

September 16, 2024

Via E-Filing

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

Re: **Petition of PPL Electric Utilities Corporation for Approval of its Second Distributed Energy Resources Management Plan, Docket No. P-2024-3049223, Answer by Joint Solar Parties to Motion of PPL Electric Utilities Corporation to Dismiss Objections and Compel Responses to Interrogatories and Requests for Production of Documents Propounded by PPL Electric Utilities Corporation on the Joint Solar Parties – Set 1**

Dear Secretary Chiavetta:

Attached for filing is the Answer by the Joint Solar Parties to the Motion of PPL Electric Utilities Corporation to Dismiss Objections.

Copies will be provided in accordance with the attached Certificate of Service.

If you have any questions, please contact me at (202) 213-1672.

Respectfully submitted,



Bernice I. Corman, PA BAR #332915
BICKY CORMAN LAW, PLLC
Phone: (202) 213-1672
Email: bcorman@bickycormanlaw.com
Counsel to Joint Solar Parties

Attachments

cc: The Honorable John M. Coogan (via e-mail; w/attachments)
Service List

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing Joint Solar Parties' Answer to PPL's Motion to Dismiss Objections upon the parties listed below via electronic mail, in accordance with the requirements of 52 Pa. Code § 154 (relating to service by a party):

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Dated this 16th day of September, 2024

/s/ Bernice I. Corman

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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

**ANSWER BY
AMERICAN HOME CONTRACTORS, INC., ENPHASE ENERGY, INC.,
THE SOLAR ENERGY INDUSTRIES ASSOCIATION,
SOLAREEDGE TECHNOLOGIES, INC., SUN DIRECTED,
TESLA, INC., and TRINITY SOLAR, LLC (“JOINT SOLAR PARTIES”)
TO
MOTION OF PPL ELECTRIC UTILITIES CORPORATION
TO DISMISS OBJECTIONS AND COMPEL RESPONSES TO INTERROGATORIES
AND REQUESTS FOR PRODUCTION OF DOCUMENTS PROPOUNDED ON THE
JOINT SOLAR PARTIES – SET I**

INTRODUCTION

Pursuant to Section 5.342(g)(1) of the Pennsylvania Public Utility Commission’s (“Commission’s”) regulations, as modified by the Paragraph 8.D. of the Scheduling Order issued in this proceeding by Deputy Chief Administrative Law Judge Coogan (“Scheduling Order”), 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”) hereby file this Answer to the September 13, 2024 Motion by PPL Electric Utilities Corporation (“PPL” or “the Company”) to Dismiss Objections and Compel Responses to Interrogatories and Requests for Production of Documents Propounded on the Joint Solar Parties - Set I (“Motion” or “PPL’s Motion”) in this proceeding.

Giving PPL the benefit of the doubt, it appears PPL filed its Motion protectively. Under the Scheduling Order, PPL had to file its Motion by September 13, 2024, the same date the JSPs' Responses to PPL's Discovery Requests were due; and the JSPs' Answer thereto must be filed today. However none of the grounds alleged in PPL's Motion require a ruling at this time, for several reasons.

First, the bulk of PPL's objections are premature, as even PPL notes that the JSPs' objections stated that they were in the process of attempting to secure requested information so as to be able to produce it in accordance with an appropriate protective order. As the JSPs made clear in their oral objections stated on Thursday, September 5th, and as acknowledged by PPL,¹ in particular, PPL's requests for pricing information not only tread on highly confidential information (including negotiated pricing agreements between the JSPs, as well as pricing agreements negotiated by some of the JSPs which may be competitive with other of the JSPs' pricing) but also on concerns with the JSPs sharing competitive information, requiring the utmost care by the JSPs in their voluntarily disclosing information.

Second, as the JSPs' September 13th Discovery Responses make clear, the JSPs are indeed prepared to produce confidential information pursuant to a protective order, but cannot do so yet as the Parties have still not agreed on the terms of either an *appropriate* protective order, or on the information to be produced thereunder, a critical detail PPL fails to note in its Motion. *See* PPL Motion, ¶ 32, and n. 7.

Third, the JSPs's Discovery Responses did, or will, provide much of the information at issue, rendering a ruling unnecessary. Accordingly, the JSPs respectfully submit that Your Honor's and the Parties' resources would be better spent in continuing to determine if they can cooperatively resolve their remaining disagreements, or if the disagreements have resolved themselves by the JSPs'

¹ *See* PPL's Motion, ¶ 36, stating "Rather, the Joint Solar Parties . . . assert that responding would require them to institute non-disclosure agreements amongst themselves regarding competitive pricing information."

September 13th Discovery Responses and as they will be supplemented, rather than seek formal resolution at this juncture, as Your Honor has instructed in ¶ 9 of Your Honor’s August 7, 2024 Scheduling Order.² Had PPL requested an extension of time to file its Motion to Compel while the parties continued to explore if they could resolve their differences and/or still had differences, the JSPs would certainly have agreed to same.³

Thus, the JSPs respectfully submit that Your Honor need not and should not now entertain PPL’s Motion. Should the Parties not be able to resolve their differences, despite their committing to on-going conversations and document production efforts, they can inform Your Honor at that time.

ARGUMENT

Confidentiality

1. Primarily, PPL’s Motion, in Paragraphs 26 – 34, complains that the JSPs asserted an objection based on confidentiality to interrogatories that require the production of trade secret, or commercially sensitive, pricing information. At the same time, PPL quotes the JSPs’ Objection on this grounds, that expressly states that th JSPs are actively engaged “. . . in the process of diligently attempting to secure responsive information so as to produce it in accordance with an appropriate protective order, seek entry of the stipulated agreement as an order, and seek inclusion of protection for Trade Secret Information.” PPL’s Motion, ¶ 33.
2. The JSPs respectfully urge Your Honor to let the Parties’ discussions play out. A ruling would be particularly premature where the parties have yet to reach agreement on the terms of a

² Paragraph 9 states: “The parties shall cooperate rather than engage in numerous or protracted discovery disagreements that require formal resolution.”

³ Similarly, the JSPs respectfully submit that Your Honor ought not to be asked to resolve some of the pettier grievances raised by PPL, such as whether the JSPs’ restatement of objections in footnotes are sufficiently communicative. *See* Motion, ¶ 22. Again, had PPL not understood the JSPs’ objections, they could have asked for clarification, rather than ask Your Honor to spend resources thereon.

Protective Order which could aid in resolving their differences. A September 13th e-mail from PPL to the JSPs', attached hereto as **Appendix A**, confirms that the parties have yet to reach agreement on the terms of an appropriate protective order.

Burdensomeness

3. Relatedly, in its Motion at ¶¶ 35 – 43 and ¶¶ 59 - 69, PPL challenges the JSPs' claim that use of the Protective Order would be burdensome as it pertains to information on pricing and inventory.
4. Fundamentally, this case is about the JSPs' alleging that PPL's practices are anti-competitive -- in pertinent part for purposes of PPL's Motion, that by PPL's restricting the types of inverters that may be used in PPL's service territory, PPL is increasing the price of doing business therein. However, PPL's claimed "need" to see the actual prices paid by the JSP installers steps directly into the sensitive issue of pricing, which itself rests upon long-standing relationships between installers and the manufacturers, distributors, and/or vendors who supply their inverters, many of whom are located outside of Pennsylvania but may sell inverters in Pennsylvania.⁴ Much of the solar industry's business model depends upon the installers' ability to negotiate low prices on equipment such as inverters as means of keeping overall project prices low, such that would-be purchasers will be assured that the pay-back period justifies their investing. Further, industry members must take pains with regard to their sharing of pricing information with one another, lest their communications be viewed as collusive.
5. Accordingly, the JSPs objected to provision of pricing information based on burdensomeness (as well as confidentiality) while they simultaneously committed to exploring whether they

⁴ See p. 3 of the JSPs' e-mail in Motion, **Appendix B**, PDF p. 65.

may voluntarily disclose pricing information pursuant to a protective order, or need be compelled by Your Honor to do so.⁵ And again, the JSPs cannot complete their inquiry until negotiations on an appropriate protective order have concluded.

6. In the interim, however, in their discovery responses, most of the JSPs did identify HIGHLY CONFIDENTIAL pricing information that is responsive and that they will produce when an appropriate protective order is finalized. See ¶ 3, *supra*.
7. Moreover, in their discovery responses, the JSPs provided or stated that they would provide publicly available pricing information on the inverters. See *e.g.*, American Home Contractors' response to JSP-I-1(a)(3), p. 2 (PDF p. 2 of **Appendix C**),⁶ stating that publicly available pricing information on Tesla's Solar Inverter is "forthcoming."⁷ The JSPs strongly believe that such public information should more than suffice to speak to the issue at hand, and indeed could negate the need for provision of highly sensitive information pursuant to a protective order.⁸ Regardless, the foregoing demonstrates that a ruling at this juncture would be premature.

Relevance

Addresses

8. In ¶¶ 47 – 58, PPL challenges the JSPs' objections based on "relevance," for example, to PPL's requests for provision of customers' addresses.

⁵ For example, one installer JSP's Non-Disclosure Agreement provides that a court- or agency-ordered disclosure is not a breach provided that the recipient of the request provides notice of the disclosure requirements and provides the discloser with an opportunity to challenge or limit the disclosure requirement or seek an appropriate protective order. See Tesla's Mutual Non-Disclosure Agreement, ¶ 3, attached hereto as **Appendix B**. Another's, however, explicitly provides the Agreement shall not be shared with any third party, and provides no off-ramps.

⁶ **Appendix C** is a complete copy of the JSPs' Responses to PPL's Set 1 Discovery requests.

⁷ A technical issue prevented the JSPs from physically producing AHC's publicly available information on the pricing of Tesla inverters on Friday, hence the JSPs' statement that the information is "forthcoming."

⁸ See, *e.g.*, *Spring Pharms., LLC v. Retrophin, Inc.*, 2019 U.S. Dist. LEXIS 133316 (E.D. Pa. 2019) (denying a subpoena where responsive information could be obtained through other means that did not impose undue burden).

9. This challenge too is also premature. As may be seen in the correspondence between the parties, the JSPs have asked for an opportunity to discuss with PPL why PPL is requiring that they be required to produce information on customers' addresses, when PPL has indicated that it would be redacting its customers' addresses and other additional personal information in its responses to the JSPs' discover requests. *See* September 13, 2024 e-mail from the understined to Devin Ryan, **App. A**, p. 1.
10. Based on the foregoing, the JSPs again assert that Your Honor need not yet take up PPL's Motion or the JSPs' response thereto until the parties have concluded their discussions on the terms of an appropriate protective order, as well as the contents that would be exchanged thereunder.

Inventories

11. PPL also argues in ¶¶ 74 – 79 that information on the JSPs' numbers and PPL-specific compliance status of inverters in the JSPs' inventories is relevant. Again, the JSPs assert that a ruling would be premature or unnecessary. Out of the four installer JSPs, one's response to PPL's discovery request identified its inventory; two stated that they do not maintain inventory; and the last indicated in conjunction with its assertion of an objection that its inquiry into inventory is on-going. *See* Appendix C, pp. 3, 5, 7 – 8, and 11.
12. Thus, the JSPs' responses to discovery requests either stated responses (*see, e.g.*, Ex. C, p. 2 of the PDF, AHC's Response to I-1(a)(4)), or stated that the JSPs were in the process of securing the requested information. *See* Objection to I-1(a)(4), Ex. C, p. 1 of the PDF.
13. As an aside, the JSPs take issue with PPL's claim, for example, in their Motion at ¶ 62, that the JSPs provided no explanation as to why determining inventory was burdensome. To the

contrary, the JSPs provided such explanation. See the JSPs' e-mail explanation, sent in furtherance of the Parties' conferring, on PDF p. 72 of Appendix B to PPL's Motion.

Vagueness

14. PPL's Motion, ¶¶ 80 – 92 challenge the JSPs' assertion of an objection based on vagueness of the term "grid code."
15. As may be seen from the parties' conferences, the JSPs requested a definition of "grid code," PPL provided a definition of same some three hours before the JSPs were required to file their objections; and the JSPs indicated that they would be unlikely to vet the proffered definition by the time they needed to file their objections.
16. Regardless, the JSPs provided the requested grid code information in their responses, and/or will do so upon the parties' finalizing a protective order.

CONCLUSION

The JSPs respectfully request that Your Honor suspend a ruling on the current Motion until such time as the parties inform Your Honor his assistance is required. At the earliest, the JSPs respectfully recommend that the parties report to Your Honor on September 30, 2024 where they stand.

If, however, Your Honor is poised to issue a decision resolving these disagreements, the JSPs request that Your Honor first schedule oral argument.

Respectfully submitted,

The Joint Solar Parties:
America Home Contractors, Inc.
Enphase Energy, Inc.
The Solar Energy Industries Association
SolarEdge Technologies, Inc.
Sun Directed
Tesla, Inc. and
Trinity Solar, LLC

By their Attorney:

A handwritten signature in blue ink, appearing to read "Bernice I. Corman", written over a horizontal line.

Bernice I. Corman, PA Bar # 332915
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Dated: September 16, 2024

**APPENDIX A –
E-Mail Correspondence
Between JSPs and PPL on a
Draft Protective Order**

Sunday, September 15, 2024 at 21:26:40 Eastern Daylight Time

Subject: RE: Petition of PPL Electric Utilities Corporation for Approval of its Second Distributed Energy Resources Management Plan, Docket No. P-2024-3049223
Date: Friday, September 13, 2024 at 5:02:38 PM Eastern Daylight Time
From: Ryan, Devin
To: Bicky Corman
CC: Kimberly Klock (kklock@pplweb.com), Rulli, Megan
Attachments: image001.png, image002.gif

Bicky,

We can discuss the Motion for Protective Order and the redactions early next week. I do have significant issues with some of the JSPs' proposed changes to the SPA, which flows through to the Motion for Protective Order. If you can provide some times you are available on Monday and Tuesday, I can set something up (assuming our availability aligns).

As for the "withdrawn," the response gives the impression that the question itself was withdrawn as opposed to the allegation. I would prefer a clear statement that Trinity Solar is withdrawing that allegation, as opposed to how it is currently worded.

I hope you have an nice weekend as well.

Devin T. Ryan
Principal
Post & Schell, P.C.
One Oxford Centre
301 Grant Street, Suite 3010
Pittsburgh, PA 15219
Phone: (717) 612-6052
Email: dryan@postschell.com

From: Bicky Corman <bcorman@bickycormanlaw.com>
Sent: Friday, September 13, 2024 4:54 PM
To: Ryan, Devin <DRyan@PostSchell.com>
Cc: Kimberly Klock (<kklock@pplweb.com>) <KKlock@pplweb.com>; Rulli, Megan <MRulli@PostSchell.com>
Subject: Re: Petition of PPL Electric Utilities Corporation for Approval of its Second Distributed Energy Resources Management Plan, Docket No. P-2024-3049223

ALERT: This message originated outside of Post & Schell's network. BE CAUTIOUS before clicking any link or attachment.

Devin – 23(b) asked for Trinity Solar to explain how the Approved Inverter List "causes delays in supply deliveries." Trinity Solar is withdrawing that allegation.

