



# *Economics of Gazprom's gas export strategies to Europe*

*Chi Kong CHYONG*  
Energy Policy Research Group,  
Cambridge Judge Business School,  
University of Cambridge

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# Key takeaways

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- The '*defending prices*' strategy is more profitable for Gazprom to pursue than the '*defending market share*' strategy
- Gazprom can profitably raise prices in Europe by removing '*excess*' gas volumes from the market
- But US LNG will respond and constrain Gazprom's potential pricing power in Europe
- And there are organizational, financial and political challenges for Gazprom to implement the '*defending prices*' strategy

# Agenda

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- The context
- The analytical framework
- Results
- Discussions & Conclusions

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## Gas Gl

Natural-gas f

# Tanker's U-Turn Shows How Shale Is Changing World Gas Trade

by **Naureen Malik**

2017 M03 8 00:00 GMT Updated on 2017 M03 8 20:53 GMT

- In new world order, China and Mexico vie for a tanker of gas
- LNG market more fragmented with a spot market akin to oil

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## Sharp Turn

A tanker carrying U.S. LNG from Asia to Mexico in January suddenly changed course.



Source: Data compiled by Bloomberg via IHS and Genscape data

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## Gas Gl...

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## Gazprom Not Planning Price War Against U.S. Liquefied Natural Gas Exports

Gazprom 'very relaxed about U.S. LNG,' says Gazprom's deputy chairman Alexander Medvedev



# Gazprom and LNG markets

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## Global gas market braced for price war

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FEBRUARY 3, 2016 by: [Jack Farchy](#)



Global gas poised for price war

# Gazprom and LNG markets



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# The gas market model

- **Geographic scope - Global**

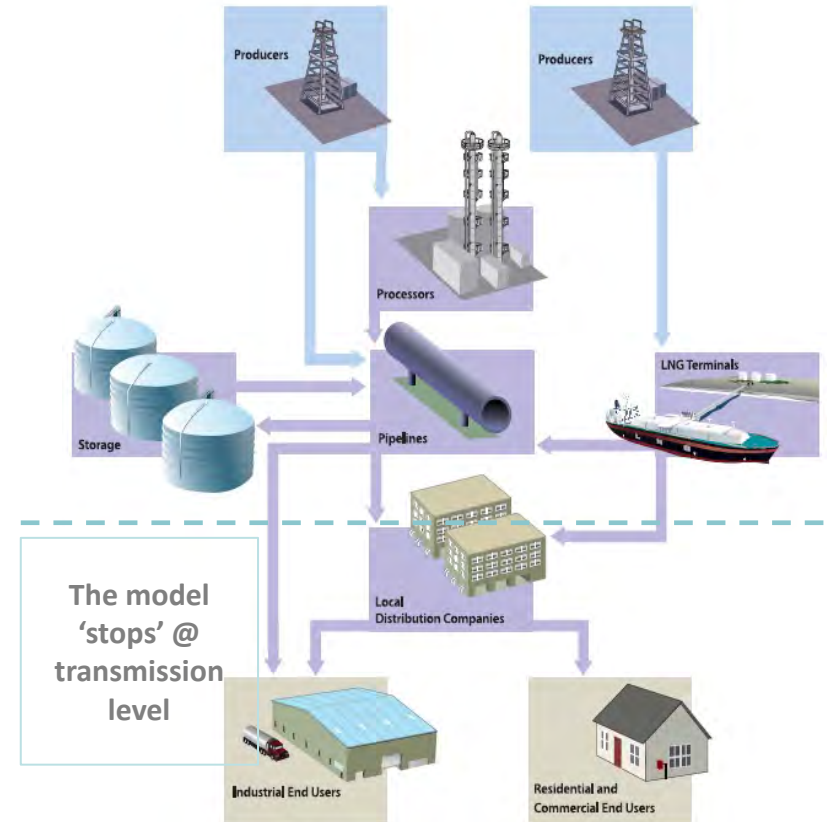
- Main producing countries, such as Russia and Qatar are explicitly represented in the model as separate supply 'nodes'
- Other producers are aggregated into regions, e.g., North America (USA, Canada and Mexico) etc.
- Europe (EU27+GB) disaggregated into national MS markets (wholesale level)
- Other demand centers are aggregated to regional level, such as Middle East, or JKT (Japan, S. Korea & Taiwan)

- **Time Resolution – Day-ahead market**

- We run the model for 546 time periods (days) or 1.5 years (Jan-2020 until Jun-2021)

- **Supply chain**

- Covers entire supply chain down to the transmission level, i.e., distribution is not taken into account
- Represents production, transit, demand, LNG and gas storage facilities



# Representing the European transmission network in the model

- **EU cross-border transmission capacities & tariffs**
  - The model incorporates ALL existing cross-border interconnector points (IP), as they are reported by ENTSO-G '2015 Capacity Map'
  - New cross-border capacities and LNG regas capacities in EU were added in the model based on their FID status - those projects which took FID as outlined in ENTSOG's 2015 TYNDP report were added in the model with start time & capacities as reported by these projects.
  - For the transmission cost structure we assume existing tariffs as reported in ACER's latest Market Monitoring Report (2015)
- **Storage capacities & costs**
  - All existing storage sites were aggregated to country level (i.e., each country/market area has one storage 'node' and hence no differentiation between types of storage; further disaggregation down to individual storage site is possible)
  - New storage facilities will also be taken into account according to their FID status (as reported in ENTSOG's 2015 TYNDP)
  - Marginal cost of different types of storage is based on public information



# Gazprom's different export strategies were analysed using the model

## 1. 'Defending market share' export strategy

– Export to Europe until:

1. price covers Gazprom's short-run marginal cost,

2. and/or until gas fully prices coal out of European electricity generation mix

The strategy is consistent with the idea of '*flooding*' the market with cheap Russian gas to lock US LNG out of Europe & deter future investments in global LNG export capacity

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## 2. 'Defending prices' export strategy

– Gazprom, 'if needed', can lower contractual volumes to Europe → causing its buyers to procure more gas at hubs and hence push up hub-based market prices

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### • These two strategies were analysed for years of 2020-21, given:

- expected global LNG export capacity in 2020-21 (e.g., ca. 80 bcm/year of US Gulf Coast LNG and ca. 120 bcm/year of Australia's LNG export capacity)
- global demand for gas consistent with IEA (2015) World Energy Outlook's 'New Policies Scenario'
- Existing fleet of gas-fired generation plants in Europe and ARA coal price of ca. \$60/tonne & EU ETS of ca. €15/tCO<sub>2</sub> and UK carbon price of ca. €35/tCO<sub>2</sub>

