



# NARUC

*Summer Committee Meetings*

# Staff Subcommittees on Electricity & Electric Reliability

# NERC's Short-Term Special Assessment: Operations Risk with Increasing Gas-Electric Interdependencies

*John Moura, Director of Reliability  
Assessments & System Analysis,  
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# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

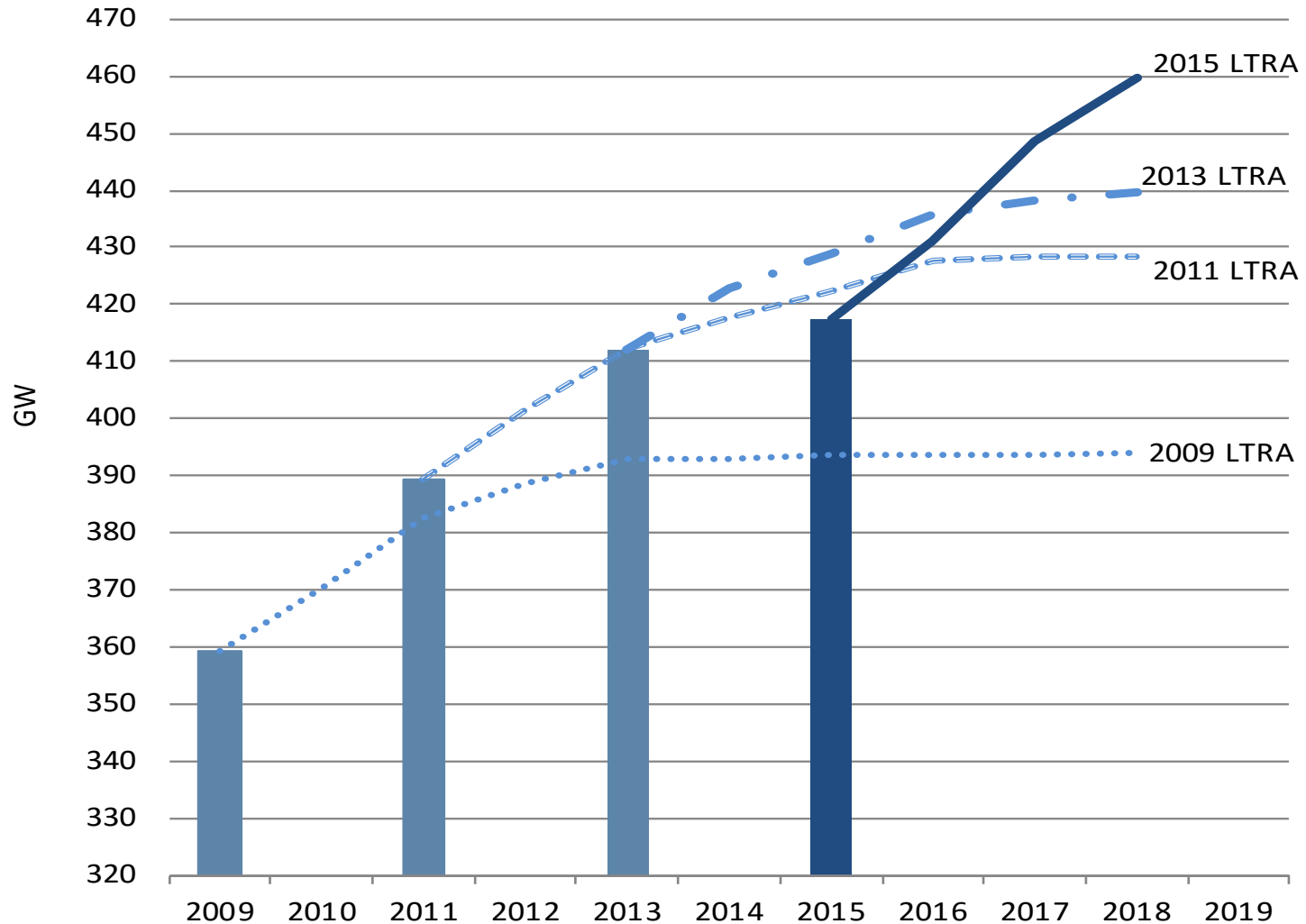
# Short-Term Special Assessment: Operational Risk with Increasing Gas-Electric Interdependencies

