**Interconnection Material Modification Procedures**

**Adding Energy Storage to Existing Solar Applications**

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The Standardized Interconnection Requirements (SIR) does not provide definitive rules and guidelines 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 its 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, and the most common configurations seeking interconnection were prioritized to accelerate this effort and allow for the addition of ESS to existing PV projects in the utilities’ interconnection queues. The stakeholder sub-group propose the following approach:

General Requirements:

* 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.

Tier 1 Projects:

* Overview / Definition:
  + Includes ESS to be added to an existing PV application,
  + ESS charged from the PV only and DC coupled,
  + No proposed changes to the system’s operating characteristics, maximum export, equipment, or anything else different from the original PV project and associated study / impact analysis characteristics.
* Application Procedures
  + Requests to add ESS shall be submitted to the electric utility in compliance with the SIR
    - The following technical submittals will be required
      * Updated Interconnection Agreement (if applicable)
      * Appendix K
      * Updated Single line and Three line
      * Updated site plan showing equipment location
      * Protection/ controls schemes for limit charging from PV and maintaining export only during the hours included in the CESIR study.
      * Data sheets for energy storage
  + The utility has 10 business days to review application for completeness and notify the .applicant.
  + Utility shall receive application fees within 5 business days from the date notified of accepted / complete application.
  + Utilities will use diligent efforts to complete the Protection / Control analysis and respond to the applicant within 20 business days from date of payment received.
* Utility Analysis / Study Determinations
  + Potential outcomes/determination from the utility’s analysis / study are:
    - No impact based on the full daytime loading characteristics of the utility for the period studied in original CESIR. Limiting controls may be required. Project may proceed accordingly.
    - No impact based on the full daytime loading characteristics of the utility for the period studied in original CESIR; however, if the applicant proposes to export during additional hours, further study may be needed.
      * Applicant may *either* decide to design system not to operate beyond the period studied in the original CESIR. Utility will provide additional limiting requirements as needed. Project may proceed accordingly.
      * *Or* the project will need to be re-studied with a full 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. The originally studied project may continue on the original project time frames.

Tier 2 Projects:

* Overview / Definition:
  + Includes ESS projects to be added to an existing PV application,
  + 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, however, inverter configurations and equipment manufacturers may have changed due to the addition of ESS.
* Application Procedures
  + Requests to add ESS shall be submitted to the electric utility in compliance with the SIR,
    - The following technical submittals will be required
      * Updated Interconnection Agreement (if applicable)
      * Appendix K
      * Updated Single line and Three line
      * Updated site plan showing equipment location
      * Protection/ controls schemes for limit charging from PV and maintaining export only during the hours included in the CESIR study.
      * Data sheets for energy storage
  + Electric utility has 10 business days to review application for completeness and notify the applicant.
  + Utility shall receive application fees within 5 business days from the date notified of accepted / complete application.
  + Utilities will use diligent efforts to complete the Protection / Control analysis and respond to the applicant within 20 business days from date of payment received.
* Utility Analysis / Study Determinations
  + Potential outcomes/determination from the utility’s analysis / study are:
    - Same as Tier 1 determinations listed above plus the following:
    - If Direct Transfer Trip (DTT) was identified in original CESIR, no additional study or screening is needed. Project may proceed accordingly.
    - If no DTT, utility must perform Anti-Islanding screening to determine potential impacts of new inverter configuration manufacturers.
      * If project passes Anti-Islanding screen, Project may proceed accordingly.
      * If project fails Anti-Islanding screens, the project will need to be re-studied with a full CESIR including additional cost and timeframes. The utility and applicant will follow the same procedure as above for the new study.