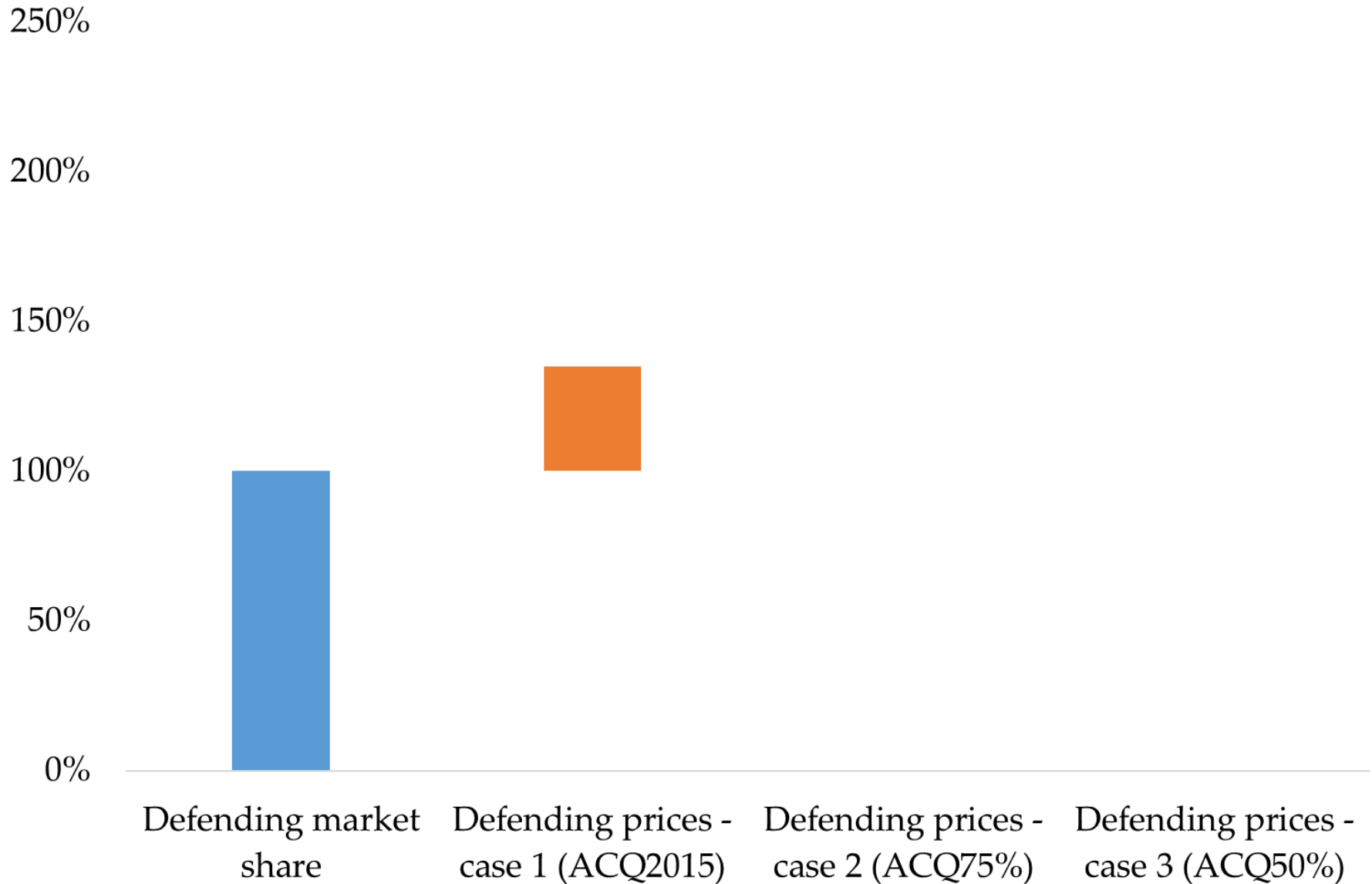


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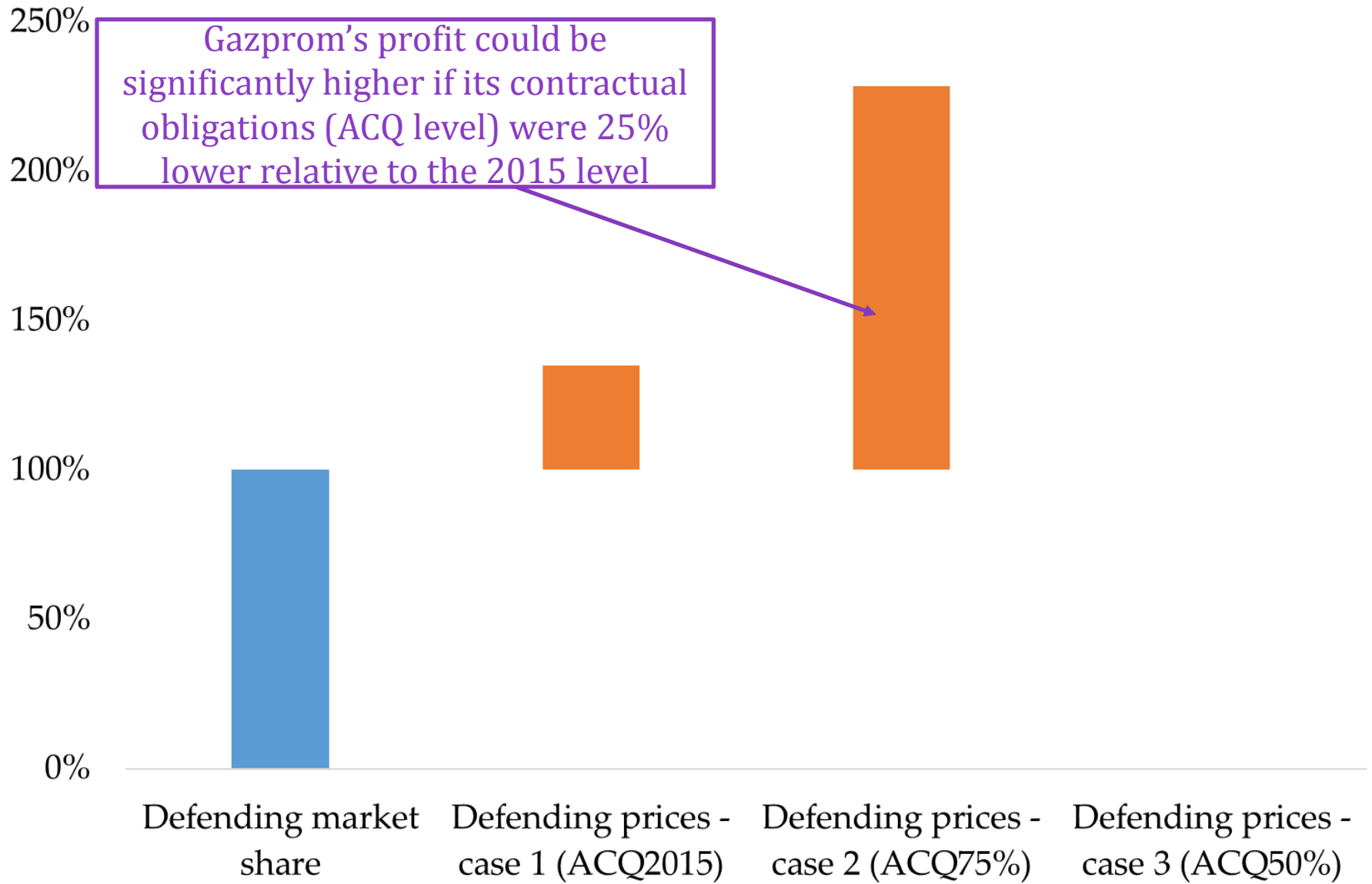
# Should Gazprom defend its market share in Europe?



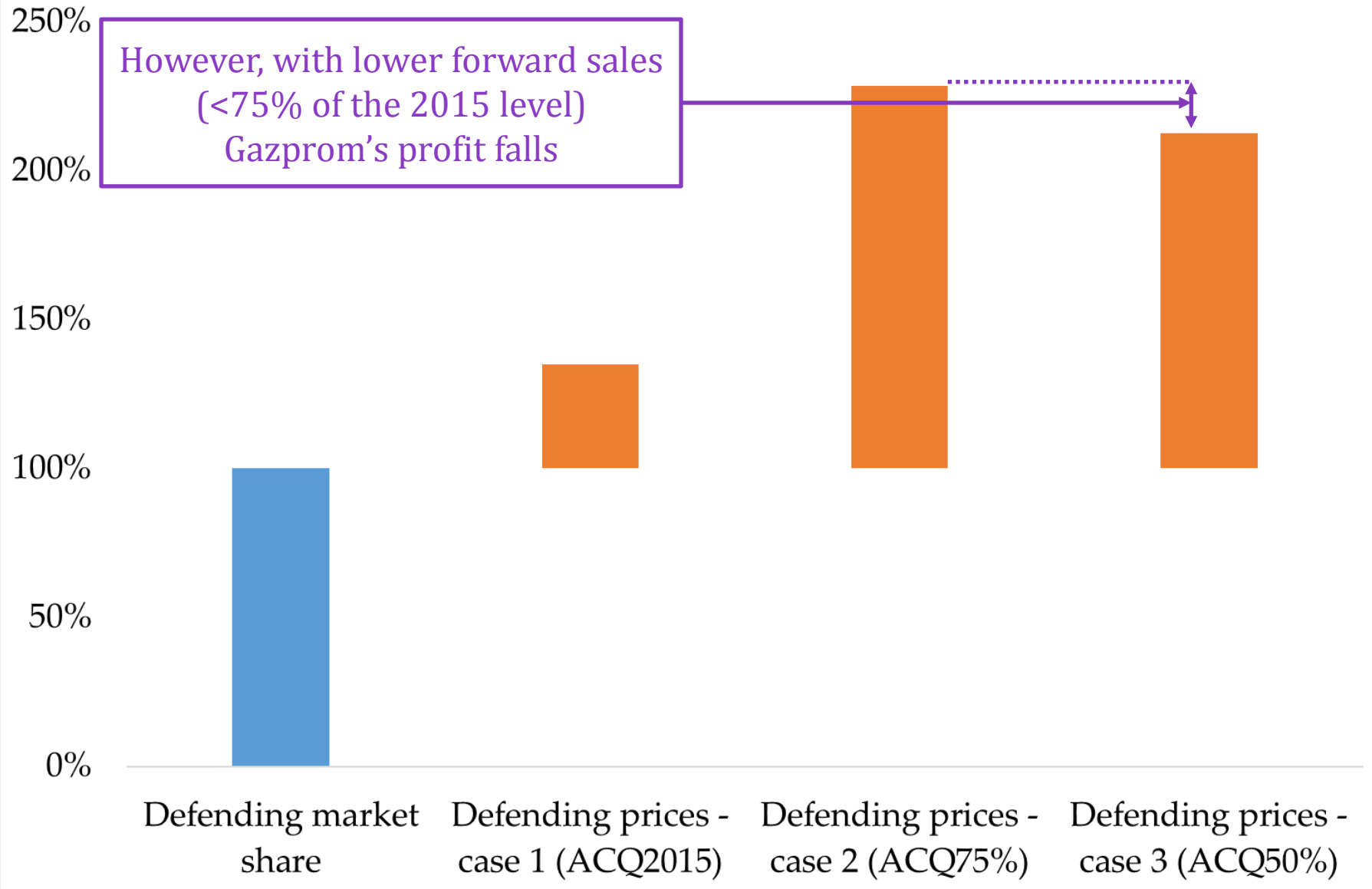
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1. Gazprom can profitably raise prices in Europe
2. A mix of fixed price long-term contracts and free (strategic) trading volumes will ensure higher profits for the company
3. With lower forward selling coverage (anything less than 75% of the 2015 ACQ level) Gazprom's profit begins to fall

