The INGAA Foundation, Inc.

2018 INGAA Foundation Annual Meeting

November 2, 2018

The Cloisters | Sea Island, Georgia

Please silence cell phones and computers

The INGAA Foundation, Inc.

WELCOME

Mark Hereth, Managing Director, Blacksmith Group and Chairman, The INGAA Foundation

The INGAA Foundation Staff

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Antitrust Compliance Guidelines

In all Foundation activities, you must avoid any discussion or conduct that might violate the antitrust laws or even raise an appearance of impropriety.

Commitment

The INGAA Foundation and its member companies are committed to full compliance with all laws and regulations, and to maintaining the highest ethical standards in the way we conduct our operations and activities. **Our commitment includes strict compliance with federal and state antitrust laws, which are designed to protect this country's free competitive economy.**

Responsibility for Compliance

Compliance with the antitrust laws is a serious business. Antitrust violations may result in heavy fines for corporations, and in fines and even imprisonment for individuals. **You bear the ultimate responsibility for assuring that your actions and the actions of any of those under your direction comply with the antitrust laws.**

The INGAA Foundation, Inc.

Construction Quality Compendium

Representing over 200 natural gas pipeline companies, construction companies, engineering firms, pipe and compressor manufacturers, accounting firms, information technology services and other suppliers of goods and services to the pipeline industry, The INGAA Foundation sponsors research that facilitates the safe, efficient, reliable and environmentally responsible design, construction, operation and maintenance of the North American natural gas transmission system. The table below represents recent reports the Foundation has produced related to construction quality.

In addition to these reports, the INGAA Foundation also periodically publishes Construction Safety Guidelines. Each guideline begins with a collaborative base document produced from a representative industry sample of internal practices collected among member companies. This collection is then evaluated by a committee of safety experts to identify commonly shared construction safety management practices.

The INGAA Foundation also hosts an anonymous database of lessons learned about pipeline construction safety through analysis of real-world occurences, The Lessons Learned Repository. In order to safeguard the process of enhancing safety practices through the sharing of experiences, only INGAA Foundation members can submit to and access data from this proprietary platform.

Construction Quality Compendium

Building Interstate Natural Gas Transmission Pipelines: A Primer	Overview of Quality Management Systems – Principles and Practices for Pipeline Construction	Identification of Pipe with Low and Variable Mechanical Properties in High Strength, Low Alloy Steels	Guidelines for Practical Implementation of a Construction Quality Management System
Field Applied Coatings – Best Practices	Guidelines for Natural Gas Line Crossings	Guidelines for Parallel Construction of Pipelines	Small Order Pipe Quality Guideline
Planning Guidelines for Pipeline Construction During Frozen Conditions	Training Guidance for Welding and Coating Workers and Inspectors	Guidance for Specification and Purchase of Segmentable Induction Bends and Elbows: Phase 1	Guidance for Specification and Purchase of Segmentable Induction Bends and Elbows: Phase 2
Mitigation of Land Movement in Steep and Rugged Terrain for Pipeline Projects	A Practical Guide for Pipeline Construction Inspectors	Criteria for Pipelines Co-Existing with Electric Power Lines	Integrating Culture and Leadership: Making Safety Personal

Best Practices in Applying API 1104 Appendix A

Pipeline Research Council International

LEADING PIPELINE RESEARCH

Construction Quality Compendium

Through PRCI's international membership of pipeline operators (gas and liquid), pipeline industry organizations, and associates (vendors, consultants, research firms, and other related partners) – our mission is to *collaboratively deliver relevant and innovative applied research to continually improve the global energy pipeline systems.* PRCI accomplishes this by identifying research objectives to solve industrywide issues. Currently, this is accomplished through the following technical committees:

- Compressor & Pump Stations
- Corrosion
- Design, Materials and Construction
- Integrity and Inspection
- Measurement
- Surveillance, Operations and Monitoring
- Subsea Pipelines
- Underground Storage

Research results are compiled into a final report for PRCI members, with many reports being available for public use. This compendium provides a sampling of research results within the technical area of pipeline construction.

Reference Key: M = Member only; * = Publicly available for purchase: https://www.prci.org/Store.aspx

Guidelines for Interpretation and Application of API 1104 – 21st Edition (PR-186-124502-R01) *

The application of requirements contained in many industry codes and standards requires some interpretation by the user and by the regulator who is called upon to enforce their use. The objective of this project was to update the PRCI guidance document for API Standard 1104 for the recently published Twenty-first Edition of the standard and to further develop the document.

Standardization of Weld Testing Methods - SE(T) Fracture Toughness Measurements (PR-214-114509-R02) M

The focus in this project was promoting the standardization of fracture toughness testing procedures applicable to pipeline girths welds using Single Edge Notched Test (SENT) specimens.

Support for Standardization of Weld Testing Methods - Curved Wide Plate Testing (PR-244-114510-R01) *

This work; (1) performed a literature review of existing test procedure and protocols, (2) an associated workshop to evaluate subject matter experts of the key element of the Recommended Practice and a discussion of the Technical issues, and, (3) prepare a Recommended Practice.

Installation of Pipelines by Horizontal Directional Drilling, An Engineering Design Guide (PR-277-144507-E01) *

This report replaces the original engineering design guide published in 1995 by the Pipeline Research Committee (PRC) of the American Gas Association. It is a comprehensive, updated engineering design guide intended to serve as a step by step guide for engineers engaged in the evaluation, design, and management of energy pipeline construction by horizontal directional drilling (HDD). The design guide includes two Microsoft Excel workbooks for use in analyzing HDD installation loads and stresses on steel pipe.

Modernizing Onshore Pipeline Construction (PR-373-094503-R01) M

A multi-year project consisting of a series of research projects was begun after observing that the basic onshore pipeline construction methods and sequences have essentially remained unchanged for at least five decades. PRCI and IPLOCA initiated a goal of 25% reduction in construction cost and a 25% reduction in time required to construct an onshore pipeline, along with quality improvement.

Guideline for Onshore Pipeline Route Evaluation and Selection (PR-373-124509-R01) *

Recognizing current route selection challenges, PRCI initiated a project to evaluate current route selection methodologies and identify aspects in need of improvement. The final product of this effort is this guidance document: *Guideline for Onshore Pipeline Route Evaluation and Selection*. The route selection guideline was developed to provide pipeline owners, engineering organizations, and pipeline specialists with comprehensive guidance for onshore pipeline route evaluation and selection.

Guidelines for Constructing Natural Gas and Liquid Hydrocarbon Pipelines Through Areas Prone to Landslide and Subsidence Hazards (L52292) *

These guidelines provide recommendations for the assessment of new and existing natural gas and liquid hydrocarbon pipelines subjected to potential ground displacements resulting from landslides and subsidence. Much of this document focuses on identifying the variety of available methods that can be used to define landslide and subsidence hazards for pipelines.

Guidelines for Management of Geohazards Affecting the Engineering and Construction of Pipelines (PR-616-164506-R01) *

The available literature includes numerous publications describing approaches, methods, and recommendations, for identifying, characterizing, and mitigating geohazards, as well and case histories of pipelines affected by geohazards and how their effects were mitigated.

Assessment of Geosynthetic Fabrics to Reduce Soil Loads on Buried Pipelines (L52325) *

High soil loads on buried pipelines can lead to unacceptably high pipeline strains developed in response to permanent ground displacement. Through this work, four specific areas of investigation were completed: 1. Baseline tests in moist sand; 2. Tests to gauge the variation in horizontal load reduction with separation between the pipe and an inclined trench wall lined with two layers of geotextile; 3. Tests in compacted 19 mm minus sand and crushed limestone; and 4. Tests to attempt to confirm oblique horizontal-axial soil restraint behavior reported in small-scale tests and centrifuge tests.

Field Validation of Surface Loading Stress Calculations for Buried Pipelines (PR-218-104509) *

The objective for this two-phase project was to validate surface loading criterion for pipelines with shallow burial. This is the report of the first phase of this project which focused on field measurements of the stress in shallow buried pipe while it is being crossed by heavy equipment.

Application to Other Welding Processes (PR-348-074512) (Co-Funded through PHMSA) *

The essential variable methodology that was developed for single torch welding can also be extended to dual torch GMAW welding. This is the last in the series of topical reports that detail the research leading to the development of the optimized welding solutions for X100 line pipe steel.

Materials Selection, Welding and Weld Monitoring - Development of Optimized Welding Solutions for X100 Line Pipe Steel (PR-348-074512) (Co-Funded through PHMSA) *

Two rounds of pipe welding were completed to understand the influence of the welding parameters on the weld metal and HAZ properties and microstructure. This information was used to refine the thermal microstructural model with predictive capabilities. Essential welding variables were validated on flat plate experiments and recommendations for welding process control established. Ultimately, these recommendations were evaluated by pipeline welding contractors to assess its viability for field application.

Guidelines to Address Pipeline Construction Quality Issues (PR-186-104504-R01) *

The objective of this project was to develop guidelines pertaining to these issues and how they should be addressed in the field. A review of recent incidents involving girth weld failures in newly-constructed pipelines indicate that all incidents involved production welds in pipelines constructed using conventional techniques (i.e., using cellulosic-coated electrodes) – particularly welds at wall thickness transitions – and repair and tie-in welds made using cellulosic-coated electrodes in pipelines otherwise constructed using mechanized gas-metal arc welding.

The INGAA Foundation, Inc.

SAFETY MOMENT

Andy Morecraft, Vice President, Strategic Account Manager, AECOM

Listening for Safety

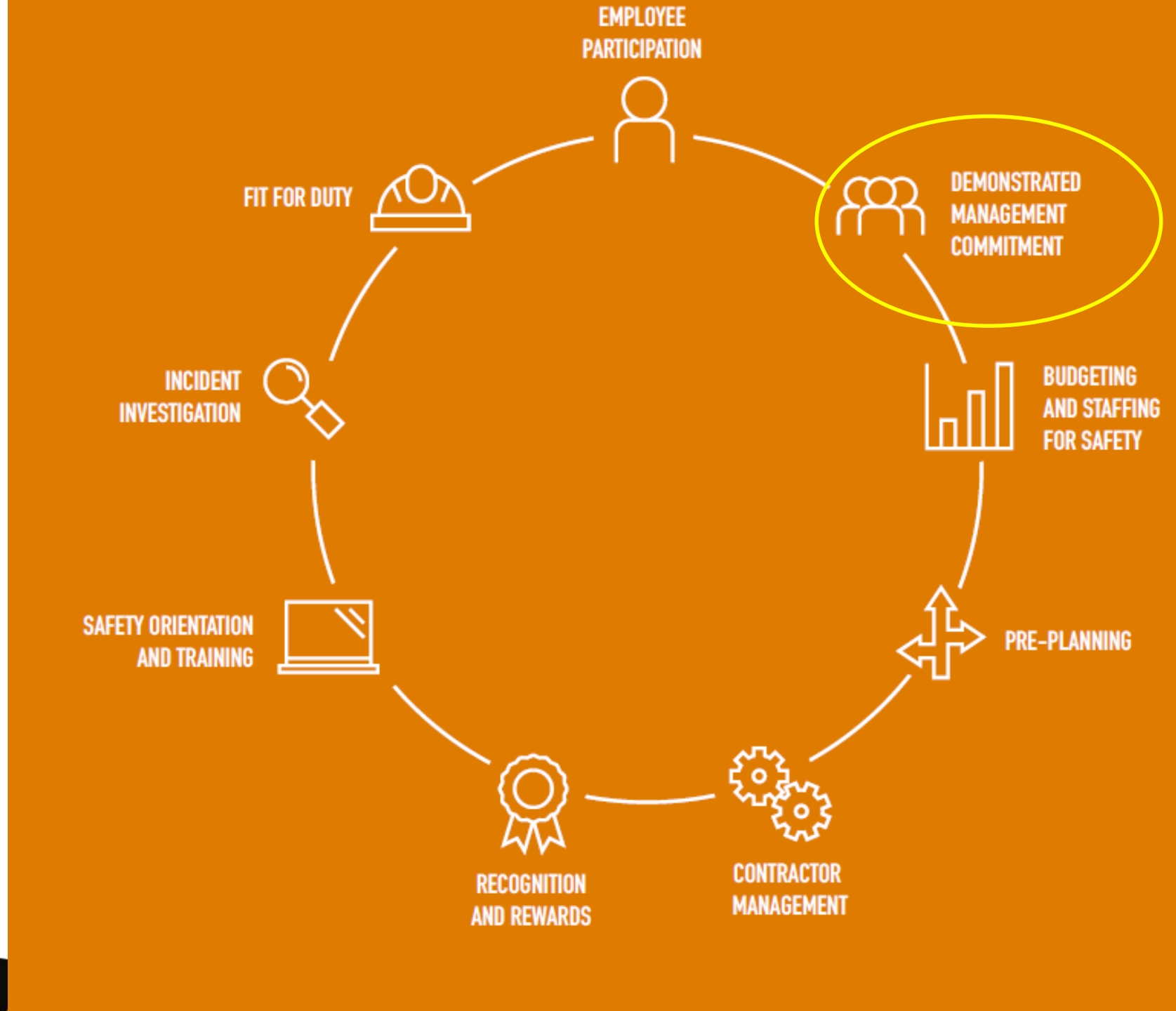
Seek First to Understand Then To Be Understood

Stephen R Covey, *The 7 Habits of Highly Effective People*

Our *Life Preserving Principles* include:

Demonstrated Management Commitment

"Our executive, senior and project managers will lead the Safety, Health and Environment improvement process and continuously demonstrate support and commitment."



Listening

Demonstrated Management Commitment

Demonstrating Management Commitment starts with *listening empathically*

✓Listening intently to understand another person's frame of reference.

Listening the *wrong way…*

When we listen autobiographically -- in other words, with our own perspective as our frame of reference -- we tend to respond in one of four ways:

1. **Evaluate:** *Agree or disagree with what is said*
2. **Probe:** *Ask questions from our own frame of reference*
3. **Advise:** *Give counsel based on our own experience*
4. **Interpret:** *Try to figure out the person's motives and behavior based on our own motives and behavior*

“Genuine listening means suspending memory, desire, and judgment – and for a few moments, at least, existing for the other person.”

Michael P Nichols,

“The Lost Art of Listening”

Empathic Listening is *listening with our ears, eyes and heart*

- *10% is communicated by our words*
- *30% is represented by our sounds*
- *60% is represented by our body language*

Seek to understand:

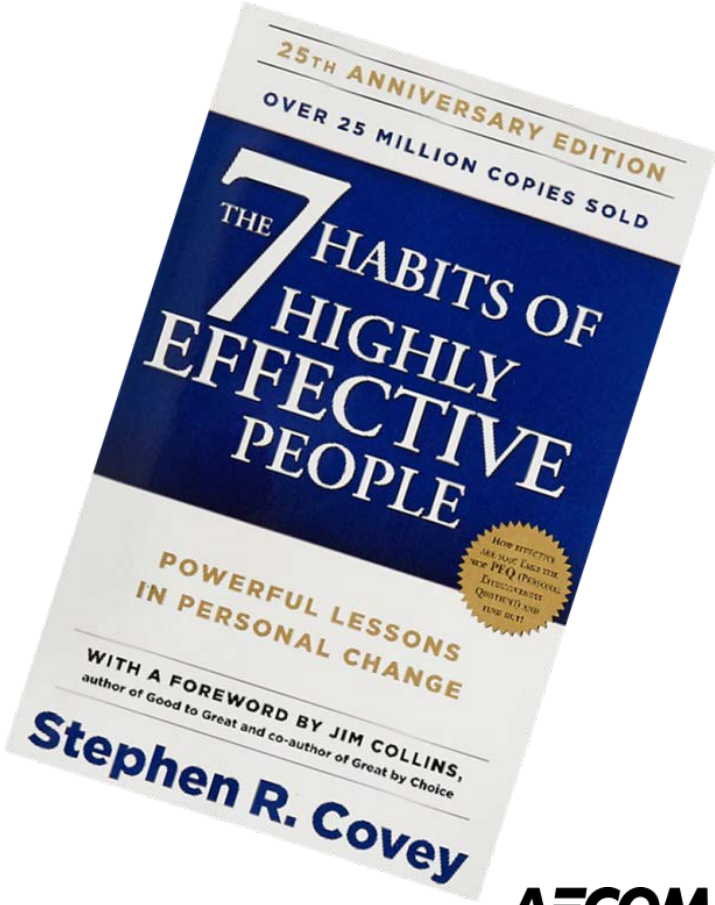
✓ *What are this person's beliefs and attitude about safety?*

✓ *What are the barriers here to an effective safety culture?*

✓ *What are the challenges to improving that this person / team / organization faces?*

Once you *Understand* then seek to be *Understood*

When you better understand another person's frame of reference, then you are better able to adjust your message and *demonstrate your support and commitment* through your words, actions and passion.



AECOM

The INGAA Foundation, Inc.

MIDSTREAM INFRASTRUCTURE UPDATE

Kevin Petak, Managing Director, ICF

State of the Market for Midstream Infrastructure

Presented at INGAA Foundation Fall Meeting

November 2, 2018

Kevin Petak
Managing Director
Natural Gas and Liquids Markets
703-218-2753
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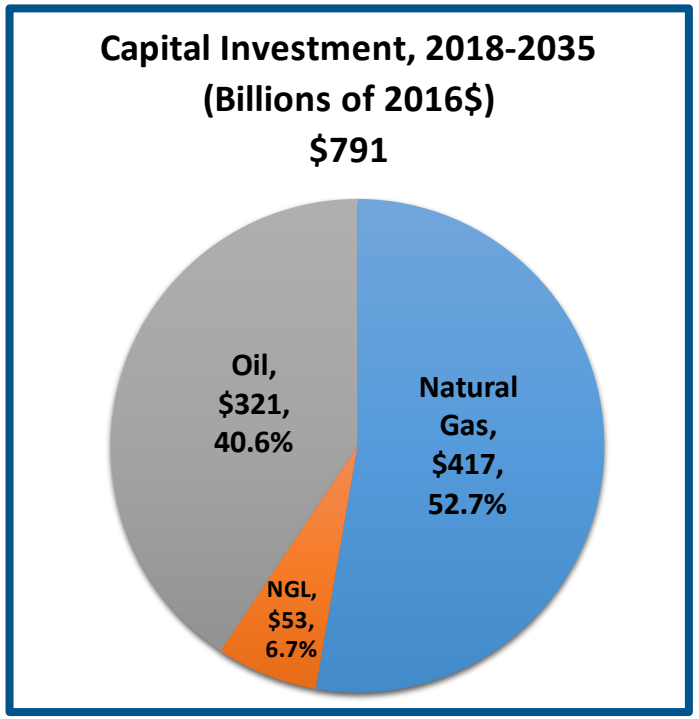
Topics

- Review of Findings in INGAA Foundation's Infrastructure Report
- Regional Trends
- Where are Recent Trends Deviating from the Projected Results?
- What Factors Could Derail the Need of New Infrastructure?
- Wrap Up and Questions

Key Findings in INGAA Foundation's Infrastructure Report – Development from 2018 Through 2035

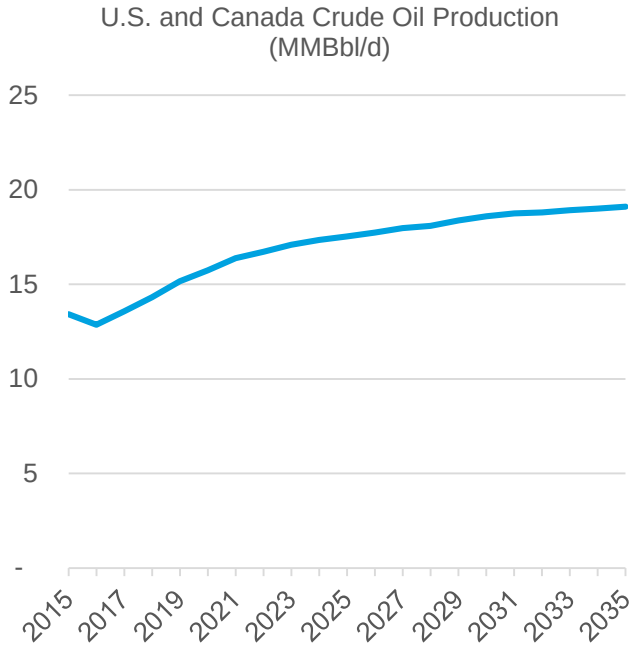
- **26,000 miles** of new gas pipelines.
- **41,000 miles** required for total oil, gas, and NGL transport.
- **180,000 miles** of pipeline needed for all midstream functions (including gathering).
- **7 million Horsepower** of compression added for gas transport.
- **17 million Horsepower** of total compression and pumping added for all midstream functions.
- Total midstream CAPEX of **$791 billion.**
- Gas pipeline CAPEX of **$280 billion.**
- New infrastructure development in the U.S. and Canada will employ an average of **725,000 people each year.**

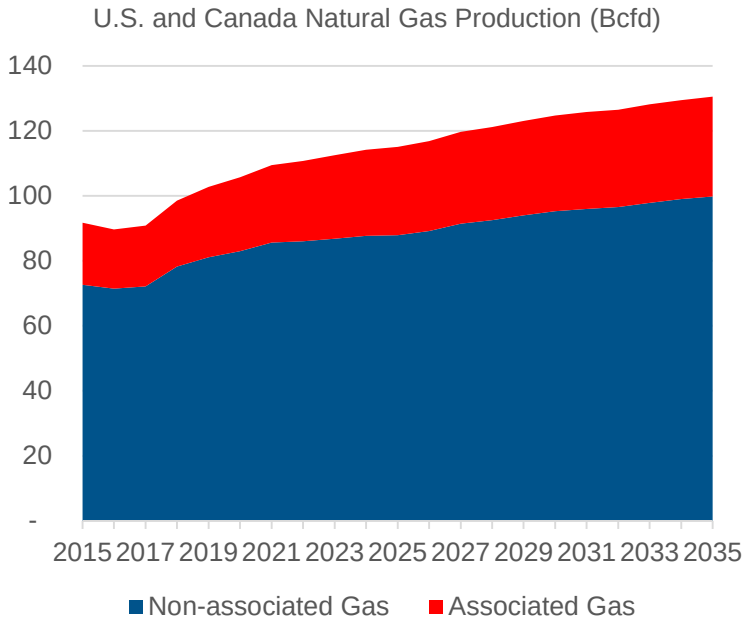


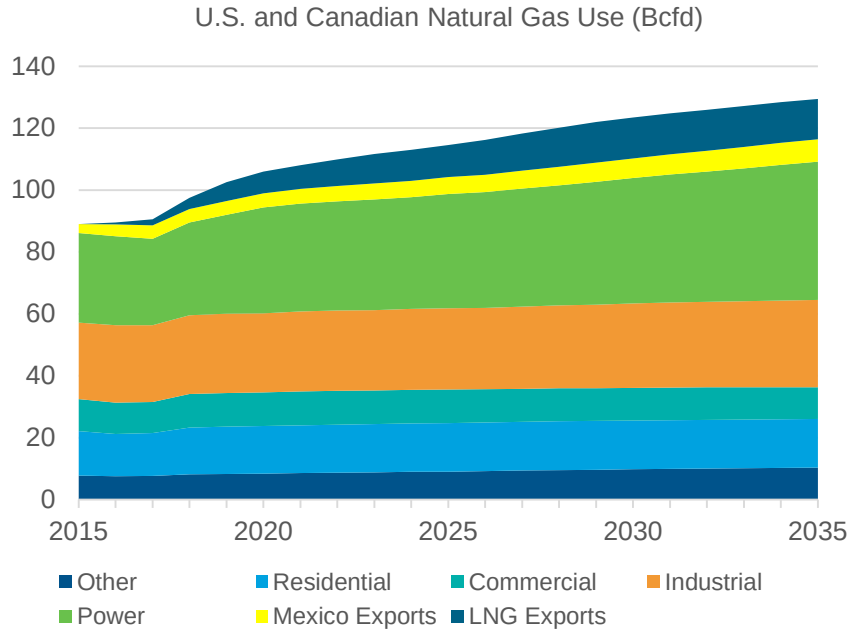
Major Themes in INGAA Foundation's Scenario

Market Characterization	• Natural gas market **will shift into a "demand pull" environment** from the "supply push" driven by the shale resource development. • Refinery runs have been increasing and are likely to **continue to increase**.	?
Supply	• Relatively high price elasticity for oil & natural gas supply **increases price responsiveness of supply.** • Continued improvement of well productivity is an **important factor to watch.** • **Oil prices continue to drive** oil and associated natural gas production growth.	✓
Demand	• Natural gas use is **expected to grow significantly**, with exports leading the way. • Refinery runs and upgrades/enhancements to refineries can **increase refinery output by another 5-10%.**	???
Prices	• Natural gas **prices likely to rise** (albeit modestly) due to robust market growth. • Henry Hub will **trade at a premium** and natural gas prices at many other locations will be much lower. • Oil prices **likely to rise**, particularly in the longer term.	?
Infrastructure	• **Continued development of midstream infrastructure is imperative for supply development and market growth.**	✓

Production Growth and Market Development Drive Need of Infrastructure







- **50% growth in oil and NGL production**
  - Oil and liquids pipelines
  - Refinery upgrades
  - Petrochemical facilities
- **45% growth in natural gas production**
  - Gathering facilities and processing plants
  - Natural gas pipelines

