NARUC

Winter Committee Meetings

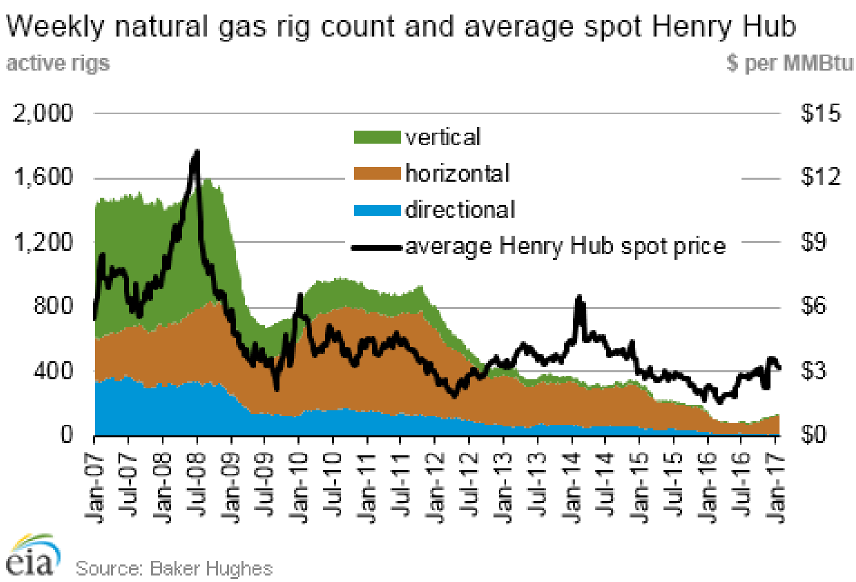
Committee On Gas

Business Meeting

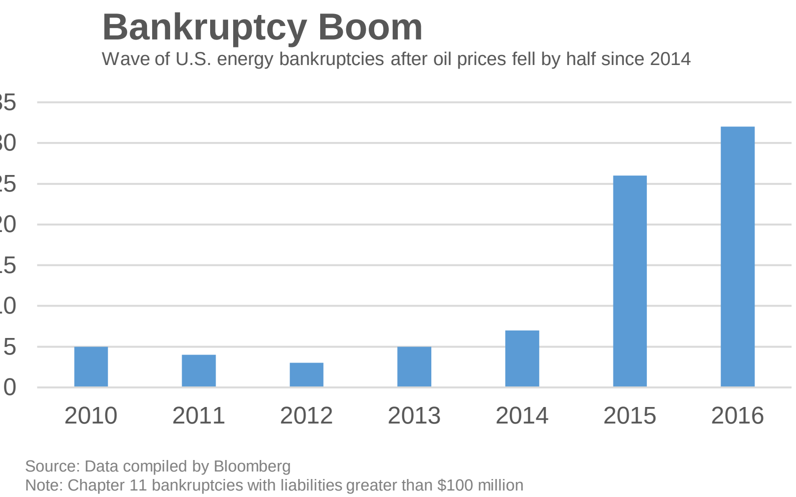

swn
Southwestern Energy
NARUC

Doom and Gloom?
Tough Times in the Oil Patch

Prices and rig count down significantly



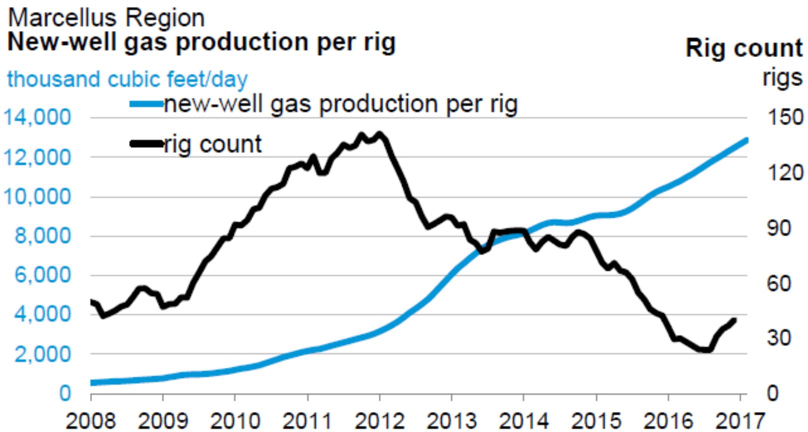
…And bankruptcies spiking



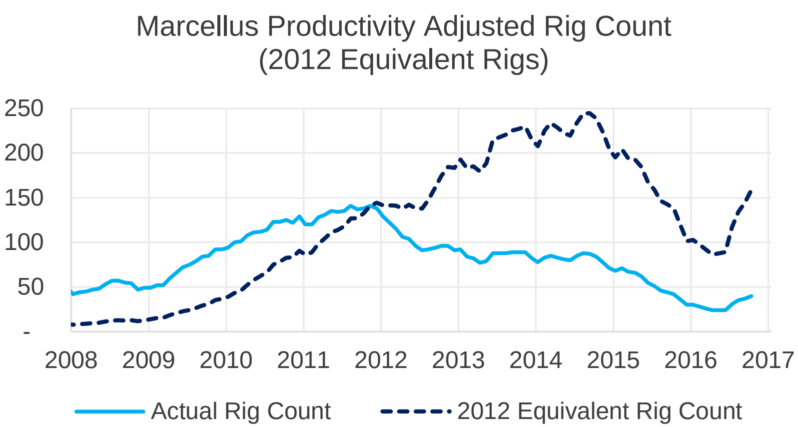
Sunshine Emerges

The Industry is Experiencing a Productivity Revolution

