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April 15, 2025

VIA ELECTRONIC FILING

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

**Re: Petition of PPL Electric Utilities Corporation for Approval of its Second
Distribution Energy Resources Management Plan
Docket No. P-2024-3049223**

Dear Secretary Chiavetta:

Attached for filing is the Reply Brief of PPL Electric Utilities Corporation in the above-referenced proceeding.

Copies are being provided as indicated on the Certificate of Service.

Respectfully submitted,



Devin Ryan

DR/dmc
Attachments

cc: The Honorable John M. Coogan (*via email; w/attachments*)
Certificate of Service

CERTIFICATE OF SERVICE

(Docket No. P-2024-3049223)

I hereby certify that a true and correct copy of this filing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

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**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of PPL Electric Utilities Corporation :
for Approval of its Second Distributed Energy : Docket No. P-2024-3049223
Resources Management Plan :
:

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I. INTRODUCTION

Pending before the Pennsylvania Public Utility Commission (“Commission”) is PPL Electric Utilities Corporation’s (“PPL Electric” or the “Company”) Petition for Approval of its Second Distributed Energy Resources (“DER”) Management Plan (“Second DER Management Plan” or the “Plan”), which was filed on May 20, 2024.

On March 25, 2025, PPL Electric filed its Main Brief in support of the Second DER Management Plan. Also, the Office of Consumer Advocate (“OCA”), the Office of Small Business Advocate (“OSBA”), the Sustainable Energy Fund (“SEF”), and American Home Contractors, Inc. (“AHC”), Enphase Energy, Inc. (“Enphase”), the Solar Energy Industries Association (“SEIA”), SolarEdge Technologies, Inc. (“SolarEdge”), Sun Directed, Tesla, Inc. (“Tesla”), and Trinity Solar, LLC (“Trinity Solar”) (collectively, the “Joint Solar Parties” or “JSPs”) filed their Main Briefs regarding the Company’s proposal.

As explained in PPL Electric’s Main Brief, the Commission should approve the Second DER Management Plan because it will enable the Company to improve the safety, reliability, adequacy, and resiliency of its electric service, while simultaneously: (1) encouraging and facilitating the increased deployment of DERs to address climate change and sustainability objectives through increases in clean energy; and (2) bolstering PPL Electric’s ability to address the significant resource adequacy issues facing the Commonwealth. Also, PPL Electric’s Second DER Management Plan is projected to produce net benefits of approximately \$65.5 million over the 2025-2030 period, which will put downward pressure on distribution rates and reduce costs for DER and non-DER customers alike.

Here, PPL Electric submits its Reply Brief, which is focused on responding to any arguments or issues raised in the other parties’ Main Briefs that were not previously addressed by the Company.

II. SUMMARY OF ARGUMENT

The Company's Petition for approval of its Second DER Management Plan should be approved without modification. PPL Electric's proposal will build upon the successes of its DER Management Pilot Program by helping address the significant resource adequacy challenges facing the Commonwealth, improving the safety, reliability, adequacy, and resiliency of its electric service, and helping address climate change by facilitating and encouraging increased deployments of DERs. The Company also demonstrated that its proposal is cost-effective, producing an estimated \$65.5 million in net benefits over a 2025-2030 period. Nothing in the other parties' Main Briefs warrants a denial or modification of PPL Electric's Second DER Management Plan, let alone the other requested relief set forth in their Main Briefs. Although PPL Electric addressed many of the other parties' arguments in its Main Brief, they present other arguments that warrant response and, ultimately, rejection by Administrative Law Judge John Coogan ("ALJ") and the Commission.

First, PPL Electric's Second DER Management Plan is overdue, not premature as some parties claim. PPL Electric is already facing issues due to resource adequacy and DERs that will only get worse with time and that the Second DER Management Plan can help address. Also, while the Company may be the first electric utility to make a proposal on the scale of the Second DER Management Plan, PPL Electric also is the only utility that invested the significant time and expense needed to lay the foundation for this grid modernization effort.

Second, the other parties make unsupported claims about the Company's cost-benefit analyses. For example, they point to differences in methodology and assumptions between the initial cost-benefit analysis submitted as part of the DER Management Pilot Program's Program Year 2 Annual Report and PPL Electric witness Wishart's cost-benefit analysis that was presented

in his rebuttal testimony. However, the cost-benefit analyses covered two different periods: the initial cost-benefit analysis looked at the historic performance of the DER Management Pilot Program, whereas Mr. Wishart's analysis focused on the Second DER Management Plan over the 2025-2030 period. Further, as Mr. Wishart explained, he took a more conservative approach in an effort to address other parties' critiques of the initial cost-benefit analysis. That does not mean that there were flaws with the initial cost-benefit analysis though, nor is it evidence that Mr. Wishart's analysis is unreliable.

Third, PPL Electric has established that issues about cost allocation and recovery related to the Second DER Management Plan should be decided in a base rate proceeding. PPL Electric has not sought any ratemaking determinations in this non-rate proceeding. If the Commission were to make such determinations, then interested stakeholders would be denied due process.

Fourth, PPL Electric fully rebutted the other parties' suggested alternatives to the Second DER Management Plan. As an example, third-party aggregators do not currently offer grid services in PPL Electric's service territory, and PPL Electric's witnesses demonstrated that reliance on third-party aggregators would be worse than implementing the Second DER Management Plan. Also, autonomous functions do not provide all the benefits that active management and monitoring do, contrary to other parties' allegations. In fact, PPL Electric has seen the disadvantages of solely relying on autonomous functions, such as when the initial settings need to be reprogrammed but cannot without significant expenditures due to the lack of active management capabilities.

Fifth, PPL Electric thoroughly refuted SEF's arguments about cybersecurity, deregulation, utility motives, "healthcare security," and rate impacts. Likewise, the JSPs' make a series of arguments in their Main Briefs that lack merit. In fact, the JSPs improperly raise a new,

unsupported request for relief in their Main Brief, asking that the Commission order PPL Electric to “replace SolarEdge inverters in which it has installed its Device, or pay \$2 million into a fund for replacements of inverters with PPL’s Devices installed and thermal damage.” (JSP MB at 60.) This request was raised for the first time at the briefing stage and should be denied for that reason alone. Even if it is considered, however, the request seeks damages, which the Commission has no authority to award.

Finally, the JSPs improperly introduce and rely on several pieces of extra-record evidence in their Main Brief. They also fail to provide good cause for the introduction of such extra-record evidence after the record closed. Although PPL Electric has decided not to burden the tribunal with a Motion to Strike that extra-record evidence, the ALJ and Commission should nonetheless disregard that evidence and any arguments based thereon.

For these reasons, and as explained in more detail in PPL Electric’s Main Brief and in this Reply Brief, the ALJ and the Commission should approve PPL Electric’s Petition for Approval of its Second DER Management Plan without modification.

III. ARGUMENT

A. PPL ELECTRIC’S SECOND DER MANAGEMENT PLAN IS OVERDUE, NOT PREMATURE

Other parties make the misguided allegation that PPL Electric’s proposal is premature. (*See* SEF MB at 5, 11; JSP MB at 20-22.) For example, SEF contends that PPL Electric’s “petition to commence its Phase II, is premature,” while the JSPs similarly aver that “PPL has failed to demonstrate why its program, with its first-in-the-nation features, must be approved now.” (SEF MB at 5, 11; JSP MB at 21.)

In actuality, PPL Electric's Second DER Management Plan is overdue, not premature. (*See* PPL Electric St. No. 7 at 13.) As explained in PPL Electric's Main Brief, PPL Electric's Second DER Management Plan will help address the daunting resource adequacy challenges facing the Commonwealth. (PPL MB at 24-28.) Also, the Company is already experiencing issues caused by DERs on its distribution system and must act now to improve and maintain the safety, reliability, adequacy, and resiliency of its electric service. (PPL MB at 13-21.)

Moreover, PPL Electric's witnesses testified at length regarding the need to implement the Second DER Management Plan now. (*See* PPL Electric St. No. 1-R at 7-8; 6-R at 18-20, 24-25; PPL Electric St. No. 7-R at 3-4, 9-10.) For example, PPL Electric witness Cook explained how the Company's pioneering of a "first-in-the-nation" DER management model "reflects PPL Electric's forward-thinking approach to address the DERs currently on the system and be prepared for future DER growth." (PPL Electric St. No. 6-R at 25) (emphasis in original). Expanding on this point, Dr. Cook noted how JSP witness White draws the wrong conclusion from PPL Electric being the first to implement a DER management proposal of this scale:

Erroneously, she assumes that being first necessarily means that the Second DER Management Plan is not necessary or justified based on conditions that actually exist on PPL Electric's distribution system. In fact, being the first to adopt a model of this kind highlights PPL Electric's commitment to proactively addressing the complexities and demands of a rapidly evolving energy landscape. By spearheading this initiative, PPL Electric is preparing for today's needs and positioning itself to effectively manage the anticipated increase in DERs and the associated operational challenges.

As I previously explained, the electric grid is undergoing a transformative period marked by exponential growth in dynamic customer interconnections, including rooftop solar, battery storage, and other edge technologies, and a surging growth in electric demand. A proactive program like PPL Electric's Second DER Management Plan addresses the critical need for real-time visibility, monitoring, and management of DERs, while also increasing hosting capacity and helping de-stress the transmission system. Therefore, by integrating DERs into a unified system, PPL Electric

can maintain grid stability, optimize energy flows, better support reliability and safety, and help focus and enhance critical investments in transmission and generation capacity, ultimately benefiting all customers.

(PPL Electric St. No. 6-R at 24-25) (footnotes omitted).

At the evidentiary hearing, Dr. Cook gave another basic reason why PPL Electric is the first to propose active management and monitoring of DER—unlike other electric utilities, PPL Electric has invested the time and resources “over the last 10 plus years to prepare [itself] to have the capability” to implement the Second DER Management Plan. (Tr. 201.) So, when other parties like the JSPs try to compare PPL Electric to other utilities, it is critical “to understand where they are in a maturity scale, grid modernization, and having even the capability to be able to request and have the due diligence and the processes and the people in place” and then take the “data and use it.” (Tr. 202.) Further, although other electric utilities with higher DER penetration levels have not required active management and monitoring of DERs yet, “the awareness and feasibility of the technology and the capabilities that now exist” were not available to those utilities back then. (Tr. 202.) Thus, it is not “fair to compare those that have more DER” to PPL Electric and say that those other utilities “are in a better position and/or creating policy that may or may not be effective.” (Tr. 202.)

The Company’s proactive approach even aligns with past statements made by one of the JSPs’ own expert witnesses, Mr. Brian Lydic. (PPL Electric St. No. 1-R at 42-44.) As seen in PPL Electric Exhibit SS-6R, Mr. Lydic has averred repeatedly that states and utilities could implement IEEE 1547-2018 even before UL 1741-SB was finalized by using UL 1741-SA, which is exactly what the Company did under its First DER Management Plan, and could “clarify which voltage regulation function DERs should use” and “adjust from Standard defaults accordingly,”

including on a “state-wide or case-by-case” basis. (See PPL Electric Exhibit SS-6R at 7, 23, 40, 99, 161, 197.)

In addition, in “Making the Grid Smarter,” which was published over six years ago in January 2019 and was co-authored by Mr. Lydic and Ms. Sara Baldwin, it states, “Even though the full implementation of the updated [IEEE 1547-2018] Standard will take a few more years, it is not too soon for states, utility regulators, utilities and stakeholders to begin the process to adopt and integrate it into interconnection rules.” (PPL Electric Exhibit SS-6R at 122) (emphasis added). Mr. Lydic also claims that “[t]o make the most of the standard and prepare for higher DER penetration in the future, regulators and utilities should consider the opportunity to utilize certain functions before achieving higher penetration of DERs, so as to optimize future DER growth and avoid negative impacts as penetration increases.” (PPL Electric Exhibit SS-6R at 121-22) (emphasis added). Indeed, as further noted in the publication:

Implementing voltage regulation only for new DERs after higher DER penetration has been achieved may dramatically reduce the effectiveness of this function. In addition, such late-stage adoption of voltage regulation functions may disproportionately affect new DER customers seeking to connect to the grid after a significant amount of non-voltage regulating DER projects are connected. Hawaii, for example, learned that the grid would have been able to host higher penetration of DERs if they had been able to deploy these functions early on.

(PPL Electric Exhibit SS-6R at 131) (footnote omitted) (emphasis added). Mr. Lydic even recognizes that there is an “inherent challenge of adjusting” the inverter “settings after a DER has been commissioned,” which “may not be done without widespread communications infrastructure in place.”¹ (PPL Electric Exhibit SS-6R at 127, 133.) In the publication’s conclusion, Mr. Lydic emphasizes that “[n]ow” (i.e., over six years ago in January 2019) “is the time to commence the

¹ PPL Electric’s DER Management devices and related facilities are such a “widespread communications infrastructure” that could remotely adjust inverter settings in an efficient manner. (PPL Electric St. No. 1-R at 43 n.4.)

process and pave the path for a more distributed and clean energy future,” that “[s]tates that work swiftly to address the new [IEEE 1547-2018] Standard will be better equipped to integrate new technologies, optimize the benefits of DERs, and improve system power quality,” and that “[e]ven states that may not expect a significant increase in DER interconnections over the next decade, can ensure adequate DER capabilities by adopting IEEE Std 1547-2018.” (PPL Electric Exhibit SS-6R at 141) (emphasis added).

Now, however, Mr. Lydic opposes the Company’s Second DER Management Plan, which seeks to address and get ahead of these issues, and claims that PPL Electric’s “program seems premature from a policy perspective” and “technical standpoint.” (JSP St. No. 9 at 9.) Even assuming *arguendo* that, as Mr. Lydic asserts, “the 1547 working group thought these interoperability standards were ready for broader use . . . but it turns out that fixes appear to be needed,”² that qualification only addresses his prematurity argument concerning the interoperability standards and not his claim that the Company’s Second DER Management Plan is premature from a policy perspective. (PPL Electric St. No. 1-R at 43-44.) Likewise, while Mr. Lydic tries to distinguish these past proclamations by pointing to the mandatory nature of PPL Electric’s proposal and the Company’s use of a utility-owned device to monitor DERs,³ those elements have nothing to do with whether the Company must act now to leverage the capabilities of IEEE 1547-2018 and get ahead of the issues caused by DERs before DER penetration increases significantly. Thus, even one of the JSPs’ own expert witnesses’ past positions support the need for the Commission to take action now and approve PPL Electric’s Second DER Management Plan.

