



Emerging Technology Analysis

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Long-Term Study Task Force

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Purpose of analyzing new technologies is to

- **Provide a look at generation, load, transmission, and other technologies “outside the box”**
- **Bring awareness to the study team and the task force**
- **Provide information to support scenarios, reports, and findings**
- **Document information sources and references**

Each technology analysis will attempt to

- **Provide information and references**
 - Describe the technology and development status.
 - What are the positive attributes of this technology?
 - What are the restrictions of this technology?
 - What benefits can this technology bring to the ERCOT region?
 - What are the potential impacts to the grid that may arise from implementing this technology in the ERCOT Region?
 - Identify other considerations / impacts?
- **Identify key factors for scenario analysis**
 - Capital costs (\$/kW)
 - Efficiency
 - Operational Constraints
 - Ramp rate in MW/min
 - Emission rates (NO_x, SO₂, CO₂, mercury, etc.)
 - Fixed and variable operation and maintenance cost estimates
- **Provide input to scenario analysis regarding timing and applicability to the region**

List of technologies include

Biomass	Demand Response - Dispatchable by ISO
Carbon Sequestration	Demand Response - Economic
Coal (mature)	Other demand side technologies
Coal Gasification	Other Energy Efficiency
Combined Cycle	EHV AC
Combined Heat and Power	EHV DC
Distributed Generation - Firm	FACTS
Distributed Generation - Intermittent	HVDC
Fuel Cells	Standing Wave
Geothermal	Superconductor
Hydrogen	Synch Condensers
Landfill Gas	VFTs
Natural Gas (mature)	Batteries - Other
Nuclear	Battery - Flow
Nuclear Fusion	Battery - Lithium Ion
Oil (mature)	Battery - Sodium Sulphur
Plasma Trash Incinerator	Electric vehicles
Simple Cycle	Emissions - Other Emission Control Technologies
Solar - PV	Solar - Other
Solar - Thermal	Storage - Compressed Air Energy Storage
Tidal	Storage - Flywheel
Wind	Storage - Other
Wind - Inertia	Water - Usage, Storage
Wind - Other Technologies	Wind - Storage

- **Currently 48 technologies on the list**
 - Please let us know if there are additional technologies that should be included
- **Started documentation on ~18 technologies with a goal of having all technologies through individual review by the end of September**
- **Started team reviews of ~6 technologies with a goal of completing team reviews by end of October for incorporation into scenarios and LTSA**



Questions?

Feedback?