27th WORLD GAS CONFERENCE | JUNE 25-29
WASHINGTON DC | 2018
IGU

# Unlocking LNG Competitiveness and Liquidity through Commercial Change and Flexibility


Christopher Goncalves
Chair and Managing Director

BRG Energy




#WGC2018
FUELING THE FUTURE

# Disclaimer

The opinions expressed in this presentation are those of the individual author(s) and do not represent the opinions of BRG or its other employees and affiliates.

The information provided in this presentation is incomplete without the oral briefing of the author(s), and should not be considered out of context.

The information provided is not intended to and does not render legal, accounting, tax, or other professional advice or services, and no client relationship is established with BRG by making any information available in this presentation.

# Agenda



- Market Environment
- The LNG Flexibility Imperative
- Illustrative Example

# Market Environment

# Unlocking LNG Competitiveness

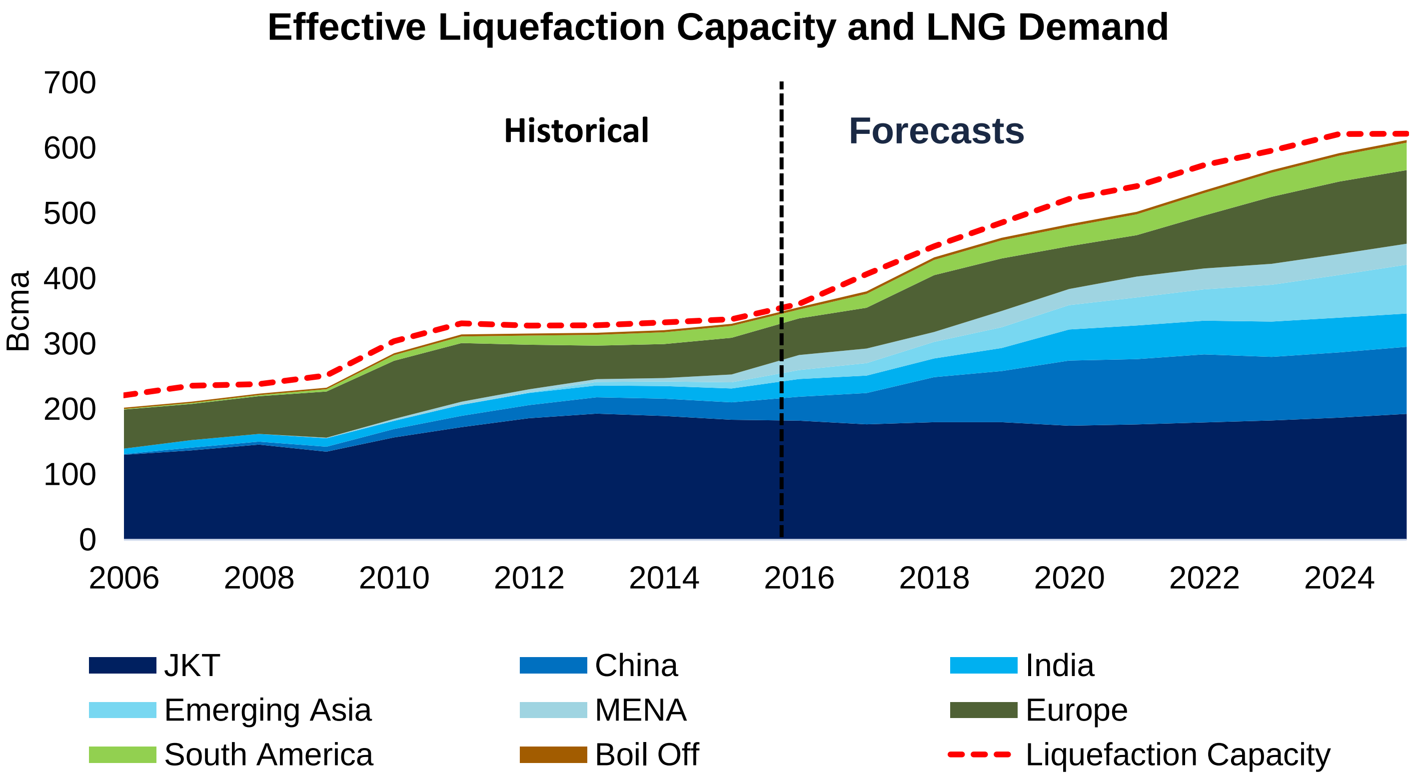


**In the coming decade, the competitiveness of LNG sold and purchased will depend upon the ability of buyers and sellers to identify and capture the value of growing LNG commercial flexibility**

- The wave of US LNG that will continue to come online by 2020 will bring to market substantial new volumes of destination-flexible LNG available for short-term trade. This represents a fundamental change from the commercial practice of selling LNG under long-term contracts (LTCs) on an inflexible, take-or-pay basis.
- By 2020, the scale of the US supply growth – combined with new supply from Australia, Mozambique, Qatar, and other sources – will outpace global demand growth, yield LNG surpluses, enhance supply liquidity, and intensify price pressure in the short-term traded markets.
- In this environment of increasing commercial flexibility and supply liquidity, buyers and sellers face critical strategic and commercial choices about the optimal use of long-term and short-term purchase-sale arrangements within their portfolios and/or individual contract arrangements.