Rig count is down but productivity is exploding



After adjusting for productivity, Marcellus rig count above 2012 peak

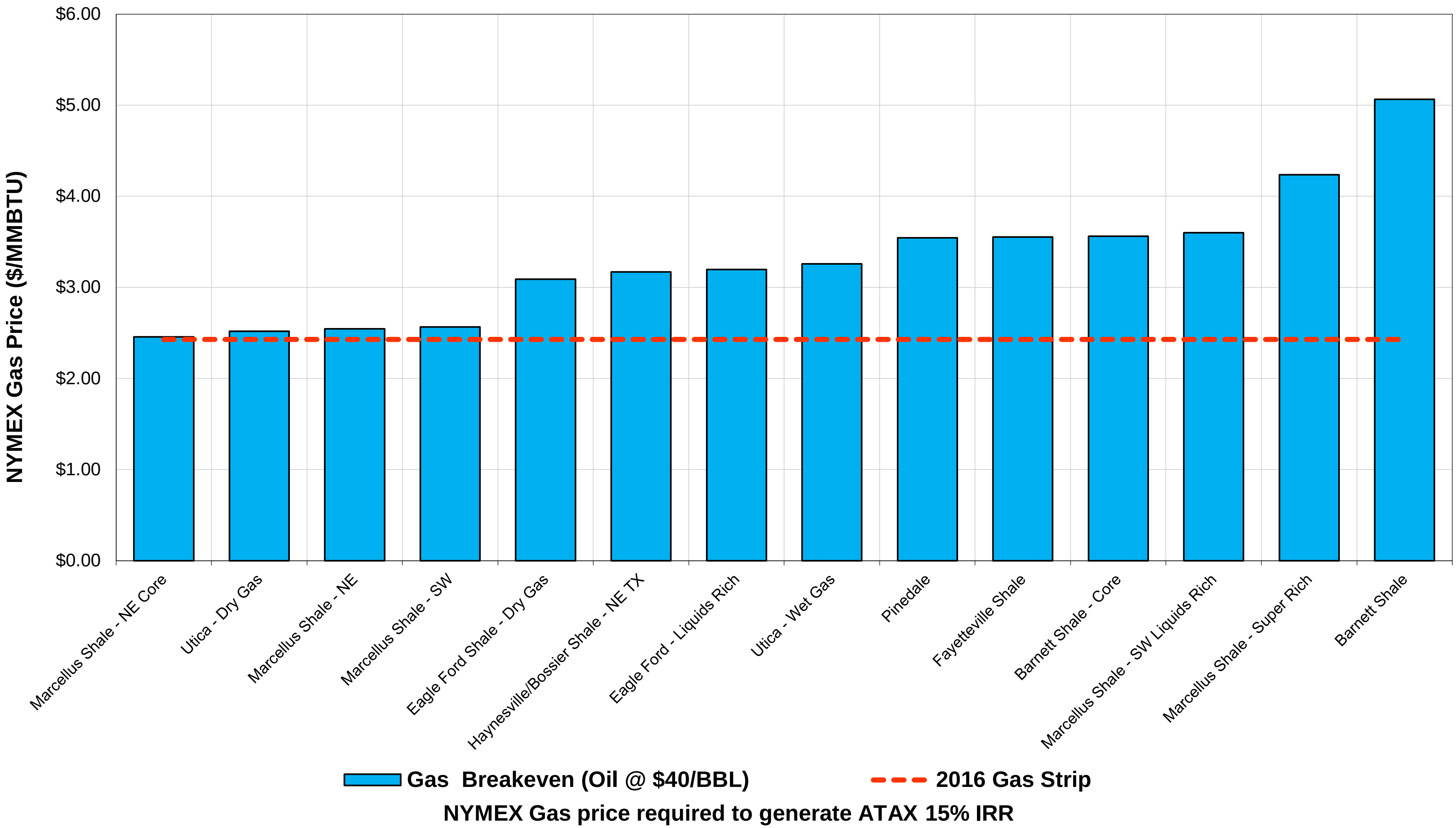


But are wells economic at these prices?

Source: EIA, Baker Hughes

Gas Play Breakeven Economics

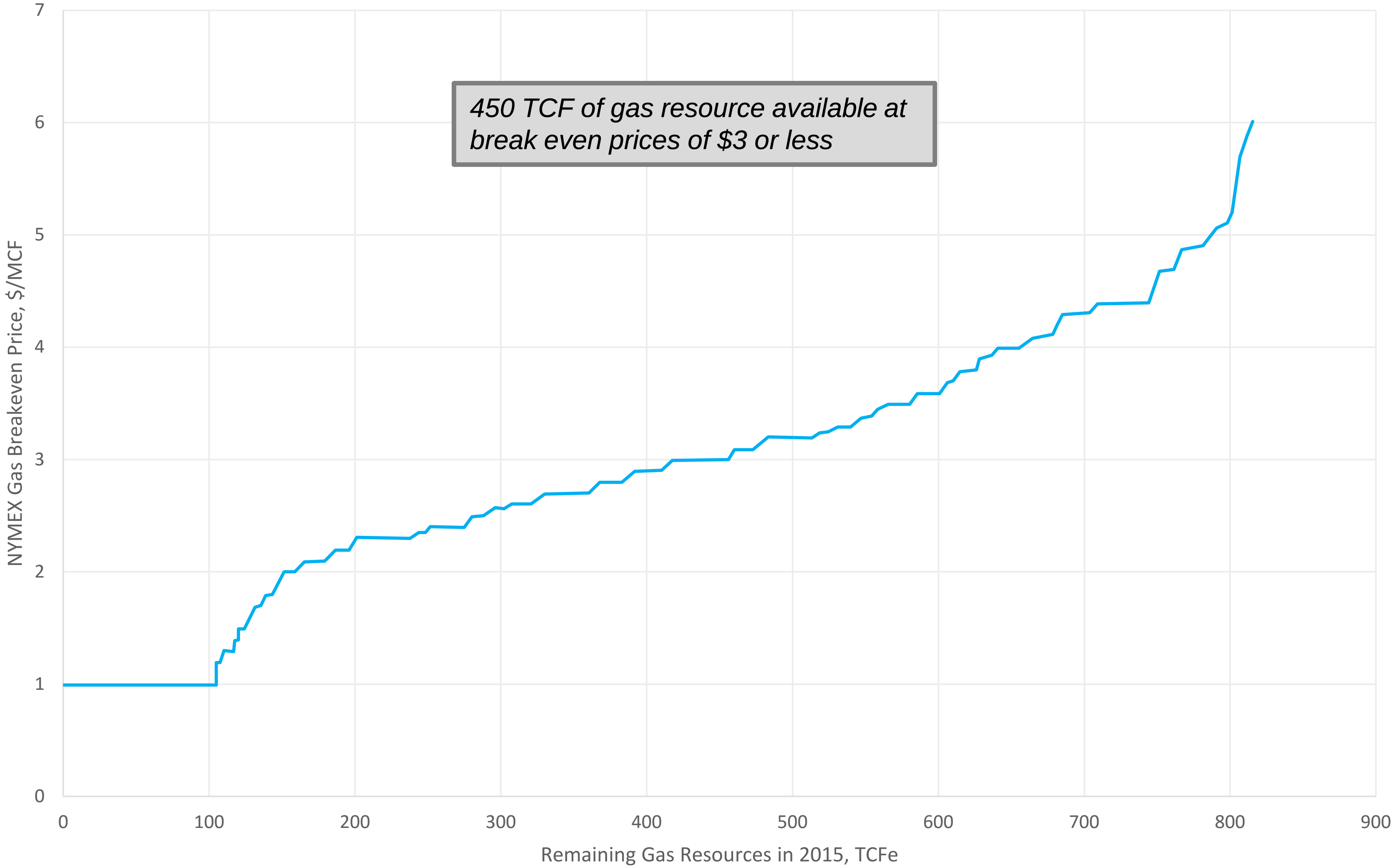
Several Plays are Economic at $3.00 or Lower



And how much resource is available at these prices?