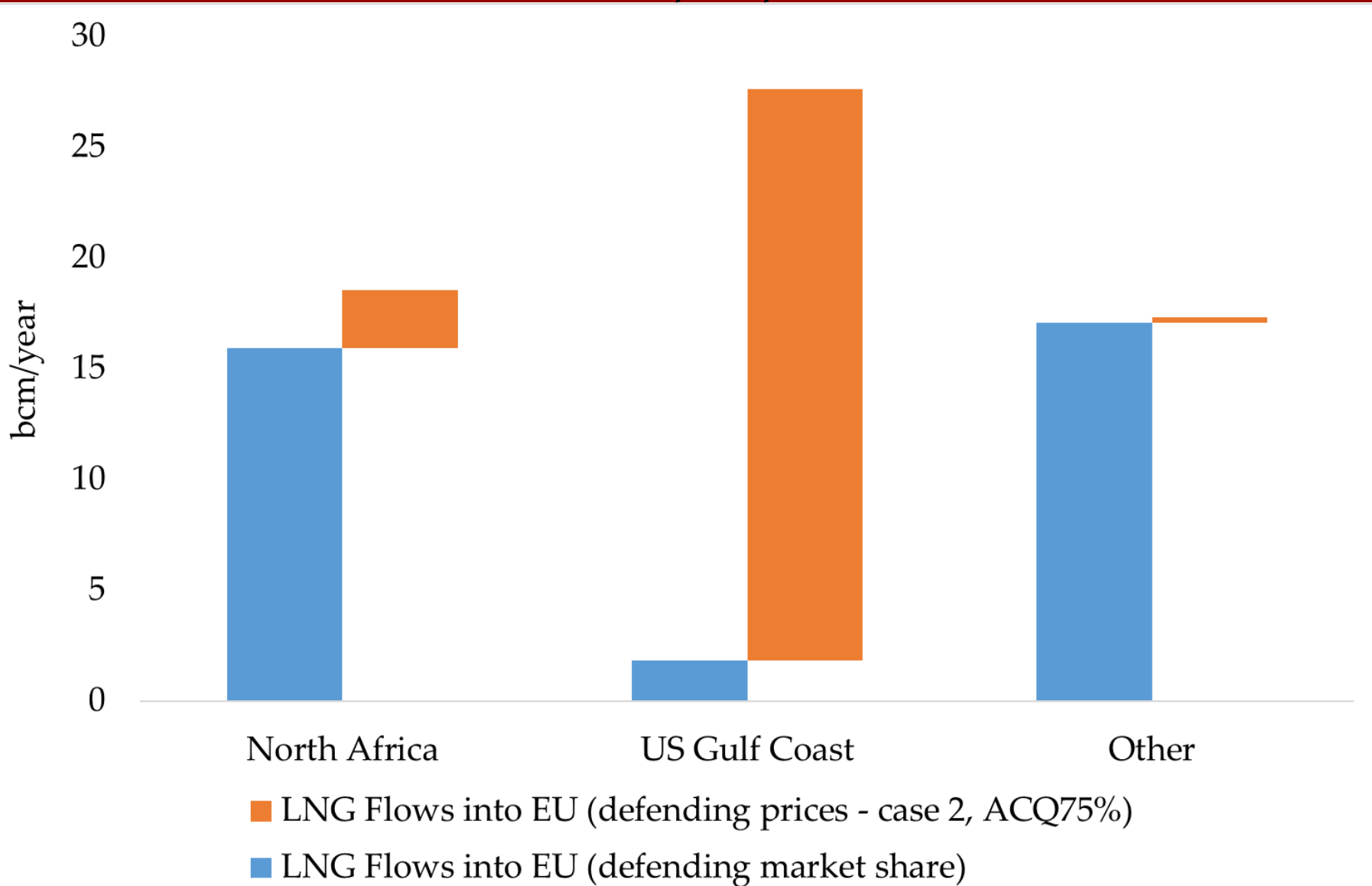
# Will US LNG respond?

*Short-term perspective*

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# Will US LNG respond?

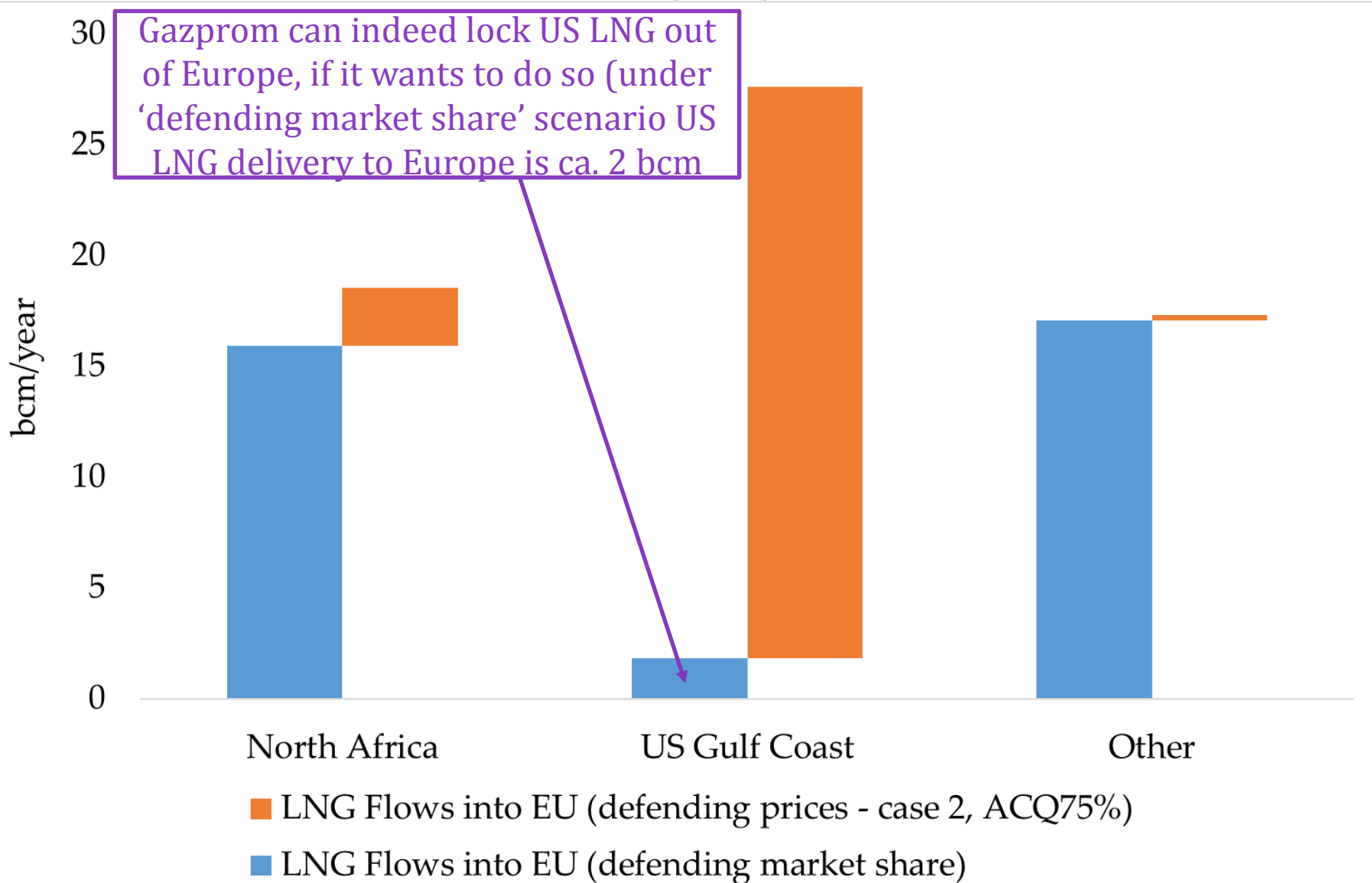
*Short-term perspective*





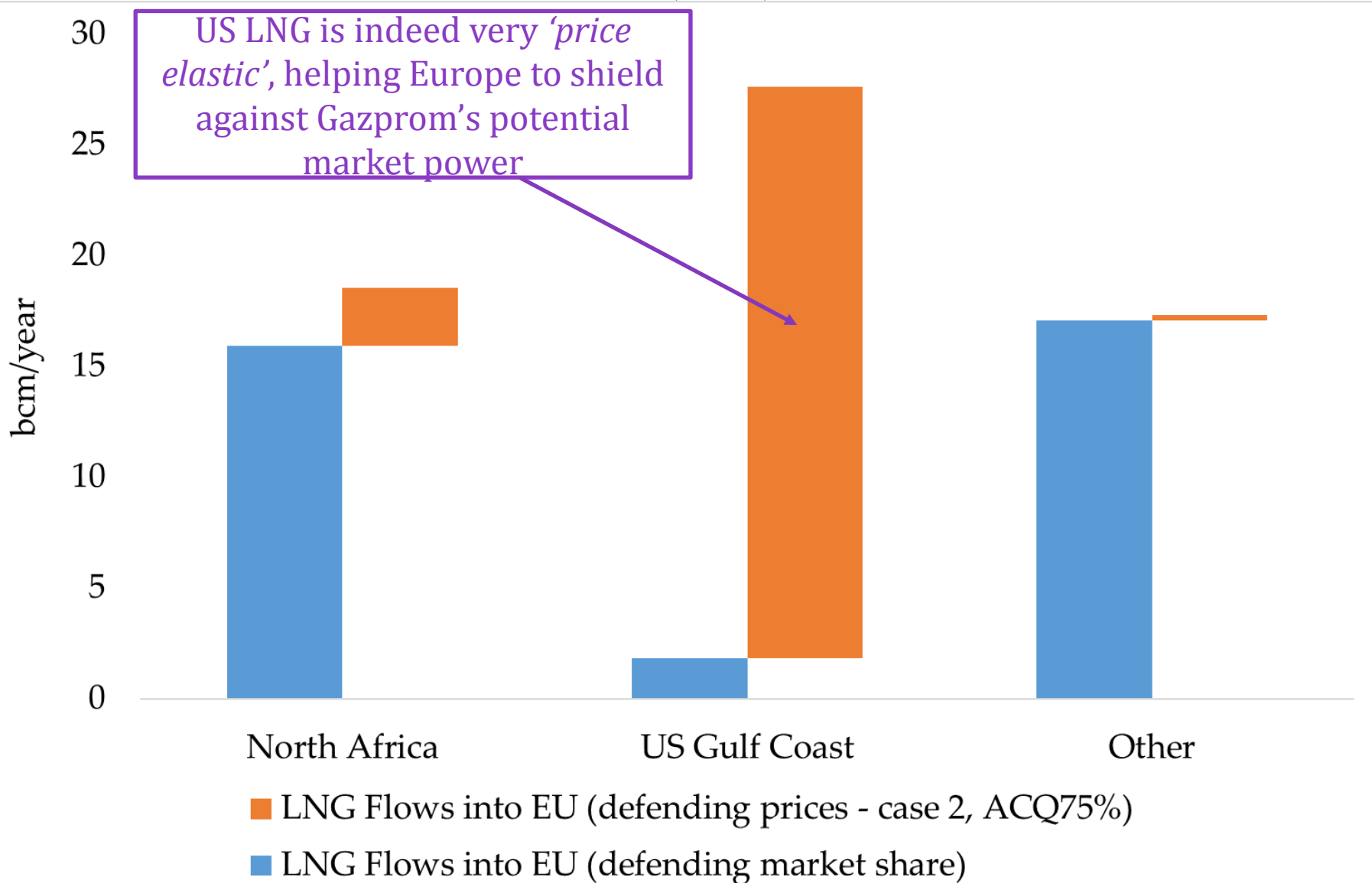
# Will US LNG respond?

