



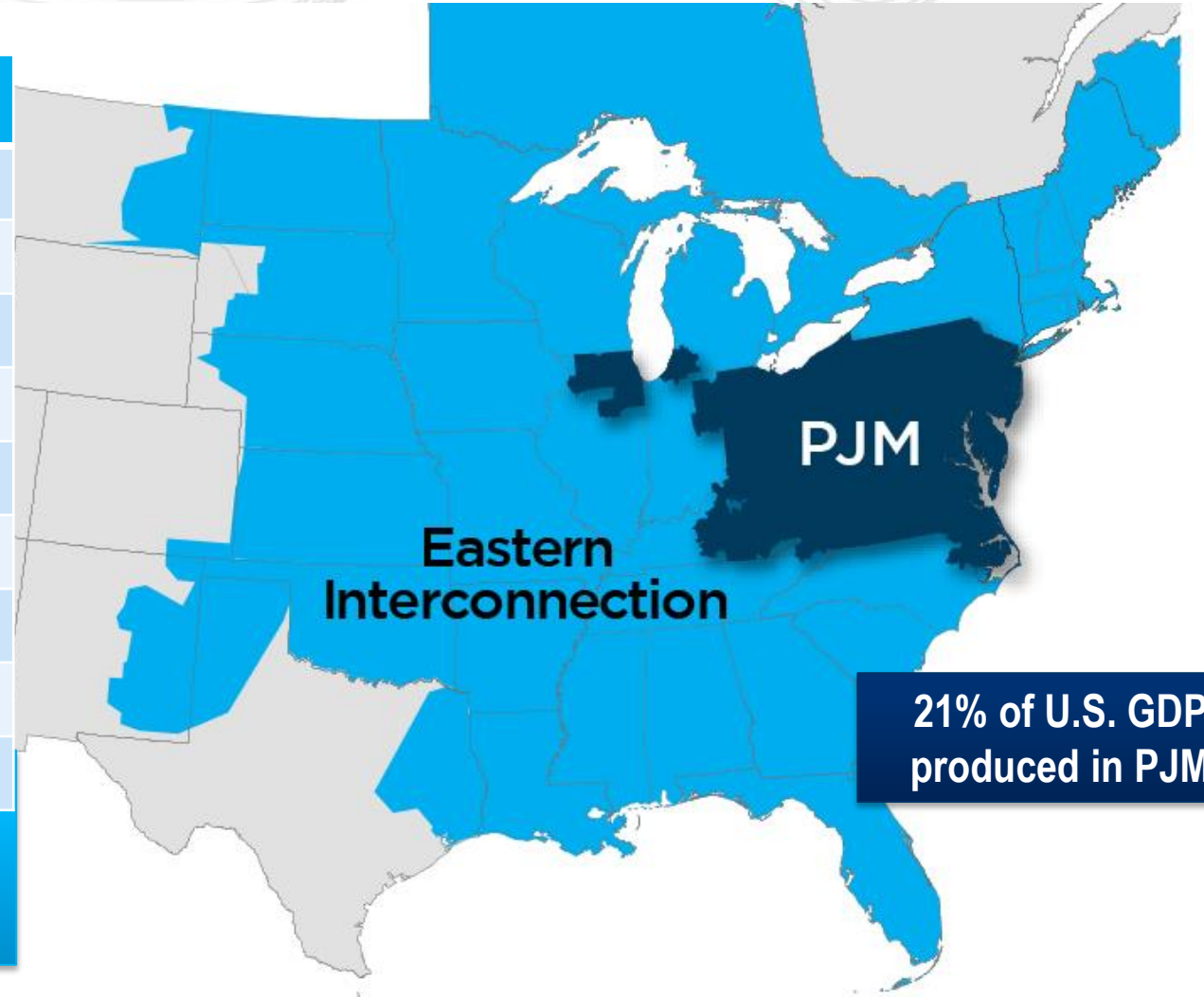
# Operationalizing Natural Gas Contingencies

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## Key Statistics

Member companies	1,040+
Millions of people served	65
Peak load in megawatts	165,492
MW of generating capacity	178,563
Miles of transmission lines	84,042
2017 GWh of annual energy	773,522
Generation sources	1,379
Square miles of territory	243,417
States served	13 + DC

- 28% of load in Eastern Interconnection
- 20% of transmission assets in Eastern Interconnection