Source: Credit Suisse, company estimates
Note: average 2016 gas price based on gas strip as of 5/26/16, NGL @ 30% of WTI

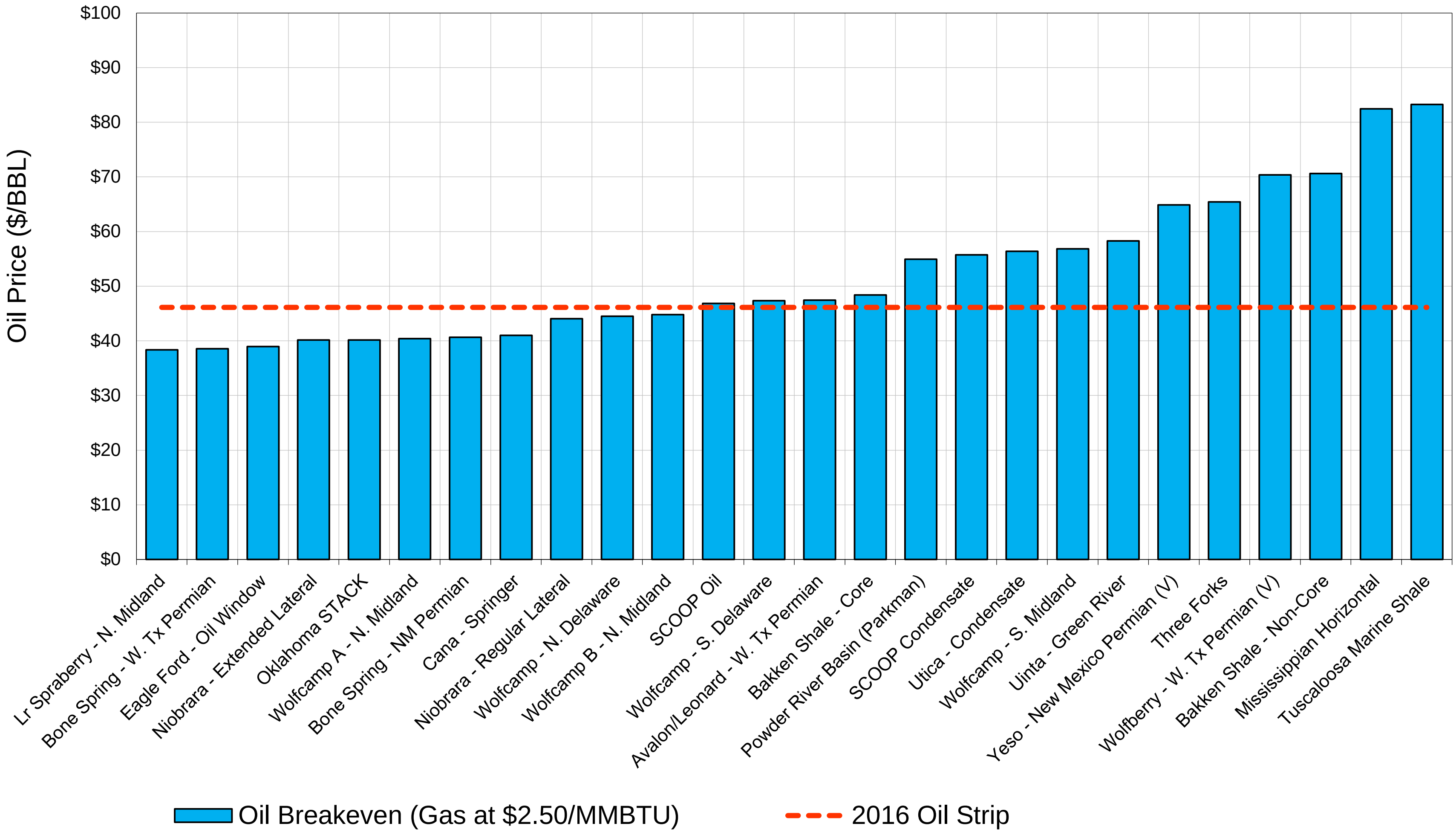
L48 Gas Breakevens vs Resource



Source: Rystad

What About Oil and Associated Gas?

Many Plays Economic at $50/bbl or Lower



WTI Oil price required to generate ATAX 15% IRR

Source: Credit Suisse, company estimates

Note: average 2016 gas price based on gas strip as of 5/26/16, NGL @ 30% of WTI

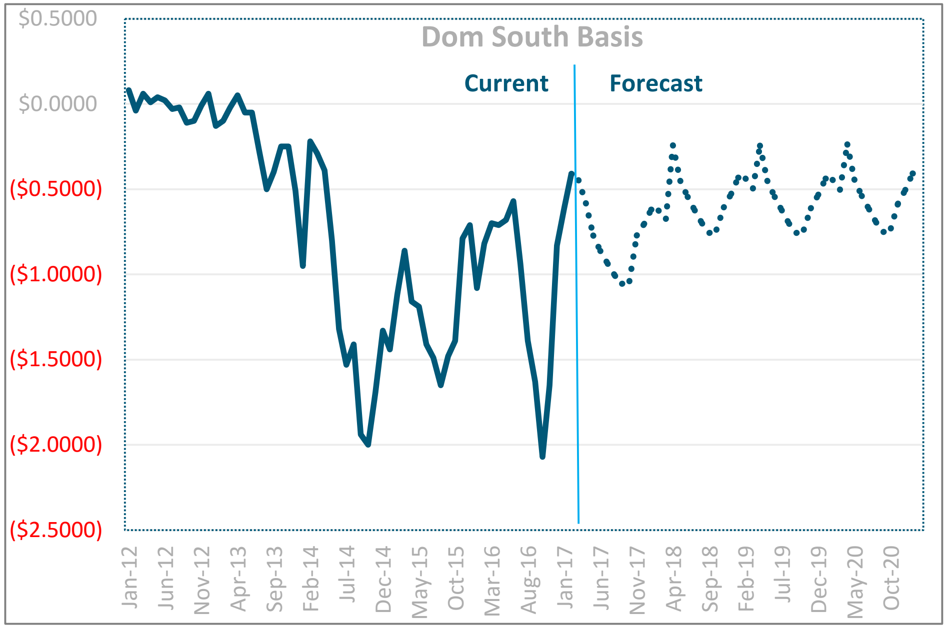
Implications – What Can NARUC Do to Help?

