national gas | energy forum

Agenda

Part I *9:30*
Embedding Innovation through National Gas in T3 **Katie Petherbridge** Head of Innovation at National Gas
Powering Today, Transforming Tomorrow **Darren Davidson** Vice President at Siemens Energy UK&I
Future Networks: Navigating the Shift to a Multi-Molecules Economy **Filippo Gaddo** Managing Director at Alvarez & Marsal
National Gas Operational Update **Alison Tann** Head of Operational Delivery, National Gas
Break ***(10:50 – 11:10)***

Part II *11:10*
Keynote with Q&A **Henry Tufnell MP,** Member of Parliament for Mid and South Pembrokeshire
Keeping Britain Powered: Why Energy Security and Economic Growth Depend on Strategic Infrastructure **Tom Sawyer** CEO at Port of Milford Haven
How Global LNG Markets will Impact Europe this Winter **Alex Froley** Senior LNG Analyst at ICIS
Lunch (12:30 – 13:00)

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Part I

Part I Speakers

Katie Petherbridge
Head of Innovation

national gas

Darren Davidson
Vice President

SIEMENS energy

Filippo Gaddo
Managing Director

A&M

Alison Tann
Head of Operational Delivery

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Katie Petherbridge

Head of Innovation
National Gas

Embedding innovation through National Gas in RIIO-3

Katie Petherbridge
Head of Innovation

Why innovation matters in RIIO-3

Innovation has always been central to how we respond to change, solve complex challenges and prepare our network for the future.

Across RIIO-3, our role will continue to focus on helping the business to:

1. Strengthen resilience

Keep the network reliable, secure and ready for potential future changes.

2. Drive performance

Improve safety, productivity and efficiency.

3. Prepare for the energy transition

Support the decarbonisation of our network in preparation for net zero.

Innovation that delivers lasting value for customers, consumers and the wider energy system.

What’s changed for RIIO-3?

Innovation in RIIO-2

Heavily focused on developing the evidence case for hydrogen and net zero

We’ve seen changes in the energy landscape recently

As a result, the wider energy industry must focus on decarbonising energy supplies, while maintaining secure, affordable and reliable energy for consumers and businesses.

What this means for innovation in RIIO-3

Unlike in RIIO-2, innovation must not focus solely on enabling the transition to lower-carbon energy sources, but also on strengthening the resilience, flexibility and reliability of the network.

We’re focusing on innovation activities with:

Stronger alignment to strategic challenges

Clearer routes from idea to implementation

Greater focus on adoption, benefits and impact

Earlier engagement with stakeholders and suppliers

Our RIIO-3 funding needs to be utilised for projects that focus on emissions reduction, resilience, low-carbon technologies and safety of the existing network. Net zero and hydrogen activities should be funded by other means until Government policy decisions are made in the UK.

Our strategy provides a clear line of sight

Our strategy translates the business priorities into targeted innovation activity with clear outcomes.

Business priorities

Strategic objectives

Challenges

Value opportunities

Our innovation themes

Energy security and network resilience

Low-carbon transition

Safety and integrity

Digital and data

Business and customer

Our innovation portfolio

Outcome focused projects

Measurable benefits

Deployable solutions

Delivering innovation for the business

IDENTIFY		COLLABORATE			ADOPT	
1	2	3	4	5	6	7
Challenge identification	**Mature the idea**	**Scope the project**	**Sanction the project**	**Deliver the project**	**Close the project**	**Embed the learning**
Challenges and opportunities are gathered from across the business and prioritised.	The benefits case and potential benefits are identified at project idea stage to inform decision making.	A detailed scope and project plan are developed and submitted to collaborators for quotes.	The project is assessed by a cross-business forum for sign-off.	We work with the business, industry, academia and suppliers to deliver the project.	Value is tracked throughout the project, but on project completion, a handover plan is created detailing next steps.	Successful innovation moves into business-as-usual and delivers measurable value.

Innovation funding eligibility

Likely to be suitable for Innovation funding	May be suitable (depending on level of value & uncertainty)	Not innovation (better suited to BAU / standard
➢ High uncertainty ➢ New or unproven solutions ➢ Generates learning or evidence ➢ Potential wider system impact	➢ Some uncertainty remains ➢ Adaptation of existing solutions ➢ Needs further testing or evidence ➢ Early-stage or developing ideas	➢ Proven, low-risk solutions ➢ Routine delivery or upgrades ➢ Standard tools and methods ➢ Focus on outputs, not learning

Our deployment approach

There are two areas of focus for deployment:

1 INNOVATION PORTFOLIO

We focus on embedding the solutions and knowledge gained from our RIIO-1 and RIIO-2 projects.

Routes to deployment include:

1. Deployment funding – a competition fund (we're targeting January for our first project submission).
2. Utilising existing RIIO-3 business funding.
3. Building deployment activity into our RIIO-4 business plan.
4. Re-openers – forming part of our uncertainty mechanisms framework

2 EARLY DEPLOYMENT PLANNING

We ensure deployment is a focus when a project idea is first explored.

This includes:

1. Early consideration of the estimated value. When an idea is matured, a clear business case is created before sanctioning.
2. We've created a new cost-benefit analysis tool, to demonstrate the value of a project much earlier.
3. We've updated our value tracking categories, so they align with the business priorities.
4. Utilising Technology Readiness Level (TRL) planning – this will help focus deployment activity where it will have the most impact.

Deployment of Innovation across RIIO Periods

RIIO- 1: L555 Dent Tolerance

Deployed

Following testing the **pipeline dent tolerances were increased from 2% to 6%**, enabling more informed decisions on when remedial work is required.

£84.6m
cost avoidance to date

400
remedial actions avoided due to the increased tolerance

£200k
saving per avoided action

Fully rolled out across National Gas, with the findings incorporated into updated pipeline inspection and management procedures.

RIIO-2: Hydrogen Repurposing Process

In deployment

£1m spent developing hydrogen repurposing policies

2 new policies developed (TR/9H and TR/10H)

5
TR/10H assessments already completed by Project Union

7
further applications planned across St Fergus to Teesside and North-West

Repurposing assets avoids the need to design and build new pipeline sections

TRL change: Start TRL2 – Finish TRL9
The two policies are now approved for Business-as-Usual use.
The financial benefits of using these policies are still being quantified.

RIIO-3 Proposed Project: Net Zero AGI

Pipeline

Problem being addressed:

We currently vent methane to atmosphere in the normal course of inspection and maintenance activities.

Project purpose:
This project will demonstrate all technologies required to meet the net zero 2050 target on one strategic site – showcasing a blueprint for the future network.

An abetment of pig trap venting and gas actuators will be demonstrated, as well as maintenance and inspection venting and the deployment of continuous emissions monitoring.

Potential benefits:
If deployed on every National Gas site, there could be a **potential emissions reduction of 71,166 tCO_2e.**

National Gas | Business Use

Thank you

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Darren Davidson

Vice President
Siemens Energy UK&I

Electrification, Resilience and the UK's Next Energy Challenge

Darren Davidson

Vice President UK&IE - Siemens Energy

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NATIONAL GAS TRANSMISSION

SIEMENS energy

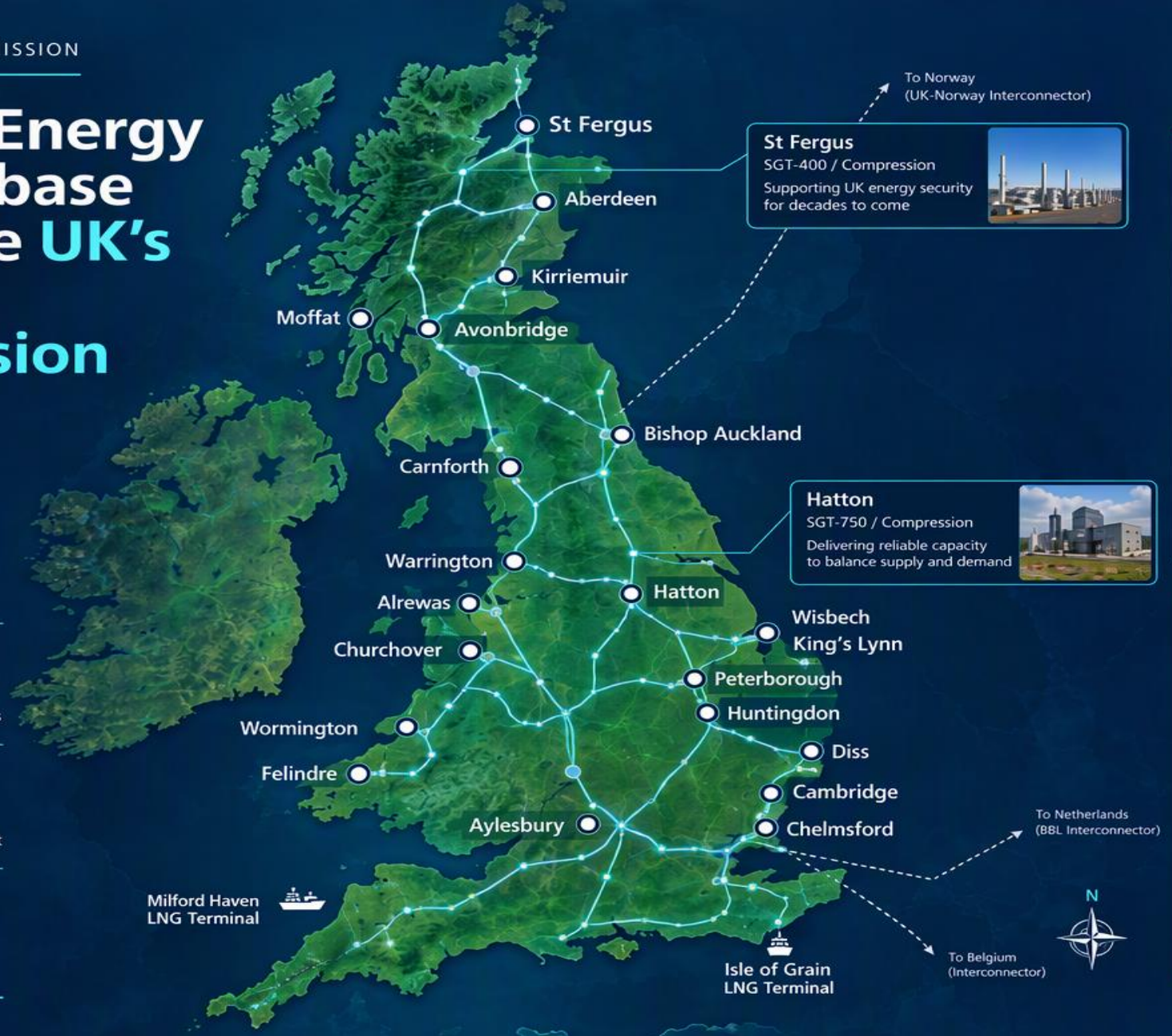
Siemens Energy installed base across the UK's National Transmission System

Proven technology.
Trusted partnership.
A more resilient energy future.

20
NTS sites with Siemens Energy units

60+
Gas turbine units in operation and support

Full lifecycle support across the network



St Fergus
SGT-400 / Compression
Supporting UK energy security for decades to come

Hatton
SGT-750 / Compression
Delivering reliable capacity to balance supply and demand

SIEMENS ENERGY EQUIPMENT

- SGT-A20
- SGT-A35
- SGT-400
- SGT-700
- Industrial power turbine (TCP)
- LM2500
- Vectra

- Compressor station (Siemens Energy units)
- Other key NTS site
- National Transmission System (NTS) pipeline
- Interconnector
- LNG terminal

SUPPORTING ENERGY SECURITY
Reliable compression across the whole network

ENABLING TRANSITION
Ready for hydrogen and low-carbon fuels

A LONG-TERM PARTNER
Investing in people, technology and UK capability

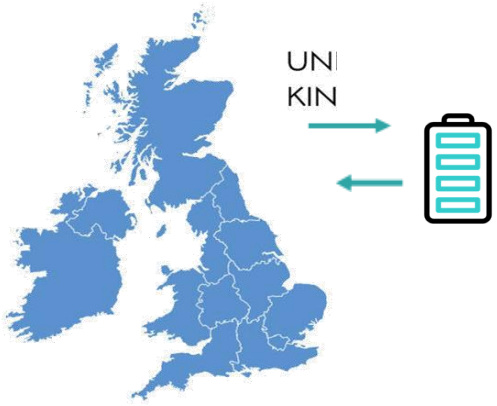
POWERING
A CLEANER, MORE SECURE
ENERGY FUTURE

Engineering today.
For a cleaner tomorrow.

Powering UK Energy Resilience Through Hydrogen and Long-Duration Storage

Long-duration energy storage is increasingly important for the UK as wind and solar supply more electricity.
By storing surplus renewable energy and releasing it during periods of low generation or high demand, it helps maintain reliable supplies and lower exposure to volatile international fuel prices

Rough – the UK's largest battery



Energy Storage Capacity:
60TWhrs Natural Gas
20TWhrs Hydrogen

Daily Capacity In or Out:
1 billion cubic feet
29 million cubic meters

Equivalent Power Capacity
~6GWe Natural Gas
~2GWe Hydrogen

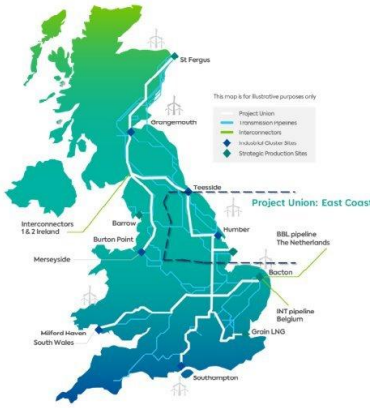
ProjectUnion: East Coast

28.3 TWh/year
Of industrial and power demand connected through direct connects by 2030

Up to 11.6 GW
Of planned hydrogen production could be enabled by PU: East Coast as part of ECH_2

3.6 TWh
Potential Hydrogen storage capacity from Rough Gas Reservoir and Aldbrough by 2030

Up to 375km
Of repurposed natural gas pipelines reducing new infrastructure required



Key Deliverables

1. **East Coast FEED** – Will identify a preferred routing option from the options identified during pre-FEED, where a revised options list will undergo conceptual design, lands and consents activities will be continued, and procurement activities will be commenced.
2. **Project Union: Essential Enabling Activities** – Programme of work critical to ensuring a fully operational and accessible hydrogen transmission network. It will support the delivery of FEED and essential to ensure a fully operational network through demonstrating the potential to repurpose, defining operating procedures, adapting existing systems and assets for hydrogen, and developing and delivering a transition plan and governance structure to deliver FEED and further phases of Project Union.