John Moura, Director, Reliability Assessment and System Analysis  
Joint session with the Staff Subcommittee on Electric Reliability  
July 24, 2016

**RELIABILITY | ACCOUNTABILITY**

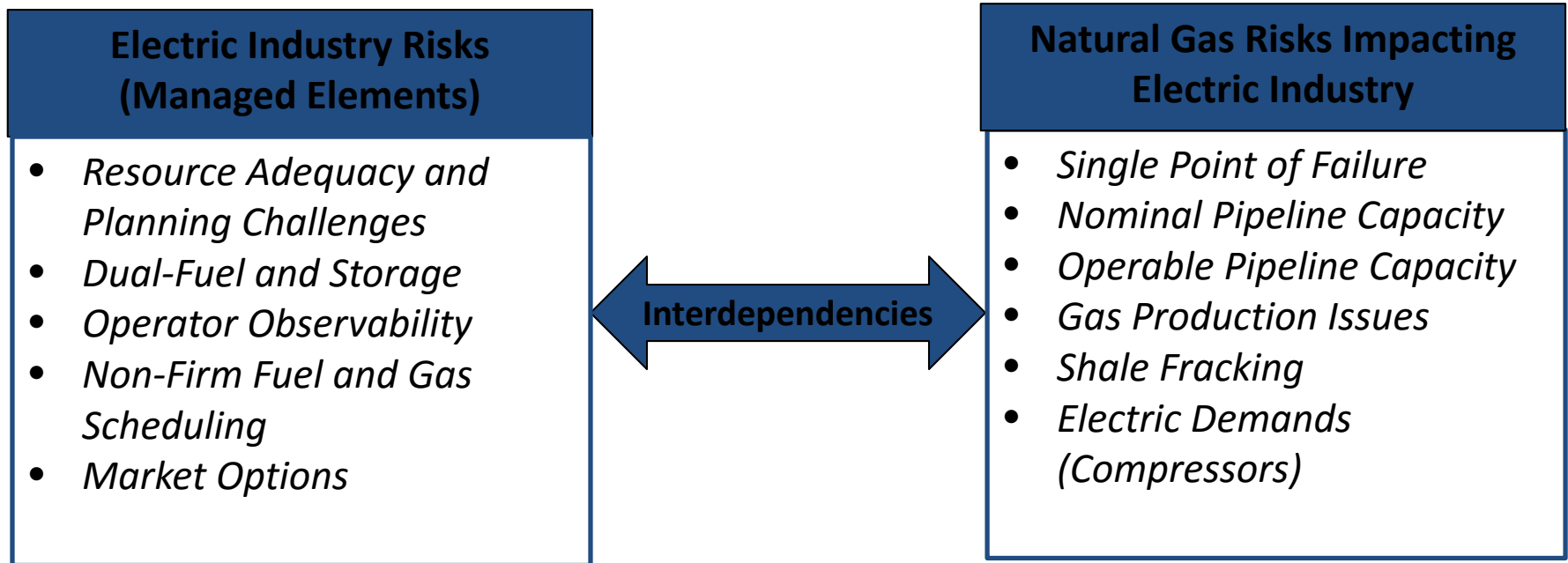


**Total NERC-Wide On-Peak Gas-Fired Capacity**

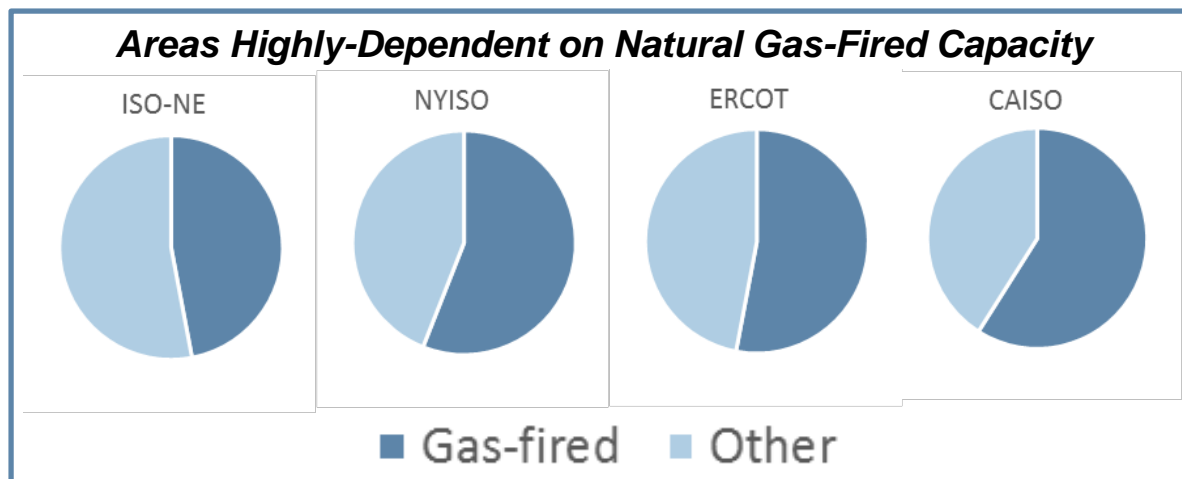


### **Problem Statement**

*An increased dependence on natural gas for generating electricity can amplify the bulk power system's exposure to interruptions in fuel supply, transportation, and delivery.*



- Generation Availability Risk Assessment
- Assessment Period: Peak periods for Summer 2016, 2017; Winter 2016/17, 2017/18
- Short-term challenges related to natural gas infrastructure
- Leverage existing studies from industry and Regions (e.g., EIPC)