# LNG Demand and Liquefaction Growth

**From 2017 through 2025, demand growth should accelerate to above 6% CAGR, growing 222 Bcma to reach 614 Bcma -- mainly driven by China, India, and Emerging Asia.  Meanwhile, 215 Bcma of liquefaction capacity should come online, of which 75% will be in North America and Australia.**

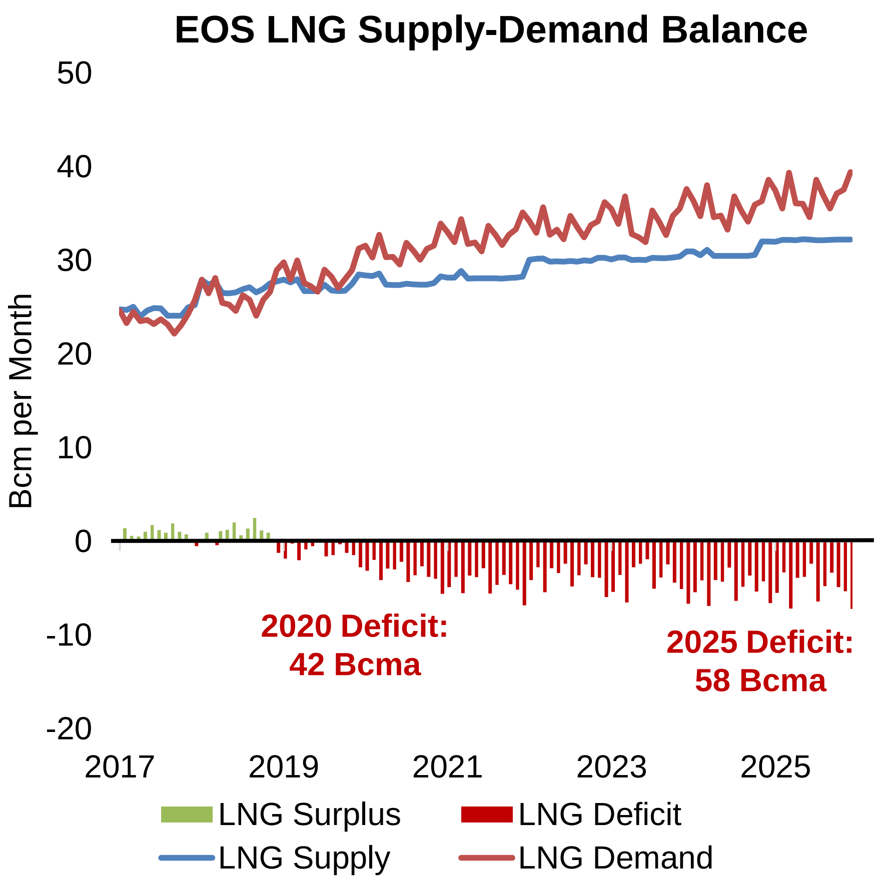


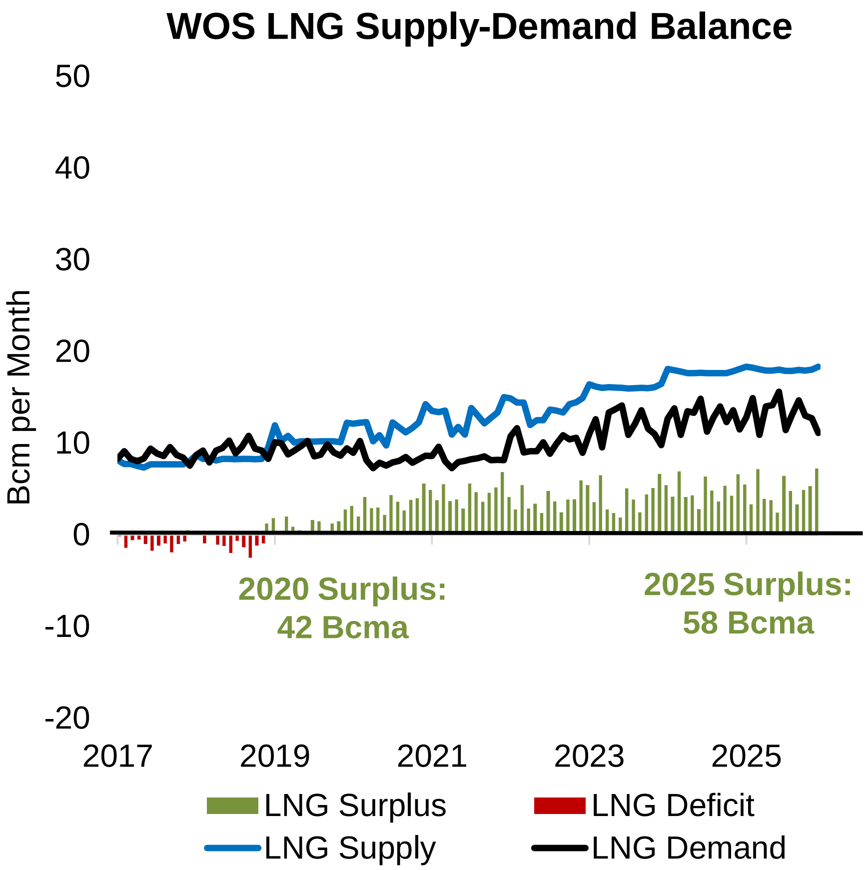

Sources: BRG analysis and GGM forecast, Global LNG Info, Wood Mackenzie
Note: Unfixed FLNG includes Exmar FLNG, Golar's Gimi and Gandria LNG projects.  Figures do not account for LNG capacity redirected to domestic use (such as in Indonesia and Malaysia). LNG Demand includes ~1% boil-off.