EXPORTS ARE EXTREMELY IMPORTANT

Almost 57 Bcfd of New Natural Gas Pipeline Capacity Will be Needed

Originating Region	2017	2018	2019-2020	2021-2025	2026-2030	2031-2035	Total 2018-2035	Average Annual 2018-2035
U.S. and Canada	**15.0**	**19.6**	**18.1**	**4.3**	**9.2**	**5.5**	**56.7**	**3.1**
U.S.	**13.8**	**17.6**	**15.3**	**3.8**	**8.7**	**5.0**	**50.4**	**2.8**
Canada	**1.2**	**2.0**	**2.8**	**0.5**	**0.5**	**0.5**	**6.3**	**0.3**
Central	0.1	0.4	0.9	1.6	1.3	0.5	4.6	0.3
Midwest	4.3	2.6	0.4	1.0	3.4	1.0	8.4	0.5
Northeast	1.7	6.6	3.6	1.0	3.0	2.5	16.7	0.9
Offshore	-	-	-	-	-	-	-	-
Southeast	4.2	2.4	0.8	0.2	-	-	3.3	0.2
Southwest	3.6	5.7	9.0	-	1.0	1.0	16.6	0.9
Western	-	-	0.7	-	-	-	0.7	0.0
Alaska	-	-	-	-	-	-	-	-

- Permian and Marcellus/Utica production drive vast majority of infrastructure development
  - Montney is also a potential “hot spot”
- No offshore GoM activity and very little activity in the Rockies west

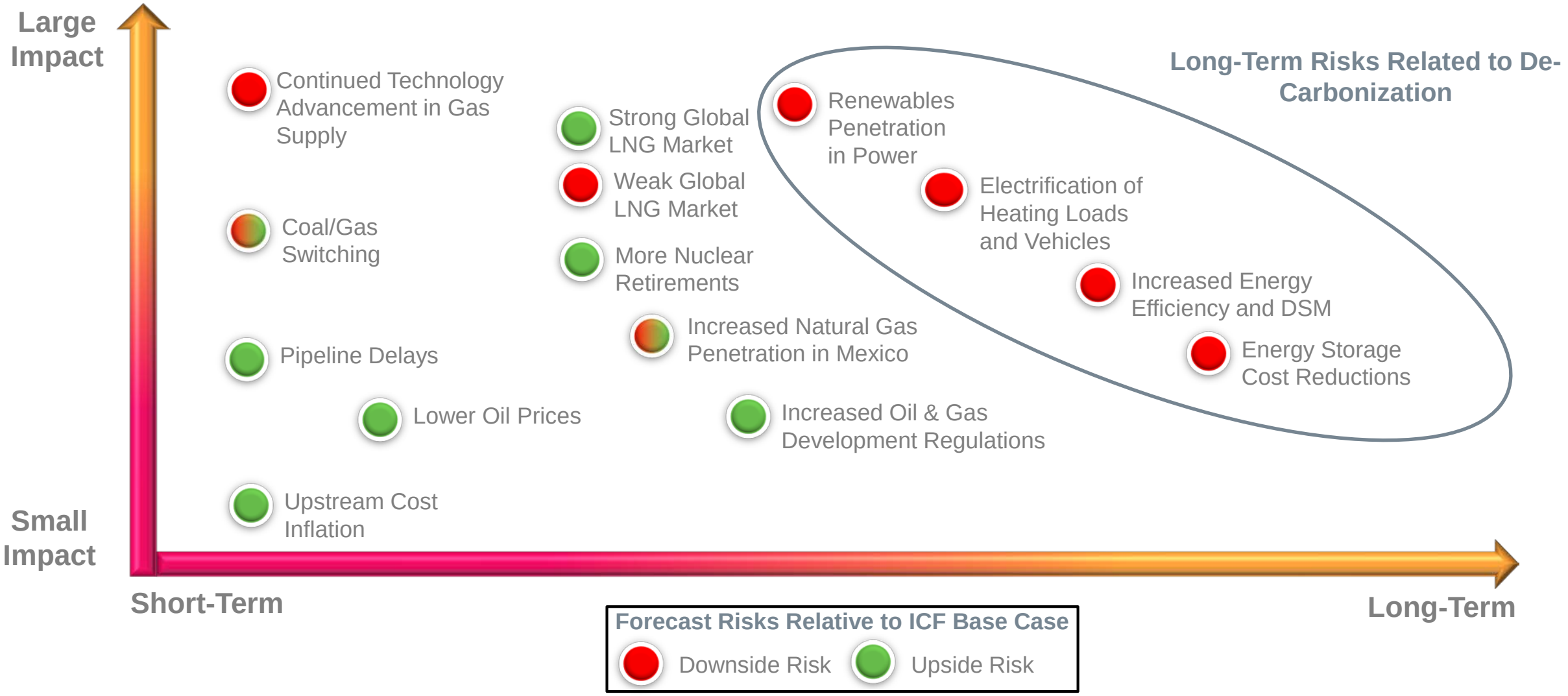
Projected Results Versus Recent Trends

	Correct	Partially Correct	Comment
National Average Cost of $230,000 Per Inch-Mile for New Pipelines	✓		If anything, costs of new pipelines were underestimated; a number of recent projects have announced increased costs
Oil & Gas Production Growth in the Permian Basin		X	Understated growth – well productivity improvements have been greater than expected
Gas Production Growth in the Marcellus & Utica Basins	?	?	Natural gas resource is robust, but recent pipeline projects have been delayed
LNG, Oil, & NGL Exports	✓		Facilities proceeding as planned
Power Generation with Natural Gas	?	?	Gas is replacing coal and nuclear generation, but RPS standards are a threat for gas in the longer term
Global Market Growth	?	?	An area with great uncertainty

Uncertainties Abound

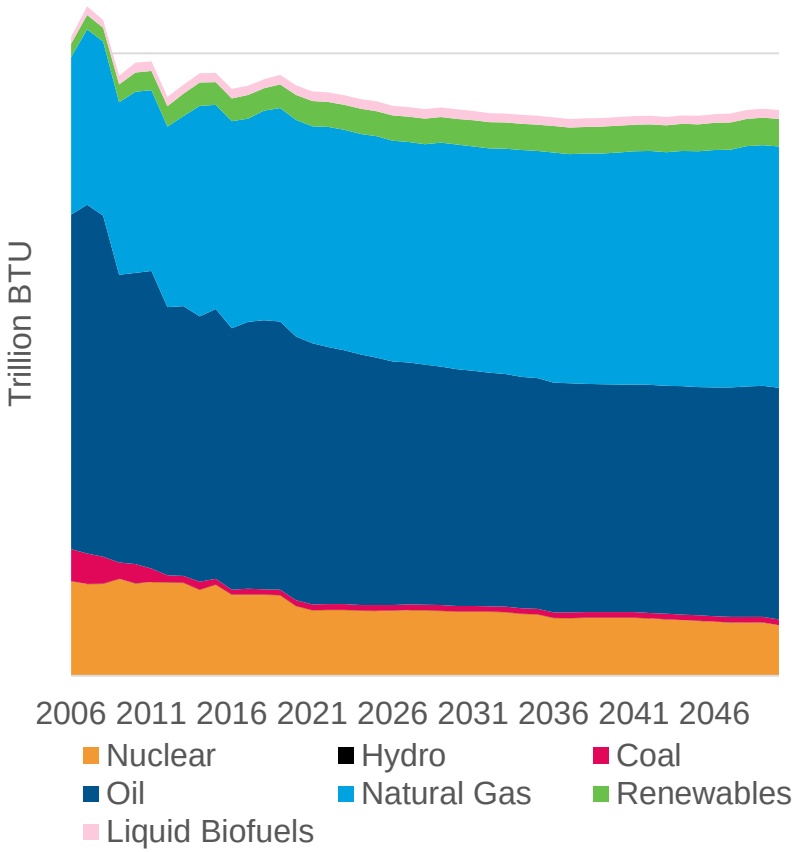
- Regulatory Changes
  - Effort to Save Nuclear and Coal Plants
  - Decarbonization and Electrification Programs
- Changes in Approvals Processes for Infrastructure
- Trade Tariffs
- Uncertainties in Foreign Markets (e.g., policies in Mexico regarding domestic gas development)
- Technology Evolution
  - Energy Storage and Modularized Nuclear Plants (Threat)
  - Gas-to-Liquids Conversion (Opportunity)

Decarbonization and Electrification Could Dramatically Alter the Landscape



An Example of Deep Decarbonization

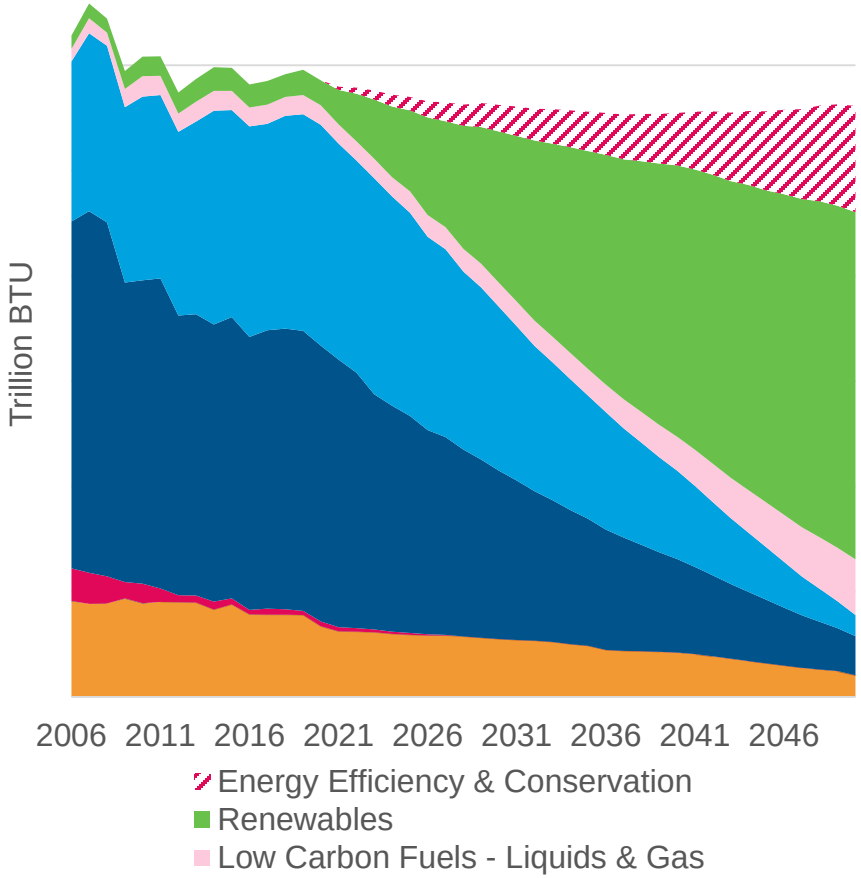
BAU Case: Energy Consumption by Fuel Type



Getting to "80-50 World"

1. **Conservation**
2. **Cleaning the Grid**
   - Accelerated renewable power sources
   - Aggressive shift away from fossil fuels
     - Coal
     - Natural gas/fuel oil
3. **Electrification**
   - On-road/Off-road vehicles
   - Residential
   - Commercial
   - Industrial/Other
4. **Fuel Decarbonization**
   - RNG
   - Carbon Capture and Sequestration
   - Power to Gas
   - Direct Air Conversion

80 by 50 - Energy Consumption by Fuel Type



Conclusions

- **Almost $800 billion of CAPEX for new oil & gas infrastructure through 2035**
- **Development of new infrastructure will employ 735,000 people**
- **Almost 60 Bcfd of new gas pipeline capacity – “hot spots” include the Permian, Marcellus and Utica, and Montney Basins**
- **Market growth, particularly exports are critical to sustain production growth and infrastructure development**
- **For the most part, study results are well aligned with recent trends**
  - Permian growth understated but Marcellus/Utica growth may be overstated
- **However, there are many risks and uncertainties for long term infrastructure development**
  - Regulatory uncertainty
  - Trade tariffs
  - Global market development
  - Decarbonization and electrification

QUESTIONS?

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Near Term Construction Project Perspectives
Owner/Operator Panel

Moderator:

Mark Hereth, Managing Director, Blacksmith Group, and
Chairman, The INGAA Foundation

Panelists:

Keith Teague, Executive Vice President & COO, Tellurian

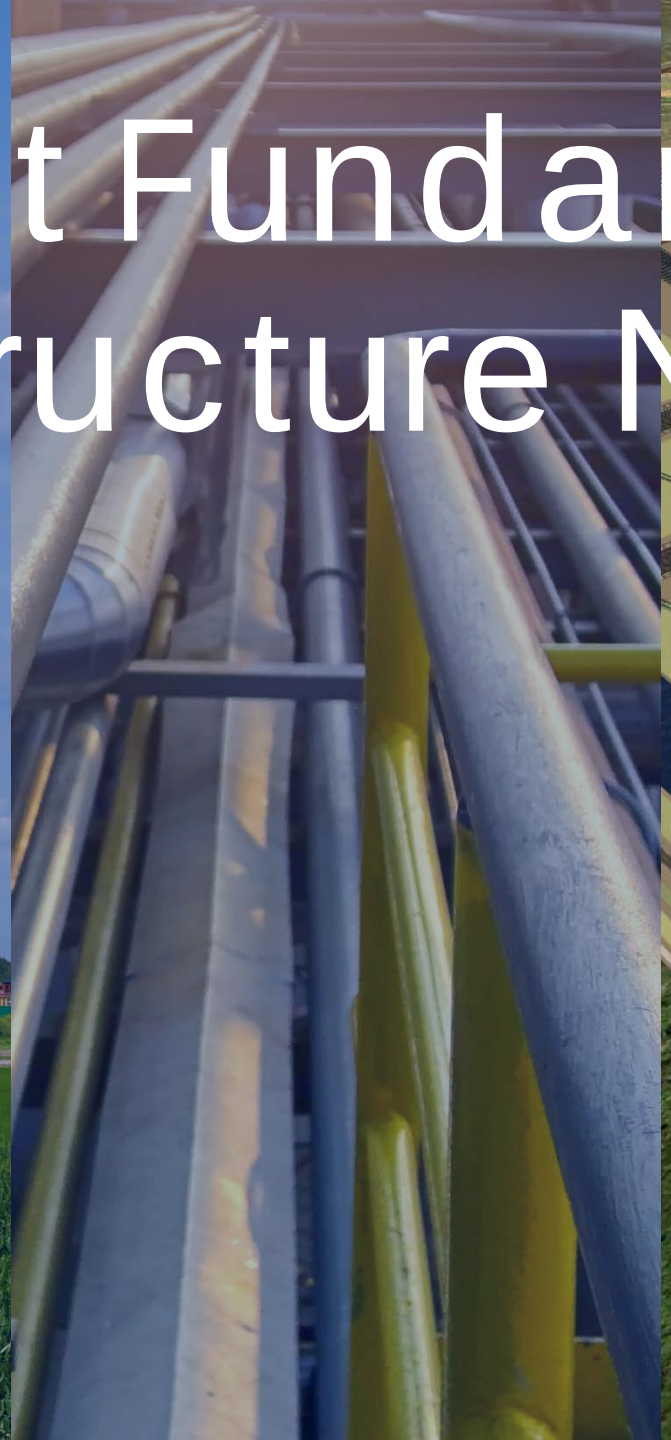
Tom Hutchins, Vice President, EH&S, Kinder Morgan

Evan Kirchen, Vice President, E&C, Atlantic-Gulf, Williams

Kelly Dunn, Director, Supply Chain U.S. Projects, TransCanada

Paul Grosskopf, Director, Projects, Enbridge

Market Fundamentals & Infrastructure Needs



November 2018

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Cautionary statements

Forward-looking statements

The information in this presentation includes "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements other than statements of historical fact are forward-looking statements. The words "anticipate," "assume," "believe," "budget," "estimate," "expect," "forecast," "initial," "intend," "may," "model," "plan," "potential," "project," "should," "will," "would," and similar expressions are intended to identify forward-looking statements. The forward-looking statements in this presentation relate to, among other things, future contracts and contract terms, margins, returns and payback periods, future cash flows and production, estimated ultimate recoveries, well performance and delivery of LNG, future costs, prices, financial results, net asset values, rates of return, liquidity and financing, regulatory and permitting developments, construction and permitting of pipelines and other facilities, future demand and supply affecting LNG and general energy markets and other aspects of our business and our prospects and those of other industry participants.

Our forward-looking statements are based on assumptions and analyses made by us in light of our experience and our perception of historical trends, current conditions, expected future developments, and other factors that we believe are appropriate under the circumstances. These statements are subject to numerous known and unknown risks and uncertainties which may cause actual results to be materially different from any future results or performance expressed or implied by the forward-looking statements. These risks and uncertainties include those described in the "Risk Factors" section of our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 filed with the Securities and Exchange Commission (the "SEC") on March 15, 2018 and other filings with the SEC, which are incorporated by reference in this presentation. Many of the forward-looking statements in this presentation relate to events or developments anticipated to occur numerous years in the future, which increases the likelihood that actual results will differ materially from those indicated in such forward-looking statements.

Plans for the Permian Global Access Pipeline and Haynesville Global Access Pipeline projects discussed herein are in the early stages of development and numerous aspects of the projects, such as detailed engineering and permitting, have not commenced. Accordingly, the nature, timing, scope and benefits of those projects may vary significantly from our current plans due to a wide variety of factors, including future changes to the proposals. Although the Driftwood pipeline project is significantly more advanced in terms of engineering, permitting and other factors, its construction, budget and timing are also subject to significant risks and uncertainties.

Projected future cash flows as set forth herein may differ from cash flows determined in accordance with GAAP.

The information on slides 7, 12, 13, 14, 15 and 16 is meant for illustrative purposes only and does not purport to show estimates of actual future financial performance. The information on those slides assumes the completion of certain acquisition, financing and other transactions. Such transactions may not be completed on the assumed terms or at all. NAV and other estimates of future equity values are presented for illustrative purposes and do not purport to show future trading values of any securities.

The forward-looking statements made in or in connection with this presentation speak only as of the date hereof. Although we may from time to time voluntarily update our prior forward-looking statements, we disclaim any commitment to do so except as required by securities laws.

Reserves and resources

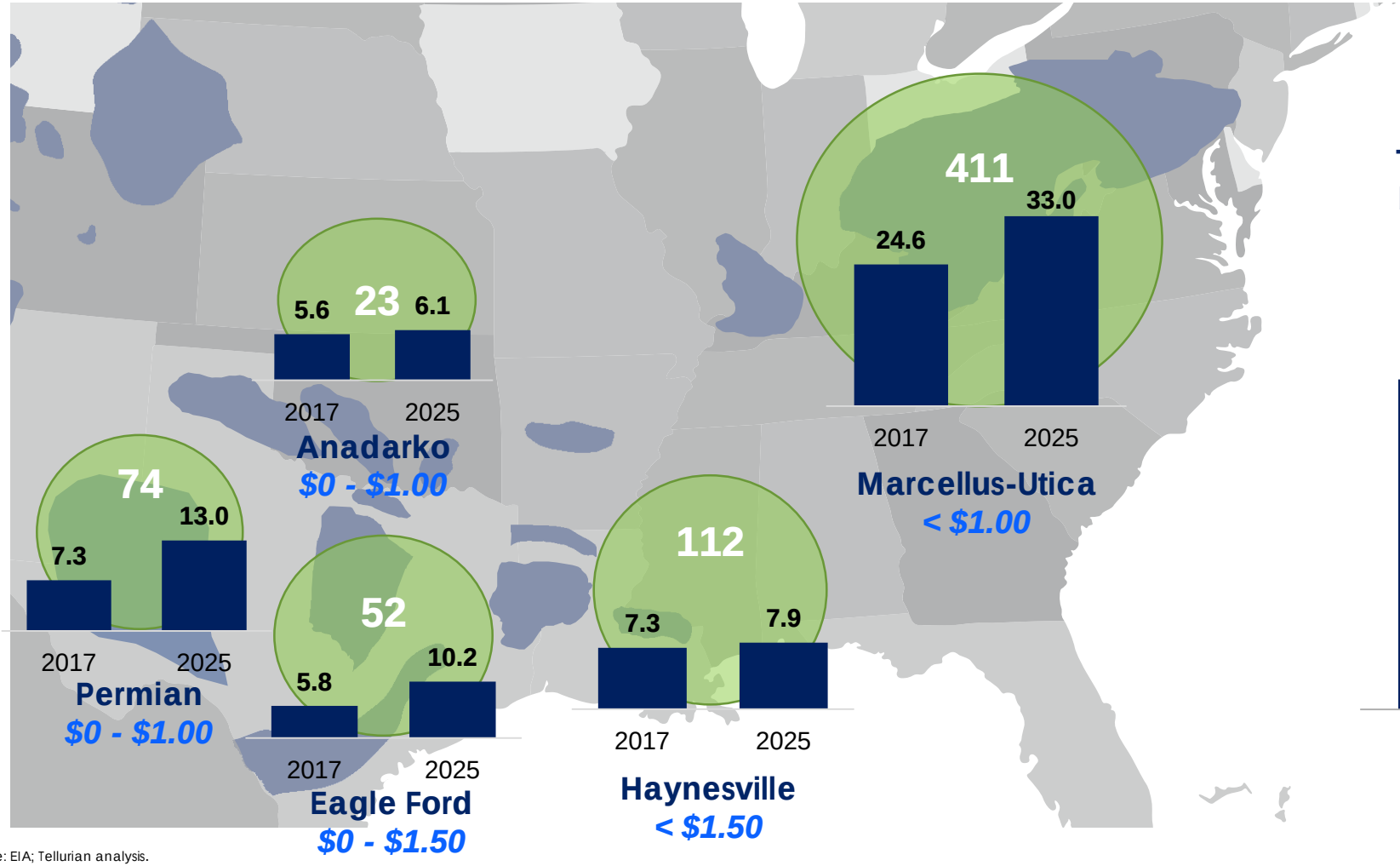
Estimates of non-proved reserves and resources are based on more limited information, and are subject to significantly greater risk of not being produced, than are estimates of proved reserves.

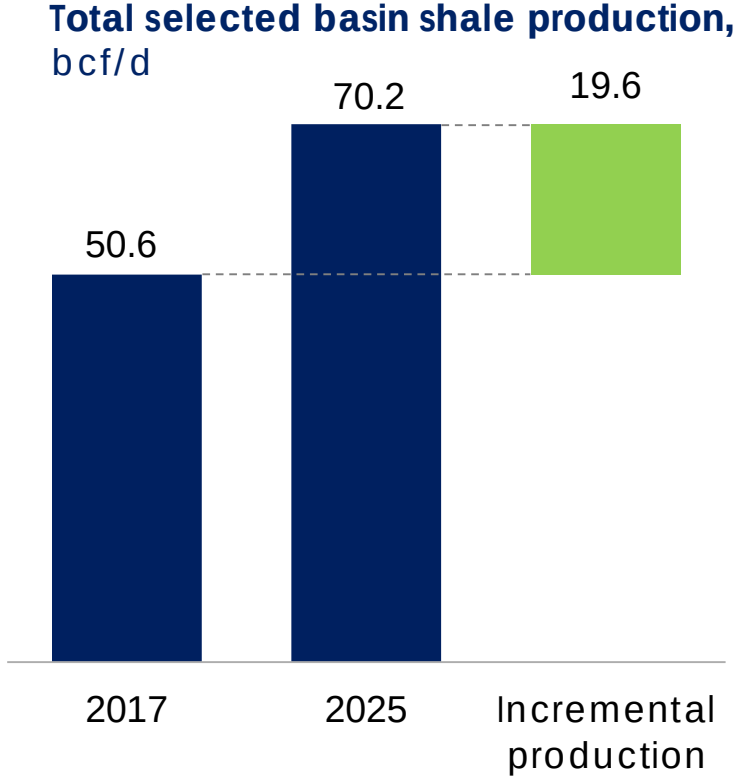
Market Fundamentals – Key Themes

- **Upstream – U.S. natural gas production to grow ~20 bcf/d by 2025**
- Midstream and pipelines – prices signaling need for additional infrastructure
- Global LNG – global gas market is growing and becoming commoditized

Plentiful, cheap U.S. gas endowment

Production growth and resource base from selected U.S. unconventional basins





Source: EIA; Tellurian analysis.