As of 2/2018

**Installed Capacity ~ 72,000 MW**

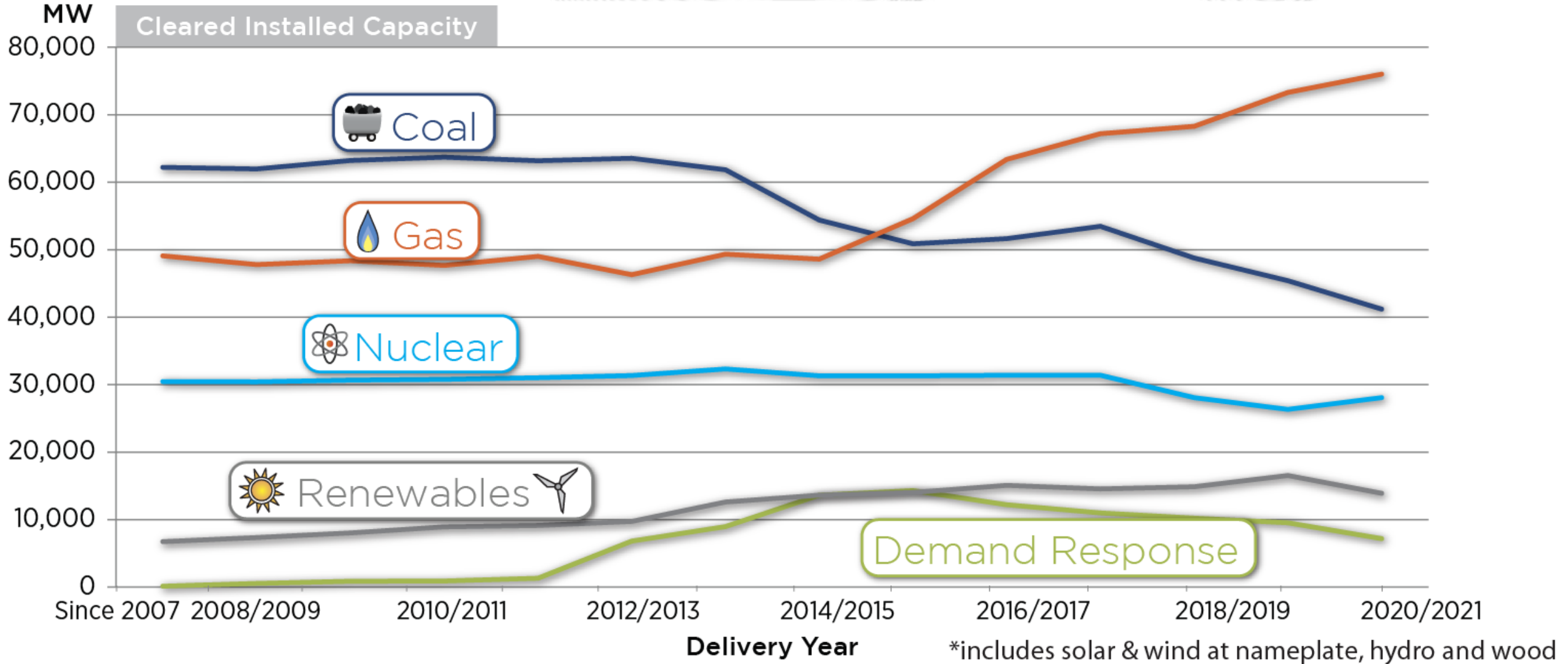
**Direct Connect to Interstate/Intrastate  
Pipelines ~ 51,000 MW**