We should figure out what we are doing on the protective order. I sent you some proposed changes. I also wanted to discuss your list of items you were proposing to redact. For example, I was trying to understand whether you would agree that items you were proposing to redact such as addresses and work orders would also be items the JSPs would redact; and if not, why not.

Thank you.

Have a great weekend.

From: Ryan, Devin <DRyan@PostSchell.com>
Date: Friday, September 13, 2024 at 4:41 PM
To: Bicky Corman <bcorman@bickycormanlaw.com>
Cc: Kimberly Klock (<kklock@pplweb.com> <KKlock@pplweb.com>), Rulli, Megan <MRulli@PostSchell.com>
Subject: Fwd: Petition of PPL Electric Utilities Corporation for Approval of its Second Distributed Energy Resources Management Plan, Docket No. P-2024-3049223

Bicky,

I have been reviewing the JSPs' responses.

Why does it say that No. 23(b) was withdrawn? We did not withdraw any of our discovery requests.

Please clarify.

Thank you.

Devin T. Ryan

Principal

Post & Schell, P.C.

One Oxford Centre

301 Grant Street, Suite 3010
Pittsburgh, PA 15219

Phone: (717) 612-6052

Email: dryan@postschell.com

From: Bicky Corman <bcorman@bickycormanlaw.com>
Sent: Friday, September 13, 2024 4:13:27 PM
To: Rosario, Susan <SRosario@PostSchell.com>; Christy M. Appleby (<cappleby@paoca.org> <cappleby@paoca.org>; HBreitman@paoca.org <HBreitman@paoca.org>; Gray, Steven <sgray@pa.gov>; Lyttle, Rebecca <relyttle@pa.gov>; Judith D. Cassel Esquire (<jdcassel@hmslegal.com> <jdcassel@hmslegal.com>; Micah R. Bucy (<mrbcuy@hmslegal.com> <mrbcuy@hmslegal.com>; Bakare, Adeolu <abakare@mcneeslaw.com>; <rkimmel@mcneeslaw.com> <rkimmel@mcneeslaw.com>
Cc: Ryan, Devin <DRyan@PostSchell.com>; Rulli, Megan <MRulli@PostSchell.com>; Kimberly Klock (<kklock@pplweb.com> <kklock@pplweb.com>; Bartolomei, Michelle Lynne <MLBartolomei@pplweb.com>
Subject: Petition of PPL Electric Utilities Corporation for Approval of its Second Distributed Energy Resources Management Plan, Docket No. P-2024-3049223

ALERT: This message originated outside of Post & Schell's network. BE CAUTIOUS before clicking any link or attachment.

Good afternoon.

Enclosed please find the Joint Solar Parties' Responses to PPL's Discovery Requests – Set 1, PPL to JSP-I-1 – JSP-I-1-39, with the exception of Responses by one entity to I-3 and I-4, and Responses to I-10, I-11 and I-12, which will follow shortly.

Copies of exhibits will also follow, as well as copies of the Responses in individualized format.

Please contact me if you have questions.



Bicky Corman Law PLLC

1250 Connecticut Avenue, NW, Suite 700

Washington, DC 20036

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**APPENDIX B –
Tesla Mutual Non-Disclosure
Agreement**

Mutual Non-Disclosure Agreement

Effective Date: _____

Tesla Contact: _____

This Mutual Non-Disclosure Agreement (“NDA”) is entered as of the Effective Date between the Tesla entity (“Tesla”) and the company or individual (“Company”) identified below. Tesla and Company agree as follows:

1. **Purpose.** Each party hereto or its Affiliates (each, a “Discloser”) may disclose Confidential Information to the other party or its Affiliates (each, a “Recipient”) in order to consider a potential business relationship with each other or fulfill the objectives of such relationship (“Purpose”). “Confidential Information” means information disclosed by Discloser that is marked as confidential or proprietary, identified as confidential or proprietary at the time of disclosure (e.g. if disclosed orally or visually), or disclosed under circumstances by which Recipient should reasonably understand such information is to be treated as confidential or proprietary.
2. **Confidentiality.** Subject to Section 3, Recipient may not: (a) use Discloser’s Confidential Information for any reason except the Purpose; or (b) disclose Confidential Information to any individual or third party except to its personnel, directors, consultants, professional advisors, and Affiliates, or (to the extent expressly approved in writing by Discloser) other unaffiliated third parties, in each case that (i) have a “need to know” such Confidential Information for the Purpose and (ii) are bound to confidentiality obligations that protect Confidential Information to at least the same extent as the terms of this NDA (collectively, “Authorized Recipients”). Recipient shall implement and maintain appropriate organizational, technical, and administrative security measures, exercising the same degree of care to protect Discloser’s Confidential Information that it uses for its own confidential information of a similar nature, but in no event less than reasonable care. Promptly after learning of any unauthorized use or disclosure of, and/or unauthorized attempt to access or modify, any Confidential Information in Recipient’s (or its Authorized Recipients’) custody or control, Recipient shall notify Discloser in writing and cooperate with Discloser to investigate and mitigate any adverse effects. Recipient shall be responsible for any unauthorized use or disclosure of Confidential Information by its Authorized Recipients.
3. **Exceptions.** The obligations of Section 2 shall not apply to information that: (a) is already known to Recipient at the time of disclosure without obligation of confidentiality, (b) is or becomes publicly known through no wrongful act or omission of Recipient, (c) is rightfully received by Recipient from a third party without obligation of confidentiality, (d) is approved for release by written authorization of Discloser, or (e) was developed by Recipient independently and without the use or benefit of any of Discloser’s Confidential Information. A disclosure that Recipient is required to make pursuant to any order or requirement of a court, administrative agency, other governmental agency, or stock exchange will not be deemed a breach of Sections 2 or 5 of this NDA, provided that Recipient has to the extent permitted by law: (x) promptly notified Discloser in writing of such order or requirement, (y) given Discloser an opportunity to challenge or limit the disclosure requirement or seek an appropriate protective order, and (z) cooperated with Discloser to narrow the scope of such disclosure to only that portion of the Confidential Information that is necessary to fulfill the order or requirement. A disclosure which complies with a U.S. Federal Acquisition Regulation permitting disclosures to the government concerning government contracts will not be deemed a breach of this NDA. Each party is hereby given notice of the immunity set forth in 18 USC § 1833(b).
4. **Anonymous Data.** Tesla may share with Company de-identified or anonymous data which does not directly identify the data subject(s), such as individuals, vehicles, products, or entities. Company may not, and may not attempt to, identify any data subject.
5. **No Publicity.** Each party agrees that it may not make any public disclosures relating to the existence of this NDA or the Purpose without the other party’s prior written consent.
6. **Ownership.** All Confidential Information remains Discloser’s sole property, and no license or other right to Confidential Information or intellectual property is granted or implied in this NDA or by any disclosure. This NDA does not require either party to disclose any information.
7. **Affiliate.** “Affiliate” means an entity which either controls or is controlled by a party or is under common control with a party, where “control” means the power to direct or cause the direction of an entity’s management and policies through ownership or control of at least 50% of its voting securities or ownership interest.
8. **As-Is Disclosures.** Discloser warrants that it has the right to disclose the Confidential Information to Recipient. No other warranties are made whether express, implied, or statutory. All Confidential Information is provided on an “AS IS” basis. Discloser disclaims any and all other representations, warranties, or assurances concerning the Confidential Information, including as to accuracy, performance, completeness, suitability, or third-party rights.
9. **Current and Future Development.** Nothing in this NDA prohibits each party from developing, or having developed, products or services that, without violation of this NDA, compete with other parties’ products or services. Neither party may be presumed to have violated this NDA solely because it uses, makes, has made, or offers products or services which compete with the other party’s products or services.
10. **Return or Destruction.** Confidential Information, and all copies thereof, remain Discloser’s property. Upon termination of this NDA or Discloser’s written request, Recipient shall promptly return to Discloser all documents, presentations, and other

Mutual Non-Disclosure Agreement

tangible items of Confidential Information or, at the request of Discloser, certify in writing that all such Confidential Information has been destroyed; provided, however, that Recipient may retain and use such Confidential Information if and to the extent permitted by a license or similar right under a separate agreement. Recipient shall also use reasonable efforts to delete all electronic copies of Confidential Information under its control. If it would be unreasonably costly or burdensome for Recipient to immediately delete copies of Confidential Information from its routinely-made backup or disaster-recovery systems, then Recipient will not be required to do so until the next regularly-scheduled destruction of such copies in the usual course of business and in compliance with a reasonable back-up retention policy adopted by Recipient, provided that such copies remain subject to the requirements of Section 2 so long as they remain in Recipient's custody or control. If data is restored to Recipient's production systems from a backup or disaster recovery system after Confidential Information was otherwise required to be returned or destroyed, Recipient must either ensure that the restoration does not include any Confidential Information which should otherwise have been returned or destroyed or, if such Confidential Information is included in the restoration, securely delete such Confidential Information promptly after the restoration.

11. **Termination.** This NDA is effective as of the Effective Date for a term of 3 years ("Term"). The Term will automatically extend for successive 1-year periods unless this NDA is terminated by a party. Either party may terminate its participation in this NDA for any or no reason by giving 60 days' prior written notice to the other parties. Termination will not affect a party's rights or obligations with respect to Confidential Information disclosed before such termination, and such rights or obligations will continue as long as Recipient has custody of or control over Confidential Information. Sections 2-6 and 9-13 hereof will survive for 5 years after the termination of this NDA.

12. **Disputes; Venue.** This NDA is governed by the laws of the county, state, and country specified below Tesla's signature, in each case without regard to conflict of laws principles. Each party will be jointly and severally responsible for the acts and omissions of its Affiliates and each of their respective Authorized Recipients. The rights of and damages incurred by a party's Affiliate will be deemed to be rights of and damages incurred by such party. The parties shall discuss in good faith a resolution to any conflict or dispute under this NDA. The exclusive venue for any judicial action arising out of or relating to this NDA will be the state, federal, or regional courts for the location specified below Tesla's signature. The parties, for themselves and their respective Affiliates and Authorized Recipients, hereby waive any challenge to venue and jurisdiction in such courts.

13. **Miscellaneous.** This NDA constitutes the entire agreement between the parties regarding its subject matter and supersedes all prior agreements, representations, and understandings between the parties regarding its subject matter. If any provision hereof is held by a court of competent jurisdiction to be illegal or unenforceable, such provision shall be changed and interpreted so as to best accomplish the objectives of the original provision to the fullest extent allowed by law and the remaining provisions of this NDA shall remain in full force and effect. This NDA is written in the English language, and the English version shall prevail over any translation thereof. A waiver of any right hereunder does not imply a waiver of any other rights. No waiver, alteration, modification, or amendment of this NDA shall be effective unless in writing and signed by all parties. This NDA may be signed in duplicate originals or in separate counterparts, each of which is effective as if the parties signed a single original, and a facsimile of an original signature or electronically-signed version transmitted to the other party is effective as if the original was sent to the other party. Any notice required or permitted by this NDA shall be made in writing and be deemed delivered upon verification of delivery to the other party. Each party agrees that it shall not assign, transfer, or otherwise convey or delegate any of its rights or duties under this NDA (except to Tesla, Inc. or to the successor in a merger, acquisition, or corporate reorganization of the assigning party) without the other party's prior written consent, and any attempt to do so shall be void.

Tesla and each Company execute this Mutual Non-Disclosure Agreement through their duly authorized representatives.

Tesla: Tesla, Inc.
Signed: _____
Printed: _____
Title: _____
Date: _____
Contact Information:
Legal Department
PO Box 15430, Fremont CA 94539, USA
Phone : +1-650-681-5000
Governing Law: Texas
Venue: <u>Travis County, Texas</u>

Company: _____
Signed: _____
Printed: _____
Title: _____
Date: _____
Contact Information:
Name/Dept.: _____
Address: _____
Phone: _____

**APPENDIX C –
JSPs Responses to PPL
Discovery Requests – Set 1**

WITNESS: Nicolas Zavala, American Home Contractors, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-1

Re: Petition to Intervene, pp. 3-5. For each solar installer Joint Solar Party (*i.e.*, AHC, Sun Directed, Sunnova, Tesla, and Trinity Solar), please provide a detailed inventory of each inverter used by each solar installer in Pennsylvania.

Amendment 1: Per 9/5/24 oral agreement of PPL – The applicable date range covers the duration of the Pilot (1/1/21 through present), except where expressly stated otherwise.

Amendment 2: The JSPs provided notification on September 13, 2024 that Sunnova has withdrawn from membership in the JSPs this matter.

(a) For each inverter, please:

- (1) Identify the inverter model;
- (2) Identify the inverter manufacturer;
- (3) State the purchase price of the inverter

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the provision of very confidential/highly sensitive and trade secret pricing information as requested in PPL to JSP-I-1(a)(3) on grounds of its commercial sensitivity, and the burdensomeness of notifying and/or conferring with each party to a non-disclosure or special pricing agreement about the request. Notwithstanding the foregoing, the JSPs are diligently pursuing their ability to produce responsive information in accordance with an appropriate protective order.];

- (4) Provide the quantity in the solar installer's current inventory;

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the quantity of inverters in each solar installer's current inventory of each inverter used by each installer in PA, on grounds of the undue burden involved with the installers needing to engage in numerous communications with numerous employees in numerous locations, and the relevance of inventory where the problem faced by installers is that a product is not able to be used in PPL territory. Notwithstanding the foregoing, the JSPs are attempting to secure the requested information.]

- (5) Identify whether the inverter is certified to the IEEE 1547-2018 standard;
 - (6) Identify whether the inverter is certified to the UL 1741 SB standard;
 - (7) Identify whether the inverter is on the Approved Inverter List; and
 - (8) If the inverter is not the Approved Inverter List, identify whether the installer has submitted the inverter to PPL Electric for approval, the date of submission, and the status of that submission.
- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: JSP-I-1:

(a) From AHC:

- (1) ENPHASE IQ8M and the TESLA solar inverter (7.6 kW) and the inverter in Tesla's Powerwall 3 (which AHC uses to install battery storage solutions) has an integrated solar inverter, making purchase of a separate inverter unnecessary. In earlier years during the Pilot, AHC used DELTA M-series inverters in Pennsylvania until the product was phased out.
- (2) Enphase, Tesla and Delta.
- (3) Enphase IQ8M: \$176.14. *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. AHC-1.

a. The price paid by AHC for Tesla's PVI inverters outside of PPL territory is subject to an NDA between AHC and its supply house. The JSPs have asserted **objections** to provision of confidential pricing information on grounds of its extreme sensitivity, and on grounds that seeking to check with each party to its confidential sales agreements is unduly burdensome. Publicly available information (the attached vendor price list) shows the inverter at approximately \$1,000. Ex. PPL to JSP-I-1 Att. AHC-5. (Forthcoming.)

b. Delta M-series: \$1,238.05 - \$1,398.05. *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. AHC-2.

- (4) AHC does not maintain inventory specific to use in Pennsylvania.
- (5) ENPHASE IQ8M microinverters meet IEEE 1547:2018 (I: 1741-SB 3rd Ed.). *See* Ex. PPL to JSP-I-1 Att. AHC-3.