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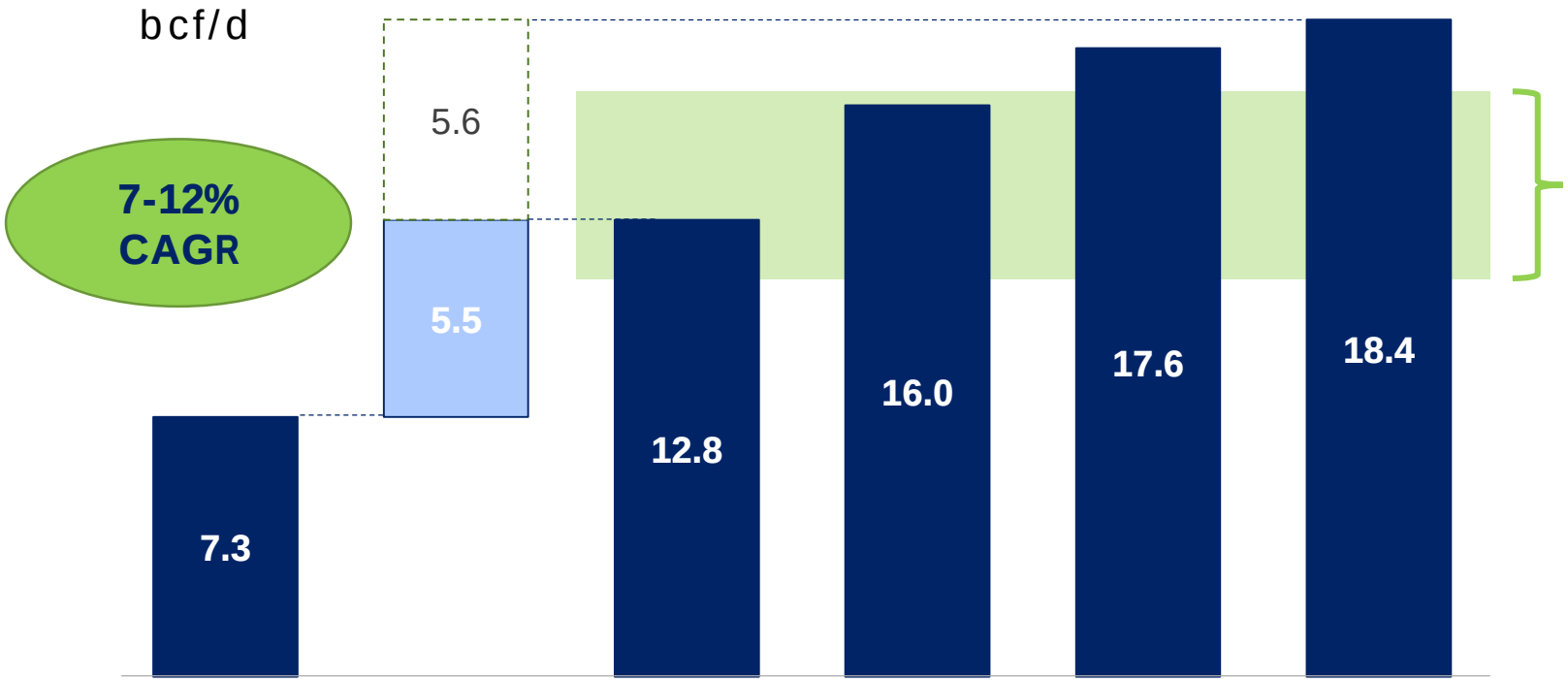
Permian oil output propels gas growth

Permian dry gas production[1] more than doubles by 2025 with modest productivity gains



	EoY 2017	Growth to 2025	Well productivity improvement scenarios: None	Low	Mid	High
Wet gas volume, bcf/d	9.1	5-14	16	20	22	23

Alternative sources: **bcf/d**

- IHS Markit ~15
- RBN 11-15
- BTU analytics 15-17

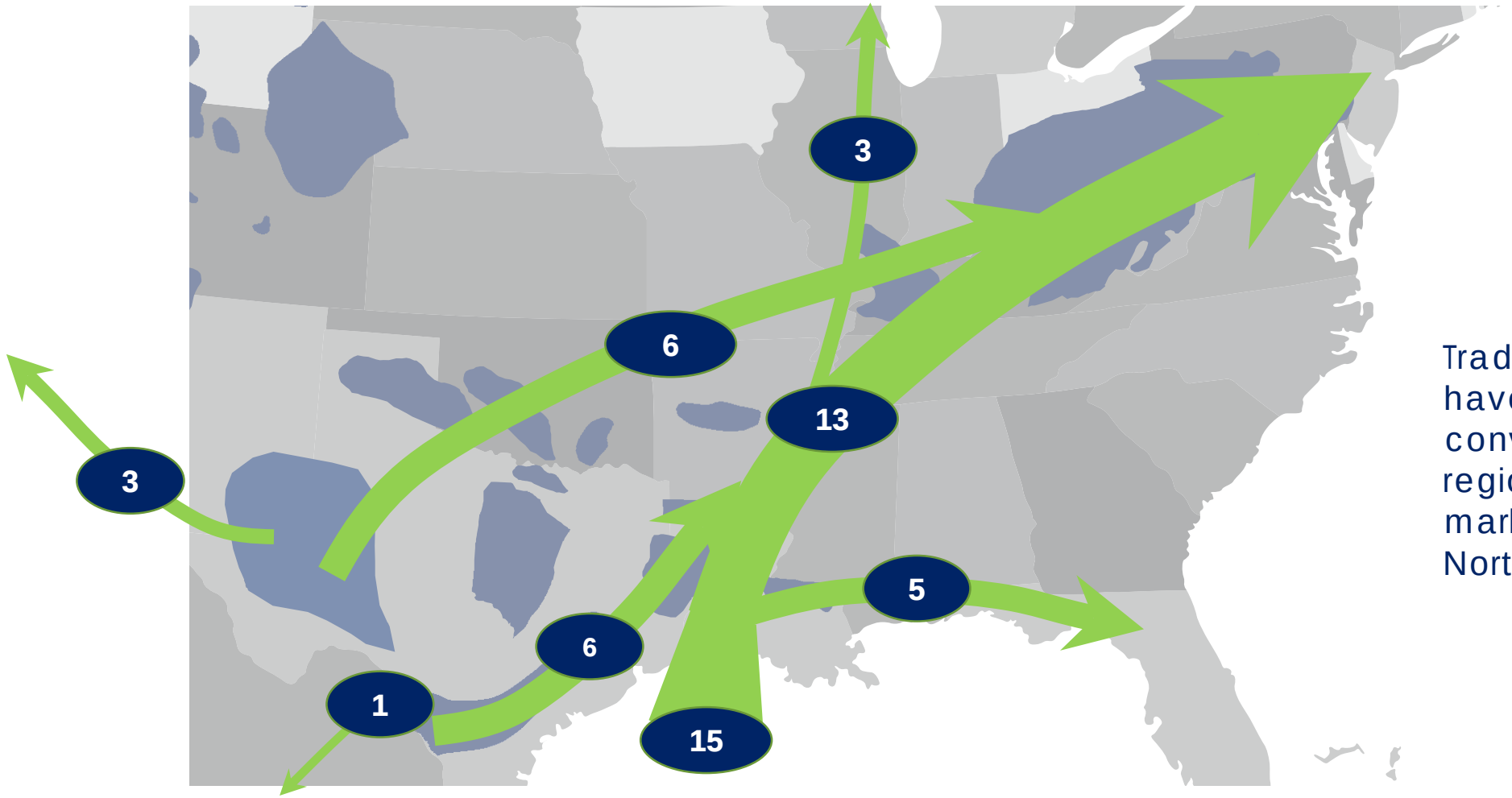
Source: BRG Consulting.
Notes: (1) Assumes 80% wet gas to dry gas conversion.

Market Fundamentals – Key Themes

- Upstream – U.S. natural gas production to grow ~20 bcf/d by 2025
- **Midstream and pipelines – prices signaling need for additional infrastructure**
- Global LNG – global gas market is growing and becoming commoditized

Ill-suited existing infrastructure

Pre-shale pipelines and import facilities did not contemplate the shale revolution



Major gas transportation flows

13 2008 major pipeline corridor approximate capacity, bcf/d

Traditionally, pipelines have moved gas from conventional producing regions to consuming markets in the Midwest, Northeast and West Coast

Source: EIA; Tellurian analysis

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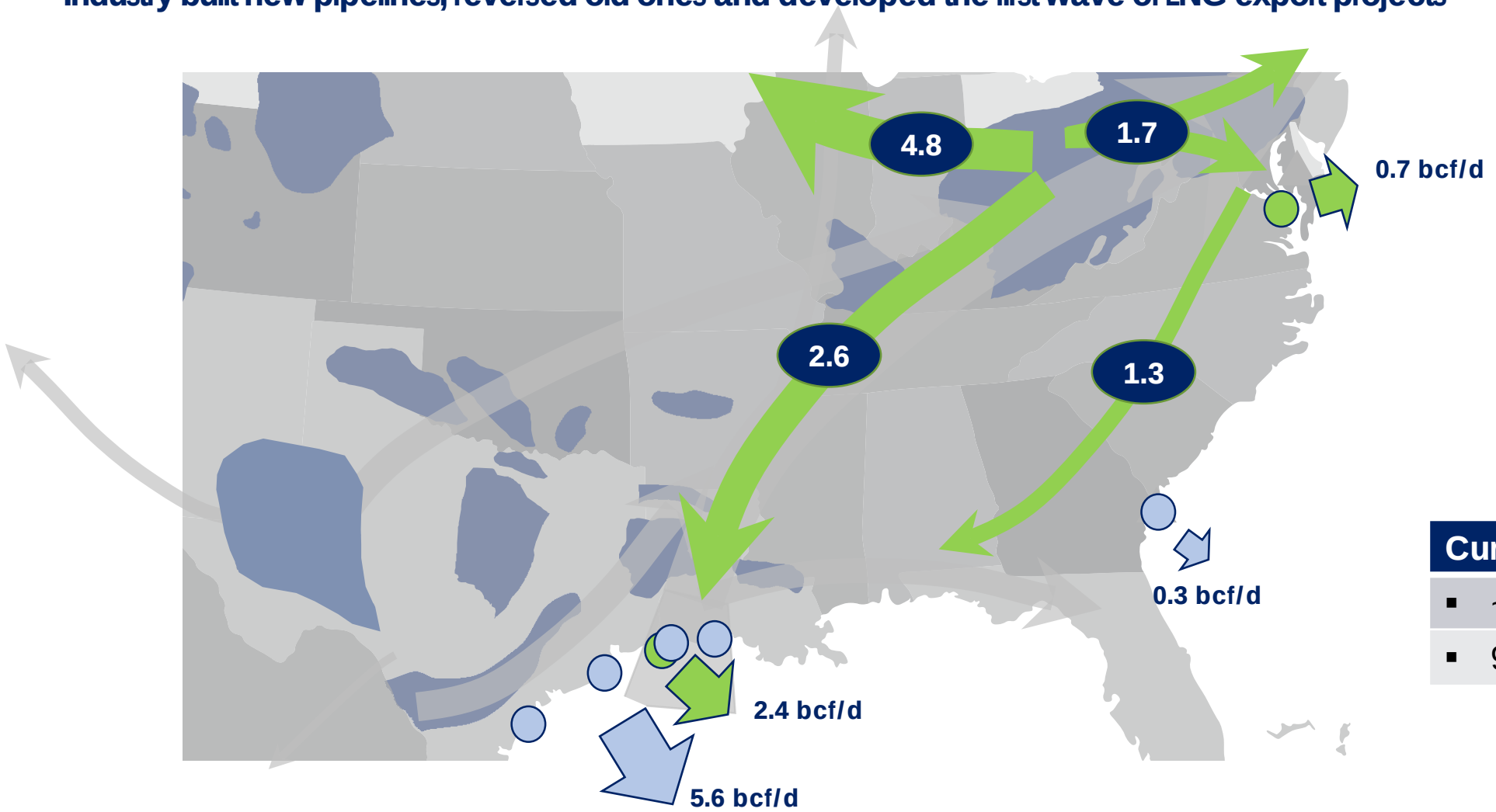
Infrastructure first wave

Industry built new pipelines, reversed old ones and developed the first wave of LNG export projects



LNG liquefaction terminal

- Operating
- Under construction

Export capacity

2.6 **Completed pipeline reversals and new construction, bcf/d**

Current LNG investment:

- ~$60 billion
- 9 bcf/d export capacity

Source: EIA; Wood Mackenzie, RBN, Tellurian analysis.

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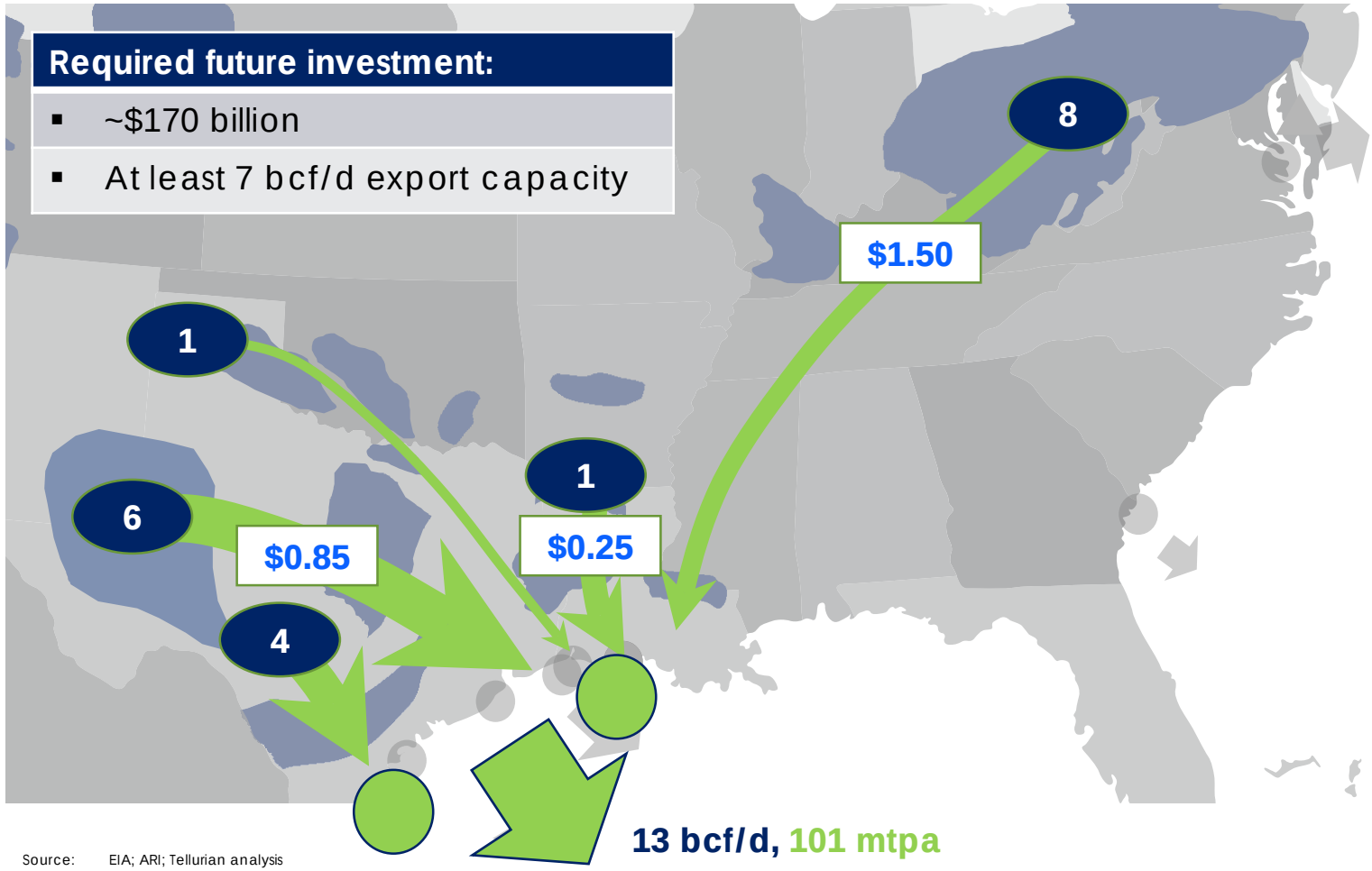
New infrastructure required

13 bcf/d of incremental production at risk of flaring without additional infrastructure investment



Source: EIA; ARI; Tellurian analysis
Notes: (1) $1,000/tonne average

LNG liquefaction terminal

- Operating/under construction
- Future

Export capacity

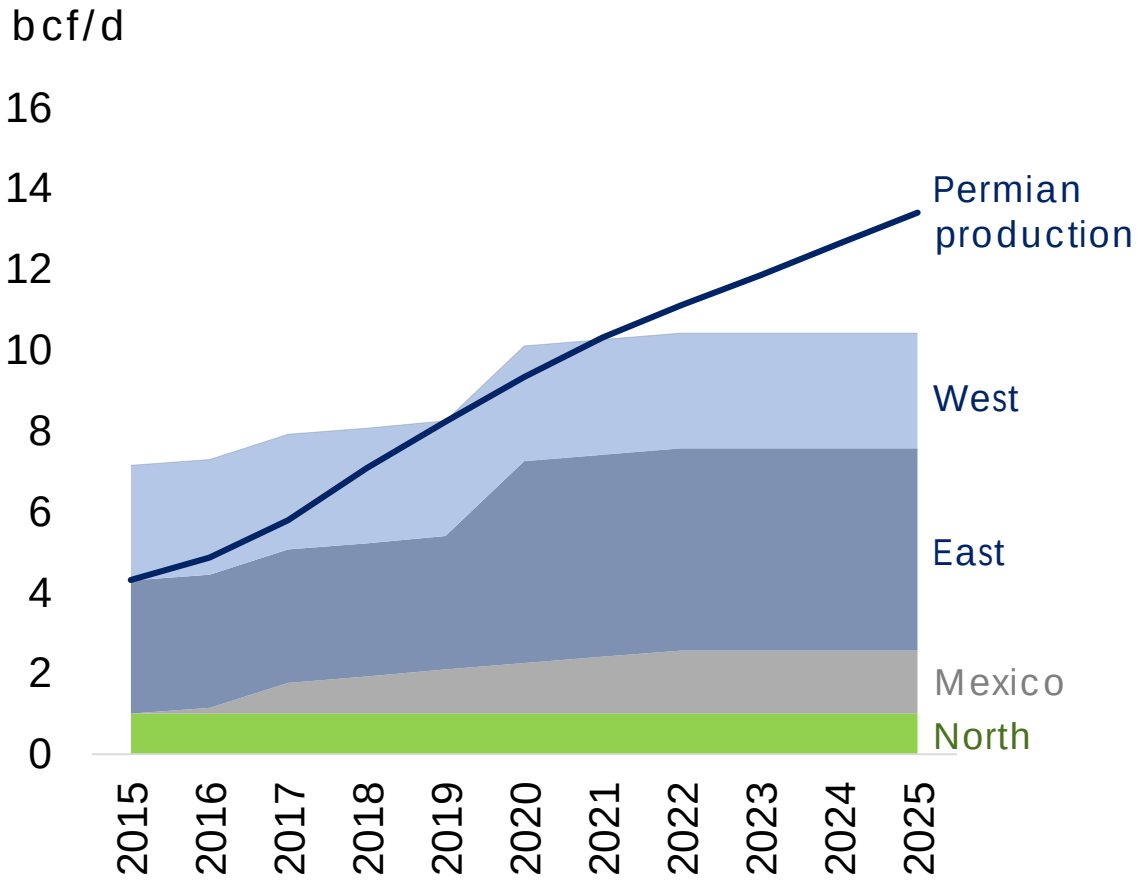
20 **Total estimated 2017-2025 production growth, bcf/d**

$1.50 **Estimated transportation cost from Basin to Gulf of Mexico, $/mmBtu**

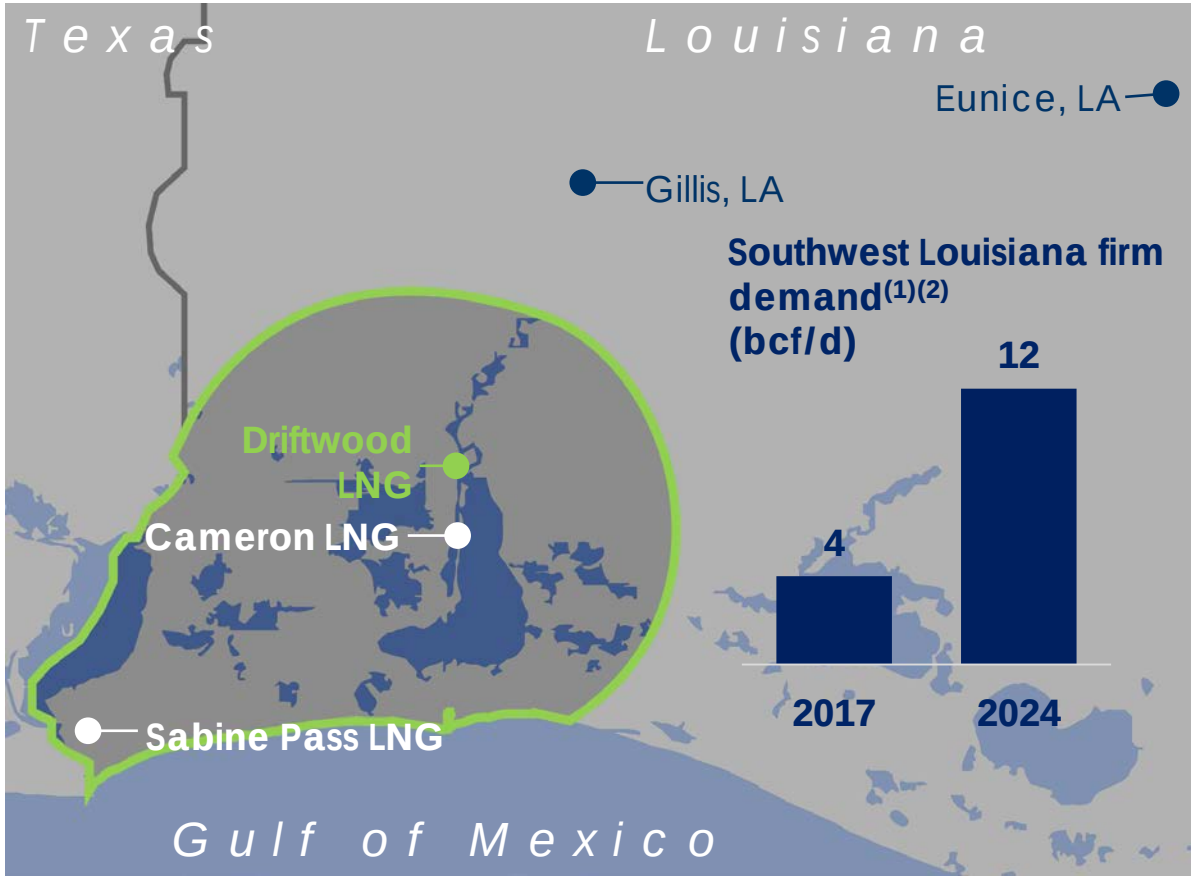
- LNG export capacity required:
  - —Up to **101 mtpa:** 13 bcf/d (20 bcf/d less ~7 under construction)
  - — ~$100 billion(1)
- Pipeline capacity required:
  - —Around 20 bcf/d
  - —~$70 billion

Constrained access to SWLA demand growth

Takeaway constraints in the Permian



Southwest Louisiana demand



Sources: Company data, Goldman Sachs, Wells Fargo Equity Research, RBN Energy, Tellurian estimates.
Notes: (1) LNG demand based on ambient capacity.
(2) Includes Driftwood LNG, Sabine Pass LNG T1-3, Cameron LNG T1-3, SASOL, Lake Charles CCGT, G2X Big Lake Fuels, LACC – Lotte and Westlake Chemical.