² As noted in this Reply Brief, PPL Electric’s DER Management Pilot Program helped identify and close those interoperability gaps. *See* Section III.F.2 and 3, *infra*.

³ *See* JSP St. No. 9-SR at 5, 13-14, 16-17, 19.

For these reasons, and as further established in PPL Electric’s Main Brief, the Company’s Second DER Management Plan is overdue and is not premature. Therefore, the ALJ and Commission should approve the Second DER Management Plan, so that PPL Electric can continue being the “vanguard of distributed energy advancement.”⁴

B. NOTHING CREDIBLE SUPPORTS THE OTHER PARTIES’ ARGUMENTS ABOUT PPL ELECTRIC’S COST-BENEFIT ANALYSES

In their Main Briefs, the other parties make a series of allegations about the cost-benefit analyses presented by PPL Electric in this proceeding. While some of these criticisms were addressed in the Company’s Main Brief, PPL Electric responds to the remaining allegations in the following sections. As established by PPL Electric’s Main Brief and this Reply Brief, the Company’s cost-benefit analyses are well-founded and reliable and demonstrate that the DER Management Pilot Program and Second DER Management Plan are cost-effective.

1. PPL Electric Properly Included and Reflected the Benefits of Active Management, including Increased Hosting Capacity, in its Cost-Benefit Analyses

Some of the parties contend that PPL Electric failed to properly reflect the benefits of active management in its cost-benefit analyses. (*See* OCA MB at 27-28, 31-34; SEF MB at 6; JSP MB at 28-29.) In particular, the OCA argues that increasing hosting capacity should not be treated as a “ratepayer benefit” in a cost-benefit analysis because it is a “cost-shift onto ratepayers.” (OCA MB at 27-28.) According to OCA, “[i]ncreasing hosting capacity investment does not benefit the system as a whole” since “avoided infrastructure costs are a benefit to DER customers that are paid for by all other ratepayers.” (OCA MB at 33.) Meanwhile, SEF claims that “every benefit PPL describes in its Petition can be achieved solely with basic autonomous control (setting parameters and monitoring outputs).” (SEF MB at 6.) Further, the JSPs allege that PPL Electric

⁴ Statement of Chairman Brown Dutrieuille, Docket No. P-2019-3010128 (Dec. 17, 2020).

witness Wishart double-counted the incremental hosting capacity benefits of “Avoided Distribution Infrastructure Investments” and “Avoided Energy from Incremental Hosting Capacity,” on the premise that an interconnecting customer-generator can produce only one of those benefits but not both. (JSP MB at 28-29.) These arguments should be rejected, as the Company properly included and reflected the benefits of active management, including the increase in hosting capacity, in its cost-benefit analyses.

For starters, contrary to OCA’s claims, Mr. Wishart properly treated an increase in hosting capacity as a benefit under his cost-benefit analysis. As Mr. Wishart explained, his cost-benefit analysis took a comprehensive look at costs and benefits associated with active management and monitoring through DER devices. (PPL Electric St. No. 10-RJ at 5.) Given that the Commission requires the use of a Total Resource Cost (“TRC”) Test to evaluate the Phase IV Energy Efficiency and Conservation (“EE&C”) Plans,⁵ he adopted this widely accepted test for the cost-benefit analysis. (PPL Electric St. No. 10-RJ at 5.) The TRC approach specifies that benefits accruing to program participants and those not participating in the program are both included in the calculation of net benefits. (PPL Electric St. No. 10-RJ at 5-6) (footnote omitted). Furthermore, in Mr. Wishart’s rebuttal testimony, he included an assessment of the gross impact of the Second DER Management Plan on customer rates. (PPL Electric St. 10-R at 14-15.) In that analysis, he quantified only the program’s costs, ignoring all potential benefits. (PPL Electric St. No. 10-RJ at 6.) The result was that by 2031, the gross rate impact would be only 0.2% on overall rates. (PPL Electric St. No. 10-RJ at 6.) Thus, when OCA discusses cost shifts to ratepayers, it is not fairly characterizing the magnitude of any potential impacts. (PPL Electric St. No. 10-RJ at 6.)

⁵ See *2021 Total Resource Cost (TRC) Test*, Docket No. M-2019-3006868 (Order entered Dec. 19, 2019).

In addition, PPL Electric is not seeking cost recovery of the Second DER Management Plan in this proceeding, nor has the Company made a proposal regarding how program costs should be allocated in the future. (PPL Electric St. No. 10-RJ at 7.) As such, it is premature for OCA to make claims about cost shifting when a specific cost-recovery mechanism has yet to be proposed. (PPL Electric St. No. 10-RJ at 7.) Moreover, while customers with DERs will realize benefits through reduced energy charges, DERs will have the overall effect of suppressing wholesale energy prices in the region. (PPL Electric St. No. 10-RJ at 7.) This concept is referred to as Demand Reduction Induced Price Effects (“DRIPE”). (PPL Electric St. No. 10-RJ at 7.) DRIPE captures the value of changes in wholesale electricity prices caused by a shift in the demand curve in the PJM Interconnection LLC (“PJM”) energy market. (PPL Electric St. No. 10-RJ at 7.) In many cases this impact is larger than the direct energy costs avoided by DERs, as this benefit accrues to all customers. (PPL Electric St. No. 10-RJ at 7.) Accordingly, PPL Electric properly included the increase in hosting capacity as a benefit.

Also, SEF incorrectly asserts that “every benefit PPL describes in its Petition can be achieved solely with basic autonomous control (setting parameters and monitoring outputs).” (SEF MB at 6.) PPL Electric witness Wishart explained that there are multiple benefit categories that accrue only to active management: (1) avoided costs in responding to voltage violations; (2) avoided manual capacitor bank switching for volt-ampere reactive (“VAR”) support; (3) troubleshoot stuck voltage regulator; (4) avoided installation of switched capacitor banks; (5) avoided distribution infrastructure investments – hosting capacity; (6) avoided cost from reduced electricity losses; (7) avoided energy from incremental hosting capacity; and (8) conservation voltage reduction. (PPL Electric St. No. 10-R at 7; Table SWW-1.) When totaling those benefit categories up, “[t]he estimated net benefits from active management for DER Management devices

installed from 2025 through 2030 are approximately \$22 million on a net present value basis.” (PPL Electric St. No. 10-R at 6-7; *see* Table SWW-1.) Those net benefits differ from the net benefits attributable to “detailed monitoring of the Company’s distribution system,” which equaled approximately \$44 million. (PPL Electric St. No. 10-R at 8-9; *see* Table SWW-2.) As a result, SEF errs in claiming that “every benefit” described in the Petition “can be achieved solely with basic autonomous control.” (SEF MB at 6.)

Lastly, the ALJ and Commission should reject the JSPs’ allegation that PPL Electric witness Wishart double-counted the incremental hosting capacity benefits of “Avoided Distribution Infrastructure Investments” and “Avoided Energy from Incremental Hosting Capacity,” on the premise that an interconnecting customer-generator can produce only one of those benefits but not both. (JSP MB at 28-29.) The JSPs overstate and mischaracterize Mr. Wishart’s testimony at the evidentiary hearing. (*See* Tr. 213-15.) When pressed on this issue at the hearing, Mr. Wishart testified that he was not double-counting these benefits. (Tr. 215.) “The Company’s DER program, based on the achievements of the pilot, is projected to create 256 megawatts of incremental hosting capacity for new DERs, [and] those new DERs will avoid market purchases.” (Tr. 215.)

Further, in conducting his cost-benefit analysis, Mr. Wishart “was trying to show the comprehensive impact of all incremental DERs that will be welcomed into the system as a result of the DER management plan.” (Tr. 214.) Indeed, as noted previously, Mr. Wishart “took a total resource cost approach, which is consistent with the way the Pennsylvania Commission has run their [demand-side] management cost benefit analyses.” (Tr. 206.) Using that approach, Mr. Wishart “quantif[ied] all cost and benefits associated with the program, whether they accrue to individual customers or whether they accrue to the system” as a whole. (Tr. 206.) Thus, Mr.

Wishart's analysis was consistent with a TRC Test approach, which the Commission has utilized pursuant to Act 129 of 2008 for well over a decade. *See* 66 Pa. C.S. § 2806.1(a)(3).

Mr. Wishart also never stated, as alleged by the JSPs in their Main Brief, that "it is inappropriate to count avoided energy costs" when an interconnection applicant would have paid for the "avoided infrastructure investments," nor did he acknowledge that "a specific DER cannot produce both benefits." (JSP MB at 28-29.) In fact, the two passages from the transcript that the JSPs cite in alleged support about Mr. Wishart's treatment of avoided energy costs (i.e., page 214, line 15 and page 216, lines 5-8) are taken out of context and actually do not support the JSPs' claims. Below are full quotations of the exchanges:

Q. If, on the other hand, some of these DERs would have been interconnected regardless of PPL's plan, then wouldn't those DERs provide the same avoided energy costs as you're claiming as a benefit attributable to PPL's plan?

A. Yes, but I was trying to show the comprehensive impact of all the incremental DERs that will be welcomed into the system as a result of the DER management plan.

...

Q. So it [is] not accounted for in your analysis. Correct?

A. Correct. I did not account for any lost sales in my analysis. But again, going back to the TRC approach that I took, if you look at DSM program evaluation using the TRC construct, they don't include the due [sic] sales associated with DSM and [sic] those analysis either.

(Tr. 214, lines 1018; Tr. 216, lines 5-12.) As for the avoided distribution infrastructure investments, Mr. Wishart only stated that it is a "fair statement" that there "would be no grid upgrades for a DER that didn't interconnect." (Tr. 214.) Also, the JSPs' scenario only contemplates a single interconnection applicant that would be unwilling to pay for the distribution system upgrades. (Tr. 214.) However, the Commission employs a first come, first served

interconnection queue process, where multiple projects could be seeking to interconnect.⁶ Thus, the JSPs fail to account for situations where projects behind that interconnection applicant would have been willing to pay for the distribution system upgrades but avoided those costs because the Second DER Management Plan increased the distribution circuit's hosting capacity.

2. PPL Electric Explained Why the Cost-Benefit Analyses Utilized Different Methodologies

In attempting to criticize the Company's cost-benefit analyses for the DER Management Pilot Program and the Second DER Management Plan, other parties observe that there were different methodologies and assumptions used in those two cost-benefit analyses. (*See* OCA MB at 26; JSP MB at 26-27; OSBA MB at 7.) Based on those differences, the other parties conclude that those differences raise concerns about the cost-benefit analyses' reliability. (OCA MB at 26; JSP MB at 26-27.) That is not the case.

PPL Electric's initial cost-benefit analysis was prepared as part of its Program Year 2 Annual Report for the DER Management Pilot Program. That historical cost-benefit analysis relied upon the data that was available at that time and was solely focused on the costs and benefits of the DER Management Pilot Program to date. (*See* PPL Electric Exh. CD-4.) Conversely, after the Company reviewed the other parties' direct testimony about that initial cost-benefit analysis, PPL Electric retained Concentric Energy Advisors, Inc. ("Concentric") to conduct a complete and detailed cost-benefit analysis of the Second DER Management Plan. (PPL Electric St. No. 1-R at

⁶ 52 Pa. Code §§ 75.13(a) (stating that net metering is offered a "first come, first served" basis), 75.22 (defining "queue position"), 75.37(c)(5) (setting forth the provisions for assignment and retention of interconnection applicant's queue position after a project is not approved under the Level 1 review procedures), 75.38(c)(3), (g) (providing the Level 2 review procedures' assignment and retention of queue position provisions), 75.39(b)(3) (setting forth the Level 3 review procedures' provision for assignment of queue position), 75.39(d) (stating that an "interconnection system impact study" must "consider all generating facilities that, on the date the interconnection system impact study is commenced, are directly interconnected with the EDC's system, have a pending higher queue position to interconnect to the system, or have a signed interconnection agreement"), 75.40(b), (c)(7)(ii), (f) (providing the Level 4 review procedures' provisions governing assignment and retention of queue position).

10.) In so doing, PPL Electric tried to respond to the other parties' criticisms about the initial cost-benefit analysis. (PPL Electric St. No. 1-R at 9-10.) In fact, PPL Electric witness Wishart noted how his cost-benefit analysis "addresses those concerns and features detailed calculations that provide intervenors an increased opportunity for review," like how OSBA witness Farr was able to "us[e] the Company's [cost-benefit analysis] model to run his own sensitivity scenarios." (PPL Electric St. No. 10-RJ at 17.)

In addition, the fact that Mr. Wishart's cost-benefit analysis used different, more conservative assumptions than the initial cost-benefit analysis does not mean that the initial cost-benefit analysis was flawed. As Mr. Wishart explained, "While it is true that my independent analysis of the benefit of avoided truck rolls differed from that of the DER Management Pilot Program, my more conservative assumptions, which decrease the calculated benefit, lower the overall [cost-benefit analysis] results compared to what those results would have been absent this conservative approach." (PPL Electric St. No. 10-RJ at 17.) Therefore, in Mr. Wishart's opinion, "the difference in methodologies in isolation should not be the focus"; rather, the "[f]ocus should be placed on evaluating the reasonableness of an assumption and its impact on the analysis." (PPL Electric St. No. 10-RJ at 17.) In this case, Mr. Wishart firmly established that "the methodology and assumptions used in the [cost-benefit analysis] are both robust and reasonable." (PPL Electric St. No. 10-RJ at 17.)

3. OSBA's Criticisms of the Cost-Benefit Analyses Lack Merit

OSBA incorrectly maintains that there are six flaws with Mr. Wishart's cost-benefit analysis. (OSBA MB at 5-7.) Specifically, OSBA contends that: (1) the cost-benefit analysis should have excluded conservation voltage reduction benefits because, according to OSBA, PPL Electric "has not applied for Commission approval to use DER monitoring devices for conservation voltage reduction services as required by a previous Commission order"; (2) the

hosting capacity assumption is “simply ‘the best available’ guesstimate of the hosting capacity currently”; (3) the cost-benefit analysis should have included “sunk costs”; (4) OSBA witness Farr presented four “plausible scenarios” where the “cost-benefit ratios range from 0.91 to 1.03”; (5) the cost-benefit analysis “is narrowly focused on illustrating the benefits from active management”; and (6) Mr. Wishart’s forward-looking cost-benefit analysis used a different methodology and assumptions than the Company’s historical cost-benefit analysis. (OSBA MB at 5-7.) PPL Electric previously addressed Items 1, 2, and 5 in its Main Brief and Item 6 this Reply Brief and demonstrated that OSBA’s concerns are misplaced. (*See* PPL MB at 37-40); Section III.B.2, *supra*. As for Items 3 and 4, OSBA’s arguments should be rejected as well.