**Behind LDC  
City Gates  
~ 21,000 MW**

**16 Interstate  
Pipelines**

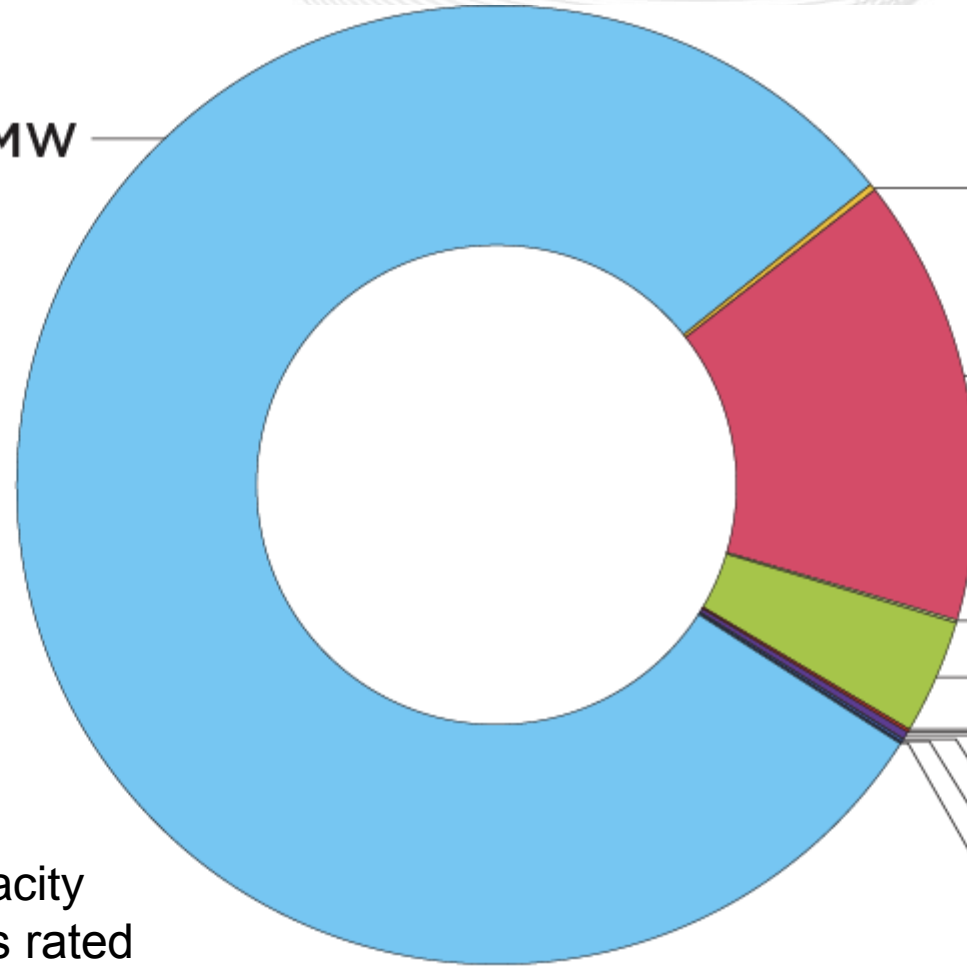
**One Intrastate  
Pipeline**

**28 LDCs**



# Queued Generation Fuel Mix- Requested Capacity Injection Rights (December 31, 2017)

Natural Gas, **57,778 MW**



Nuclear, **162 MW**

Nameplate Capacity, 19,773 MW

Solar, **10,882 MW**

Nameplate Capacity, 524 MW

Storage, **69 MW**

Wind, **2,793 MW**

Nameplate Capacity, 18,336 MW

Wood, **66 MW**

Biomass, **4 MW**

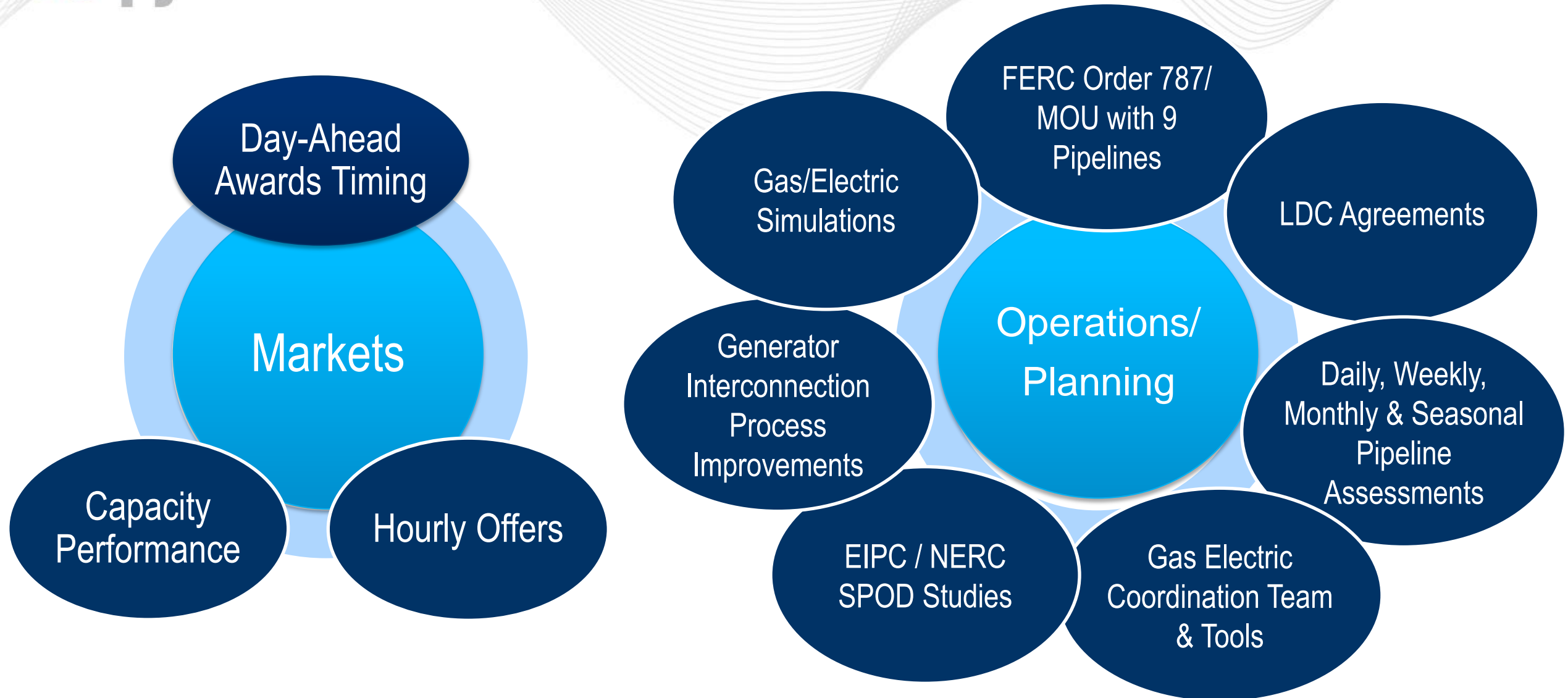
Coal, **198 MW**

Diesel, **9 MW**