Abundant Resources, Additional Transport Needed Out of Basin

- L48 oil and gas resources are abundant but concentrated in several key basins
  - Gas: Appalachia
  - Oil: Permian Basin
- Transportation solutions will help to narrow future basis differentials

Pipeline	Project Name	Announced	Original ISD	Projected ISD*	Expansion Capacity (MMbtu/d)
TCO	Leach Xpress	Oct-14	Jun-17	**Nov - 17**	1,500,000
TGP	Broad Run Expansion	Mar-14	Nov-17	**Jun-18**	200,000
Various	PennEast	Aug-14	Nov-17	**Nov-18**	1,000,000
ETP	ET Rover	Jun-14	Nov-16	**Q1-2018**	3,250,000
Transco	Atlantic Sunrise	Dec-13	Jul-17	**Mid - 18**	1,700,000
Constitution	Constitution	Feb-12	Nov-15	**Jul - 18**	650,000
			Total		8,450,000

* Internal SWN Projections



Appendix

Crestwood®

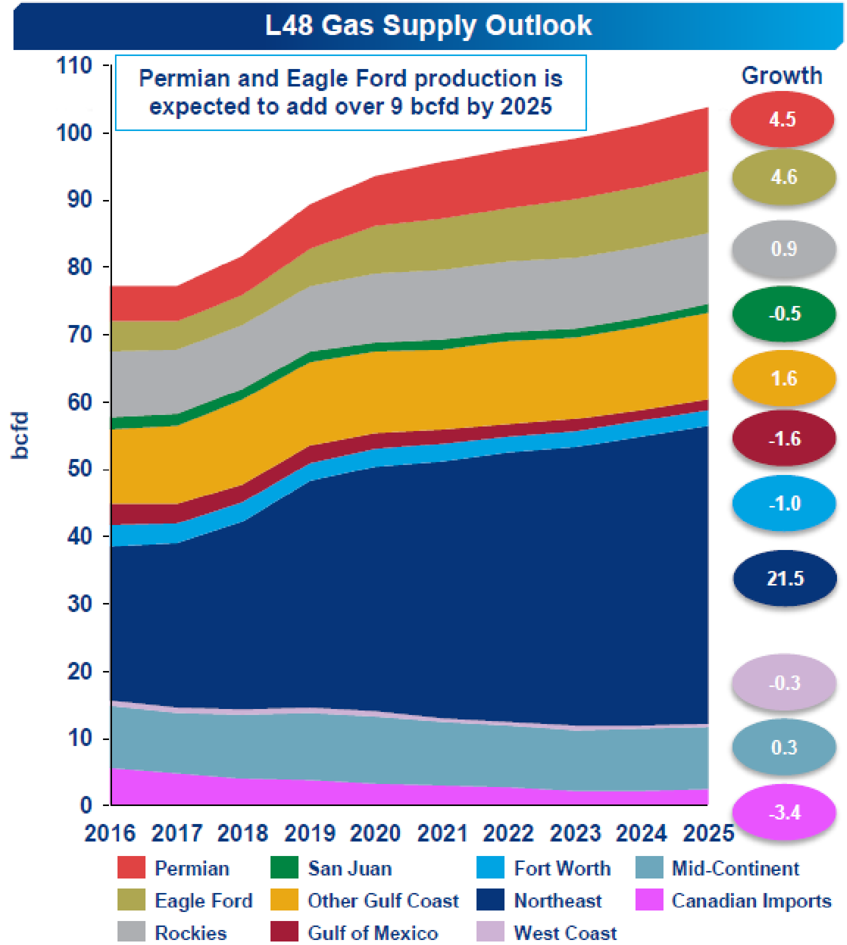
Connections for America's Energy®

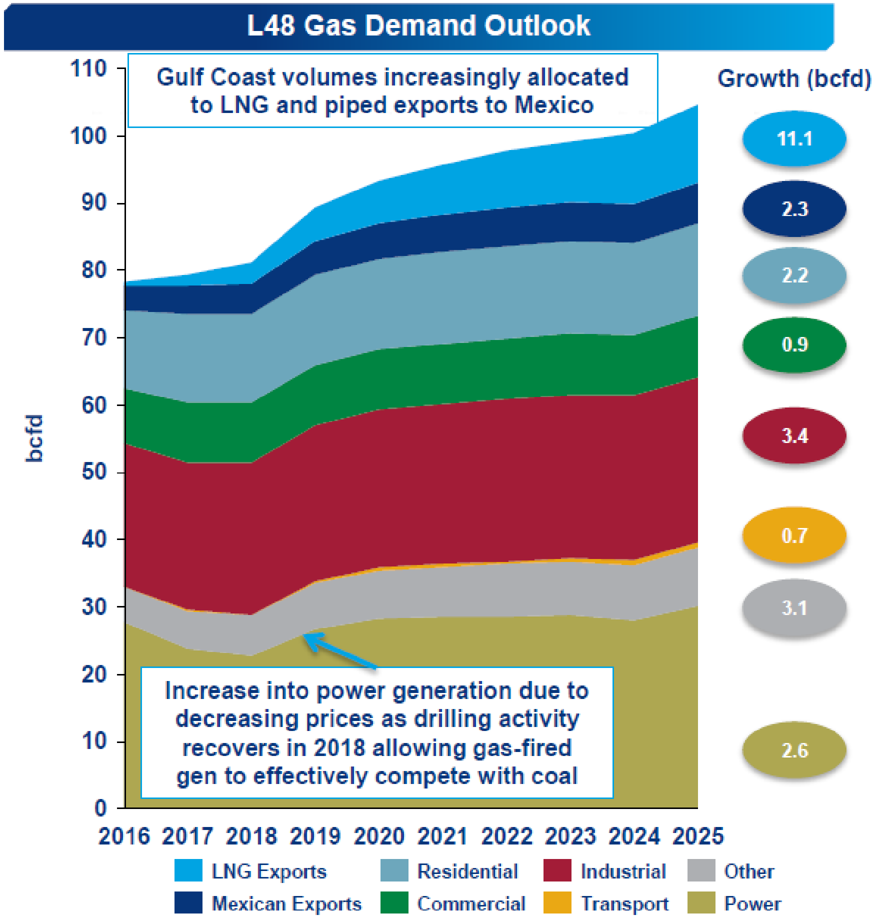
NARUC Winter 2017 Committee Meetings
Natural Gas Opportunities – Infrastructure