Tesla's Solar Inverter 7.6 kW (compatible with Solar Roof and traditional solar panels) meets IEEE 1547. *See* Ex. PPL to JSP-I-1 Att. AHC-4.

- (6) ENPHASE IQ8M microinverters meet UL 1741 SB. *See* Ex. PPL to JSP-I-1 Att. AHC-3.

Tesla's Solar Inverter meets UL 1741 SA. *See* Ex. PPL to JSP-I-1 Att. AHC-4. JORDAN?

- (7) Enphase's IQ8M inverter and Delta's M-series inverters are on [PPL's Approved Inverter List \(8/29/24\)](#). Tesla's PVI is not.
- (8) AHC is not in possession of the requested information.

(b) *See* documents identified above in AHC's Responses to JSP-I-1(a).

WITNESS: Michael Shadow, Sun Directed

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-1

Re: Petition to Intervene, pp. 3-5. For each solar installer Joint Solar Party (*i.e.*, AHC, Sun Directed, Sunnova, Tesla, and Trinity Solar), please provide a detailed inventory of each inverter used by each solar installer in Pennsylvania.

Amendment 1: Per 9/5/24 oral agreement of PPL – The applicable date range covers the duration of the Pilot (1/1/21 through present), except where expressly stated otherwise.

Amendment 2: The JSPs provided notification on September 13, 2024 that Sunnova has withdrawn from membership in the JSPs this matter.

(a) For each inverter, please:

- (1) Identify the inverter model;
- (2) Identify the inverter manufacturer;
- (3) State the purchase price of the inverter

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the provision of very confidential/highly sensitive and trade secret pricing information as requested in PPL to JSP-I-1(a)(3) on grounds of its commercial sensitivity, and the burdensomeness of notifying and/or conferring with each party to a non-disclosure or special pricing agreement about the request. Notwithstanding the foregoing, the JSPs are diligently pursuing their ability to produce responsive information in accordance with an appropriate protective order.];

- (4) Provide the quantity in the solar installer's current inventory;

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the quantity of inverters in each solar installer's current inventory of each inverter used by each installer in PA, on grounds of the undue burden involved

with the installers needing to engage in numerous communications with numerous employees in numerous locations, and the relevance of inventory where the problem faced by installers is that a product is not able to be used in PPL territory. Notwithstanding the foregoing, the JSPs are attempting to secure the requested information.]

- (5) Identify whether the inverter is certified to the IEEE 1547-2018 standard;
- (6) Identify whether the inverter is certified to the UL 1741 SB standard;
- (7) Identify whether the inverter is on the Approved Inverter List; and
- (8) If the inverter is not the Approved Inverter List, identify whether the installer has submitted the inverter to PPL Electric for approval, the date of submission, and the status of that submission.

- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: PPL to JSP-I-1

- (a) From Sun Directed:

- (1) Inverters used by Sun Directed in Pennsylvania are shown on the produced datasheets (HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1-SD-1; HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1-SD-2, and Ex. PPL to JSP-I-1 Att. SD-3)
- (2) Manufacturers of inverters used by Sun Directed in Pennsylvania are shown on the documents produced above in response to PPL to JSP-I-1(a)(1).
- (3) Purchase prices for each inverter are shown on HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. SD-1; HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1-SD-2, and PPL to JSP-I-1 Att. SD-4.
- (4) Sun Directed currently has 2 Tesla inverters in its inventory, as shown on HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. SD-4. All others are purchased on a job-by-job basis.

- (5) Sunny Boy, Fronius, Enphase and Tesla inverters are certified to IEEE 1547-2018 standards. See PPL's Approved Inverter List. See Ex. PPL to JSP-I-1-SD-3 for Tesla.
 - (6) Sunny Boy, Fronius, Enphase and Tesla inverters are certified to UL 1741 SB standards. See PPL's Approved Inverter List for Sunny Boy, Fronius and Enphase. See Ex. PPL to JSP-I-1 Att. SD-3 for Tesla.
 - (7) Tesla inverters are not on PPL's Approved List. All others are.
 - (8) Sun Directed is not in possession of responsive information.
- (b) See documents identified above in Sun Directed's Responses to PPL to JSP-I-1(a).

WITNESS: Jordan Graham, Tesla, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-1

Re: Petition to Intervene, pp. 3-5. For each solar installer Joint Solar Party (*i.e.*, AHC, Sun Directed, Sunnova, Tesla, and Trinity Solar), please provide a detailed inventory of each inverter used by each solar installer in Pennsylvania.

Amendment 1: Per 9/5/24 oral agreement of PPL – The applicable date range covers the duration of the Pilot (1/1/21 through present), except where expressly stated otherwise.

Amendment 2: The JSPs provided notification on September 13, 2024 that Sunnova has withdrawn from membership in the JSPs this matter.

(a) For each inverter, please:

- (1) Identify the inverter model;
- (2) Identify the inverter manufacturer;
- (3) State the purchase price of the inverter

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the provision of very confidential/highly sensitive and trade secret pricing information as requested in PPL to JSP-I-1(a)(3) on grounds of its commercial sensitivity, and the burdensomeness of notifying and/or conferring with each party to a non-disclosure or special pricing agreement about the request. Notwithstanding the foregoing, the JSPs are diligently pursuing their ability to produce responsive information in accordance with an appropriate protective order.];

- (4) Provide the quantity in the solar installer's current inventory;

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the quantity of inverters in each solar installer's current inventory of each inverter used by each installer in PA, on grounds of the undue burden involved with the installers needing to engage in numerous communications

with numerous employees in numerous locations, and the relevance of inventory where the problem faced by installers is that a product is not able to be used in PPL territory. Notwithstanding the foregoing, the JSPs are attempting to secure the requested information.]

- (5) Identify whether the inverter is certified to the IEEE 1547-2018 standard;
- (6) Identify whether the inverter is certified to the UL 1741 SB standard;
- (7) Identify whether the inverter is on the Approved Inverter List; and
- (8) If the inverter is not the Approved Inverter List, identify whether the installer has submitted the inverter to PPL Electric for approval, the date of submission, and the status of that submission.

- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: PPL to JSP-I-1

- (a) For Tesla:

- (1) *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. JG-1.
- (2) Delta, SolarEdge, Tesla.

(3) [JSPs' Sept. 10, 2024 Objection: The JSPs object to the provision of very confidential/highly sensitive and trade secret pricing information as requested in PPL to JSP-I-1(a)(3) on grounds of its commercial sensitivity, and the burdensomeness of notifying and/or conferring with each party to a non-disclosure or special pricing agreement about the request. Notwithstanding the foregoing, the JSPs are diligently pursuing their ability to produce responsive information in accordance with an appropriate protective order.] Additionally, Tesla does not purchase its own inverters when it uses them in projects, but includes the cost in the overall project cost.

(4) [JSPs' Sept. 10, 2024 Objection: The JSPs object to the quantity of inverters in each solar installer's current inventory of each inverter used by each installer in PA, on grounds of the undue burden involved with the installers needing to engage in numerous communications with numerous employees in numerous locations, and the relevance of inventory where the problem faced by installers is that a product is

not able to be used in PPL territory. Notwithstanding the foregoing, the JSPs are attempting to secure the requested information.].

(5) *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. JG-1.

(6) *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. JG-1.

(7) *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. JG-1, showing that Delta and SolarEdge are on the Approved Inverter List; Tesla's are not.

(8) Tesla has not submitted its solar inverters to PPL for approval.

(b) *See* documents identified above in Tesla's Responses to JSP-I-1(a).

WITNESS: Russell Pierson, Trinity Solar, LLC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-1

Re: Petition to Intervene, pp. 3-5. For each solar installer Joint Solar Party (*i.e.*, AHC, Sun Directed, Sunnova, Tesla, and Trinity Solar), please provide a detailed inventory of each inverter used by each solar installer in Pennsylvania.

Amendment 1: Per 9/5/24 oral agreement of PPL – The applicable date range covers the duration of the Pilot (1/1/21 through present), except where expressly stated otherwise.

Amendment 2: The JSPs provided notification on September 13, 2024 that Sunnova has withdrawn from membership in the JSPs this matter.

- (a) For each inverter, please:
- (1) Identify the inverter model;
 - (2) Identify the inverter manufacturer;
 - (3) State the purchase price of the inverter

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the provision of very confidential/highly sensitive and trade secret pricing information as requested in PPL to JSP-I-1(a)(3) on grounds of its commercial sensitivity, and the burdensomeness of notifying and/or conferring with each party to a non-disclosure or special pricing agreement about the request. Notwithstanding the foregoing, the JSPs are diligently pursuing their ability to produce responsive information in accordance with an appropriate protective order.];

- (4) Provide the quantity in the solar installer's current inventory;

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the quantity of inverters in each solar installer's current inventory of each

inverter used by each installer in PA, on grounds of the undue burden involved with the installers needing to engage in numerous communications with numerous employees in numerous locations, and the relevance of inventory where the problem faced by installers is that a product is not able to be used in PPL territory. Notwithstanding the foregoing, the JSPs are attempting to secure the requested information.]

- (5) Identify whether the inverter is certified to the IEEE 1547-2018 standard;
 - (6) Identify whether the inverter is certified to the UL 1741 SB standard;
 - (7) Identify whether the inverter is on the Approved Inverter List; and
 - (8) If the inverter is not the Approved Inverter List, identify whether the installer has submitted the inverter to PPL Electric for approval, the date of submission, and the status of that submission.
- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: PPL to JSP-I-1

(a) For Trinity Solar:

- (1) As PPL's service territory is Trinity's largest market in Pennsylvania, the inverter models used by Trinity in Pennsylvania are essentially the same as those used in PPL's service territory. Inverters used by Trinity over the last 12 months are depicted on HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1-TS-1.
- (2) See Ex. HIGHLY CONFIDENTIAL PPL to JSP-I-1-TS-1.
- (3) Prices paid by Trinity Solar are subject to Special Pricing Agreements ("SPAs"), some of which provide: "The terms set forth herein are specific to the Customer and shall be held in strict confidence. For the avoidance of doubt, this SPA should not be shared by the Customer with any third party." Nevertheless, Trinity is exploring with parties to its SPAs whether it may disclose the SPAs in accordance with a protective order, and will supplement this Answer.

- (4) Trinity Solar does not maintain an inventory of inverters used in Pennsylvania. Trinity maintains inventory at the national level, and moves equipment to particular territories to meet needs as they arise.
 - (5) All inverters depicted on HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1-TS-1 are certified to the IEEE 1547-2018 standard.
 - (6) All inverters depicted on HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1-TS-1 are certified to the UL 1741 SB standard.
 - (7) All the inverters depicted on HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1-TS-1 are on the Approved Inverter List.
 - (8) Trinity is not in possession of the requested information.
- (b) *See* documents identified above in Trinity's Responses to JSP-I-1(a).

WITNESS: Nicolas Zavala, American Home Contractors, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: JSP-I-2

Re: Petition to Intervene, pp. 6-9. For each solar installer Joint Solar Party (*i.e.*, AHC, Sun Directed, Sunnova, Tesla, and Trinity Solar, please identify each potential sale the installer alleges did not go forward because of the Pilot Program.

Amendment 1: Per 9/5/24 oral agreement of PPL – The applicable date range covers the duration of the Pilot (1/1/21 through present), except where expressly stated otherwise.

Amendment 2: The JSPs provided notification on September 13, 2024 that Sunnova has withdrawn from membership in the JSPs this matter.

(a) For each potential sale, please provide:

- (1) The project type (*i.e.*, solar panel, battery, battery plus storage);
- (2) The manufacturer and model of the planned inverter;
- (3) The planned size of the installation in projected kW production or storage capacity;
- (4) The address of the planned installation;

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the provision of addresses of each planned installation that did not go forward because of the Pilot Program as requesting irrelevant information, but are attempting to determine if they may provide the information in conjunction with an appropriate protective order.]

[PPL's Sept. 10, 2024 Response: PPL agreed to limit the scope of the question to provision of information on municipality.]

- (5) The dates the potential sale was identified and terminated;
- (6) The projected loss in sales to the entity; and
- (7) Each reason the sale did not move forward.

- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: JSP-1-2

- (a) For AHC:

- (1) Sales of Tesla Solar Roofs, as well as sales of solar panels + storage.
- (2) Tesla is the manufacturer of inverters for Solar Roofs, solar panels and battery storage (Tesla Powerwall 3) sold by AHC.
- (3) AHC compiled an anecdotal, non-exhaustive, under-inclusive list of 31 inquiries it received, 30 for Tesla Solar Roofs, and one solar project where the client wanted storage, which did not go forward because of the Pilot. Information on the planned size of the installations is contained in HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-2 Att. AHC-4.
- (4) Per agreement with PPL: the municipalities where sites are located that did not go forward as a result of the Pilot are depicted on HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-2 Att. AHC-4.
- (5) The dates potential sales were identified are shown on HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-2 Att. AHC-4. AHC did not record the date potential sales were terminated.
- (6) AHC did not estimate the projected losses in sales, but provides information on AHC sales of Tesla Solar Roofs nationally, and elsewhere in Pennsylvania, in its Response to PPL to JSP-I-6.
- (7) Potential sales did not go forward because AHC's primary products (Tesla Solar Roofs and solar + storage solutions using Tesla Powerwall 3) cannot be sold in PPL territory because Tesla inverters are not included on PPL's Approved Inverter List. See <https://www.americanhomecontractors.com/solar-roof/> (Ex. PPL to JSP-I-2 Att. AHC-2), showing that the Solar Roof sold and installed by AHC is the Tesla Solar Roof; and <https://www.americanhomecontractors.com/american-home-contractors-your-tesla-powerwall-certified-premier-installer/> (Ex. PPL to JSP-I-2 Att. AHC-3) showing that AHC's primary (sole?) solar + storage solution uses the Tesla Powerwall 3.

(b) *See* documents identified above in AHC's Responses to JSP-I-2(a).

WITNESS: Michael Shadow, Sun Directed

**Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223**

QUESTION: JSP-I-2

Re: Petition to Intervene, pp. 6-9. For each solar installer Joint Solar Party (*i.e.*, AHC, Sun Directed, Sunnova, Tesla, and Trinity Solar, please identify each potential sale the installer alleges did not go forward because of the Pilot Program.

Amendment 1: Per 9/5/24 oral agreement of PPL – The applicable date range covers the duration of the Pilot (1/1/21 through present), except where expressly stated otherwise.

Amendment 2: The JSPs provided notification on September 13, 2024 that Sunnova has withdrawn from membership in the JSPs this matter.

(a) For each potential sale, please provide:

- (1) The project type (*i.e.*, solar panel, battery, battery plus storage);
- (2) The manufacturer and model of the planned inverter;
- (3) The planned size of the installation in projected kW production or storage capacity;
- (4) The address of the planned installation;

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the provision of addresses of each planned installation that did not go forward because of the Pilot Program as requesting irrelevant information, but are attempting to determine if they may provide the information in conjunction with an appropriate protective order.]

[PPL's Sept. 10, 2024 Response: PPL agreed to limit the scope of the question to provision of information on municipality.]

- (5) The dates the potential sale was identified and terminated;
- (6) The projected loss in sales to the entity; and
- (7) Each reason the sale did not move forward.

- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: PPL to JSP-I-2

- (a) For Sun Directed:

- (1) Sun Directed did not track “each” sale that did not go forward. However, Sun Directed will testify that types of sales that did not go forward were for larger-sized single phase commercial projects. One smaller-sized single phase commercial project, and one larger-sized single phase commercial project, went forward, but at higher costs. *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-2 Att. SD-1, showing the price difference between use of an Approved and non-Approved inverter for the smaller-sized single phase commercial project; and HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-2 Att. SD-2.

Sun Directed anticipates it will not be able to provide battery-storage solutions, as a product in which it specializes, Tesla’s Powerwall 3, is not able to be sold in PPL territory. The Powerwall 3 solar inverter is integrated into the battery. Tesla’s Powerwall 2 (battery) was a stand-alone piece of equipment, so was still able to be used in PPL territory during the pendency of the Pilot. Tesla is phasing out the Powerwall 2.

- (2) For any size single phase commercial projects, Sun Directed would have used the Tesla PVI inverter, Model Number 1538000-xx-y. *See* Ex. PPL to JSP-I-1 Att. SD-3.
- (3) Sun Directed does not possess information pertaining to each potential sale that did not go forward, but will testify that the average size of a larger-sized single phase commercial project outside of PPL territory is 75 kW.
- (4) The address of the smaller-sized single phase commercial project is: Unitarian Universalist Congregation of the Susquehanna Valley, 265 Point Township Dr., Northumberland, PA 17857. The larger-sized single phase residential project that went forward at the higher price (shown in HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-2 Att. SD-1) is residential. The address is: [REDACTED]. Sun Directed does not track sales that have not gone forward as a result of the Pilot, so does not possess addresses for its non-sales.

- (5) Sun Directed does not track sales that have not gone forward as a result of the Pilot, so does not possess information on the dates the potential sale was identified and terminated, but will testify that it lost these sales upon the Pilot's becoming effective.
 - (6) Sun Directed has not calculated its projected loss in sales resulting from the Pilot.
 - (7) Sun Directed does not know each reason each sale did not go forward, but will testify that one reason could have been the cost.
- (b) *See* documents identified above in Sun Directed's Responses to JSP-I-2(a).

WITNESS: Jordan Graham, Tesla, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: JSP-I-2

Re: Petition to Intervene, pp. 6-9. For each solar installer Joint Solar Party (*i.e.*, AHC, Sun Directed, Sunnova, Tesla, and Trinity Solar, please identify each potential sale the installer alleges did not go forward because of the Pilot Program.

Amendment 1: Per 9/5/24 oral agreement of PPL – The applicable date range covers the duration of the Pilot (1/1/21 through present), except where expressly stated otherwise.

Amendment 2: The JSPs provided notification on September 13, 2024 that Sunnova has withdrawn from membership in the JSPs this matter.

(a) For each potential sale, please provide:

- (1) The project type (*i.e.*, solar panel, battery, battery plus storage);
- (2) The manufacturer and model of the planned inverter;
- (3) The planned size of the installation in projected kW production or storage capacity;
- (4) The address of the planned installation;

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the provision of addresses of each planned installation that did not go forward because of the Pilot Program as requesting irrelevant information, but are attempting to determine if they may provide the information in conjunction with an appropriate protective order.]

[PPL's Sept. 10, 2024 Response: PPL agreed to limit the scope of the question to provision of information on municipality.]

- (5) The dates the potential sale was identified and terminated;
- (6) The projected loss in sales to the entity; and
- (7) Each reason the sale did not move forward.

- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: PPL to JSP-I-2

- (a) For Tesla: For Tesla (a)(1)-(a)(7), see HIGHLY CONFIDENTIAL Ex. PPL to JSP I-2 JG-2. The spreadsheets details four Tesla projects that were redesigned after Tesla received instruction from PPL in Q1 2023 that PPL would no longer approve interconnections for Tesla solar projects with multi-inverter SolarEdge and Delta inverter. In response, nine project orders had to be redesigned, and four redesigns resulted in a requirement to reduce the size of the solar system. In total, the four projects were reduced in size by 22.32 kW, resulting in less solar being installed in PPL's territory. Tesla has not yet calculated the financial losses associated with these system size reductions but reserves the right to supplement this response in the future.

Additionally, Telsa has faced untold and incalculable losses in sales following Tesla exit of PPL's territory in July 2023 in order to avoid further burdens and harms associated with the Pilot.

- (1) *See* Tesla response to JSP-I-2(a)
 - (2) *See* Tesla response to JSP-I-2(a)
 - (3) Tesla's spreadsheet currently does not include addresses (under discussion with PPL).
 - (4) Tesla spreadsheet currently does not include the date of the redesigns, but will be supplemented.
 - (5) *See* Tesla response to JSP-I-2(a)
 - (6) *See* Tesla response to JSP-I-2(a)
- (b) *See* documents identified above in Tesla's Responses to JSP-I-2(a).

WITNESS: Russell Pierson, Trinity Solar

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: JSP-I-2

Re: Petition to Intervene, pp. 6-9. For each solar installer Joint Solar Party (*i.e.*, AHC, Sun Directed, Sunnova, Tesla, and Trinity Solar, please identify each potential sale the installer alleges did not go forward because of the Pilot Program.

Amendment 1: Per 9/5/24 oral agreement of PPL – The applicable date range covers the duration of the Pilot (1/1/21 through present), except where expressly stated otherwise.

Amendment 2: The JSPs provided notification on September 13, 2024 that Sunnova has withdrawn from membership in the JSPs this matter.

(a) For each potential sale, please provide:

- (1) The project type (*i.e.*, solar panel, battery, battery plus storage);
- (2) The manufacturer and model of the planned inverter;
- (3) The planned size of the installation in projected kW production or storage capacity;
- (4) The address of the planned installation;

[JSPs' Sept. 10, 2024 Objection: The JSPs object to the provision of addresses of each planned installation that did not go forward because of the Pilot Program as requesting irrelevant information, but are attempting to determine if they may provide the information in conjunction with an appropriate protective order.]

[PPL's Sept. 10, 2024 Response: PPL agreed to limit the scope of the question to provision of information on municipality.]

- (5) The dates the potential sale was identified and terminated;
- (6) The projected loss in sales to the entity; and

- (7) Each reason the sale did not move forward.
- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: PPL to JSP-I-2

- (a) For Trinity Solar:
 - (1) Trinity Solar did not lose sales as a result of the Pilot, but lost revenue when it was unable to offer solar inverters and battery projects at a reduced price.
 - (2) Planned inverters were the Tesla Powerwall 3 battery (11.5kW Back Up Power Unit), and the Tesla Solar Inverter. The differentiator in a Tesla Solar inverter is the power the inverter produces (Tesla Solar Inverters allow a single application to cover 3.8 kW, 5kW, 5.7 kW or 7.6 kW), rather than a model number.
 - (3) All sales in PPL territory were impacted by the Pilot program. As PPL granted interconnection, information on sizes of planned installations, in installations affected by the Pilot, is possessed by PPL.
 - (4) As PPL granted interconnection, information on addresses of planned installations, or installations affected by the Pilot, is possessed by PPL.
 - (5) Sales were not terminated.
 - (6) Based upon publicly available literature, the cost differential between the approved inverter Trinity used and the Tesla inverter is approximately [HIGHLY CONFIDENTIAL] per inverter, amounting to a cost impact to Trinity of approximately [HIGHLY CONFIDENTIAL] from purchases of roughly 1,700 approved inverters for use in PPL territory over the last 12 months.
 - (7) Sales moved forward.
- (b) *See* documents identified above in Trinity's Responses to JSP-I-2(a).

WITNESS: Marc Monbouquette, Enphase Energy, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-3

Re: Petition to Intervene, pp. 3-4. For each inverter manufacturer Joint Solar Party (*i.e.*, Enphase and Solar Edge), please provide a detailed inventory of each inverter manufactured by the inverter manufacturer and sold in Pennsylvania.

Amendment: Per 9/5/24 oral agreement of PPL – The applicable date range covers the duration of the Pilot (1/1/21 through present), except where expressly stated otherwise.

- (a) For each inverter, please:
- (1) Identify the inverter model;
 - (2) Provide the quantity in the manufacturer's current inventory;
 - (3) Identify whether the inverter is certified to the IEEE 1547-2018 standard;
 - (4) Identify whether the inverter is certified to the UL 1741 SB standard;
 - (5) Identify whether the inverter is on the Approved Inverter List; and
 - (6) If the inverter is not the Approved Inverter List, identify whether the manufacturer has submitted the inverter to PPL Electric for approval, the date of submission, and the status of that submission.
- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: PPL to JSP-1-3

(a) For Enphase:

- (1) *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-3 Att. MM-1.
- (2) Enphase clarifies that its primary sales channels involve selling inverters through wholesale distributors and solar installers, and not directly to consumers. Enphase fulfills orders from these intermediaries and overall seeks to balance the supply of inverters “in the channel” to match the ultimate demand of end-use consumers, to the greatest extent possible. In other words, Enphase does not maintain an “inventory” of inverters and instead manufactures to meet demand.
- (3) *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-3 Att. MM-1.
- (4) *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-3 Att. MM-1.
- (5) *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-3 Att. MM-1.
- (6) It has not.

(b) *See* document identified above in Enphase’s Responses to JSP-I-3(a).

WITNESS: Marc Monbouquette, Enphase Energy, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-1-4

Re: Petition to Intervene, pp. 6-7. For each inverter manufacturer Joint Solar Party (*i.e.*, Enphase and Solar Edge), please identify every instance in which the manufacturer alleges PPL Electric's DER Management devices have interfered with communications to their inverters and/or devices, including to the cloud, apps, and/or customer dashboards.

(a) For each instance identified, please provide:

1. The date the incident was discovered;
2. The date the incident was resolved;
3. The inverter model and manufacturer;
4. The grid code that was set on the inverter at the time of installation;
5. The grid code that was set on the inverter at the time of the communications issues;
6. The precise reason the communication was interrupted;
7. The total time spent resolving the incident;
8. The total costs related with resolving the incident;
9. The date the incident was reported to PPL Electric;
10. The identity of the individual who reported the incident to PPL Electric;
11. The identity of the individual at PPL Electric to whom it was reported; and

12. The resolution of the incident, if any.

- (b) Please produce all Documents relied upon in responding to this interrogatory.

ANSWER: PPL to JSP-I-4

- (a) For Enphase:

- (1) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (2) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (3) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (4) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (5) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (6) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (7) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-
- (8) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.

In addition to PPL's requested fields, Enphase includes a column noting the days that affected customers experienced PV production downtime stemming from the two primary issues.

- (9) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (10) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (11) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (12) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.
- (13) See HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-4 Att. MM-2.

- (b) See document identified above in Enphase's Responses to JSP-I-3(a).

WITNESS: Nicolas Zavala, American Home Contractors, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-5

Re: Petition to Intervene, p. 6. AHC claims that it has “ceased installing any battery storage solutions for customers, and largely reduced solar deployments, in PPL territory.”

- (a) Please identify the date that AHC stopped installing battery storage solutions for customers in PPL Electric’s service territory.
- (b) Please provide a list of all battery storage solutions installed by AHC in PPL Electric’s service territory since the date identified in subpart (a).
- (c) Please provide a list of all battery storage solutions installed by AHC in PPL Electric’s service territory prior to the date identified in subpart (a).
- (d) Please provide all Documents in AHC’s possession concerning its decision to stop installing battery storage solutions for customers in PPL Electric’s service territory
- (e) Please explain in detail what “largely reduced solar deployments” means.
- (f) Please provide all Documents in AHC’s possession about “largely reduc[ing] solar deployments” in PPL Electric’s service territory.

ANSWER: PPL to JSP-I-5

- (a) Tesla introduced Powerwall 3 in February, 2024. As this is the battery storage solution sold by AHC, AHC ceased installing battery storage solutions in PPL Electric’s service territory as of that date.
- (b) AHC installed one final battery solution in PPL territory after that date in a legacy project in which it had pre-purchased two Tesla Powerwall 2’s in order to ensure it could provide a storage solution. Similarly,

AHC sold a Solar Roof, in which it installed pre-purchased Delta after February, 2024.

- (c) As AHC was commencing business in Pennsylvania at roughly the same time the Pilot commenced, it did not provide battery storage solutions in PPL territory prior to the date identified in subpart (a).
- (d) *See* AHC's website, a link to which was provided in AHC's response to PPL to JSP-I-2(7), showing that the battery storage solution it sells is the Tesla Powerwall.
- (e) While AHC's primary offering is the Tesla Solar Roof, with and without battery storage (Tesla's Powerwall 3), AHC has offered a handful of Maxeon solar panel jobs in PPL territory.
- (f) *See* HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. AHC-1, showing an informal list of 31 sales inquiries received since April of 2023, which did not move forward because of the Pilot, almost all of which were for Tesla Solar Roofs or battery storage (Powerwall 3) solutions. AHC will testify that additional inquiries were received but not tracked.

WITNESS: Nicolas Zavala, AHC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-6

Re: Petition to Intervene, p. 6. AHC claims that “AHC had seen a 1200% increase nationally, and nearly \$3,000,000.00 in sales from 2022 to 2023 in the rest of Pennsylvania, just for Tesla's Solar Roof.” Please provide all Documents in AHC’s possession related to this reported increase in sales of Tesla’s Solar Roof in Pennsylvania.

ANSWER: PPL to JSP-I-6

See attached HIGHLY CONFIDENTIAL PPL to JSP-I-6 Att. AHC-1, showing a 1200% increase in revenue nationally, and 51.6% increase in sales of Tesla Solar Roofs; and 69.4% increase in sales from 2022 to 2023 elsewhere in Pennsylvania, or from slightly less than \$1.8 to \$3 million.

WITNESS: Joan White, Solar Energy Industries Association

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-7

Re: Petition to Intervene, p. 7. Please identify every member of SEIA and state whether the member currently operates in PPL Electric's service territory. Please produce all Documents relied upon in responding to this interrogatory.

AMENDMENT (per agreement reached on September 10, 2024): SEIA need not state whether the member currently operates in PPL Electric's service territory.

ANSWER: PPL to JSP-I-7

A complete membership list is produced as HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-7 Att. JW-1. Anecdotally, the other JSPs (except for American Home Contractors) are SEIA members, as is Engie, who operate in PPL Electric's service territory.

WITNESS: Joan White, Solar Energy Industries Association

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-8

Re: Petition to Intervene, p. 7.

(a) Please explain in detail the “impacts” that SEIA’s members and the “solar community have observed to date with PPL’s Pilot.”

(b) Please produce all Documents relied upon in reaching that conclusion and in responding to subpart (a).

b. ANSWER: PPL to JSP-I-8

(a) Tesla, Trinity Solar, Enphase, SolarEdge and individual employees of American Home Contractors all are SEIA members. *See* responses to I-4 through I-6, I-10 through I-13, I-16 through I-23 for member-specific harms. *See* JSP responses to I-27 through I-32 and I-35 for responses to other questions about harms to the solar industry, including SEIA’s members.

(b) None.

WITNESS: Joan White, SEIA

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-9

Re: Petition to Intervene, p. 7.