First, PPL Electric witness Wishart correctly excluded “sunk costs” from his cost-benefit analysis. (*See* PPL Electric St. No. 10-R at 28-29.) As Mr. Wishart testified, “While it may be reasonable to include those [start-up] costs in the evaluation of the pilot, sunk start-up costs should not be considered when making the decision whether to move forward with the Second DER Management Plan.” (PPL Electric St. No. 10-R at 28-29.) “Sunk costs are costs that have already been incurred and cannot be recouped,” and “[a] key economic principle states that decisions should be based on future costs and benefits and should not consider past ‘sunk’ expenditures.” (PPL Electric St. No. 10-R at 29.) Because “sunk costs are irretrievable, they should not influence the evaluation of the Company’s proposal.” (PPL Electric St. No. 10-R at 29.) Additionally, Mr. Wishart “conservatively include[d] \$900,000 of Other Program Costs each year in order to capture expenses that may arise that are not included elsewhere in [his] analysis.” (PPL Electric St. No. 10-RJ at 14.)

Second, PPL Electric witness Wishart rebutted OSBA witness Farr’s “four sensitivity scenarios” in detail. (PPL Electric St. No. 10-RJ at 15-16.) Notably, while OSBA claims that all

four scenarios are “plausible” in its Main Brief, OSBA witness Farr admitted that one of those scenarios “may be a bit extreme.” (PPL Electric St. No. 10-RJ at 15.) Also, as Mr. Wishart explained, “Mr. Farr’s scenarios principally involve increasing capital costs (by increasing the ratio of higher-expense devices used) and decreasing benefits.” (PPL Electric St. No. 10-RJ at 15.) The “sole cost” that Mr. Farr “chose to decrease in these scenarios was maintenance cost, a category that represented in the original CBA’s Base Case only \$7.3 million out of \$81 million, and which, in Mr. Farr’s most generous cost decrease, amounted to half that amount.” (PPL Electric St. No. 10-RJ at 15.) Therefore, “Mr. Farr’s new scenarios provide only a token sensitivity analysis to cost decreases” but “a very substantial sensitivity analysis of increased costs and decreased benefits.” (PPL Electric St. No. 10-RJ at 15.) Nevertheless, “even under Mr. Farr’s pointedly benefit-reducing assumptions, two of his scenarios result in a CBA ratio above one, with the other two scenarios coming in at 0.93 and 0.91.” (PPL Electric St. No. 10-RJ at 15.) Thus, as opposed to “being a clear indication that PPL Electric’s program would not be cost beneficial, Mr. Farr’s analysis shows that ‘extreme’ changes to inputs can make the CBA results appear slightly unfavorable.” (PPL Electric St. No. 10-RJ at 15-16.)

4. SEF Errs in Arguing that the Information and Data Used for the Cost-Benefit Analyses is Lacking

SEF incorrectly claims that there is “essential information” missing from the cost-benefit analysis, specifically claiming that the Company “failed to gather the costs to installers, contractors, DER system owners, and ratepayers to implement PPL’s Pilot Program” and “failed to assess the cost savings to customers of implementing an autonomous control-only plan versus PPL’s [sic] active control plan.” (SEF MB at 10-11.)

As PPL Electric witness Salet testified, SEF “suggests that PPL Electric should have gathered information from installers and contractors in advance of filing its Petition for approval

of the Second DER Management Plan.” (PPL Electric St. No. 1-R at 13.) SEF appears to assume that, if asked, installers and contractors would have willingly divulged all of this information, including details about the costs they incurred and the reasons why they incurred those costs. (PPL Electric St. No. 1-R at 13.) There is no evidence that, if asked, installers and contractors would have produced that information before PPL Electric filed its Petition. (PPL Electric St. No. 1-R at 13.) To the contrary, after the Petition was filed, installers and contractors, through their respective legal counsel, objected to certain interrogatories the Company served on them to obtain the information that SEF assumes they would have produced of their own accord.⁷ (PPL Electric St. No. 1-R at 13.) In fact, the Company had to obtain a ruling from the presiding ALJ ordering the installers and contractors participating in this proceeding to answer the Company’s interrogatories before they would do so. (PPL Electric St. No. 1-R at 13.)

Regardless, after being ordered to do so, the JSPs produced underlying cost data they referenced in their testimony. (PPL Electric St. No. 1-R at 13.) Such data was factored into PPL Electric witness Wishart’s rebuttal testimony and analysis (see PPL Electric Statement No. 10-R). (PPL Electric St. No. 1-R at 13.) Consequently, as explained in PPL Electric witness Salet’s rebuttal testimony, this issue is now moot. (PPL Electric St. No. 1-R at 13.)

5. Other Parties Incorrectly Argue that PPL Electric’s Cost-Benefit Analyses Did Not Comply with the First DER Management Plan Settlement

Other parties further claim that PPL Electric’s cost-benefit analyses did not comply with the Commission’s Order in the First DER Management Plan proceeding. (*See* OCA MB at 28-30; JSP MB at 34.) For example, OCA avers that PPL Electric should have presented a separate cost-

⁷ In discovery, Mr. Costlow was asked how he expected the Company to obtain the information he criticized it for not having in advance of filing its Petition. He responded by once again ignoring the challenges the Company faced to obtain information the installers and contractors refused to produce until ordered to do so: “It is not up to me to determine how PPL Electric collects this information.” (PPL Electric Exhibit SS-7R.)

benefit analysis for autonomous settings, while the JSPs contend that PPL Electric failed to analyze other means of obtaining monitoring data. (*See* OCA MB at 28-30; JSP MB at 34.) These arguments should be rejected.

First, although PPL Electric witness Wishart did not analyze autonomous settings separately in his cost-benefit analysis, the reason was that IEEE Standard 1547-2018 had been incorporated into the Commission's regulations for DERs since the Commission approved the Settlement in the First DER Management Plan proceeding. (PPL Electric St. No. 10-R at 4) (citing 52 Pa. Code § 75.22 (defining "certified")). This means that smart inverters with their voltage regulations, frequency support, and ride-through capabilities are required for all new DER interconnections. (PPL Electric St. No. 10-R at 4-5.) Given that autonomous settings became the baseline since the Settlement was approved, there was no value in conducting an analysis on smart inverters with autonomous operation that are already required by the Commission's regulations. (PPL Electric St. No. 10-R at 5.) Also, OCA is essentially trying to create a false competition between already-required autonomous smart inverter functionality and the Company's proposed active management of DERs. (PPL Electric St. No. 10-R at 5.) The reality is that active management is complementary to the autonomous operation of smart inverters. (PPL Electric St. No. 10-R at 5.) Active management enhances autonomous operation by updating settings such as Volt/VAR curves and in certain circumstances temporarily overriding the autonomous setting based on system conditions. (PPL Electric St. No. 10-R at 5.) Commission approval of PPL Electric's Second DER Management Plan would not eliminate or diminish the benefits of autonomous operation but would add to the total net benefits that can be realized through IEEE 1547-2018. (PPL Electric St. No. 10-R at 5.)

Second, the JSPs incorrectly argue that “in derogation of the Commission’s Order” in the First DER Management Plan proceeding, “PPL performed no analyses of alternative methods it could use to obtain monitoring data, such as use of Application Programming Interface (API) to provide the ability to communicate with inverters, receive data from the inverters, and even control the inverters for any third party that has been granted access.” (JSP MB at 34.) The DER Management Pilot Program’s purpose was to “test and evaluate” the Company’s active management and monitoring of DERs. (PPL Electric Exh. CD-2 at 1-2; *see also* PPL Electric St. No. 3 at 5.) In this proceeding, PPL Electric fully evaluated, analyzed, and responded to the other parties’ contentions about the use of alternative programming interfaces (“APIs”), advanced modeling, etc. as compared to monitoring DERs through devices connected to the inverters. (*See, e.g.*, PPL Electric. St. No. 1-R at 16-17; PPL Electric St. No. 2-R at 20-22, 61; PPL Electric St. No. 3-R at 3-5.) As explained in Section III.D, *infra*, other parties’ suggested alternative means of monitoring the Company’s distribution system and the DERs interconnected with it are insufficient when compared to the near real-time visibility and data provided through PPL Electric’s DER Management Pilot Program and Second DER Management Plan.

C. ISSUES CONCERNING COST RECOVERY AND ALLOCATION ARE PROPERLY DECIDED IN THE COMPANY’S NEXT BASE RATE CASE, NOT THIS PROCEEDING

OCA raises issues concerning how the costs associated with the Second DER Management Plan will be allocated to and recovered from customers. (OCA MB at 33, 39-42.) According to the OCA, “PPL proposes that all customers will pay for the costs of the DER II, as the costs would be incorporated into base rate.”⁸ (OCA MB at 33.) Therefore, OCA contends that the Company’s

⁸ OCA also erroneously claims in its Main Brief that PPL Electric received Commission approval for deferred accounting of the costs associated with the DER Management Pilot Program. (*See* OCA MB at 11; OCA Proposed Finding of Fact No. 32.) As the Company explained in testimony, “The Company did not request, nor was it authorized, to create a *regulatory asset* to record the foregoing fixed costs and expenses on its balance sheet.” (PPL

proposal will “likely shift costs from DER owners to other consumers,” and “[b]y approving PPL’s DER II, and then putting off the consideration of the rate impact for ratepayers who do not own DER to a later rate base [sic] proceeding, the Commission cannot determine whether PPL’s DER II results in just and reasonable rates” (OCA MB at 40-41.) OCA notes, however, that “PPL did not provide any cost allocation proposals for allocating and recovering PPL DER II costs to the cost causers,” presumably referencing DER owners, in this proceeding. (OCA MB at 39.) As an example, OCA mentions export tariffs that “allocate and recover costs from exporting customers, as they are the cost causers,” which “have been investigated in both Massachusetts and Australia.” (OCA MB at 40.)

The ALJ and Commission should reject OCA’s arguments for several reasons. First, PPL Electric correctly did not make a proposal in this non-rate proceeding about how to allocate and recover the costs associated with its DER Management Pilot Program and Second DER Management Plan. Issues of cost allocation and recovery are properly reserved for a base rate proceeding initiated pursuant to Section 1308(d) of the Public Utility Code. *See* 66 Pa. C.S. § 1308(d).⁹ In such a future case, the Company will submit, as it must under the Commission’s filing requirements, a comprehensive revenue requirement study and a detailed class cost of

Electric St. No. 11-R at 6) (emphasis in original). Similarly, the Settlement did not pre-approve PPL Electric’s recovery of those costs in its next base rate case. (PPL Electric St. No. 11-R at 6.) Specifically, the Settlement provides that PPL Electric may make a claim for the foregoing capital costs and expenses in a subsequent base rate case subject to the following conditions:

In said base rate case, the Joint Petitioners may challenge the amount of the Company’s claim, the prudence and reasonableness of the costs and expenses, and the manner in which those costs and expenses are recovered; provided, however, that the Joint Petitioners will not argue that the DER Management Plan, including the pilot program for remote monitoring and active management, was imprudent or unreasonable, except to the extent that the Company retains discretion over the Pilot Implementation Plan.

(PPL Electric St. No. 11-R at 6.)

⁹ Moreover, this is not an Application filed pursuant to Section 1329 of the Public Utility Code or some other kind of Commission proceeding where there would be a determination, outside of a base rate case, as to the recoverable amount of any capital costs or expenses. *See* 66 Pa. C.S. § 1329.

service study, which will specify how the costs of PPL Electric’s DER Management Pilot Program and Second DER Management Plan will be allocated among customer classes. (PPL Electric St. No. 11-R at 6.) After the Company submits its proposal for allocating and recovering costs in that future proceeding, other parties will have the opportunity to address and respond to the Company’s proposal, and the Commission will make a final determination based on a fully-developed evidentiary record. (PPL Electric St. No. 11-R at 6.) Unless and until PPL Electric makes a claim in a future base rate case, the Company has, in effect, assumed the risk that it may not recover all its costs. (PPL Electric St. No. 11-R at 11.) Thus, at this point, there is no rate impact to customers, nor will there be any rate impact to customers, until all the related cost recovery and cost allocation issues are presented and fully vetted in a subsequent base rate case.¹⁰ (PPL Electric St. No. 11-R at 11-12.)

Second, OCA incorrectly makes assumptions about how the Company might propose to allocate and recover such costs in the future. (PPL Electric St. No. 11-R at 8.) At the most basic level, the Company cannot predict, at this time, what the results of a future class cost of service study will show based on a Company-wide revenue requirement for an unspecified and – at this point – unknown test year. (PPL Electric St. No. 11-R at 8.)

Third, both the Company and other parties to this proceeding have averred, based on evidence presented in this case, that monitoring and managing DERs provide benefits to the distribution system and, therefore, to all customers, whether or not they own DERs. (PPL Electric St. No. 11-R at 8.) Because the Company’s DER Management Pilot Program and Second DER Management Plan furnish benefits to all customers, it is wrong to make a blanket assertion, as OCA does, that no part of the costs of those proactive DER initiatives should be allocated to non-

¹⁰ For these same reasons, OCA also errs in stating that PPL Electric is “recovering costs of the program through base rates.” (OCA MB at 13.)

DER customers. (PPL Electric St. No. 11-R at 8.) Such an assertion is contrary to the basic principle of cost causation (i.e., that costs should follow benefits). (PPL Electric St. No. 11-R at 8.) The active management of DERs interconnected with PPL Electric's distribution system will allow the Company to defer or eliminate future distribution capital investment that, otherwise, would have to be recovered from all customers. (PPL Electric St. No. 11-R at 8.) In fact, this is demonstrated by the detailed benefit-cost analysis that submitted by PPL Electric witness Wishart (PPL Electric Statement No. 10-R). (PPL Electric St. No. 11-R at 8.)