Market Fundamentals – Key Themes

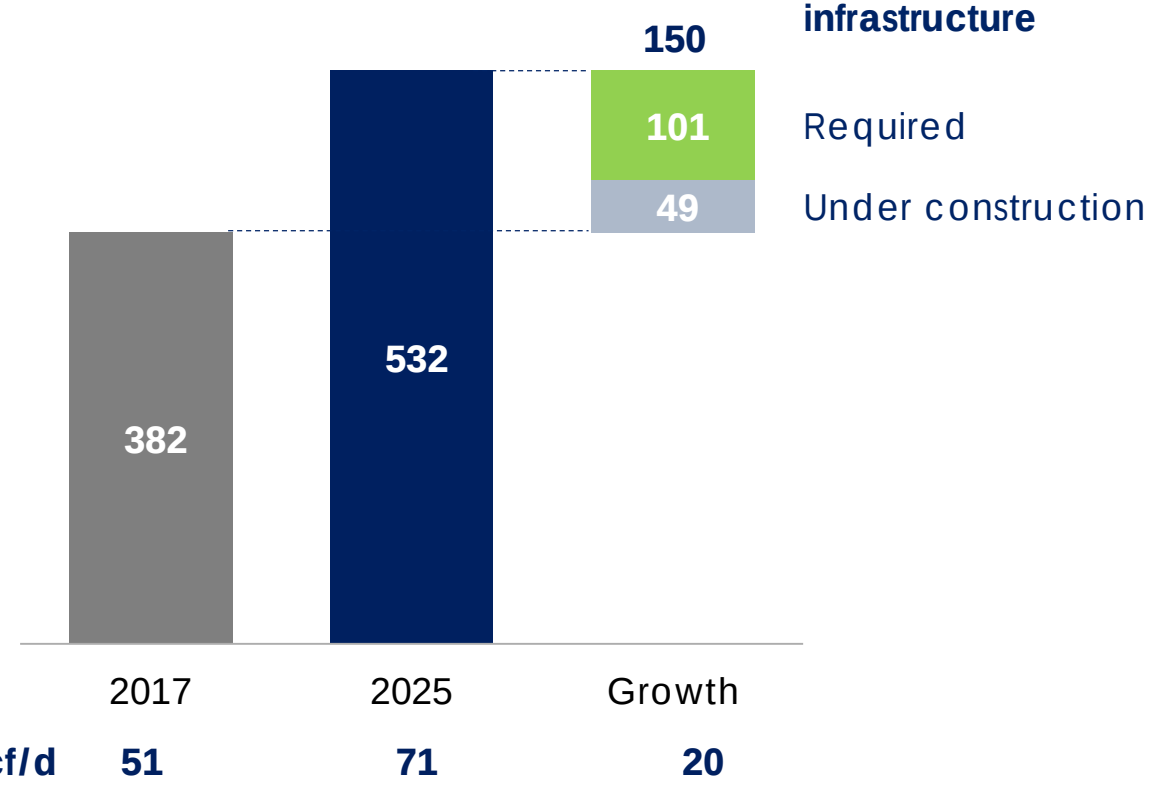
- Upstream – U.S. natural gas production to grow ~20 bcf/d by 2025
- Midstream and pipelines – prices signaling need for additional infrastructure
- **Global LNG – global gas market is growing and becoming commoditized**

Global call on U.S. natural gas

U.S. supply push…

Output from selected shale basins[1]

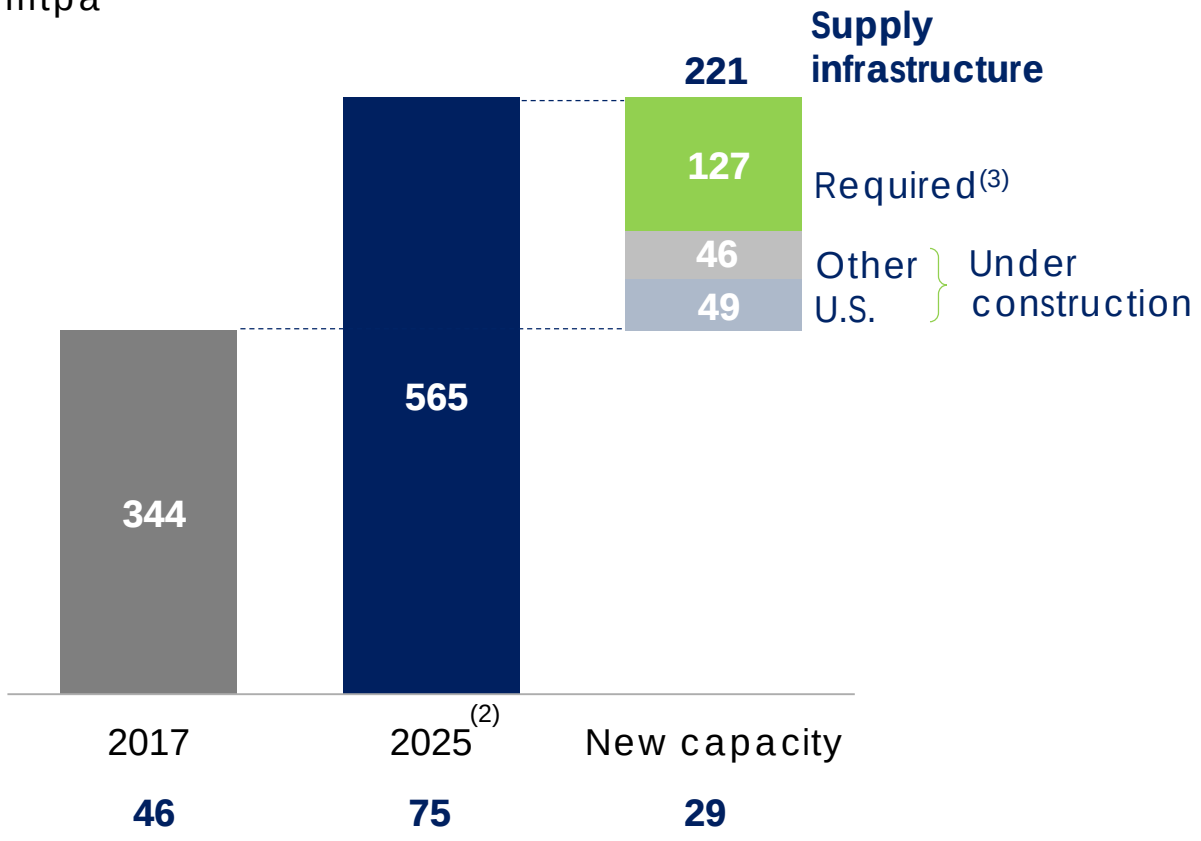
mtpa



…and global demand pull

Global LNG production capacity

mtpa



Source: Wood Mackenzie, Tellurian Research.
Notes: (1) Includes the Permian, Haynesville, Utica, Marcellus, Anadarko, Eagle Ford.
(2) Based on a demand growth estimate of 4.5% post-2020.
(3) Capacity required to meet demand growth post-2020.

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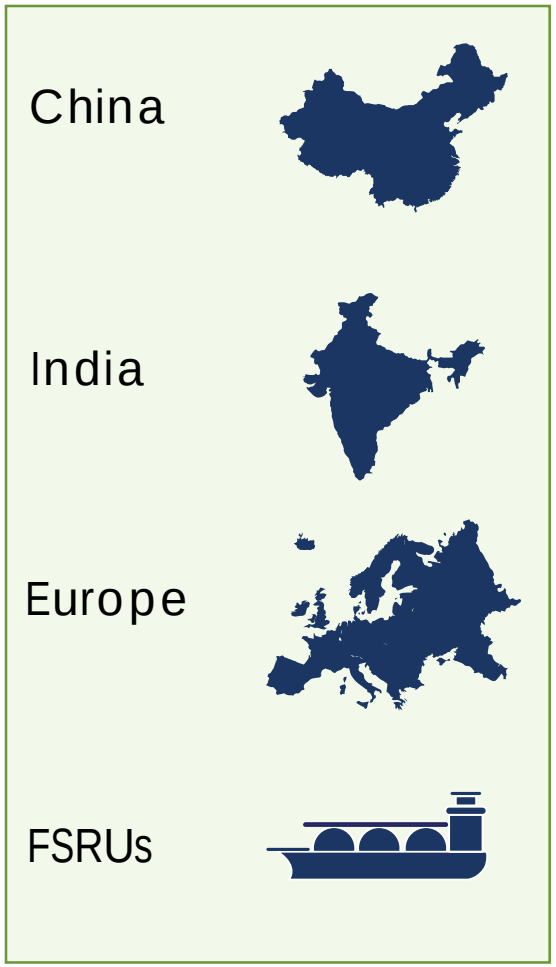
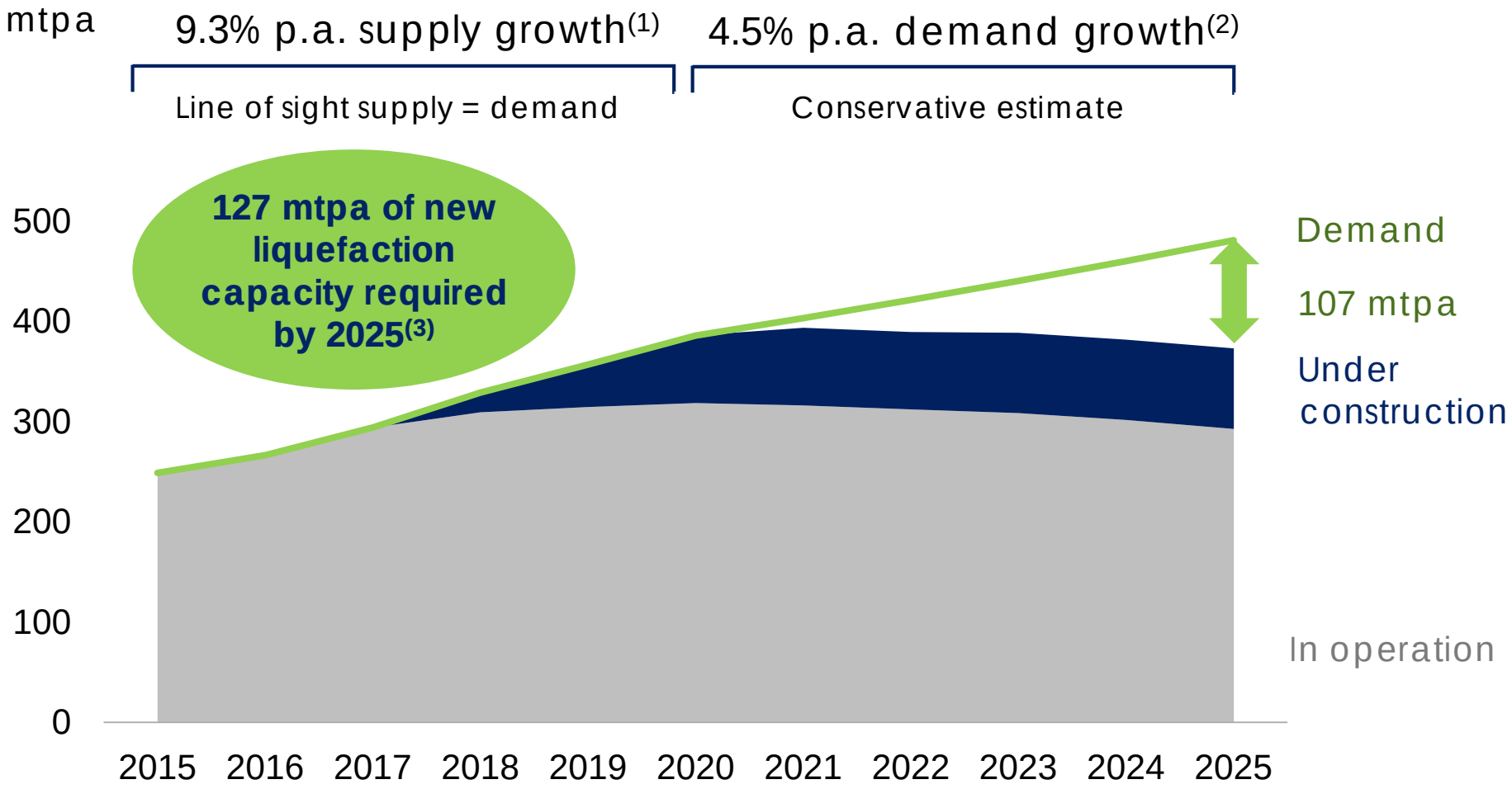
Demand pull

Key drivers



Demand outlook

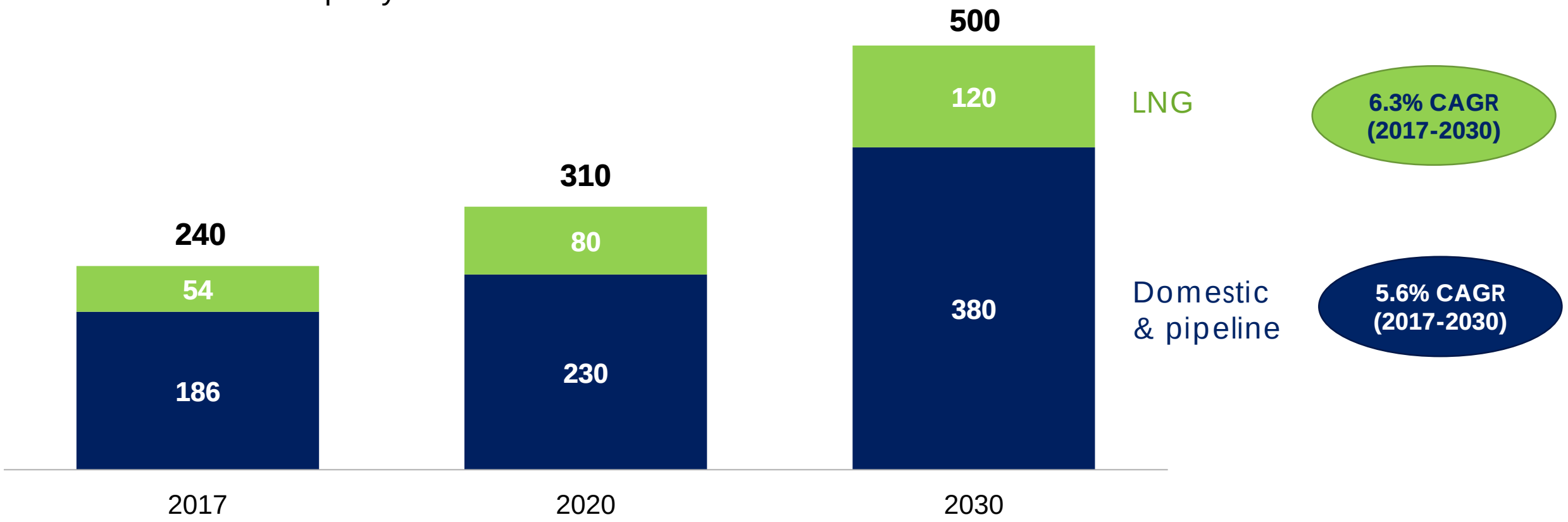


Sources: Wood Mackenzie, Tellurian Research.
Notes: (1) Estimated supply from existing and under-construction projects.
(2) Based on assumption that LNG demand grows at 4.5% p.a. post-2020.
(3) Assumes 85% utilization rate.

Growing demand in China

Economic growth and emerging environmental policy drives demand growth

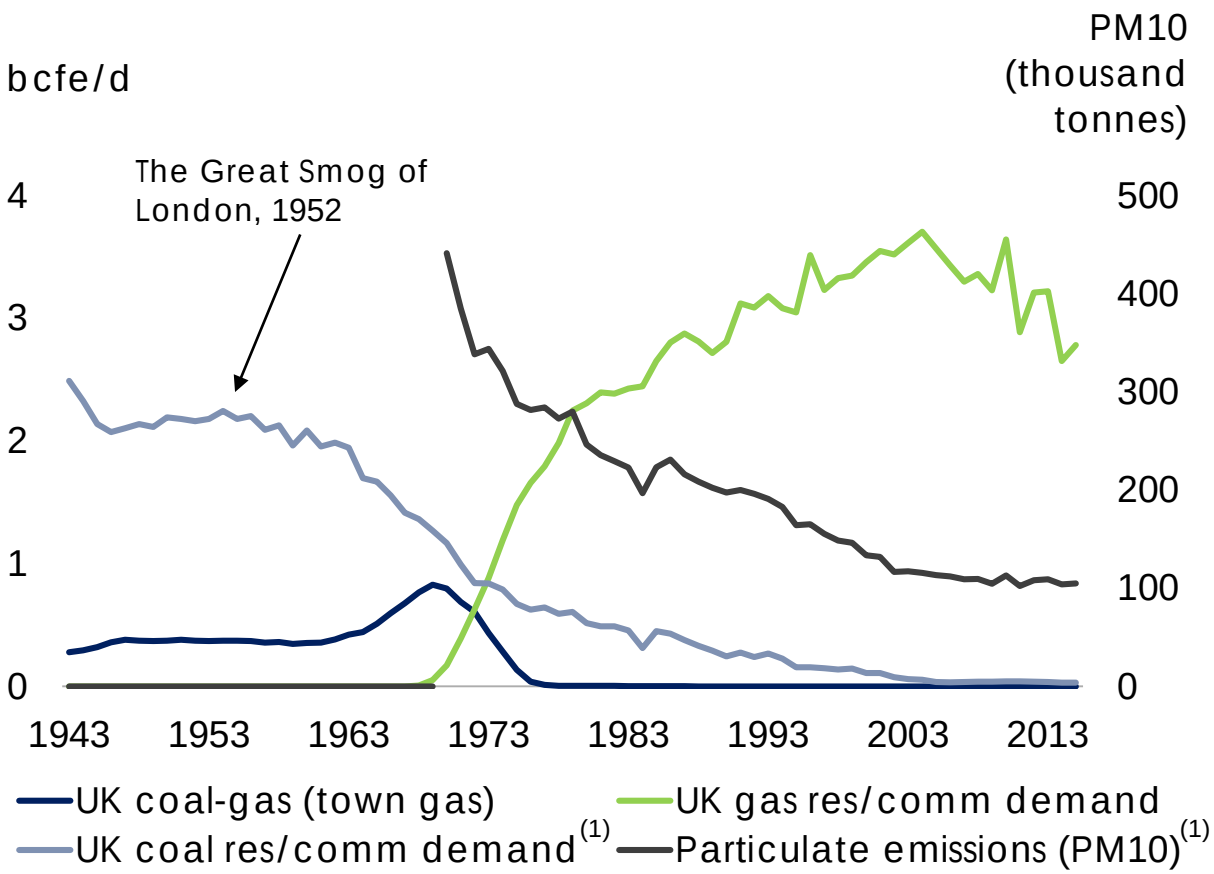
Chinese gas demand
billion cubic meters per year



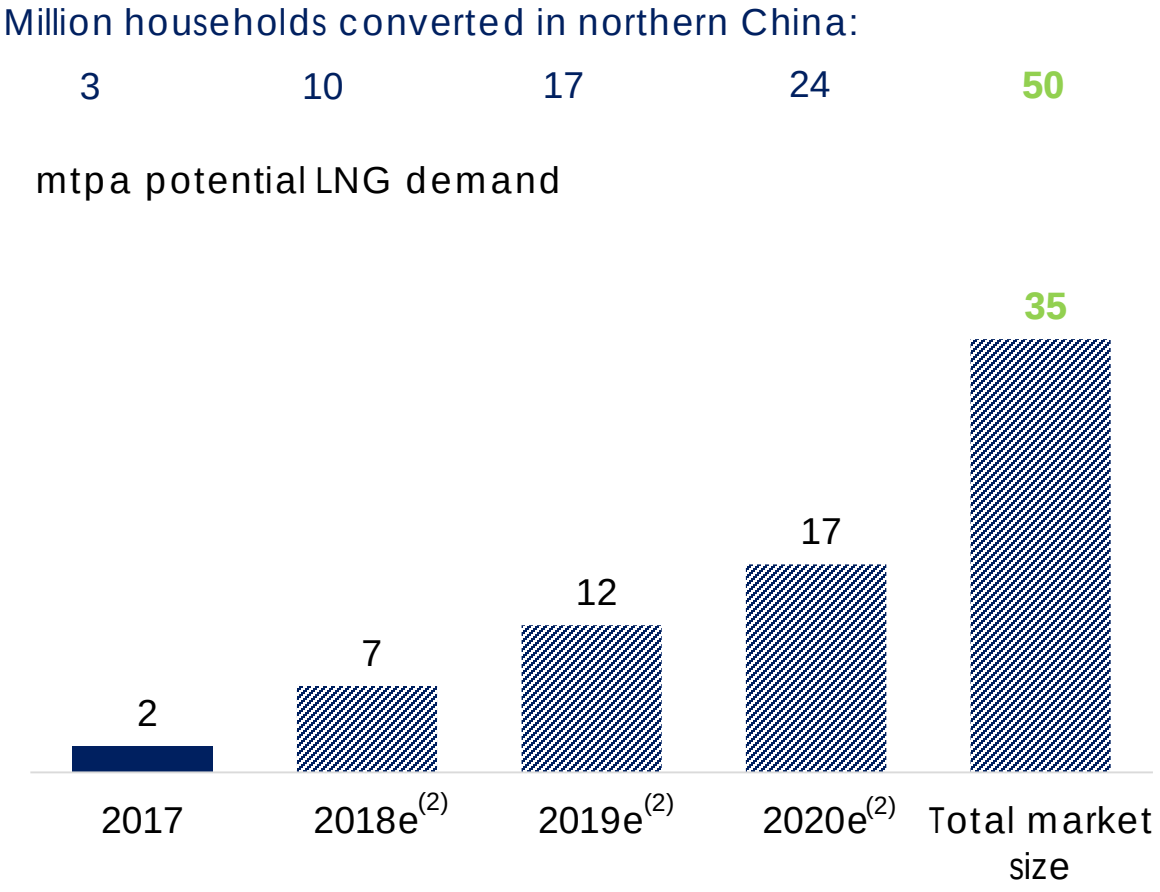
Source: SIA, Tellurian analysis.

Inelastic Chinese gas demand

Chinese coal-to-gas switching similar to UK gas market in the 1960s, which cut particulate pollution by 340%



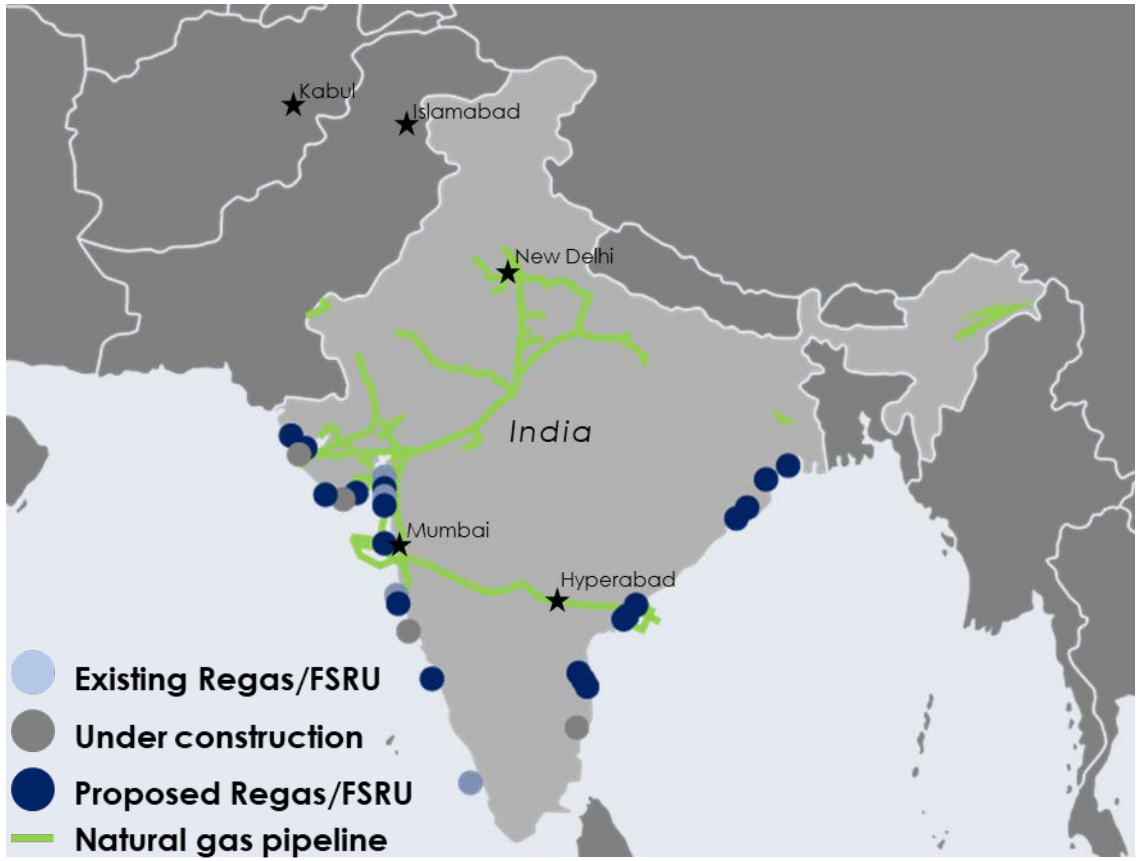
Coal-to-gas campaign creates structural gas demand in residential and industrial sectors



Sources: UK Department for Business, Energy & Industrial Strategy, Fouquet, Cailan Press, FGE, Tellurian analysis.
Notes: (1) Res/comm sector is also known as the buildings, or residential and commercial sector.
(2) Assumes each household consumes 10 cubic meters of natural gas during 120 days of winter heating season.