Facility	Volume (bcf)	% UK Storage	Owner/ Operator
Rough	54.0	48	centrica energy storage+
Stublach	14.0	13	storengy
Hornsea (Atwick)	11.0	10	sse Thermal
Aldbrough	10.4	9	sse Thermal equinor
Humbly Grove	9.0	8	HUMBLY GROVE ENERGY
Holford	8.5	8	uniper
Hatfield Moor	2.5	2	SCOTTISHPOWER
Hill Top Farm	2.1	2	EDF
UK Total	**111.5**		

Storage versus Consumption %

4%
25%
25%
31%

Rough equivalent...

2.4 million homes heated over winter
18 LNG Tankers
60 Salt Caverns

We support our customers along the entire energy value chain

SIEMENS energy

Gas Services

- Gas turbine
- H_2 gas turbine
- Fuel shift hybridization
- Steam turbine
- Offshore solution
- Availability

Grid Technologies

- Transformer
- Grid stabilizing services
- Battery
- Offshore grid connections
- Availability
- Gas-insulated switchgear

Transformation of Industry

Therein: Independently Managed Businesses

- Sustainable Energy Systems
- Electrification, Automation, Digitalization
- Industrial Steam Turbines & Generators
- Compression

- Electrolyzer
- Steam turbine
- Compressor
- Subsea
- Industrial applications

Siemens Gamesa

- Wind power
- Availability

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Keeping the UK gas flowing - Strengthening the Backbone of our Energy Security

SIEMENS energy

Through strategic investments and operational excellence at key National Gas facilities, Siemens Energy is helping maintain the reliability, availability and resilience of the UK's gas transmission infrastructure.

St Fergus – MCPD Modernisation

- Three new SGT-400 driven compressor packages to replace existing mature fleet
- Class leading Enhanced Dry Low Emission (eDLE) combustion to meet future environmental requirements
- Fuel Flexibility to ensure site is ready for future energy mix scenarios (e.g.: H2)

Hatton – Unit Replacement

- Install of one SGT750 (41MW) to replace existing mature fleet
- Project ensures compliance with environmental requirements while ensuring Hatton continues to play an important role in moving gas around the country

Cyber Resilience – Control system replacement project

- OEM involvement from survey and Pre-FEED to ensure upgrades a secure and fit for purpose
- Controls and protection aligned to cyber requirements for now and future
- OEM-defined interfaces retain maintainability

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Siemens Energy: We energise society

Employing more than **7,700** people in the UK with a real estate space of more than **281k** m²*

Adding more than **£390m** social value to the UK in FY25

7 Manufacturing sites

13 Service centres / Warehouses

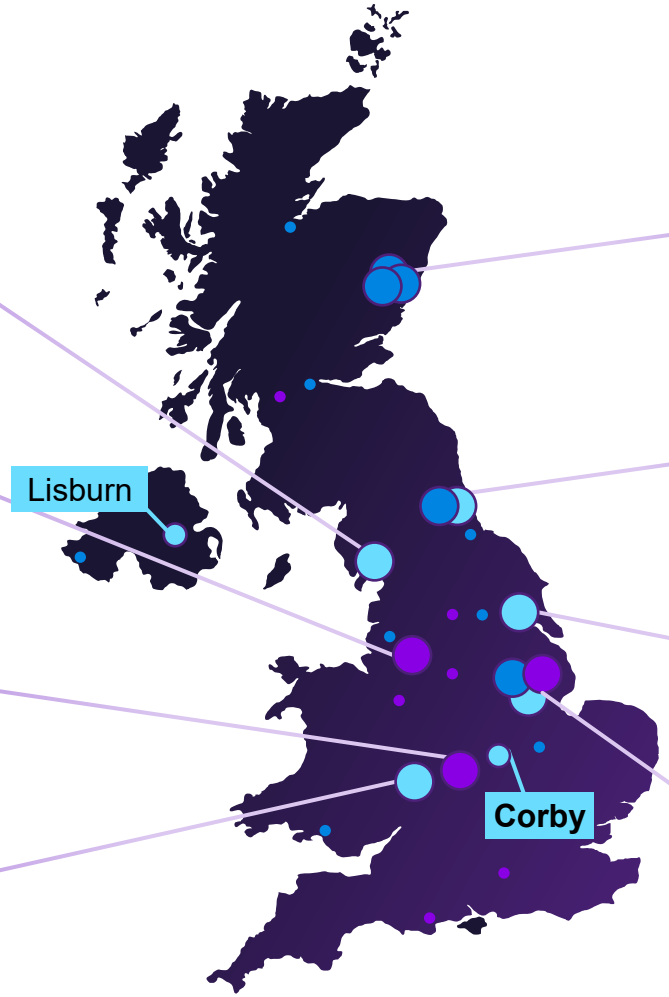
9 Project sites / Offices

Ulverston
12k m²
£6m
350+

Manchester
3.2k m²
£132m
350+

Warwick
1.7k m²
£45m
350+

Worcester
4.5k m²
£10m
100+



Aberdeen
25k m²
(tbd)
600+

Newcastle
41k m²
£31m
650+

Hull
92k m²
£28m
1,550+

Lincoln
88k m²
£29m
1,350+

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Siemens Energy and Siemens Gamesa will be integrated into one joint, new brand

SIEMENS energy

SIEMENS Gamesa
RENEWABLE ENERGY

⇒

omterra

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Continuity and continued strength to support you

There will be **continuity in every way that matters**:

Our strategic direction, local presence, expertise, delivery, support, and relationships remain unchanged.

Everything that **matters stays the same**:

Same team, same expertise, same products, same service.

All existing contracts and agreements will remain in effect, incl. the financial ratings and guarantees that support them.

October 2026

national gas | energy forum

Filippo Gaddo

Managing Director
Alvarez & Marsal

A&M INFRA & CAPITAL PROJECTS BY ALVAREZ & MARSAL

The Future of Gas Networks: Navigating the Shift to a Molecule Economy

National Gas Forum – October 2026

Contents

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02	The German case study	05
03	Comparison with GB and Italy	11
04	Future investments: moving to a molecule economy	16

A&M INFRA & CAPITAL PROJECTS BY ALVAREZ & MARSAL

01

SETTING THE SCENE

A&M INFRA & CAPITAL PROJECTS BY ALVAREZ & MARSAL

SETTING THE SCENE

Gas has moved from the default growth fuel to a security-of-supply asset, and its value now depends on policy and demand

1990s

GAS ESTABLISHED AS THE DEFAULT GROWTH FUEL

Market liberalisation let CCGTs beat coal on cost alone

2010s

GLOBAL COMMODITY

Shale and LNG turn gas into a global, ship-borne commodity

2020s

GAS AS A RESILIENCE ASSET

2022 Russian supply shock and REPowerEU repositioned gas around security of supply

2030s

VALUE CHAIN SPLITS

H_2 and CCUS regulation start to divide the value chain

2040s onwards

VALUE DEPENDS ON POLICY

Investment value now depends on how policy and demand evolve

SETTING THE SCENE

Decarbonisation splits the gas value chain into three investable trends, each with its own risk and timeline

1 ELECTRIFICATION

The largest switch away from natural gas

DISPLACES
Building heat and low-temperature industry

NEEDS
Grid reinforcement and competitive power

CONSTRAINT
Installation cost and grid queues

2 HYDROGEN

Broad gas network conversion

DISPLACES
High-temperature heat, feedstock and heavy transport

NEEDS
Cost parity with unabated gas

CONSTRAINT
Coordinating supply, network and demand

3 CO_2

The option that allows more gas to stay on the system

ENABLES
Gas in power and heavy industry

NEEDS
CO_2 transport and storage at scale, with a carbon price or CfD

ROLE
Cuts emissions from remaining gas use

02

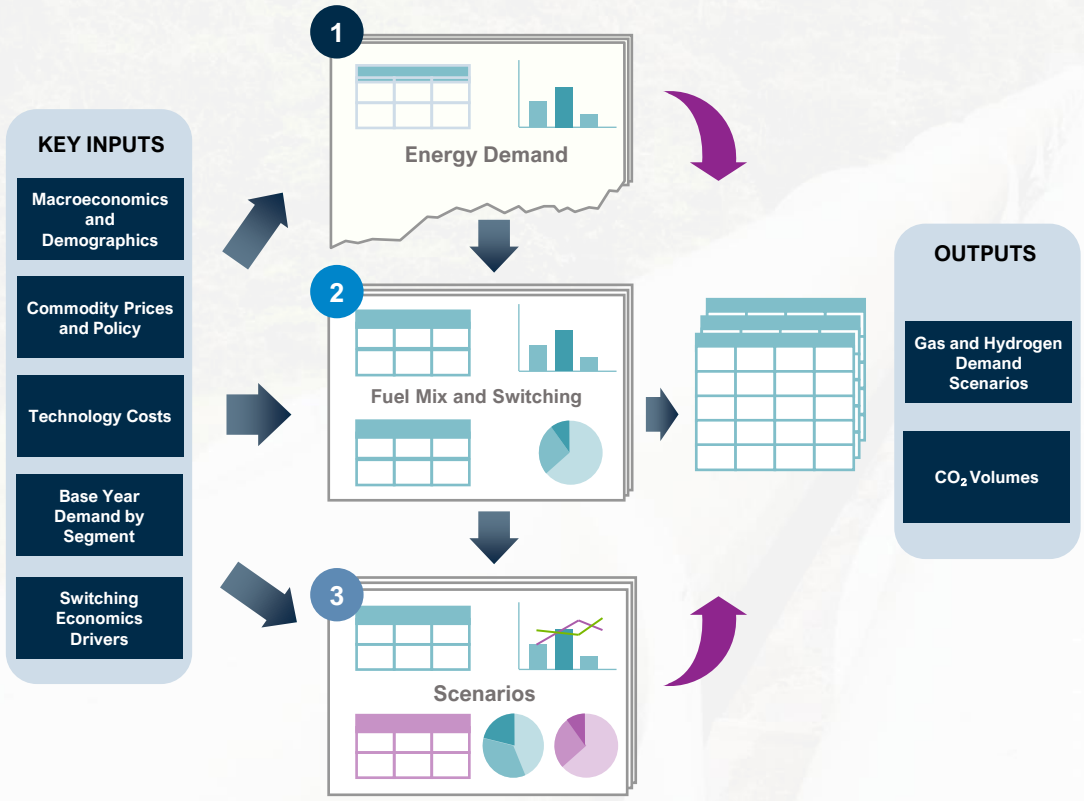
THE GERMAN CASE STUDY

A&M INFRA & CAPITAL PROJECTS BY ALVAREZ & MARSAL

THE DEMAND MODELLING TOOL: OVERALL ARCHITECTURE

A&M's demand model forecasts German gas and hydrogen demand and the CO_2 that needs capture

Demand Tool Architecture



1 Energy demand
How much energy each segment needs

2 Fuel mix and switching
Which fuel wins on economics and policy

3 Scenarios
Gas, H_2 and CO_2 outcomes to 2050

GERMAN CASE STUDY

Germany's gaseous fuel demand is declining as electrification and hydrogen displace gas

Key Figures

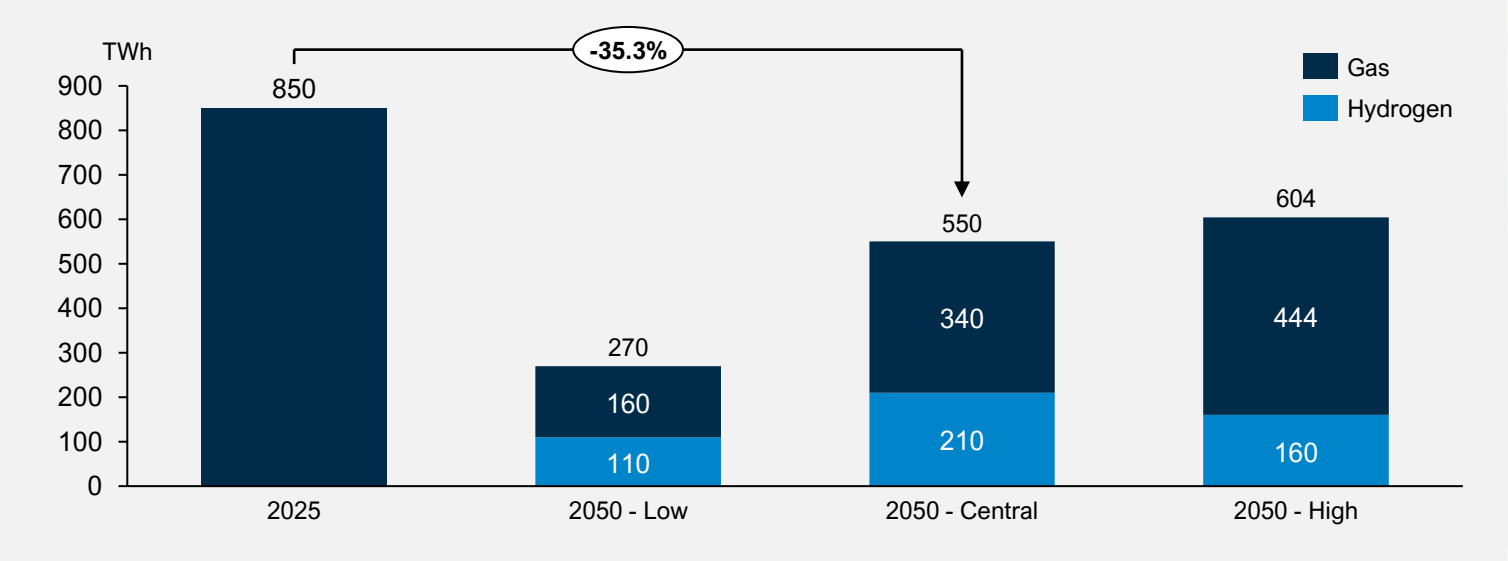
850 TWh → 550 TWh
2025–2050
Total gaseous fuel demand (gas and H_2), Central Case