Mark Mitchell – Crestwood Equity Partners LP
February 14, 2017

US Lower 48 Supply and Demand Growth Projections

26 Bcfd growth – New infrastructure needed to connect supply to demand

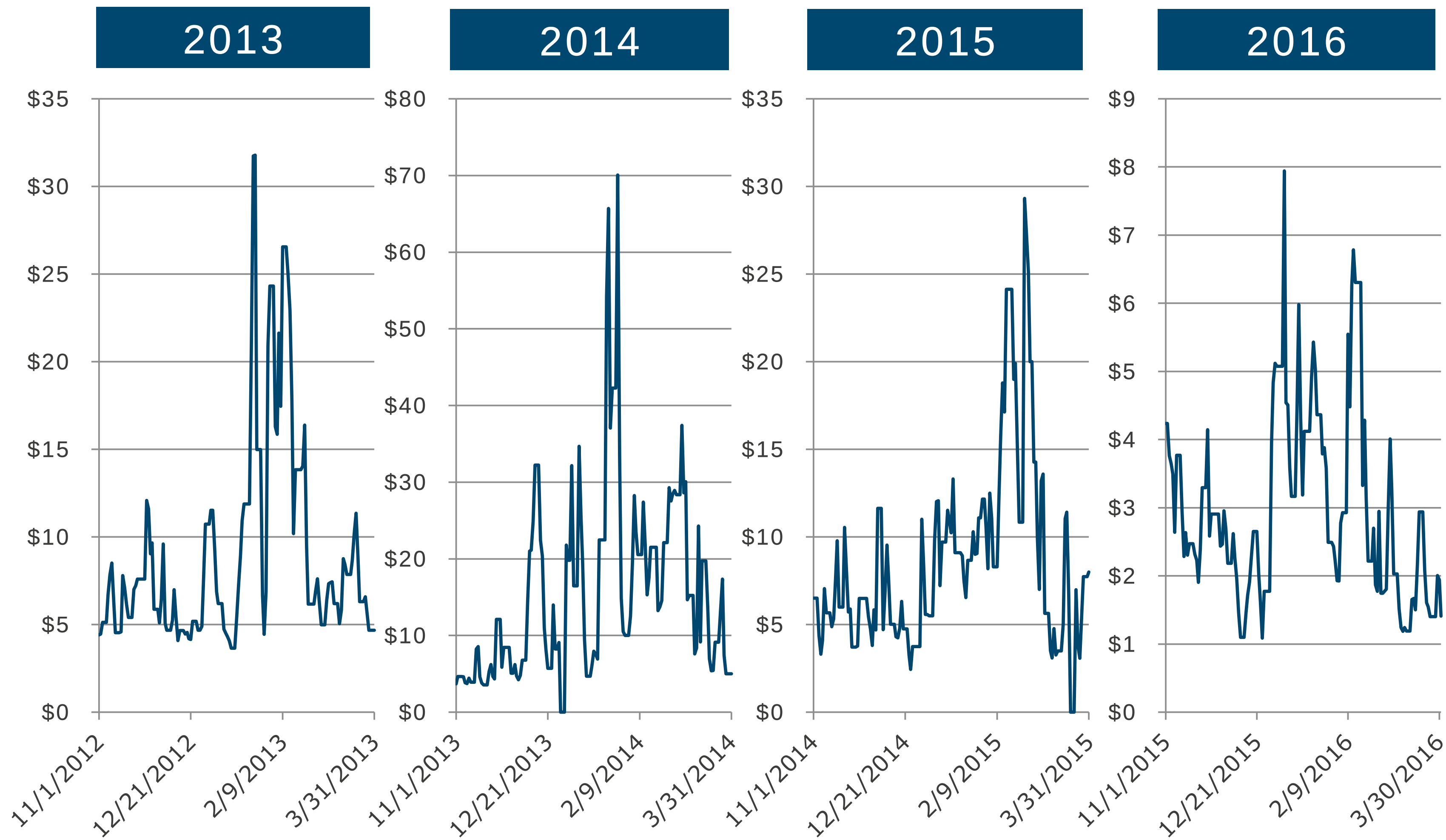




Source: Wood Mackenzie A Verisk Analytics Business

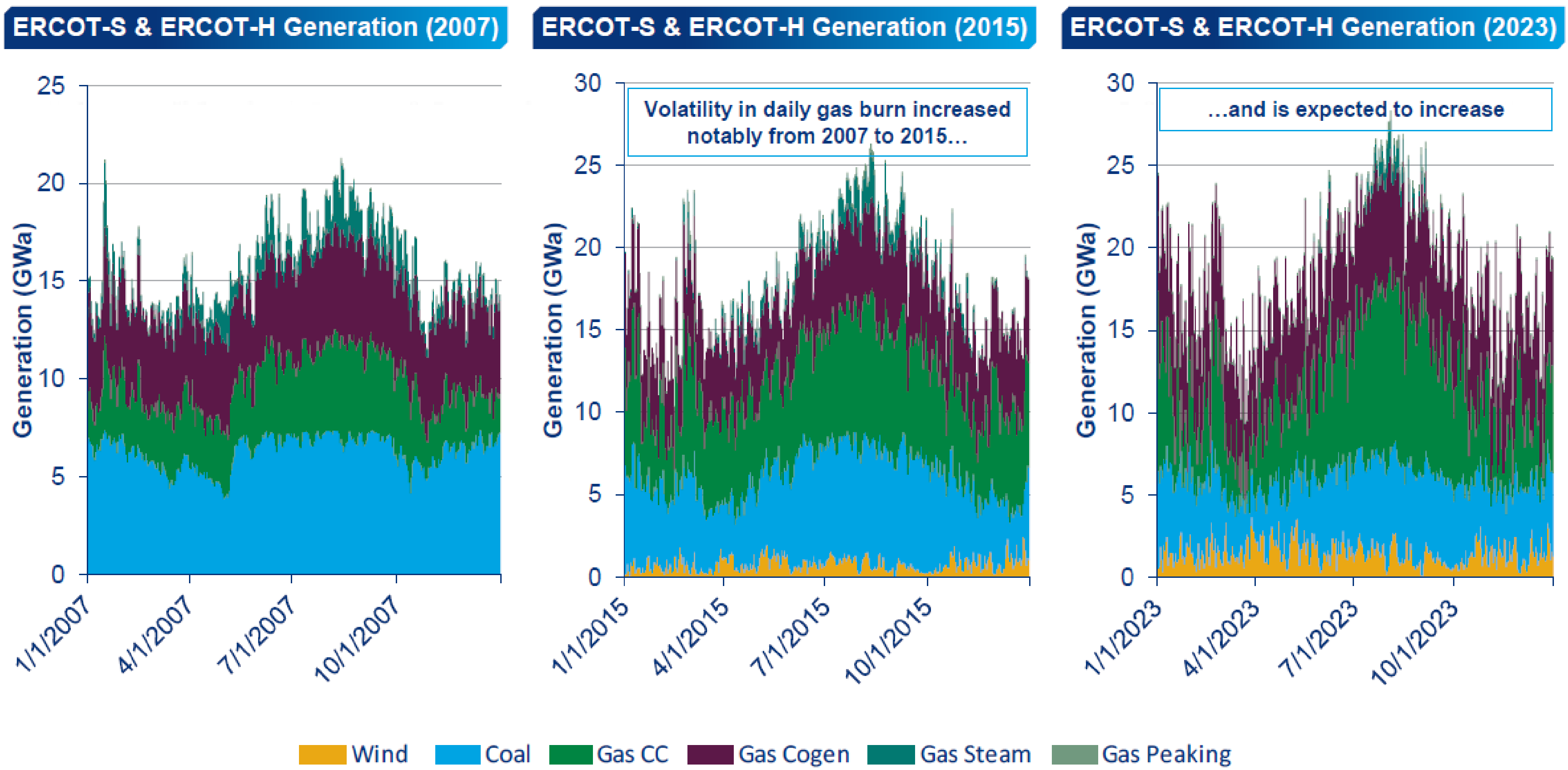
Price Volatility in Infrastructure Constrained Markets