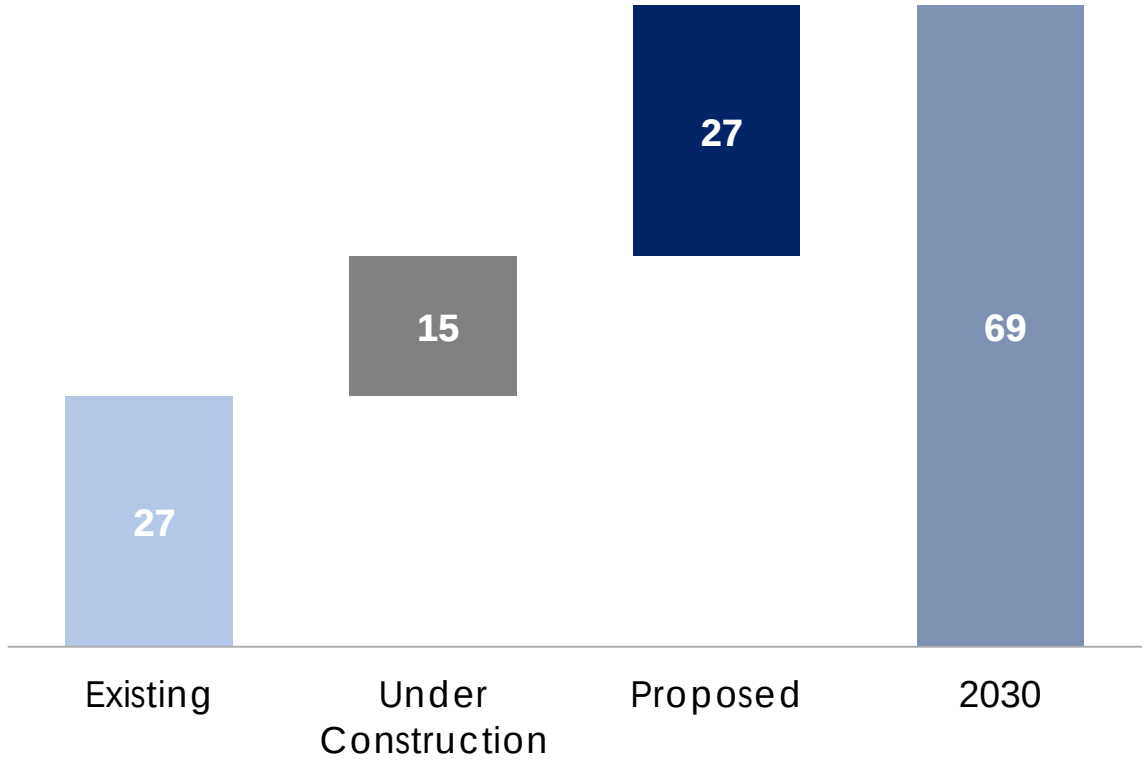
India resolving infrastructure constraints

New infrastructure in India will link supply to burgeoning city gas markets and industrial demand



India's regasification capacity

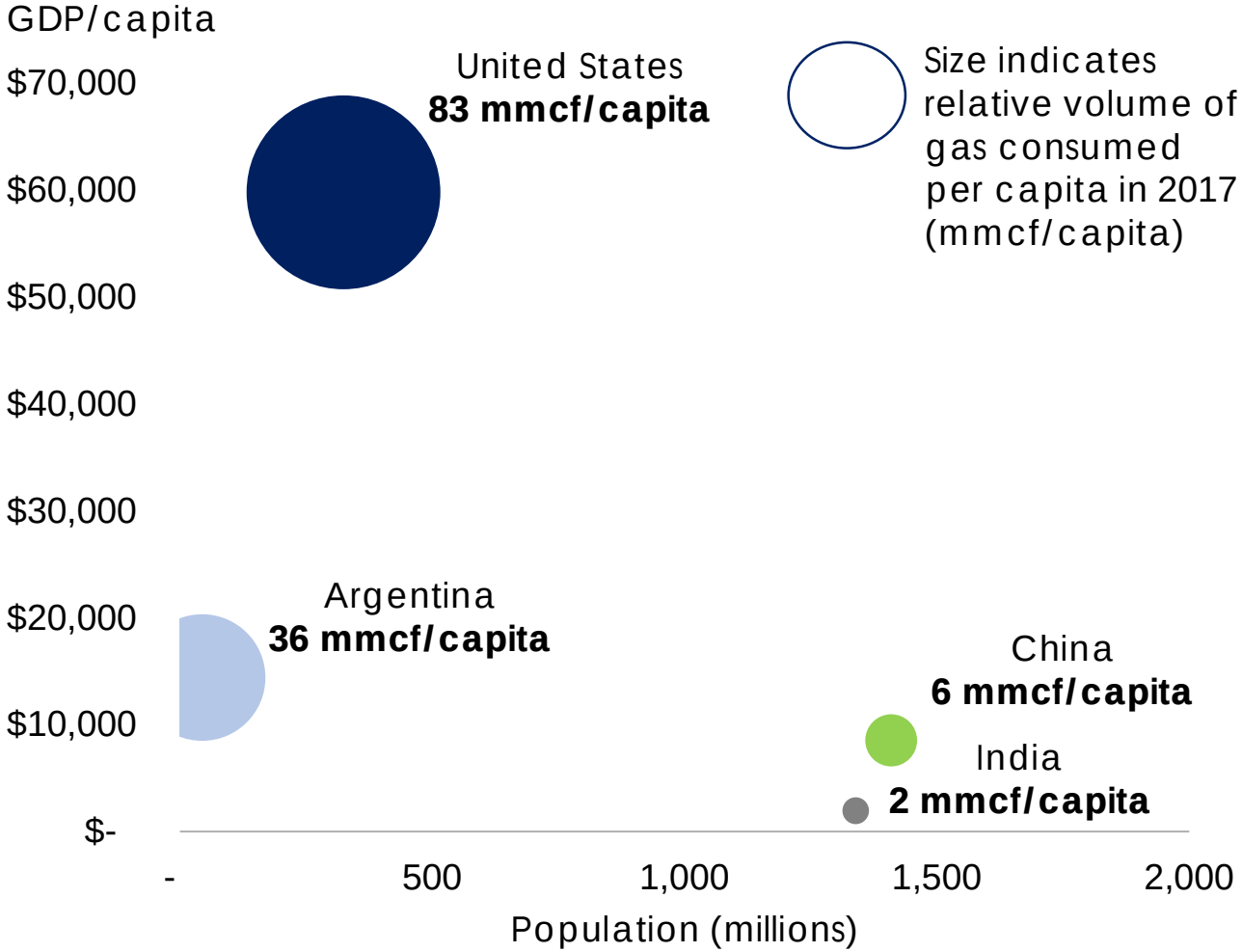
million tons

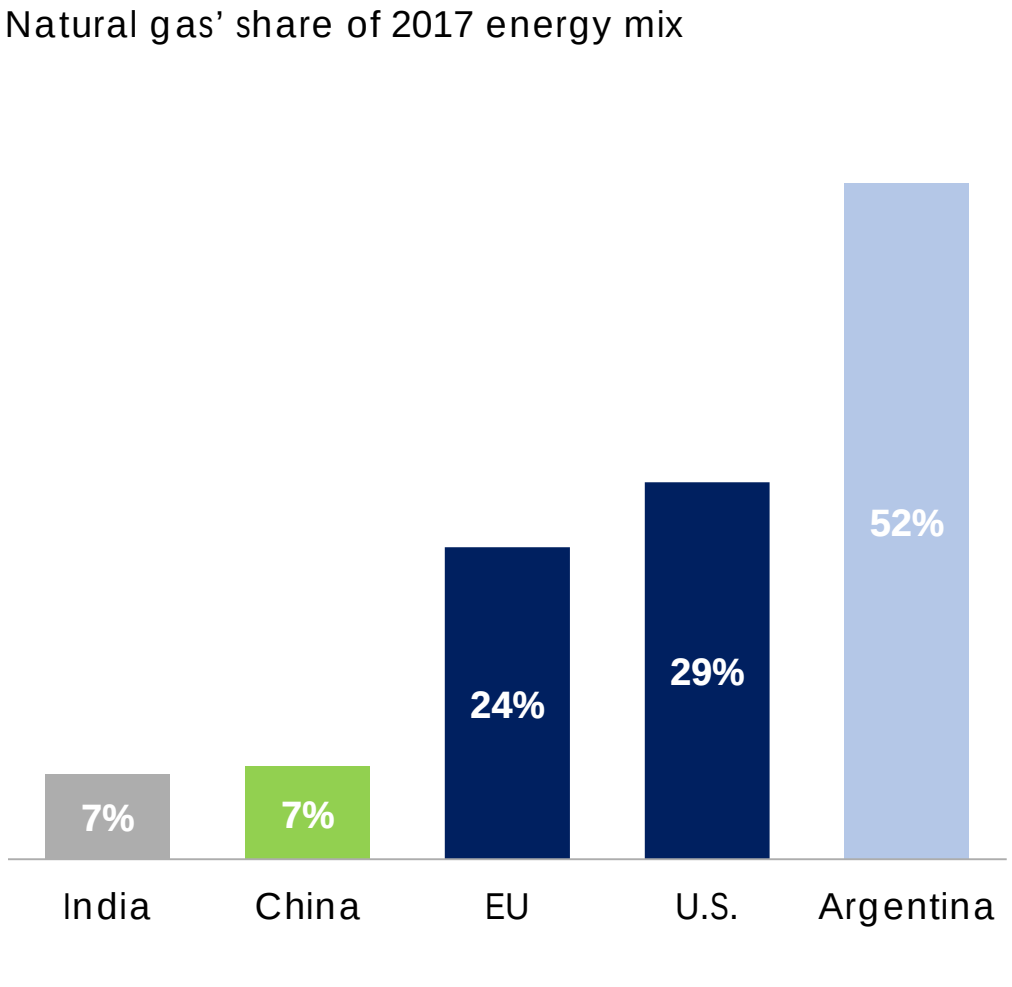


Sources: IHS Markit.

Emerging consumption: China and India

Population and economic growth imply significant upside to gas consumption in China and India

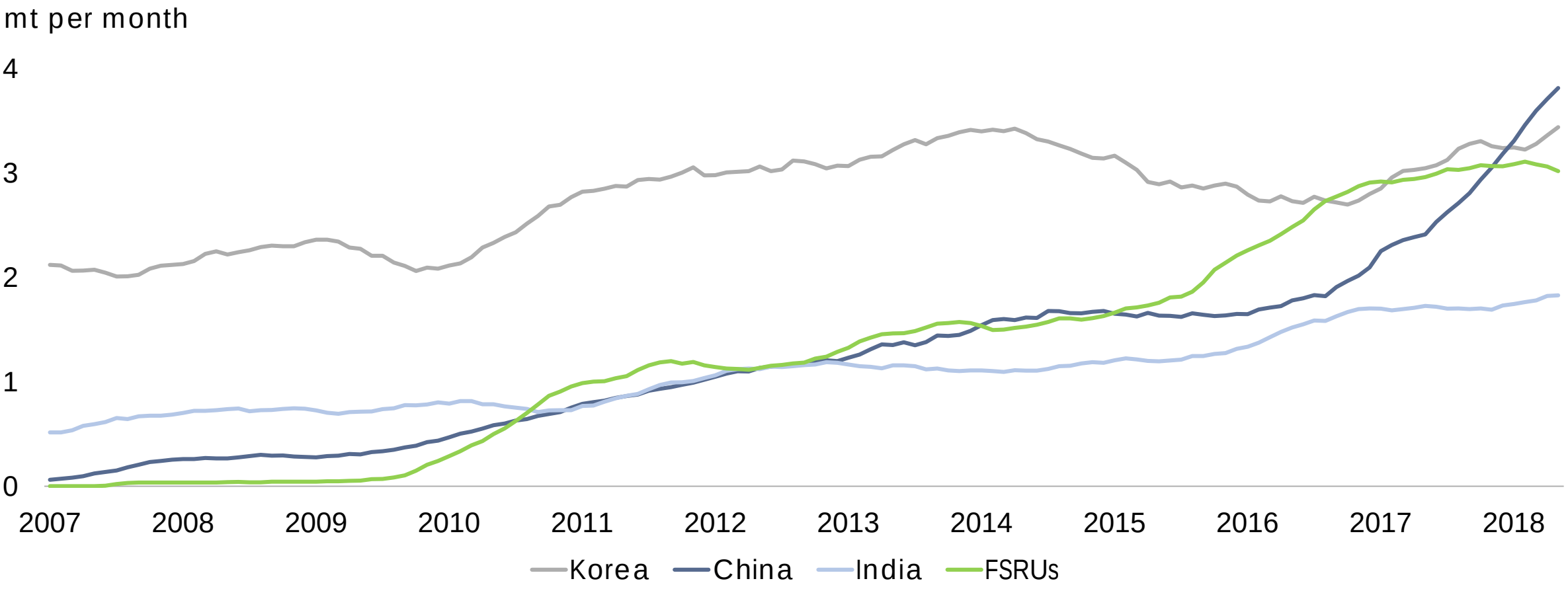




Sources: IHS Markit, SIA Energy, EIA, CIA World Factbook, BP Energy Outlook.

FSRU technology expands access to LNG

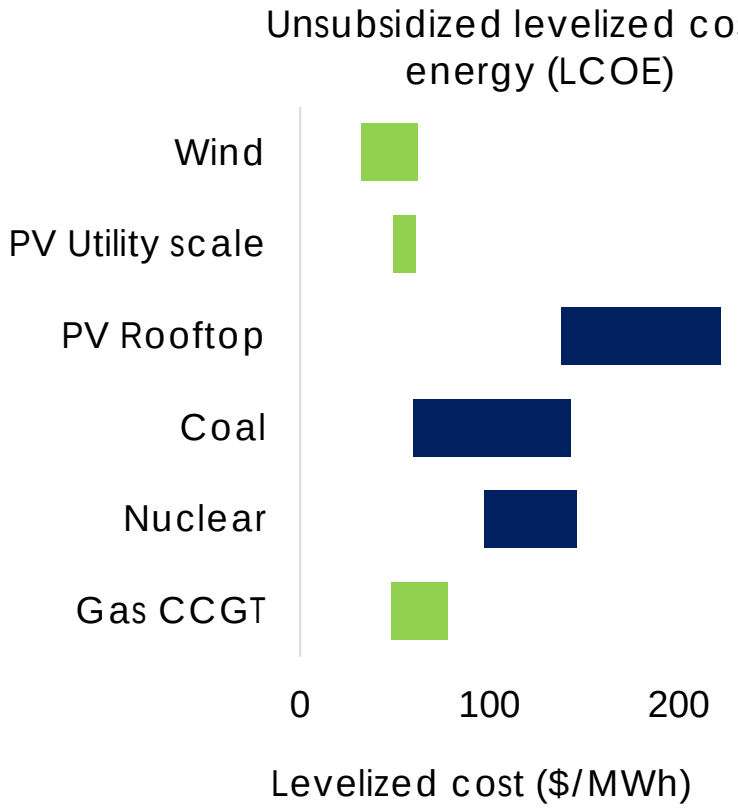
Imports via FSRUs represent fourth largest source of demand[1]



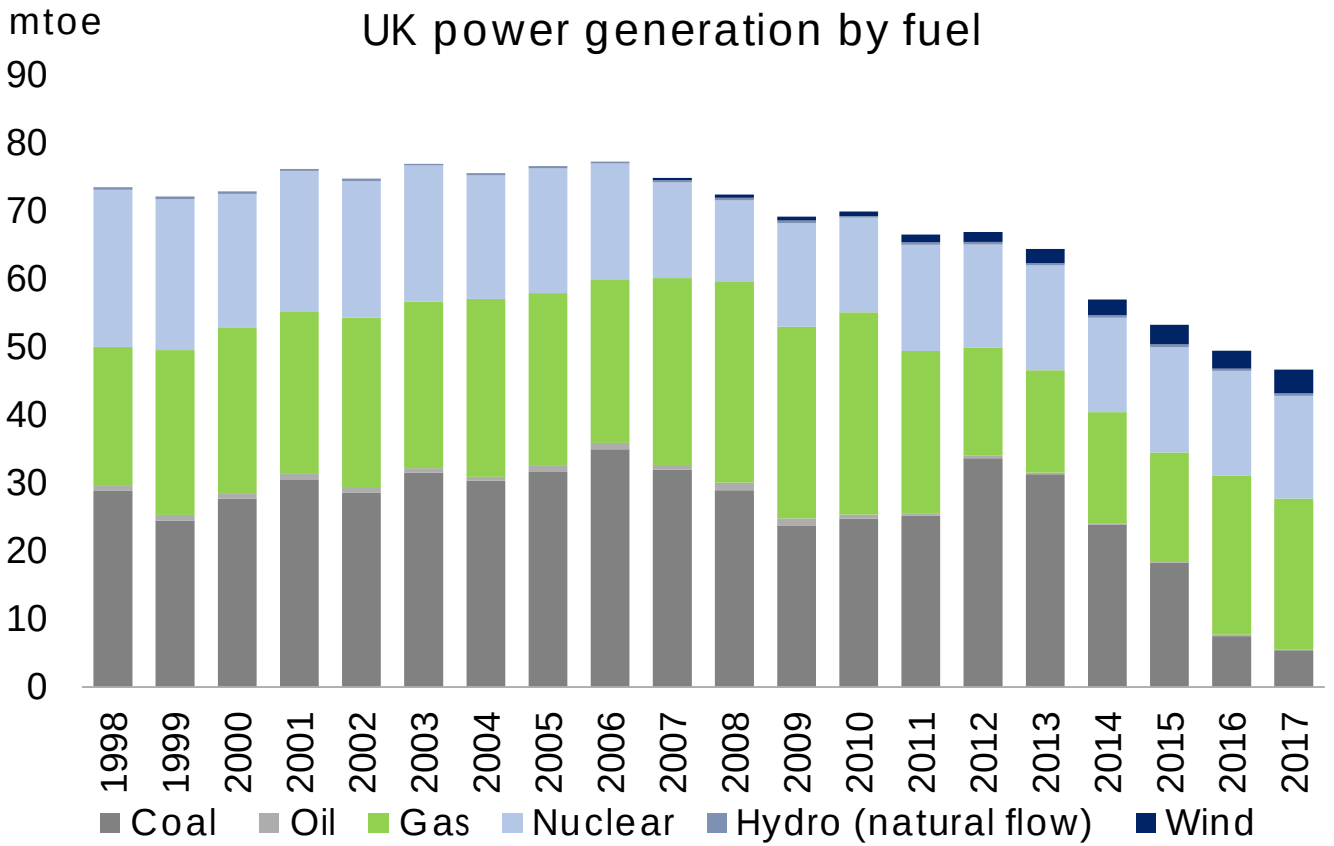
Source: IHS Markit, Tellurian analysis.
Notes: (1) Imports calculated on a rolling 12-month basis.

Natural gas helps Europe decarbonize

Gas-fired power generation is a cleaner, more affordable, and reliable backup to renewables



Natural gas share in UK's power mix grew to 42% as higher CO2 prices incentivized dispatch of cleaner fuels; Europe considering similar policies



Source: Lazard, UK Department for Business, Energy and Industrial Strategy (2018).

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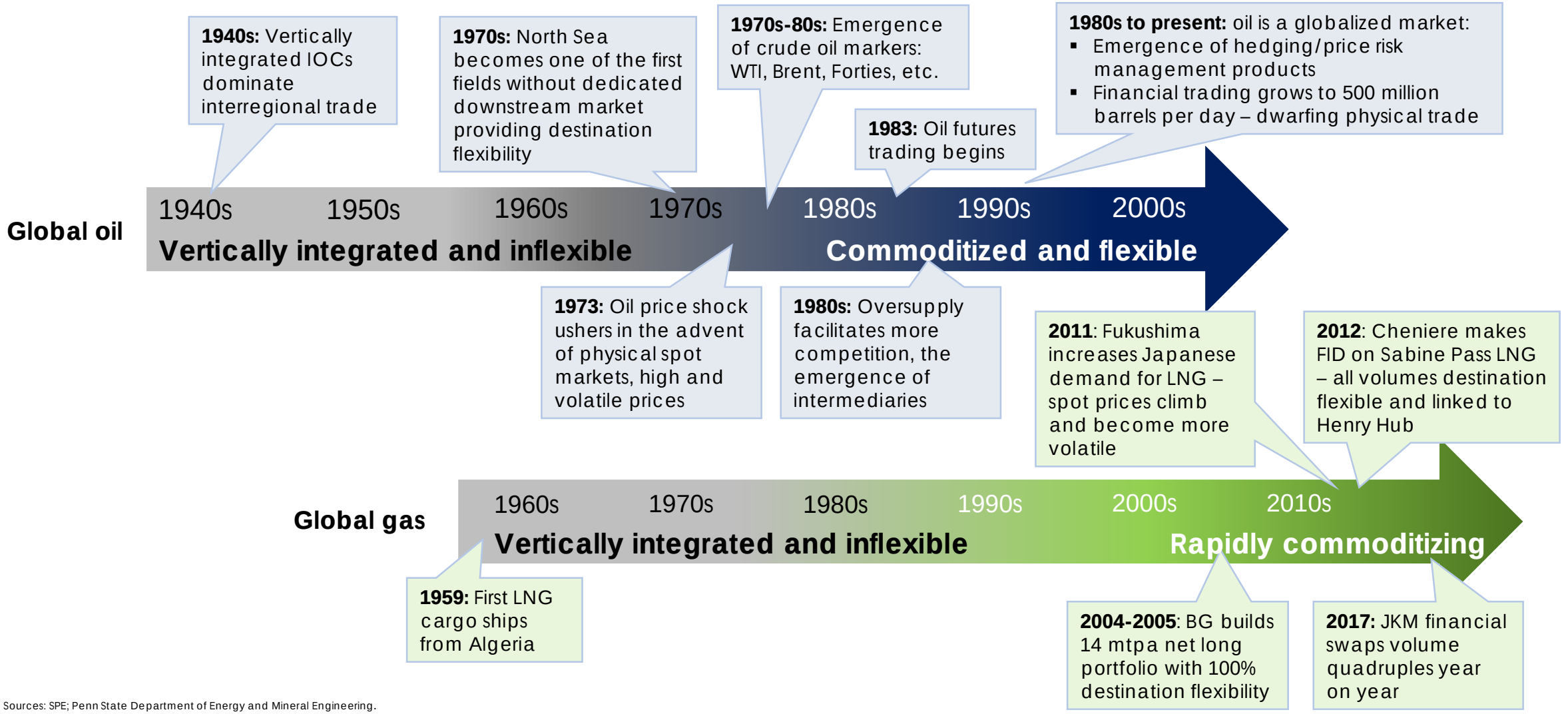
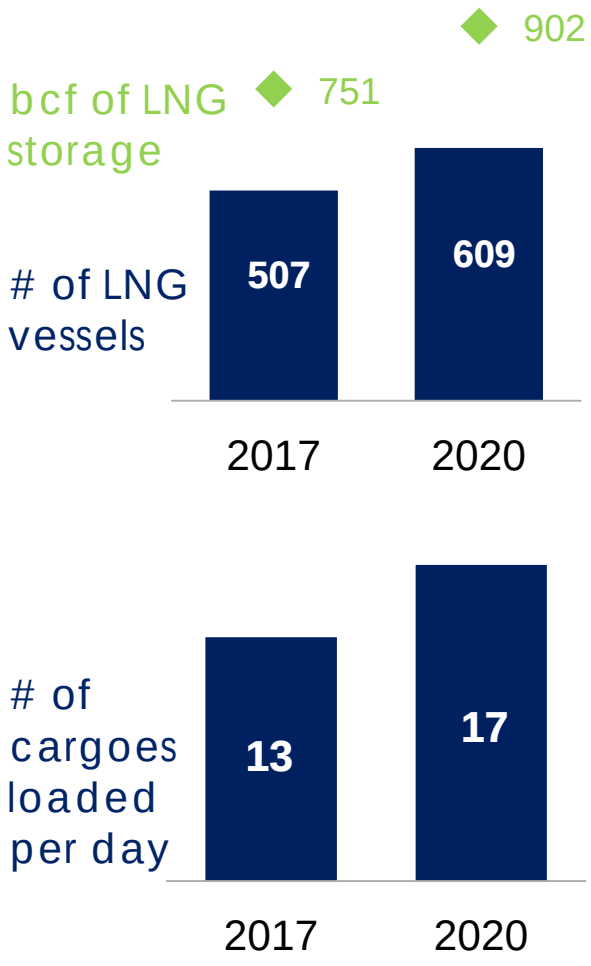
Gas is becoming a global commodity

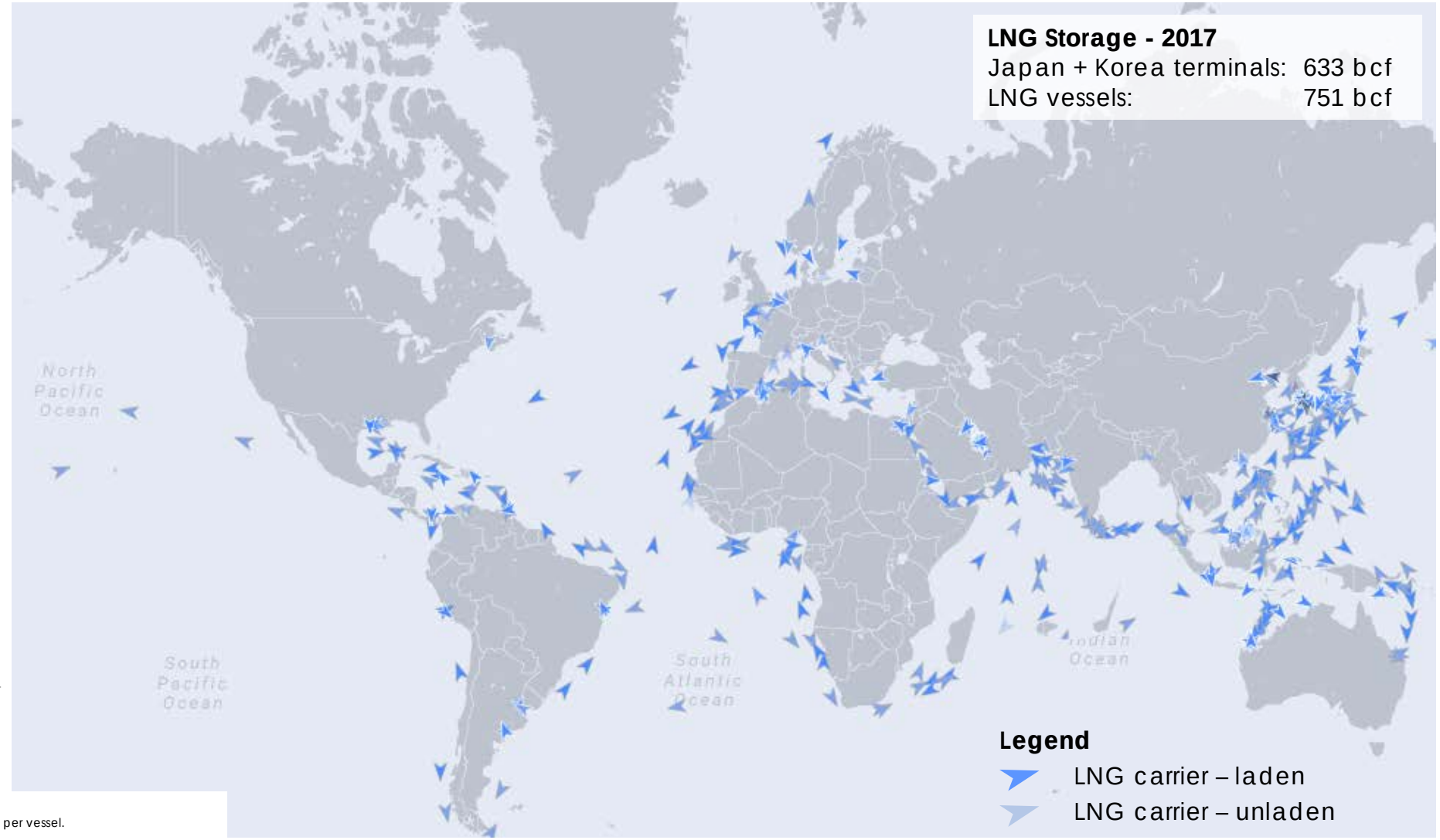
Today's LNG market exhibits remarkable similarities to the global oil market of late 20th century



Sources: SPE; Penn State Department of Energy and Mineral Engineering.