850 TWh → 335 TWh
2025–2050
Gas demand, Central Case

0 TWh → 210 TWh
2025–2050
Hydrogen demand, Central Case

270 TWh → 604 TWh
2050
Total gaseous fuel demand (gas and H_2), range across scenarios

Total Gaseous Fuel Demand – Gas & Hydrogen



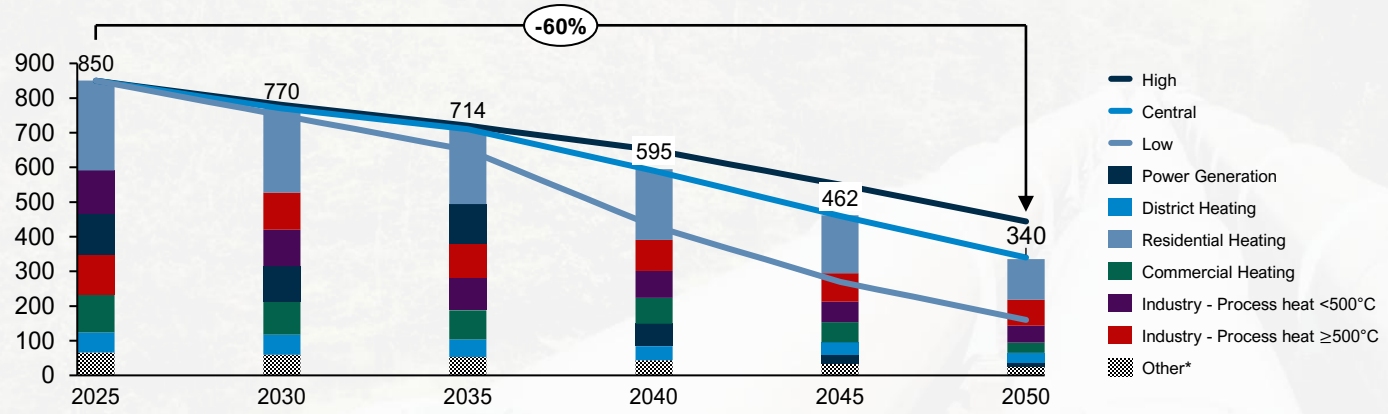
–35%
Total gas and H_2 demand, 2025–2050 (Central)

c.40%
Hydrogen share of the 2050 mix (Central)

GERMAN CASE STUDY

Gas demand falls c.60% by 2050, with power and heating falling fastest and industrial process heat keeping the network in use

Gas Demand by Scenario (TWh)



Effect on each group

NETWORK OPERATORS

Plan for a system c.60% smaller, with H_2 corridors following industrial clusters

PRODUCERS AND SHIPPERS

Shift capacity to industrial users

INVESTORS AND LENDERS

Value concentrates in hard-to-abate assets

–60%

Gas demand 2025–2050, Central case

c.44%

Heating's share of remaining 2050 demand

c.2×

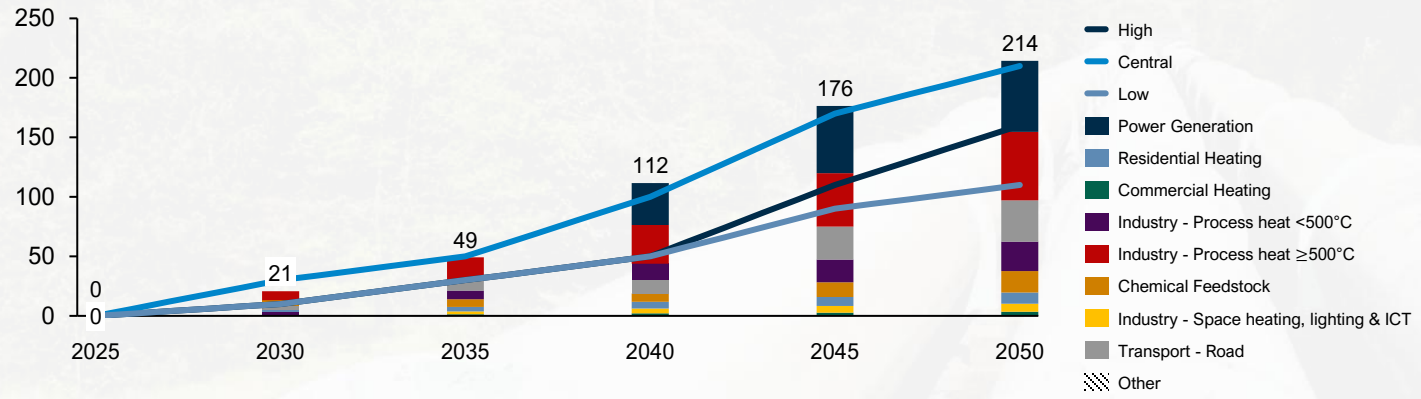
Share gain of ≥500°C industrial heat

(*): Other demand segments include: Industry - Space heating, lighting & ICT, Industry - Mechanical energy & motors, Transport - Road

GERMAN CASE STUDY

German hydrogen demand rises to c.214 TWh by 2050, concentrated in power generation and heavy industry

Hydrogen Demand by Scenario (TWh)



214 TWh
Hydrogen demand by 2050, Central case

>50%
From power and ≥500°C industrial heat

2035–45
Main growth period

Effect on each group

NETWORK OPERATORS
Repurpose pipes where H_2 follows gas routes, and build new pipe elsewhere

PRODUCERS AND USERS
Offtake timing drives electrolyser returns

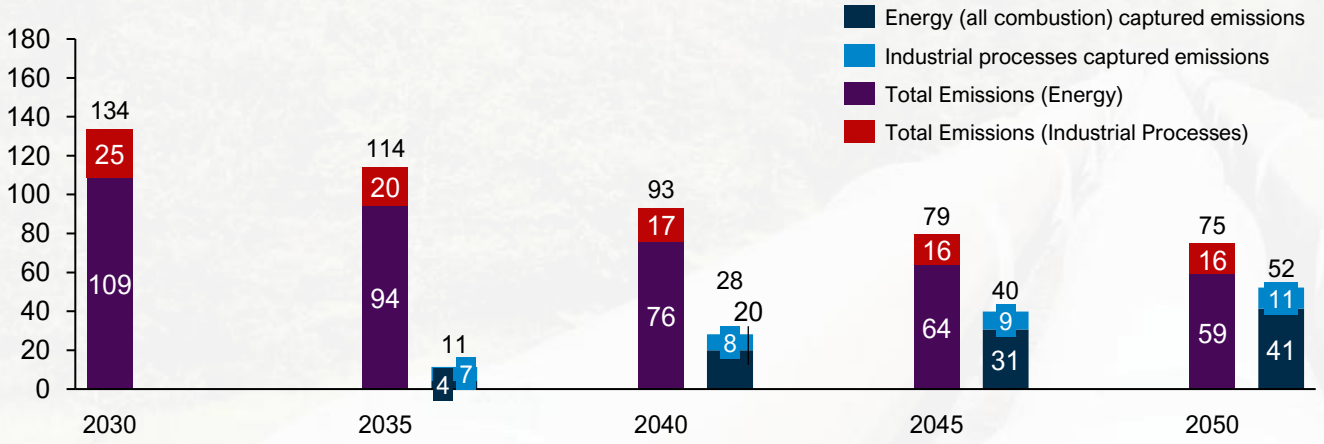
INVESTORS AND LENDERS
Early investors gain most as demand grows, and electrification is the main risk

Source: A&M analysis

GERMAN CASE STUDY

Energy emissions drive the CO_2 decline, but industrial process emissions persist as a core capture market

Total and captured CO_2 emissions in Germany – Central Case ($MtCO_2$)



–44%

CO_2 emissions 2030–2050, Central case

c.52 Mt

CO_2 captured by 2050

c.70%

Share of 2050 emissions captured

Effect on each group

NETWORK OPERATORS

Early pipes carry utilisation risk until capture grows after 2035

EMITTERS

Process emitters are the largest customers

INVESTORS AND LENDERS

Access to North Sea storage is the main risk

Source: A&M analysis

03

Comparison with GB and Italy

A&M INFRA & CAPITAL PROJECTS BY ALVAREZ & MARSAL

COMPARISON WITH THE GB CASE

GB gas networks face the same question as Germany's: how much of the network survives, and in what role

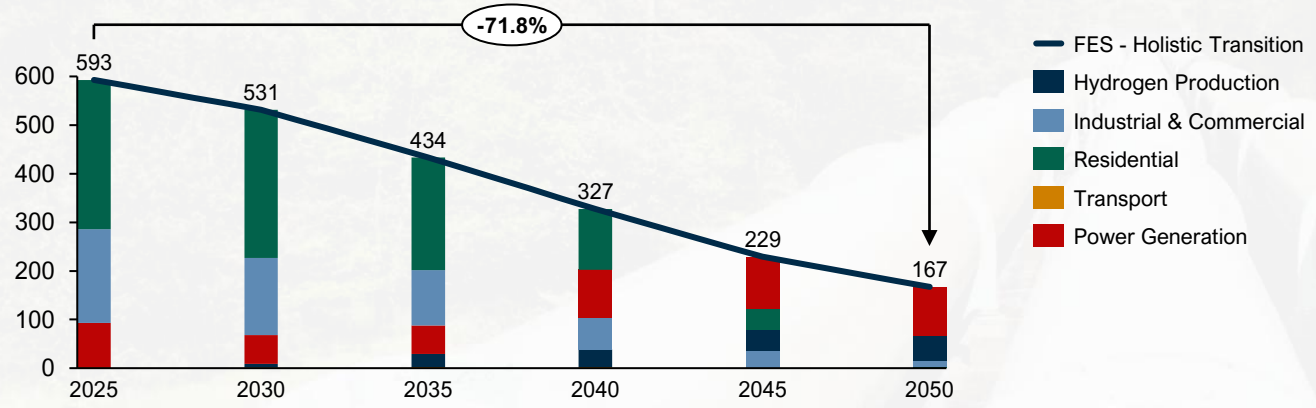
	Germany	GB	Implication
GAS The base asset	Decline is priced into TSO planning, and the Kernnetz names what converts	Conversion routes are still undecided	**GB gas asset values are uncertain**
HYDROGEN The new corridor	c.9,040 km Kernnetz approved, with tariffs pending	c.2,500 km Project Union, with Hydrogen Transport Business Model (HTBM) funding undefined	**Both have a planned corridor, and funding is unresolved**
CO_2 Dedicated CO_2 transport routes	A national network framework (KSpTG) exists, with no domestic storage	Storage and contracts are in place, and the network is built cluster by cluster	**Germany leads on network structure, and GB leads on storage**

Bottom line	**Germany more advanced on defining its gas and hydrogen networks. GB advanced on CO_2 storage and contracts.**

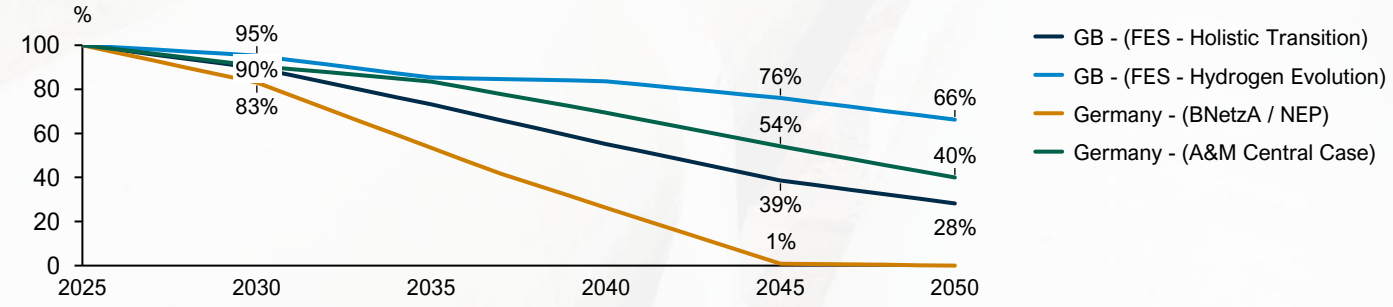
COMPARISON WITH THE GB CASE

GB gas demand falls by nearly three-quarters by 2050, with most of the loss still to come after 2035

GB Gas Demand (TWh)



German vs GB gas demand decline scenarios (indexed to 2025 = 100%)