Consistent price spikes each winter observed for Tennessee Zone 6



Natural Gas – Critical Component of Renewables Picture

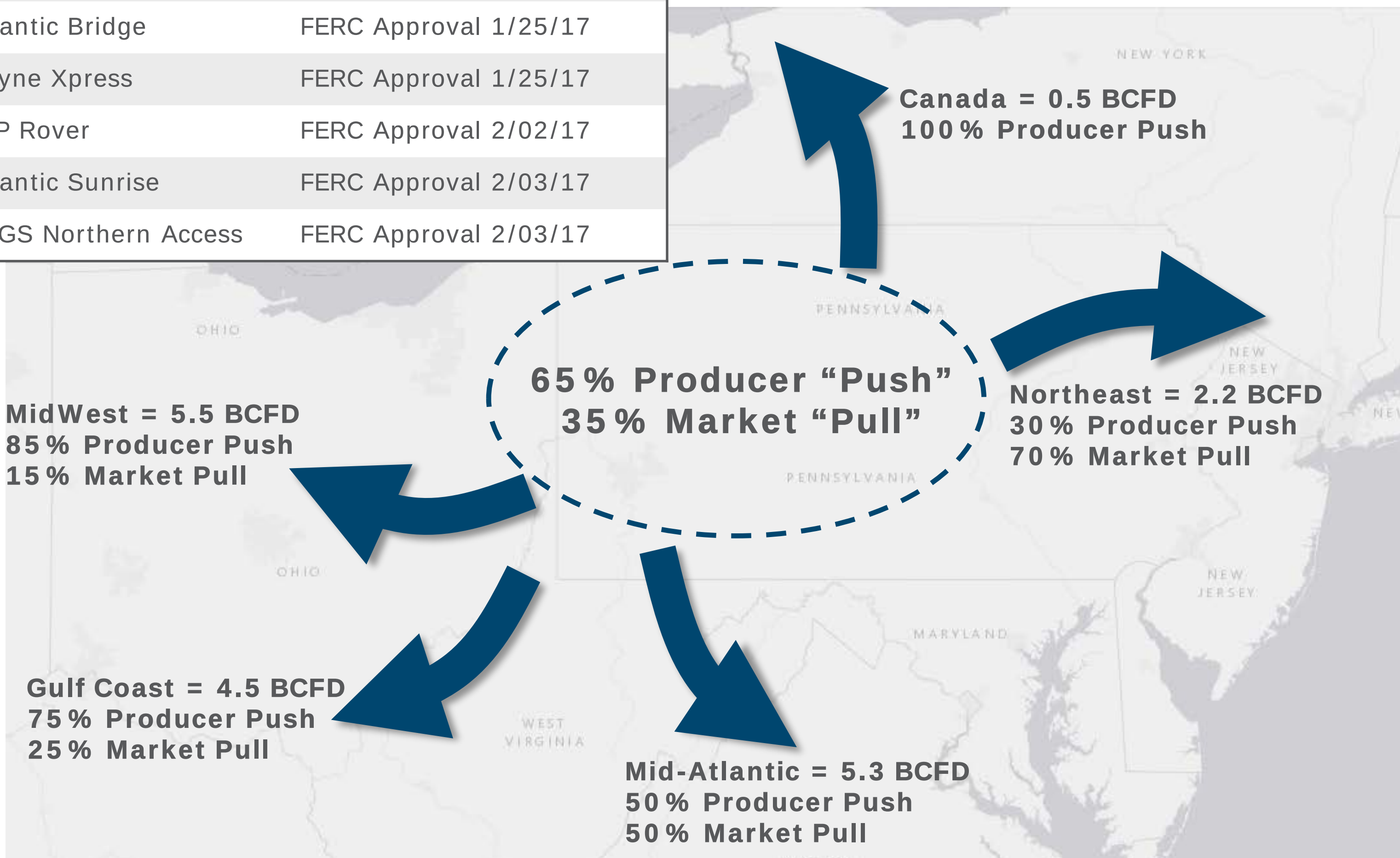
Gas generation plays a key role in mediating intermittency in renewables load profile – storage and transportation infrastructure is CRITICAL



Source: Wood Mackenzie A Verisk Analytics Business

Marcellus / Utica Pipeline "Takeaway" Projects – Macro View

Recent Regulatory Developments	
DTI New Markets	NYDEC Air Permits 1/06/17
Atlantic Bridge	FERC Approval 1/25/17
Rayne Xpress	FERC Approval 1/25/17
ETP Rover	FERC Approval 2/02/17
Atlantic Sunrise	FERC Approval 2/03/17
NFGS Northern Access	FERC Approval 2/03/17



Requirements for Successful Development

Commercial

- Long-term view – proactive planning and development
- Integrated support – balanced project sponsorship/endorsement from producers, end-users, and regulatory bodies

Operational Excellence

- High standards of execution – construction, safety and environmental stewardship
- Strong partnerships – landowners, communities, and other stakeholders
- Long-term focus – operations, maintenance and community outreach

Permitting

- Collaborative, centralized platform for coordination among regulatory and permitting agencies

