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**TOTAL ENERGIES'**  
**EXHIBIT 1**



### Distribution Interconnection Impact Review

PPL Electric Utilities ("PPL Electric" or "the Company") has completed a Distribution Interconnection Impact Review (IIR) of the proposed generation ("Generator") shown below in Table 1.

The intent of this IIR is to estimate the scope of work, engineering, cost, testing, and construction schedule of distribution system reinforcements, if applicable, required to interconnect the Generator to PPL Electric's distribution grid at the location specified by the Interconnection Customer. Distribution transformer cost and lead times are included in this IIR if required. This IIR is valid for 45 calendar days from receipt and may be updated by PPL Electric, as required, to reflect changes in application queue position, which may result in changes to the estimated cost and/or lead time.

**Table 1: Interconnection Customer Details**

<b>Interconnection Customer</b>	Solar Star Dornsife 1 LLC
<b>Application Site Address</b>	5476 PA-225, Dornsife, PA 17823
<b>PPL Electric Work Order</b>	58756403
<b>Customer's Account Number</b>	New Service
<b>Point of Interconnection Grid Number</b>	27116N21571
<b>PPL 12 kV Circuit</b>	HUNTER 01-01
<b>Generation Size (kW)</b>	3000
<b>Voltage of PPL Service</b>	7.2/12.47kV
<b>Generation Type</b>	solar
<b>Approved for Net Metering*</b>	Under Review
<b>Distance to Three Phase (mi)</b>	0.00
<b>Distance to Substation (mi)</b>	2.545
<b>Energy Storage (Y/N)</b>	No

**\*For applications 500kW and greater that are applying for Net Metering, the applicant is required to submit all relevant regulatory documents in a timely manner for PPL submission of the NM Recommendation to the PA PUC. Please contact [businessaccounts@pplweb.com](mailto:businessaccounts@pplweb.com) to submit any outstanding documents or for any questions, concerns, or to check the status of this application's Net Metering approval.**

As a requirement for interconnection, PPL Electric performs an engineering impact analysis of each Interconnection Customer's Generator applying to interconnect to the Distribution system on a first come, first served basis. As a result of this analysis, the Interconnection Customer will be responsible for:

1. The cost of constructing new or upgrades to the Company's facilities which are required to safely interconnect the Generator to the distribution grid while also maintaining grid reliability. See Table 2 below.
2. The installation of additional, site specific, Interconnection Customer equipment. See Table 3 below.

## Results of PPL Electric's Engineering Impact Analysis

PPL Electric has completed an engineering impact analysis of the Generator as part of our Distribution Planning, Interconnection, and Protection requirements. Table 2 below provides the interconnection evaluation criteria reviewed during this engineering analysis and if new, or upgrades to, PPL Electric's facilities, referred to as "reinforcements", are required.

**Table 2: Evaluation Criteria for Interconnection to PPL Electric's Electric Distribution System**

<b>Interconnection Evaluation Criteria:</b>	<b>Result*</b>
<b>Point of Common Coupling (PCC)** Recloser:</b> <ul style="list-style-type: none"> <li>Required for generators greater than or equal to 500kW and/or total transformation capability greater than 2.5MVA.</li> </ul>	Required
<b>Voltage Reinforcement:</b> <ul style="list-style-type: none"> <li>Voltage support is required when the generator under review causes an unacceptable voltage or flicker condition.</li> </ul>	Required
<b>Line Devices Reinforcements:</b> <ul style="list-style-type: none"> <li>Reinforcements are required if the generator under review causes device overloads, islanding risk, or protection coordination issues.</li> </ul>	Not Required
<b>Line Extension Reinforcements:</b> <ul style="list-style-type: none"> <li>Reinforcements are required if the generator under review causes conductor overloads or if existing service is not available at the proposed generator's location.</li> </ul>	Required
<b>Substation Reinforcements:</b> <ul style="list-style-type: none"> <li>Substation protection reinforcements may be required if the generator under review causes back feeding to the transmission system or other substation issues.</li> </ul>	Required
<b>Service Transformer Installation/Upgrade:</b> <ul style="list-style-type: none"> <li>Required if the customer's existing service transformer will be overloaded due to aggregate generation on the transformer.</li> </ul>	Not Required

\* If result is shown as "Required", details will be delineated below in Table 4.

\*\*Formerly Point of Interconnection (POI) recloser, as of 2023.