-72%

GB gas demand decline by 2050

63%

Share of the total decline that falls after 2035

Pace and pattern of decline

TIMING

The decline speeds up after 2035

END-USE

Heating demand falls first

REMAINING DEMAND

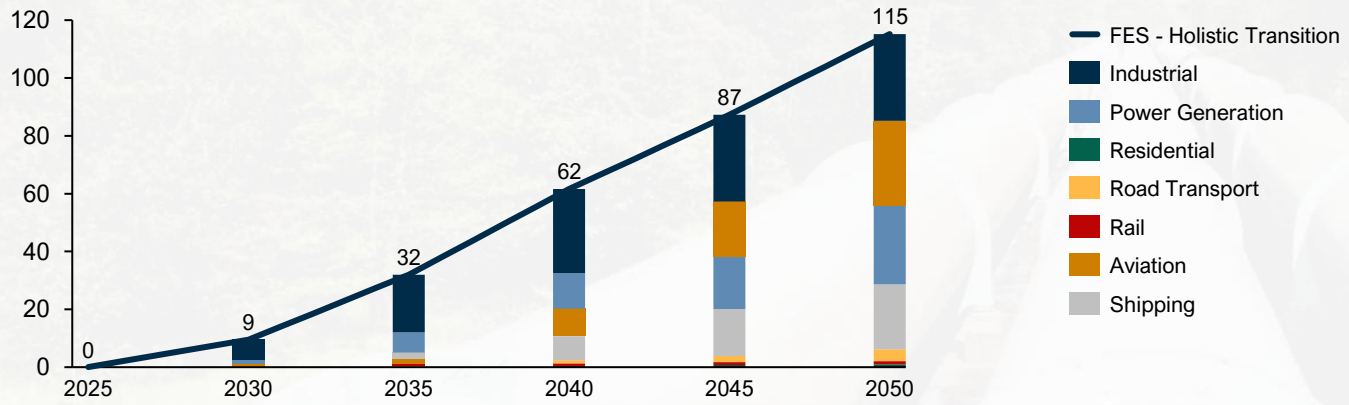
Power and H_2 production remain

Source: FES Scenarios 2025, BNetzA / NEP 2025 , A&M analysis

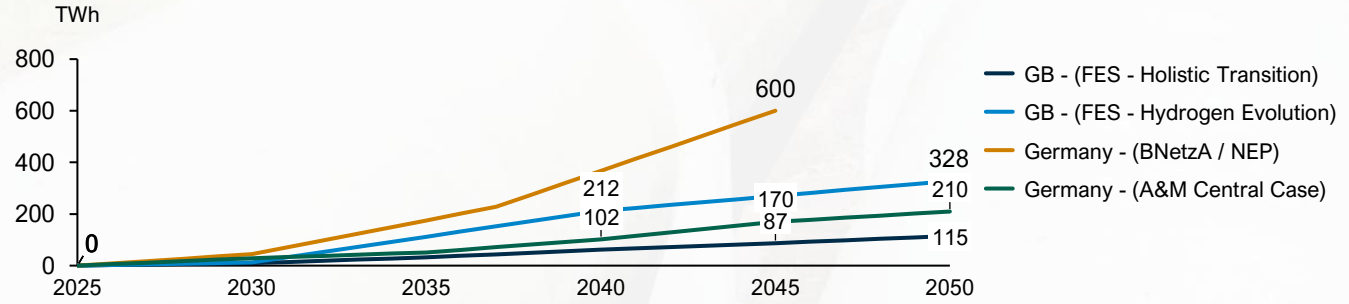
COMPARISON WITH THE GB CASE

GB hydrogen demand stays small until the mid-2030s, then more than triples across a wider set of users

GB Hydrogen Demand (TWh)



German vs GB hydrogen demand ramp up scenarios (TWh)



115 TWh

GB H_2 demand by 2050 (FES Holistic)

3.5×

Growth from 2035 to 2050

Effect on GB networks

MAIN RISK

Low use of new pipe

FIRST PROBLEM

Tariff design comes before engineering

SEQUENCING

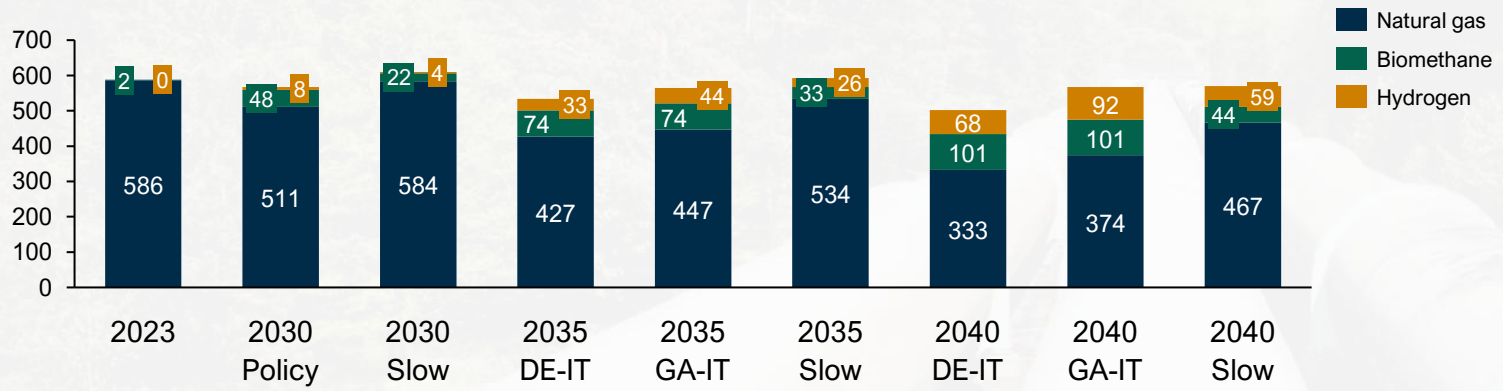
Offtake is contracted before pipe is committed

Source: FES Scenarios 2025, BNetzA / NEP 2025 , A&M analysis

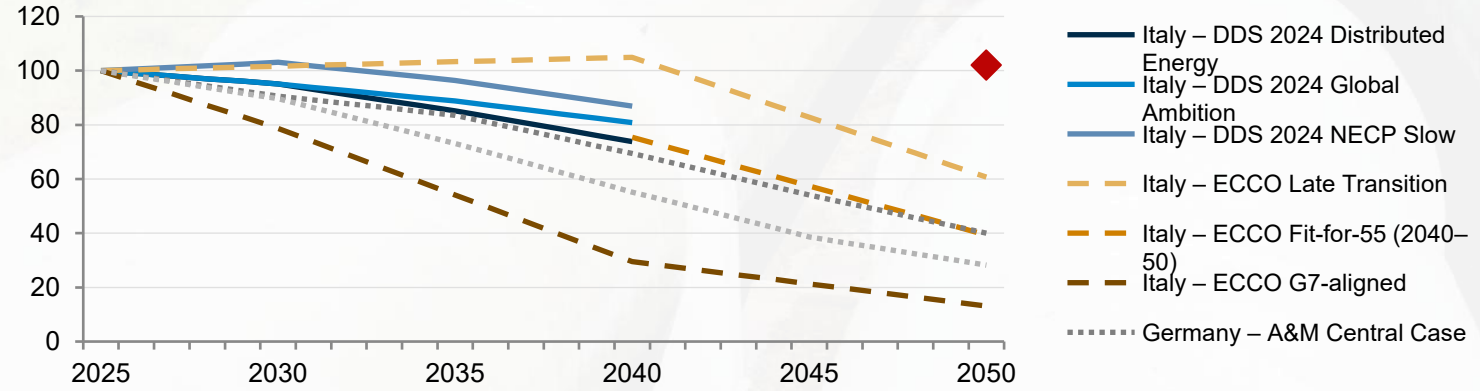
COMPARISON WITH ITALY

Italy: natural gas falls 20–43% by 2040, but biomethane and hydrogen fill much of the gap, and views on 2050 diverge widely

Italy gas, biomethane and hydrogen demand by scenario (TWh) – Snam–Terna DDS 2024



Italian vs German and UK gas demand scenarios (indexed to 2025 = 100%)



-20% to -43%

Natural gas demand by 2040 vs 2023 across DDS 2024 scenarios

169–193 TWh

Biomethane plus hydrogen in 2040 (DE-IT, GA-IT), from 2 TWh in 2023

Molecules supply shift

MIX SHIFT
Biomethane reaches about 100 TWh and hydrogen 59–92 TWh by 2040, so all molecules fall only 3–15% while natural gas falls 20–43%

HYDROGEN IS IMPORTED
Snam expects 50–73 TWh of the 68–92 TWh of 2040 hydrogen to be imported, so corridors matter.

2050
Snam sees ~600 TWh of molecules; ECCO sees gas plus biomethane at 13–61% of today.

Source: Snam–Terna DDS 2024; Snam; ECCO, Lo stato del gas (Feb 2024); FES 2025; A&M analysis.

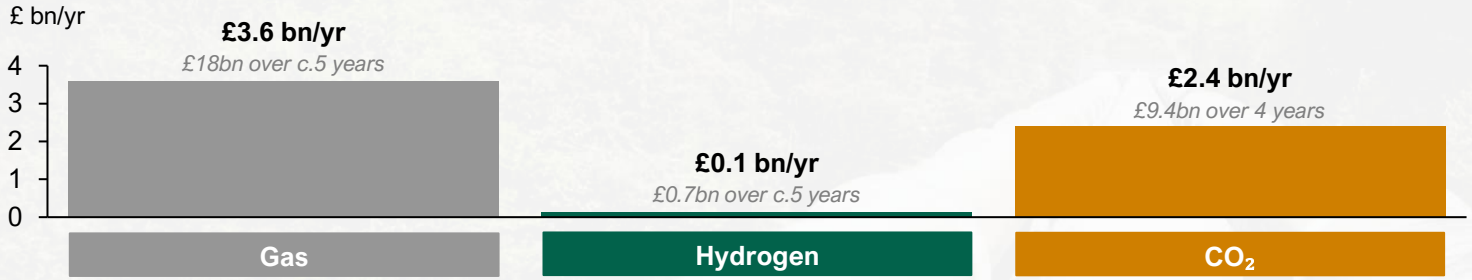
04

FUTURE INVESTMENTS: MOVING TO A MOLECULE ECONOMY

A&M INFRA & CAPITAL PROJECTS BY ALVAREZ & MARSAL

GB gas and CO_2 infrastructure attract c.£2–4bn a year of committed funding, while hydrogen transport attracts c.£0.1bn and is still at design stage

GB committed and approved infrastructure funding, annualised over each commitment period (£bn per year)



Ofgem RIIO-3 totex

Regulated, committed and paid by consumers

FEED studies and £500m pledge

No investment decision or programme cost yet

Spending Review 2025 capital

HyNet and East Coast Cluster build-out

NOT THE SAME KIND OF MONEY

£18bn

Gas
Five-year regulated totex

£0.7bn

Hydrogen
Development funding only

£21.7bn

CO_2
Total spending over 25-year support period

Why the gap matters

1. Gas attracts the most each year
2. CO_2 is second and concentrated in two clusters
3. Hydrogen transport has no final investment decision yet

Committed capital

Gas and CO_2 now have committed capital, and hydrogen transport does not.

Decisions on asset value and who pays what will set the future shape of GB's gas networks

Still open today: the value of repurposed pipes, who pays for stranded cost, the hydrogen tariff, heating policy and volume risk

1 MANAGED CONTRACTION

The network shrinks and is retired area by area

GAS NETWORK
Only the core serving industry and power remains.

HYDROGEN
Dedicated pipes serve the industrial clusters.

WHO PAYS
Remaining users pay through faster depreciation, and tax or securitisation covers the rest.

SIGNPOSTS
Hydrogen is ruled out for home heating, and Ofgem asks for decommissioning plans.

2 CONVERSION TO HYDROGEN

Gas pipes move into a hydrogen asset base

GAS NETWORK
Selected pipes are repurposed at a regulated value.

HYDROGEN
A national backbone opens with a capped tariff.

WHO PAYS
Gas users pay first and hydrogen users later, and the state carries most volume risk, as in Germany.

SIGNPOSTS
Hydrogen transport funding is allocated and industry signs offtake.

3 UNMANAGED DECLINE

GB risks this if decisions stay open

GAS NETWORK
The full network stays, volumes fall and unit charges rise.

HYDROGEN
Investors and users each wait for the other.

WHO PAYS
The last customers pay, and they are likely to include those least able to switch.

SIGNPOSTS
The heat decision slips, large industrial users close and RIIO-3 ends in 2031 with no hydrogen tariff.

Source: Ofgem RIIO-3 Final Determinations; DESNZ hydrogen transport business model; A&M analysis

Regulatory and policy choices on pricing, funding and risk allocation could ease the transition, or create new problems for gas customers and investors

1 SHARED PRICE

Should gas and hydrogen share one asset base and one price during the ramp-up?

RISK
Hydrogen costs fall on a shrinking group of gas users.

OPTIONS
Asset bases could stay separate, with a capped, time-limited transfer.

2 WHO PAYS

Should some of the stranded gas cost move to general taxation?

RISK
Charges rise for the last gas users.

OPTIONS
Taxpayer funding or securitisation could cover the rest, each at a fiscal cost.

3 ASSET VALUE

At what value should gas pipes enter a hydrogen network?

RISK
Conversion and gas investment both stall.

OPTIONS
Book, discounted and demand-linked values are all possible.

4 LAST CUSTOMERS

Who pays to disconnect the last customers on a street?

RISK
A full network serves a few customers.

OPTIONS
Decommissioning could run area by area, with disconnection funding unsettled.

5 UNINTENDED EFFECTS

Could faster depreciation speed up the exits it is meant to pay for?