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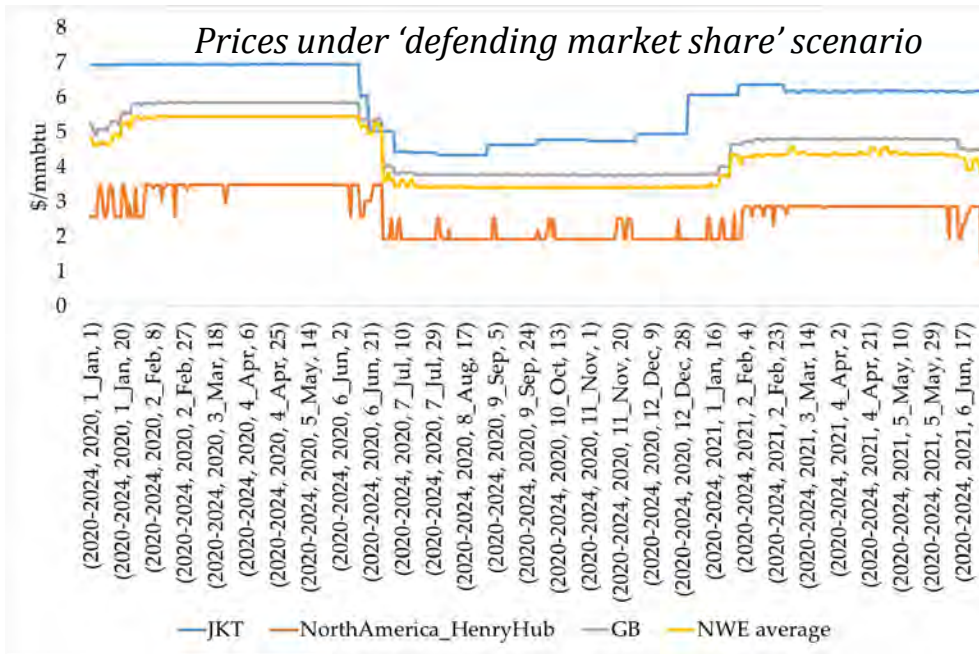
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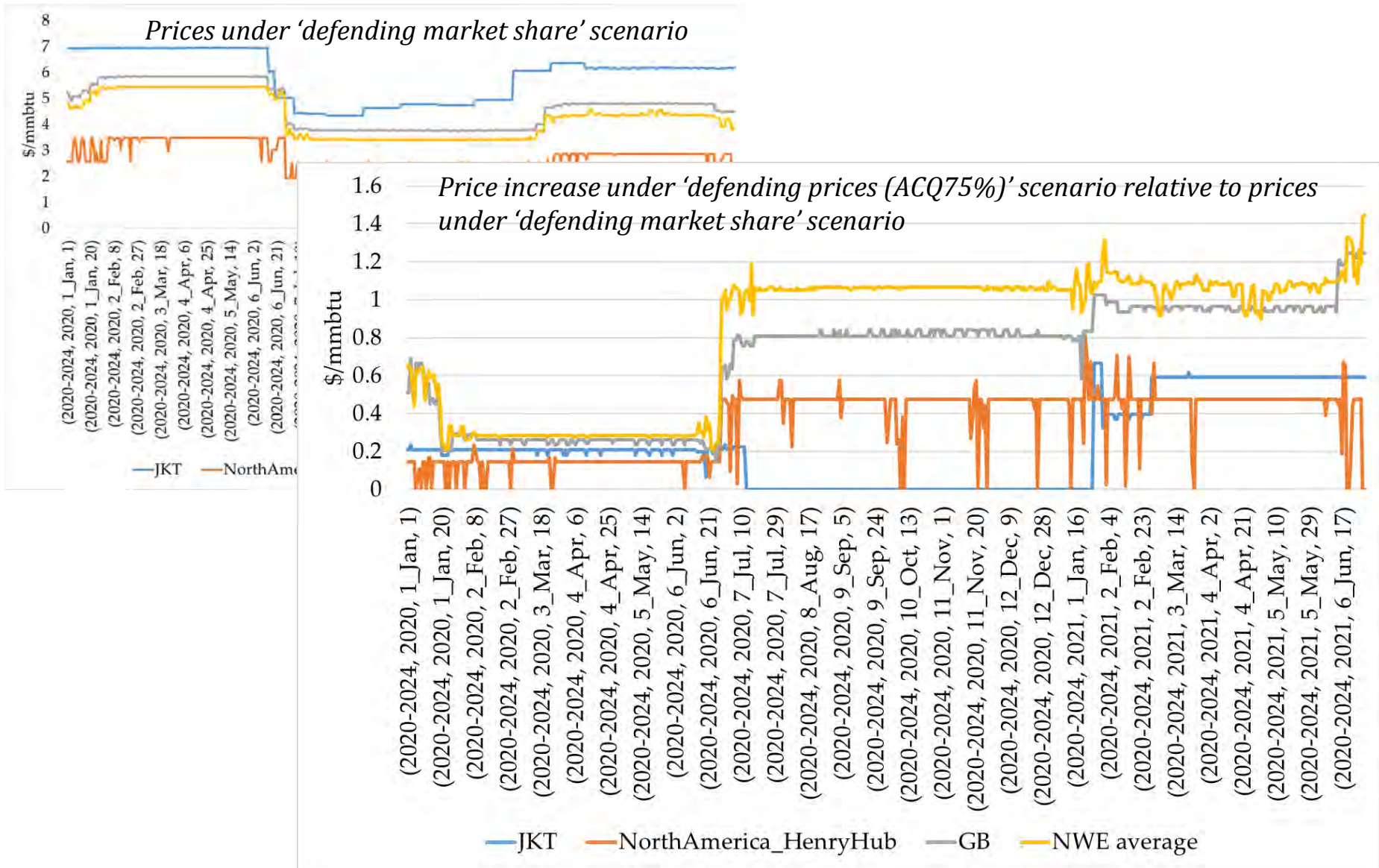
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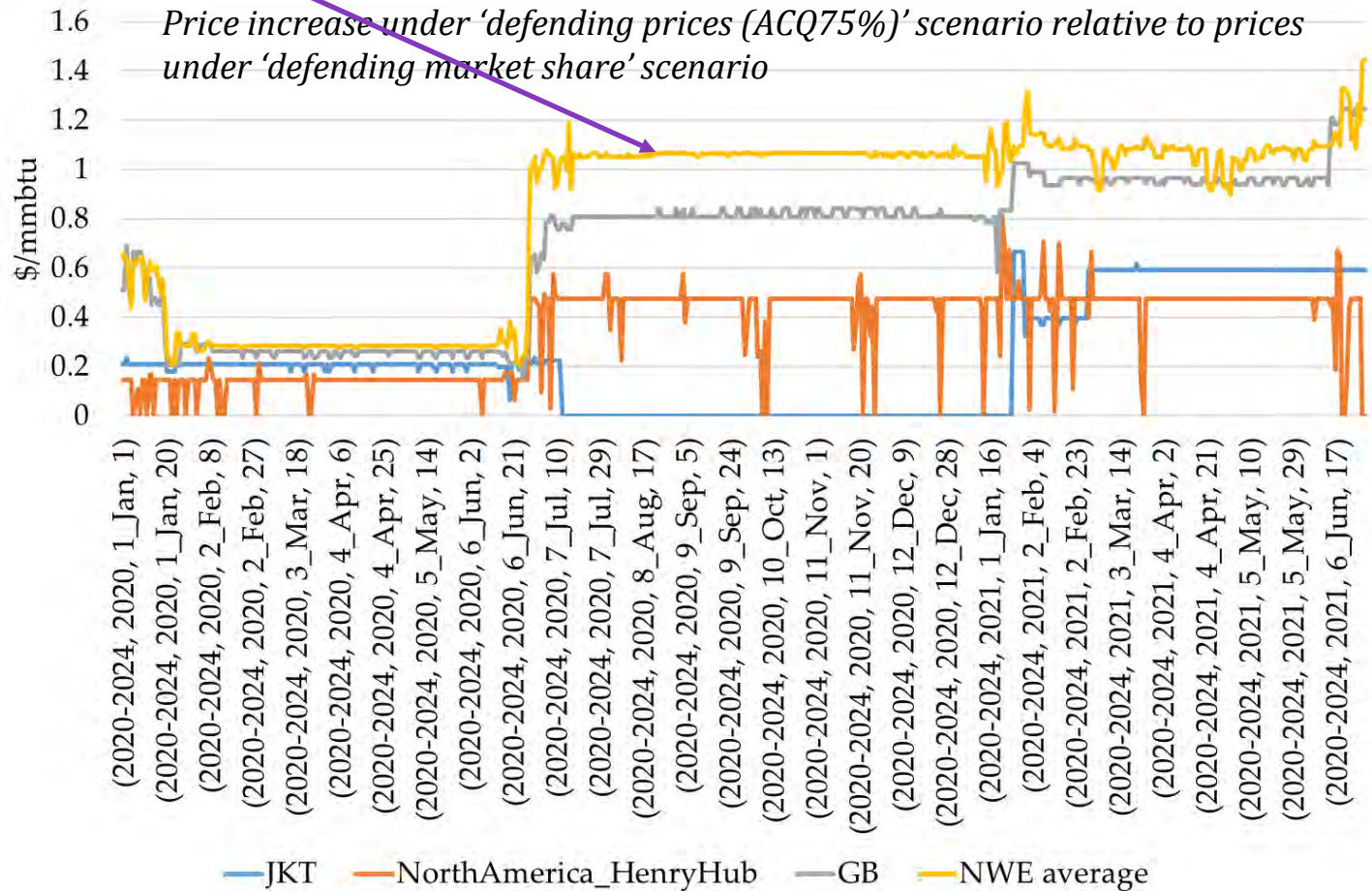
## Short-term perspective