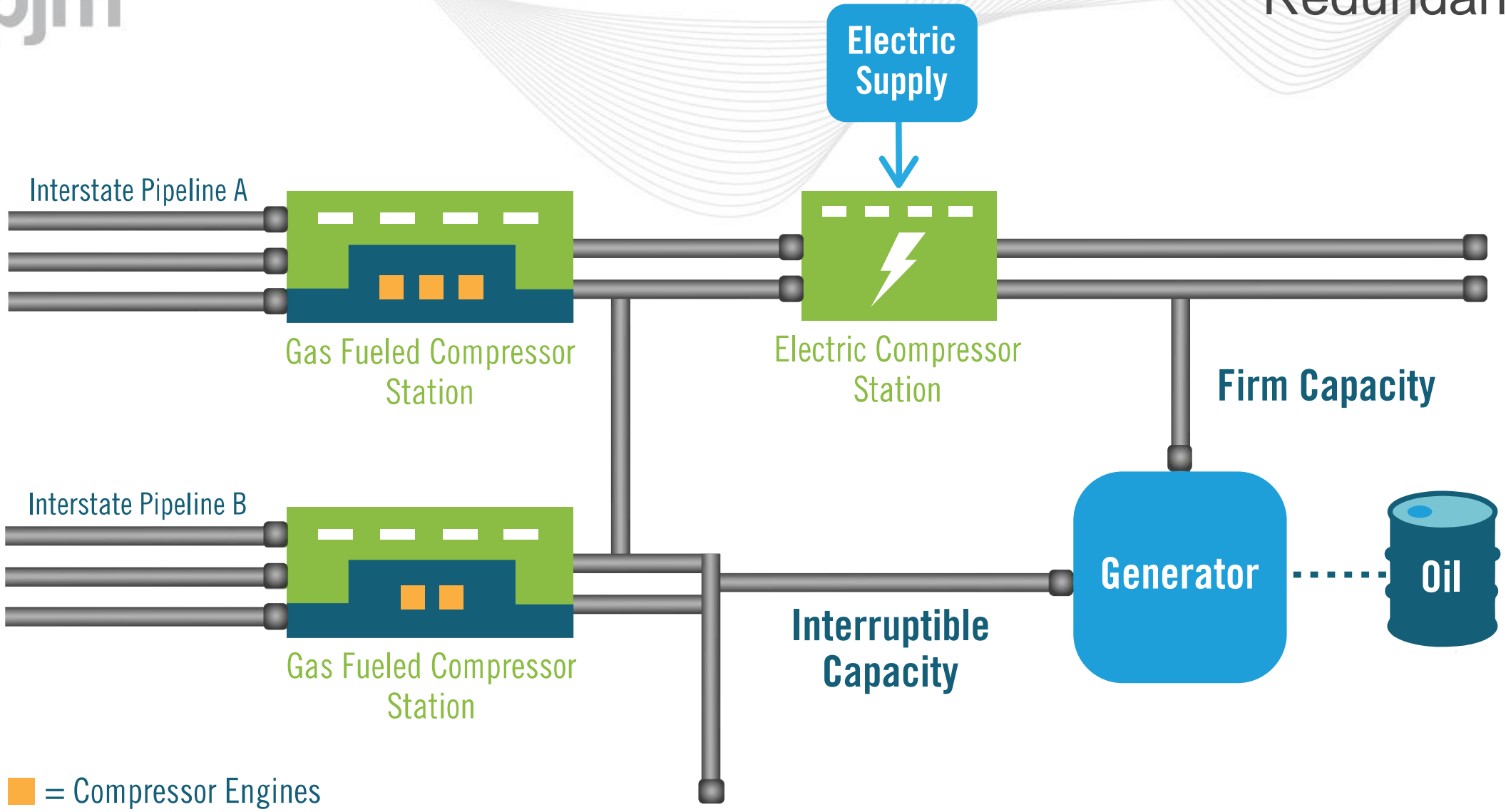
Hydro, **77 MW**

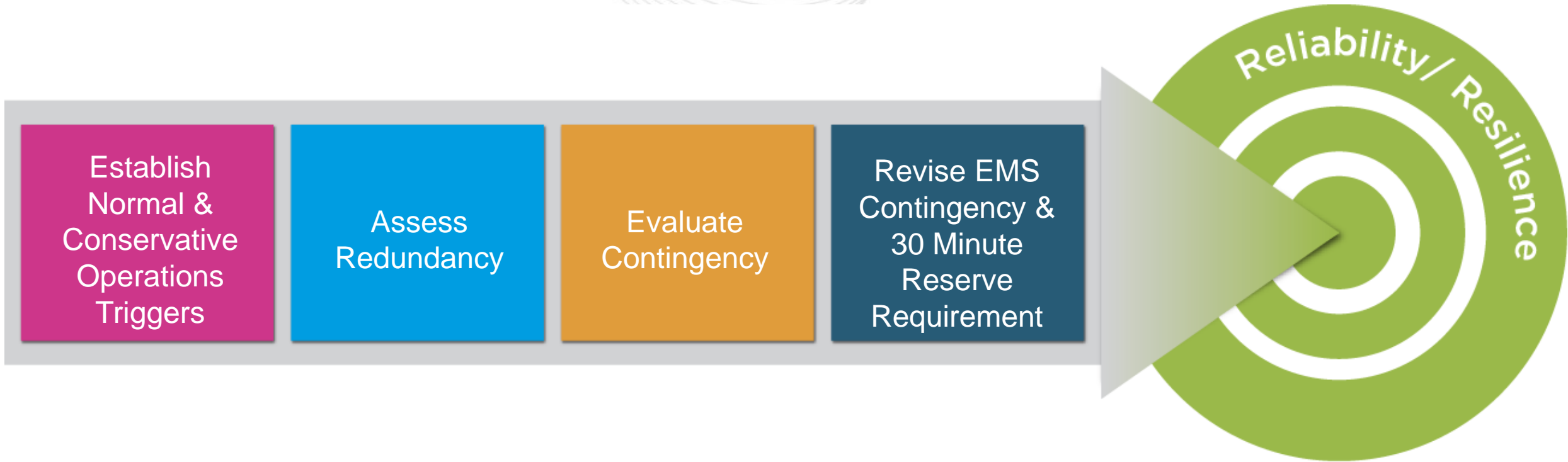
Methane, **48 MW**

**NOTE:** Nameplate Capacity represents a generator's rated full power output capability.









Normal Mode: Constrained Electric/Gas System Conditions  
Conservative Mode: Cyber / Physical Threat Conditions



- Contingencies pre-identified
  - Compressor station loss
  - Pipeline breaks
  - LDC loss
- Contingency analysis performed during early Jan. 2018 winter period indicated no reliability issues
- Continuing to work with pipelines to review/refine contingencies to more accurately reflect risk of pipeline infrastructure failure

## Order 787 Reforms

- Increased level of communication and information sharing

## Planning and Operations Coordination

- Interconnection coordination
- Pipeline contingency identification and real-time analysis
- Coordinated gas-electric operating procedures

## Gas Generation Services & Tariff Provisions

- Tailored gas pipeline services for generation to address unique operating scenarios

## Cyber and Physical Security

- Improved understanding of practices