Nonetheless, to better inform the Commission's decision-making, PPL Electric presented detailed information about the Second DER Management Plan's rate impact in this proceeding. Specifically, PPL Electric witness Bethany Johnson prepared an estimate of the Company's capital cost and expense claims for those devices in a hypothetical 2025 base rate case, along with the projected average bill impact for PPL Electric's customers due to these costs and expenses, for illustration purposes. (PPL Electric St. No. 11-R at 10.) Setting aside the reduced capital costs and expenses from the Company's DER Management Pilot Program and Second DER Management Plan, the estimated revenue requirement impact is approximately \$8,382,157, resulting in an estimated average residential bill increase of \$4.83 per year. (PPL Electric St. No. 11-R at 10-11; PPL Electric Exh. BLJ-1R.) However, these presentations only count one half of the equation, i.e., the associated capital costs and expenses. (PPL Electric St. No. 11-R at 11.) In actuality, the Company's DER Management Pilot Program and Second DER Management Plan are projected to be cost-effective and produce substantial financial benefits in excess of their costs, as confirmed by the cost-benefit analysis prepared and presented by Mr. Wishart (PPL Electric Statement No. 10-R). (PPL Electric St. No. 11-R at 11.) Therefore, after accounting for the reduced capital costs and expenses from the Company's DER Management Pilot Program and

Second DER Management Plan, the estimated revenue requirement impact in a hypothetical 2025 base rate case would be approximately \$4,497,920 lower than without them, which would put a downward pressure on the base rates ultimately adopted in that proceeding. (PPL Electric St. No. 11-R at 11.) In fact, all else being equal, the amount of that decrease in the revenue requirement would equal a decrease in the estimated average residential bill of \$2.59 per year. (PPL Electric St. No. 11-R at 11.)

D. PPL ELECTRIC FULLY EVALUATED AND RESPONDED TO THE OTHER PARTIES' SUGGESTED ALTERNATIVES TO THE COMPANY'S PROPOSAL

Other parties also contend that PPL Electric allegedly failed to consider and evaluate alternatives to its proposal, such as relying on third-party aggregators, autonomous functions, advanced DER modeling, cloud-based communications, and/or APIs. (*See* OCA MB at 15-19, 23-24, 26, 28-30, 35-36; OSBA MB at 6; SEF MB at 6, 9; JSP MB at 32-34.) Contrary to the other parties' assertions, PPL Electric fully evaluated and responded to these suggested alternatives to the Second DER Management Plan, as shown in the following sections.

1. Third-Party Aggregators

OCA and JSPs incorrectly claim that PPL Electric failed to analyze an alternative under which the Company relies on third-party aggregators to provide grid services. (OCA MB at 16-17; JSP MB at 33-34.) PPL Electric's witnesses addressed the reasonableness and prudence of utilizing third-party aggregators instead of the Company directly managing and monitoring the DERs. (*See, e.g.*, PPL Electric St. No. 1-R at 35-36; PPL Electric St. No. 4-R at 24-28; PPL Electric St. No. 6-R at 15-18.) In particular, PPL Electric witnesses Walling and Cook "explain why it is not feasible, let alone practical, efficient, or cost-effective, to try to rely on third-party aggregators to assure distribution system reliability and power quality." (PPL Electric St. No. 1-R at 35.) As Mr. Walling stated:

I am not aware of the existence of any “market” in Pennsylvania that compensates aggregators for exercising controls over their aggregated DERs for the express purpose of maintaining system reliability and power quality. Aggregators are simply not compensated on that basis, which means that, if such a function is not performed by the utility, it would not be performed at all. In my view, it would be impractical and unrealistic to expect an aggregator to perform this function.

(PPL Electric St. No. 4-R at 25.) Moreover, despite extolling the benefits of third-party aggregators, “[n]one of the other parties’ witnesses have prepared or presented cost-benefit analyses demonstrating that PPL Electric’s reliance on third-party aggregators would be more cost-effective than the Company’s DER Management Plan.” (PPL Electric St. No. 1-R at 35.) “In fact, when JSP witness Monbouquette was asked to produce any studies or analyses he or Enphase performed on the cost-effectiveness of third-party aggregators providing grid services to electric utilities, Mr. Monbouquette replied, ‘Enphase has not completed any such study or analysis.’” (PPL Electric St. No. 1-R at 35-36 (quoting PPL Electric Exhibit CD-3R).)¹¹

In addition, PPL Electric witness Davis pointed out “there are no third-party aggregation service offerings within PPL Electric’s territory that can provide the same types of monitoring and control capabilities as the Company’s DER Management Pilot Program or Second DER Management Plan.” (PPL Electric St. No. 3-R at 51.) Nor did the JSPs, which include providers of aggregation services, present “any evidence that third party aggregators could do so in a more cost-effective manner.” (PPL Electric St. No. 3-R at 51.)

¹¹ JSP witness Monbouquette pointed to a Brattle Group study, which compares the net cost of gas-fired generation, utility-scale batteries, and virtual power plants in providing 400 MW of resource adequacy for an “illustrative utility” whose “[p]ower generation is 50% renewable by 2030 (¼ solar, ¾ onshore wind).” (PPL Electric Exh. CD-3R; PPL Electric Exh. SS-5R at 6, 15.) In the most extreme case, virtual power plants could provide 400 MW of resource adequacy at a negative net cost of approximately \$10 million. (PPL Electric Exh. SS-5R at 27.) As such, the study cited by Mr. Monbouquette does not show how third-party aggregation could be more cost-effective at addressing the issues on the Company’s distribution system than the Second DER Management Plan. (PPL Electric St. No. 1-R at 36.)

Nonetheless, PPL Electric would be willing to submit a Request for Proposal (“RFP”) to receive bids from third-party aggregators and original equipment manufacturers (“OEMs”). (PPL Electric St. No. 1-RJ at 6.) “In evaluating the bids, PPL Electric would evaluate, among other things, the cost, the amount and location of the bidder’s DERs, and the bidder’s ability to transmit the Company’s commands to the DERs.” (PPL Electric St. No. 1-RJ at 6.)

2. Autonomous Functions

Other parties also allege that PPL Electric failed to evaluate relying on smart inverters’ autonomous functions¹² instead of actively managing and monitoring the DERs. (OCA MB at 15, 18-19, 23-24, 26, 28-30; OSBA MB at 6; SEF MB at 6, 9; JSP MB at 32-33.) However, multiple Company witnesses investigated and responded to the parties’ contentions about using autonomous functions instead of implementing the Second DER Management Plan. (*See, e.g.*, PPL Electric St. No. 3-R at 19, 23-25, 29, 35-41, 49-50; PPL Electric St. No. 4-R at 4-9; PPL Electric St. No. 6-R at 3-4; PPL Electric St. No. 8-R at 2-3, 7-8, 12-13.)

As an example, PPL Electric witness Davis testified that “[t]he Company is already utilizing autonomous smart inverter functions (especially Volt/VAR) to provide voltage support and has still observed voltage violations that have required active management of the power factor setpoint to address.” (PPL Electric St. No. 3-R at 36.) Indeed, “the benefits of active management outpace the benefits of autonomous functions, and autonomous functions cannot resolve voltage violations on their own (see, e.g., PPL Electric Statement Nos. 8-R and 10-R).” (PPL Electric St. No. 3-R at 50.) Therefore, autonomous functions “are not as beneficial as monitoring and active management.” (PPL Electric St. No. 3-R at 37.)

¹² As defined by PPL Electric witness Davis, the term autonomous inverter settings means “[t]he set of pre-programmed inverter performance characteristics that dictate an inverter’s response to different conditions.” (PPL Electric St. No. 3-R at 36.) “The most common examples are Volt/VAR curves and Ride-through curves.” (*Id.*)

Furthermore, as PPL Electric witness Salet explained, the Company’s DER management capabilities allow for Volt/VAR and Ride-through curves to be programmed directly by PPL Electric. (PPL Electric St. No. 1-R at 28; *see* PPL Electric St. No. 1 at 32.) This capability “relieves the responsibility of programming settings from installers and customers and also serves as a verification that the appropriate settings have been programmed into the inverter(s).” (PPL Electric St. No. 1-R at 28.) Relying on autonomous functions would shift the responsibility for programming Volt/VAR curves to the customer or installer, which “will likely lead to compliance challenges and the loss of significant benefits.” (PPL Electric St. No. 1-R at 28.) In fact, PPL Electric witness Walling noted that this remote programming capability, on its own, can avoid significant costs and expenses:

One of the express functions of PPL Electric’s Second DER Management Plan is to provide remote management of ride-through and other critical settings. If adopted, the Second DER Management Plan will allow such changes to be made without the formidable expense of having to make on-site parameter changes on each and every DER. A similar BPS reliability issue, and the consequent need to set new parameters on existing DERs, occurred across Germany, which imposed costs on German utilities and, ultimately, their customers, on the order of hundreds of millions of Euros.

(PPL Electric St. No. 4-R at 14) (emphasis added) (footnote omitted). PPL Electric witness Davis also highlighted the severe shortcomings that would result from the Company not having remote programming capability:

Non-compliance with smart inverter settings requirements is a significant challenge. According to the Australian Energy Market Commission’s (“AEMC”) September 2023 Report, *Review Into Consumer Resources Technical Standards*, there has been significant non-compliance with existing technical standards. When auditing the smart inverter settings (e.g., volt/var curve and ride-through curve points) for small-scale systems, it was identified that “55 per cent of audited inverters with visible settings were incorrectly configured in some way” (Page iii). The report also stated that “non-compliance with [consumer energy resources (‘CER’)] technical standards negatively impacts electricity

customers” (Page iii) and that “improved compliance would lead to benefits for [national electricity market (‘NEM’)] consumers over the next 15 years of around \$500 Million” (Page iv).

(PPL Electric St. No. 3-R at 7) (emphasis added) (footnote omitted). Accordingly, other parties’ assertions that PPL Electric failed to evaluate reliance on autonomous functions should be rejected.

3. Advanced DER Modeling, Cloud-Based Communications, and Application Programming Interfaces (APIs)

OCA and the JSPs argue that PPL Electric failed to evaluate the use of advanced DER modeling, cloud-based communications, and/or APIs. (OCA MB at 35-36; JSP MB at 33-34.) These parties are mistaken.

PPL Electric analyzed the use of advanced DER modeling and demonstrated that it is insufficient and less effective when compared to the Second DER Management Plan. In particular, PPL Electric witness Davis stated that “[a]lthough data does not need to be ‘low latency’ to be used for planning purposes, data gathered in effectively real time is at least as valuable for planning purposes and is more valuable for operations purposes.” (PPL Electric St. No. 3-R at 3.) For that reason, Mr. Davis suspected that OCA witness Nelson “add[ed] that low latency monitoring has “minimal benefit **for planning**” (emphasis added) because the low latency data is also valuable and **utilized for operations**, where the low latency, effectively real time data is more valuable than data derived from DER modeling.” (PPL Electric St. No. 3-R at 3) (emphasis in original). Also, OCA’s claim that advanced DER modeling can accurately predict DER operations with little monitoring of DERs is drastically oversimplified because: (1) “regardless of how ‘advanced’ the modeling and prediction methods, there will always be a margin of error for predicted data, meaning that the actual measured data provided by the Company’s DER Management device is still more accurate and, accordingly, more valuable”; (2) OCA witness Nelson provided “no concrete details for what he considers ‘advanced’ DER modeling in terms of actual methods,

capabilities, and available tools”; and (3) to the extent “OCA is suggesting more ‘advanced’ tools and methods of DER production forecasting, such tools will almost certainly come with upfront and ongoing costs for software deployment and licenses, IT integrations, and engineering labor for location-specific forecast profiles (among other potential costs),” and yet OCA witness Nelson did “not acknowledge the upfront and ongoing costs or the upkeep for these ‘advanced’ tools and methods for DER production forecasting.” (PPL Electric St. No. 3-R at 3-4.)

As for cloud-based communications, PPL Electric witness Salet testified “[t]he Company did in fact put a lot of effort into evaluating cloud-based communications as a serious alternative.” (PPL Electric St. No. 1-RJ at 4.) “During the process of standing up the Company’s IEEE 2030.5 servers, the DER Lab tested using a PPL Electric DER Management Cellular Gateway, ethernet connection, and Wi-Fi connection.” (PPL Electric St. No. 1-RJ at 4.) However, “the DER Lab saw the issues of relying on Wi-Fi and ethernet connections if the download and upload speeds were not sufficient.” (PPL Electric St. No. 1-RJ at 4.) This finding even aligns with OCA witness Nelson’s acknowledgment that cloud-based communications can be “less reliable.” (OCA St. 1 at 13.) Thus, “[w]hile the Company remains willing to investigate cloud-based communications as an alternative to the DER Management devices, PPL Electric wants to ensure that the cloud-based communications perform as well as the DER Management devices.”¹³ (PPL Electric St. No. 1-RJ at 4-5.)

¹³ PPL Electric witness Davis also clarified that cloud-based communications technology should not be considered as an “alternative approach” to “managing DERs” at all “because, to the extent such an interface is available to the utility, it would be utilized to perform the same monitoring and management functions captured within the DER Management Pilot Program and the Second DER Management Plan.” (PPL Electric St. No. 3-R at 5.) Therefore, “while cloud communications-enabled smart inverters may be an alternative to PPL Electric’s DER Management device (an alternative which [OCA witness] Mr. Nelson himself states can be ‘less reliable’), cloud-based communication should not be viewed as an alternative to the active management of DERs.” (PPL Electric St. No. 3-R at 5) (footnote omitted).

Regarding APIs,¹⁴ PPL Electric witness Dombrowski-Diamond explained why APIs are not a practical solution currently. Specifically, APIs require a Public Key Infrastructure (“PKI”) for cybersecurity reasons, but “currently there only exists an IEEE 2030.5” PKI. (PPL Electric St. No. 2-RJ at 20.) As such, “until there is an IEEE PKI for Modbus inverters like the IEEE 2030.5, the Company cannot accept APIs from possibly unsecure connections.” (PPL Electric St. No. 2-RJ at 21.) Furthermore, PPL Electric needs “near real-time data” to “actively manage DERs effectively and efficiently,” so the Company “is polling the inverters every 5 minutes, which is 288 polls in a day.” (PPL Electric St. No. 2-RJ at 21.) Consequently, “[i]f the Company were to use APIs solely for communication with the DERs (and assuming there is an IEEE Modbus PKI), some customers would need to increase their internet speeds.” (PPL Electric St. No. 2-RJ at 22.) “However, the Company currently lacks any ability to require that the customers to do so,” which renders the reliance on APIs impractical when compared to the Second DER Management Plan. (PPL Electric St. No. 2-RJ at 22.)