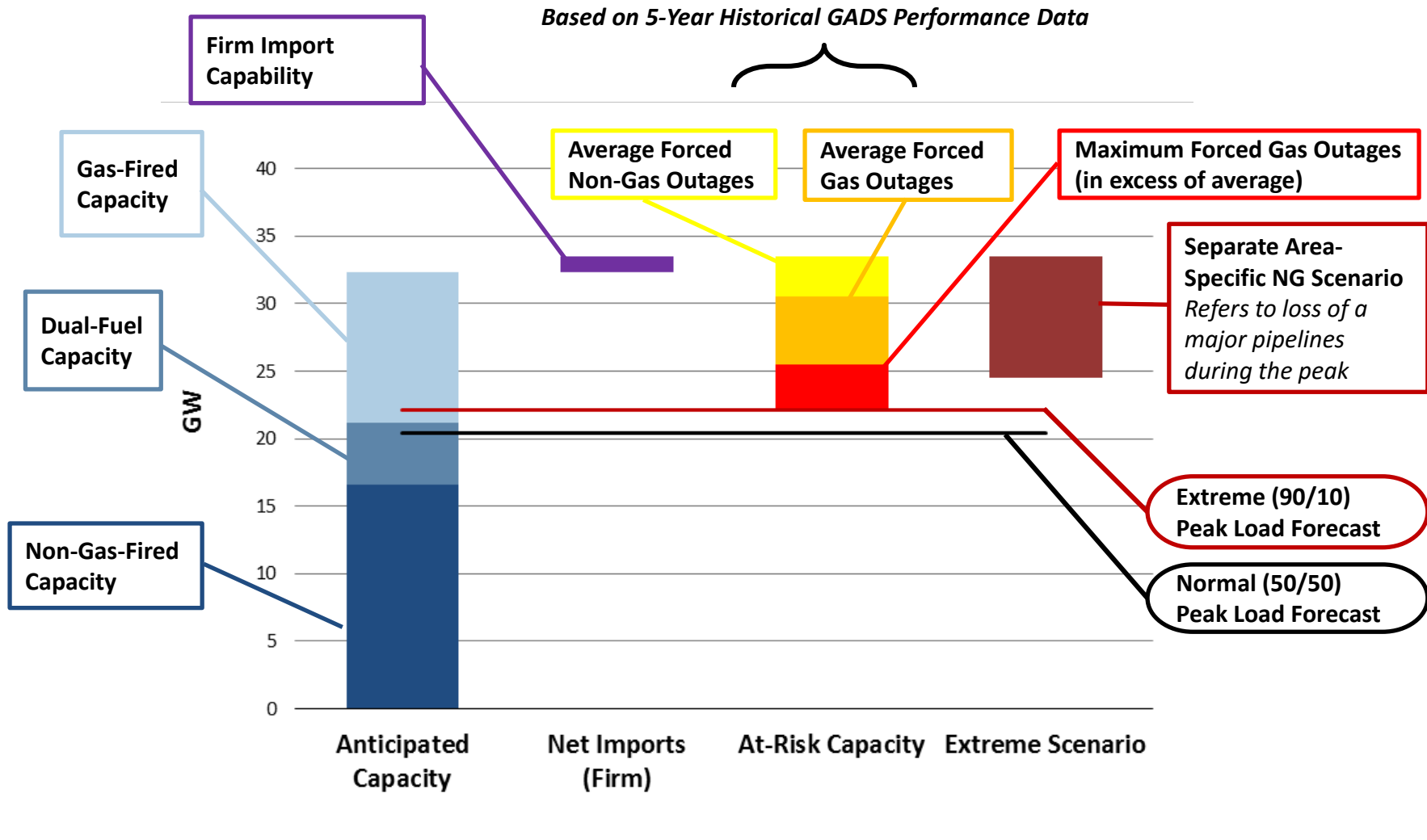


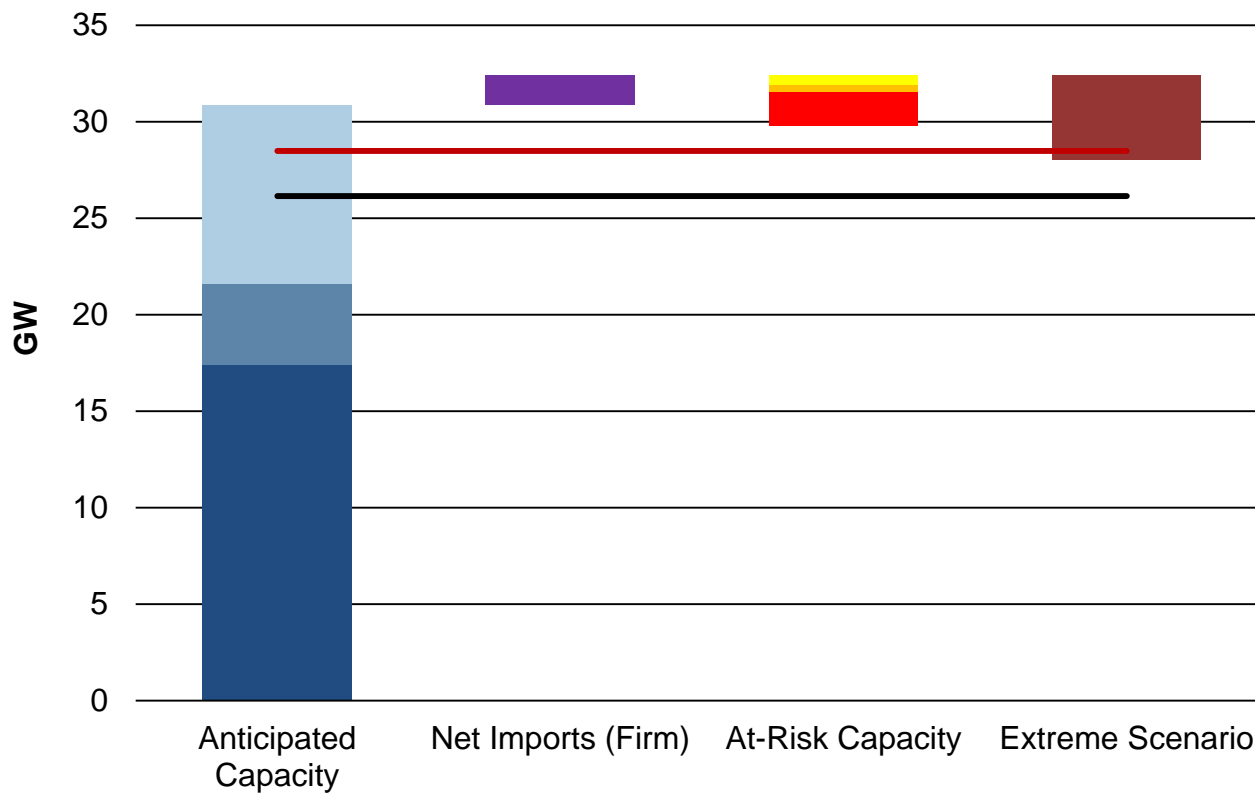
- Mitigation measures – use of dual-fuel generators and fuel firming
- Risks to natural gas generation during summer season – not just a winter problem
- Expand gas-electric planning and coordination – current industry best practice in some areas
- Operational coordination between gas and electric industries decrease likelihood of wide-spread outage

