Distributed Capacity Procurement (DCP) VS. Combustion Turbines

DCPs Efficiently Meet Grid Demand Where It Is

- **DCP reduces demand on small radial spokes**, ultimately **alleviating stress** on that spoke, the transformer at the hub, and every T&D element upstream, while **reducing actual kWh demand and the excess generation needed to account for losses.**
- DCP assets placed at the end of a radial distribution spoke **efficiently serve both downstream and upstream grid needs.**
- **DCP assets can be placed in load pockets to meet peak demand,** ultimately increasing power flow for charging during low-demand times and discharging storage to reduce power demand during peak periods — **making existing distribution infrastructure more efficient.** Applicable to largest incoming load, e.g. data centers.
- Power plants serving stressed lines deliver more expensive and carbon-intensive power while **charging batteries at off-peak hours generates fewer losses and lowers charging costs.**

Distributed Capacity deployed in the right places can help overcome structural barriers faced by centralized generation

- 100-year-old legacy grid topology is a radial, hub-and-spoke model with CTs often positioned at the largest hubs. The combination of **variable growth and unplanned electrical infrastructure leads to hub-and-spoke bottlenecks creating grid congestion and deliverability issues with unidirectional flow.**
- **A CT cannot push enough power through the low-voltage delivery spoke upstream to larger hubs or back downstream** to meet the growing demands of a dynamic, shifting electrical map.
- **Radial power lines face constraints during high periods of coincident demand** from all users on the spoke, and conversely, **during off-peak periods capacity goes unused.**
- Electrical resistance on radially designed grids creates thermal inefficiencies, requiring power plants to **burn more fuel and generate more kWh to reach the end-user.**
- **Grid inefficiencies compound** as lines reach rated capacity (ampacity), power moves through less efficient lower-voltage lines, and power plants face extreme climate conditions.