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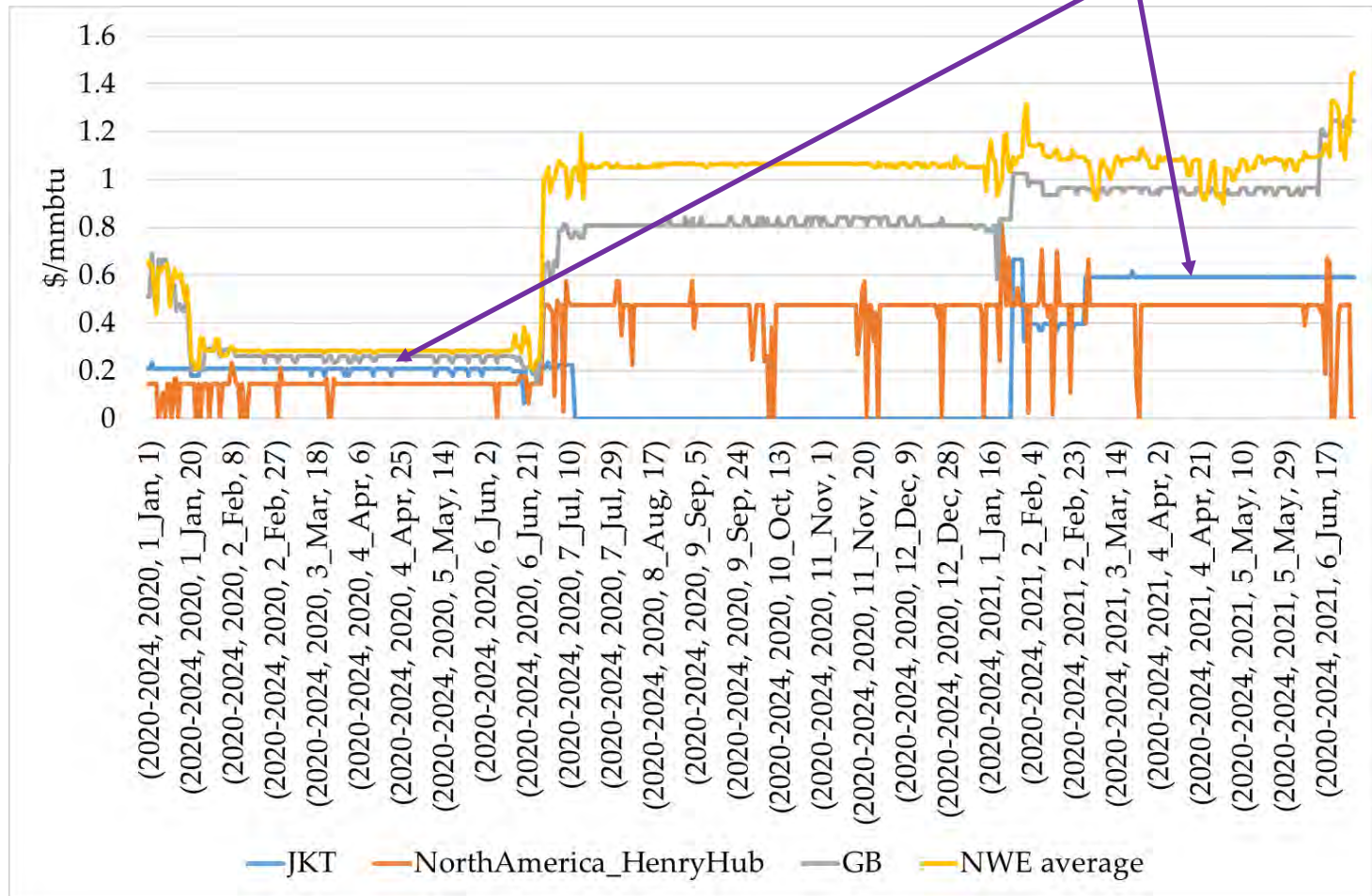
Price effect (+ca. \$1-1.4/mmbtu) of Gazprom's pricing power is rather limited thanks to flexible US LNG



# Will US LNG respond?

## *Short-term perspective*

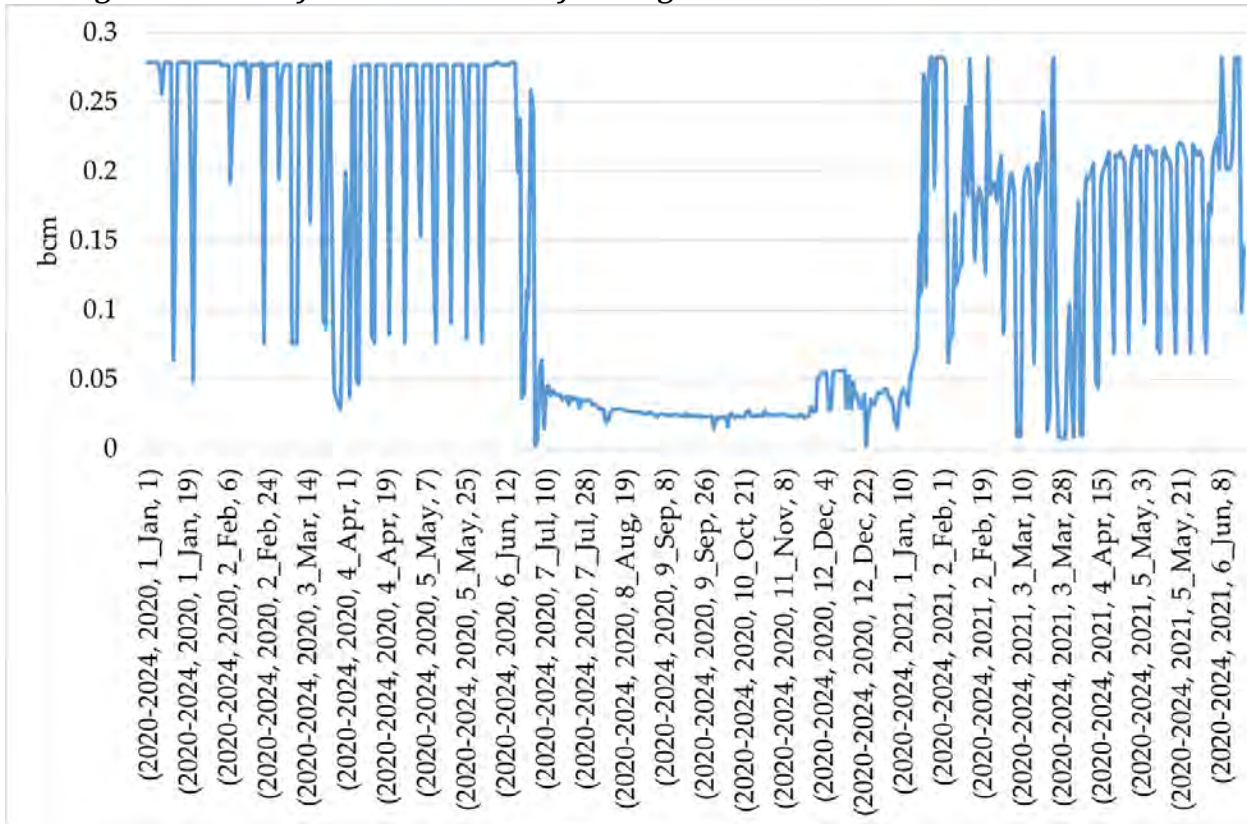
JKT price increase  
means US LNG is  
directed to Europe



# Will US LNG respond?

## *Short-term perspective*

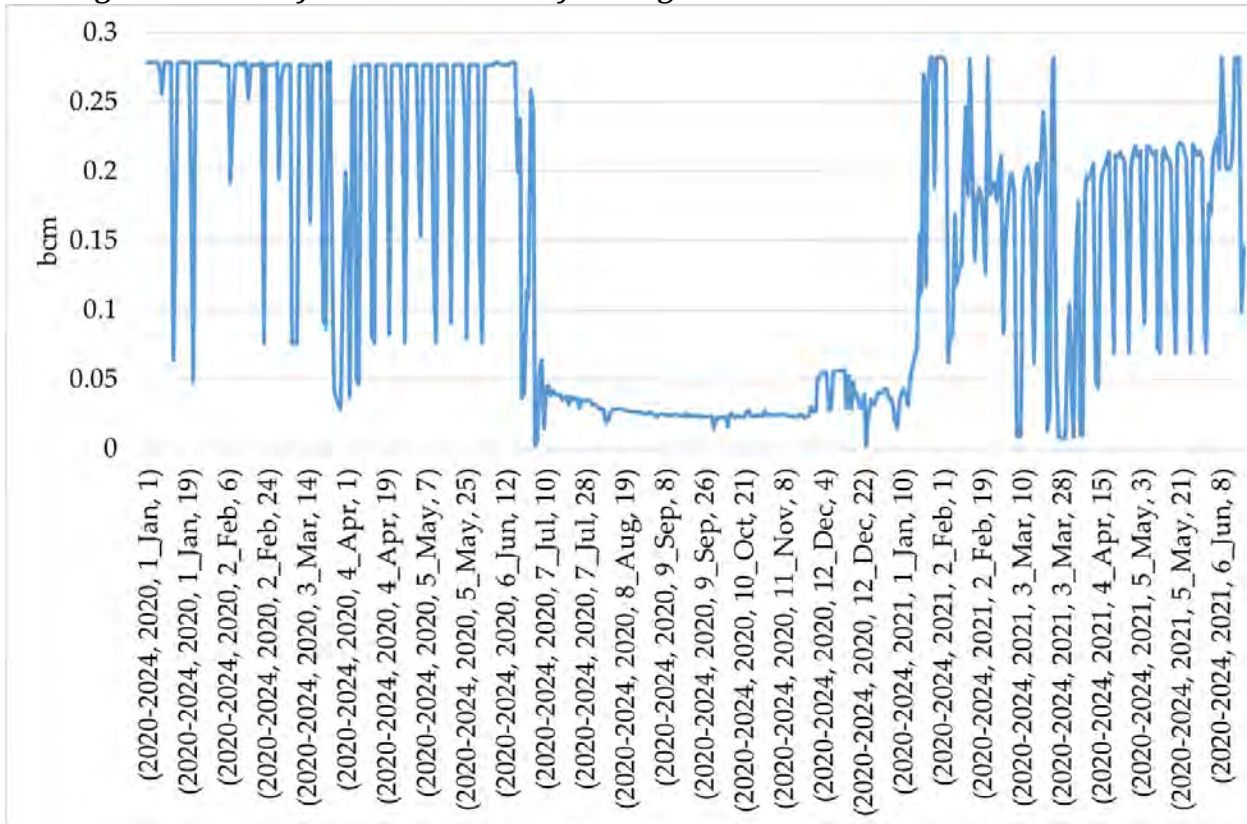
*Feedgas to US Gulf Coast LNG – 'defending market share' scenario*