#WGC2018
FUELING THE FUTURE

# EOS and WOS Balances

**Before 2020, EOS and WOS markets each should remain balanced. Thereafter, mounting EOS deficits should be supplied by increasing WOS surpluses.**

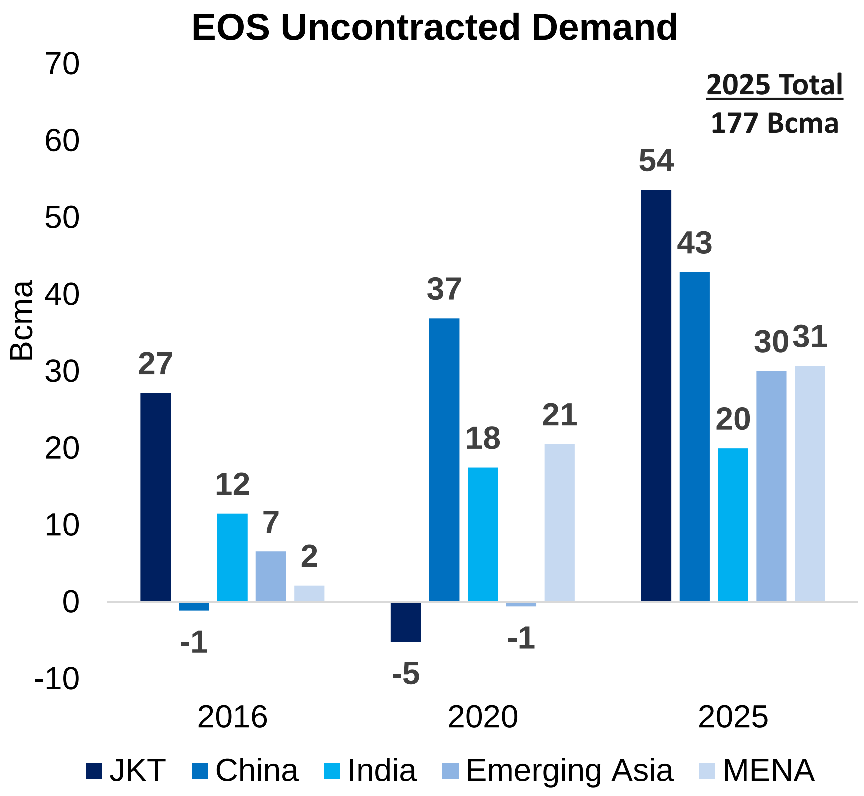


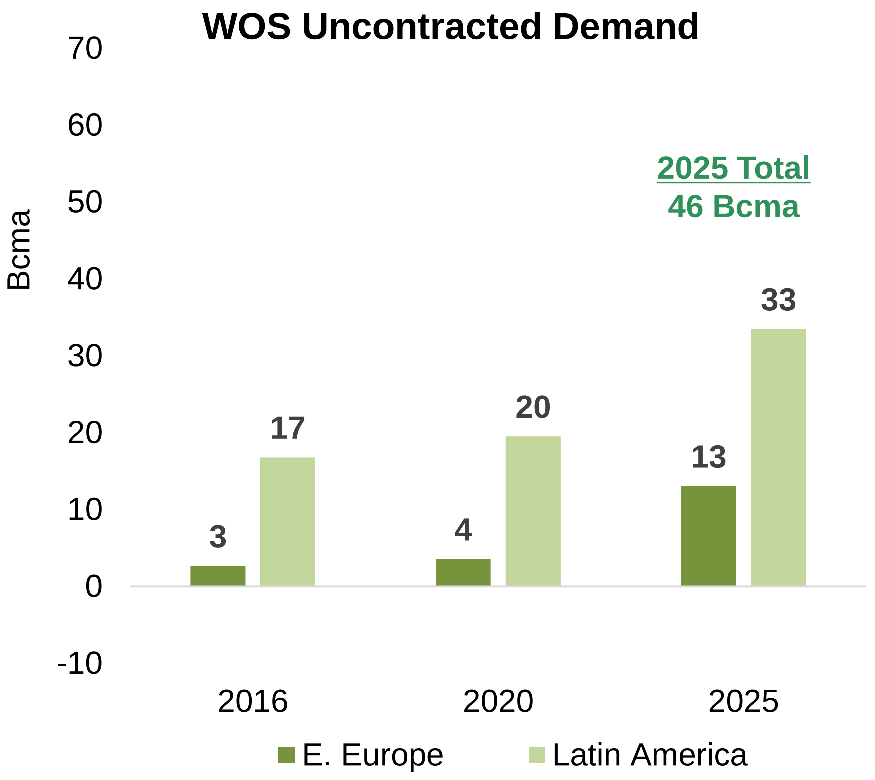




Sources: BRG analysis and GGM forecast.
Notes: LNG supply refers to estimated LNG production (not capacity). EOS is East of Suez and WOS is West of Suez. US LNG is included in WOS LNG supply.