E. SEF’S ARGUMENTS CONCERNING CYBERSECURITY, DEREGULATION, UTILITY MOTIVES, “HEALTHCARE SECURITY,” AND THE RATE IMPACT OF THE COMPANY’S PROPOSAL HAVE NO MERIT

In its Main Brief, SEF raises issues about cybersecurity, deregulation, the Company’s motives when engaging in active management, “healthcare security,” and the rate impact of the Company’s proposal. As explained in the following sections, SEF’s arguments have no merit should be denied.

¹⁴ APIs are commonly used in programming and communications to enable the exchange of information across an “interface” between two software applications. (PPL Electric St. No. 2-RJ at 20.) APIs generally have pre-defined structure and documentation, so that information can be requested and provided by software without manual intervention. (*Id.*) This exchange can be facilitated over the public internet. (*Id.*)

1. SEF’s Arguments that Were Raised for the First Time in its Rebuttal Testimony Should Be Disregarded Entirely

As a threshold matter, SEF’s rebuttal testimony, in which SEF raised many of these arguments for the first time, was not actually rebuttal testimony. (PPL Electric St. No. 1-SR at 2.) At no point in his rebuttal testimony did SEF witness Costlow cite or respond to any of the arguments raised in the direct testimony submitted by the OCA, OSBA, or JSPs. (PPL Electric St. No. 1-SR at 2; SEF St. No. 1-R at 1-6.) To the extent that SEF wanted to respond to PPL Electric’s direct testimony, the proper time for SEF to do so would have been in Mr. Costlow’s direct testimony, which SEF submitted on September 24, 2024. (PPL Electric St. No. 1-SR at 2.) At the rebuttal stage, however, SEF was limited to responding to the direct testimony submitted by the OCA, OSBA, and JSPs. (PPL Electric St. No. 1-SR at 2.) Thus, SEF’s rebuttal testimony was, in essence, inappropriate additional direct testimony, and all of SEF’s claims about on such testimony, including SEF’s cybersecurity and “healthcare” related contentions, should be rejected. (PPL Electric St. No. 1-SR at 3-5, 7-8.)

2. SEF’s Meritless Cybersecurity Argument Should Be Rejected

SEF avers that there are “increased cyber security risks (hacks)” associated with PPL Electric’s proposal. (SEF MB at 5-6.) According to SEF, “PPL’s insistence on actively controlling DER systems instead of only autonomous control also increases the risk of cyber security incidents – ‘hacking’.” (SEF MB at 8.)

Nothing supports SEF’s cybersecurity-related claims. Foremost, these bald assertions do not constitute substantial evidence.¹⁵ SEF makes these proclamations without providing actual evidence that the Company’s DER Management devices and related infrastructure are more susceptible to hacking, that an autonomous system is at less risk of being hacked, or that the

¹⁵ See *Pa. Bureau of Corrections v. City of Pittsburgh*, 532 A.2d 12, 14 (Pa. 1987).

Company's proposal unduly impinges on customers' privacy. (PPL Electric St. No. 1-SR at 4.) In contrast, PPL Electric presented extensive testimony about the Company's cybersecurity practices and protocols and demonstrated, conclusively, that the Company's proposal presents no cybersecurity concerns. Specifically, PPL Electric witness Underwood testified about the Company's cybersecurity practices and protocols, including: (1) the practices and protocols in place for the DER Management devices as well as the Radiofrequency Mesh ("RF Mesh") and cellular networks on which they rely; (2) the Company's mechanisms for protecting customer data transmitted from the DERs; and (3) the Company's continual assessment of its systems and practices for potential security gaps and issues. (PPL Electric St. No. 9 at 2-7.) Mr. Underwood also explained that the data transmitted from the DER Management device is limited and "includes a unique DER Management device ID, production data such as current, voltage, real and reactive power, smart inverter settings such as Constant Power Factor, Volt/VAR, and Remote On/Off." (PPL Electric St. No. 9, p. 6.)

In addition, SEF fails to explain how the collection of DERs' data, which has a direct operational impact on the Company's distribution, is problematic from a customer privacy standpoint, especially when the General Assembly and the Commission have recognized the importance of collecting relatively similar information, such as 15-minute interval data about customers' usage and voltage, through electric utilities' smart meters.¹⁶ (PPL Electric St. No. 1-SR at 4.) Notably, the Company's cybersecurity practices and protocols and data collection and protection practices for the RF Mesh network have been litigated extensively in smart meter complaint proceedings, and the Commission has always rejected claims that the smart meters and

¹⁶ See, e.g., 66 Pa. C.S. § 2807(f)-(g); *Smart Meter Procurement and Installation*, Docket No. M-2009-2092655 (Order entered June 24, 2009) ("*Smart Meter Implementation Order*"); *Petition of PPL Electric Utilities Corp. for Approval of Its Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2014-2430781 (Order Entered Sept. 3, 2015) ("*2015 Smart Meter Order*");

RF Mesh network present a privacy and cybersecurity risk.¹⁷ (PPL Electric St. No. 1-SR at 4-5.) Accordingly, SEF’s meritless claims about cybersecurity risks should be denied.

3. SEF’s Baseless Claims about Deregulation and the Competitive Market for Electric Generation Supply Should Be Denied

SEF argues in its Main Brief that PPL Electric’s proposal runs “counter to the deregulation of energy.” (SEF MB at 6.) As alleged support, SEF asserts that “PPL as a distribution company should not be controlling generation or output.” (SEF MB at 7.) SEF also makes a new argument, for the first time in its Main Brief, that “PPL’s control over, and ability to shut off, a DER facility changes the customer’s electricity supplier without consent – oral or written,” in purported violation of Section 2807(d)(1) of the Public Utility Code. (SEF MB at 7 (citing and quoting 66 Pa. C.S. § 2807(d)(1)).

These arguments have no merit. First, as PPL Electric witness Cook explained, SEF’s focus on ownership of generation is misplaced. (*See* PPL Electric St. No. 6-R at 20-22.) The Second DER Management Plan is not about controlling generation. (PPL Electric St. No. 1-R at 31; PPL Electric St. No. 6-R at 20-22.) Rather, it enables the management of critical network assets designed and operated to deliver electricity to all customers safely, reliably, and efficiently and at just and reasonable rates. (PPL Electric St. No. 1-R at 31; PPL Electric St. No. 6-R at 21.) Granting individual DERs control over grid operations undermines the coordinated oversight essential for stable performance of the distribution system because individual DER owners do not have the technical expertise, systemwide knowledge of real time operating conditions, or the market incentives needed to perform that function. (PPL Electric St. No. 1-R at 31; PPL Electric

¹⁷ *See, e.g., Andrews v. PPL Elec. Utils. Corp.*, Docket No. C-2019-3008770, pp. 4, 20, 40 (Order entered Feb. 22, 2024); *Esposito v. PPL Elec. Utils. Corp.*, Docket No. C-2019-3007334, pp. 15-17, 27-30 (Order entered Feb. 22, 2024); *Anthony v. PPL Elec. Utils. Corp.*, Docket No. C-2018-3000490, pp. 13, 16-17, 34-35 (Order entered May 9, 2024); *Aguirre v. PPL Elec. Utils. Corp.*, Docket No. C-2018-3005352, pp. 14-15, 17, 21-23 (Order entered Dec. 5, 2019).

St. No. 6-R at 22.)

Second, as PPL Electric witness Walling testified, power systems require near instantaneous balancing of active (real) and reactive power generation with demands in order to maintain stability and adequate power quality. (PPL Electric St. No. 4-R at 11.) At the bulk transmission level, deregulated power markets have existed for many years. (PPL Electric St. No. 4-R at 11.) In these markets, generation owners can bid their capacity and energy into the relevant capacity and energy markets according to well-defined rules and standards. (PPL Electric St. No. 4-R at 11.) Nonetheless, there has to be a system operator who exerts real-time management over the transmission system to maintain reliability. (PPL Electric St. No. 4-R at 11.) That is precisely what PPL Electric is seeking to accomplish with its Second DER Management Plan.

Third, SEF's argument that the Company would be changing customers' electric suppliers without consent should be rejected. This contention was raised for the first time in SEF's Main Brief and should be disregarded for that reason alone.¹⁸ Nothing in the evidentiary record supports SEF's argument either. Even when PPL Electric would actively manage a DER participating in the Second DER Management Plan, the customer's electric supplier would remain the same. For example, no shopping customer would become a default service customer or vice versa. Also, the mere fact that the Company could shut off a customer's DER in an emergency situation when it fails to safely island from the distribution system does not mean that the customer's electric supplier is changing. (*See* PPL Electric St. No. 1 at 15.)

4. SEF's Unsupported "Healthcare Security" Argument Should Be Rejected

SEF also argues that there are "personal health risks from DERs being shut off in households that have critical healthcare equipment in place." (SEF MB at 6.) As SEF alleges,

¹⁸ *See generally* SEF St. Nos. 1, 1-R.

“PPL would be able to cut off electric supply to those customers relying on critical medical equipment effectively turning off their medical devices.” (SEF MB at 8.)

SEF’s claims lack merit. To be clear, “PPL Electric will only use the Remote On/Off function on battery storage or solar systems that have not safely isolated or ‘islanded’ from the distribution system: (1) in emergency situations, such as a gas leak or fire in the vicinity of the DER; or (2) during a power outage.” (PPL Electric St. No. 1 at 15.) Also, the Remote On/Off function would not turn off the electric service to the customer’s service address; it would only turn off the DER and only in those emergency instances. (PPL Electric St. No. 1-SR at 5.)

Furthermore, the Company believes contacting DER customers directly and asking them to volunteer medical information would be inappropriate, given that utilities are only allowed to request if there is a medical need in the instance of preventing service disconnection. (PPL Electric St. No. 2-R at 63.) However, if any DER customers were to share SEF’s unjustified concerns, nothing prevents them providing that information to PPL Electric. (PPL Electric St. No. 1-SR at 8.) If they were to do so, PPL Electric would protect that information from unwarranted public disclosure, just as the Company does for all other customer information. (PPL Electric St. No. 1-SR at 8.)

5. SEF’s Rate Impact Claims Should Be Denied Because the Net Savings Associated with PPL Electric’s Proposal Would Put Downward Pressure on Base Rates

SEF contends that “PPL was unwilling to commit to not having ratepayers bear the burden of costs to implement its DER Program.” (SEF MB at 10-11.) According to SEF, “PPL would not guarantee that, based on the cost reductions claimed in its DER Petition, ratepayers will never bear the burden of PPL’s cost to implement its DER Plan.” (SEF MB at 6 n.11.)

SEF’s arguments should be rejected. As noted in the Company’s Main Brief, PPL Electric’s Second DER Management Plan is projected to produce aggregate net benefits of

approximately \$65.5 million over the 2025-2030 period. (PPL MB at 28.) “Setting aside the reduced capital costs and expenses from the Company’s DER Management Pilot Program and Second DER Management Plan, the estimated revenue requirement impact is approximately \$6,382,157, resulting in an estimated average residential bill increase of \$4.83 per year” based on a hypothetical 2025 base rate case. (PPL Electric St. No. 11-R at 10-11.) Therefore, even when solely looking at the costs of the Second DER Management Plan, the rate impact is minimal.

More importantly, that view only looks at one half of the equation. “After accounting for the reduced capital costs and expenses from the Company’s DER Management Pilot Program and Second DER Management Plan,” the “estimated revenue requirement impact in a hypothetical 2025 base rate case would be approximately \$4,497,920 lower than without them, which would put a downward pressure on the base rates ultimately adopted in that proceeding.” (PPL Electric St. No. 11-R at 11.) Thus, while the costs associated with the Second DER Management Plan would be recovered through base rates, those costs would be more than offset by the projected capital and expense savings the Company’s proposal are projected to produce. The bottom line is that customers’ distribution rates are estimated to be lower with the Company’s proposal in place than without it.

F. THE JSPS RAISE A SERIES OF ARGUMENTS IN THEIR MAIN BRIEF THAT LACK MERIT

1. The JSPs’ Arguments about the Purported Impact on the Market for Third-Party Aggregation Have No Merit

In their Main Brief, the JSPs contend that the Company’s proposal will adversely affect the market for third-party aggregation by “block[ing] or “limit[ing] market entry” and “blocking or impending competition from third-party grid services providers.” (JSP MB at 42-44, 47-51.)

Nothing the Second DER Management Plan inhibits or precludes DERs from contracting with aggregators or participating in third-party aggregation (under FERC Order 2222 or

otherwise). (PPL Electric St. No. 1-R at 29, 33; *see* PPL Electric St. No. 4-R at 19-24; PPL Electric St. No. 11-R at 28.) “[A]ctive (real) power” is “the product that FERC Order 2222 would allow DERs to monetize.” (PPL Electric St. No. 1-R at 33.) However, as PPL Electric witness Walling demonstrated, active DER management does not materially affect the production of active (real) power. (*See* PPL Electric St. No. 4-R at 19-27.) “Active DER management will address other aspects of DER operations – voltage regulation principally through reactive power production or absorption – for which no market currently exists.” (PPL Electric St. No. 1-R at 33.) As such, the Company’s active management of DERs cannot be considered as materially affecting DERs’ ability to contract with aggregators or participating in third-party aggregation. (PPL Electric St. No. 1-R at 33.)

Additionally, “forms of DER aggregation that are capable of being monetized at the bulk power level (because such aggregation entails the generation of active (real) power) will not be available in the PPL control zone until 2028 at the earliest.” (PPL Electric St. No. 1-R at 34.) Specifically, “PJM’s FERC Order 2222 tariff has not been implemented and is not expected to be implemented until 2028 at the earliest, and the Commission has not completed its related rulemaking proceeding.” (PPL Electric St. No. 11-RJ at 4.) PPL Electric witness Bethany Johnson clarified that “[u]ntil both of those processes are completed, PPL Electric’s proposed Second DER Management Plan cannot truly affect the aggregation of DERs that participate in the PJM wholesale markets,” and even if the “Second DER Management Plan were to somehow conflict with the Commission’s regulations that are adopted through the FERC Order 2222 rulemaking, then the Company would have to conform its Second DER Management Plan and tariff to comply with those regulations.” (PPL Electric St. No. 11-RJ at 5.) Therefore, “even assuming for the sake of argument that the JSPs speculative concerns were to become a reality, those concerns could be

adequately addressed in a future Commission proceeding.” (PPL Electric St. No. 11-RJ at 5.) Right now, however, the Company does not need to make changes to its Second DER Management Plan, nor are the JSPs speculative concerns about the impact of PPL Electric’s proposal on the market for third-party aggregation ripe for consideration. (PPL Electric St. No. 1-R at 34.)