Deeper physical liquidity from infrastructure



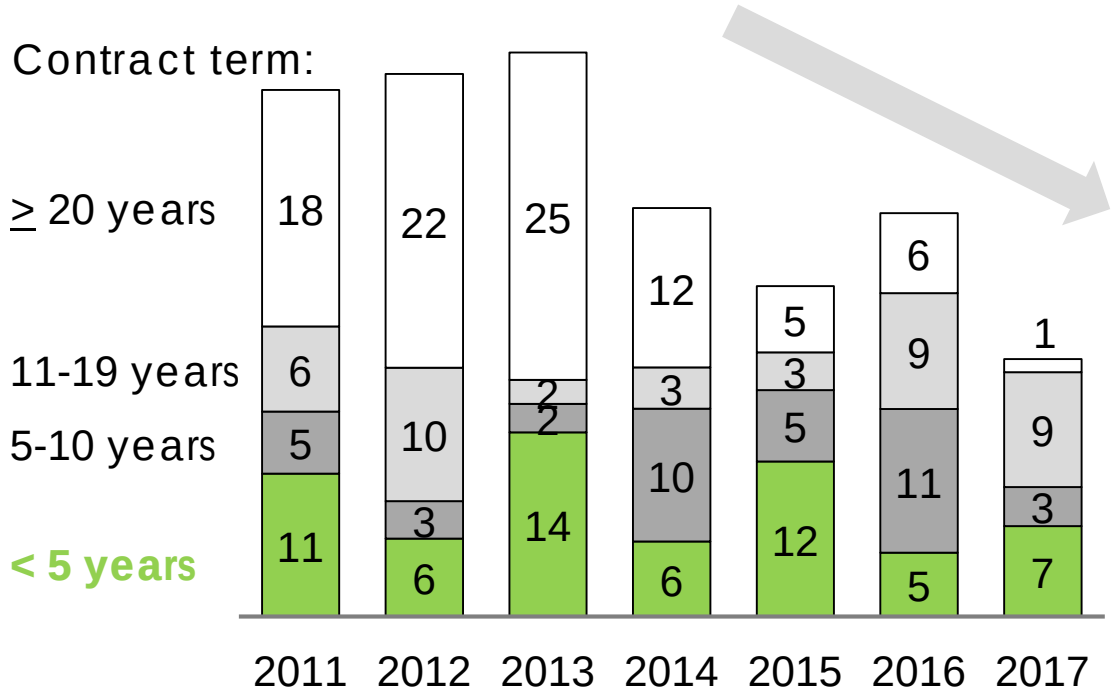


Sources: Kpler, Maran Gas, IHS, Wood Mackenzie.
Notes: LNG storage assumes half of fleet is in ballast, 2.9 bcf capacity per vessel.
Average cargo size ~2.9 bcf, assuming 150,000 m^3 ship.
In 2017, approximately a third of all LNG cargoes are estimated to be spot volumes.
Based on line of sight supply through 2020.

LNG market is becoming liquid

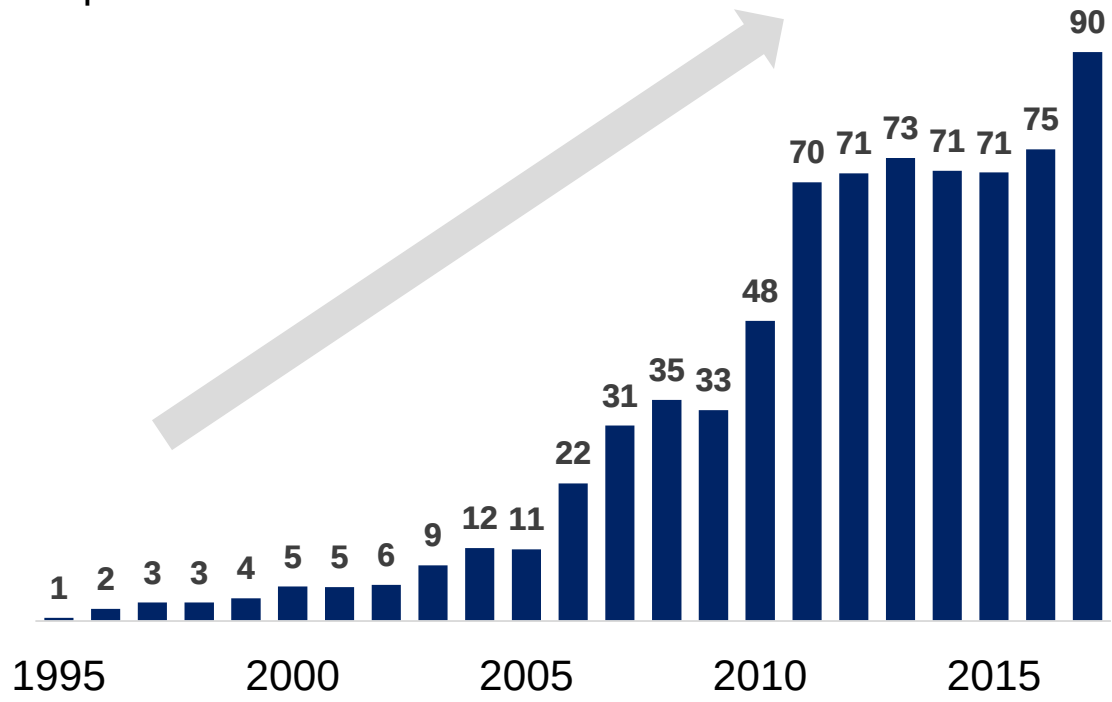
Long-term contracts are less prevalent

Aggregate contract quantity by duration
mtpa



Short-term[1] LNG trade represents ~30% of market

Short-term transactions
mtpa

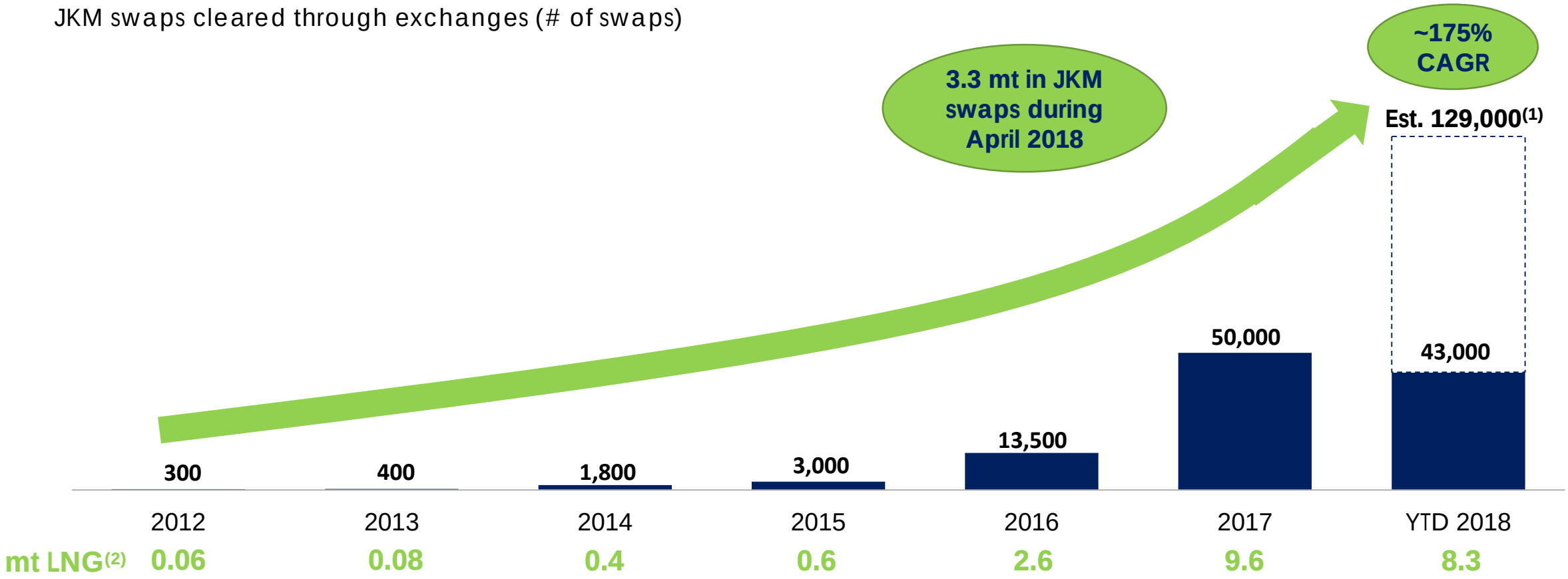


Sources: Wood Mackenzie, IHS.
Notes: 1) Non long-term LNG trade – less than 2 years.

Financial derivatives are growing rapidly

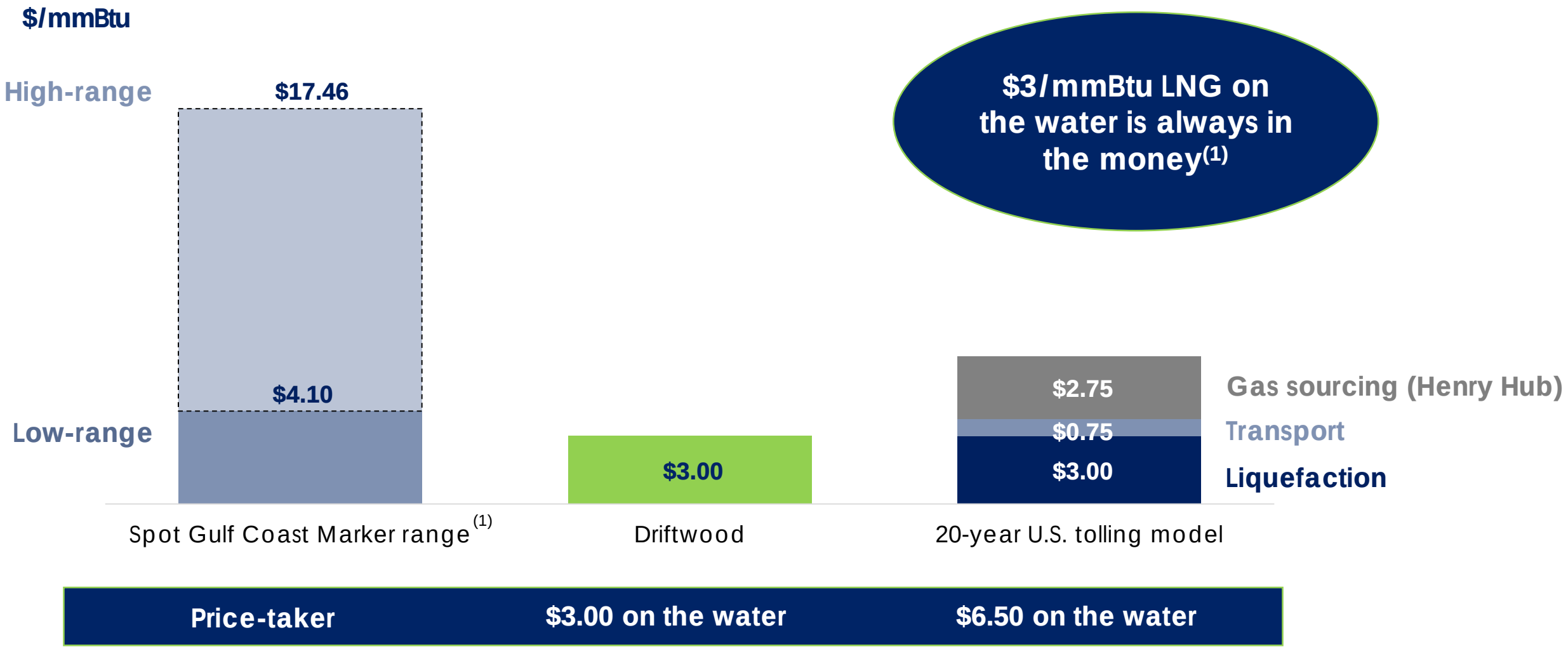
JKM swaps cleared through exchanges have grown at 175% p.a.

Asian LNG derivative volumes
JKM swaps cleared through exchanges (# of swaps)



Sources: S&P Global Platts, ICE, CME.
Notes: (1) Based on year-to-date swaps through April 2018
(2) Assumes 1 lot = 10,000 mmBtus

Low cost on the water wins



Sources: Platts, Tellurian analysis.
Notes: (1) From January 1, 2014 to January 19, 2018.

Building a low-cost global gas business

Driftwood Holdings partnership – integrated, low-cost

11,620 acres in the Haynesville with 1.4 Tcf resource

~$7 billion(1) of pipeline infrastructure projects in development

~$15 billion of liquefaction infrastructure in development

International delivery of LNG cargoes started in 2017

Note: (1) HGAP and PGAP projects are in early stages and remain under review.

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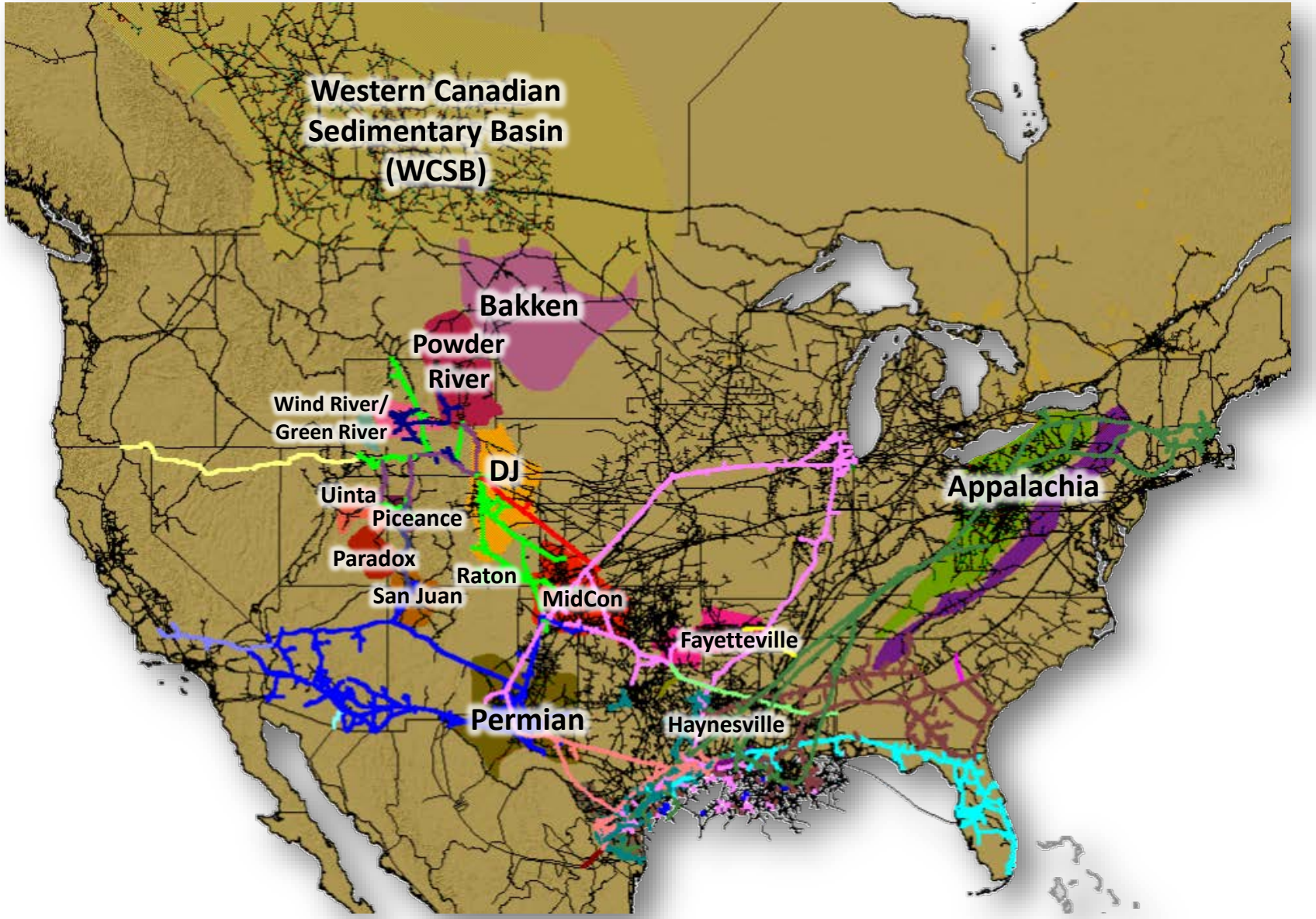
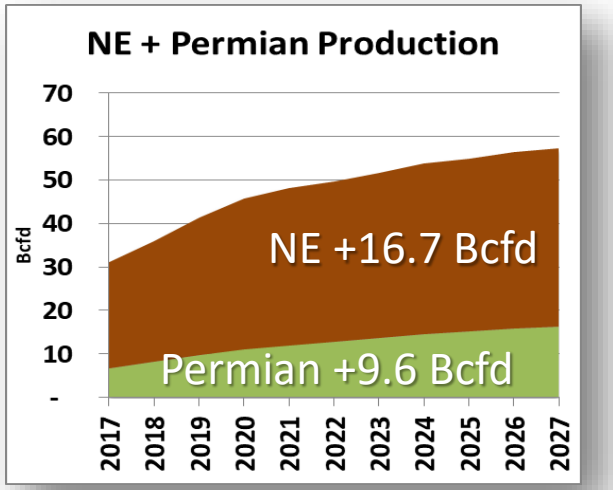
Kelly Dunn, Director, Supply Chain U.S. Projects, TransCanada

Paul Grosskopf, Director, Projects, Enbridge

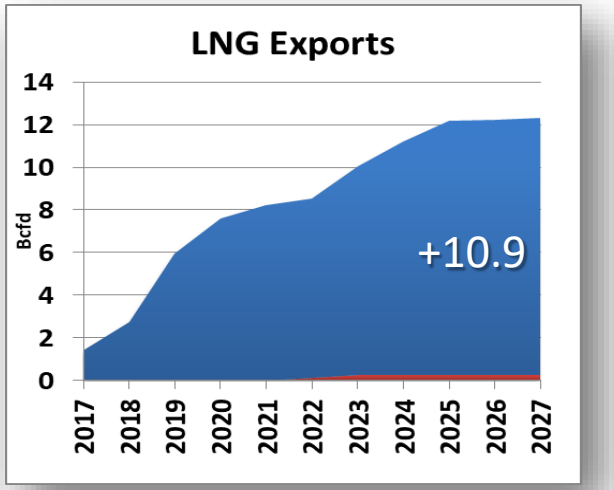
Kinder Morgan Pipes in Key Supply Basins and Consumption Regions



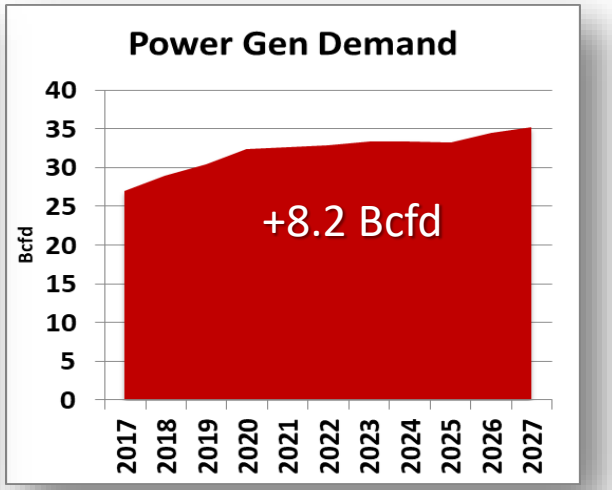
Key Trends



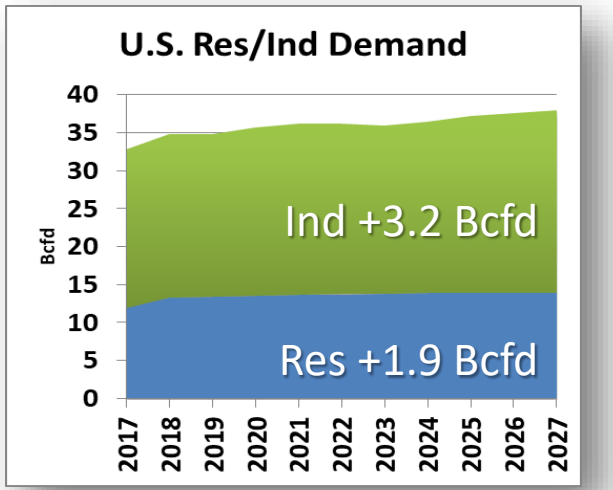
Continued supply increases



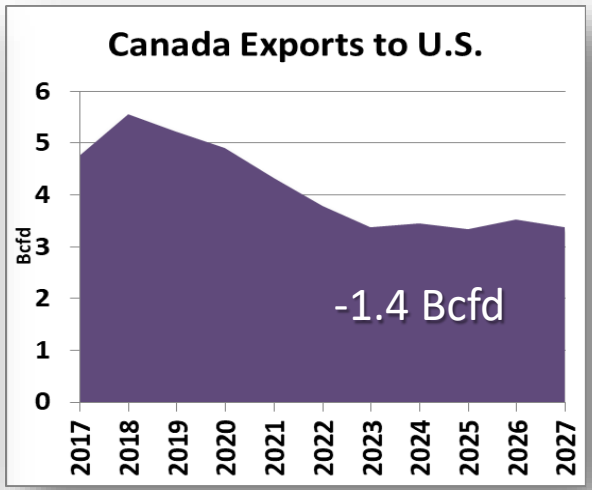
U.S. becomes net exporter



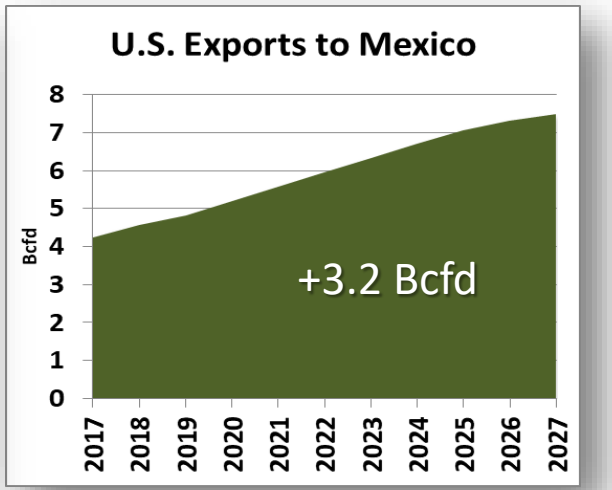
More Gas-fired generation



Industrial demand growth



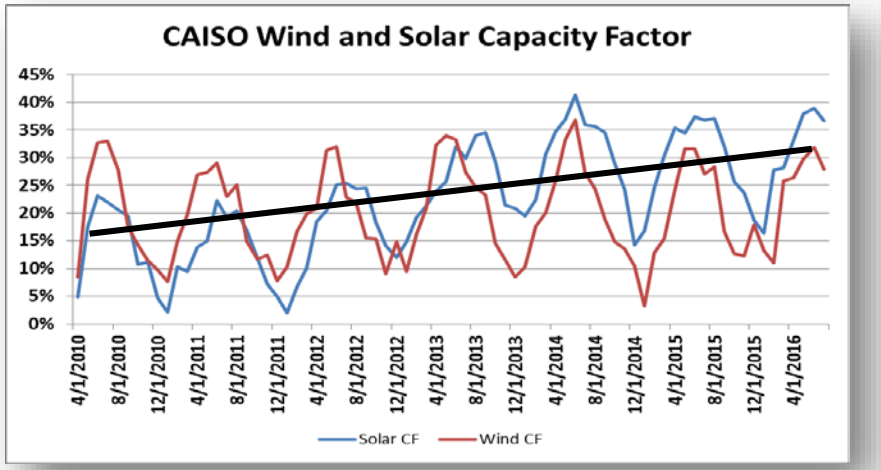
Less Canadian Exports to U.S.