PPL Electric's engineering impact analysis also evaluates the need for additional required equipment to be procured, installed, owned, and maintained by the Interconnection Customer, while allowing PPL Electric access, if required. In addition, this analysis identifies required settings, including but not limited to relaying, recloser, and/or SCADA settings. Table 3 below provides the interconnection evaluation criteria reviewed during the engineering analysis and any additional, site specific, Interconnection Customer equipment. ***Please Note: The costs associated with these requirements are only for the review and approval of the Interconnection Customer's drawings by PPL Electric Engineering.***

**Table 3: Summary of Requirements to Interconnection Customer's Point of Interconnection**

<b>Interconnection Evaluation Criteria: **</b>	
<i>Review for Required Additional Interconnection Customer Equipment at the Interconnection Customer's Expense</i>	<b>Result</b>
<b>Intertie Relaying Requirements:</b> <ul style="list-style-type: none"> <li>Intertie Protective Relaying (IPR) is required for inverter-based generation greater than or equal to 5MW or if analysis determines a risk at or above 500kW</li> <li>Intertie Protective Relaying (IPR) is required for non-inverter-based generation when analysis indicates islanding concerns or the generator under review is greater than or equal to 2.5MW</li> </ul>	Not Required

\*\* Refer to Appendix I for more information on each criterion.

**Summary of Costs**

Table 4 reflects the summary of PPL Electric Reinforcements and Interconnection Customer Requirements outlined in tables 2 and 3 above. The "Total Interconnection Customer Cost Estimate" and "Estimated Time to Complete Construction from Receipt of NoCI" displayed is an order of magnitude estimate and are subject to cost of materials, labor, and final design. Costs will be adjusted after engineering and design is completed.

**Table 4. Summary of Reinforcements to PPL Electric's System, from Table 2, and Order of Magnitude Costs**

<b>Description</b>	<b>Item Line Cost</b>
Install Point of Common Coupling Recloser	\$85,000
Reconductor Primary for Voltage Support	\$749,000
Circuit Breaker Protection Upgrade for Sync Check	\$105,000
Substation SCADA Upgrade	\$30,000
Substation Upgrade due to Reverse Power Flow	\$4,500,000
<b>Total Interconnection Customer Cost Estimate*</b>	<b>\$5,469,000</b>
<b><i>Estimated Time to Complete Construction from Receipt of NoCI</i></b>	<b>2 - 2.5 years</b>

**\*Estimated costs for service work are based on the estimated cost of the transformer and 250 ft. of secondary conductor work. Should the Interconnection Customer confirm intention to proceed with the project, by return of the Notification of Customer Intent, service requirements and actual costs will be determined by PPL Engineering on-site.**

Due to reverse power flow onto transmission, substation reinforcements are required to maintain adequate system protection. Reverse power flow is determined by comparing the proposed Generator's maximum inverter rating against the distribution bus' historic loading during the hours of export plus any queued DER applications. The required protection standard is a transformer differential scheme to be able to identify when reverse flow is present and operate appropriately during potential outage causing scenarios. This requires a remotely operable and programmable protective device on the transmission and distribution side of the substation transformer. Substations with two transformers require this protection scheme for each transformer, as well as a similar protective device and differential scheme to ensure the safe operation of the tie between the distribution bus for each transformer.



The current substation configuration does not have adequate space for the safe installation and maintenance of the additional protective devices, and the full 1 transformer substation must be rebuilt to accommodate the necessary reinforcements. This includes, but is not limited to, the relocation of transmission assets, relocation of the substation transformer, and installation of a new 12kV bus. The project may also include acquiring new transformers or land rights. There are 2 new major protective devices to be installed for the transformer differential scheme.



## Next Steps

This Interconnection Impact Review results in PPL Electric requiring system and/or Interconnection Customer reinforcements as shown in Table 2 and/or Table 3. Before engineering and design may begin, **PPL Electric must receive a signed Notification of Customer Intent (NoCI).**

The Interconnection Customer has **45 calendar days from the receipt of this IIR** to return the required notice (Attachment II). The Interconnection Customer has **45 calendar days from the receipt of this IIR** to make a non-refundable payment of the accompanying upfront invoice. The upfront invoice will equal 25% of the estimated reinforcement costs. Receipt of this notice and payment will finalize the applicant's position in the interconnection queue.

Once the signed notice to move forward is received:

- Detailed engineering of the listed reinforcements will begin.
- Upon completion of engineering, a final cost of the required work and a final invoice will be provided. The final invoice will be the difference between the final cost and the upfront invoice. The Interconnection Customer must pay this final invoice within 45 days of receipt. If PPL Electric does not receive payment within 45 days, the Interconnection Customer's application will be cancelled and removed from the interconnection queue.