# Uncontracted Demand Growth

**Through 2025, EOS and WOS markets should experience substantial growth in uncontracted demand – which can be supplied by new LTCs, STCs, and spot supplies**

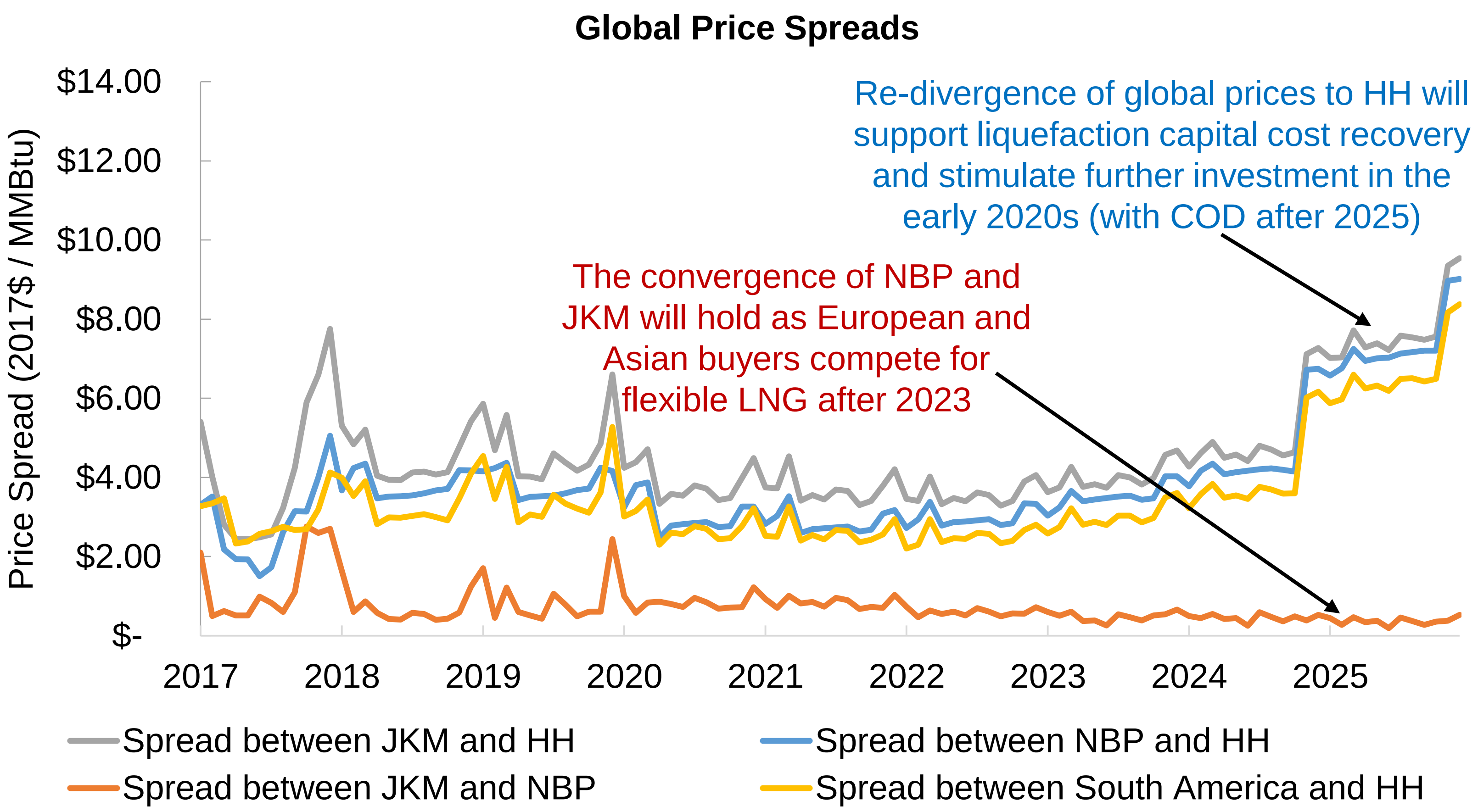



Sources: BRG analysis and GGM forecast, GIIGNL, Global LNG Info, Wood Mackenzie.

# Global Price Differentials

**By 2024, JKM and NBP price spreads to HH should widen substantially as emerging LNG demand outpaces the addition of the advanced US pre-FID liquefaction projects, and debottlenecked Qatari liquefaction capacity**




Sources: BRG analysis and GGM forecast.

