**Interim Guidelines for**

**Adding Energy Storage to Pending Solar Photovoltaic Generation Applications**

December 2018

The Standardized Interconnection Requirements (SIR) do not provide definitive rules for adding a new Energy Storage System (ESS) to a solar (PV) application, at a single location, that is still in the electric utility’s interconnection queue and has not received Permission to Interconnect (PTI). The main question here is whether additional time and analysis is needed by the utility in these situations. There are multiple operating configurations for ESS+PV that could be considered, however, through the efforts of a sub-group of the ITWG and IPWG, the most common configurations seeking interconnection were prioritized to accelerate this effort and allow for the addition of ESS to existing PV applications in the utilities’ interconnection queues. The stakeholder sub-group proposes the following approach:

**General Requirements**:

* These procedures are available to completed PV applications in the interconnection queue above 50 kW (Existing Projects), not going through the expedited SIR application process as of December 21, 2018.
* Applicants seeking to follow these guidelines are required to submit applications to add storage between December 21, 2018 and COB February 1, 2019.
* These guidelines are applicable to completed PV applications that have finished the CESIR study, that are currently undergoing CESIR study, or that have not yet started a CESIR study, as described below.
* PV applications proposing to add storage under these guidelines will not lose queue position; however, the utilities will study the storage request as a new application for purposes of determining the project’s responsibility for system modifications.
* These procedures do not apply to projects 50 kW and below, going through the expedited SIR application process. Those projects shall be required to re-apply if requesting to add ESS to an existing PV project.
* If proposing to add ESS to an existing PV project in the utility’s interconnection queue, the PV project shall continue to proceed as normal and all associated SIR process and payment deadlines shall stay in effect.
* All existing SIR rules and procedures shall be adhered to.

**Documentation Submissions:**

* Requests to add ESS shall be submitted to the electric utility in compliance with the SIR.
  + The following technical submittals will be required:
    - Appendix K
    - Updated Single-line and Three-line diagrams
    - Updated site plan showing equipment location
    - Proposed control functions to limit charging to be from PV only and to limit export of ESS to only occur during the hours included in the CESIR study
    - Data sheets for energy storage
    - Any inverter configuration or type changes clearly identified
    - Data sheets for any inverter changes
    - Any transformer and grounding configuration changes clearly identified
    - Data sheets for any transformer changes and/or grounding reactance/impedances

**Application Procedures**:

* The utility has 10 business days to review application for completeness and notify the applicant of the project status and study fee.
* Applicant shall pay the study fee within 5 business days from the date the applicant is notified of the accepted / complete application.
* Utilities will use diligent efforts to complete the analysis described below and provide results to the applicant within the following timeframe from date payment is received[[1]](#endnote-1):
  + Tier 1, 20 business days
  + Tier 2, 30 business days

**Process for Existing PV Projects That Have Not Commenced a CESIR:**

* If no other projects are queued behind the existing PV project on the same distribution circuit, other impacted distribution circuit, or substation; the ESS application shall follow Post-CESIR (Tier 1-3) process accordingly.
* If other projects are queued behind the original project on the same distribution circuit, other impacted distribution circuit, or substation, the applicant may withdraw the PV application and submit a new PV+ESS application under normal SIR practice.

**Process for Existing PV Projects That Have Commenced a CESIR Which Has Not Been Delivered Complete:**

* Existing PV project CESIR payments need to be made by January 4, 2019 to be eligible.
* Additional review or analysis and any subsequent determinations will be completed once Existing PV CESIR is completed, as described under the “Process for PV Applications That Have Received a Completed CESIR. “

**Process for PV Applications That Have Received a Completed CESIR**

**Tier 1 Projects:**

* **Tier Classification**:
  + ESS charged from the PV only and DC coupled,
  + No proposed changes to the system’s operating characteristics, maximum export, or anything else different from the original PV project and associated study / impact analysis characteristics, except:
    - The applicant may request that the utility evaluate an expansion of the system’s maximum export window used in the original CESIR to a window ending at 7 pm to better align with VDER rules.
    - Inverter type configurations may have changed due to the addition of ESS.
  + No transformer or grounding changes proposed.
* **Utility Review**:
  + Utility to review for potential impact based on no changes other than addition of the ESS.
  + Utility to review for potential impact based on expansion of system’s maximum export window until 7pm, which will be done via a simple screen using minimum and peak load values.
    - Note: If the minimum load is the same or greater in the additional hour(s) as during the window previously studied and no previous ESS or non-PV generation exists, or if ESS or non-PV generation which entered the queue post the initial project can be readily evaluated and accepted along with this application; then no anticipated impact.
    - Note: If the peak load is the same or less in the additional hour(s) as during the window previously studied, or if the impact to voltage regulators can be readily evaluated and accepted along with this application; then no anticipated impact.
  + Utility to perform Anti-Islanding screening if required due to inverter type changes.

**Tier 2 Projects:**

* **Tier Classification**:
  + Same as Tier 1 with the following exception:
    - Proposal includes changes to transformer or grounding configurations.
* **Utility Technical Analysis**:
  + Applicable Utility Review items outlined in Tier 1, and
  + Utility performs transformer & grounding configuration analysis.

**Tier 3 Projects:**

* **Tier Classification:**
  + ESS charged from the PV and/or utility system, or
  + AC coupled, or
  + Changes not identified within Tier I or Tier 2 projects.

The impact of the proposed system cannot be determined and a CESIR will be required. Utility will provide a detail identifying the reasoning in which further study would be needed.

**Utility Determination of Results**:

* For Tier 1 or Tier 2 compliant applications, the results can be one of the following:
  + - No impact based on the Utility Review or Technical Analysis. Limiting controls may be required and determined by utility and applicant.
    - The utility identifies potential impact(s) on the utility system or other projects and communicates the specific results to the applicant. The utility will provide additional limiting requirements if identifiable to allow the project to proceed.
    - The utility cannot readily determine impact results per review and analysis outlined and a CESIR will be required to proceed.
* For Tier 3 applications:

All Tier 3 applications require CESIR study to proceed.

**Applicant Election to Proceed:**

Upon the Utility providing results to the application request to add ESS to the existing PV project, the applicant will choose one of the allowable actions listed below along with providing any required payments within 10 business days of receipt of Utility response.

* + Design:
    - The applicant shall design the DER system not to impact the utility system based on analysis results from the Tier 1 or Tier 2 review through employment of time restrictive ESS output controls and/or inverter, transformer or grounding changes and the project was confirmed by the Utility that it may proceed accordingly; or
  + Study:
    - Request the ESS project to be studied as a new application with an additional CESIR including additional cost and timeframes. Utility will provide the applicant with a schedule and fee for performing the study. Utility will use diligent efforts to complete the study, once started, within 60 Business Days. This study would be in addition to the original PV only study and will have impacts separate from the originally studied project. Applicants will be responsible for system modifications triggered by the addition of the ESS. The originally studied project must meet all SIR deadlines, but the applicant and utility may revise the PV project’s construction schedule to accommodate the time required for the additional study, or
  + Withdraw:
    - Remove application for ESS and proceed with Existing PV project as originally designed and studied.

1. Utilities will use diligent efforts to complete a review or technical analysis and respond to the applicant within the defined timeframes. Actual completion of the review or analysis may depend on Utility existing workload and resources. The Utility will provide expected start and completion timeframes to applicant accordingly. [↑](#endnote-ref-1)