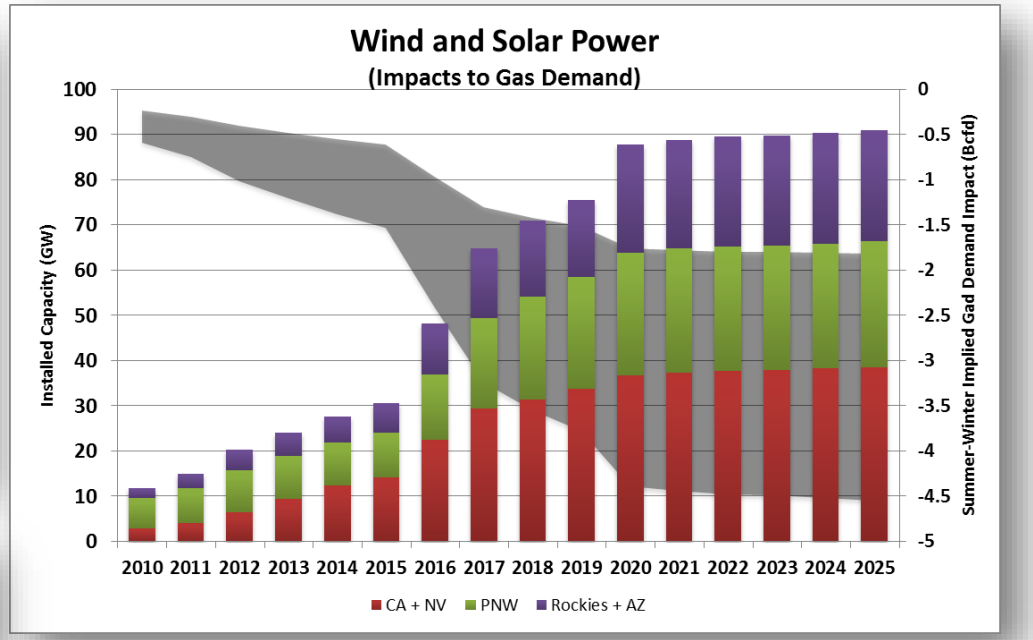


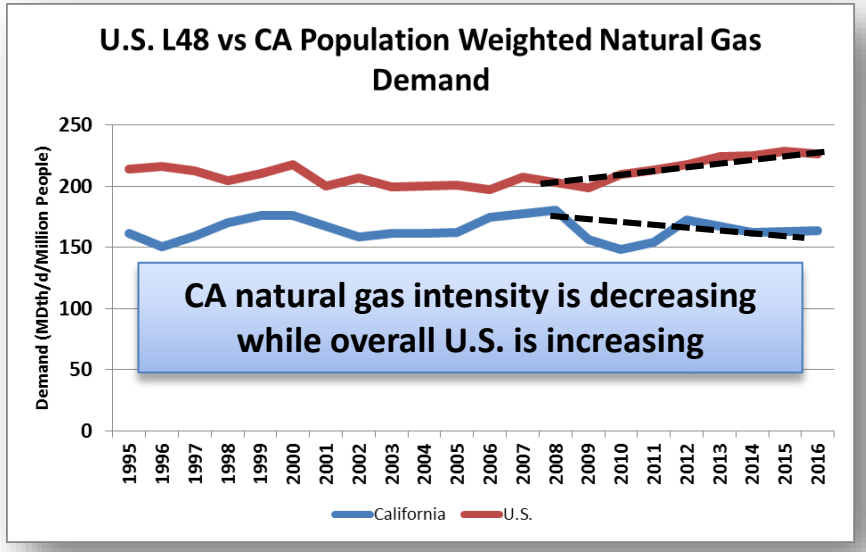
More U.S. Exports to Mexico

Source: ICF International and Kinder Morgan Analysis

Renewable Growth



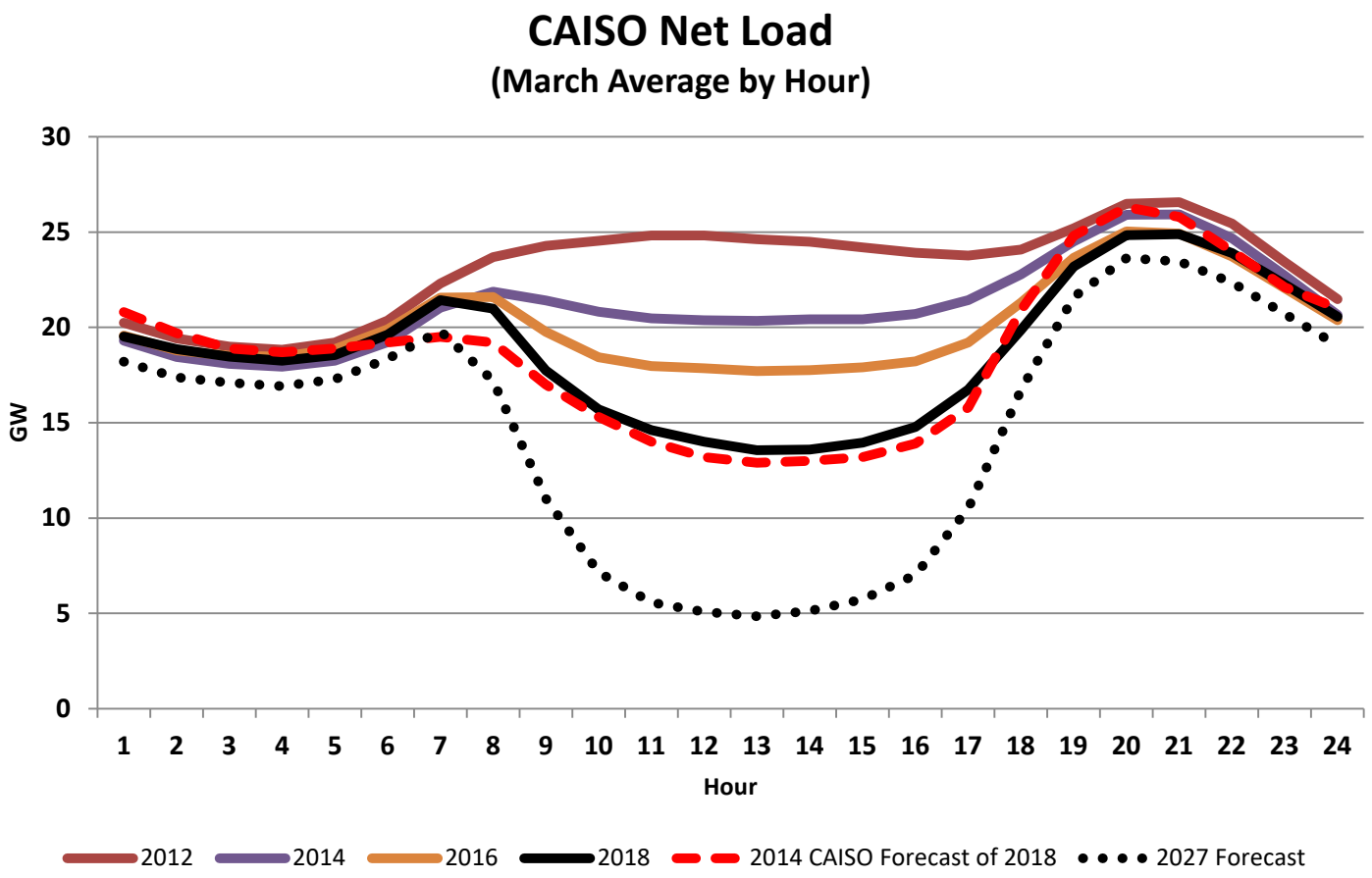




Source: Existing to planned capacity from Velocity Suite; Gas demand impacts derived from ICF International generation forecast data

Given the projections for existing and new renewable power, the West Region may see a <u>maximum</u> demand destruction in power gen of 3.2 Bcfd (1.8 winter to 4.5 summer) by 2025.

California ISO "*Duck Curve*"



The ramp in gas fired generation due to renewables drives greater need for pipeline deliverability

Natural Gas Deliverability is the ability to deliver gas at the required location, time, pressure and quantity

California has made significant progress towards renewable power but, according to Moody's Investor Service, the cost to reach 100% clean energy for power by 2045 in California far exceeds $100 Billion.

Source: CAISO

Kinder Morgan Permian Projects

1. Gulf Coast Express, 42” with ~1.7 bcf/d
2. Permian Highway Pipeline, 42” with ~2 bcf/d
3. EPNG projects
4. NGPL project

What do we need from you?

1. Safe and on time and budget construction projects; contractors, inspectors, environmental support, etc.

2. **Timely**, quality, reliable and cost effective support to operations, even more so in the future

3. Remember when working for KM, you **are** KM

- Our people, pipeline and public safety commitment
- You contribute to or detract from our public image and license to operate

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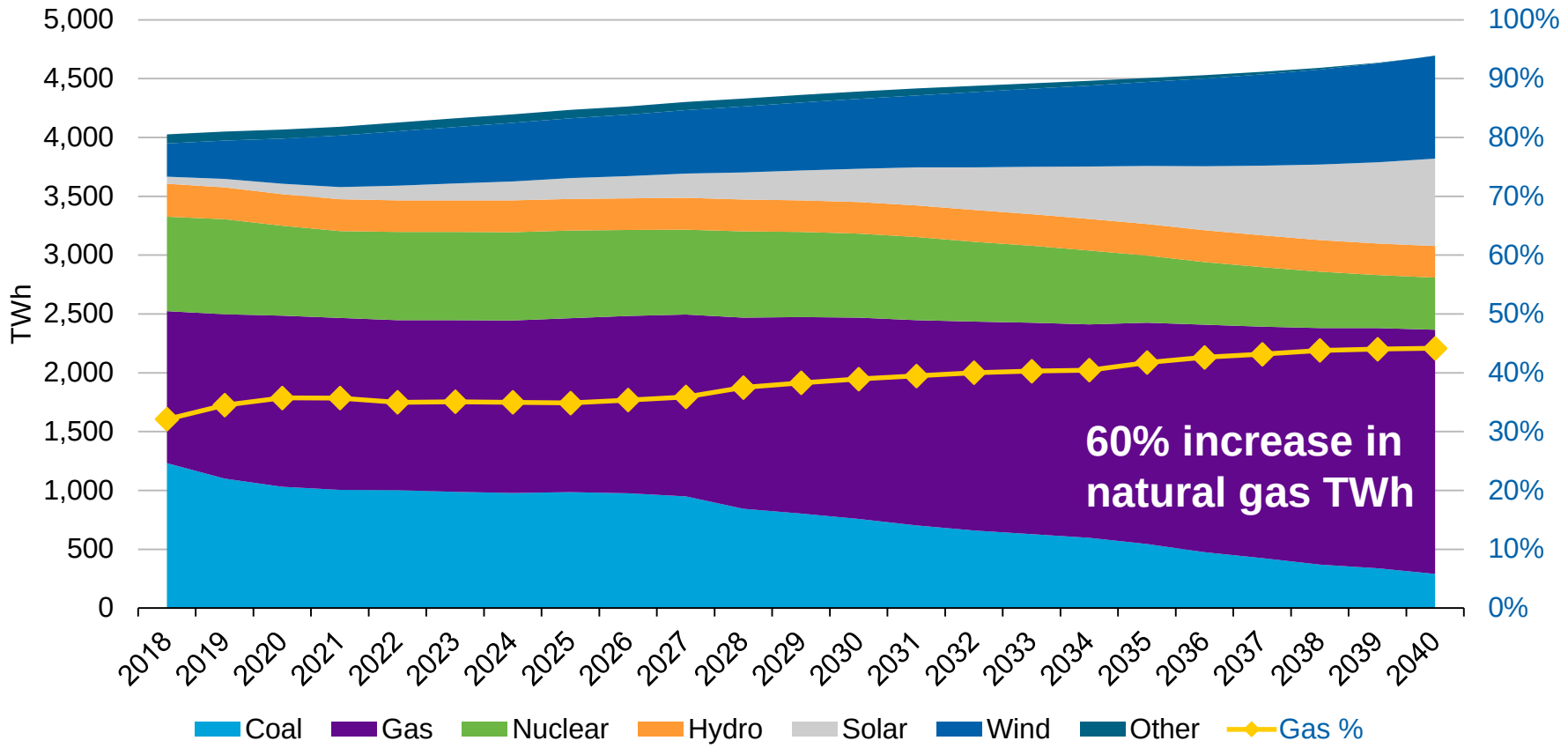
Gas share into power generation continues to grow

US POWER GENERATION BY FUEL



Source: Wood Mackenzie 1H 2018

Eastern Interstates: Projects in Execution

Shipper Commitments
> Leidy South (Sanctioned 8/18)
> Gulfstream Phase VI (Sanctioned 8/18)

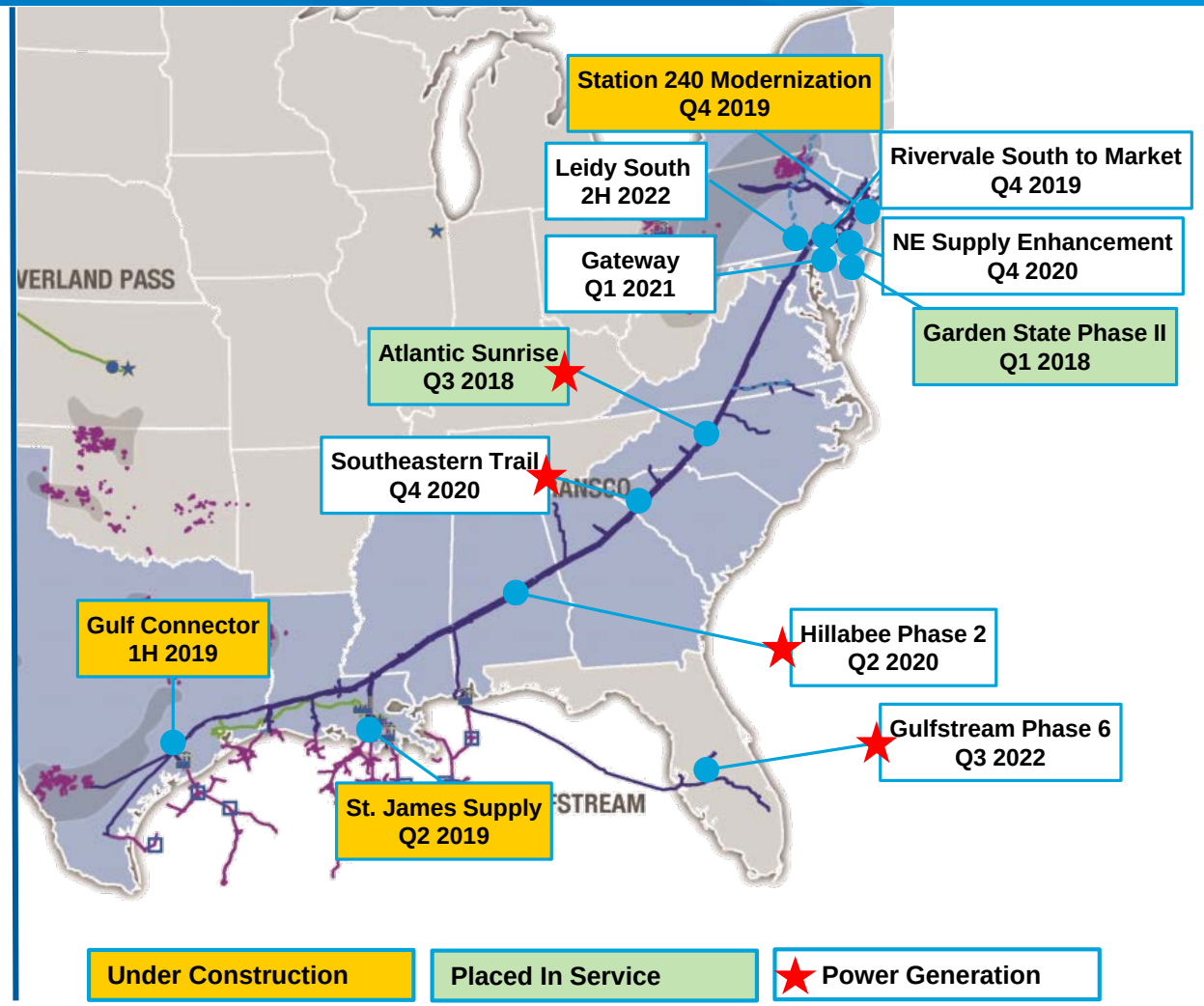
FERC Application Filed
> Leidy South (Filed 3/17)
> Gateway (Filed 11/17)
> Southeastern Trail (Filed 4/18)

FERC EIS / EA
> Gateway (Received 7/18)

FERC Certificate
> Rivervale South to Market (Received 8/18)

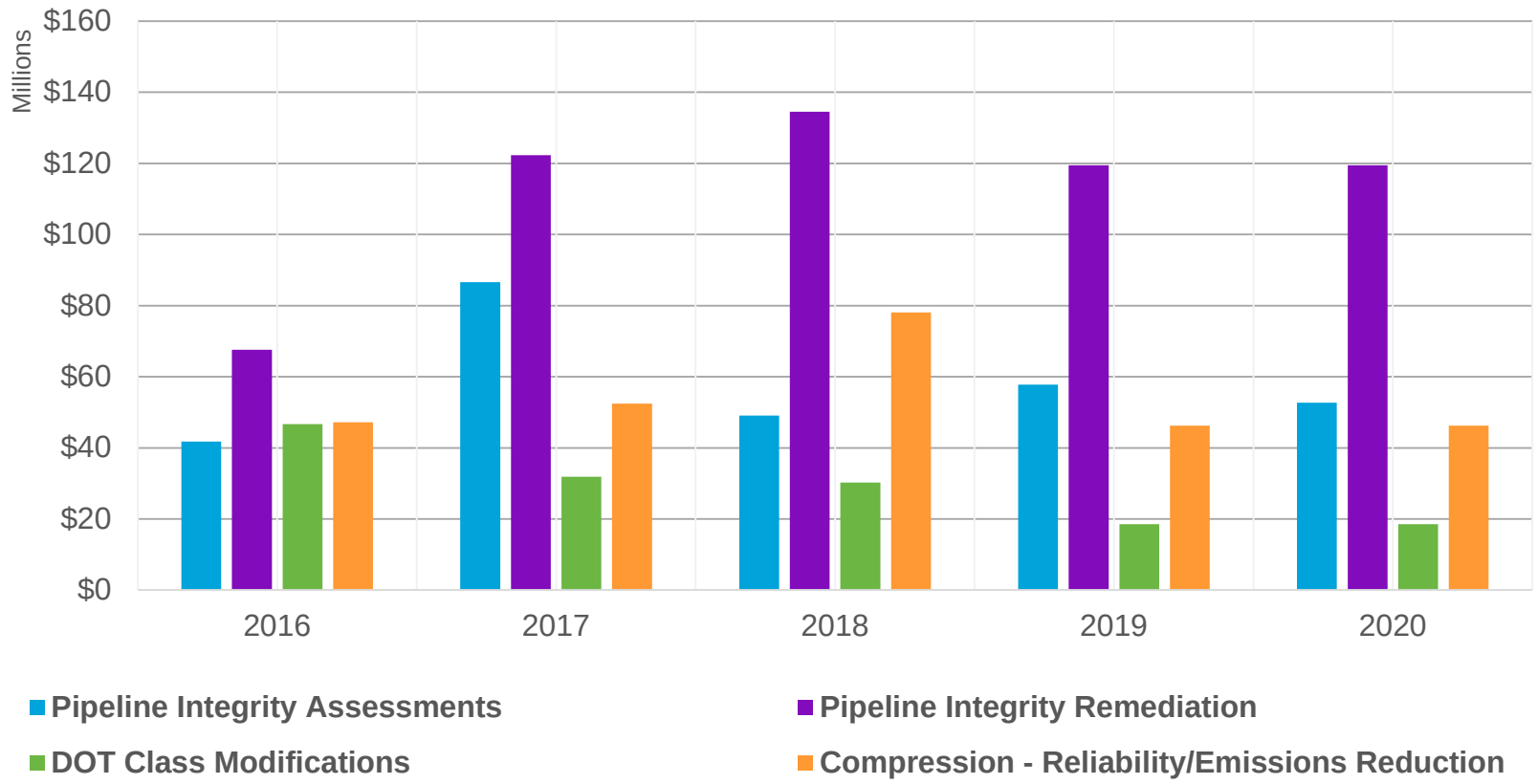
Major Construction Activities
> Gulf Connector (Began 2/18)
> St. James (Began 4/17)
> Hillabee Phase 2 (Began 8/18)

In-Service
> Garden State Phase 2 (ISD 3/18)
> Atlantic Sunrise (ISD 10/18)



Maintenance capital costs shifting

TRANSCO MAINTENANCE COSTS



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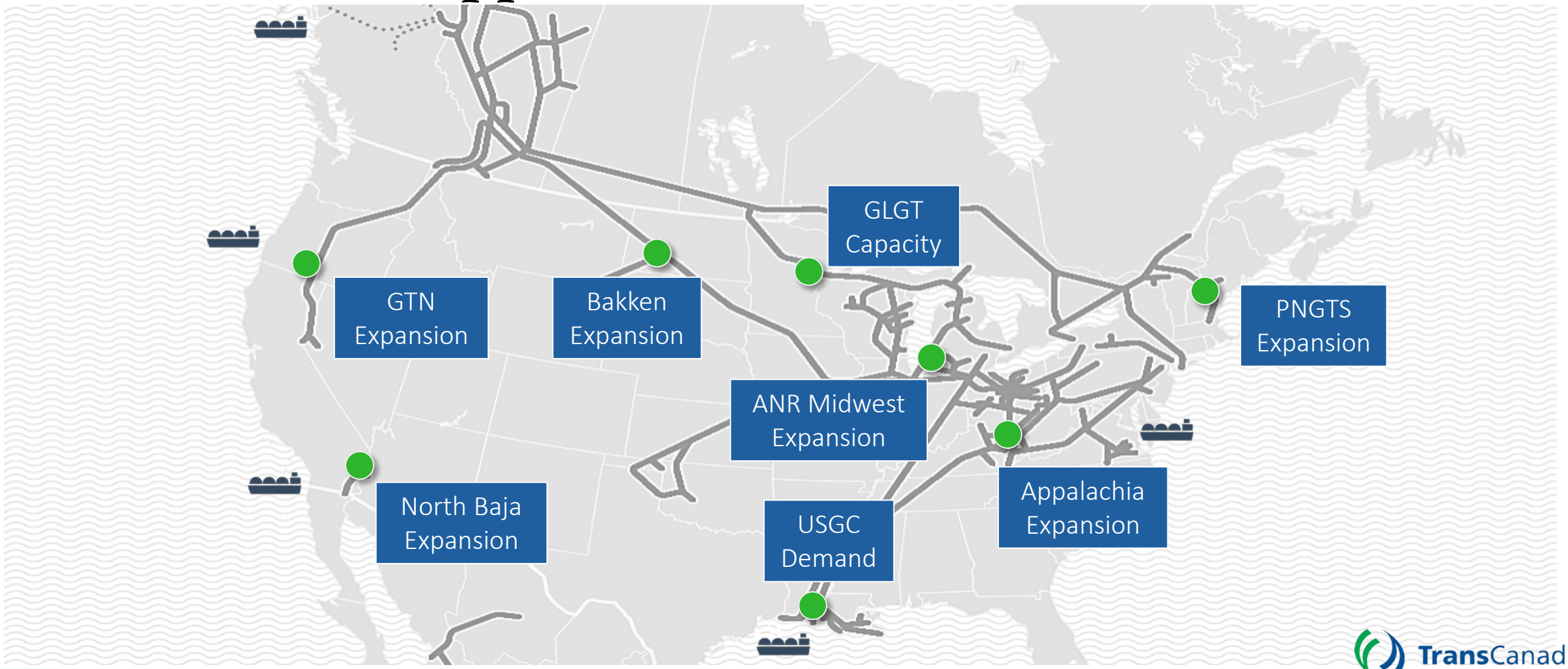
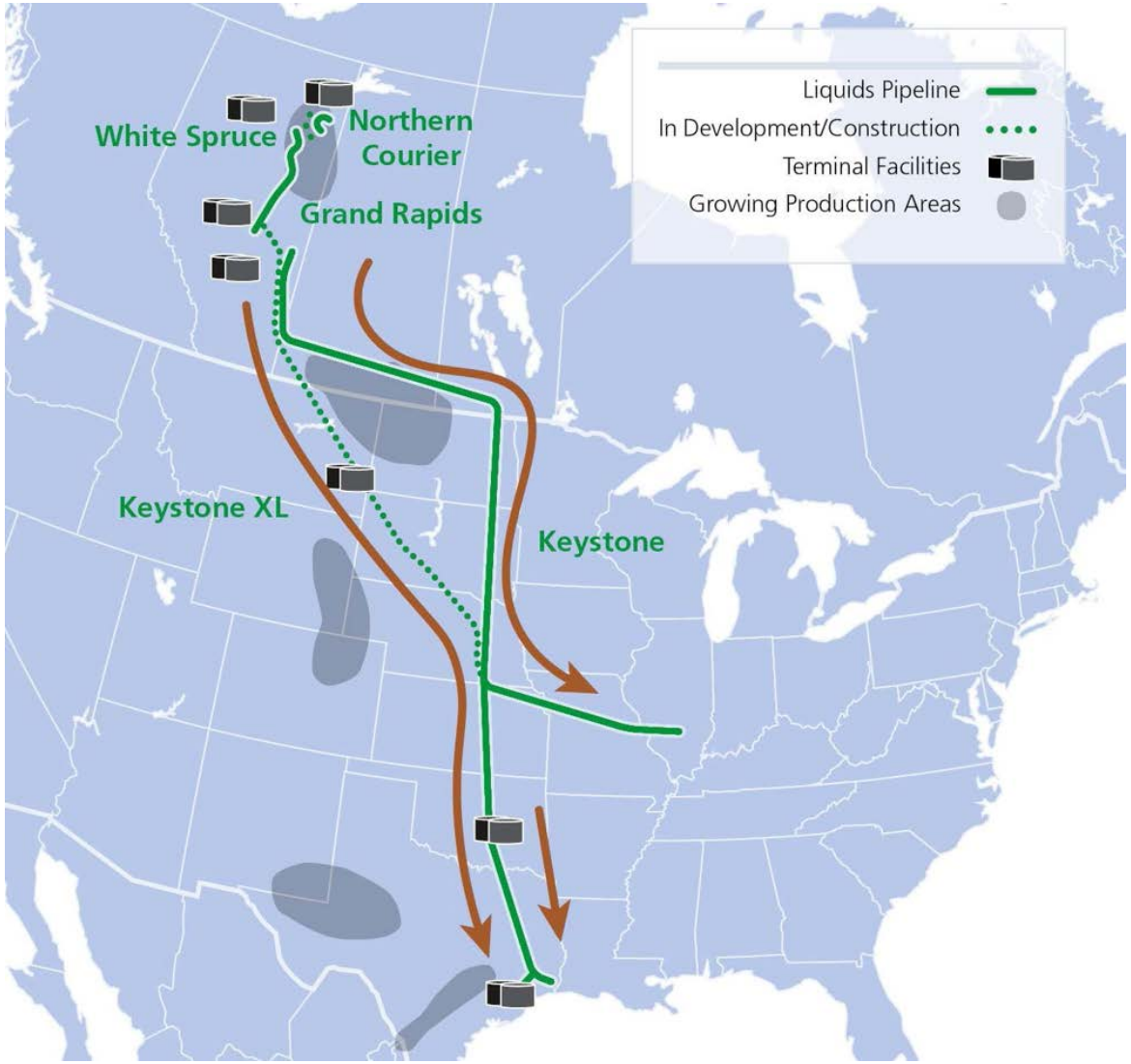
TransCanada Opportunities