- (a) Please explain in detail the ways in which SEIA alleges the impacts identified in response to JSP Set I, No. 8 will “worsen” if the Company’s Second DER Management Plan is approved.
- (b) Please produce all Documents relied upon in reaching that conclusion and in responding to subpart (a).

ANSWER: PPL to JSP-I-9

- (a) JSPs have detailed extensive harms they have experienced under the Pilot, as referenced in JSP’s response to JSP-I-8(a). If PPL’s Second DER Management Plan is approved, it would perpetuate and multiply these harms for all newly installed DER systems, while removing a cap on duration and numbers of systems that limited the effects of the Pilot. Additionally, many of the harms associated with blocking aggregations and innovative business models as described in JSP’s responses to JSP-I-24, JSP-I-27, and JSP-I-30 through JSP-I-32, will effectively magnify over time as those innovative business models and offerings develop in the market and expand. Further, PPL’s proposal in the Second DER Management Plan would allow it to actively manage the inverters of DERs that were in the Pilot’s control group, resulting in additional systems being subject to PPL’s decision to use customer owned DERs to provide grid services without compensating the owners of those DER systems. Finally, PPL’s proposal will reach back to retroactively capture systems that are upgraded, where new inverters are installed, and/or by March 22, 2024.
- (b) None.

WITNESS: Michael Shadow, Sun Directed

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-13

Re: Petition to Intervene, p. 7. Sun Directed alleges that “[s]ince 2020, Sun Directed has had to deny providing solutions to commercial leads with single phase service, having found that PPL’s Program requirements provide no viable cost-effective options for it to source single-phase inverters for projects for commercial customers.”

- (a) Please identify the precise date that Sun Directed stopped “providing solutions to commercial leads with single phase service.”
- (b) Please provide a list of all solutions for commercial leads with single phase service installed by Sun Directed in PPL Electric’s service territory since the date identified in subpart (a).
- (c) Please provide a list of all solutions for commercial leads with single phase service installed by Sun Directed in PPL Electric’s service territory prior to the date identified in subpart (a).
- (d) Please provide all Documents in Sun Directed’s possession about its decision stop “providing solutions to commercial leads with single phase service.”
- (e) Has Sun Directed performed any studies, analyses, or calculations related to the cost-effectiveness of “providing solutions to commercial leads with single phase service” under the Pilot Program? If so, please provide all such studies, analyses, and calculations and supporting workpapers.

c. ANSWER: PPL to JSP-I-13

- (a) Sun Directed has had to deny providing solutions to commercial leads with single phase service since the date the Pilot program became effective (1/1/21). “2020” was a typo.

- (b) Sun Directed installed a commercial lead with single phase service for the Unitarian Universalist Congregation of Susequehanna Valley, 265 Point Township Dr., Northumberland, PA 17857.
- (c) Sun Directed does not possess a list of commercial leads with single phase service installed prior to the Pilot, but will testify that prior to the Pilot's becoming effective, Sun Directed installed such system for the Sunbury Bible Church in Northumberland, PA.
- (d) Sun Directed does not possess any such documents but will testify to such effect.
- (e) Yes, Sun Directed has used studies, specifically pricing models. Ex. PPL to JSP-1-2 Att. SD-1 and PPL to JSP-1-2 Att. SD-2 are the only two Sun Directed still possesses.

WITNESS: Jordan Graham, Tesla, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-16

Re: Petition to Intervene, p. 8. Please identify every instance that “multi-inverter Tesla solar systems installed in PPL territory, customers’ communications have been fully or partially knocked offline due to the presence of PPL’s DER Management Device.”

(a) For each instance, please provide:

- 1) The date the incident was discovered;
- 2) The date the incident was resolved;
- 3) The inverter model and manufacturer;
- 4) The grid code that was set on the inverter at the time of installation;
- 5) The grid code that was set on the inverter at the time of the communications issues;
- 6) The communications modules installed;
- 7) Whether communication modules were installed by the manufacturer or by Tesla;
- 8) The precise reason the communication was interrupted;
- 9) The total time spent by Tesla resolving the incident;
- 10) The total costs related with resolving the incident;
- 11) The dates of any site visits performed;
- 12) The date the incident was reported to PPL Electric;

13) The identity of the individual who reported the incident to PPL Electric;

14) The identity of the individual at PPL Electric to whom it was reported; and

15) The resolution of the incident, if any.

(b) Please produce all Documents relied upon in making that statement and in responding to this interrogatory.

d. ANSWER: PPL to JSP-I-16

(a) For Tesla's response, please see Ex. HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-16 JG-1.

(1) *See* response to JSP-I-16(a)

(2) *See* response to JSP-I-16(a)

(3) *See* response to JSP-I-16(a)

(4) Tesla does not possess responsive information.

(5) Tesla does not possess information responsive information. Tesla does not maintain that data and does not have the ability to remotely check the grid code on third party inverters, and cannot do so retroactively.

(6) All inverters included in Ex. HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-16 JG-1 used Zigbee communications modules either installed in the inverter by the inverter manufacturer, or installed by Tesla based upon the recommendation of the manufacturer.

(7) *See* response to JSP-I-16, above.

(8) Tesla does not maintain records of the "precise reason the communication was interrupted," and cannot know until it troubleshoots locally, as Tesla and PPL have been doing for the last several months. However, Tesla will testify that based on its experience troubleshooting communications disruptions from multi-inverter solar-only systems, and its recent site visits, performed in conjunction with PPL, confirm that the overwhelming majority of the interruptions have been caused by the presence of PPL's DER Management Device.

- (9) Tesla will supplement its response to this question.
- (10) Tesla will supplement its response to this question.
- (11) Tesla will supplement its response to this question.
- (12) Tesla does not possess responsive information.
- (13) Tesla does not possess responsive information.
- (14) Tesla does not possess responsive information.
- (15) *See* Ex. HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-16 JG-1 which provides information on when certain communications problems were resolved.

WITNESS: Jordan Graham, Tesla, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-17

Re: Petition to Intervene, p. 8. Please identify every instance in which Tesla alleges that “[c]ommunications problems caused by PPL’s Management Device with certain inverter and system combinations resulted in Tesla and its customers receiving numerous ‘false alarms’ that indicated the customer’s solar system had stopped producing power, which in turn required numerous site visits and additional labor from Tesla.”

(a) For each instance, please provide:

- 1) The date the incident was discovered;
- 2) The date the incident was resolved;
- 3) The inverter model and manufacturer;
- 4) The grid code that was set on the inverter at the time of installation;
- 5) The grid code that was set on the inverter at the time of the communications issues;
- 6) The communications modules installed;
- 7) Whether communication modules were installed by the manufacturer or by Tesla;
- 8) The precise reason the communication was interrupted;
- 9) The total time spent by Tesla resolving the incident;
- 10) The total costs related with resolving the incident;
- 11) The dates of any site visits performed;

- 12) The date the incident was reported to PPL Electric;
- 13) The identity of the individual who reported the incident to PPL Electric;
- 14) The identity of the individual at PPL Electric to whom it was reported; and
- 15) The resolution of the incident, if any.

(b) Please provide all Documents relied upon in making that statement and in responding to this interrogatory.

e. ANSWER: PPL to JSP-I-17

(a) The JSPs' use of the term "false alarm" in their pleadings was meant to refer to scenarios in which Tesla's customer or service technician were alerted to communications disruptions with customer systems that were still producing power. Disruptions in data communication cause customers and Tesla both to lose visibility into any ongoing energy production from the inverter or entire solar system. This block in visibility into whether and how a solar inverter is functioning can cause customers to assume that their solar system has stopped producing and report it to Tesla as such, even if the customer's system is still producing energy and the issue is one of data communication. Additionally, this block in visibility prevents Tesla from seeing error codes that might alert Tesla to disruptions in inverter energy production. So, if a customer cannot see system production, it can result in a "false positive," in which a customer thinks that their system has stopped producing energy. And if Tesla cannot see system production, it can result in a "false negative," where Tesla is unable to see that a system actually has stopped producing. Tesla's customers have experienced numerous and extended system communications outages caused by the presence of PPL's DER Management device, as detailed in HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-16 JG-1.

(1) See response to JSP-I-17(a)

(2) See response to JSP-I-17(a)

(3) See response to JSP-I-17(a)

(4) See response to JSP-I-17(a)

(5) See response to JSP-I-17(a)

- (6) *See* response to JSP-I-17(a)
 - (7) *See* response to JSP-I-17(a)
 - (8) *See* response to JSP-I-17(a)
 - (9) *See* response to JSP-I-17(a)
 - (10) *See* response to JSP-I-17(a)
 - (11) *See* response to JSP-I-17(a)
 - (12) *See* response to JSP-I-17(a)
 - (13) *See* response to JSP-I-17(a)
 - (14) *See* response to JSP-I-17(a)
 - (15) *See* response to JSP-I-17(a)
- (b) *See* documents identified in response to JSP-I-17(a) above.

WITNESS: Jordan Graham, Tesla, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-18

Re: Petition to Intervene, p. 8; Protest ¶ 22. Tesla avers that, “[d]ue to the significant difficulties Tesla encountered with PPL’s Program, in the summer of 2023, Tesla ceased new direct installations of residential solar and battery storage equipment.”

- (a) Identify the precise date that Tesla ceased new direct installs in PPL Electric’s service territory.
- (b) Has Tesla performed any studies, analyses, or calculations related to its decision to cease operations in PPL Electric’s service territory? If so, please provide all such studies, analyses, and calculations and supporting workpapers.
- (c) Please explain in detail whether the existence of PPL Electric’s Pilot Program was the sole reason for Tesla’s decision to cease “new direct installations of residential solar and battery storage equipment.” If not, please identify all other reasons why Tesla made that decision.

f. ANSWER: PPL to JSP-I-18

- (a) Tesla ceased accepting new orders in PPL’s territory on July 18, 2023. At that time, Tesla had seven jobs that were already underway prior to making the decision to exit PPL’s territory. Tesla submitted those jobs via PPL’s interconnection portal between August 4, 2023 and January 24, 2024.
- (b) Tesla internal presentation from April 26, 2023 shows on HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-1 Att. JG-1 a consideration of whether to charge a \$0.09/watt price adder for all projects in PPL’s territory served by Tesla’s Manheim warehouse and \$0.05/watt adder for all projects in PPL’s territory served by Tesla’s Norristown warehouse in order to account for the additional cost associated with sourcing third-party inverters due to restrictions from PPL’s DER Management Pilot.

Prior to this meeting, Tesla had not passed through to customers the higher costs associated with sourcing and buying third-party inverters. Tesla exited the territory prior to implementing these project price adders.

- (c) PPL Electric's Pilot Program was the sole reason for Tesla's decision to cease new direct installations of residential solar and battery storage equipment. PPL's Pilot caused numerous and ongoing customer harms and frustrations from customers who had significant data disruptions, as detailed in Response to PPL-JSP-I-16. Additionally, PPL's Program threatened to limit the ability of Tesla to introduce innovative customer offerings, as described in PPL-JSP-I-24(b) and I-19.

WITNESS: Ed Merrick, Trinity Solar, LLC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-19

Re: Petition to Intervene, p. 8; Protest ¶ 22. Please identify every instance that Tesla alleges that “as a result of failed communications hindering Tesla’s ability to calculate solar system exports on some system inverters, and after an additional expenditure of staff time, Tesla has forfeited collecting SREC credits, the rights to which it purchased from customers, amounting to thousands if not hundreds of thousands of dollars potentially lost if the hindrances persist over the life of the systems.”

- (a) For each instance, please identify:
- (1) The date the communications issue was discovered;
 - (2) The date the communications issue was resolved;
 - (3) The inverter model and manufacturer;
 - (4) The grid code that was set on the inverter at the time of installation;
 - (5) The grid code that was set on the inverter at the time of the communications issues;
 - (6) The communications modules installed;
 - (7) Whether any communication modules were installed by the manufacturer or by Tesla;
 - (8) The precise reason the communication was interrupted;
 - (9) The number and value of SREC credits “forfeited”;
 - (10) The reason the SREC credits were “forfeited”;
 - (11) The total time spent by Tesla resolving the incident;

- (12) The total costs related with resolving the incident;
 - (13) The dates of any site visits performed;
 - (14) The date the incident was reported to PPL Electric;
 - (15) The identity of the individual who reported the incident to PPL Electric;
 - (16) The identity of the individual at PPL Electric to whom it was reported; and
 - (17) The resolution of the incident, if any.
- (b) Please provide all Documents relied upon in making that statement and in responding to this interrogatory.

g. ANSWER: PPL to JSP-I-19

- (a) When Tesla sells residential solar systems in Pennsylvania and certain other states, Tesla frequently offers to purchase the rights to a customer's system's future SREC production in the form of an upfront lumpsum payment. The model allows Tesla to reduce the upfront system cost to customers and make solar systems more affordable, to handle any complexities involved in monetizing SRECs, and to recoup the costs of the upfront lumpsum payment over the lifetime of the solar system. Tesla structures these payments based on estimated system production and projected SREC values. However, this business model and the scale that it operates at relies on the ability to remotely pull data from customers' inverters via data communications over the course of years or decades. Under PPL's program, PPL's DER Management Device frequently blocked customer's solar inverters from remotely communicating system energy production data to Tesla, as explained in PPL to JSP-I-16, which in turn prevented Tesla from monetizing the SREC credits. HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-16 JG-1 provides a list of 31 systems that had multi-day communications outages. All of those systems but two received upfront lumpsum payments allowing customers to own and monetize their future SRECs. In total, those lumpsum payments for the 31 systems amounted to \$38,064, which could amount to hundreds of thousands of dollars of lost SRECs over the lifetime of affected systems.
- (1) See response to JSP-I-19(a); and Ex. HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-16 JG-1

- (2) See response to JSP-I-19(a); and Ex. HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-16 JG-1.
- (3) See response to JSP-I-19(a); Ex. HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-16 JG-1.
- (4) See response to JSP-I-16(a)(4).
- (5) See response to JSP-I-16(a)(5).
- (6) See response to JSP-I-16(a)(6).
- (7) See response to JSP-I-16(a)(7).
- (8) See response to JSP-I-16(a)(8).
- (9) Tesla does not possess responsive information.
- (10) Tesla did not have communication from these systems in order to monetize the SRECs.
- (11) See response to JSP-I-16(a)(9).
- (12) See response to JSP-I-16(a)(10).
- (13) See response to JSP-I-16(a)(11).
- (14) See response to JSP-I-16(a)(12).
- (15) See response to JSP-I-16(a)(13).
- (16) See response to JSP-I-16(a)(14).
- (17) See response to JSP-I-16(a)(15).
- (b) *See* Ex. HIGHLY CONFIDENTIAL Ex. PPL to JSP-I-16 JG-1.

WITNESS: Russell Pierson, Trinity Solar, LLC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-20

Re: Petition to Intervene, p. 9; Protest ¶ 23. Please identify every instance in which a Trinity Solar project was delayed as a result of the Pilot Program.

(a) For each instance, please provide:

- (1) The precise amount of time the project was delayed;
- (2) A detailed description of why the project was delayed;
- (3) The service address at which the project was installed;
- (4) The dates of any site visits performed;
- (5) The date the project's delay was reported to PPL Electric;
- (6) The identity of the individual who reported the project's delay to PPL Electric;
- (7) The identity of the individual at PPL Electric to whom it was reported; and
- (8) The resolution of the project's delay, if any.

