

Southern Illinois Power Cooperative

Engineering Studies for

Generation Interconnection Process

For generation ≥ 40 kW and ≤ 5 MW connecting to ≤ 12.5 kV

The process for evaluating new generation interconnections to the Southern Illinois Power Cooperative (SIPC) member/owner distribution systems (≤ 12.5 kV) begins with the submission of an interconnection application and application fee. An Interconnection Customer (IC) with a project larger than 5 MW capacity is required to interconnect at transmission level voltage (≥ 34.5 kV) through the Midcontinent Independent System Operator (MISO) Definitive Planning Phase (DPP) study process. Generator interconnection approval consists of performing the following studies and constructing the facilities required for interconnection as established by the engineering studies: Feasibility Study, System Impact Study, and an optional Facility Study.

Feasibility Study

A Feasibility Study is a screening process that shall be completed to determine any adverse system impacts of a new generation facility including preliminary short circuit, power flow, grounding and system protection issues. If the Feasibility Study shows the potential for adverse system impacts, the review process shall proceed to the System Impact Study. This study is included with the submission of the application fee.

If there is any backfeed from an IC project onto a MISO Transferred Transmission Facility (Appendix G), SIPC will coordinate with MISO to determine if any potential concerns exist and if a MISO Affected Systems Study will need to be performed. Information about the MISO Generator Interconnection process can be found here:

<https://www.misoenergy.org/planning/generator-interconnection/>

System Impact Study

Depending on the size and type of generation, interconnection voltage level, load of the distribution and transmission system, and location of the interconnection, a determination will be made of which engineering studies will be required for the System Impact Study. The engineering studies shall include, but are not limited to, the following:

- **Power Flow** – Determine if the distribution/transmission system will experience voltage or line loading issues under normal and contingency conditions. This will include a review for reverse power flow impacts from the proposed generation.
- **Short Circuit Analysis** – The distribution/transmission system will be studied to determine that the proposed generation will not cause overstressing of any equipment and system faults will be properly cleared.
- **Stability Analysis** – The distribution/transmission system will be studied to determine that the proposed generation will not cause system instability issues.
- **Voltage Flicker Analysis** – Determine if the proposed generator will cause unacceptable voltage swings. Review the impacts of capacitor and voltage regulation device switching.
- **Protection Coordination** – Review impact of coordination between the proposed generation and the existing system. Evaluate fault clearing times and determine if existing protection settings will need to be modified.
- **Risk of Islanding** – Determine if the proposed generation could function as an unintentional island.

The System Impact Study report shall provide the following information:

- Identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection.
- Identification of any thermal overload or voltage limit violations resulting from the interconnection.
- Identification of any instability or inadequately damped response to system disturbances resulting from the interconnection.
- Description and non-binding, good faith cost estimate of facilities required to interconnect the generating facility and to address the identified issues. Good faith cost estimates costs are valid for 60 business days.

The IC will be provided with a scope of work and cost estimate to have the System Impact Study completed. Upon receipt of study cost estimate, the IC shall have 15 business days to provide payment to SIPC before the System Impact Study can begin.

Facility Study (Optional)

If requested by the IC, the preparation of a detailed Facility Study will determine a more accurate cost estimate and schedule for implementing the required interconnection facilities as detailed in the System Impact Study. While the System Impact Study identifies electric system impacts and planning level interconnection costs estimates, the Facility Study will determine the equipment specifications and the detailed cost associated with constructing and installing the required equipment.

The IC will be provided with a scope of work and cost estimate to have the Facility Study completed. Upon receipt of study cost estimate, the IC shall have 15 business days to provide payment to SIPC before the Facility Study can begin.

Costs

The cost of preparing a distribution level System Impact Study or Facility Study can range from \$3,000 to \$20,000 per study. These costs are based on the IC's generator size and type, interconnection voltage level, location, and defined scope of work and schedule.

The application fee will be applied towards these studies and interconnection equipment. If actual costs are less than the application fee, the IC will receive a refund for the difference. Additionally, if actual costs are greater than the application fee, the IC will be required to make an additional payment to cover the total costs associated with the project. The cost estimates referenced include the cost of work performed by the SIPC planning staff and any other participants, including consultants and distribution system staff, involved in the coordinated study efforts.

Timelines

Estimated timelines are shown below for each step of the SIPC generation interconnection process. These timelines may vary based on SIPC's interconnection queue size.

- Application Review: 10-15 business days
 - Feasibility Study: 15-30 business days
 - System Impact Study: 15-60 business days
 - Facility Study (optional): 15-60 business days
 - Interconnection Agreement: 15 business days

Queue

The IC will receive an official queue position after an interconnection application and application fee has been received by SIPC. Once the study process is complete, the IC will be given 15 business days to sign a Small Generator Interconnection Agreement (SGIA) and pay the project cost estimates detailed within the System Impact Study/Facility Study report or the project will be withdrawn from the queue. If the IC cannot sign the SGIA and pay the project cost estimates within 15 business days, but wishes to maintain their queue position, a non-refundable fee of \$1,000/MW/month will be applied to the project to maintain queue position. This fee will be applied towards project costs unless the IC withdraws the project from SIPC's queue. If an interconnect application request is modified during the study process by the IC, the project will be withdrawn from the queue and the IC will need to re-apply.