TransCanada

Keystone XL Project Status

- Plans to recommence construction in Q2 2019
- Key activities taking place in fall of 2018
  - Began moving materials and preparing staging sites in South Dakota and Montana
  - Movement of equipment to prepare workforce camps sites and camp modules
  - Workforce camp site preparations and camp module movement to staging areas
  - Vegetative clearing along the Right-of-Way
- Target in-service date mid-2021



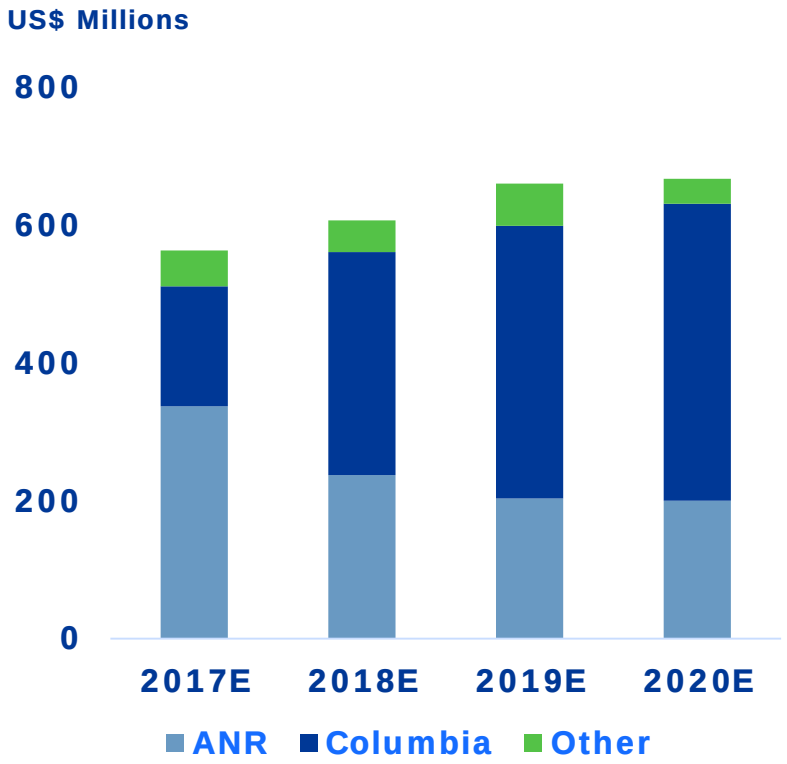
TransCanada

U.S. Pipelines Maintenance Capital

- Maintenance capital to approximate US $600 million annually

- Expenditures are the result of:
  - Increased utilization due to higher natural gas flows
  - Pipeline integrity work, primarily on Columbia

- Capital spend expected to become part of rate base and earn a return on and of capital



TransCanada

Near Term Construction Project Perspectives
Owner/Operator Panel

Moderator:

Mark Hereth, Managing Director, Blacksmith Group, and
Chairman, The INGAA Foundation

Panelists:

Keith Teague, Executive Vice President & COO, Tellurian

Tom Hutchins, Vice President, EH&S, Kinder Morgan

Evan Kirchen, Vice President, E&C, Atlantic-Gulf, Williams

Kelly Dunn, Director, Supply Chain U.S. Projects, TransCanada

Paul Grosskopf, Director, Projects, Enbridge

Enterprise-wide Secured Growth Project Inventory

	Project	Expected ISD	Capital ($B)
2018	High Pine	In service	0.4 CAD
	Stampede Lateral	In service	0.2 USD
	Wyndwood	In service	0.2 CAD
	Rampion Wind – UK	In service	0.8 CAD
	RAM	In service + 3Q18	0.5 CAD
	NEXUS	3Q18	1.3 USD
	TEAL	3Q18	0.2 USD
	Atlantic Bridge	In service + 4Q18	0.6 USD
	Valley Crossing Pipeline	4Q18	1.6 USD
	STEP/Pomelo Connector	4Q18	0.4 USD
	Utility Core Capital	2018	0.5 CAD
	Other	2018	0.1 CAD
		2018 TOTAL	$7B*

	Project	Expected ISD	Capital ($B)
2019	Stratton Ridge	1H19	0.2 USD
	PennEast	2H19	0.3 USD
	Hohe See Wind & Expansion – Germany	2H19	1.1 CAD
	Line 3 Replacement – Canadian Portion	2H19	5.3 CAD
	Line 3 Replacement – U.S. Portion	2H19	2.9 USD
	Southern Access to 1,200 kbpd	2H19	0.4 USD
	Utility Core Capital	2019	0.8 CAD
		2019 TOTAL	$13B*
2020	T-South Expansion	2020	1.0 CAD
	Spruce Ridge	2020	0.5 CAD
	Utility Core Capital	2020	0.7 CAD
		2020 TOTAL	$2B*
		TOTAL Capital Program	$22B*

Segments: Liquids Pipelines; GTM – US Transmission; GTM – Canadian Transmission; Gas Distribution; Green Power & Transmission

* Rounded, USD capital has been translated to CAD using an exchange rate of $1 U.S. dollar = $1.27 Canadian dollars.

$22B of diversified low-risk secured projects supports and extends cash flow growth

Post-2020 Growth Potential

Liquids Pipelines & Terminals

- Mainline expansions
- Regional growth: Oil Sands, DAPL, Express-Platte
- USGC

Gas Transmission & Storage

- Texas Eastern and AGT expansions and extensions
- New infrastructure serving: gas-fired power generation, USGC markets, export markets
- WCSB egress solutions

Gas Utilities

- Annual customer additions and community expansion capital
- Dawn Hub infrastructure

Offshore Renewables

- In late stage development in France
- Other European offshore projects under development

Capital Allocation Considerations

- Competitive advantage
- Organic growth potential
- Must fit low-risk pipeline/utility model
- Maintain balance sheet strength and flexibility

Disciplined capital allocation will balance low risk growth opportunities with financial strength & flexibility

The INGAA Foundation, Inc.

Questions for the Panel

Please Wait for a Microphone

The INGAA Foundation, Inc.

BREAK

We will resume in 15 minutes

The INGAA Foundation, Inc.

Near Term Construction Project Perspectives
Service Provider Panel

Craig Meier, President, Sunland Construction

Rob Riess, Vice President, Henkels & McCoy

Composition of Pipeline Construction Opportunities 2019-2020

1. Major Expansion Projects
2. Mid-Size and Small Lateral Projects
3. Mid-Stream Shale Market
4. Integrity Management Projects
5. Facility Construction

Main Drivers for Pipeline Expansion

1. LNG development and associated pipelines
2. Permian Basin development
3. Moving product (natural gas, crude, natural gas liquids)from Shale Markets
4. Cheap feedstock to Chemical plants (ethane, ethylene, etc.)
5. Crude oil movement to the Gulf Coast and Export opportunities

Major 2018 Projects Deferred

Spreads Estimated for 2018	Actual Spreads for 2018
125	94

Major Project Spreads Not Built in 2018:

Kinder Morgan Utopia - 5
New Jersey Natural Gas Southern Reliability Link - 2
South Jersey Gas BL England Project - 1
Spire Energy Spire STL - 2
Buckeye Wink - 3
Cheniere Midship - 3
Enbridge Sola 1
Enable Wildcat - 2
Kinder Morgan Gulf Coast Express - 1
Permico Energia Texas NGL Pipeline - 7
Magellan Houston to Hearn - 2
Southern California Gas North South - 2

In 2017, it was estimated that approximately 125 spreads were set for construction in 2018. Due to permitting and other industry challenges, there were several major projects that were partially completed or deferred to 2019 and later. Projects such as Dominion's Atlantic Coast Pipeline and EQT's Mountain Valley Pipeline were among those significant set backs, accounting for approximately 16 of those spreads.

2019 Major Pipeline Construction Opportunities

2019 Northeast Projects

Project	Scope	Spreads
Dominion – Atlantic Coast Pipeline (Spreads initiated, but not completed)	550 mi of 42”, 36” & 20”	9
EQT – Mountain Valley Pipeline (Spreads initiated, but not completed)	330 mi of 42”	11
New Jersey Natural Gas – Southern Reliability Link	30 mi of 30”	2
Williams – Northeast Supply Enhancement	10 mi of 42” 3 mi of 26”	3

2019 Southeast Projects

Project	Scope	Spreads
Energy Transfer – Pipeline Modification Project	11.44 mi of 42” 6.45 mi of 24”	2
Energy Transfer – Turnpike Palmetto Road Relocation	15.4 mi of 24”	1
Williams – Hillabee Expansion Phase II	11 mi of 42”	1

2019 Midwest Projects

Project	Scope	Spreads
Enbridge – Line 3	338 mi of 36”	5
ONEOK – Elk Creek	900 mi of 20”	10
TransCanada – Keystone XL Phase IV	900 mi of 36”	4
Cheniere – Midship Pipeline	200 mi of 36” and 30 mi of 24”	3

2019 South Projects

Project	Scope	Spreads
Targa – Grand Prix Pipeline	450 mi of 24”	5
Kinder Morgan – Gulf Coast Express	450 mi of 42” and 50 mi of 36”	5
ONEOK – Arbuckle II Pipeline	530 mi 30”	6
Plains All American – Cactus II Pipeline	550 mi of 24”	6

Continued….

2019 South Projects

Project	Scope	Spreads
Plains All American – El Mar to Wink	56 mi of 24”	1
Energy Transfer – PGC Pipeline	525 mi of 30”	6
Enterprise – Shin Oak Pipeline	570 mi of 24”	8

2019 Rocky Mountain Projects

Project	Scope	Spreads
Tallgrass – Cheyenne Connector	70 mi of 36”	1
Black Hills – Natural Bridge Pipeline	35 mi 12”	2
Denbury Resources – Cedar Creek	110 mi of 20”	2

2020 Major Pipeline Construction Opportunities

2020 Northeast Projects

Project	Scope	Spreads
Dominon – Atlantic Coast Pipeline	550 mi of 42”, 36” &20”	7
PennEast – PennEast Pipeline	69 mi of 36” 45 mi of 36”	4
Delmarva – Delmarva Pipeline	190 mi of 8” and 24”	7
Eastern Shore – Expansion Project	125 mi of 24”	5

Continued….

2020 Northeast Projects

Project	Scope	Spreads
Enbridge – Philadelphia Lateral Expansion	22 mi of 36”	1
Shell – Falcon Ethane	94 mi of 12”	3
EQT – MVP Southgate	70 mi of 42”	4
National Fuel – Northern Access	100 mi of 24” and 16”	3

Continued….

2020 Northeast Projects

Project	Scope	Spreads
Columbia – Buckeye Xpress	64 mi of 36”	4

2020 Southeast Projects

Project	Scope	Spreads
Williams – Hillabee Expansion Phase III	13 mi of 42”	1

2020 Midwest Projects

Project	Scope	Spreads
TransCanada – Keystone XL Phase IV	900 mi of 36”	6
Consumers Energy – Saginaw Trail	28.2 mi of 24”	1

2020 South Projects

Project	Scope	Spreads
Targa – Whistler Pipeline	450 mi of 42” 170 mi of 30”	6
Kinder Morgan – Permian Highway	430 mi of 42”	5
Energy Transfer – PGC Pipeline	525 mi of 30”	6
Tellurian – Driftwood LNG Pipeline	100 mi of 48”, 42”, 36”	2

2020 Rocky Mountain Projects

Project	Scope	Spreads
Magnum Energy – West Header (Opal)	650 mi of 24”, 36”, 42” and 48”	12
Denbury Resources – Riley Ridge to Natrona	243 mi of 16” and 24”	5

2020 West Coast Projects

Project	Scope	Spreads
PASCO Gas Pipeline	28.5 mi of 12”	1
Sempra - Line 1600	43 mi of 36”	2
Northwest Pipeline - Trail West	106 mi of 30”	4

Estimated Major Spread Requirements

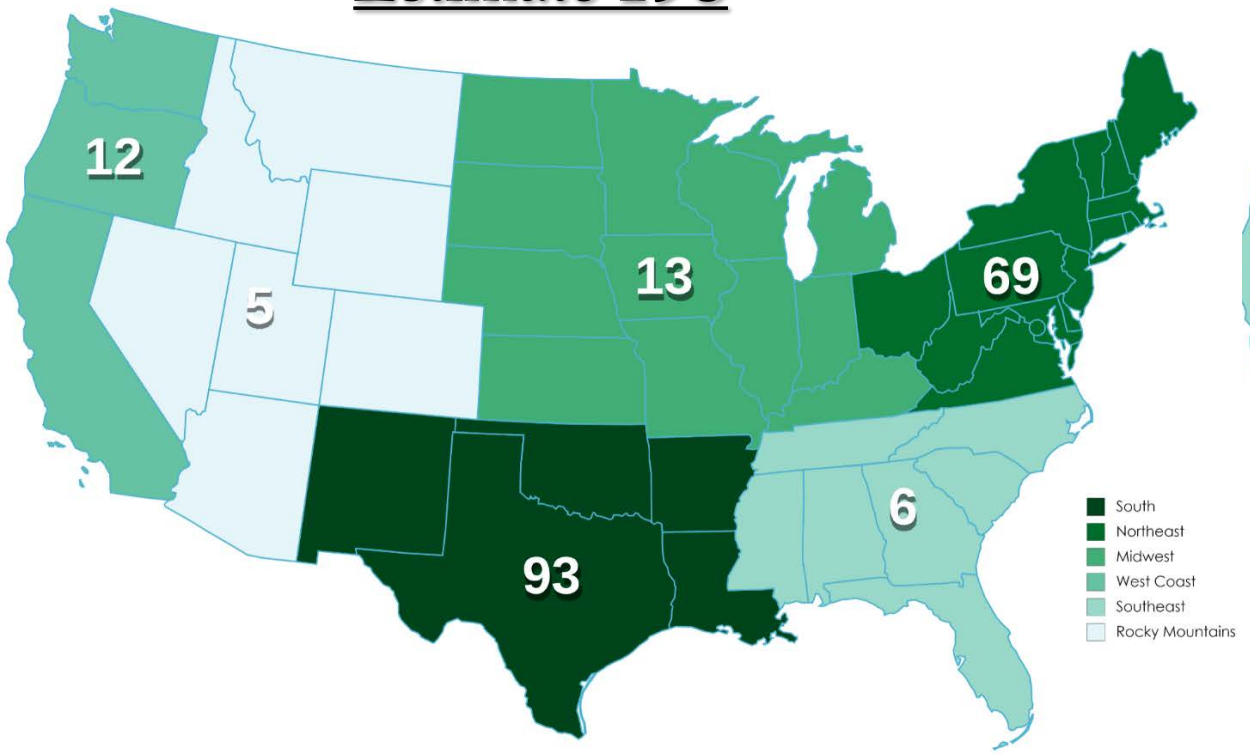
2019 Spreads	2020 Spreads
93	89

The estimated projects listed in this presentation are primarily major expansion projects. There is a significant amount of smaller project work that will be done during this time frame, including integrity work and on going construction maintenance projects.

2019 – 2020 Major Pipeline Construction Outlook Comparison (By Spreads)

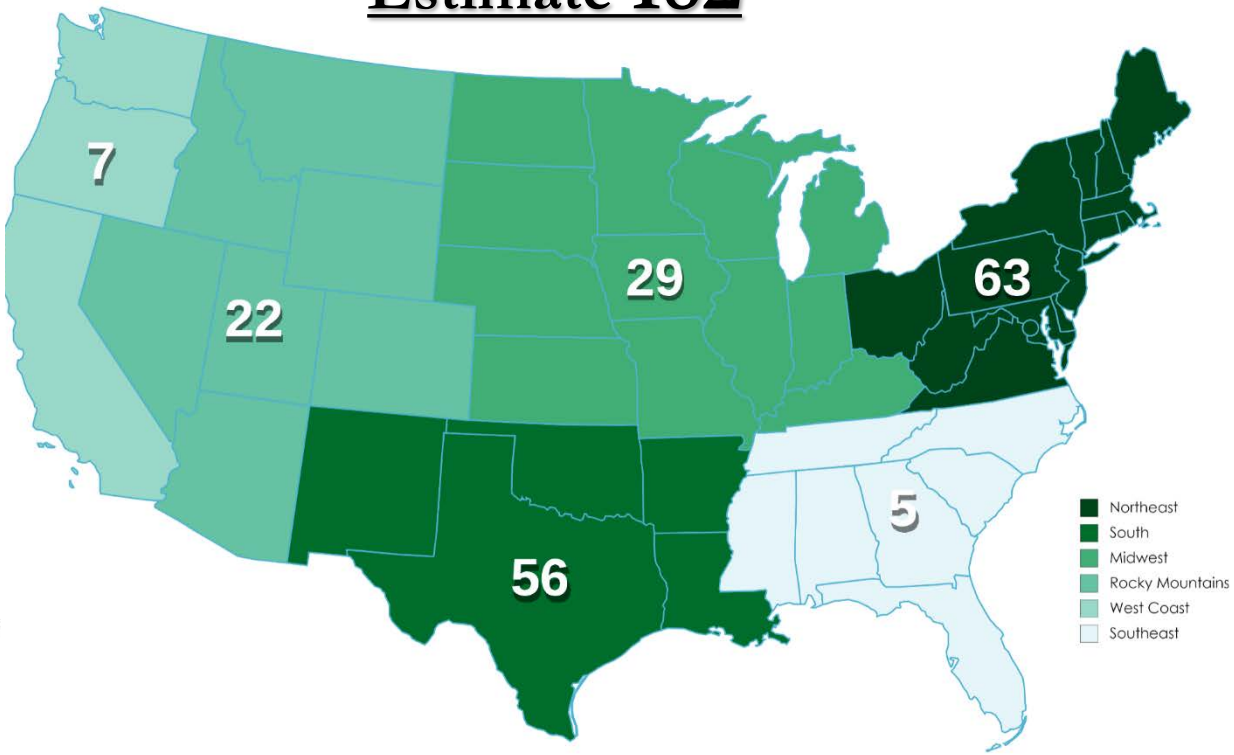
2018/2019

Estimate 198

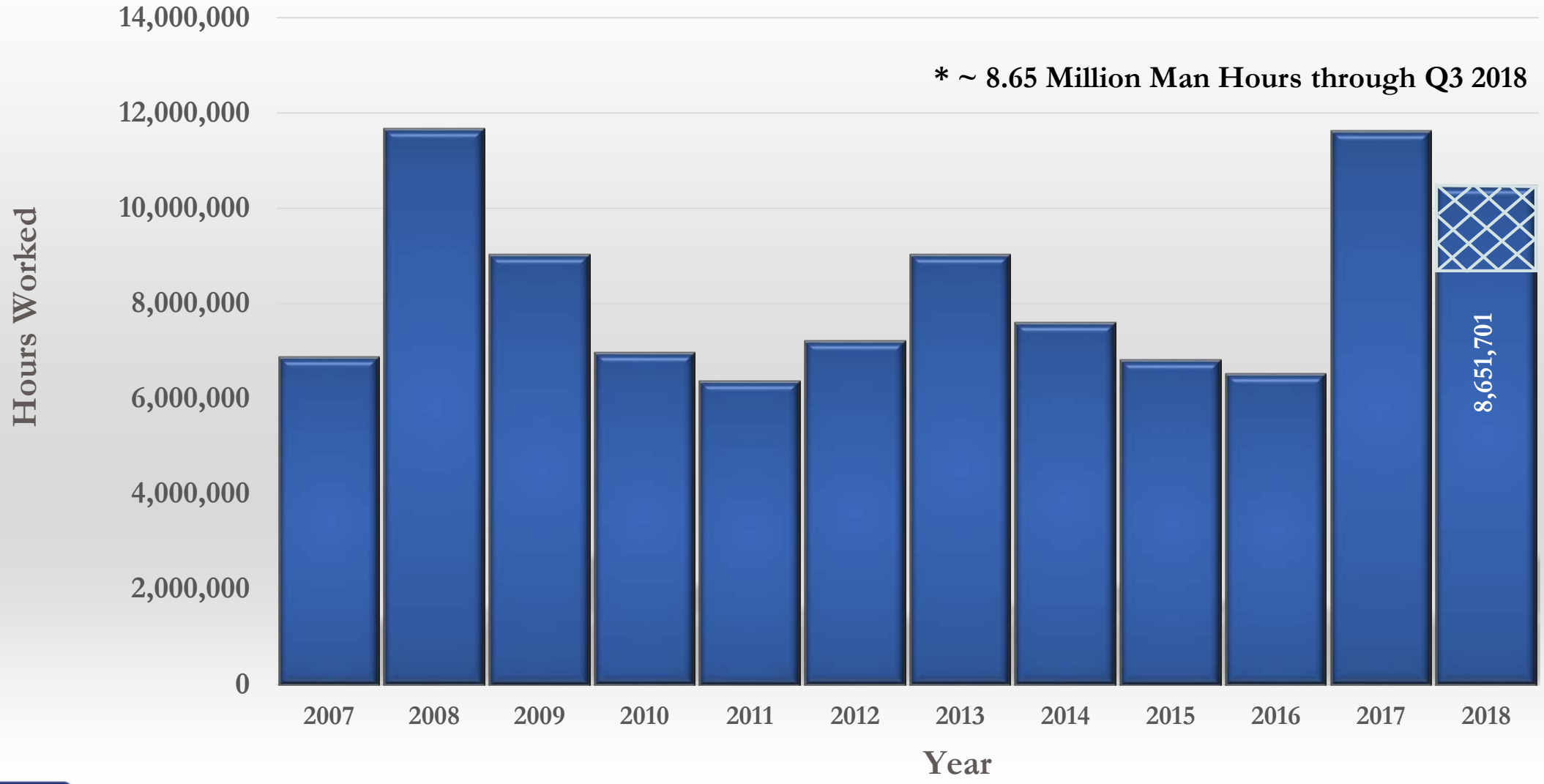


2019/2020

Estimate 182



Overview of U.A. Man Hours Worked



Industry Challenges and Concerns

- Major Expansion Projects trending downward
- State and Federal Permitting Delays
- Political and Public Opposition / Environmental Activism
- Provide quality materials / Tariff Risks (i.e. pipe, valves, and fittings)
- Resources will be required for facilities/compression projects and integrity management programs
- Concerns of attracting workforce to remote project locations and facilitating the use of camps
- Adequate specialized contractor availability (i.e. Directional Drilling and Rock Ditching

Comments/ Questions

Thank You!!!

Robert A. Riess
Vice President and Division Manager
Henkels & McCoy

Craig V. Meier
President
Sunland Construction Inc.

The INGAA Foundation, Inc.

General Announcements

Tony Straquadine, Executive Director, The INGAA Foundation

Afternoon Optional Activities

Salt Marsh Kayaking / Paddleboarding

Meet at the Colonial Lounge (Lobby) at 12:15 pm

Golf Tournament

Seaside Course: Shotgun Start at 12:30 pm

Salt Marsh Yacht Cruise

Meet at the Colonial Lounge (Lobby) at 1:45 pm

Evening Activities

INGAA Foundation Reception

Black Banks Terrace | 6:30 pm

INGAA Foundation Dinner

Cloister Ballroom | 7:30 pm