- Pipelines will interrupt power generation without contracts
- A variety of contracting options available to accommodate unique generator characteristics
- Under severe conditions, even firm contracts may be curtailed
- Additional infrastructure will not be constructed without an identified need (firm contract)

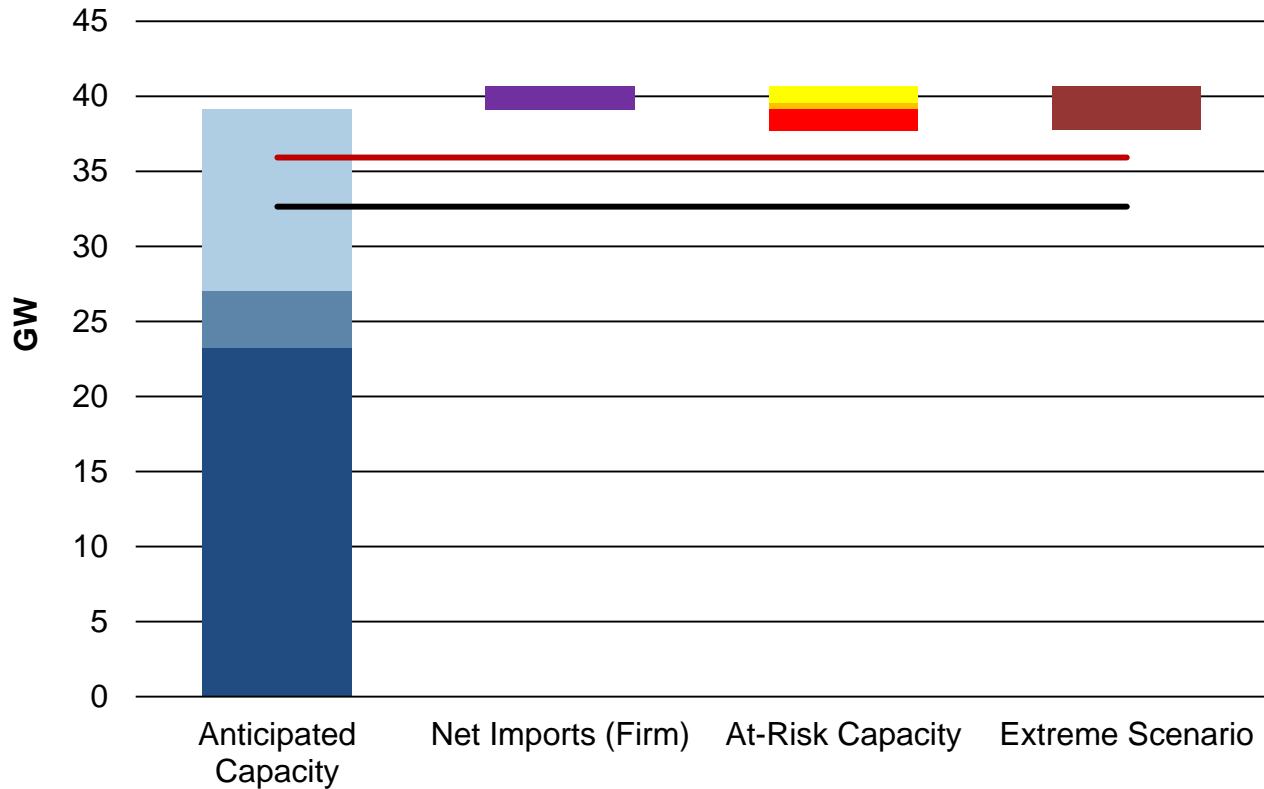


