of DERs in PPL's service territory is only 0.5 percent (8,000 DERs on its electric system), and PPL is anticipating only about 1,000 to 1,500 new interconnections per year. (Petition, page 6) In contrast, Pacific Gas & Electric in California has 370,000 rooftop solar customers and 4,000 megawatts of DER capacity—a penetration rate in its service territory of 6.9 percent—and anticipated growth of 5,000 new solar customers per month, or a growth rate about fifty times as great as PPL's. Yet notwithstanding its high DER penetration rates and anticipated growth rates, PG&E does not have a DER management plan, having concluded that it is "too early" to do so in the absence of unified standards, protocols and testing requirements in the industry. Nor does California currently have the sort of "communications and control" requirements proposed by PPL; under its Rule 21 interconnection standards, smart inverters must be capable of communications, but no communications are currently required. In Illinois, the utilities asked for communications and control requirements similar to those proposed by PPL here, and the Illinois Commerce Commission rejected those requests. It is possible to implement smart inverter standards with autonomous features—as California and Illinois have done—without including the communications and control requirements contemplated in PPL's proposed DER Management Plan. The current circumstances as well as anticipated rates of DER installations in Pennsylvania simply do not justify adoption of such an intrusive DER management plan.

I, Richard O'Connell, hereby confirm that the statements set forth above are true and correct to the best of my knowledge, information and belief.



Richard O'Connell

Sworn and subscribed before me this 29 day of September, 2019.



Signature of official administering oath

My commission expires September 4, 2020.

JURAT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Contra Costa

Subscribed and sworn to (or affirmed) before me on this 29th day of September,
20 19 by Richard Murno O'Connell

proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

Thomas Michael Lee
Signature (Seal)



OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

affidavit of Richard O'Connell
(Title or description of attached document)

(Title or description of attached document continued)

Number of Pages 4 Document Date 9/29/19

Additional information

INSTRUCTIONS

The wording of all Jurats completed in California after January 1, 2015 must be in the form as set forth within this Jurat. There are no exceptions. If a Jurat to be completed does not follow this form, the notary must correct the verbiage by using a jurat stamp containing the correct wording or attaching a separate jurat form such as this one with does contain the proper wording. In addition, the notary must require an oath or affirmation from the document signer regarding the truthfulness of the contents of the document. The document must be signed AFTER the oath or affirmation. If the document was previously signed, it must be re-signed in front of the notary public during the jurat process.

- State and county information must be the state and county where the document signer(s) personally appeared before the notary public.
- Date of notarization must be the date the signer(s) personally appeared which must also be the same date the jurat process is completed.
- Print the name(s) of the document signer(s) who personally appear at the time of notarization.
- Signature of the notary public must match the signature on file with the office of the county clerk.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different jurat form.
 - ❖ Additional information is not required but could help to ensure this jurat is not misused or attached to a different document.
 - ❖ Indicate title or type of attached document, number of pages and date.
- Securely attach this document to the signed document with a staple.

Exhibit B
Proposed Rulings on Material Questions and Extracts from Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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

**BRIEF OF SUNRUN INC. IN SUPPORT OF PETITIONS FOR INTERLOCUTORY COMMISSION
REVIEW AND ANSWER TO MATERIAL QUESTIONS OF SUNRUN INC. AND NATURAL
RESOURCES DEFENSE COUNCIL**

Pursuant to 52 Pa.Code § 5.302(c), Sunrun Inc. (“Sunrun”) hereby submits these proposed rulings and extracts from the record to assist the Commission in reaching a decision on the Petitions for Interlocutory Commission Review and Answer to Material Questions submitted by Sunrun and Natural Resources Defense Council (“NRDC”). Given the early stages of this proceeding, the record is very limited, and consists of 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 (“Petition”), submitted on May 24, 2019. All extracts included below are from that document.

A. First Material Question

1. Proposed Ruling

PPL’s Petition implicates technical and public policy questions of statewide concern. Section IV.B. of the Petition itemizes the nine Commission regulations from which PPL is seeking a waiver to implement its proposed Distributed Energy Resources Management Plan (“DER Management Plan”). These regulations were adopted—at the direction of the General Assembly—pursuant to a statewide stakeholder process, and thus the issues raised in PPL’s Petition are of statewide concern. The Petition also acknowledges that the issues raised in PPL’s proposed DER Management Plan are not unique to PPL, but rather apply throughout Pennsylvania and to all electric utilities operating in Pennsylvania, thus illustrating that issues of statewide concern are involved.

2. Relevant Extracts from the Record

13. The AEPS Act directed the Commission to “develop the technical and net metering interconnection rules for customer-generators to operate renewable onsite generators in parallel with the electric utility grid.” *See id.* Pursuant to this directive, the Commission promulgated regulations that govern the interconnection and net metering of customer-generators’ facilities. See 52 Pa. Code, Ch. 75. (Petition, p. 6).

70. Specifically, the Company requests waivers of all or portions of the following regulations: 52 Pa. Code §§ 75.13(c), 75.13(k), 75.22, 75.34, 75.35, 75.37, 75.38, 75.39, and 75.40. (Petition, p. 22).