Lastly, as noted previously, the Company is willing to conduct an RFP for the procurement of grid services from third-party aggregators and OEMs. (PPL Electric St. No. 1-RJ at 6.) If PPL Electric were trying to bar or limit market entry by third-party aggregators’ grid services, which they currently do not provide in Pennsylvania,¹⁹ the Company would not support conducting such an RFP.

2. The JSPs’ Allegations about the Impact on Solar and Inverter Companies’ Communications Should Be Rejected

The JSPs also argue that PPL Electric’s DER Management Pilot Program has affected solar and inverter companies’ communications with inverters, citing alleged issues experienced by Tesla, Enphase, SolarEdge, and Sun Directed. (JSP MB at 44-47.) However, PPL Electric established that these claims were flawed and overstated or that the Company had since resolved or developed solutions for the issues. (PPL Electric St. No. 2-R at 36-47; PPL Electric St. No. 2-RJ at 13-20, 24-26, 33-34; PPL Electric St. No. 5-R at 5-11; PPL Electric St. No. 5-RJ at 3-8.)

First, only 0.51% of customers enrolled in the DER Management Pilot Program have experienced a form communication interruption (i.e., 46 out of 9,038 customers as of December 2, 2024). (PPL Electric St. No. 2-R at 12.) Only 8 of those 46 customer locations (i.e., 28 Tesla locations and 18 Enphase locations) that experienced interruptions still had communications issues as of December 2, 2024, and they were all Tesla locations where the Company had been waiting months for Tesla to respond to PPL Electric’s proposal for rolling out the solutions needed to

¹⁹ See PPL Electric St. No. 3-R at 51.

resolve those communications issues. (PPL Electric St. No. 2-R at 12.) Also, in the select situations when customers experienced communications issues, nearly all of those issues were caused by problems with the inverters or DER systems themselves, not the DER Management devices, and any communications issues stemming from the DER Management devices' installation have been resolved. (PPL Electric St. No. 2-R at 12.) Additionally, even assuming, for the sake of argument, that the DER Management devices were causing or contributing to all of those communications issues, customers have other means by which to monitor their DERs. (PPL Electric St. No. 2-R at 12.) As an example, customers with SolarEdge and Enphase inverters can access information about their DER systems through the SolarEdge and Enphase apps, respectively. (PPL Electric St. No. 2-R at 12.)

Second, no customer had the use of their DER intentionally disrupted due to the DER Management Pilot Program. (PPL Electric St. No. 2-R at 13.) For the 8 Enphase customers with "Issue 1," Enphase provided PPL Electric the incorrect programming value format, and the Company resolved the issue for those these 8 customers' systems once the Company was given the proper format by Enphase. (PPL Electric St. No. 2-R at 13.) While the JSPs try to point the finger back at PPL Electric for "Issue 1," Ms. Dombrowski-Diamond refuted that contention by providing an email that showed "Enphase knew or should have known that the Company was using decimal point values instead of percentages, as the email explicitly sets forth the decimal values that PPL Electric was utilizing and asks for guidance from Enphase." (PPL Electric St. No. 2-RJ at 24-25.) In response to that email, "Enphase did not identify the use of decimal values as an issue." (PPL Electric St. No. 2-RJ at 25.)

Third, the DER Management Pilot Program did not interfere with the production of Solar Renewable Energy Credits ("SRECs"). (PPL Electric St. No. 2-R at 13.) At all times, the

customer-generators could still pull the revenue-grade meter data required for the SRECs. (PPL Electric St. No. 2-R at 13.) The JSPs' allegations appear more concerned about the method by which such data would be obtained (i.e., remotely or locally). (PPL Electric St. No. 2-R at 13.) However, they cannot deny that the data was still accessible and could have been used to obtain the SRECs. (PPL Electric St. No. 2-R at 13.) Further, if the SRECs' value were so significant to them, one would expect that the customer-generators would have pulled the data locally when the remote option was unavailable. (PPL Electric St. No. 2-R at 13.)

Fourth, PPL Electric witnesses Dombrowski-Diamond and Jay Johnson rebutted the JSPs' arguments about limiting projects using certain inverters to a single inverter. (PPL Electric St. No. 2-R at 22-24; PPL Electric St. No. 2-RJ at 19, 37-38; PPL Electric St. No. 5-R at 5--6; PPL Electric St. No. 5-RJ at 3-4.) For example, PPL Electric had to restrict Tesla systems using Delta and SolarEdge inverters to a single inverter when they had ZigBee cards installed in them, because the Company could not set unique Modbus ID Numbers on each networked inverter for multiple inverter systems. (PPL Electric St. No. 2-R at 23, 38-39.) The decision was taken in hopes that in the near future a solution could be found that allowed the restrictions to be removed. (PPL Electric St. No. 2-R at 23.) Ultimately, PPL Electric and Tesla found that the issues could be resolved by putting a proper IEEE 1547-2018 grid code on the Delta inverters and after securing the 700-series register map for the SolarEdge inverters. (PPL Electric St. No. 2-RJ at 14-16.) However, Ms. Dombrowski-Diamond maintained that the problems were created by Tesla, and the Company's DER Management devices had no impact on the communications issues. (PPL Electric St. No. 2-R at 38; PPL Electric St. No. 2-RJ at 13-17.) As for other inverters cited by the JSPs, the single inverter restriction for those inverters stemmed from an interoperability gap that was ultimately closed in June 2024 by the SunSpec Alliance adding test RTU-5 to the "SunSpec

Modbus Conformance Test Procedures” (Version 1.2), when they clarified that all DERs must include the ability to adjust the Modbus unit ID between 1 and 247. (PPL Electric St. No. 5-R at 5.) As Mr. Johnson noted, this modification will alleviate this interoperability issue for all IEEE 1547-certified products using a SunSpec Modbus communication interface. (PPL Electric St. No. 5-R at 5.) Because this interoperability gap was discovered through PPL Electric’s testing, the Company’s DER Management Pilot Program provided a benefit to the entire solar inverter industry. (*See, e.g.*, PPL Electric St. No. 2-R at 7-8; PPL Electric St. No. 5-R at 7-8; PPL Electric St. No. 5-RJ at 10.)

3. The JSPs’ Claims about PPL Electric’s Inverter Testing Requirements Should Be Denied

The JSPs also incorrectly argue that PPL Electric’s inverter testing requirements are unreasonable and go beyond the requirements under IEEE 1547-2018 and UL 1741-SB. (JSP MB at 11-16, 42-44.) PPL Electric fully rebutted these claims in this proceeding. (PPL Electric St. No. 2-R at 5-8; PPL Electric St. No. 2-RJ at 36-38; PPL Electric St. No. 5-R at 6-7, 10-11; PPL Electric St. No. 5-RJ at 5-6.)

For example, PPL Electric witness Dombrowski-Diamond explained how the Company instituted requirements, with Commission approval, that align with the requirements under IEEE 1547-2018 and UL 1741-SB, with which every inverter used in Pennsylvania today should already comply. (PPL Electric St. No. 2-RJ at 16.) While certain entities may have interpreted those communications protocols incorrectly, which led to the creation of the interoperability gaps discussed by PPL Electric witness Jay Johnson, those gaps have been closed. (PPL Electric St. No. 2-RJ at 16; *see* PPL Electric St. Nos. 5-R and 5-RJ.)

Specifically, Mr. Johnson testified that with the June 24, 2024 update to “SunSpec Modbus Conformance Test Procedures” (Version 1.2), there is absolutely no longer a difference in PPL

Electric’s testing and that performed under UL 1741 SB and associated interoperability conformance tests. (PPL Electric St. No. 5-R at 9.) Even before these changes, however, it is Mr. Johnson’s “opinion that any DER manufacturer who expected multiple devices to be installed on a single site should have included this functionality without the need for it to be explicitly included in the SunSpec specifications.” (PPL Electric St. No. 5-RJ at 4.) As Mr. Johnson explained, “it is clear from the Modbus specification that DERs in a multi-inverter installation with a single client (master) will not be interoperable if the device addresses cannot be adjusted.” (PPL Electric St. No. 5-RJ at 6.) As such, “DER manufacturers who chose to omit this capability could pass the UL 1741 SB tests (prior to June 20, 2024) but in a practical, real-world setting, prevented the DER interoperability intended by the IEEE 1547 standard.” (PPL Electric St. No. 5-RJ at 6-7.) Also, “If a DER manufacturer expected to have multi-inverter installations, they should have included the ability to adjust the device address.” (PPL Electric St. No. 5-RJ at 6.) Further, because “PPL Electric’s requirements align with the language used to close the interoperability gaps in the communications protocols,” the update that resolved these interoperability gaps proves that “the Company was applying the standards correctly all along.” (PPL Electric St. No. 2-RJ at 17.)

To the extent that the JSPs contest PPL Electric’s testing of inverters’ connection to the Company’s DER Management devices, that argument should be rejected as well. PPL Electric has a statutory duty to provide safe, adequate, efficient, and reasonable service. *See* 66 Pa. C.S. § 1501. Therefore, before the Company can deploy its DER Management devices in the field, it must ensure that inverters are compatible and safe to use with those devices. (*See* PPL Electric St. No. 2-R at 17; PPL Electric St. No. 2-RJ at 6.) This does not mean that PPL Electric is disregarding manufacturers’ certifications, as alleged by the JSPs. (*See, e.g.*, JSP MB at 15.) Rather, the

Company is conducting testing to ensure that the inverters can safely work with the DER Management devices, consistent with statutory duty under Section 1501 of the Public Utility Code.

4. The JSPs Erroneously Contend that the Company’s “Sole Evidence” For Needing the Remote On/Off Function Is “An NREL Primer”

Another error made by the JSPs is their claim that PPL Electric’s “sole evidence” for needing the Remote On/Off function is a “primer” by the National Renewable Energy Laboratory (“NREL”), which states that “increasing DER penetration and deployments of different types of inverters can increase the likelihood of unintentional islands.” (JSP MB at 18-19.) In reality, PPL Electric’s evidence was not limited to the NREL “primer.” As explained in the Company’s Main Brief, PPL Electric witness Walling observed that “there is a substantial uncertainty regarding the reliability of many DER island detection schemes when applied in practical circumstances,” despite DERs being “required by IEEE 1547 to cease energization of disconnected distribution circuits (islanding).” (PPL Electric St. No. 4 at 16.) He even pointed to “an incident in Ontario, Canada where certified DERs continued to undesirably energize a utility island for eight minutes after a switching operation isolated the distribution system from the transmission system.” (PPL Electric St. No. 4-R at 12.) Thus, PPL Electric’s evidence included a real-life “example where the on/off functionality” provided by the Second DER Management Plan “could be an important safety feature,” as this scenario shows that “utility management of DER operating status can be applied as a backup to DER island detection capabilities, increasing worker and public safety.” (PPL Electric St. No. 4 at 21; PPL Electric St. No. 4-R at 12.)

5. The JSPs’ Arguments Concerning the Application of the Second DER Management Plan to Existing DERs Should Be Rejected

The JSPs also question the Company’s proposal to apply its Second DER Management Plan to existing DERs on its distribution system, claiming, among other things, that “PPL conducted no analyses into the need for its Second Plan to apply retroactively” and that the

application to existing DERS would “serve to disincentivize those customers from seeking to upgrade their systems.” (JSP MB at 23-24.)

The ALJ and Commission should reject the JSPs’ position. To clarify, the Company has proposed to install DER Management devices on: (1) solar photovoltaic systems interconnected before the DER Management Pilot Program started on January 1, 2021; and (2) inverter-based DERs interconnected after the DER Management Pilot Program started without DER Management devices installed on them. (PPL Electric Exhibit SS-2; PPL Electric Exhibit SS-1R.) Customer-generators with these systems must submit a new interconnection application when they upgrade their system, install a new inverter on their system, or by March 22, 2040, whichever is earlier. (PPL Electric Exhibit SS-2; PPL Electric Exhibit SS-1R.) The DER Management devices would be installed on those systems after their new interconnection applications are approved as compliant with the Company’s current requirements for DERs and inverters and after their systems are installed and inspected. (PPL Electric Exhibit SS-2; PPL Electric Exhibit SS-1R.) In other words, existing DERs would not immediately become subject to the Second DER Management Plan’s requirements. The DERs would be phased in over time, as the systems are upgraded, new inverters are installed, or by March 22, 2040 (i.e., nearly 15 years from now).

In addition, PPL Electric made this proposal because during the DER Management Pilot Program, the Company has identified multiple grandfathered customers who would significantly benefit from being a part of the program. (PPL Electric St. No. 1-R at 56.) By allowing PPL Electric to retroactively monitor and manage grandfathered systems, the Company can increase the hosting capacity even more as well as further locate more hidden load on the distribution grid. (PPL Electric St. No. 1-R at 56.) It is imperative that PPL Electric has knowledge of what is electrically connected and how it is performing not only for reliability, but for the safety of the

Company's customers, employees, contractors, and general public. (PPL Electric St. No. 1-R at 56.)

Lastly, the JSPs assert, without providing any record citation, that "PPL conducted no analyses into the need for its Second Plan to apply retroactively." (JSP MB at 23.) As noted previously, PPL Electric did analyze its proposal and presented testimony in support.

6. The JSPs' Claims about the Sizing of Inverters Lack Merit

The JSPs also contend that "PPL misunderstands the implications of its demands that the manufacturer design an inverter large enough to produce sufficient reactive power to meet PPL's needs, as well as the customer's interest in real power." (JSP MB at 17.) According to the JSPs, while a large commercial customer may spend more on "an inverter big enough to meet both," it is "not typical for manufacturers of residential system inverters to design their inverters this way." (JSP MB at 17.)

