

The Generation or Transmission Interconnection Feasibility Study assesses the practicality and cost of incorporating the generating unit or increased generating or transmission capacity into the PJM system. The analysis is limited to short-circuit studies and load-flow analysis. This study does not include stability analysis. The study also focuses on determining preliminary estimates of the type, scope, cost and lead time for construction of facilities required to interconnect the project.

Results of the study for the requested interconnection service (Capacity Resource or Energy Resource) are provided to the applicant and the affected Interconnection Transmission Owners, and are published on the PJM web site. Confidentiality of the applicant is maintained in these reports, but the location of the project and size (in megawatts) is identified. After reviewing the results of the Generation or Transmission Interconnection Feasibility Study, the applicant must decide whether or not to pursue completion of the System Impact Study.

#### **2.1.5.1 Interconnection Requests associated with Phase Angle Regulators**

Phase angle regulators (PAR), also called phase shifting transformers, create a phase shift between primary (source) & secondary (load) side of the device to control the amount of flow through the facility. These devices may be proposed to serve as Controllable A.C. Merchant Transmission Facilities under the PJM Tariff. Inherent to these devices are certain operational characteristics which must be addressed to confirm acceptability of the design and incorporation of the proposed facility in the PJM system.

In order to ensure that the facility does not cause excessive upset to the system in the area of the proposed facility, it is recommended that the initial step size of the facility's output not exceed a quantity of 20MWs, when initially transitioning from zero flow to some specified MW value. Initial output quantities in excess of 20 MWs are studied to determine the impacts to the other facilities near the proposed facility to determine if the initial MW quantity, in excess of 20 MWs, would cause a problem to occur. The study of the impacts associated with this initial step size will begin during the System Impact Study phase of the projects development. If any issues are identified, associated with a step size in excess of 20 MWs, which cannot be resolved, then the customers Interconnection Request will be withdrawn from the New Services Queue.

The controls associated with a PAR must be capable of providing automatic control so that the scheduled MW quantity for the facility is maintained for all contingency conditions which are required to be tested dependent on the type of service requested whether it be capacity or energy injection or firm or non-firm withdrawal rights. Deviations from the scheduled MW quantity can result in charges to the facility as governed by PJM market rules. Beyond automatic control of the facility, the proposed facility controls must allow for a manual mode of operation to hold the angle of the PAR as opposed to maintaining the MW flow in the event this mode of operation is requested by PJM Operations during periods of system upset or emergency. Additionally, the proposed customer facility must be capable of achieving zero flow through the design of the facility by the customer.