# Gas Availability Risk Assessment

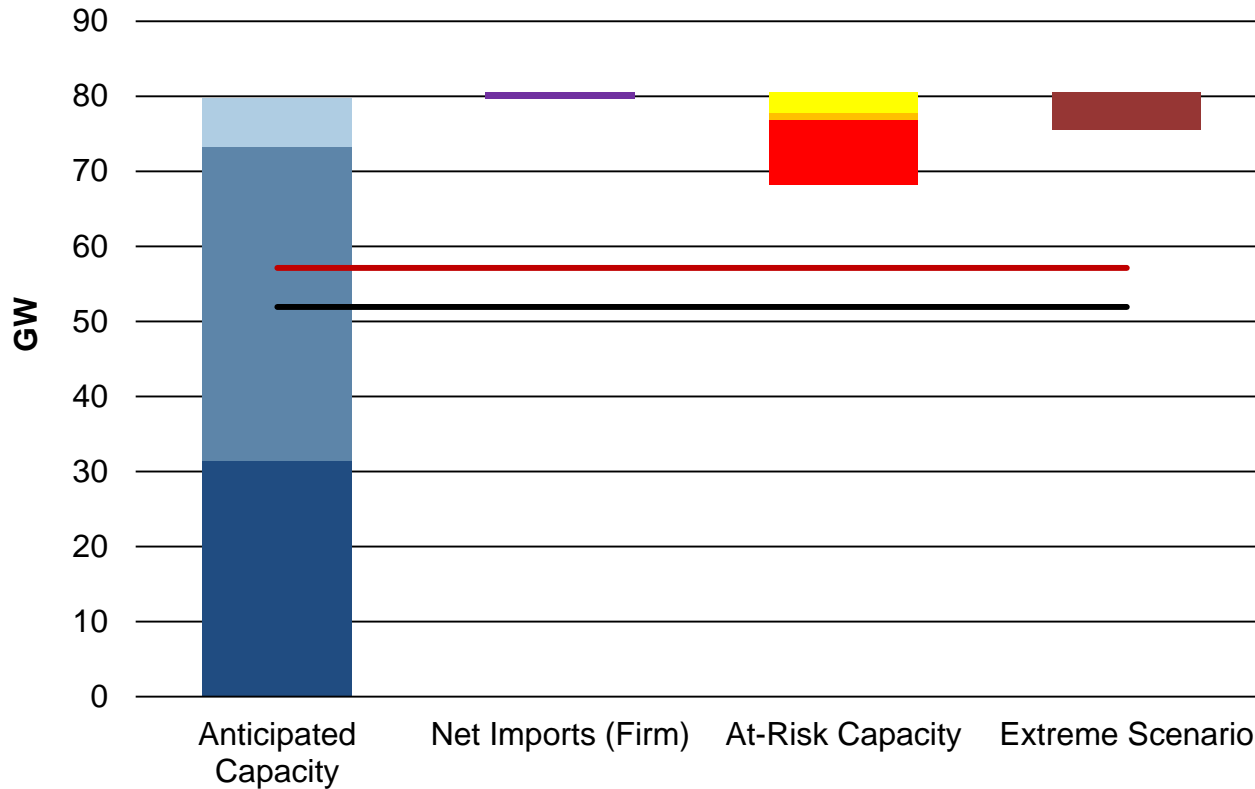




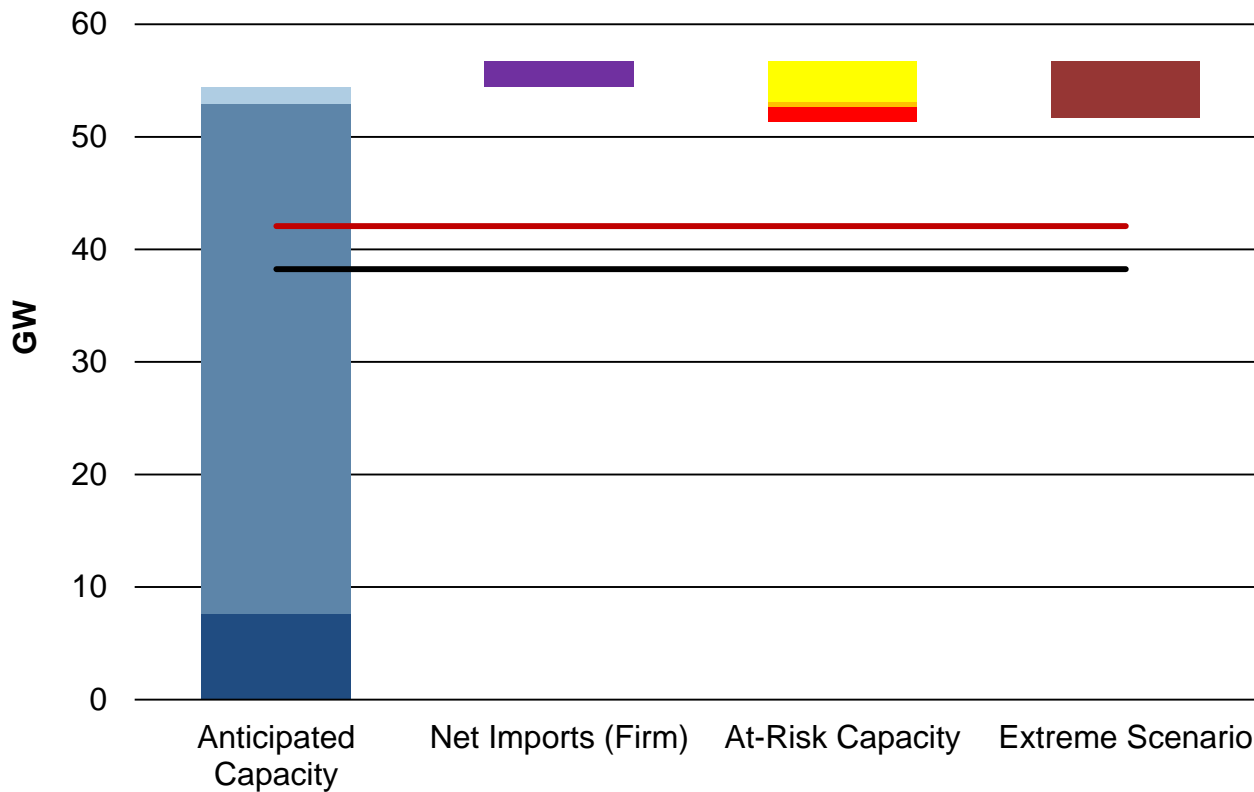
**ISO-NE Summer 2016 Gas Operational Risk**