As explained by PPL Electric witness Walling, the JSPs are wrong in asserting that it is not in the interest of DER customers, manufacturers, or installers to design inverters in that manner (i.e., to deliver mandated reactive power capability simultaneously with maximum desired power output). (PPL Electric St. No. 4-RJ at 8.) Although "this inverter rating choice is solely at the discretion of the DER system designer," Mr. Walling testified that "it is in the interests of these parties to both meet obligations and to optimize the design for the benefit of the DER customer." (PPL Electric St. No. 4-RJ at 7-8.) In that respect, "an inverter designed to meet this obligation simultaneous with the advertised active power capability is 'right-sized,' not 'oversized.'" (PPL Electric St. No. 4-RJ at 8.)

7. The ALJ and Commission Should Reject the JSPs' Arguments about Compensation

While the JSPs recognize that customer-generators are currently provided “compensation beyond generation,” the JSPs still maintain that “DER owners should be compensated for the grid services they provide.” (JSP MB at 24-26.) As alleged support, the JSPs assert that “DERs are resolving grid voltage problems for which they are not the cause” and that “[u]tilities are experienced in calculating the incentive amount that might be reduced to induce program enrollment.” (JSP MB at 24-25.) On that latter point, the JSPs cite the filing of UGI Central Penn Gas, Inc.’s Energy Efficiency and Conservation (“EE&C”) Plan as a result of the 2010 base rate case settlement. (*See* JSP MB at 24.)

The JSPs’ arguments should be denied. First, PPL Electric witness Davis explained that the goal of voltage management is to take action using the available resources to minimize the occurrence, magnitude, and duration of voltage violations.²⁰ (PPL Electric St. No. 3-R at 52.) Accordingly, “[i]t is neither practical nor necessary to determine the root cause of voltage violations within operations.” (PPL Electric St. No. 3-R at 52.) When a violation is identified, all available resources are utilized to identify and execute the best solution during operations. (PPL Electric St. No. 3-R at 52.) As for JSPs’ blanket claim that the DERs are not causing the “grid voltage problems” they help resolve, Mr. Davis testified that the sheer “presence of DERs within the distribution system can make traditional approaches to voltage management, such as capacitors and voltage regulators, less effective.” (PPL Electric St. No. 3-R at 52.) Therefore, even if an individual DER were not the direct cause of an individual voltage violation, the systematic challenges created by DERs collectively can still contribute to that voltage violation. (PPL Electric St. No. 3-R at 52.)

²⁰ PPL Electric St. No. 3 at 41.

Also, DERs responding to issues regardless of the direct root cause is true for autonomous functions, especially Volt/VAR curves, which many parties in this proceeding have supported. (PPL Electric St. No. 3-R at 52.) An individual DER may not be responsible for a voltage violation (particularly if a low voltage is occurring), but it is expected to contribute to resolving the violation in accordance with the DER's Volt/VAR curve. (PPL Electric St. No. 3-R at 52-53.) Additionally, although the JSPs may disagree with DERs and Volt/VAR curves being utilized to support customer voltages, the actual negative impact, in the form of lost real power production, is miniscule. (PPL Electric St. No. 3-R at 53.) Specifically, the Company's use of power factor control for voltage management resulted in an average loss of just 0.02195 kWh per event and an average of just 0.71 kWh per customer with actively managed DERs through the end of Program Year 2.²¹ (PPL Electric St. No. 3-R at 53.)

As for the JSPs' reliance on UGI-CPG's EE&C Plan filing, they fail to recognize the differences between designing a compensation mechanism for reactive power and setting the incentive levels for EE&C measures through well-established processes in EE&C Plan proceedings. In fact, even the JSPs' witnesses acknowledged that developing such a compensation mechanism is complex, with them even providing different and contradicting thoughts on how the mechanism should be designed. (*See* PPL Electric St. No. 11-R at 30.) That is a stark contrast to the EE&C Plan proceedings, where the Commission's Statewide Evaluator ("SWE") has developed a thorough and reliable Technical Reference Manual ("TRM") for calculating the energy consumption and peak demand reductions attributable to various EE&C measures, which the EDCs then use to help develop the incentive levels in their Commission-approved EE&C

²¹ PPL Electric Exhibit CD-4 at 3, 7, 10.

Plans.²² Furthermore, an EE&C Plan filed by a gas utility has little bearing on PPL Electric’s Second DER Management Plan. Notably, the Commission actually denied UGI-CPG’s proposed EE&C Plan after concluding there were “deficiencies” with the proposal, so it is unclear how the cited case supports the JSPs’ argument that an incentive mechanism for reactive power can be easily designed by an electric utility.²³

8. The Company’s DER Management Device Installations Comply with the National Electrical Code (NEC), Contrary the JSPs’ Allegations Otherwise

The JSPs also contend that PPL Electric’s method of connecting its DER Management devices to SolarEdge inverters violates the National Electrical Code (“NEC”). (JSP MB at 51-56.) In general, the JSPs contend that by installing the DER Management device behind the customer’s meter, the Company’s DER Management device installations automatically become subject to the NEC, and then point to various provisions in the NEC they believe are violated by the Company’s installations. (JSP MB at 51-56.) As the JSPs put it, “This should just be common sense – we are talking about electrical work being done in peoples’ homes; not outside, where PPL might typically work such as on a telephone pole.” (JSP MB at 56.) The JSPs’ arguments lack merit.

As noted in PPL Electric’s Main Brief, the Company presented the expert testimony of H. Landis Floyd II, PE, who has extensive experience with the NEC. (*See* PPL MB at 51.) Among other things, Mr. Floyd served on the National Fire Protection Association (“NFPA”) and NEC technical committee from 1990 to 2014. (PPL Electric St. No. 12-R at 1.) Mr. Floyd thoroughly rebutted the JSPs’ NEC-related claims and testified that, in his expert opinion, the Company’s

²² *See, e.g., 2021 Total Resource Cost (TRC) Test*, Docket No. M-2019-3006868 (Order entered Dec. 19, 2019); *Implementation of the Alternative Energy Portfolio Standards Act of 2004: Standards for the Participation of Demand Side Management Resources – Technical Reference Manual 2021 Update*, Docket No. M-2019-3006867 (Order entered Aug. 8, 2019); *Petition of PPL Elec. Utils. Corp. for Approval of its Act 129 Phase IV Energy Efficiency and Conservation Plan*, 2021 Pa. PUC LEXIS 82 (Order entered Mar. 25, 2021).

²³ *Pa. PUC v. UGI Central Penn Gas, Inc.*, 2012 Pa. PUC LEXIS 1187, at *19-20 (Order entered July 23, 2012).

DER Management device installations on SolarEdge inverters did not violate the NEC.²⁴ (*See* PPL Electric St. No. 12-R at 4, 6-9; PPL Electric St. No. 12-RJ at 4-5, 13, 14.)

Mr. Floyd explained that the NEC does not apply here because PPL Electric’s DER Management device installations are “approved.” (PPL Electric St. No. 12-R at 6; PPL Electric St. No. 12-RJ at 13, 15.) Indeed, the Company has been installing its DER Management devices as required by its Commission-approved tariff and the Commission-approved Settlement in the First DER Management Plan proceeding (Docket No. P-2019-3010128). (PPL Electric St. No. 12-R at 6.) JSP witness Brooks, however, points to the NEC’s definition of “approved” (i.e., “Acceptable to the authority having jurisdiction”) and contends that “PPL has no jurisdiction on electrical work on the customer’s side of the meter.” (JSP St. No. 14-SR at 11-12.) Yet, Mr. Brooks fails to recognize that the Company is a regulated public utility, not a governmental agency or court that would have “jurisdiction” over a matter, as alleged by Mr. Brooks. Additionally, PPL Electric’s DER Management device installations are not bound by the inspection requirements of the NEC because the devices are under the exclusive control of the Company. (PPL Electric St. No. 12-R at 14.)

Further, PPL Electric’s facilities, whether installed in front of or behind the meter, are subject to the Commission’s regulation over utility facilities. *See, e.g.*, 66 Pa. C.S. §§ 102, 1501, 2804(1)(ii). If an issue were to arise with such installations, the Commission could investigate or

²⁴ According to the JSPs, because the Company’s DER Management device installations violate the NEC, those installations have also voided customers’ warranties. (*See* JSP MB at 56-57.) PPL Electric completely rebutted these arguments by the JSPs and explained that the voiding of customers’ warranties, particularly after multiple instances where SolarEdge personnel were advised of the installation method and did not raise any issues, is inappropriate. (PPL Electric St. No. 2-R at 13-14, 58-60; PPL Electric St. No. 12-R at 3-4, 5-6, 10-12.) Furthermore, PPL Electric questions the Commission’s authority to declare whether these contractual provisions, i.e., the warranties, were breached, given well-established case law providing that the Commission lacks subject matter jurisdiction over breach of contract questions. *See Adams v. Pa. PUC*, 819 A.2d 631, (Pa. Cmwlth. 2003) (citing *Allport Water Auth. v. Winburne Water Co.*, 393 A.2d 673 (Pa. Super. 1978) (“The PUC lacks jurisdiction over private contractual disputes.”)).

adjudicate complaints regarding them. *See id.* § 701. Additionally, for net-metered DER interconnections, the Commission’s regulations provide that “[t]he EDC and DSP,” such as PPL Electric, “may not require additional equipment or insurance or impose any other requirement unless the additional equipment, insurance or other requirement is specifically authorized under this chapter or by order of the Commission.” 52 Pa. Code § 75.13(k). PPL Electric expressly received such authorization from the Commission in the First DER Management Plan proceeding and has asked again for such authorization in this proceeding.²⁵

In addition, the JSPs erroneously claim, without citing any record evidence, that the “electrical work being done” is “in peoples’ homes” and “not outside.” (JSP MB at 56.) It is indisputable, through the many photographs of PPL Electric’s DER Management device installations admitted into the evidentiary record, that DER Management devices have been installed outside. (*See, e.g.*, PPL Electric St. No. 2-RJ at 49-56.) Therefore, even if this consideration were relevant to application of the NEC, which it is not, the JSPs’ assertion has no factual basis. For these reasons, the JSPs’ claims that the DER Management device installations have violated the NEC should be rejected outright.

Notwithstanding, even if the NEC provisions cited by the JSPs applied here, which they do not, none of those provisions are violated by PPL Electric’s DER Management device installations. In discovery, JSP witness Bobruk identified the NEC provisions that he believes the device’s installation violates: (1) “NEC 2017 110.3 Examination, Identification, Installation, Use, and Listing (Product Certification) of Equipment. (B) Installation and Use”; (2) “690.4 General Requirements. (B) Equipment”; (3) “690.9 Overcurrent Protection. (C) Photovoltaic Source and

²⁵ PPL Electric Exh. 1 at 5-6, 32-33, 35; *Petition of PPL Electric Utils. Corp. for Approval of Tariff Modifications and Waivers of Regulations Necessary to Implement its DER Management Plan*, Docket No. P-2019-3010128 at 2 (Order entered Dec. 17, 2020).

Output Circuits”; and (4) “705.12 B (1) Dedicated Overcurrent and Disconnect.” (PPL Electric Exhibit LF-1R.) Mr. Floyd demonstrated that none of these NEC provisions are violated by PPL Electric’s installation of its DER Management devices. (PPL Electric St. No. 12-R at 8.)

First, regarding NEC 110.3, this article provides the minimum requirements for “Examination, Identification, Use and Listing.” (PPL Electric St. No. 12-R at 8.) PPL Electric’s DER Management devices meet the requirements of this article and meet UL requirements for use with DERs, including solar systems. (PPL Electric St. No. 12-R at 8.) In particular, the requirements of this article in which PPL Electric’s DER device meets and/or exceeds include:

1. Suitability for installation and use in conformity with this code (NEC).
2. Mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection thus provided.
3. Wire-bending and connection space.
4. Electrical insulation.
5. Heating conditions under normal conditions of use and also under abnormal conditions likely to arise in service.
6. Arcing effects.
7. Clarification by type, size, voltage, current capacity, and specific use.
8. Cybersecurity for network connected life safety equipment to address its ability to withstand unauthorized updates and malicious attacks while continuing to perform its intended safety functionality.
9. Other factors that contribute to the practical safeguarding of persons using or likely to come in contact with the equipment.

Second, concerning the NEC requirements of article 690.4, PPL Electric’s DER Management devices meet or exceed the requirements of A (PV Systems), B (Equipment), and C (Qualified Personnel), while the requirements for articles D (Multiple PV systems), E (Locations not permitted), F (Electronic power converters mounted in not readily accessible locations, and G

(PV Equipment floating on bodies of water) are not relevant to this case. (PPL Electric St. No. 12-R at 9.)

Third, with regards to the requirements of NEC article 690.9 Overcurrent Protection, PPL Electric's installation of the DER Management devices include overcurrent protection for the 120-volt circuits and are compliant with overcurrent protection requirements. (PPL Electric St. No. 12-R at 9.)

Fourth, regarding the requirements of NEC article 705.12 B (1) Dedicated Overcurrent and Disconnect, PPL Electric's DER Management devices are part of the inverter system and are connected to a circuit dedicated to the inverter system. (PPL Electric St. No. 12-R at 9.) The product listing of the inverter does not prohibit the use of the terminals used by PPL Electric. (PPL Electric St. No. 12-R at 9.)

Finally, as PPL Electric witness Salet testified, "It appears that the only reason why Mr. Brooks contends that PPL Electric's DER Management installations are subject to the NEC is because, according to Mr. Brooks, the installations have not been 'approved' as defined by the NEC, meaning '[a]cceptable to the authority having jurisdiction.'" (PPL Electric St. No. 1-RJ at 18 (quoting JSP St. No. 14-SR, pp. 11-12)). While PPL Electric witness Floyd disputes Mr. Brooks's position and argues that the Commission has "approved" the DER Management device installations, the Company has requested that the Commission declare that PPL Electric's DER Management device installations are "acceptable" to the Commission as part of its Final Order in this proceeding. (PPL Electric St. No. 1-RJ at 18; *see* PPL MB, Appendix C at 1.) Given the "extensive documentation laying out how its DER Management devices should be installed in the field," the Commission should grant that request and render the JSPs' NEC-related arguments moot. (PPL Electric St. No. 1-RJ at 17-18.)