# The LNG Flexibility Imperative

# The LNG Flexibility Imperative

**Looking ahead, capturing flexibility value will require optimizing sale and purchase transactions in light of company constraints and target market conditions**

- As LNG markets rebalance after 2020, the mounting LNG surpluses and sustained low oil prices will stimulate commercial flexibility, and increased use of hub pricing.
- ST trade growth will accelerate, LTCs will continue to become shorter and less restrictive, and seller portfolios will become more flexible in terms of volume, and delivery destination.
- Buyers and sellers will need to optimize their use of LTCs and short-term trade, LTC flexibility provisions, and LNG pricing terms.
- Robust valuation of the flexibility available from specific contractual options or portfolio strategies can be done with detailed simulation of worldwide market equilibrium prices, probabilistic analysis of price volatility patterns, and careful analysis of individual company and counterparty value capture capabilities.

# Flexibility Value Drivers

**A company's ability to capture flexibility value will depend on its analytical and marketing and trading capabilities any constraints as well as target market liquidity and competition**

- Commercial flexibility valuation requires detailed simulation of market equilibrium prices, and price volatility.

- It also requires realistic evaluation of a company's ability to capture flexibility value based on the critical resources, capabilities, and constraint that will drive its ability to identify and capture flexibility through optimal sales and purchases.

| Resources, Capabilities, Constraints | Description |
|---|---|
| **Information / Systems** | Access to timely information regarding prices, trading logistics, and risk management, and availability of dynamic systems to constantly monitor markets. |
| **Human Resources / Experience** | Market experience, relationships, and sales or procurement resources in target markets. |
| **Physical / Commercial Supply Chain** | Physical and commercial supply and infrastructure and/or bottlenecks, such as upstream feed gas supply, liquefaction and loading obligations, available shipping capacity, and proximity to target markets and/or suppliers. |
| **Liquidity / Competition** | Target market liquidity and competition for LNG sales or purchases. |

# Buyer and Seller Perspectives



**Buyers and sellers have fundamentally different perspectives on the volume and destination flexibility, which are based on their unique abilities to capture its value**

| Enables Buyers to: | Enables Sellers to: |
|---|---|
| ➢ Minimize supply costs by procuring more low cost LNG on ST or spot basis;<br>➢ Capture additional value by re-selling excess supplies at high netback prices; and/or<br>➢ Optimize related LNG supply chain and/or downstream natural gas commercial and operational opportunities and/or obligations. | ➢ Constantly sell LNG into the markets offering the highest netback prices at any given time;<br>➢ Leverage their physical and commercial assets and human resources to capture flex value.<br>➢ Optimize related upstream, feedgas, and/or liquefaction commercial and operational opportunities and/or obligations. |

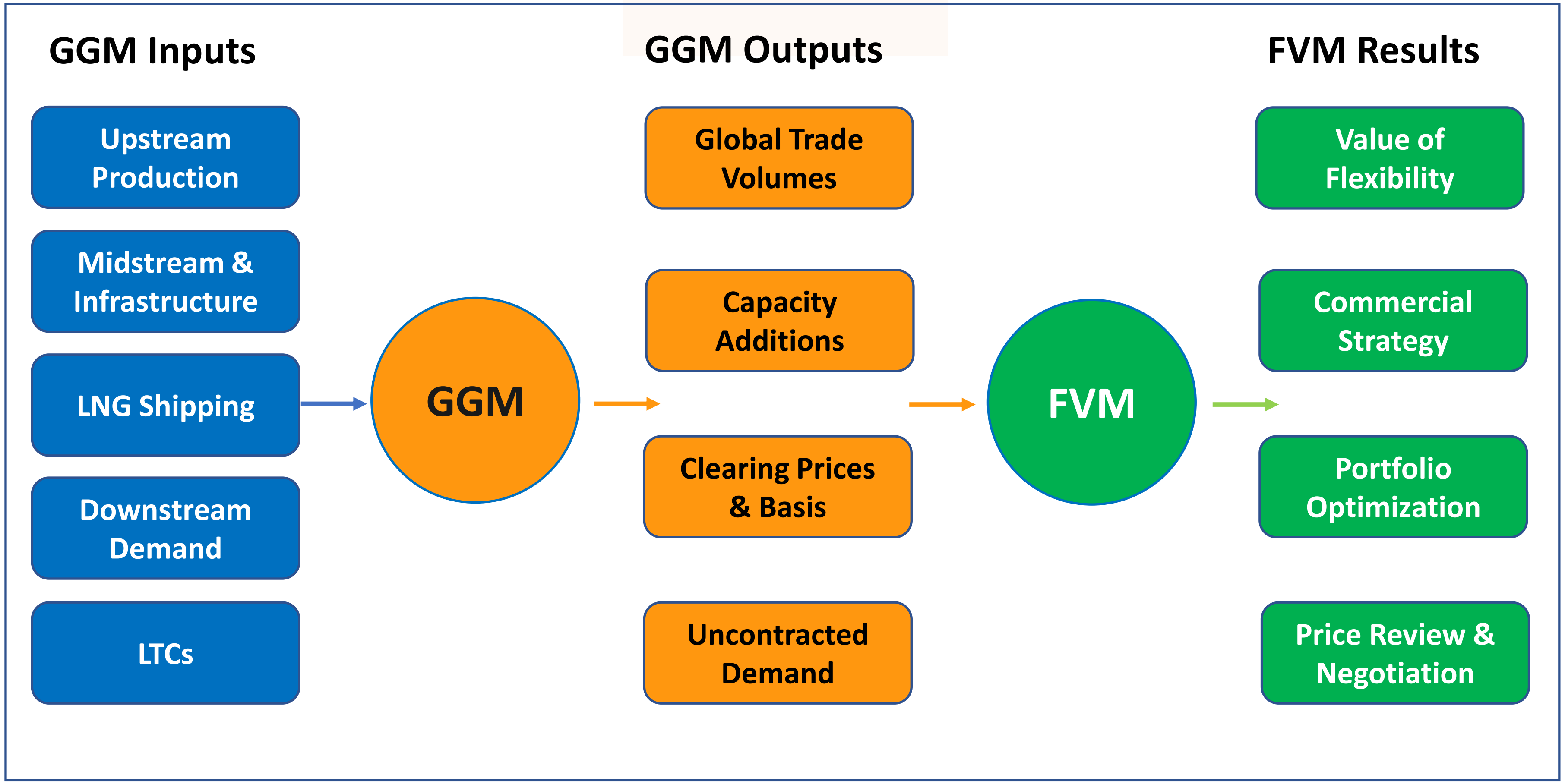
**For these reasons, buyers and sellers often perceive the value of flexibility differently in negotiations and disputes**