(b) Please provide all Documents relied upon in responding to this interrogatory.

h. ANSWER: PPL to JSP-I-20

(a) For each instance:

- (1) Trinity estimates that each project on which it has worked in PPL territory has been extended by 3-7 days, whether the project involves installing or servicing a solar system. This is because each time Trinity must install, or remove (for service) and re-

install, an inverter, it must engage PPL to coordinate the insertion in or removal of PPL's Management Device from the inverter. In Trinity's experience, it takes PPL 3 - 7 days on average to coordinate and remove or install its device, meaning that a servicing can take up to 14 days – 7 on the front end when the inverter is removed, and 7 on the back end when it is re-installed.

- (2) *See* above response to PPL to JSP-I-20(a)(1).
 - (3) Trinity estimates that 90% of its projects in PPL territory have experienced the above-described delay since the Pilot began, due to PPL's requirement that it alone be the entity that is able to physically install or remove its Device. Numbers of service calls are depicted on Ex. PPL to JSP-I-20-TS-1.
 - (4) *See* above response to PPL to JSP-I-20(a)(3).
 - (5) Trinity did not report the delay, as PPL was the cause of the delay, and was party to the communications concerning coordination. *See* REDACTED PPL to JSP-I-20-Att. TS-2, showing that it took 7 days to coordinate PPL's removal of DER from a residence, and as of the date of this response, 7 days still awaiting reconnection (i.e., not yet resolved). REDACTED PPL to JSP-I-20-Att. TS-3 shows coordination consuming 64 days.
 - (6) *See* above response to PPL to JSP-I-20(a)(5).
 - (7) *See* above response to PPL to JSP-I-20(a)(5).
 - (8) *See* above response to PPL to JSP-I-20(a)(5).
- (b) *See* documents identified above in Trinity Solar's Responses to PPL to JSP-I-20(a).

WITNESS: Russell Pierson, Trinity Solar, LLC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-21

Re: Petition to Intervene, p. 9; Protest ¶ 23. Please identify every instance that Trinity Solar alleges the Pilot Program has caused “additional spending on labor including unnecessary site visits.”

- (a) For every instance identified, please provide:
- (1) The service address where the system was installed;
 - (2) The number of site visits performed;
 - (3) The reason why the site visit was “unnecessary”;
 - (4) The dates of any site visits performed;
 - (5) The date the additional spending was reporting to PPL Electric;
 - (6) The identity of the individual who reported the additional spending to PPL Electric;
 - (7) The identity of the individual at PPL Electric to whom it was reported;
and
 - (8) The resolution of the additional spending, if any.

ANSWER: PPL to JSP-I-21

- (a) For every instance identified, please provide:
- (1) Trinity estimates that the Pilot Program has caused additional spending on labor including unnecessary site visits on 90% of its projects in PPL territory, due to PPL's requirement that it alone be the entity that is able to physically install or remove its Device. Since this figure encompasses every project of Trinity's, each of which has been granted interconnection, PPL possesses the addresses of these sites. Ex. PPL to JSP-I-20-TS-1 shows the unnecessary site visits numbering 30-40 per month.
 - (2) *See* above response to PPL to JSP-I-21(a)(1).
 - (3) The visit was "necessitated" because of the additional effort required to accommodate inclusion of PPL's DER Management Device in customer-owned inverters. Trinity estimates that the costs of the additional unnecessary site visits cost Trinity around \$90,000.00/year.
 - (4) *See* above response to PPL to JSP-I-21(a)(1).
 - (5) *See* above response to PPL to JSP-I-21(a)(1).
 - (6) PPL did not report additional spending, but PPL was aware of the unnecessary site visits, as explained in PPL to JSP-I-20(a)(5).
 - (7) *See* above response to PPL to JSP-I-21(a)(6).
 - (8) *See* above response to PPL to JSP-I-21(a)(6).
 - (9) As PPL has not indicated it intends to change its practice, the additional spending problem is not resolved.
- (b) *See* documents identified above in Trinity's responses to PPL to JSP-21(a).

WITNESS: Russell Pierson, Trinity Solar, LLC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-22

Re: Petition to Intervene, p. 9; Protest ¶ 23. Trinity Solar avers that the Company's Pilot Program has caused it to incur "expenses for additional project management and increased coordination efforts between PPL and [the installers'] team."

- (a) Please explain in detail the additional "expenses" that Trinity Solar alleges it has incurred related to the Pilot Program.
- (b) Please provide any calculations Trinity Solar has performed related to the alleged additional expenses incurred.
- (c) Please provide all Documents upon which Trinity Solar relied in making this statement and in responding to this interrogatory.

ANSWER: PPL to JSP-I-22

- (a) *See* Responses to PPL to JSP-I-2(a)(6) and PPL to JSP-I-21(a)(3).
- (b) *See* Response to JSP-I-21(a)(1) See above.
- (c) *See* documents identified in above-identified responses.

WITNESS: Russell Pierson, Trinity Solar, LLC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-23

Re: Petition to Intervene, p. 9; Protest ¶ 23. Trinity Solar alleges that “PPL's limits on eligible smart inverters inflates the prices of inverters, causes delays in supply deliveries, delays on installations due to equipment availability, and increased costs associated with connecting the particular inverters, all of which costs are passed on to customers.”

- (a) Please explain in detail how the Approved Inverter List “inflates the prices of inverters.”
- (b) Please explain in detail how the Approved Inverter List “causes delays in supply deliveries.” WITHDRAWN
- (c) Please explain in detail how the Approved Inverter List “increased costs associated with connecting the particular inverters.” See above
- (d) Please provide all Documents upon which Trinity Solar relied in making these statements and in responding to this interrogatory.

ANSWER: PPL to JSP-I-23

- (a) *See* Response to JSP-I-2(a).
- (b) Withdrawn.
- (c) *See* Response to JSP-I-20(a).
- (d) *See* documents identified in above-identified Responses.

WITNESS: Jordan Graham, Tesla, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-1-24

Re: Petition to Intervene, p. 9; Protest ¶ 23. The Petition states that “all the JSPs are concerned that the proposed Plan will tacitly amend the interconnection rules without benefit of a state-wide proceeding; and will chill innovation, and revenue-generating opportunities, as PPL’s approved list of inverters inclines towards limiting eligible projects to only single inverter installs.”

- (a) Please explain in detail how the Second DER Management Plan “will tacitly amend the interconnection rules without benefit of a state-wide proceeding.”
- (b) Please explain in detail how the Second DER Management Plan “will chill innovation.”
- (c) Please explain in detail how the Second DER Management Plan will affect “will chill . . . revenue-generating opportunities.”
- (d) Please provide all Documents that AHC relied upon in reaching this conclusion and in responding to this interrogatory.
- (e) Please provide all Documents that Enphase relied upon in reaching this conclusion and in responding to this interrogatory.
- (f) Please provide all Documents that SEIA relied upon in reaching this conclusion and in responding to this interrogatory.
- (g) Please provide all Documents that SolarEdge relied upon in reaching this conclusion and in responding to this interrogatory.
- (h) Please provide all Documents that Sun Direct relied upon in reaching this conclusion and in responding to this interrogatory.
- ~~(i) Please provide all Documents that Sunnova relied upon in reaching this conclusion and in responding to this interrogatory.~~

- (j) Please provide all Documents that Tesla relied upon in reaching this conclusion and in responding to this interrogatory.
- (k) Please provide all Documents that Trinity Solar relied upon in reaching this conclusion and in responding to this interrogatory.

i. ANSWER: PPL to JSP-I-24

- (a) PPL's "Rules for Electric Service: Rule 12 – Distributed Energy Resource (DER) Interconnection Service" provide rules for interconnecting DERs to PPL's grid. PPL's DER Management Pilot already has been inserted to those interconnection requirements in Section C-3 of Rule 12, where it states: "All DERs whether Customer-Owned or Third Party-Owned that are applying to interconnect with PPL Electric's distribution system must install smart inverters as defined in Rule 12(C)(2). Additionally, for the term of the pilot program described in Rule 12(D), a DER Management Device owned, installed, and maintained by the Company will be connected to the data port of the smart inverter for any new DER installation." PPL's Second DER Management Plan would make permanent this requirement in Rule 12 – in effect, tacitly amending the interconnection rules without the benefit of a state-wide proceeding.

Additionally, PPL's 2nd DER Management Plan "will tacitly amend the interconnection rules" because it will require as a condition of interconnection that DER customers or third parties' offering of services in PJM wholesale markets, or offering of distribution grid services, cede to PPL's ability to manage customer- and third-party owned inverters, as admitted by PPL in its Response to JSP-I-16. These requirements are not present in the interconnection rules, and are not conditions precedent to obtaining approval to interconnect in any other territory in Pennsylvania, or, to the JSPs knowledge, anywhere else in the country.

- (b) PPL's Second DER Management Plan could chill innovation in several ways. By blocking or deterring third-party aggregators from participating in PPL's market, it could prevent the implementation of innovative business models for how revenues from Virtual Power Plants (VPPs) or other DER aggregations can provide new or flexible models for project financing. Such new models are currently being explored in other territories, including using DER aggregations to reduce the monthly costs associated with Third-Party Ownership (TPO) models, as will be discussed in testimony.

PPL's Second DER Management Plan essentially uses customer-owned

DERs to resolve voltage violations that are not caused by the customer's system. This amounts to using the customer's DER to provide a grid service while not compensating the customer for that grid service. DER aggregators are currently interested in expanding their market offerings, including potentially providing the type of power quality and other grid services that PPL is taking advantage of in its Pilot. By not considering a market-based solution to the issues that PPL is seeking to resolve, PPL could be chilling innovation of new or emerging aggregator business models.

PPL's Second DER Management Plan also could deter the use of DC-coupled solar and battery energy storage systems, in which solar and storage systems share a single inverter. Such systems are cost effective because they save on materials and installation costs, and also prevent energy losses associated with power conversion. However, PPL's Second DER Management Plan could deter use of DC-coupled systems, either because PPL's Approved Inverter List may not include the integrated inverters of DC-coupled systems on the market, or because customers may not want to install a DC-coupled system to avoid having to cede management of their battery storage inverter to PPL, when they, for example, could use it themselves for revenue generation.

When PPL's DER Management Pilot has prevented customers, installers and manufacturers from having visibility into production data from inverters, it also makes it very difficult to monetize SRECs. One method of driving down the upfront cost of installing residential solar systems to to have installers purchase the future rights to monetize customers' SRECs, with installers providing customers a lump sum discount on the cost of the system in exchange for the right to sell the customer's SRECs at a later date. PPL's DER Management Pilot made this practice very risk for installers, who risked that PPL's device might interfere with the data that they received from customer systems, thereby making it very difficult to monetize future SRECs. The risk is substantial enough that it may deter installers from providing this innovative cost-saving model in PPL in the future.

- (c) *See Responses to JSP-I-12, I-24(b) and I-27(c).*
- (d) *See PPL's Proposed General Tariff (PPL Ex. SS-2), Section C.(3), stating:*
 - i. All DERs whether Customer-Owned or Third Party-Owned that are applying to interconnect with PPL Electric's distribution system must install smart inverters as defined

in Rule 12(C)(2). Additionally, a DER Management Device owned, installed, and maintained by the Company will be connected to the data port of the smart inverter for any new DER installation.

ii. *See also Id.* (stating that program requirements will be imposed retroactively when customer-generators submit new interconnection applications when they upgrade their systems, install new inverters on their systems, or by March 22, 2040, whichever is earlier).

Finally, *see* documents identified in the JSPs' Responses to Subparagraphs (a) and (b), above, and below, in the JSPs' Responses to PPL to JSP-I-27(a).

- (e) *See* the JSPs' Response to Subparagraph (d), above.
- (f) *See* the JSPs' Response to Subparagraph (d), above.
- (g) *See* the JSPs' Response to Subparagraph (d), above.
- (h) *See* the JSPs' Response to Subparagraph (d), above.
- (i) *See* the JSPs' Response to Subparagraph (d), above.
- (j) *See* the JSPs' Response to Subparagraph (d), above.
- (k) *See* the JSPs' Response to Subparagraph (d), above.

WITNESS: Jordan Graham, Tesla, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-25

Re: Petition to Intervene, p. 9, n.3. The Petition states that “Tesla’s Powerwall 3 will not be able to be sold in PPL territory, as it includes an integrated inverter model that is presently not included on, and in the future is unlikely to be included on, PPL’s approved inverter list.”

- (a) Please state whether the integrated inverter model used for Tesla’s Powerwall 3 has been submitted to PPL Electric for approval and inclusion on the Approved Inverter List. If not, please describe whether any Joint Solar Party intends to submit the integrated inverter model used for Tesla’s Powerwall 3 to PPL Electric for approval and inclusion on the Approved Inverter List.
- (b) Please state whether the integrated inverter model for Tesla’s Powerwall 3 complies with the IEEE 1547-2018 standard.
- (c) Please state whether the integrated inverter model for Tesla’s Powerwall 3 complies with the UL 1741 SB standard.
- (d) Please provide all Documents that AHC relied upon in reaching this conclusion and in responding to this interrogatory.
- (e) Please provide all Documents that Enphase relied upon in reaching this conclusion and in responding to this interrogatory.
- (f) Please provide all Documents that SEIA relied upon in reaching this conclusion and in responding to this interrogatory.
- (g) Please provide all Documents that SolarEdge relied upon in reaching this conclusion and in responding to this interrogatory.
- (h) Please provide all Documents that Sun Direct relied upon in reaching this conclusion and in responding to this interrogatory.

- ~~(i) Please provide all Documents that Sunnova relied upon in reaching this conclusion and in responding to this interrogatory.~~
- (j) Please provide all Documents that Tesla relied upon in reaching this conclusion and in responding to this interrogatory.
- (k) Please provide all Documents that Trinity Solar relied upon in reaching this conclusion and in responding to this interrogatory.

j. ANSWER: PPL to JSP-I-25

- (a) The integrated inverter model used for Tesla's Powerwall 3 has not been submitted to PPL Electric for approval and inclusion on the Approved Inverter List. Tesla does not possess response information on other JSPs' plans.
- (b) Yes, the integrated inverter model used for Tesla's Powerwall 3 complies with the IEEE 1547-2018 standard.
- (c) Yes, the integrated inverter model used for Tesla's Powerwall 3 is certified to UL 1741 SB.
- (d) See the JSPs' Response to Subparagraph (j), below.
- (e) See the JSPs' Response to Subparagraph (j), below.
- (f) See the JSPs' Response to Subparagraph (j), below.
- (g) See the JSPs' Response to Subparagraph (j), below.
- (h) See the JSPs' Response to Subparagraph (j), below.
- (i) See the JSPs' Response to Subparagraph (j), below.
- (j) See Ex. PPL to JSP-I-25 Att. JG-1 the attached document from Intertek, a Nationally Recognized Testing Laboratory (NRTL), which is a Test Verification of Conformity showing that the Tesla Powerwall 3 is certified to UL 1741 SB.
- (k) See the JSPs' Response to Subparagraph (j), above.