G. THE JSPS IMPROPERLY RAISE A NEW, UNSUPPORTABLE, AND UNJUSTIFIED REQUEST FOR RELIEF IN THEIR MAIN BRIEF

In their Main Brief, the JSPs request, among other things, that the Commission order PPL Electric to “replace SolarEdge inverters in which it has installed its Device, or pay \$2 million into a fund for replacements of inverters with PPL’s Devices installed and thermal damage.” (JSP MB at 60.) This new request for relief should be rejected because it was improperly raised for the first time at the briefing stage, amounts to a request for damages that the Commission lacks authority to award, and goes beyond the scope of relief that can be granted in this voluntary Petition proceeding.

1. The JSPs’ Improperly Try to Request New Relief for the First Time in their Main Brief

The JSPs’ extraordinary request must be denied because it was improperly raised for the first time in their Main Brief. Nowhere in their pleadings or testimony did the JSPs ask the Commission to order PPL Electric to replace all the SolarEdge inverters on which it has installed its DER Management devices or pay \$2 million into a fund for replacing such inverters. As such, the JSPs denied PPL Electric the opportunity to engage in discovery, present testimony, and cross-examine witnesses about this request for relief. If the ALJ or Commission were to consider or grant this requested relief now, PPL Electric’s due process rights would be violated.²⁶

In fact, the Commission has rejected attempts to raise new proposals for the first time in the briefing stage, when the parties “made no attempt to develop th[e] issue during the course of

²⁶ See *Hess v. Pa. PUC*, 107 A.3d 246, 266 (Pa. Cmwlth. 2014) (citing *Davidson Unemployment Compensation Case*, 189 Pa. Super. 543, 151 A.2d 870 (Pa. Super. 1959); *Shenandoah Suburban Bus Lines, Inc.*, 46 A.2d 26 (Pa. Super. 1946)) (stating that “[a]mong the requirements of due process are notice and an opportunity to be heard on the issues, to be apprised of the evidence submitted, to cross-examine witnesses, to inspect documents, and to offer evidence in explanation or rebuttal.”); *Mid-Atlantic Power Supply Ass’n v. PECO Energy Co.*, Docket Nos. P-00981615, *et al.*, 1999 Pa. PUC LEXIS 30, at *54-55 (Order entered May 19, 1999) (concluding that a party entitled to due process must be given “adequate notice” and a “[m]eaningful opportunity to be heard,” which includes “reasonable examination and cross-examination”).

th[e] case” and failed to “present testimony in support of such an adjustment.”²⁷ Consistent with this long standing Commission precedent, the JSPs cannot be permitted to sandbag PPL Electric with a new request for relief in a post-hearing brief. The JSPs have waived their opportunity to request this new relief by failing to raise it in their pleadings and testimony. By raising it for the first time in the briefing stage, the JSPs have deprived PPL Electric of notice and a meaningful opportunity to respond. Therefore, because consideration of this new request would violate PPL Electric’s due process rights, the JSPs’ request must be denied.

2. The JSPs’ Requested Relief Amounts to a Request for Damages, which, under Well-Established Case Law, the Commission Lacks the Authority to Award

By requesting that the Commission direct PPL Electric to “pay \$2 million into a fund for replacement of inverters,” the JSPs’ requested relief also amounts to an improper request for damages. It is well-established that the Commission does not have the authority to order a public utility to pay damages.²⁸ For that reason, ALJs and the Commission routinely dismiss requests for damages from Formal Complaints as “impertinent matter.”²⁹ Here, the ALJ and Commission

²⁷ *Pa. PUC v. Pa. Power & Light Co.*, Docket Nos. R-822169, *et al.*, 57 Pa. PUC 559, 596-97 (Order entered Aug. 19, 1983) (citing *Pa. PUC v Philadelphia Electric Co.*, Docket No. R-811626 (Order dated May 21, 1982) (“Merits aside, it is highly inappropriate for a party to propose a completely new adjustment for the first time in its brief.”); *see also Parks v. Pa. Electric Co.*, Docket No. C-2018-3004227, 2024 Pa. PUC LEXIS 365, at *18 (Order entered Dec. 19, 2024) (determining that considering the complainants’ requests for relief raised for the first time in the briefing stage would violate the utility’s due process rights); *Enron Capital & Trade Res. Corp. v. Peoples Natural Gas Co.*, Docket No. R-00973928C0001, 1997 Pa. PUC LEX 178, at *10-11 (Recommended decision issued Nov. 13, 1997) (“Enron can not be permitted to introduce an argument at the briefing stage which it did not introduce in the evidentiary phase of this proceeding . . . Imposing [the new proposal] without the other parties having notice and an opportunity to be heard would violate their due process rights.”), *affirmed*, 1998 Pa. PUC LEXIS 199 (Order entered Aug. 24, 1998).

²⁸ *See, e.g., DeFrancesco v. W. Pa. Water Co.*, 453 A.2d 595, 596-97 (Pa. 1982); *Elkin v. Bell of Pa.*, 420 A.2d 371, 375 (Pa. 1980); *Feingold v. Bell of Pa.*, 383 A.2d 791, 794-95 (Pa. 1977).

²⁹ *See, e.g., Culbertson v. Pa. Elec. Co.*, Docket No. C-2010-2204947, 2011 Pa. PUC LEXIS 781 (Initial Decision issued Feb. 4, 2011), *made final without further action* (Order entered Apr. 8, 2011); *Jones v. Phila. Gas Works*, Docket No. C-2011-2272358, 2012 Pa. PUC LEXIS 409 (Initial Decision entered Feb. 15, 2012), *made final without further action* (Apr. 11, 2012); *Horton v. Phila. Gas Works*, Docket No. C-2010-2181056, 2012 Pa. PUC LEXIS 1332 (Initial Decision issued Jan. 11, 2012), *made final without further action* (Order entered Mar. 1, 2012).

should adhere to that long line of precedent and reject the JSPs' unprecedented request for PPL Electric to pay \$2 million in damages toward the replacement of SolarEdge inverters.

3. The JSPs' Requested Relief Cannot and Should Not Be Granted in this Voluntary Petition Proceeding, Where the Sole Determination Is Whether PPL Electric's Petition Should Be Approved with or Without Modification

The JSPs' requested relief also cannot and should not be granted in this voluntary petition proceeding, where the burden of proof lies with the proponent of the rule or order (*i.e.*, PPL Electric) for approval of its Second DER Management Plan. *See* 66 Pa. C.S. § 332(a), 52 Pa. Code § 5.41. Indeed, the sole determination in this proceeding is whether PPL Electric's Petition should be approved with or without modification.

However, the JSPs' requested relief goes far beyond the scope of this proceeding by requesting affirmative relief from the Commission, including the replacement of or reimbursement for all customer SolarEdge inverters on which a DER Management device has been installed. (*See* JSP MB at 60.) Aside from the clear errors with the JSPs' requested relief being raised for the first time at the briefing stage and constituting an improper request for damages, such a request for affirmative relief is more appropriately sought in a formal complaint proceeding pursuant to Section 701 of the Public Utility Code. In those proceedings, complainants "seeking affirmative relief from the PUC must prove by a preponderance of the evidence that the named utility was responsible or accountable for the problem described in the complaint and that the offense was a violation of the Code, a PUC regulation or Order, or a violation of a PUC-approved tariff."³⁰ It is unreasonable for the JSPs to request affirmative relief in this voluntary petition proceeding in which they do not bear the burden of proving either the validity of their claims or their right to the relief requested. To the extent that the JSPs wanted affirmative relief, they should have filed a

³⁰ *Povacz v. Pa. PUC*, 280 A.3d 975, 999 (Pa. 2022) (citing 66 Pa.C.S. §§ 332(a), 701); *Samuel J. Lansberry, Inc. v. Pa. PUC*, 578 A.2d 600 (Pa. Cmwlth. 1990), *alloc. denied*, 602 A.2d 863 (Pa. 1992)).

formal complaint that could have been consolidated with PPL Electric’s Petition. They did not do so, and, therefore, cannot be granted affirmative relief in this proceeding.

H. THE JSPS IMPROPERLY INTRODUCE AND RELY ON SEVERAL PIECES OF EXTRA-RECORD EVIDENCE IN THEIR MAIN BRIEF

In their Main Brief, the JSPs improperly attempt to introduce and rely on several items extra-record evidence. For example, the JSPs’ extra-record evidence includes, but is not limited to:

1. JSP MB at 9, Finding of Fact No. 22– Reference to and reliance on FAQ page from OSHA’s website, found at https://www.osha.gov/nationally-recognized-testing-laboratory-program/frequently-asked-questions#employers_regulators.
2. JSP MB at 9 – Reference to and reliance on article from Solarbuildermag.com, found at <https://www.solarbuildermag.com/inverters/smart-pv-inverter-overview-ieee-1547-2018-and-ul-1741-explained/>.
3. JSP MB at 12, 14 – Reference to and reliance on article written by PPL Electric witness Jay Johnson, Evaluation of Interoperable Distributed Energy Resources to IEEE 1547.1 Using SunSpec Modbus IEEE 1815, and IEEE 2030.5, IEEE Access, Vol. 9, 2021, p. 142129, 142145.
4. Purported copy of Evaluation of Interoperable Distributed Energy Resources to IEEE 1547.1 Using SunSpec Modbus IEEE 1815, and IEEE 2030.5, IEEE Access, Vol. 9, 2021, p. 142129, 142145, with highlights in the document made by an unknown author (see pages 146-163 of the PDF of the JSP MB).
5. JSP MB at 12-13, 16, Finding of Facts Nos. 55 and 56 – Reference to and reliance on PPL Electric’s website, specifically the “Smart Inverters and DER Pilot Management Requirements” and “FAQ” pages.
6. JSP MB at 18-19, Finding of Fact Nos. 72 and 73 – Reference to and reliance on article D. Narang, et al., NREL/TP-5D00-77782, April, 2022, A Primer on the Unintentional Islanding Protection Requirement in IEEE Std 1547-2018.
7. Purported copy of the article D. Narang, et al., NREL/TP-5D00-77782, April, 2022, A Primer on the Unintentional Islanding Protection Requirement in IEEE Std 1547-2018 (see pages 164-205 of the PDF of the JSP MB).
8. JSP MB at 22, Finding of Fact No. 87 – Reference to and reliance on Hawaiian Electric, Maui Electric, Hawai’i Electric Light, Modernizing Hawai’i’s Grid for Our Customers, August 29, 2017, available at: https://www.hawaiianelectric.com/documents/clean_energy_hawaii/grid_modernizati

on/final_august_2017_grid_modernization_strategy.pdf, p. 3 (cited in JSP St. No. 1-SR, p. 17).

9. JSP Finding of Fact No. 50 – Reference to and reliance on <https://sunspec.org/modbus-specification-updates/>.

These instances of extra-record evidence are conspicuous in the JSPs’ Main Brief, as they are not accompanied by any citations to the evidentiary record.

It is well-established that parties cannot present new evidence at the briefing stage.³¹ Accordingly, extra-record evidence in briefs is commonly stricken³² because including extra-record materials in a party’s brief “brings up hearsay problems and problems associated with the right to respond to evidence.”³³

Here, the JSPs’ extra-record evidence was introduced for the first time in their Main Brief. By waiting until the briefing stage to present this evidence, the JSPs denied PPL Electric an opportunity to review and inspect that evidence, to cross-examine witnesses about that evidence, and to present evidence in rebuttal. Therefore, it would violate PPL Electric’s due process rights for any findings of fact to be based upon or influenced by the JSPs’ extra-record evidence.³⁴ Also, the JSPs failed to demonstrate any good cause for the admission of such evidence after the record closed or any material changes in fact or law that would warrant reopening the record. *See* 52 Pa.

³¹ *See, e.g., Pa. PUC v. Nat’l Fuel Gas Distrib. Corp.*, 1993 Pa. PUC LEXIS 95, at *7-10 (Order entered July 30, 1993); *Petition of the Borough of Cornwall for a Declaratory Order*, 2016 Pa. PUC LEXIS 3, at *24-26 (Jan. 6, 2016) (Recommended Decision), *adopted as modified*, Docket No. P-2015-2476211 (Order entered Aug. 11, 2016); *see also* 66 Pa. C.S. § 332(c).

³² *See, e.g., Trucco v. PPL Elec. Utils. Corp.*, 2002 Pa. PUC LEXIS 21, at *5 (Order entered Mar. 29, 2002) (noting that ALJ Paist “struck those portions of the Complainants’ Main Brief which referenced extra-record evidence, including those various exhibits attached to that Main Brief”); *Application of Kenneth Scott Cobb, t/a Kennys Transp. Serv.*, 2012 Pa. PUC LEXIS 1802, at *24 (Nov. 16, 2012) (Initial Decision) (granting motion to strike the applicant’s brief “for attempting to introduce new facts and documents into evidence not previously offered or admitted into the record at the hearing of September 5, 2012”), *became final without further action*, Docket No. A-2011-2280175 (Order entered Jan. 7, 2013); *see also* 52 Pa. Code § 5.501(a)(2) (stating that briefs must contain “[r]eference to the pages of the record or exhibits where the evidence relied upon by the filing party appears”).

³³ *Pa. PUC v. Pa. Power & Light Co.*, 1995 Pa. PUC LEXIS 190, at *232 (July 28, 1995) (Recommended Decision) (“*PP&L*”).

³⁴ *See* note 26, *supra*.

Code §§ 5.431, 5.571. Thus, although PPL Electric has decided not to burden the ALJ and Commission with the time and expense of ruling on a Motion to Strike the portions of the JSPs' Main Brief, the ALJ and Commission should not rely on the JSPs' extra-record evidence to make any findings in this proceeding.³⁵

Based on the foregoing, the ALJ and the Commission should reject the JSPs' arguments and approve PPL Electric's Petition for Approval of its Second DER Management Plan without modification.

³⁵ See *PP&L*, 1995 Pa. PUC LEXIS at *232; *Petition of Pa. Power Co. for Approval of Interim POLR Supply Plan*, 2006 Pa. PUC LEXIS 56, at *3 (Order entered Apr. 28, 2006) (observing that "ALJ Gesoff ignored Reliant's Reply Brief, due to the extra-record evidence contained within").

VI. CONCLUSION

WHEREFORE, and as further explained in its Main Brief, PPL Electric Utilities Corporation respectfully requests that the Pennsylvania Public Utility Commission issue an Order approving the Company's Second DER Management Plan, the Company's proposed tariff modifications, and related authorizations and grant any other approvals or authorizations that are necessary to implement PPL Electric's Second DER Management Plan.

Respectfully submitted,



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