# Illustrative Example

# A New Tool Box of Advanced Models



**BRG deploys its Global Gas Model (GGM) and Flexibility Valuation Model (FVM) to forecast global gas fundamentals and to value commercial flexibility, respectively. We use the results to advise on commercial strategy, portfolio optimization, negotiations, price reviews, and dispute matters.**



# Illustrative Case Study of USGC Seller

**To illustrate the evaluation of destination flexibility for a hypothetical USGC exporter, we prepared a case study for a 10 Bcma LNG portfolio of Henry Hub linked SPAs available for resale in 2020-2025**

**HANDLE WITH CARE**

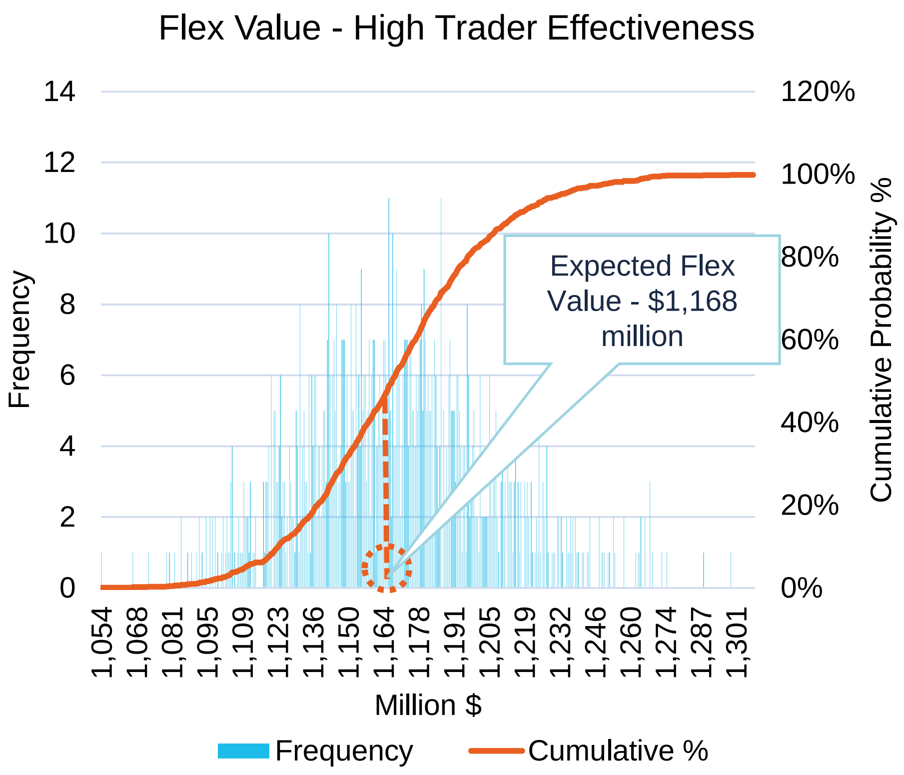
**THIS ANALYSIS IS ILLUSTRATIVE AND SHOULD NOT BE UNDERSTOOD TO ESTIMATE A GENERIC VALUE OF FLEXIBILITY. EACH BUYER'S OR SELLER'S UNIQUE SITUATION AND CAPABILITIES DETERMINE THE ACTUAL VALUE OF FLEXBILITY.**

| # | Sale Strategy | Flexibility | Volumes | Sales Value - NPV | Destination Flexibility Uplift Value |
|---|---|---|---|---|---|
| **1** | LTC | Restricted | 10 Bcma | All discounted LTC netback revenue | Difference between the NPV of the full portfolio value of sale strategy #2 **minus** sale strategy #1 |
| **2** | Spot Basis | Full volume and destination | 10 Bcma | The highest probability result for the cargo netbacks of a highly effective trader's LNG delivery to the best short-term markets | |

Illustrative Example

# Illustrative Flexibility Valuation for USGC Seller

| Expected Profit Option #1 ($MM USD) | Expected Profit Option #2 ($MM USD) | Flexibility Value ($MM USD) |
|---|---|---|
| 7,960 | 9,128 | 1,168 |




- The chart on the right shows the probability distribution of the value of volume and destination flexibility.
- There is an approximate 50% chance that the flex value additional to the LTC would be above or below $1.2 billion.

