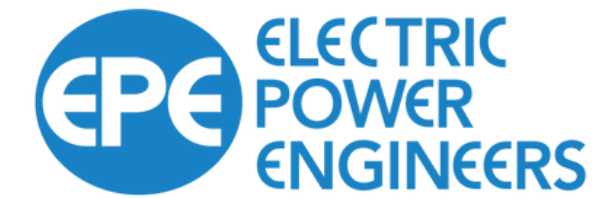


Navigating Interconnection Application and Requirements for Large Renewable Energy Projects

Joelle Abi Nahed

Contact: janahed@epeconsulting.com, 512-886-2130



While independent system operators (ISOs) or regional transmission organizations (RTOs) have differing timelines and guidelines, there are many similarities in the application and approval process for a large project which can be summarized in a few steps:

1. Pre-application consisting of due diligence and available export capacity investigation, land acquisition and right-of-way.
2. Interconnection application including plant models.

CAISO	ERCOT	ISO-NE	MISO	NYISO	PJM	SPP
Next Cluster Application Window: each year April 3 - April 15.	Screening Study (SS) Application / Full Interconnection Study (FIS) Application submitted any time of the year.	Interconnection Request (IR) submitted any time of the year.	Definitive Planning Phase (DPP) Cycle Application submitted once a year. Deadline for 2023 not yet announced.	Interconnection Request (IR) submitted any time of the year.	New Services Queue windows each year: October 1 – March 10 and April 1 - September 10.	Definitive Interconnection System Impact Study (DISIS) submitted any time of the year. Window open until enough requests justify closing it.
<ul style="list-style-type: none"> • \$150,000 Interconnection study deposit • Appendix 1 • Attachment A • Station SLD • Collection System SLD • PSLF Load flow model • Flat run and bump test plots from PSLF • Reactive power capability document • Evidence of site exclusivity or \$250,000 deposit in lieu 	<ul style="list-style-type: none"> • \$5,000 or \$7,000 (per project MW size) • \$15 / MW FIS fee • Station SLD • Collection System SLD • PSSE Load flow model • Model Quality Test, including flat run, Voltage ride through, frequency and short circuit tests • Aspen model • PSCAD model • TSAT model • Proof of Site Control • Declaration of Department of Defense Notification • Executed Lone Star Infrastructure Protection Act 	<ul style="list-style-type: none"> • \$50,000 deposit (non-refundable) 10 business days after scoping meeting • Appendix 1 • Attachment A, A-1, B • Site Map • Station SLD • Collection System SLD • Reactive power capability analysis • PSSE load flow model • Plant PSCAD model • PSSE / PSCAD benchmarking • Aspen Model • Site Control documentation or \$10,000 deposit In lieu 	<ul style="list-style-type: none"> • \$5,000 Application fee (D1) • DPP Study Funding deposit (D2) (per project MW size) • \$4000/MW DPP Entry Milestone Deposit (M2) • Appendix 1 • Attachment A • Station SLD • Collection System SLD • PSSE load flow model • PSCAD model (may be required) • Evidence of Site Control or \$10,000 per MW in-lieu and at least \$500,000 but no more than \$2,000,000. 	<ul style="list-style-type: none"> • \$10,000 Application fee • Appendix 1 • Station SLD • Collection System SLD • PSLF Load flow model • Demonstration of site control or additional \$10,000 deposit 	<ul style="list-style-type: none"> • Deposit based on the project MW size and the month during the queue • Attachment N, A, A-1 • Station SLD • Collection System SLD • PSSE Load flow model • ASPEN model • Evidence of Site Control - No option to provide deposit in lieu 	<ul style="list-style-type: none"> • Interconnection study Deposit (per project MW size) • \$4,000 per MW Security Deposit • Appendix 3 • Attachments A, B, C • Station SLD • Collection System SLD • PSSE Load flow model • Demonstration of Site Control or in lieu deposit equal to \$80,000 per linear mile of the total Gen Tie Length

3. Scoping meeting with the Transmission service provider (TSP) and ISO/RTO followed by study agreement.
4. System Impact studies which are:
 - Steady-state Study to identify thermal overloads on the transmission system resulting from the addition of the resource
 - Short circuit Study to identify any existing substation circuit breakers that will become over-stressed (or over-dutied) as a result of the added resource

- Stability Study to evaluate system stability (voltage and frequency) following the interconnection of a proposed resource
 - Facility Study to provide details of the transmission facilities required to physically interconnect the proposed resource to a new or existing station
5. Decision-making milestones leading to Interconnection Agreement, construction, procurement, testing and commissioning of the project.