PPL Electric may arrange a call to discuss more fully the technical considerations and milestones associated with this project, if needed. The specification of system reinforcements is subject to change due to changes to standards or regulations. If you have any questions or concerns regarding these matters, your PPL Electric contact is Leonard Nwankwo, Interconnection Project Manager, at phone # 610-774-6930.

Finally, the Generator may not be placed in service until an inspection is successfully completed and submitted, and PPL Electric provides final written approval via a signed Certificate of Completion (COC).

This response may be forwarded to your consultant or contractors as needed. For important additional Terms and Conditions, refer to Attachment I.

Interconnection Impact Review issued by:

**PPL Electric Utilities**

*Distribution Interconnections & Tariff Rules  
Distribution Planning*

Date: 9/17/2024



## **Attachment I: Terms and Conditions**

### **DER Management Device:**

Effective January 1, 2023, new DERs interconnecting with the Company's distribution system must have smart inverters installed that meet: (1) UL 1741 Supplement B and (2) the Company's testing for the communications requirements under the 2018 revisions to IEEE 1547-2018 in accordance with the DER Management Plan as approved by the Pennsylvania Public Utility Commission (PUC). Additionally, a Company-owned DER Management device will be installed on the Interconnection Customer's meter and inverter, and a volt/VAR curve and ride-through settings will be remotely applied to all inverters. For more information, please visit [www.pplelectric.com/REMSI](http://www.pplelectric.com/REMSI).

### **Metering Equipment Installation at the Point of Common Coupling:**

PPL Electric will design and supply the required metering equipment at no cost. However, the installation of the meter base and the secondary wiring connections are the responsibility of the Interconnection Customer. All metering installations must meet applicable PPL Electric requirements. The equipment should be housed in a suitable metering cabinet or similar enclosure and must be accessible to the Company's metering personnel.

### **Net Metering:**

All applications are reviewed for potential Net Metering compliance. However, for Interconnection Customer applications with a nameplate equal to or greater than 500 kW, PA PUC approval is required to secure Net Metering status. If, Net metering status is requested, PPL Electric will prepare the recommendation to the PA PUC. Note: Traditionally, this recommendation is prepared in parallel with the Interconnection Impact Review (IIR). As such, PUC approval may not be secured prior to the IIR being issued.

### **Generation Operation Requirements for Two Line Supply:**

The Generator may only be operated on a single primary feeder. The only scenario where the Interconnection Customer may be allowed to operate the generator on two primary feeders would be in a momentary paralleling situation. Momentary paralleling may be allowed under the direct supervision of the PPL Electric System Operations for switching for maintenance or emergency purposes or when returning manually back to the normal source from the alternate source. This will permit load transfers from one source to the other without dropping any load.

### **Intertie Relaying Equipment:** *Refer to Table 3 to determine if required.*

An Intertie Protective Relaying (IPR) scheme is required at a facility when non-inverter based generation causes a risk of islanding at or above 500kW or is greater than or equal to 2.5MW. IPR is required for inverter-based generation when the total facility generation is greater than or equal to 5MW. If required, please refer to the PPL Electric website for the IPR requirements as noted below. PPL Electric's preferred relay for IPR is the SEL-751 relay package. As a failure of the single microprocessor-based relay will disable the protection, PPL Electric requires that a backup relay be installed, or the generation is disabled if the single relay is out of service. Suitable choices for backup are the SEL 351-1 or SEL-751 packages. Note: the SEL-751-A relay is not allowed.



Relay and Control Documents, Parallel Operation of Generation on Distribution 12kV and Below:  
<https://www.pplelectric.com/utility/about-us/electric-rates-and-rules/customer-owned-generation/distributed-generation-documents>

Point of Common Coupling (PCC) Requirements for Distribution Voltage Customer-Owned Facilities 12kV Supply:  
<https://www.pplelectric.com/site/More/About-Us/Electric-Rates-and-Rules/Point-of-contact-requirements>

**Isolation Breaker Requirement:**

A customer-owned isolation breaker is required to separate the generator from PPL Electric's distribution system.

**Transformer Requirement:**

For 12kV primary customers, transformer windings shall be WYE' to 'WYE' with a solidly grounded high side transformer winding. Refer to the latest version of 'Relay and Control Requirements for Parallel Operation of Generation':

<https://www.pplelectric.com/utility/about-us/electric-rates-and-rules/customer-owned-generation/distributed-generation-documents>

**Inverter Settings:**

The Interconnection Customer must install inverters that are compliant with the most recent IEEE 1547 standard and certified to UL 1741 Supplement B.

**Inverter Operation:**

The Interconnection Customer will be required to comply with the requirements as denoted in this IIR document to ensure that the integration of the proposed installation will provide safe and reliable operation on the Company's distribution grid.