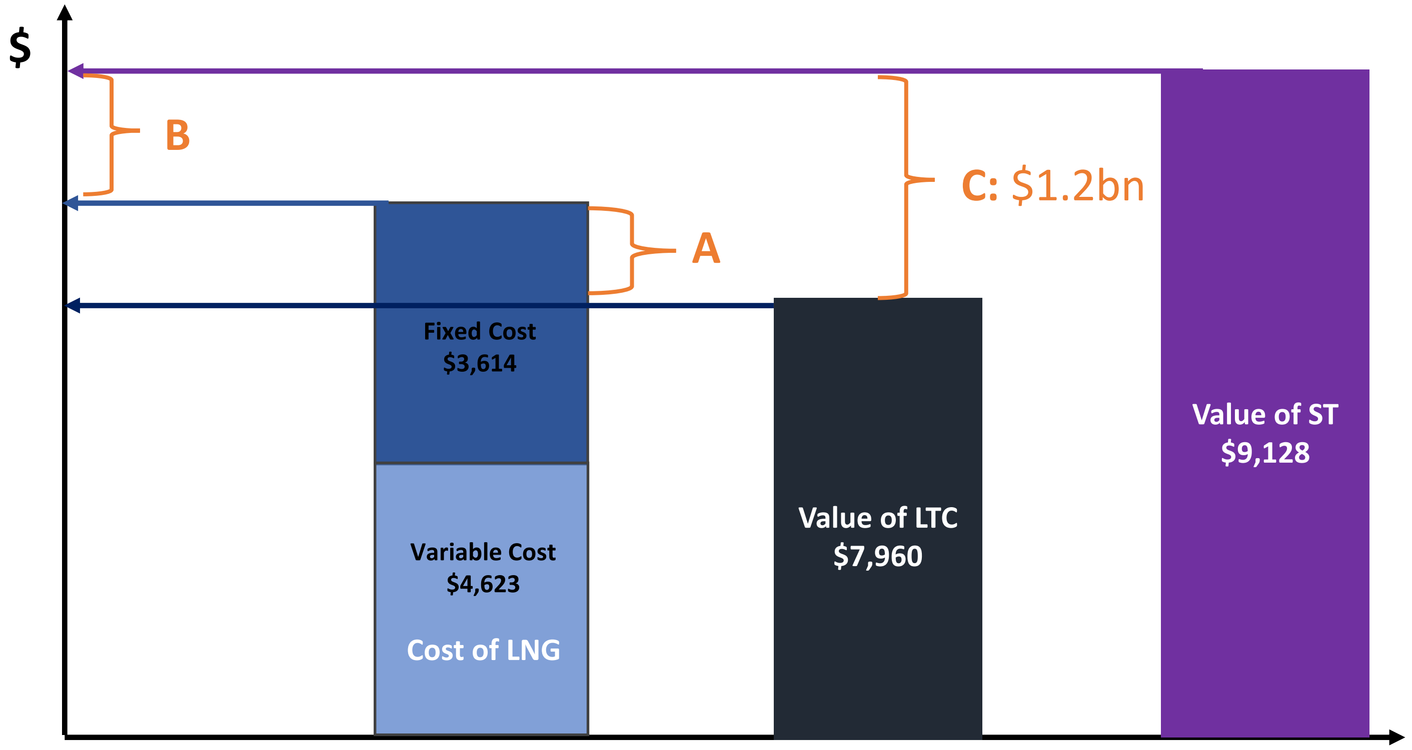
Illustrative Example

# Flexibility Value Uplift and Cost Recovery



**Additional value and enhanced cost recovery is generated from full volume and destination flexibility**

1. Low oil prices may limit oil-linked LTC's ability to cover fixed cost. **(A)**
2. ST sales with full volume and destination flexibility could cover all variable and fixed costs, with approximately $891 MM of additional value uplift above full LNG costs **(B)**, and
3. $1 billion over LTC sales **(C)**




Illustrative Example

# Other Critical Value Drivers

**There are other critical flexibility value drivers that are company-specific and cannot be addressed in such illustrative examples**