RISK
Higher bills speed exits, and new pipe goes into areas due to close.

OPTIONS
Replacement spend could be linked to decommissioning plans.

6 INVESTMENT GAP

Who carries the risk of hydrogen pipe built ahead of demand?

RISK
Capital holds back, or pipe is built ahead of demand.

OPTIONS
Risk could be shared explicitly, as in Germany, or build linked to offtake.

Source: Regulation (EU) 2024/1789; BNetzA WANDA; KfW; Ofgem RIIO-3 Final Determinations; A&M analysis

KEY TAKEAWAYS

Gas, hydrogen and CO_2 each need a different investment case

GAS

A smaller but durable network

Industry and power keep it in use, and value concentrates in hard-to-abate assets

HYDROGEN

Volumes arrive after 2035

Utilisation and funding are the main risks

CO_2

A way to keep gas in use

Storage access and contracts set the pace

INFRA & CAPITAL PROJECTS BY ALVAREZ & MARSAL

LEADERSHIP. ACTION. RESULTS.℠

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Alison Tann

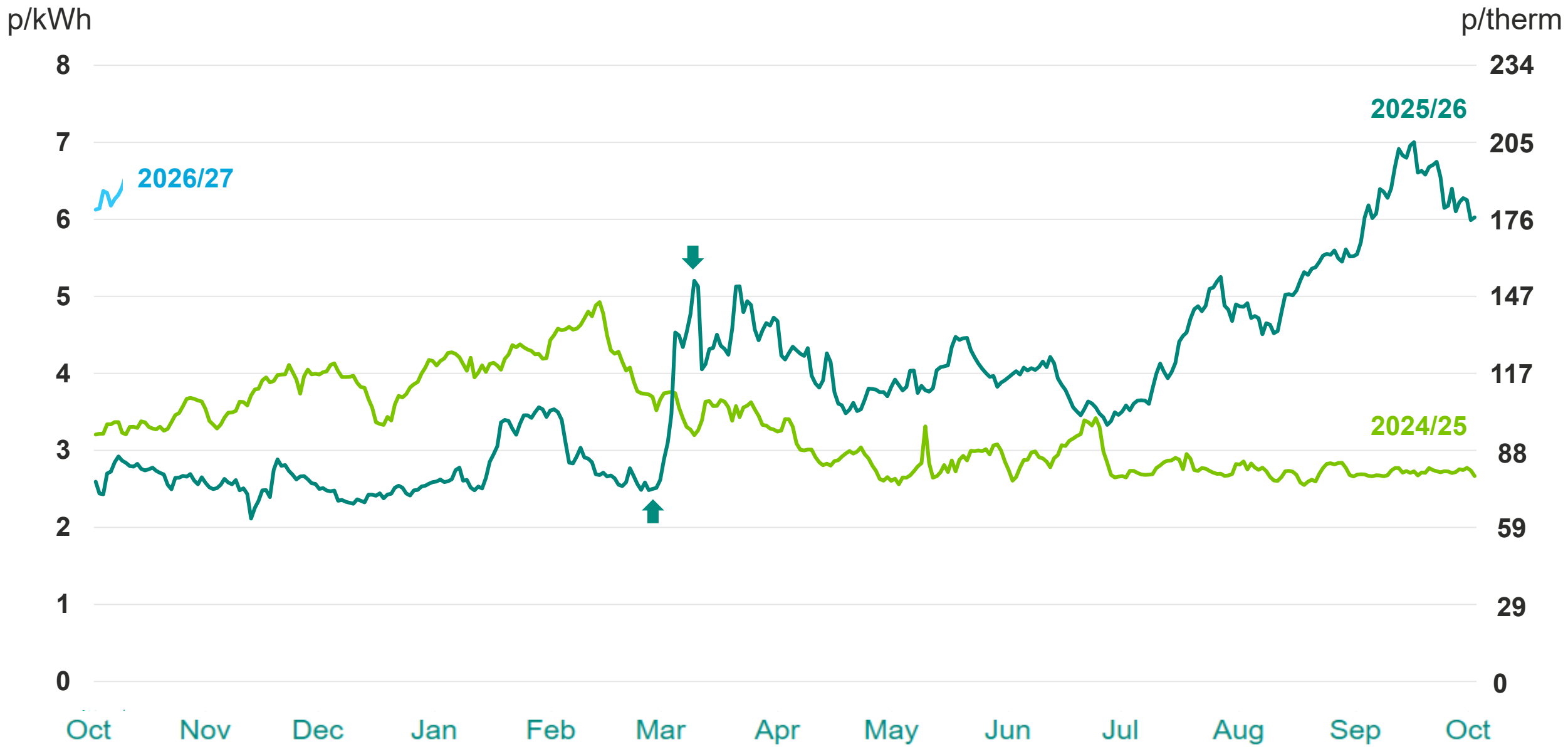
Head of Operational Delivery

Agenda

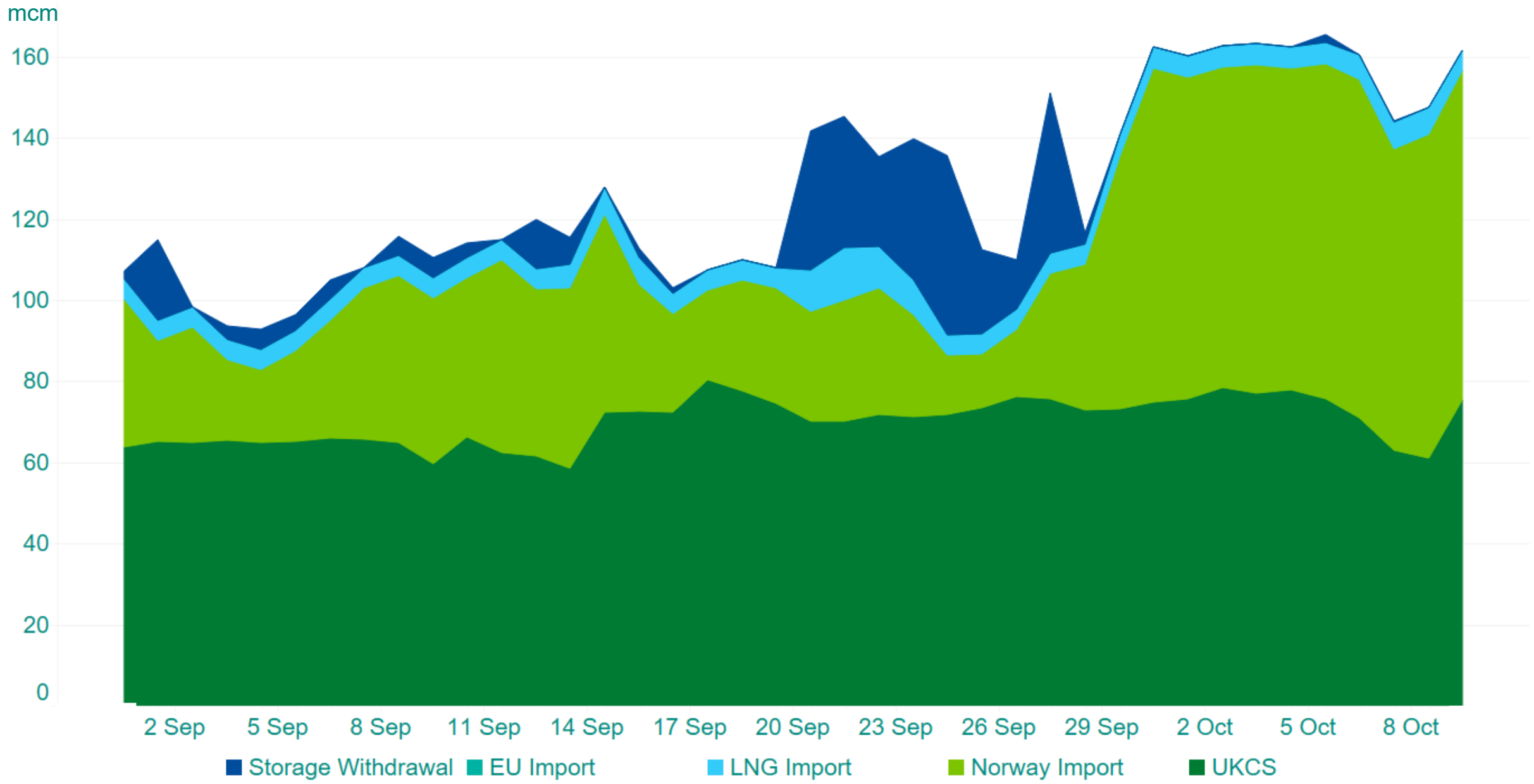
Operational Update

Winter Preparedness

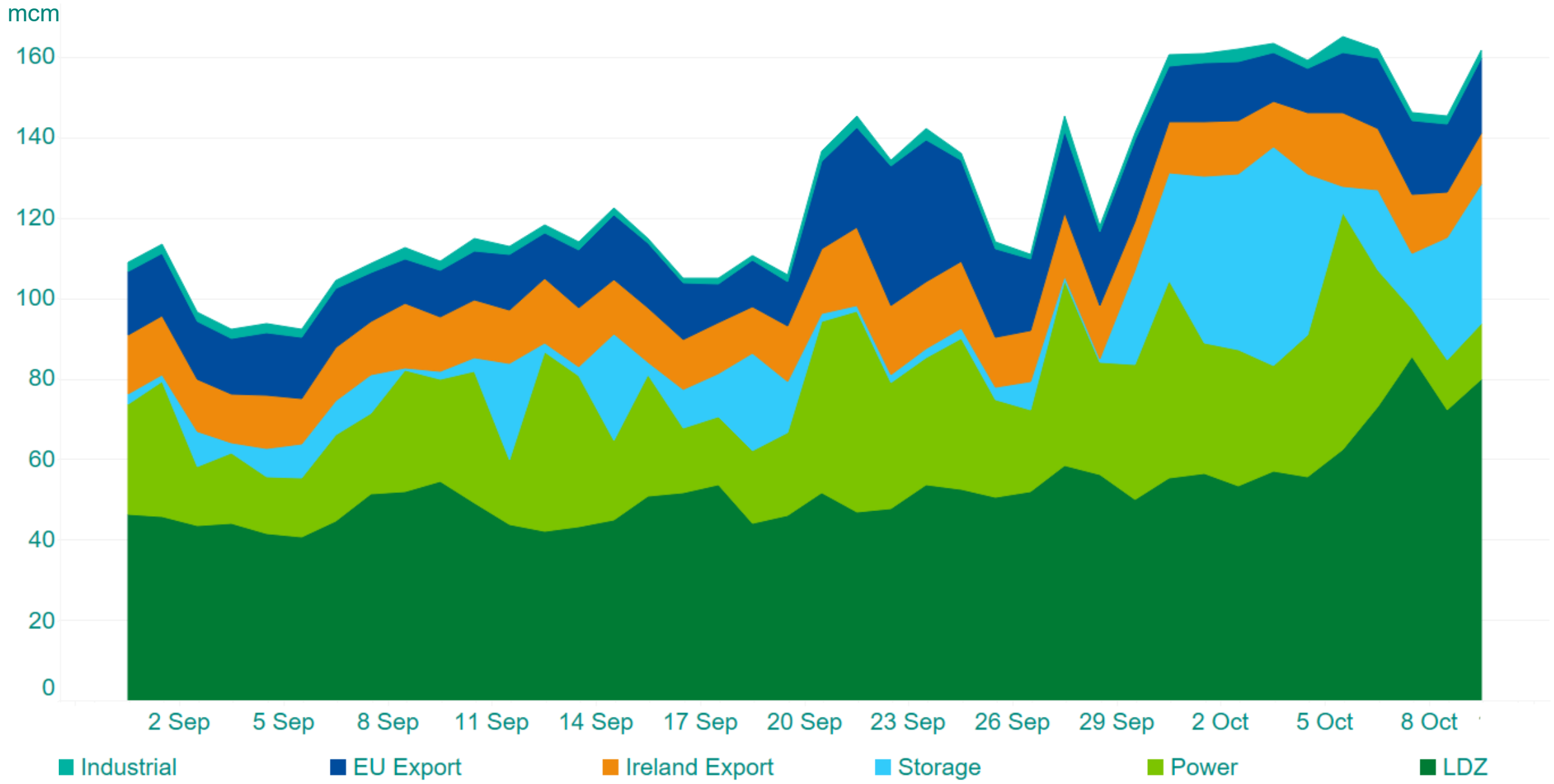
System Average Prices



NTS Supply overview



NTS Demand overview

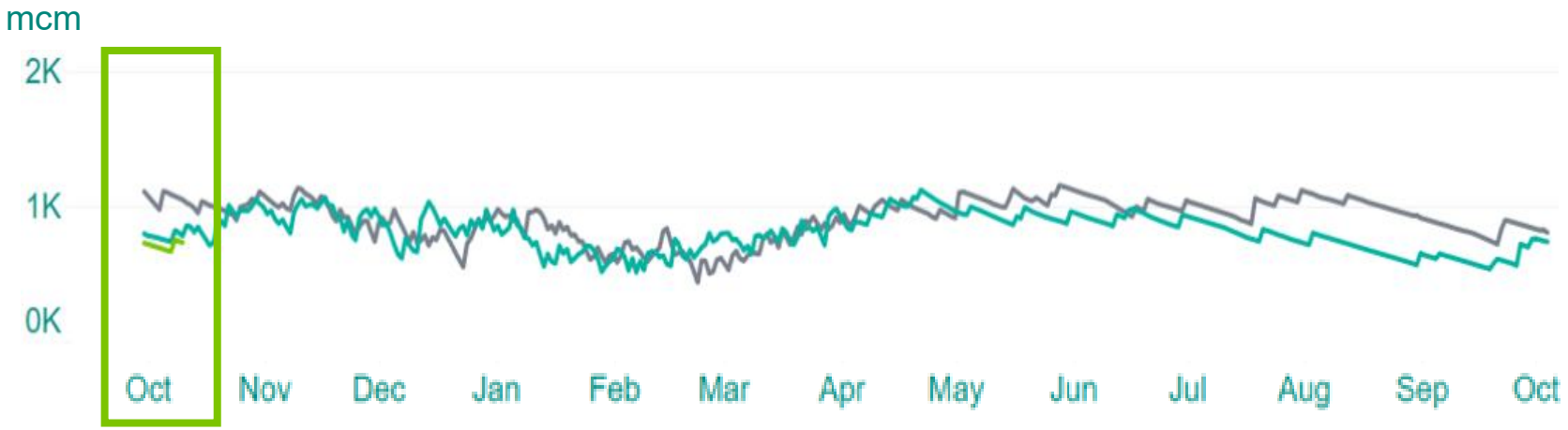


GB and LNG Storage Levels

Total LNG Storage Stock

748 mcm
52% full

- Oct 26
- Oct 25 – Oct 26
- Oct 24 – Oct 25



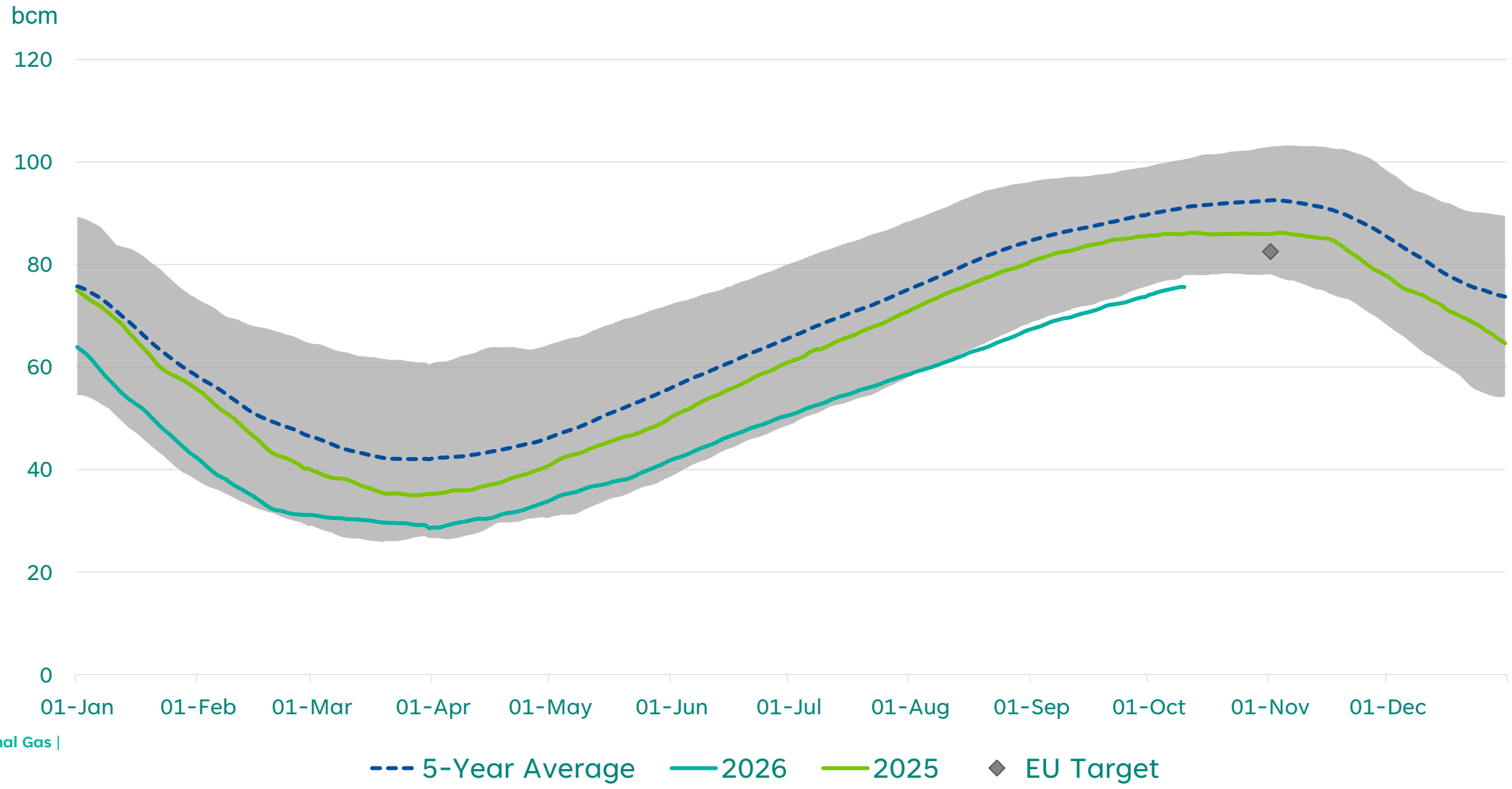
Total GB Storage Stock

1164 mcm
65% full (MRS)

