ELECTRICITY DISPATCHABILITY AND RELIABILITY

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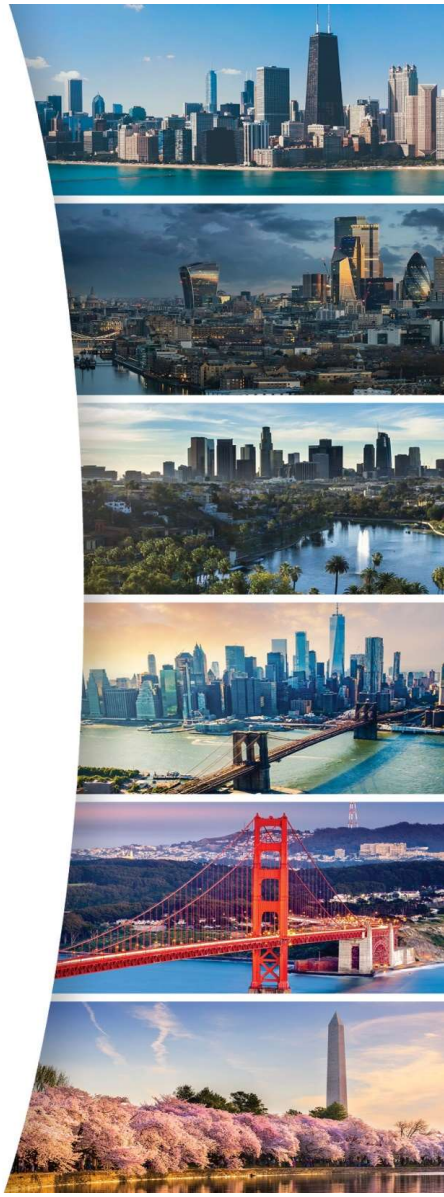

ELECTRICITY DISPATCHABILITY AND RELIABILITY – WHAT'S THAT?

- A dispatchable power plant or generator is one that can be turned on and off and whose power output can be adjusted relatively quickly
- A non-dispatchable generator is one that cannot be controlled by an operator, e.g., photovoltaic solar, wind
- A reliable electric power system is one that supplies customers with all the energy they need at any given time, with a very high degree of confidence

DISPATCHABLE GENERATION

- Traditional:
  - Capacitors
  - Hydroelectric facilities
  - Gas-fired power plants
  - Solar thermal power plants
  - Biomass
  - Coal
  - Nuclear
- Dispatchable Renewables:
  - Paired with storage
    - Large-scale batteries
    - Pumped hydro
    - Modified use of traditional hydropower
  - Integrated small, distributed generation systems

DISPATCH TIMES OF TRADITIONAL DISPATCHABLE GENERATORS

- Fast (seconds)
  - Capacitors
  - Hydroelectric Facilities
- Medium (minutes)
  - Gas-fired power plants
  - Solar thermal power plants
- Slow (hours)
  - Biomass
  - Coal
  - Nuclear

VALUE OF DISPATCHABLE GENERATORS

- Load matching
- Peak matching
- Cover lead-in times
- Cover intermittent sources

ACHIEVING RELIABILITY

- With Baseload generation
- With Renewables with storage