**NYISO Summer 2017 Gas Operational Risk**



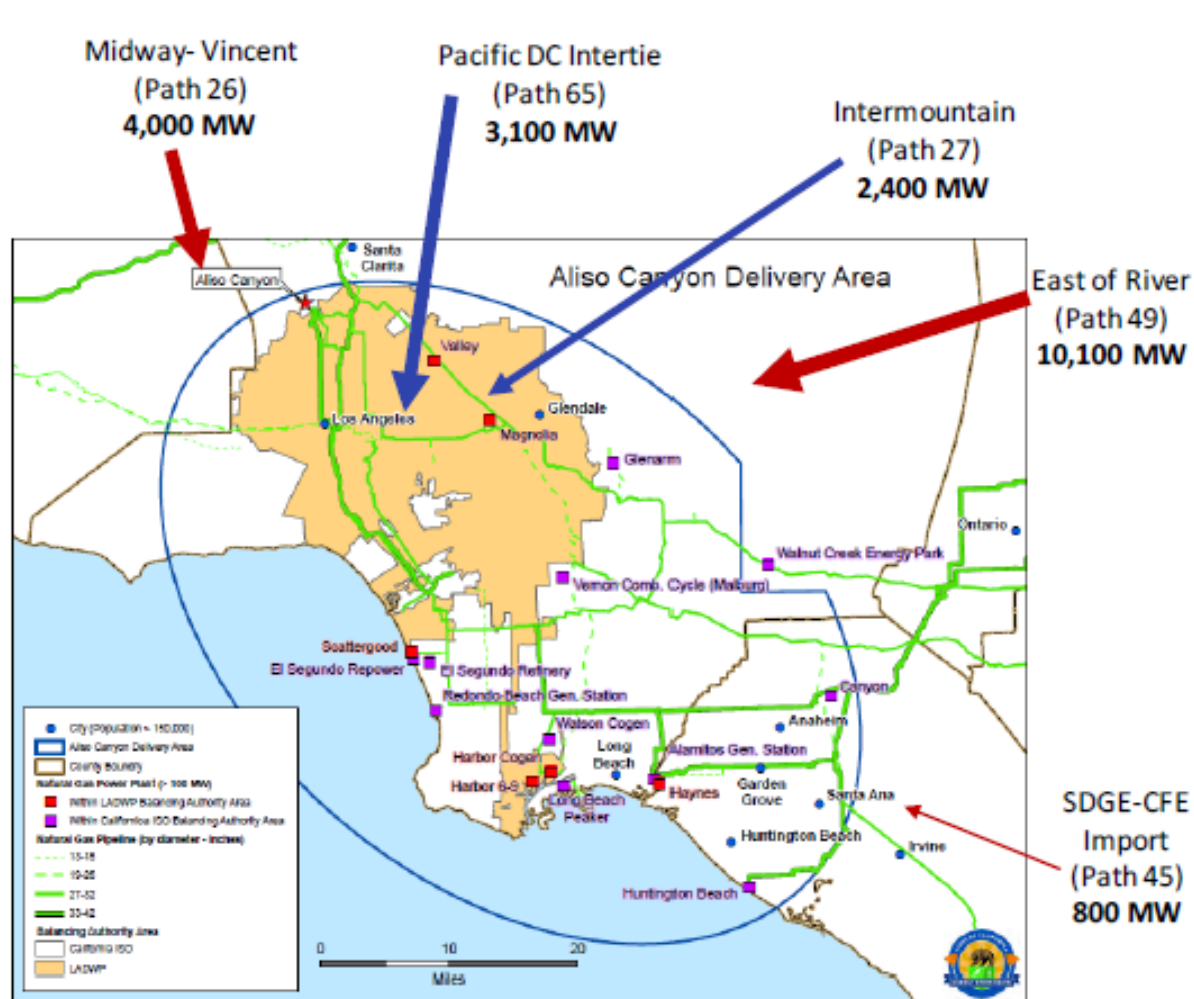
## ERCOT Winter 2016/17 Gas Operational Risk



**CA-MX Winter 2017/18 Gas Operational Risk**

- Aliso Canyon is a critical element of the Los Angeles Basin natural gas delivery system
  - Supports winter peak heating demand
  - Maintains pressure in gas distribution system (More challenging with rapid power plant ramping)
- Aliso Canyon currently has about 15 Bcf of working gas out of a total capacity of 86 Bcf
- Injections will not resume until safety testing or isolation of remaining 114 wells is completed

# Aliso Canyon: LA Basin Power Supply



← DC Interties

← AC Paths

### Potential Impacted Generation

LA Basin:

- 9,800 MW natural gas generation
- ~95% of total local capacity

Rest of Southern California:

- >15,000 MW natural gas generation

### Maximum Import Capacity

SDGE-CFE Import (Path 45) 800 MW

- 5,500 MW DC capacity
- 14,900 MW AC capacity
- 20,400 MW total\*

\* Typically limited to 17,000 - 18,000 MW

- Fuel availability for local generation may be impacted for upcoming summer
  - Gas system deliverability without Aliso Canyon
  - Gas system outages (SoCal or on interstate pipelines)
  - Exogenous factors affecting supply (e.g., cold weather)
  - Curtailment priorities
- Generation resource adequacy
  - 95% of in-basin generation vulnerable to gas curtailment
  - Adequate generation resources exist to supply imports into the LA Basin, but this does not take into account local deliverability issues
- All eyes on upcoming winter...





# Questions and Answers