**Abnormal Configuration:**

The normal source for this generation is the HUNTER 01-01 12 kV circuit. In the event that PPL Electric needs to operate the system in an abnormal configuration causing this generator to be served by a different circuit, the generator may be required to curtail or shut down generation while abnormally configured. PPL Electric also reserves the right to change the normal source to the generation as required by system conditions.

**Harmonic Guidelines:**

The Interconnection Customer should be aware of PPL Electric's harmonic distortion guidelines. PPL Electric allows up to a 3% total harmonic voltage distortion level. In addition, no single harmonic shall exceed 1.7% of the system fundamental voltage. If the Company discovers that objectionable harmonics in excess of the stated limits are being injected into the system from the Interconnection Customer's equipment, Solar Star Dornsife 1 LLC will be responsible for taking corrective measures to mitigate harmonic currents.

**Flicker Guidelines:**



If the customers on the HUNTER 01-01 12 kV circuit begin to experience unacceptable voltage fluctuations due to the Generator, Solar Star Dornsife 1 LLC will be required to take all necessary corrective actions to mitigate the problem.

**Battery Energy Storage Systems:**

The primary use cases for battery energy storage systems are to provide backup power during utility outages and/or to offset energy consumption. Batteries are not qualified as a Net Metering resource and may not be operated in any mode that enables the export of power to the distribution grid at any time. PPL Electric reserves the right to require the customer to install monitoring equipment at the battery terminal to ensure compliance with the Alternative Energy Portfolio Standards (AEPS) Act requirement. Batteries may export to the distribution grid if operating within a PJM market.



## **Attachment II: Notification of Customer Intent (NoCI)**

Solar Star Dornsife 1 LLC - WO 58756403 - Grid 27116N21571 (5476 PA-225, Dornsife, PA 17823)

This form confirms Solar Star Dornsife 1 LLC's ("Applicant" or "Customer") intentions regarding their distributed energy resource ("DER") interconnection application under Work Order 58756403, and acceptance of the Interconnection Impact Review ("IIR") dated 09/17/2024. This form must be completed, signed, and returned to Leonard Nwankwo, Interconnection Project Manager, at DERCoordinator@pplweb.com within 45 calendar days of the receipt of this IIR. The upfront payment as outlined in the accompanying invoice must be rendered within 45 days of receipt of this IIR. Failure to return a signed form and payment in their respective timeframes may result in a change in application queue position or the cancellation of this application. Cancellation of the application would require the submission of a new application should the Interconnection Customer intend to proceed. A change in queue position or a new application may lead to a change in cost and lead time estimates.

### Interconnection Customer Acknowledgements:

The undersigned, has reviewed the IIR and confirms that the information provided in the application is stated accurately and completely, including that the generation type is solar with a nameplate output of 3000kW. Applicant has reviewed the results of the IIR and understands that there is an estimated \$5,469,000 of system reinforcements with an estimated lead time of 2 - 2.5 years for engineering, design, and construction. Engineering will commence upon PPL Electric's receipt of this signed Customer Intent Form. Applicant understands that final costs and lead times are subject to change based on final engineering, changes to queue position, and will be invoiced with payment due within 45 days of receipt. Failure to timely pay an invoice will result in the Interconnection Customer's application being cancelled and queue position relinquished.

### Interconnection Customer Intent (select one):

The undersigned intends to move forward with this application, having read and understood any costs and timelines as delineated in the IIR and the associated Terms and Conditions (Attachment I). Applicant authorizes PPL Electric to begin the final engineering and design for the full and permanent interconnection of the generating facility at the location stated above. Applicant acknowledges that if this interconnection request is cancelled the Applicant must reimburse PPL Electric for all accrued costs associated with the engineering and design, as well as any long lead-time material procured. Applicant will cooperate with PPL Electric to meet all stated requirements for the electric interconnection of the planned generator installation. Applicant agrees to submit, upon request and in a timely manner, all the technical specifications for this generator for PPL Electric's review and acceptance. Applicant acknowledges that payment, in full, will be required within 30 days of receiving an invoice from PPL Electric. The final in-service date will be dependent on both the completion of the Applicant's interconnection requirements and PPL Electric's system reinforcements. Should the Applicant change its application, Applicant acknowledges that the Company may require submission of a new application with applicable fee, which may impact the Applicant's reinforcement costs and/or place in the interconnection queue.

The undersigned requests the cancellation of this interconnection application. Applicant acknowledges that this decision removes the application from the interconnection queue and that Applicant will be required to submit a new application with applicable fee to proceed in the future.



Signed,

Signature: \_\_\_\_\_

Company: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_