Gas-fired Generation in MISO: Outlook and Challenges

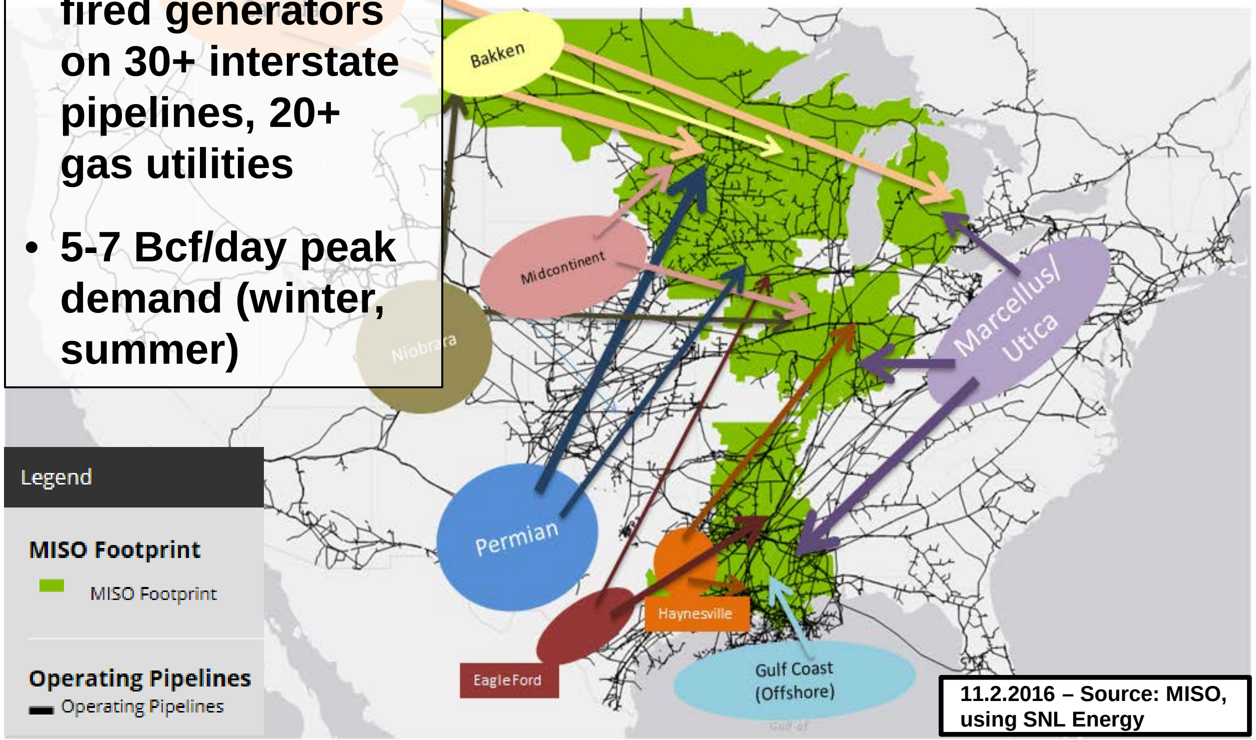
Scott Wright, Executive Director

NARUC Winter Gas Committee Meeting
Washington, D.C.

February 14th, 2017

The MISO region is favorably positioned at the gas pipeline “crossroads” of the U.S. and well positioned to support future growth in gas-fired generation

- MISO 200+ gas-fired generators on 30+ interstate pipelines, 20+ gas utilities
- 5-7 Bcf/day peak demand (winter, summer)

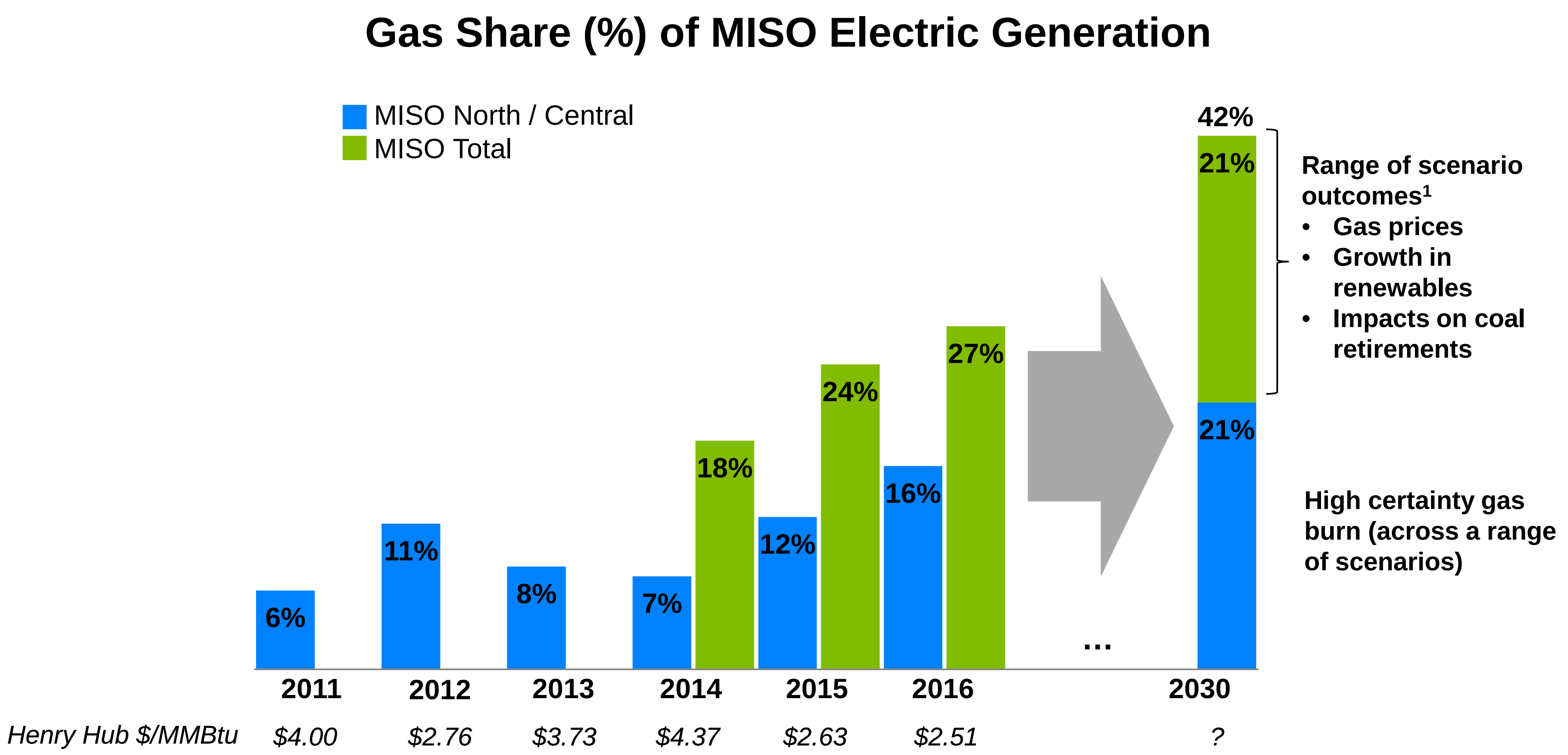


11.2.2016 – Source: MISO, using SNL Energy

- Access to all 5 major U.S. gas basins
- 55% of U.S. gas storage capacity is located in MISO
- Region is historically supportive of gas infrastructure development

