

## SUMMARY OF GENERATOR INTERCONNECTION STUDIES

Table A shows a summary of studies performed for generator interconnection projects, listing a brief description of the primary phenomena studied, major sensitivities examined, and a listing of the primary equipment of concern for each of the studies

**Table A**  
**Summary of Selected Studies That MEPPI Performed for Generator Interconnection Projects**

STUDY AREA	STUDY TITLE	Brief High-light of Primary Phenomena Studied	Brief Listing of Major Sensitivities Examined
MISC Generation Interconnection Analysis	Investigation of Equipment Specification Issues For a New Generation 500 kV Interconnection: Transformer and Circuit Breakers Specifications	tertiary windings, closing resistors, line-end surge arresters	tertiary winding requirements, autotransformer characteristics, line-end surge arrester characteristics
Transmission Line Switching Analysis	Transmission Line Switching Analysis of a New Combined Cycle Power Plant System 345 kV Interconnection	switching overvoltages (SOV) (phase-to-phase, phase-to-ground, across CB contacts)	CB pole-spread, trapped charge, surge arresters, PTs, line/generator outages, system connectivity, line coupling
Transmission System Project Transients Analysis	Electromagnetic Transients Assessment of System Impacts of Adding Current Limiting Reactors at 345 kV and 138 kV for Fault Current Management	switching overvoltages, temporary overvoltages, TRV, frequency scans- harmonic shifts, X/R ratio system impacts	system connectivity, series/shunt reactors, initiating event, equipment characteristics, feeder/generation outages, PAR angle, etc.
Transmission System Project Transients Analysis	345 kV Electromagnetic Transients Assessment for a New Combined Cycle Power Plant Interconnection	TRV, restrikes, switching overvoltages, temporary overvoltages	substation connectivity, equipment characteristics, contingency conditions, surge arresters, initiating event, stray capacitances
GIS Insulation Coordination Analysis	362 kV AIS and GIS/MITS Insulation Coordination For a New Combined Cycle Power Plant System 345 kV Interconnection - EMTP Lightning Surge Analysis	lightning overvoltages	system connectivity, contingency conditions
Power Flow and Stability Analysis	Load Flow Analysis of a 138 kV Interconnection to Determine the Rating of Power Flow Controller/Limiter	load flow (for device rating to limit power flow to meet thermal limits of interconnection)	contingency conditions, current overload levels, phase angle/impedance of controller, generation on-line/off-line
MISC Generation Interconnection Analysis	Generation Interconnection Process Study	White paper on the overall process for market power to be interconnected to transmission owners' systems	Processes, tools, regulations, Open Access Transmission Tariffs (OATTs)

**MEPPI has performed a wide variety of detailed studies. More information on specific analysis types is available upon request.**