- Oct 26
- Oct 25 – Oct-26
- Oct 24 – Oct 25

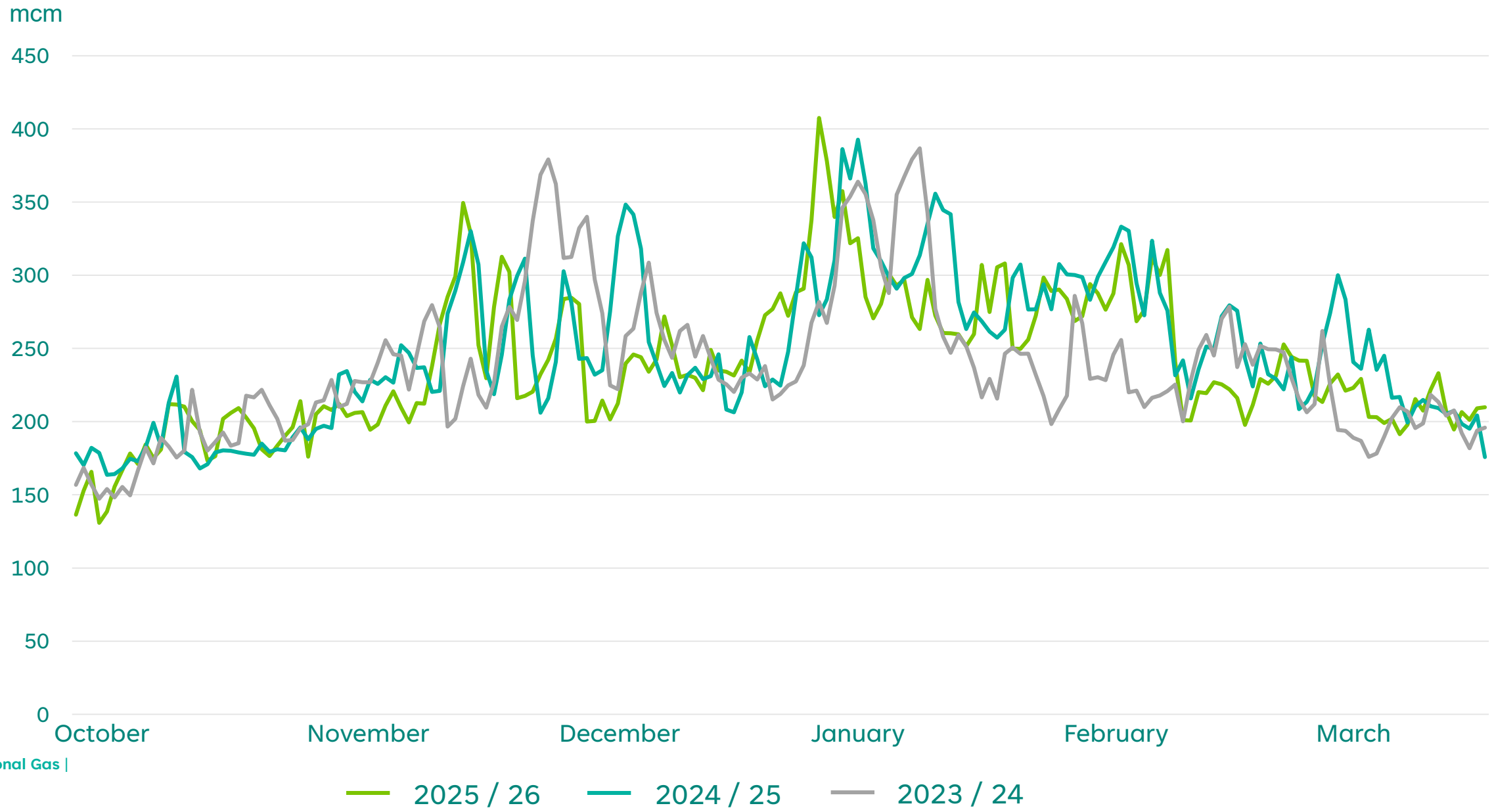
All data from 15:45 11/10/26

EU Storage Levels

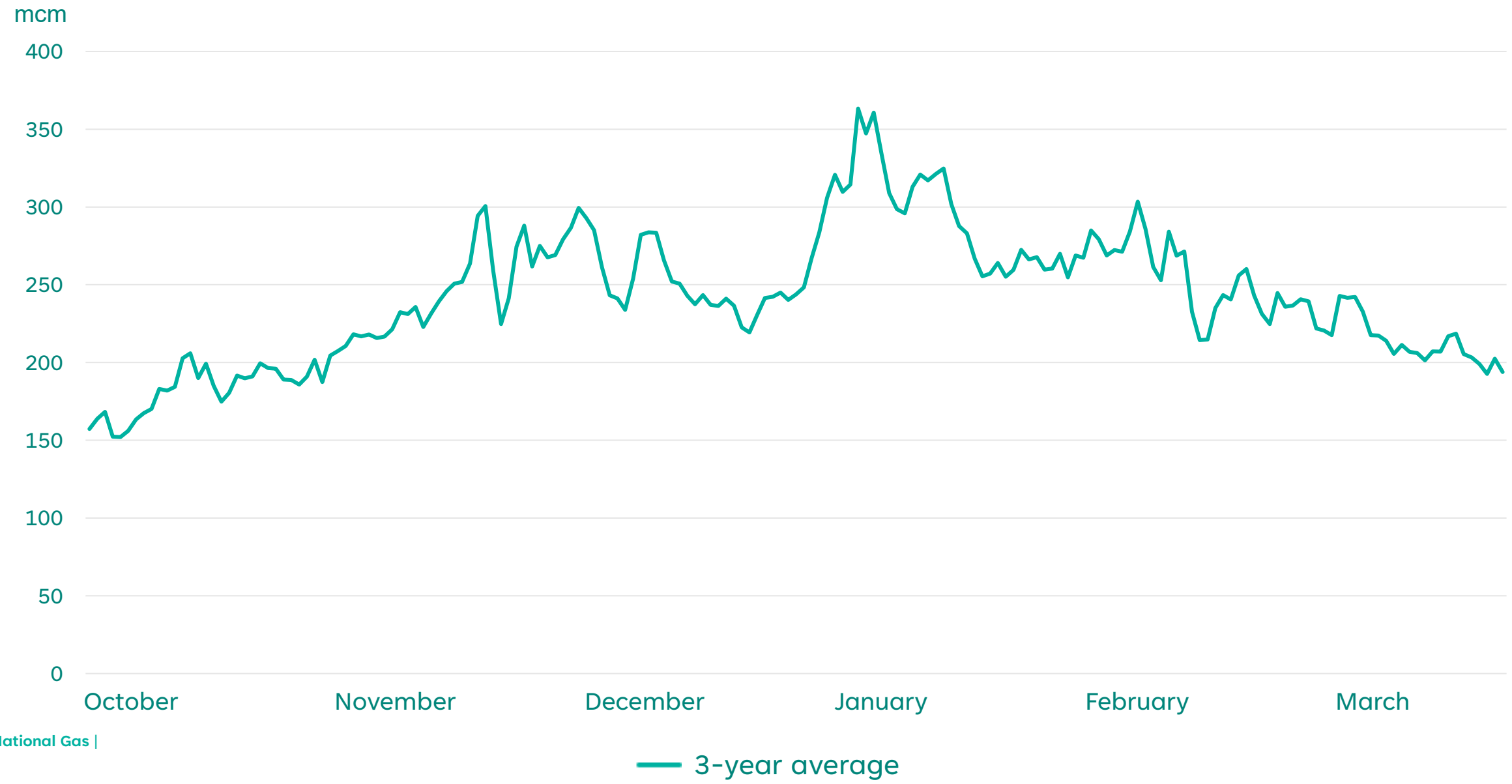


Winter Preparedness

Winter Demand – year on year variation



Winter Demand – daily 3-year average



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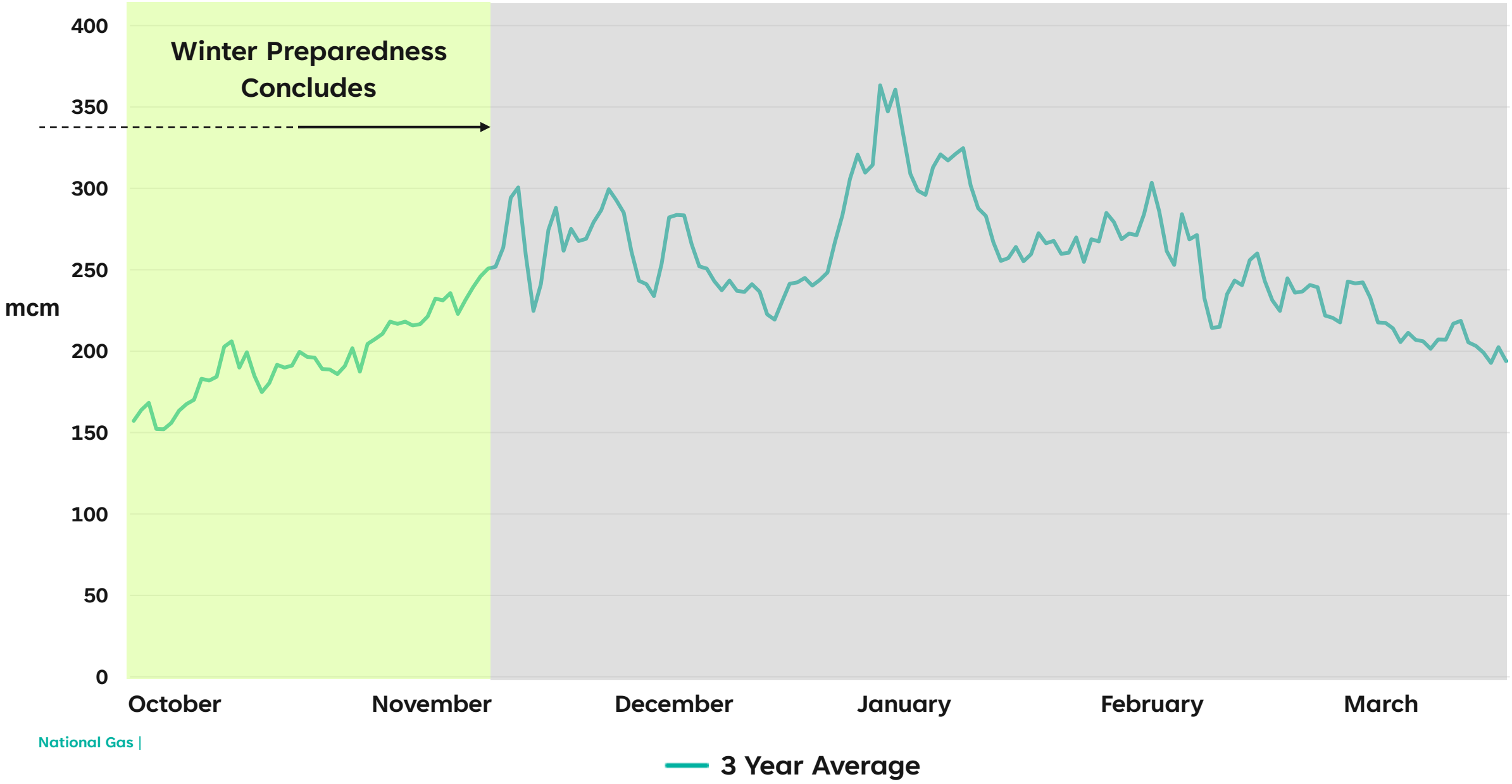
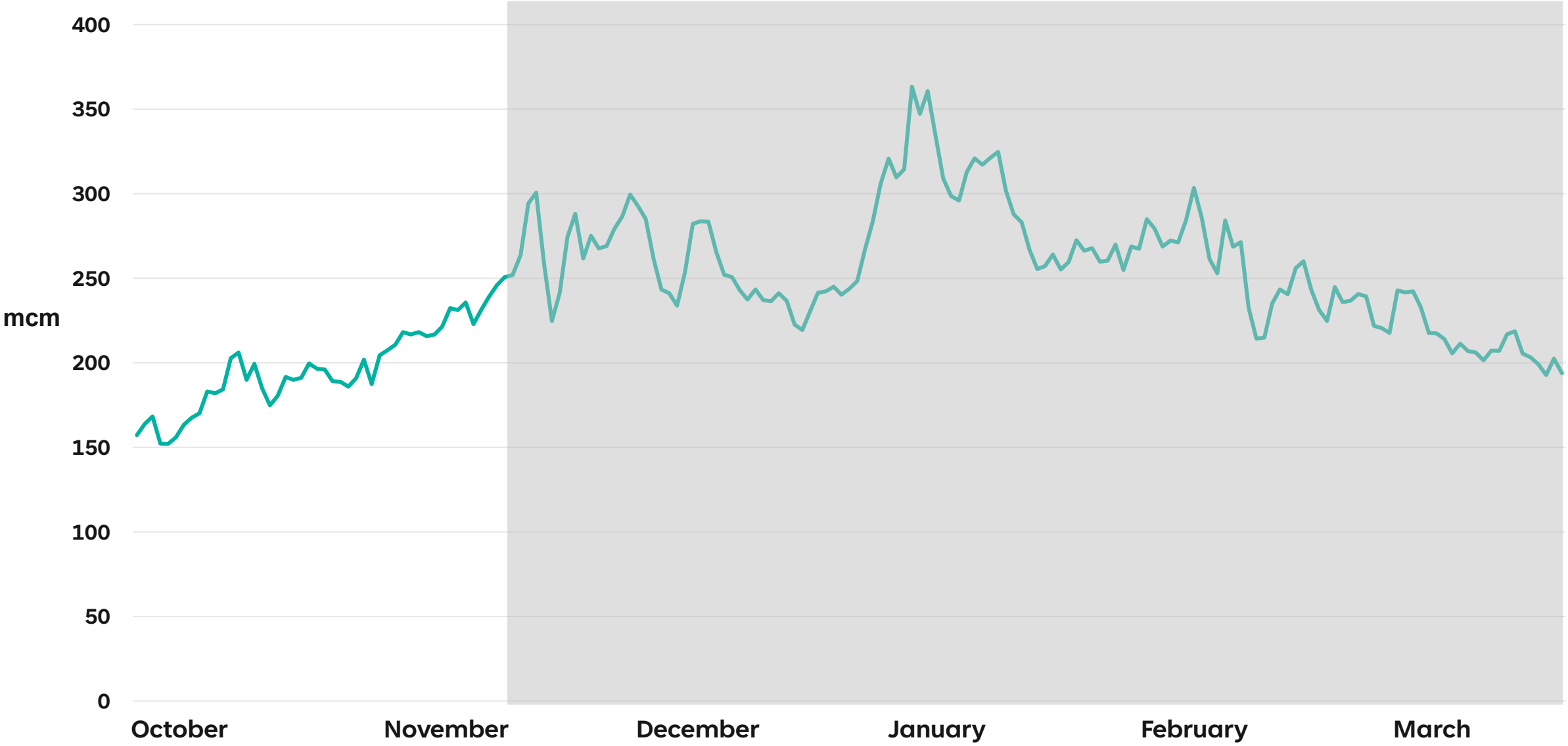
