Topics for 2013 GM Super Sessions / Call for Papers

1. Electricity Supply to Rural and Remote Communities
   - Challenges and options for electrification of rural and remote areas (Technical and Financial)
   - Grid-based vs. off-grid energy delivery systems
   - Alternate forms of energy supply (solar home systems, off-grid renewables, AC vs. DC, etc.)
   - Development of hydro resources in remote areas
   - Standalone community power supply systems with mini-grids
   - Impact of electricity on socio-economic development (health care, education, income levels and improvement of living conditions)
   - Application of advanced technologies to expand access
   - Historical review of rural electrification success stories

2. Transmission System Efficiency and Reliability Improvements
   - Voltage and reactive power optimization and management
   - Application of advanced technologies to improve transmission efficiency
   - Reliability and utilization gains from system efficiency improvements
   - Planning, engineering tools and processes to design and operate more efficient transmission systems
   - Impacts of integrating renewable generation, electrical vehicles, and bulk energy storage
   - Environmental gains through more efficient use of transmission resources

3. Impacts of Geomagnetic Disturbance (GMD) Events on Electric Power Systems
   - Prediction and monitoring of GMD events
   - Power system modeling for GMD analysis
   - Potential impacts to the bulk electric system
   - Procedures and mitigation techniques for system planning, design and operation
   - Effects of geomagnetic induced currents on high voltage equipment (transformers, capacitor banks, SVCs, etc.)
   - Protective relaying and control issues
   - Impact of present and potential regulatory compliance requirements
   - Results and observations from actual GMD events

4. Innovation and Advancements in Protection, Automation, and Control for Evolving Power Systems
   - Substation, distribution and feeder automation advancements
   - Industry standards and interoperability developments
   - Regulation and cyber security
   - Next generation EMS/SCADA systems
   - Wide-Area monitoring, protection, and control, including system integrity protection schemes
   - Distribution operation and outage management systems
   - Lessons learned with the deployment of PMUs

5. Generation Mix Strategies: Solving Energy Production Challenges of the 21st Century
   - New policies and regulations in support of regional and country level generation mix futures
   - Conventional vs. Renewable generation mix: challenges and solutions
   - Effects of natural gas pricing on generation decisions
   - Future of nuclear power in the generation portfolio
   - High penetration of distributed energy resources and its impact on security and reliability of power supply
   - Strategies for retirement and replacement of generation facilities
   - Grid Technical Challenges: Planning, Interconnection and Operation