WITNESS: Jordan Graham, Tesla, Inc.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-26

Re: Petition to Intervene, p. 9, n.3. The Petition states that “[t]oday, Tesla’s Powerwall 3 comprises the majority of the residential battery energy storage system market.”

- (a) Please provide all Documents that AHC relied upon in reaching this conclusion and in responding to this interrogatory.
- (b) Please provide all Documents that Enphase relied upon in reaching this conclusion and in responding to this interrogatory.
- (c) Please provide all Documents that SEIA relied upon in reaching this conclusion and in responding to this interrogatory.
- (d) Please provide all Documents that SolarEdge relied upon in reaching this conclusion and in responding to this interrogatory.
- (e) Please provide all Documents that Sun Direct relied upon in reaching this conclusion and in responding to this interrogatory.
- ~~(f) Please provide all Documents that Sunnova relied upon in reaching this conclusion and in responding to this interrogatory.~~
- (g) Please provide all Documents that Tesla relied upon in reaching this conclusion and in responding to this interrogatory.
- (h) Please provide all Documents that Trinity Solar relied upon in reaching this conclusion and in responding to this interrogatory.

ANSWER: PPL to JSP-I-26

- (a) JSPs clarify their statement in the Petition that the Tesla Powerwall 3 comprises the majority of the residential battery energy storage system

market. The Tesla Powerwall as a family of products – including Powerwall, Powerwall 2, Powerwall+, and Powerwall 3 – comprises a majority of the residential battery energy storage system market. Powerwall 3 is the newest model of the Tesla Powerwall.

See the [December 2023 article](#) from Wood Mackenzie (Ex. PPL to JSP-I-26 Att. JG-1), which includes a graph based on proprietary data, that shows that Tesla Energy accounts for more than half of the US national solar-plus-storage battery manufacturer market shares by installation count from 2018 to 2023. Please note Tesla’s market share as a direct installer of solar-plus-storage systems does not comprise a majority of the segment’s market share, but Tesla’s product, the Powerwall, does in fact comprise a majority of such installations.

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-27

Re: Petition to Intervene, pp. 9-10. The Petition states that “[a]ll the JSPs also share the concern that PPL's controlling customers' exports could bar customers from participating in aggregation programs, an outcome that could be particularly short-sighted, given FERC Order No. 2222's direction to Regional Transmission Organizations to allow DERs to participate in wholesale markets through aggregations.”

- (a) Please identify each Joint Solar Party that is participating in aggregation programs in Pennsylvania and explain in detail its participation in such aggregation programs.
- (b) Please identify each Joint Solar Party that is participating in aggregation programs in PPL Electric's service territory and explain in detail its participation in such aggregation programs.
- (c) Please explain in detail how the Joint Solar Parties allege the Second DER Management Plan “could bar customers from participating in aggregation programs.”
- (d) Please provide all Documents that AHC relied upon in reaching this conclusion and in responding to this interrogatory.
- (e) Please provide all Documents that Enphase relied upon in reaching this conclusion and in responding to this interrogatory.
- (f) Please provide all Documents that SEIA relied upon in reaching this conclusion and in responding to this interrogatory.

- (g) Please provide all Documents that SolarEdge relied upon in reaching this conclusion and in responding to this interrogatory.
- (h) Please provide all Documents that Sun Direct relied upon in reaching this conclusion and in responding to this interrogatory.
- ~~(i) Please provide all Documents that Sunnova relied upon in reaching this conclusion and in responding to this interrogatory.~~
- (j) Please provide all Documents that Tesla relied upon in reaching this conclusion and in responding to this interrogatory.
- (k) Please provide all Documents that Trinity Solar relied upon in reaching this conclusion and in responding to this interrogatory.

ANSWER: PPL to JSP-I-27

- (a) No JSP currently participates in aggregations programs in Pennsylvania. Unlike the 11 states that do so (<https://www.solaredge.com/us/incentives>), Pennsylvania has not yet established programs offering incentives to homeowners to lend their DERs to overcoming local supply shortages.
- (b) No JSP currently participates in aggregations programs in PPL Electric's service territory.
- (c)

PPL's local control of DERs at its discretion deprives aggregators and customers of any level of certainty pertaining to those DERs' behaviors. When structuring a program/offer, many aggregators' approaches to customers are predicated on this behavioral certainty; aggregators commonly mandate that they (and they alone) control DERs that are enrolled and participating in their programs.

When there is no guarantee as to the availability of a DER (given that PPL can exercise control over the DER at its discretion), it may eliminate an aggregator's ability to offer certain forms of compensation to the customer for participation in aggregator programs, thereby eliminating customer eligibility, or reducing the customer's motivation to enroll their DERs with those aggregators, as well as limiting aggregators' opportunities to offer grid services in PPL territory. This could frustrate the ability of an aggregator such as SolarEdge from performing a service that benefits the grid, such as manipulating inverters to provide voltage support, for which the customers and SolarEdge are paid a fee. Currently, PPL is the only

entity empowered by its program to manipulate inverters so as to regulate voltage, which, SolarEdge maintains, it is doing in a more costly way than SolarEdge could do.

This could frustrate the ability of an aggregator such as SolarEdge from enabling customers to participate in utility programs such as SGIP, under which customers voluntarily permit SolarEdge to manipulate their inverters so as to offset natural gas plant peaking, and for which customers receive compensation, and SolarEdge, as the third-party aggregator, is paid a fee.

It could also frustrate the ability of a high-level aggregator such as Energy Hub, from running programs for utilities (in Energy Hub's case, the utility is Eversource), in which Energy Hub serves as the coordinator of numerous aggregators such as SolarEdge, but does not itself manipulate the customers' inverters.

All these market opportunities are precluded by PPL's control over customers' DER.

Additionally, *see* Response to PPL to JSP-I-24(b).

- (d) *See* the documents identified by the JSPs in their Responses to Subparagraphs (a) – (c), above.
- (e) *See* the documents identified by the JSPs in their Responses to Subparagraphs (a) – (c), above.
- (f) *See* the documents identified by the JSPs in their Responses to Subparagraphs (a) – (c), above.
- (g) *See* the documents identified by the JSPs in their Responses to Subparagraphs (a) – (c), above.
- (h) *See* the documents identified by the JSPs in their Responses to Subparagraphs (a) – (c), above.
- ~~(i) *See* the documents identified by the JSPs in their Responses to Subparagraphs (a) – (c), above.~~
- (j) *See* the documents identified by the JSPs in their Responses to Subparagraphs (a) – (c), above.
- (k) *See* the documents identified by the JSPs in their Responses to Subparagraphs (a) – (c), above.

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-28

Re: Answer, p. 2. The Answer claims that “the JSPs have experienced significantly increased project and service visit costs caused by the need to coordinate with PPL, and by the limits on types of equipment able to be used under PPL’s program, all of which the JSPs bear themselves or pass on to customers.”

- (a) Please explain in detail the “significantly increased project and service visit costs caused by the need to coordinate with PPL” experienced by the Joint Solar Parties.
- (b) Please explain in detail the “limits on types of equipment able to be used under PPL’s program” experienced by the Joint Solar Parties.
- (c) Please identify all inverters that the Joint Solar Parties use in Pennsylvania or manufacture for use in Pennsylvania that are certified to IEEE 1547-2018 and UL 1741 SB but are not on the Approved Inverter List.
- (d) Please provide all Documents that AHC relied upon in reaching this conclusion and in responding to this interrogatory.
- (e) Please provide all Documents that Enphase relied upon in reaching this conclusion and in responding to this interrogatory.
- (f) Please provide all Documents that SEIA relied upon in reaching this conclusion and in responding to this interrogatory.
- (g) Please provide all Documents that SolarEdge relied upon in reaching this conclusion and in responding to this interrogatory.

- (h) Please provide all Documents that Sun Direct relied upon in reaching this conclusion and in responding to this interrogatory.
- ~~(i) Please provide all Documents that Sunnova relied upon in reaching this conclusion and in responding to this interrogatory.~~
- (j) Please provide all Documents that Tesla relied upon in reaching this conclusion and in responding to this interrogatory.
- (k) Please provide all Documents that Trinity Solar relied upon in reaching this conclusion and in responding to this interrogatory.

ANSWER: PPL to JSP-I-28

- (a) *See* Trinity Solar's Responses to PPL to JSP-I-1(a)(3), and PPL to JSP-I-2(a)(1), and Sun Directed's Responses to PPL to JSP-I-2(a)(1) and PPL to JSP-I-13
- (b) *See* AHC's Responses to PPL to JSP-I-2(a)(3), (a)(7); Sun Directed's Responses to PPL to JSP-I-2(a)(1), (a)(4), (a)(7); Tesla's Responses to PPL to JSP-I-2(a)(1), (a)(7); and Trinity Solar's Response to PPL to JSP-I-2(a)(1).
- (c) *See* Tesla Response to PPL to JSP-I-1.
- (d) *See* the documents identified by the JSPs in their responses to Subparagraphs (a) – (c), above.
- (e) *See* the documents identified by the JSPs in their responses to Subparagraphs (a) – (c), above.
- (f) *See* the documents identified by the JSPs in their responses to Subparagraphs (a) – (c), above.
- (g) *See* the documents identified by the JSPs in their responses to Subparagraphs (a) – (c), above.
- (h) *See* the documents identified by the JSPs in their responses to Subparagraphs (a) – (c), above.
- ~~(i) *See* the documents identified by the JSPs in their responses to Subparagraphs (a) – (c), above.~~
- (j) *See* the documents identified by the JSPs in their responses to Subparagraphs (a) – (c), above.

- (k) *See* the documents identified by the JSPs in their responses to Subparagraphs (a) – (c), above.

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-29

Re: Answer, pp. 2-3. The Answer claims that “the JSPs have witnessed that all of the above has increased costs to customers, deprived customers of the value of their DERs without compensation, deprived customers of their ability to choose the types of DERs in which they would invest, harmed customers' experience with D[E]Rs, with their solar system providers, and with PPL, and generally, deterred customers from adopting DERs in PPL territory.”

- (a) Please explain in detail how the Pilot Program has “increased costs to customers.”
- (b) Please explain in detail how the Pilot Program has “deprived customers of the value of their DERs without compensation.”
- (c) Please explain in detail how the Pilot Program has “harmed customers' experience with D[E]Rs.”
- (d) Please explain in detail how the Pilot Program has “harmed customers' experience with . . . their solar system providers.”
- (e) Please explain in detail how the Pilot Program has “harmed customers' experience with . . . PPL.”
- (f) Please explain in detail how the Pilot Program has “deterred customers from adopting DERs in PPL territory.”
- (g) Please provide all Documents that AHC relied upon in reaching this conclusion and in responding to this interrogatory.

- (h) Please provide all Documents that Enphase relied upon in reaching this conclusion and in responding to this interrogatory.
- (i) Please provide all Documents that SEIA relied upon in reaching this conclusion and in responding to this interrogatory.
- (j) Please provide all Documents that SolarEdge relied upon in reaching this conclusion and in responding to this interrogatory.
- (k) Please provide all Documents that Sun Direct relied upon in reaching this conclusion and in responding to this interrogatory.
- ~~(l) Please provide all Documents that Sunnova relied upon in reaching this conclusion and in responding to this interrogatory.~~
- (m) Please provide all Documents that Tesla relied upon in reaching this conclusion and in responding to this interrogatory.
- (n) Please provide all Documents that Trinity Solar relied upon in reaching this conclusion and in responding to this interrogatory.

ANSWER: PPL to JSP-I-29

- (a) PPL's Pilot Program has limited the types of inverters that can be installed to those on its Approved Smart Inverter List, which has forced some installers to purchase more expensive inverters than they would otherwise and to pass through those additional costs to customers. PPL's Second DER Management Plan threatens to further increase customer costs by restricting innovative business models used to decrease upfront system costs, as described in JSP-I-19 and JSP-I-24(b).
- (b) See responses to JSP-I-4 through JSP-I-6, JSP-I-10 through JSP-I-13, JSP-I-16 through JSP-I-23 for member-specific harms that are illustrative. Please see JSP responses to JSP-I-24(b), JSP-I-27 through JSP-I-32 and JSP-I-35 for responses to other questions about harms to the solar industry.
- (c) *See* Response to JSP-I-29(b).
- (d) *See* Response to JSP-I-29(b).

- (e) *See* Response to JSP-I-29(b).
- (f) *See* Response to JSP-I-29(b).
- (g) – (n). *See* the documents identified associated with JSP responses to JSP-I-4 through JSP-I-6, JSP-I-10 through JSP-I-13, JSP-I-16 through JSP-I-23.

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-30

Re: Answer, p. 4. The Answer claims that the Pilot Program has “deprived customer- and third-party owners of the full value of the DERs in which they invested, without compensation.”

- (a) Please explain in detail how the Pilot Program has “deprived customer- and third-party owners of the full value of the DERs in which they invested, without compensation.”
- (b) Have the Joint Solar Parties performed any calculations, studies, or analyses quantifying the alleged value deprived to customer- and third-party owners by the Pilot Program? If so, please provide any such calculation, study, or analysis.
- (c) Please provide all Documents that AHC relied upon in reaching this conclusion and in responding to this interrogatory.
- (d) Please provide all Documents that Enphase relied upon in reaching this conclusion and in responding to this interrogatory.
- (e) Please provide all Documents that SEIA relied upon in reaching this conclusion and in responding to this interrogatory.
- (f) Please provide all Documents that SolarEdge relied upon in reaching this conclusion and in responding to this interrogatory.
- (g) Please provide all Documents that Sun Direct relied upon in reaching this conclusion and in responding to this interrogatory.

- ~~(h) Please provide all Documents that Sunnova relied upon in reaching this conclusion and in responding to this interrogatory.~~
- (i) Please provide all Documents that Tesla relied upon in reaching this conclusion and in responding to this interrogatory.
- (j) Please provide all Documents that Trinity Solar relied upon in reaching this conclusion and in responding to this interrogatory.

ANSWER: PPL to JSP-I-30

- (a) *See* responses to JSP-I-4 through JSP-I-6, JSP-I-10 through JSP-I-13, JSP-I-16 through JSP-I-23 for member-specific harms that are illustrative. Please see JSP responses to JSP-I-24(b), JSP-I-27 through JSP-I-32 and JSP-I-35 for responses to other questions about harms to the solar industry, including SEIA's members. All of these harms and limits on how systems can be aggregated and used have deprived customers and third-party owners of the full value of the DER.
- (b) The JSPs will supplement their response to this question.
- (c) – (j) *See* the documents identified associated with JSP responses to JSP-I-4 through JSP-I-6, JSP-I-10 through JSP-I-13, JSP-I-16 through JSP-I-23.

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC

**Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223**

QUESTION: PPL to JSP-I-31

Re: Answer, p. 5. The Joint Solar Parties claim that PPL Electric “has failed to evaluate alternative, potentially less costly, methods for achieving its program objectives (such as flexible interconnection processes that allow more DERs to interconnect without the need for grid upgrades; or Virtual Power Plants that compensate customers for having their DERs provide grid services when they are needed).”