Winter 25/26 preparedness headlines

- Our people are focussed and ready
- Our assets give us operational flexibility
- Our supply mix is diverse, also responsive
- Our commercial strategies are in place

Winter Preparedness – Focus Areas



Winter Preparedness – Focus Areas



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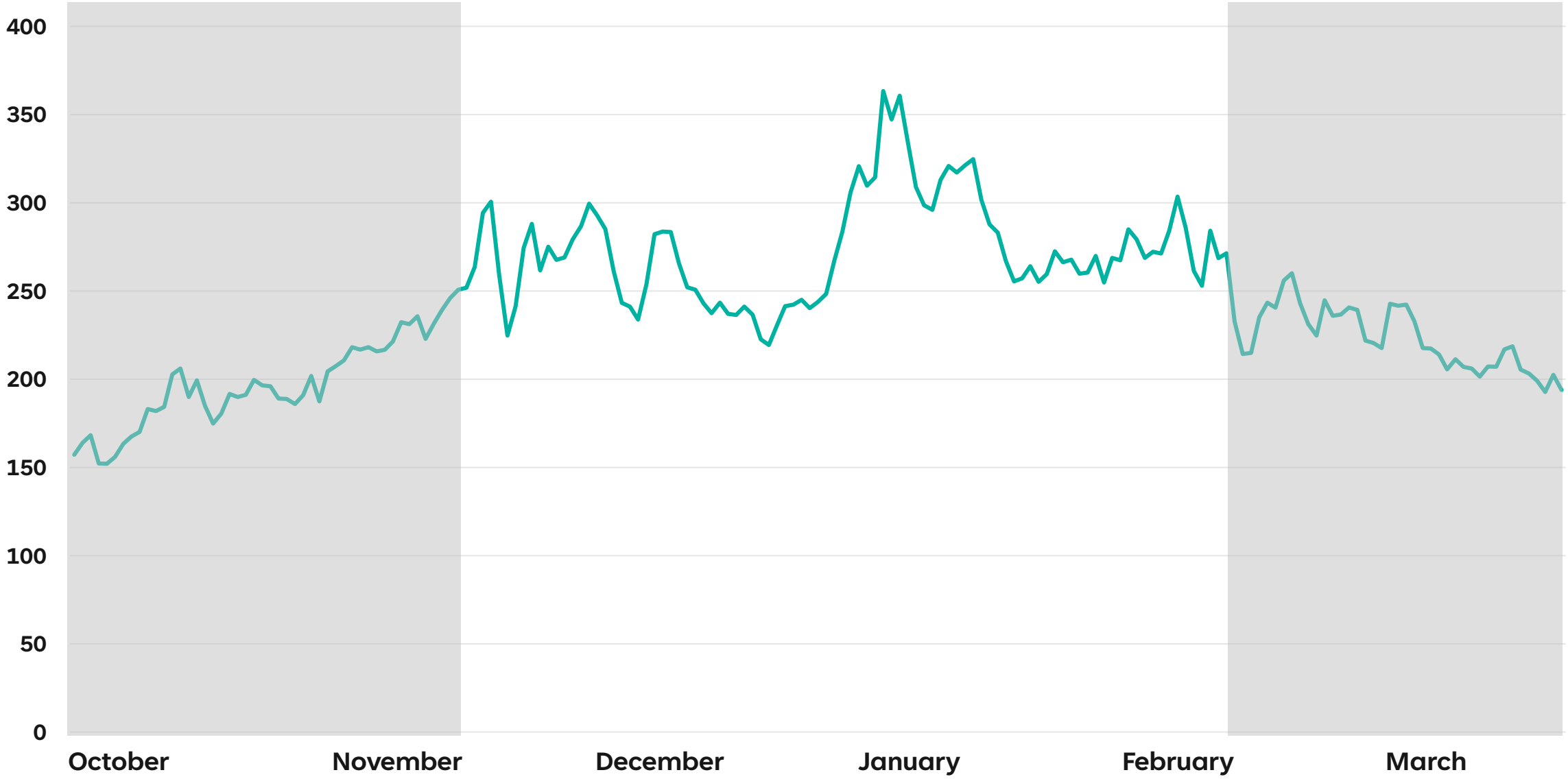
3 Year Average