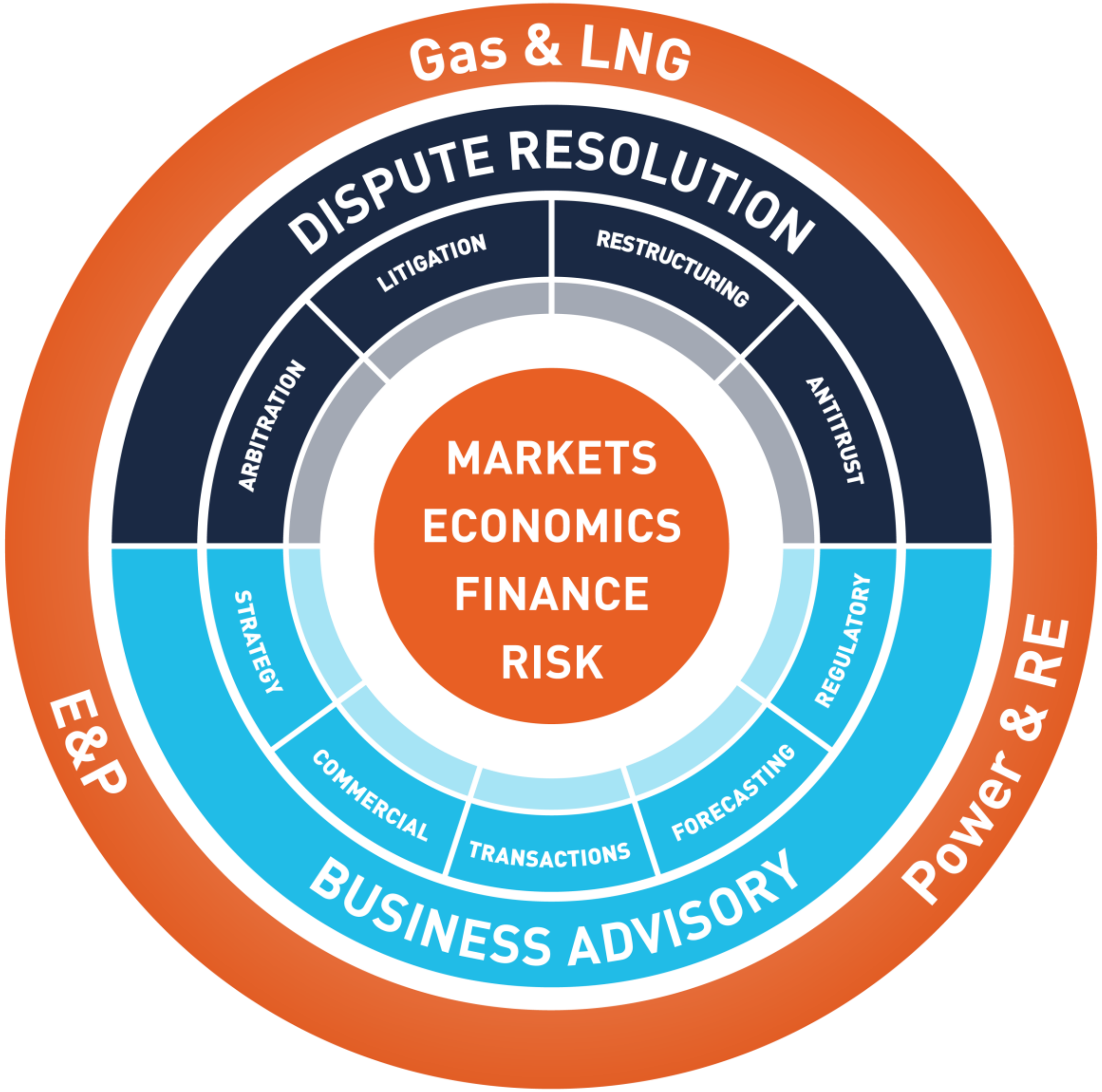
- As noted above, detailed evaluation of the company's specific:
  - Optimization and trading capabilities, resources and constraints -- including informational, human, physical, and commercial.
  - Target markets for (re)sales and/or purchases, the volume of their future potential uncontracted supply or demand, and the level of competition for that supply or demand.
  - Trading costs associated with flexibility value capture.
- Analysis of additional supply chain optimization opportunities, such as:
  - A buyer's potential optimization of downstream physical and commercial operations regasification, pipeline(s), power plant(s), industrial facilities, city gas;
  - A seller's potential optimization of upstream production, feedgas, transportation, and/or terminal utilization.

# Conclusions

**The new market environment presents sizeable opportunities and risks for optimizing the flex value of contract options and/or portfolio strategies**

- Huge amounts of value are becoming available -- and at risk -- under LTCs, in supply and purchase portfolios, and through new infrastructure investments.
- Buyers, sellers, and traders need new tools to master the emerging LNG repricing and flexibility opportunities:
  - Successful strategy, investments, contracts, trading, and/or disputes all require robust forecasting and scenario analysis, as well as careful risk assessment and flexibility valuation.
  - Flexibility evaluation should be detailed, realistic, and specific to each company’s situation and resources, because each company has a distinct ability to optimize flexibility value.
- In negotiations and disputes, buyers and sellers tend to evaluate flexibility differently and need to analyze one another’s perspectives.
- Doing so will debottleneck commercial negotiations, stimulate investment, enhance trade, and increase flexibility.

# Thank you





**Christopher Goncalves**
Chair and Managing Director
BRG Energy
D: +1 202.480.2703
M: +1 240.505.6162
cgoncalves@thinkbrg.com


BRG | ENERGY

27th WORLD GAS CONFERENCE WASHINGTON DC | JUNE 25-29 2018

#WGC2018
FUELING THE FUTURE