Predominantly traditional state regulation with cost recovery approaches for fuel assurance expenses

Gas demand has grown and MISO's evolving fleet will propel gas demand even higher

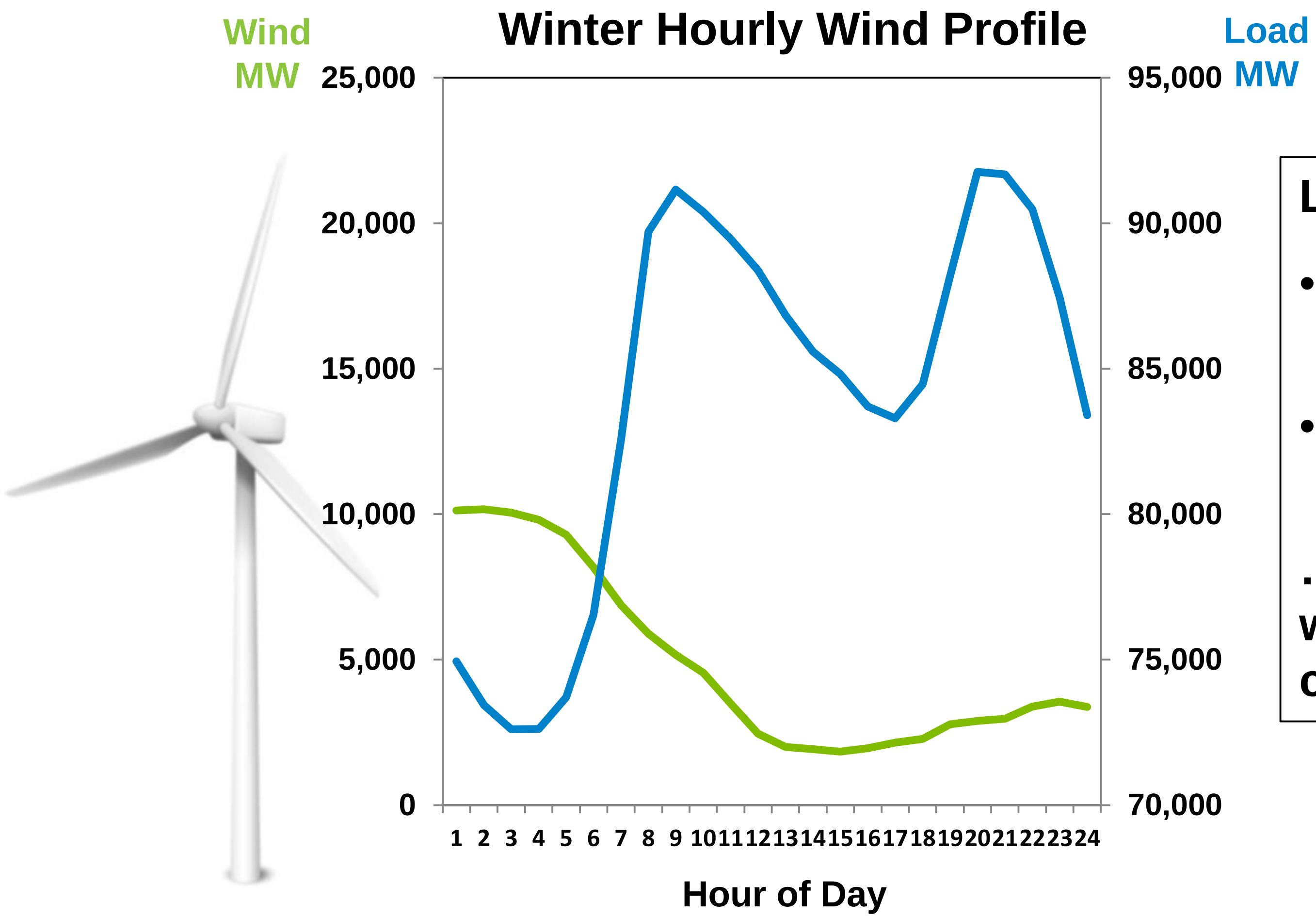


Installed gas capacity is projected to increase 8,000 MW in the queue through 2020[2]

(Signed interconnection agreements 3,700 MW; final definitive studies 4,300 MW)

[1] MISO MTEP 2016 sensitivities with range of gas prices (mid-case +/- 30%)
[2]MISO Interconnection Queue as of Aug, 2016

Within a given operating day, gas-fired capacity is important during the morning ramp where electric load can increase quickly and wind may fall off steeply



Looking forward…

- Growth in renewables
- Continued pressures on coal retirements

…MISO's call on gas will increase and change

Chart for February 12, 2015

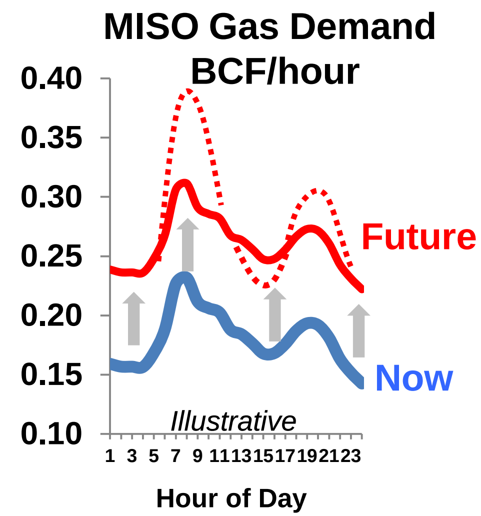
The MISO region is well-positioned to support growth in gas-fired generation but key challenges remain

Operations

Markets

Infrastructure

- Support a changing call on gas
  - Higher annual capacity factors
  - Increased gas variability within a given operating day
  - Importance of availability during severe winter weather



- Further improve markets, services and products – electric side, gas-side

- Recognize the importance of gas infrastructure
  - Getting the most out of existing assets
  - Enabling asset expansions and development for the future

Advance collaboration across industries and with states

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