# Will US LNG respond?

## *Short-term perspective*

Feedgas to US Gulf Coast LNG – 'defending market share' scenario



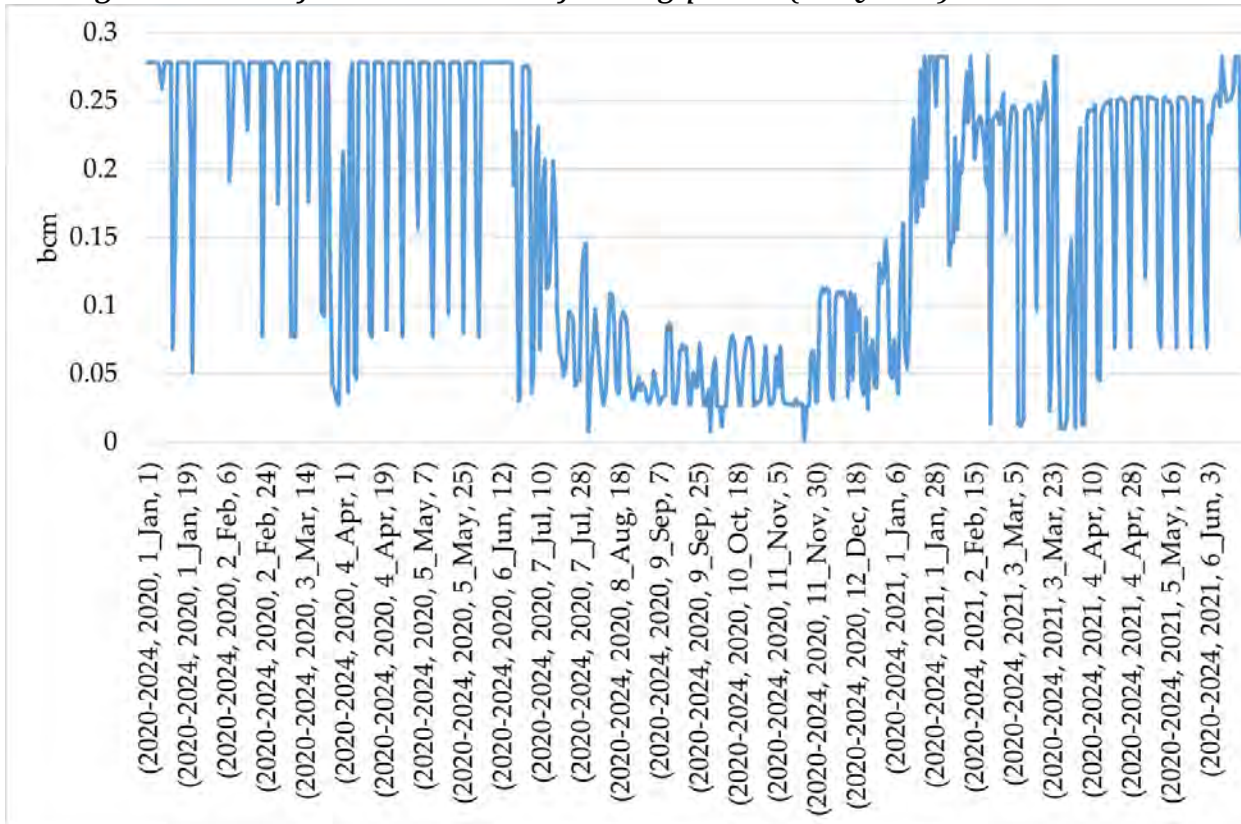
71.5 bcm for 1.5 years, or 54% utilization



# Will US LNG respond?

## *Short-term perspective*

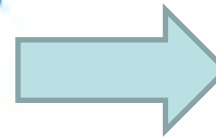
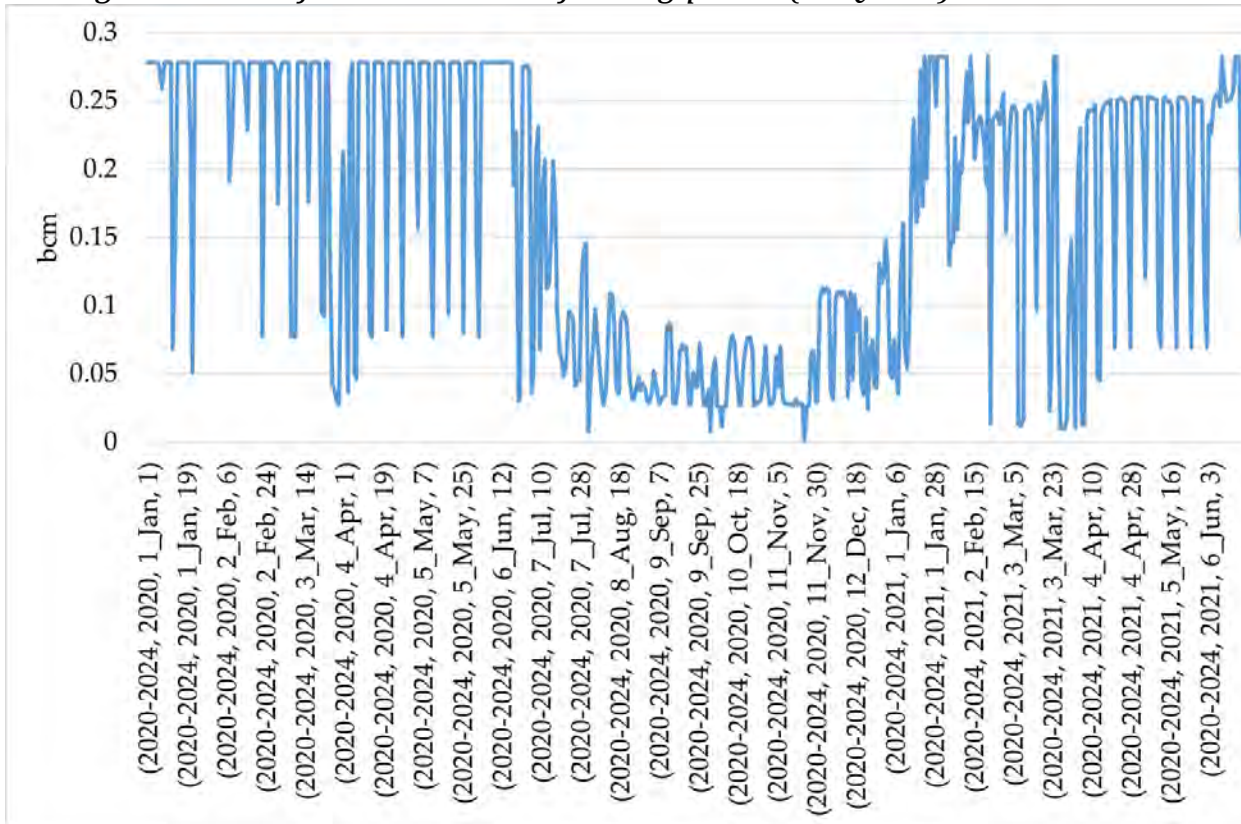
*Feedgas to US Gulf Coast LNG – 'defending prices (ACQ75%)' scenario*