- (a) Do the Joint Solar Parties assert that the Second DER Management Plan would prevent “flexible interconnection processes that allow more DERs to interconnect without the need for grid upgrades”?
- (b) Do the Joint Solar Parties assert that the Second DER Management Plan would prevent “Virtual Power Plants that compensate customers for having their DERs provide grid services when they are needed”?
- (c) Have any of the Joint Solar Parties performed any study, analysis, or cost benefit analysis related to flexible interconnections or Virtual Power Plants? If so, please provide any such study, analysis, or cost benefit analysis.

ANSWER: PPL to JSP-I-31

- (a) No. The JSPs are asserting that flexible interconnection processes are a better way to achieve the purported objectives to the Second DER Management Plan (to allow more DERs to interconnect without the need for grid upgrades).
- (b) Yes. *See* the JSPs Responses to PPL to JSP-I-24(b), JSP-I-27 and I-30. *See also* PPL Response to OCA-I-5 Att 1 (PPL Concept Paper, “Strategic Management and Advanced Resource Transformation for Distribution

System Orchestration (SMART-DSO), Submitted to the DOE in response to DE-FOA-0003331, Solar Technologies' Rapid Integration and Validation for Energy Systems (STRIVES), at p. 3.

- (c) JSPs have extensive direct experience participating in flexible interconnection programs and in acting as aggregators in Virtual Power Plant programs. There are numerous public-facing studies and reports on the best practices associated with flexible interconnection and VPPs. The JSPs will supplement this Response with production of studies and/or reports.

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-32

Re: Answer, p. 5. The Joint Solar Parties claim that PPL Electric “has failed to explain how its proposed program will not interfere with state and national clean energy objectives (for example, whether PPL’s management of customer generation will make it difficult for customers to participate in DER aggregation programs, as envisioned by FERC Order No. 2222, and being explored by this Commission, in its February 22, 2024 Advance Notice of Proposed Rulemaking Order (L-2023-3044115), or with PURPA’s mandate that utilities allow customers to self-generate electricity and be compensated for it).”

- (a) Please explain the detail how the Second DER Management Plan would “interfere with state and national clean energy objectives.”
- (b) Please explain in detail how the Second DER Management Plan would “make it difficult for customers to participate in DER aggregation programs.”
- (c) Please explain in detail how the Second DER Management Plan conflicts with FERC Order No. 2222.
- (d) Please explain in detail how the Second DER Management Plan conflicts with “PURPA’s mandate that utilities allow customers to self-generate electricity and be compensated for it.”

ANSWER: PPL to JSP-I-32

- (a) *See* responses to JSP-I-4 through JSP-I-6, JSP-I-10 through JSP-I-13, JSP-I-16 through JSP-I-23 for member-specific harms that are illustrative. Please see JSP responses to JSP-I-24(b), JSP-I-27 through

JSP-I-32 and JSP-I-35 for responses to other questions about harms to the solar industry, including SEIA's members. By harming the user experience with solar, making it more difficult and expensive for installers and OEMs to conduct business and PPL, and stifling various DER-related business models, PPL's Second DER Management Plan would interfere with state and national clean energy objectives by discouraging installations and innovation.

- (b) *See* Responses to JSP-I-12, I-24(b) and I-27(c).
- (c) *See* Responses to JSP-I-12, I-24(b) and I-27(c).
- (d) Customers may not be allowed to self-generate during certain time periods if PPL chooses to reduce or eliminate solar or battery output, contrary to the spirit of PURPA, which is to encourage small power production.

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC.

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-33

Re: Protest, pp. 13-15.

- (a) Please produce any studies sponsored, in whole or in part, by any of the Joint Solar Parties that evaluated the effectiveness and/or costs of any DER interconnection requirements or DER function implementations intended to reduce the impact of DERs, improve distribution system voltage management, or facilitate greater DER penetration.
- (b) Please produce any studies performed, in whole or in part, by any of the Joint Solar Parties that evaluated the effectiveness and/or costs of any DER interconnection requirements or DER function implementations intended to reduce the impact of DERs, improve distribution system voltage management, or facilitate greater DER penetration.

ANSWER: PPL to JSP-I-33

- (a) The JSPs will supplement their response to this question.
- (b) Appears to be a duplicate of (a).

WITNESS: Jordan Graham, Tesla, Inc.

**Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223**

QUESTION: PPL to JSP-I-34

Re: Protest, p. 14. Has Tesla submitted any of its inverters or equipment for PPL Electric to test and evaluate for inclusion on the Company's Approved Inverter List? If so, please identify all such inverters or equipment and when Tesla submitted each of them for approval. If not, please explain in detail why not.

ANSWER: PPL to JSP-I-34

Tesla has not submitted any of its inverters for PPL to test for inclusion on PPL's Approved Inverter List. Tesla makes frequent decisions regarding where to sell its products and where to conduct business based on the values, costs and customer experience associated with doing business in a given region or territory. In the case of PPL, Tesla deemed that the difficulties and deprivations associated with subjecting Tesla-manufactured inverters to utility-level compatibility testing and subsequent utility control were too substantial and posed significant risks to Tesla's customers. Utility control is inconsistent with consumer protection best practices, because it involuntarily deprives customers of values associated with their DER systems. Additionally, PPL's Pilot/assertion of utility control has been implemented in a way that has damaged customer systems, disrupted user experience, and caused ongoing customer frustration under the program. In addition to the unique complexities associated with PPL's DER Management Pilot, Tesla also opposes as a matter of policy and precedent the ability of a utility to seize control of a customer's system and to force that customer to provide uncompensated grid services. Despite Tesla's objections to the Pilot's design, Tesla continued to install residential energy systems in PPL's territory under the Pilot using third-party inverters until Tesla exited the territory and stopped taking new direct install orders on July 18, 2023.

WITNESS: Joan White, Solar Energy Industries Association

Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223

QUESTION: PPL to JSP-I-35

Re: Protest, p. 15. The Joint Solar Parties allege that the “[h]arms to the public interest” include “the impacts in Pennsylvania and beyond of creating an inconsistent patchwork of interconnection requirements.”

- (a) Is it the Joint Solar Parties’ position that the interconnection requirements for all other electric utilities, besides PPL Electric, are the same? If not, please explain in detail the differences among those utilities’ interconnection requirements.
- (b) Is it the Joint Solar Parties’ position that the interconnection requirements for all other states, besides Pennsylvania, are the same? If not, please explain in detail the differences among those utilities’ interconnection requirements.
- (c) Are the Joint Solar Parties aware of any electric utility or state requirements that reference or implement the data interoperability functionality specified in Clause 10 of IEEE 1547-2018? If so, please identify all such electric utility or state requirements and provide copies of all Documents relied upon in reaching that conclusion and in responding to this interrogatory.

(l) ANSWER: PPL to JSP-I-35

- (a) No. It is the JSPs’ position that certain PPL interconnection requirements – that the applicant cede control of his or her equipment, that applicant install certain pre-approved utility equipment, and that only inverters tested and approved by the utility are allowed to be installed – are unique to PPL as compared with those required by any other Pennsylvania EDC. PPLs’ requirement that customers cede control of their equipment uniquely impedes a host of business opportunities that depend upon customers’ (or third parties’) maintenance of control over their equipment. PPL’s requirement that inverters not only adhere to national standards, but must be tested and approved for compatibility with PPL’s bespoke DER Management device in order to operate in PPL’s territory, would cause a

patchwork of compliance if adopted by all utilities – because utility-specific DER Management devices could all have nuances that complicate compatibility.

- (b) No. The question seeks that the JSPs prove the negative, which the JSPs cannot do. It is the JSP's position that certain of PPL's interconnection requirements, described above, are unique to PPL as compared with those required by any other state.
- (c) The JSPs will supplement their response to this question.

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC

**Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223**

QUESTION: PPL to JSP-I-36

Re: Petition to Intervene, p. 1. Have any of the Joint Solar Parties received anything of financial value in exchange for participating in this proceeding? If so, for each item received please identify:

- (a) What was received;
- (b) The entity that received it;
- (c) The entity that provided it;
- (d) When it was offered; and
- (e) When it was accepted.

ANSWER: PPL to JSP-I-36.

As the JSPs answer is “No,” they are not required to response to (a) – (e).

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC

**Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223**

QUESTION: PPL to JSP-1-37

Re: Petition to Intervene, p. 1. Have any of the Joint Solar Parties offered anything of financial value to another entity in exchange for participating in this proceeding? If so, please identify:

- (a) What was offered;
- (b) The entity(s) that were offered it;
- (c) The entity(s) that offered it;
- (d) When it was offered;
- (e) Whether it was accepted or rejected; and
- (f) When it was accepted or rejected.

ANSWER: PPL to JSP-I-37.

As the JSPs answer is “No,” they are not required to response to (a) – (g).

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC

**Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223**

QUESTION: PPL to JSP-I-38

Re: Joint Solar Parties' Prehearing Memorandum, p. 7. Please identify each person you plan to call as a fact witness in this proceeding. For each person, please:

- (a) Provide the person's name, business address, background, and qualifications;
- (b) Explain in detail the subject matter(s) on which the witness is expected to testify; and
- (c) Provide the source(s) of information relied upon or referenced by the witness.

ANSWER: PPL to JSP-I-38:

The JSPs will, and reserve the right to, supplement these responses in their Direct Testimony, to be submitted September 24, 2024. Additionally, the JSPs reserve the right to call any of the below as expert witnesses.

For AHC

- (a) Nicolas Zavala
- (b) Mr. Zavala will testify on the impacts of the Pilot on AHC's solar business in PPL territory.
- (c) Source(s) of information relied upon or referenced by the witness have been produced in conjunction with these discovery requests, and/or will be supplemented and identified in conjunction with the witness' testimony.

For Enphase

- (a) Marc Monbouquette
Senior Manager, Policy and Governmental Affairs – Electrification
Enphase Energy, Inc.
47281 Bayside Parkway
Fremont, CA 94538
- (b) Mr. Monbouquette will testify on the burden on the manufacturer of obtaining PPL's approval on use of the manufacturer's inverter in PPL territory, and of ensuring the operability of said manufacturer.
- (c) Source(s) of information relied upon or referenced by the witness have been produced in conjunction with these discovery requests, and/or will be supplemented and identified in conjunction with the witness' testimony.

For SEIA

- (a) Joan White, Director of Interconnection and Storage
Director of Storage and Interconnection Policy
Solar Energy Industry Association
1425 K Street NW, #1000
Washington, DC 20005
- (b) The JSPs will provide this information in testimony.
- (c) Source(s) of information relied upon or referenced by the witnesses have been produced in conjunction with these discovery requests, and/or will be supplemented and identified in conjunction with the witnesses' testimony.

For SolarEdge

- (a) Jason Bobruk
Director, Code Compliance

Alex Dinh
Manager, Saas & Digital

SolarEdge Technologies, Inc.
700 E. Tasman Drive
Milpitas, CA 95035
- (b) Mr. Bobruk will testify on the impacts of PPL's Pilot and proposed 2nd DER Management Plan on third party performance of grid services in PPL territory.

Mr. Dinh will testify on the burden on the manufacturer of obtaining PPL's approval on use of the manufacturer's inverter in PPL territory, and of ensuring the operability of said manufacturer.
- (c) Source(s) of information relied upon or referenced by the witnesses have been produced in conjunction with these discovery requests, and/or will be supplemented and identified in conjunction with the witnesses' testimony.

For Sun Directed

- (a) Michael Shadow, Chief Executive Officer
Sun Directed Solar Energy Systems
2820 E. College Ave., Suite K
State College, PA 16801

- (b) Mr. Shadow will testify on the impacts of the Pilot on Sun Directed's solar business in PPL territory.
- (c) Source(s) of information relied upon or referenced by the witness have been produced in conjunction with these discovery requests, and/or will be supplemented and identified in conjunction with the witness' testimony.

For Tesla

- (a) Jordan Graham, Kevin Joyce
3500 Deer Creek
Palo Alto, CA 94304
- (b) Mr. Graham will testify on the impacts of the Pilot on Tesla's solar business in PPL territory. Mr. Joyce will testify on PPL's program as a blocker for aggregated third party grid services.
- (c) Source(s) of information relied upon or referenced by the witnesses have been produced in conjunction with these discovery requests, and/or will be supplemented and identified in conjunction with the witness' testimony.

For Trinity Solar

- (a) Russell Pierson
Regional Vice-President of Operations
Trinity Solar, LLC
2211 Allenwood Road, Wall, NJ

Mr. Pierson's background and qualifications are identified in his CV, a copy of which is being produced as Ex. PPL to JSP-I-38 Att. RP-1.

- (b) Mr. Pierson will testify on the impacts of the Pilot on Trinity's solar business in PPL territory.
- (c) Source(s) of information relied upon or referenced by the witnesses have been produced in conjunction with these discovery requests, and/or will be supplemented and identified in conjunction with the witnesses' testimony.

For the JSPs

- (a) William Stahlman, Founder
Green Way Solar
43 Doe Run Road
Manheim, PA 17545
- (b) Mr. Stahlman will testify on the harms suffered by installers under the Pilot.
- (c) Source(s) of information relied upon or referenced by the witness have been produced in conjunction with these discovery requests, and/or will be supplemented and identified in conjunction with the witness' testimony.

WITNESSES: Nicolas Zavala, American Home Contractors, Inc.
Marc Monbouquette, Enphase Energy, Inc.
Joan White, Solar Energy Industries Association
Jason Bobruk, SolarEdge Technologies, Inc.
Michael Shadow, Sun Directed
Jordan Graham, Tesla, Inc.
Ed Merrick, Trinity Solar, LLC

**Joint Solar Parties
Response to the Set 1 Data Request of
PPL Electric Utilities Corporation
Dated August 27, 2024
Docket No. P-2024-3049223**

QUESTION: PPL to JSP-I-39

Re: Joint Solar Parties' Prehearing Memorandum, p. 7. Please identify each person you plan to call as an expert witness in this proceeding. For each person, please:

- (a) Provide the person's name, business address, background, and qualifications;
- (b) Explain in detail the subject matter(s) on which the witness is expected to testify;
- (c) Provide the source(s) of information relied upon or referenced by the witness; and
- (d) Provide a copy of the expert witness's current curriculum vitae.

ANSWER: PPL to JSP-I-39

For the JSPs:

- (a) Brian Lydic
Chief Regulatory Engineer, Interstate Renewable Energy Council ("IREC")
125 Wolf Road, Suite 100
Albany, NY 12205
- (b) IEEE 1547-2018
- (c) IEEE 1547-2018

- (d) A copy of Mr. Lydic's CV will be included in his testimony, to be filed in four days.

For SEIA:

- (a) Joan White
Director of Storage and Interconnection Policy
Solar Energy Industry Association
1425 K Street NW, #1000
Washington, DC 20005
- (b) The JSPs will provide this information in testimony.
- (c) The JSPs will provide this information in testimony.
- (d) A copy of Ms. White's CV will be included in her testimony, to be filed in four days.

For Tesla:

- (a) Kevin Joyce, Global Lead for Virtual Power Plants, Grid Services and Electricity Retail Programs
Tesla, Inc.
3500 Deer Creek Road
Palo Alto, CA 94304
- (b) Mr. Joyce will testify on aggregation programs.
- (c) The JSPs will provide this information in testimony.
- (d) A copy of Mr. Joyce's CV will be included in his testimony, to be filed in four days.