GDO Studies

- Grid Deployment Office (GDO)
  - Department of Energy office overseeing more than $26 billion in funding for Generation Credits, Transmission, and Grid Modernization
  - Federal Power program generally not eligible for direct funding from GDO
- Inter Agency Agreement executed to assist GDO in studying:
  - Increased inter-regional transfer capability between Georgia and the Carolinas
  - Optimized federal pumped storage capabilities or operations
  - Non-Reimbursable = not rate impacting

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Rationale

- Cumulative increases in system generating capacity is such that additional allocations may be possible **if** additional energy derived from pumping can be made available and **if** transmission capability exists to serve loads from the federal system.
- An opportunity exists for DOE's GDO to utilize authority and funding to study new potential transmission paths or increased regional transfer capability between Georgia and the Carolinas that otherwise would not be economically feasible, utilizing networked federal hydropower assets at Hartwell, Richard B. Russell and J. Strom Thurmond dams

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Studies

- **Study 1: Increased transfer capability between Georgia and South Carolina:**
  - Study options to increase transfer capability between Georgia and South Carolina, by performing a feasibility study for necessary actions which would establish a new interconnection with an investor-owned 230kV transmission line in South Carolina.
    - Task 1: Evaluate increased rating of Richard B. Russell 230 kV switchyard from 1200 Amps to 3000 Amps
    - Task 2: Evaluate adding an interconnection from Area 354 (Richard B. Russell 230 kV switchyard) to Area 342 (Duke Energy Carolinas) to supplement its single connection into the Carolinas at Area 344 (South Carolina Public Service Authority).

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Studies

- **Study 2: Pumped Storage Hydropower Optimization**
  - Study options to derive additional energy from pumping by performing a capacity expansion study quantifying the theoretical increase in firm system capacity that can be derived from pumping.
    - Task 1: Evaluate open-loop operations at Carter's and Richard B. Russell for operational constraints on unrestricted pumping. Determine plant-specific storage durations (hrs) and Energy-in-Storage quantities (GWh) for the as-is and unconstrained conditions given the governing in-stream flow requirements of the Water Control Manuals and favorable economic arbitrage conditions.
    - Task 2: Evaluate adding pumps to hydropower generation at Carter's and Richard B. Russell to increase the Pump/Generator Capacity Ratio. Determine plant-specific storage durations (hrs) and Energy-in-Storage quantities (GWh) for the as-is and unconstrained conditions given the governing in-stream flow requirements of the Water Control Manuals and favorable economic arbitrage conditions.
    - Task 3: Evaluate the potential for emerging technologies to allow flexible pump operation by which the facility can ramp power input and provide reserve services (i.e., fixed vs variable-speed, ternary, or quaternary pump technology) at Carter's and Richard B. Russell.