# Will US LNG respond?

## *Short-term perspective*

*Feedgas to US Gulf Coast LNG – 'defending prices (ACQ75%)' scenario*

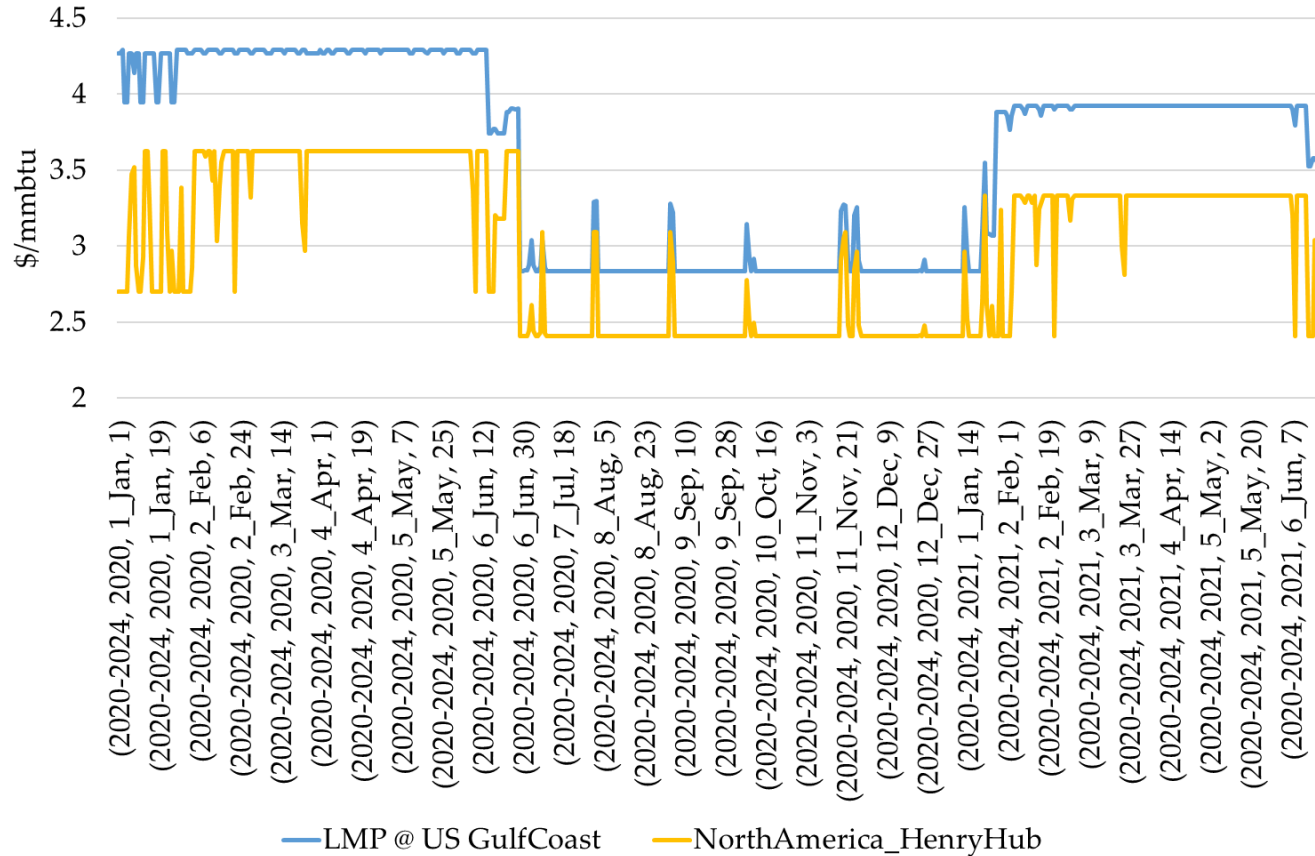


**84 bcm for 1.5  
years, or 64%  
utilization**

# Will US LNG respond?

## *Long-term perspective*

Henry Hub and US Gulf Coast Export prices under 'defending prices (ACQ75%)' scenario



Export Price  
@Liquefaction site =

Henry Hub (HH)

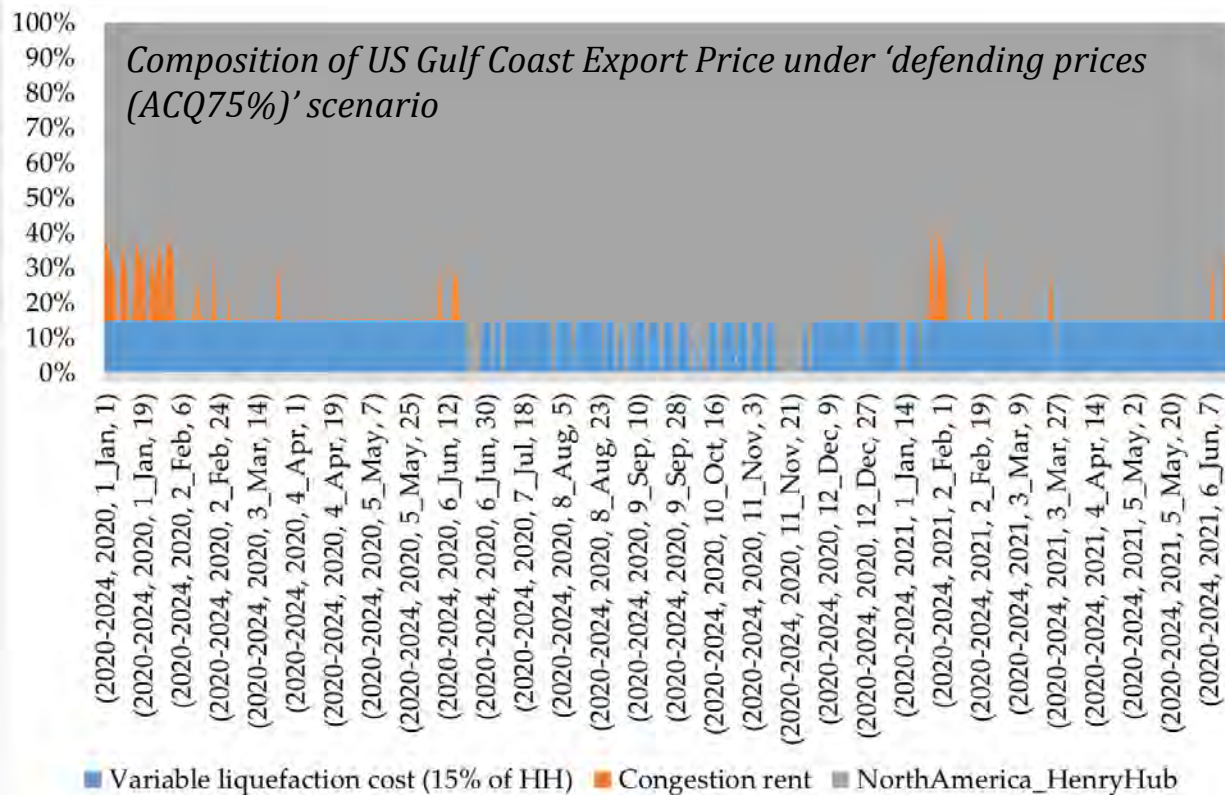
+

15% of HH to cover var.  
cost

+ Congestion rent (if LNG  
export capacity is  
saturated)

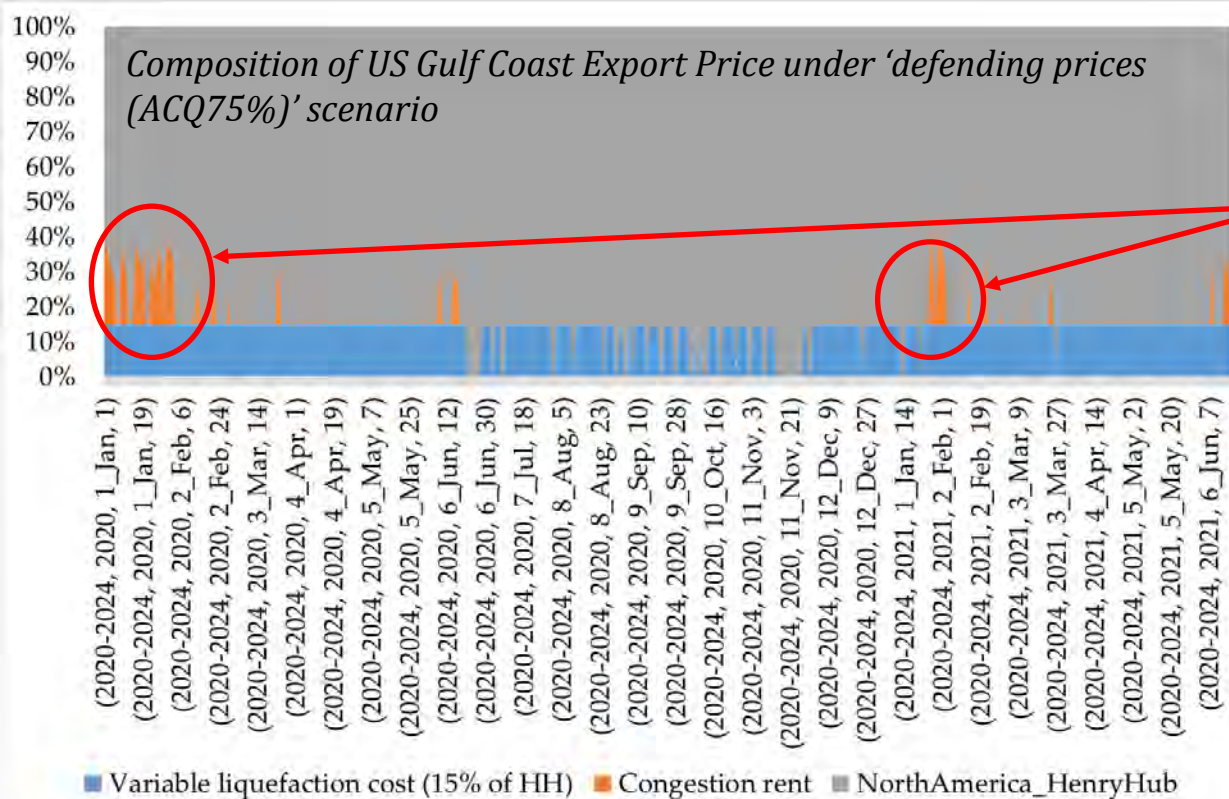
# Will US LNG respond?