80. Waivers of all or portions of Sections 75.13(c), 75.13(k), 75.22, 75.34, 75.35, 75.37, 75.38, 75.39, and 75.40 may be needed to implement the DER Management Plan because PPL Electric will require DERs to meet IEEE 1547-2018, which is dependent upon forthcoming updates to UL Standard 1741. Indeed, although the relevant revisions to IEEE Standard 1547 have been made, UL Standard 1741 is still under revision. Until UL Standard 1741’s revisions are published, there is no standardized testing for manufacturers to certify that their inverters meet IEEE 1547-2018. In the absence of the revised UL Standard 1741, the Company may institute screening requirements for a DER system to be qualified for interconnection that are different than the current standards. Therefore, to the extent that the new UL Standard 1741 is not published by the time the Commission approves this Petition, PPL Electric respectfully requests a waiver of the Commission’s requirement that “certified” comply with the 2001 version of UL Standard 1741. (Petition, p. 25).

As explained herein, the electric transmission and distribution systems *in Pennsylvania* and the United States are currently undergoing significant changes. In particular, the increasing deployment and use of DERs, such as solar panels and batteries, are upending the traditional electric grid model of large scale generation located at significant distances from customers. By allowing customers to both consume and produce electricity at what were traditionally points of delivery, DERs force the electric distribution system to perform in a way for which it was not originally designed and, as a result, place an increasing stress on the grid. However, even as the deployment of DERs *in Pennsylvania* continues to increase, the Company still must provide reasonable, safe, and reliable electric service to all of its customers, including those who have not installed DERs. This can be particularly difficult because electricity cannot be readily stored. As a result, PPL Electric and *all electric utilities* must simultaneously balance distribution system demand and supply. (Petition, p. 22; emphasis added).

B. Second Material Question

1. Proposed Ruling

PPL’s Petition is denied and the issues raised therein will be addressed on a statewide basis at a time deemed appropriate by the Commission. PPL’s Petition raises fundamental policy questions, including the extent to which utilities will be permitted to take an active role in “managing” the DERs that are interconnected to their networks through an extensive “communications and control” approach that could involve, among other things, curtailment or disconnection of DERs from the grid, and operating the DERs in a manner that adds value to the grid. These and other issues, including DER participation in grid service markets and compensation for the contributions

DERs provide to the grid, should be addressed on a statewide basis, at such time the Commission determines appropriate.

2. Relevant Extracts from the Record

The following extracts from the record describe the extent to which PPL would control DERs under its proposed DER Management Plan:

“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; emphasis added).

“[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), Petition, p. 2; emphasis added).

“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, emphasis added).

“[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; emphasis added).

“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; emphasis added).

“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; emphasis added).

“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; emphasis added).

“[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; emphasis added).

“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; emphasis added).

“[T]he Company’s Plan would enable PPL Electric to **locate and disconnect DERs** in these unintentional islanding scenarios” (Petition, p. 19; emphasis added).

The following extracts from the record describe the extent to which PPL would operate DERs under its proposed DER Management Plan to provide value to the grid:

“PPL Electric’s proposal is designed to produce **substantial electric service, safety and reliability benefits** for PPL Electric and its customers” (Petition, p. 2; emphasis added).

“[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 emphasis added).

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; emphasis added).

“Consistent adherence to the updated standards . . . will **improve distribution system management capabilities** . . . and could **reduce utility investments** supporting DER interconnection” (Petition, p. 13; emphasis added).

“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; emphasis added).

“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; emphasis added).

“[B]y utilizing the grid support functionality, PPL Electric can **improve system efficiency**” (Petition, p. 19; emphasis added).

“[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; emphasis added).

“[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; emphasis added).

C. Third Material Question

1. Proposed Ruling

The Commission will initiate a separate statewide proceeding to allow all interested stakeholders to provide input on whether current circumstances warrant addressing any or all of the issues raised in PPL’s Petition. PPL’s Petition includes a number of statements regarding the status of the smart inverter standards that PPL seeks to implement in its DER Management Plan as well as the level of DER penetration in PPL’s service territory, both of which relate to whether current circumstances warrant addressing any or all of the issues raised in the Petition.

2. Relevant Extracts from the Record

On the issue of the status of the smart inverter standards that PPL seeks to implement in its DER Management Plan, the Petition states that:

80. [A]lthough the relevant revisions to IEEE Standard 1547 have been made, UL Standard 1741 is still under revision. Until UL Standard 1741’s revisions are published, there is no standardized testing for manufacturers to certify that their inverters meet IEEE 1547-2018. (Petition, p. 25)

[I]n the absence of the revisions to UL Standard 1741 being finalized, PPL Electric may adopt screening requirements that are different and stricter than what is ultimately adopted by UL. (Petition, p. 2, n. 4)

On the issue of the current circumstances regarding the level of DER penetration in PPL's service territory, the Petition states as follows:

2. PPL Electric furnishes electric distribution, transmission and default supply services to approximately 1.4 million customers throughout its certificated service territory, which includes all or portions of 29 counties and encompasses approximately 10,000 square miles in eastern and central Pennsylvania. (Petition, pp. 3-4).

14. Since the Commission's AEPS Act regulations became effective on December 16, 2006, the Company has connected over 8,000 customer-owned and third party-owned DERs to its electric distribution system. (Petition, p. 6).

15. On average, PPL Electric receives between 1,000 and 1,500 DER interconnection applications per year, with the overwhelming majority of applications for solar PV systems. (Petition, p. 6).

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the following document, Brief of Sunrun Inc. in Support of Petitions for Interlocutory Commission Review and Answer to Material Questions of Sunrun Inc. and Natural Resources Defense Council, upon parties of record in this proceeding in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant), in the manner and upon the persons listed below:

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