## *Long-term perspective*



# Will US LNG respond?

## *Long-term perspective*



- Investment signal for new LNG export capacity
- 'congestion rent' ca. \$1/mmbtu
- Capacity price for Cheniere LNG export is ca. \$2.25-3.5/mmbtu
- Thus, NO new investment in US LNG export facilities even if Gazprom 'aggressively' defends prices in Europe

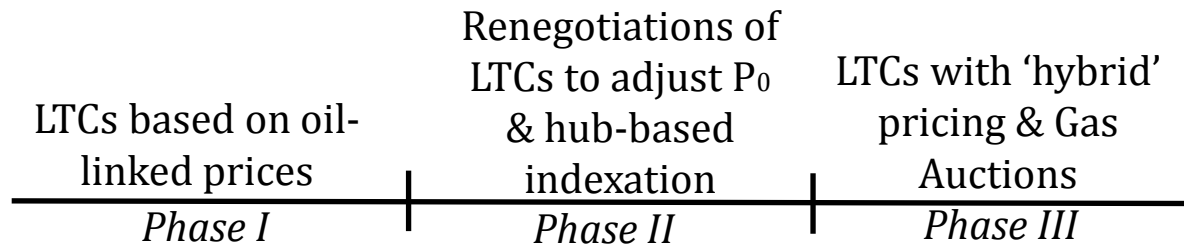
# Agenda

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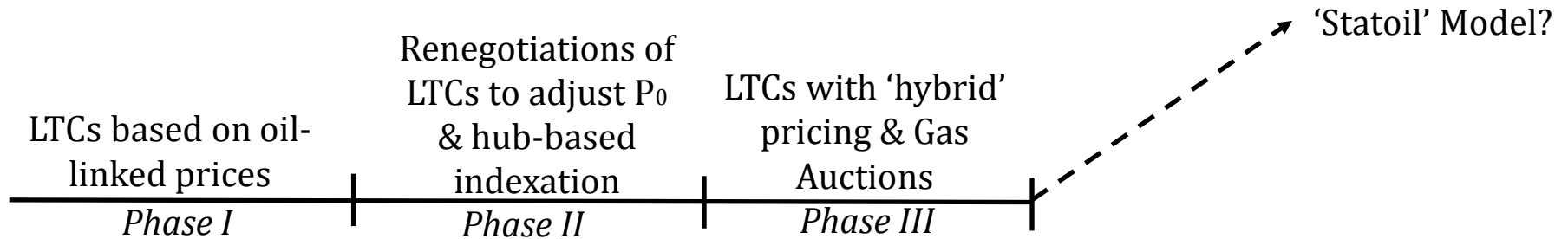
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# Evolution of Gazprom's export strategy

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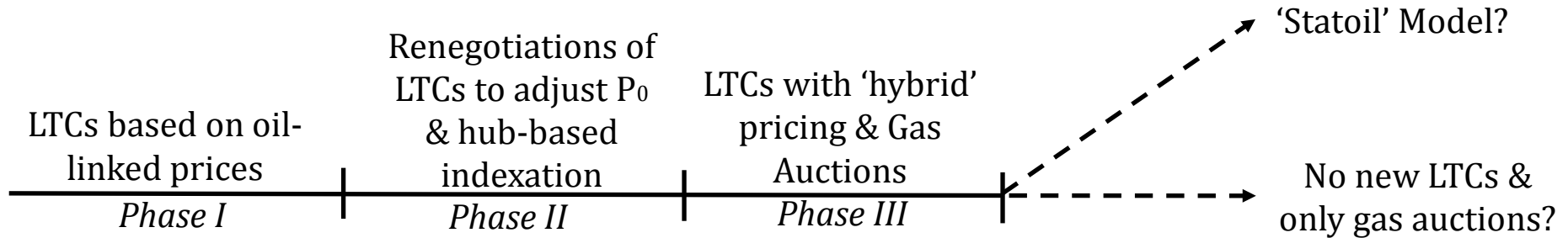
# Evolution of Gazprom's export strategy



'Statoil' Model: >90% spot indexation with 50/50 split between spot trading, direct sales AND long-term contracts

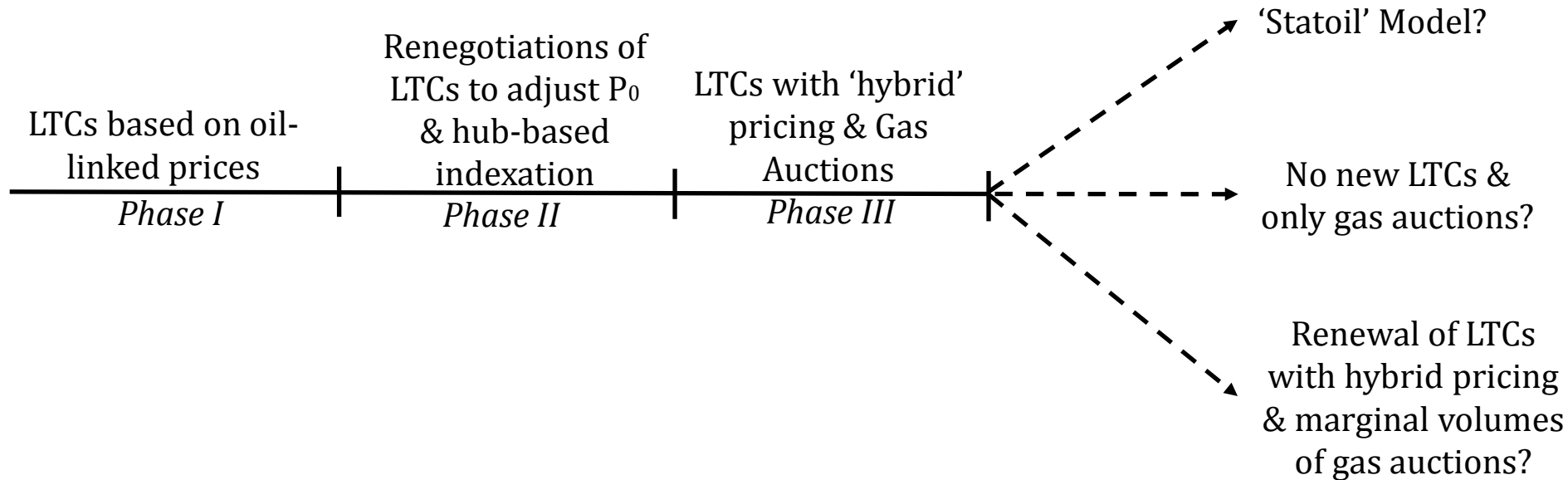


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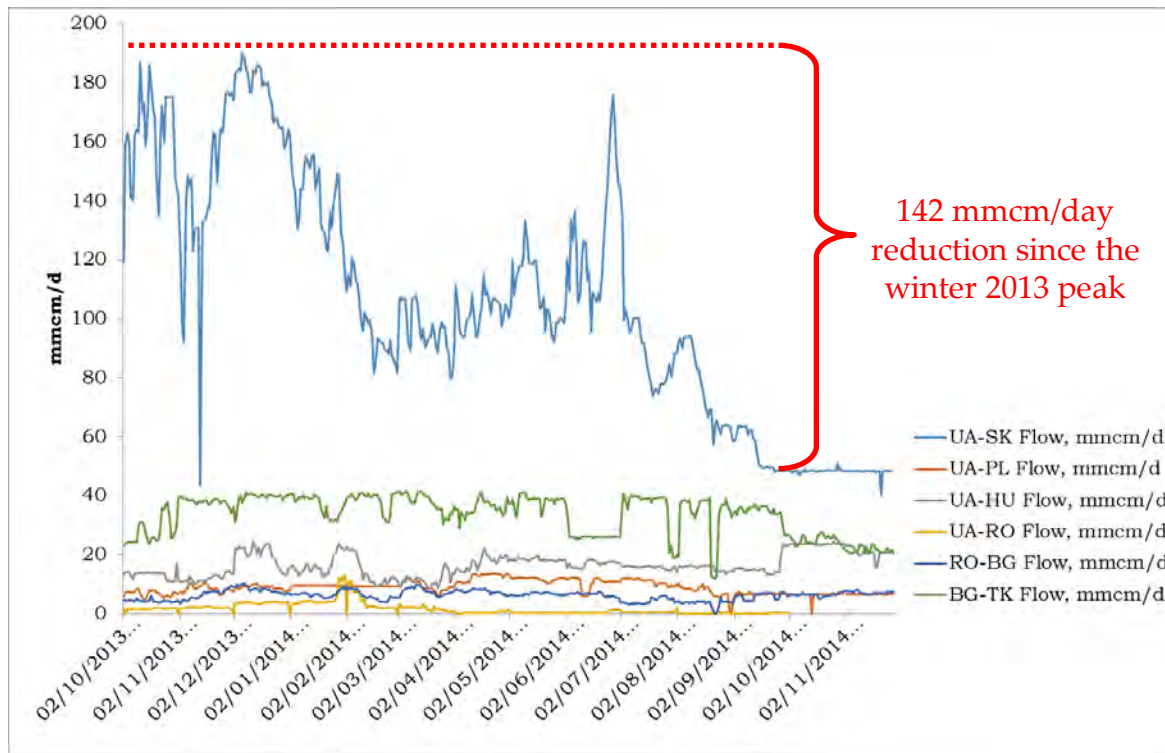
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# Evolution of Gazprom's export strategy



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# Gazprom's 'Defending prices' strategy – 2014 example



Source: [C.K. Chyong \(2014\) 'Ukraine and Security of Gas Supplies to Europe – part II'](#)

- Since mid-2014 until early 2015, Gazprom's deliveries to Slovakia, Austria, Hungary and Poland have been gradually reduced
- In some instances it was reported that Gazprom refused to deliver nominations from its CEE buyers even though those nominations were made within the contractual range & in line with available capacities
- It was an attempt by Gazprom to:
  - reduce gas availability in Europe & pushing up hub prices,
  - and hence an attempt to stop re-export of gas to Ukraine while defending its monopoly power in Ukraine

# Conclusions

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- Should Gazprom raise prices? – Yes

# Conclusions

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- Should Gazprom raise prices? – Yes
- Will Gazprom do so? – No

# Conclusions

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- Should Gazprom raise prices? – Yes
- Will Gazprom do so? – No
- If it does, will US respond? – Yes



*Dr. Chyong is a Research Associate at the Judge Business School and the Director of Energy Policy Forum, University of Cambridge. He is an expert in energy modelling with particular focus on natural gas & electricity market modelling and energy infrastructure and networks. His research interests include policy and economics of international gas and electricity markets, implications of decarbonisation agenda on gas and electricity, Russian natural gas export strategy, and Russo-Ukrainian energy relations. He has experience in advising corporations and governments on important energy issues primarily based on energy modelling and analytical tools that he has developed as well as deep knowledge of the energy industry and policy issues.*

*Kong holds a PhD in Energy Economics and Policy from Cambridge Judge Business School and an MPhil in Technology Policy from Cambridge.*

Thank you for your attention

Questions & comments are welcomed

Email: [k.chyong@jbs.cam.ac.uk](mailto:k.chyong@jbs.cam.ac.uk)

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