Winter Preparedness – Focus Areas



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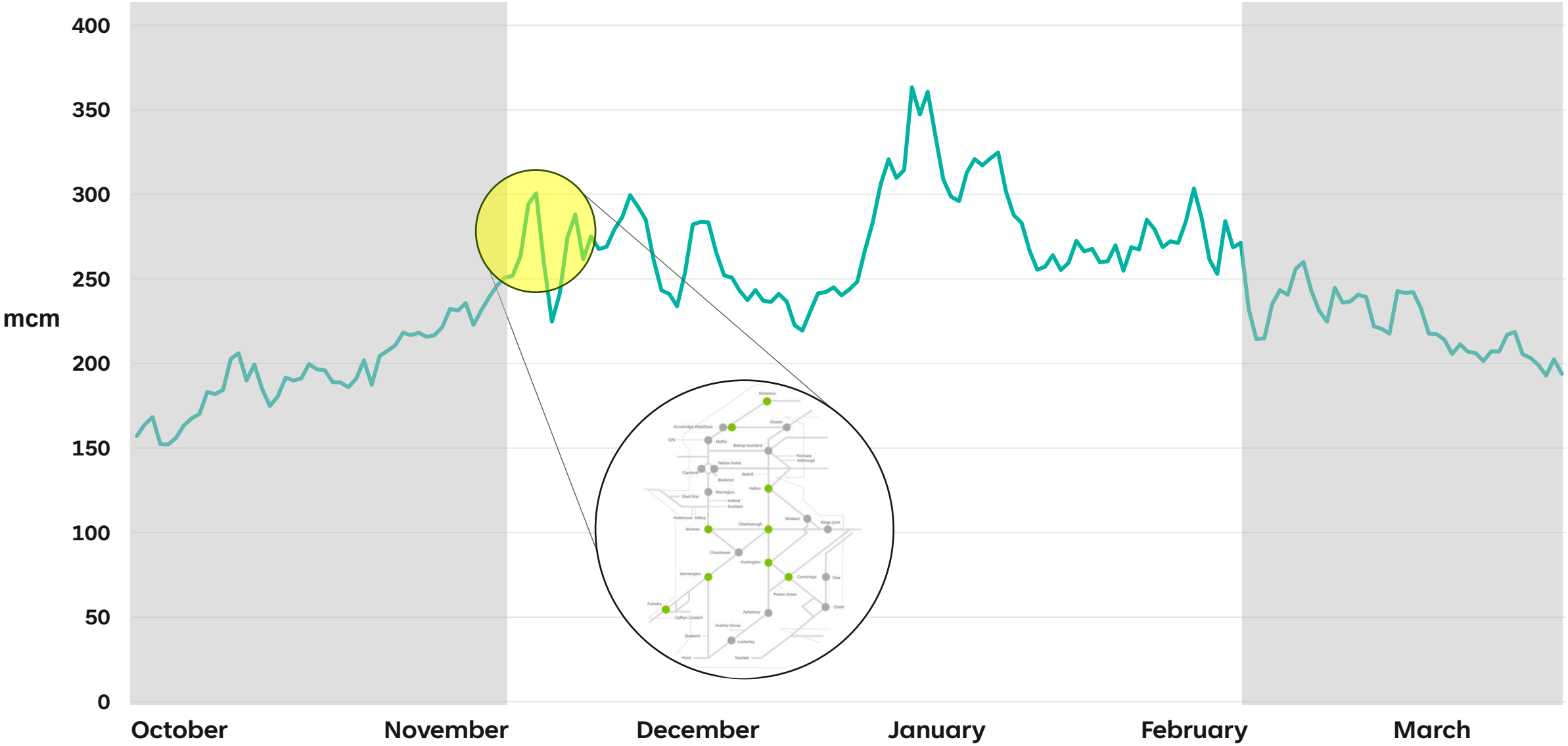
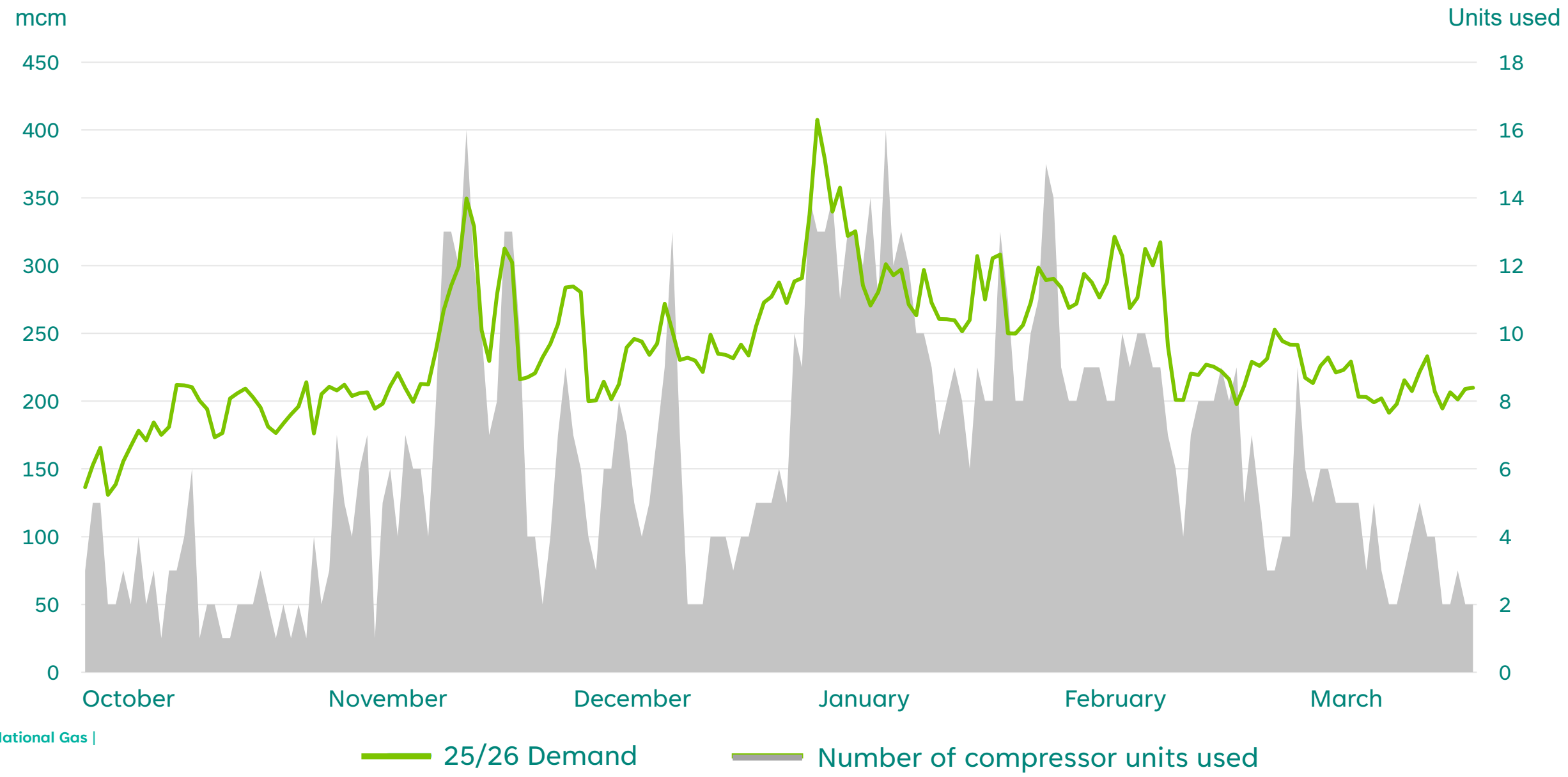
3 Year Average

Winter Preparedness – Focus Areas



Winter 25/26 Demand and Compression



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Up Next: Part II – 11:10

Part II Speakers

Henry Tufnell MP
Member of Parliament for Mid and South Pembrokeshire

Tom Sawyer
Chief Executive Officer

Port of Milford Haven

Alex Froley
Senior LNG Analyst

I·C·I·S

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Henry Tufnell MP

Member of Parliament for Mid and South Pembrokeshire

Q&A with Henry Tufnell MP

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Tom Sawyer

Chief Executive Officer
Port of Milford Haven

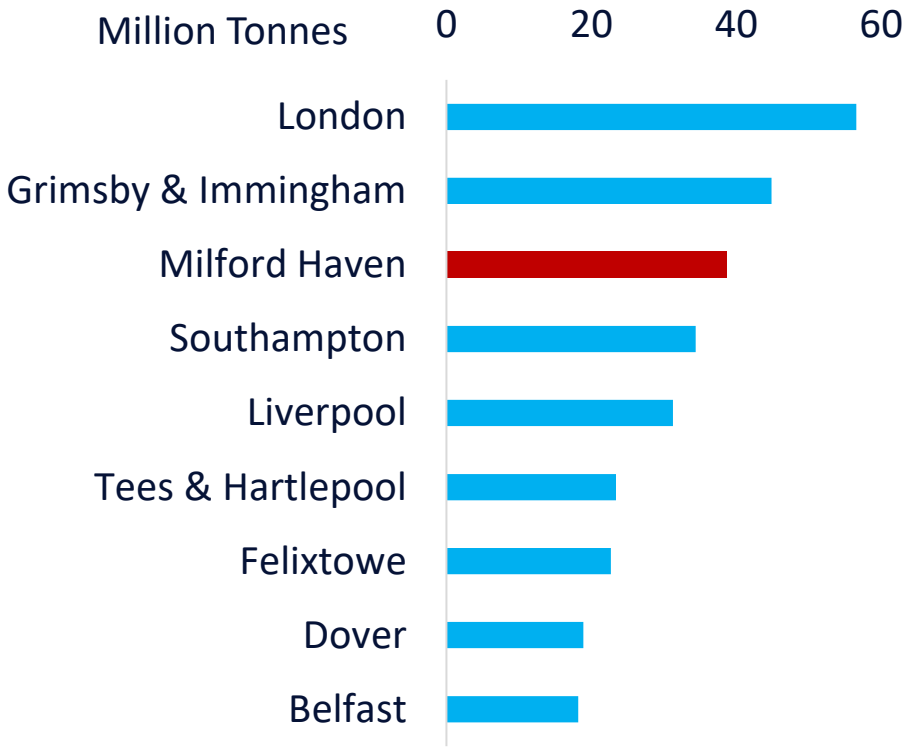
Port of Milford Haven

Energy and Economic Security starts here

Port of Milford Haven

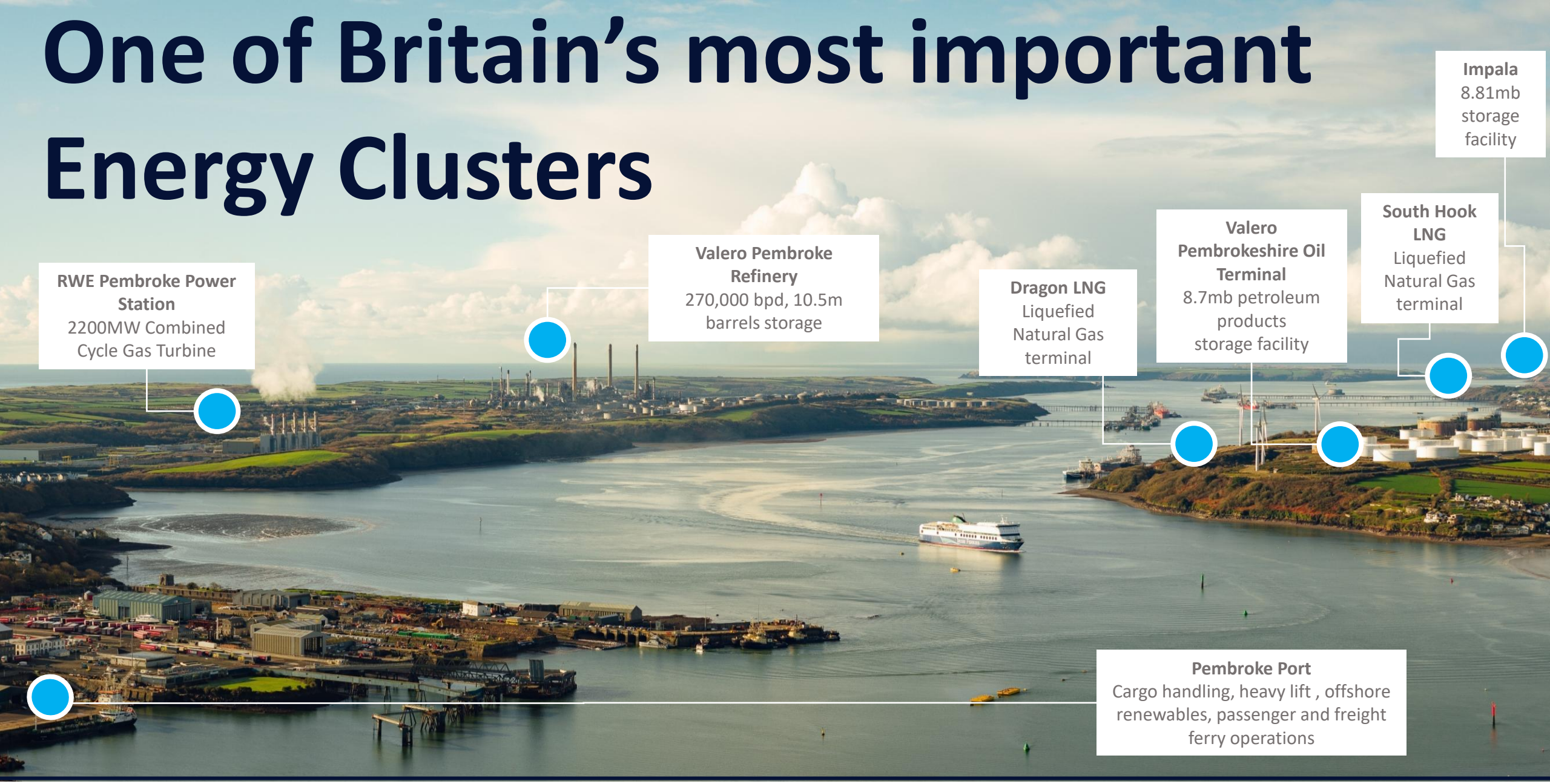
THE UK'S LEADING ENERGY PORT

One Place.
National Significance.



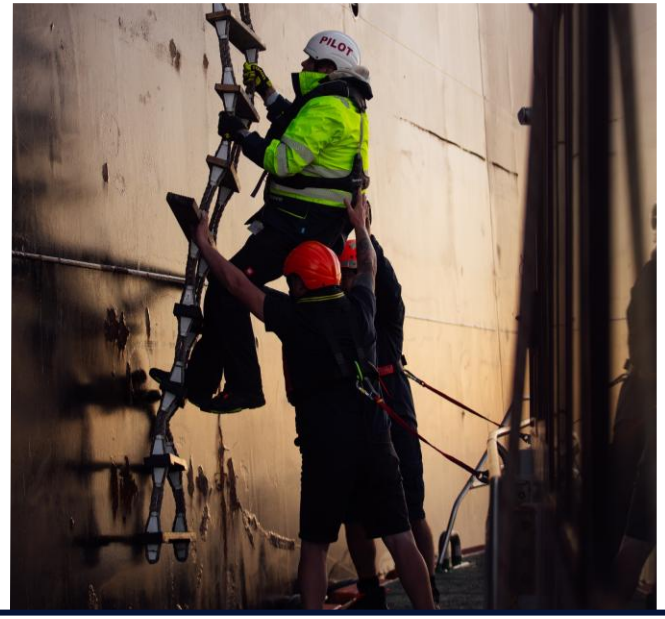
Capacity to supply one third of UK natural gas demand

One of Britain's most important Energy Clusters



~£1bn Economic Contribution
5,000 Welsh Jobs
£60k Average Salary

Energy Security = Economic Security



From Energy Security to Energy Transition

Future Energy System:

- LNG
- Floating Offshore Wind
- Hydrogen
- Sustainable Fuels
- Industrial Decarbonisation

PORTHLADD RHYDD CELTAIDD

CELTIC FREEPORT

RWE Battery Plant

Project Overview:
350 MW Battery Energy Storage System

Pembroke Green Hydrogen

Project Overview:
110 MW Green Hydrogen production facility

RWE Synchronous Condenser

Project Overview:
Grid-stabilising condenser delivering inertia and reactive support for renewables

Milford Haven CO2 Project

Project Overview:
A CO2 storage initiative led by RWE and Dragon LNG

West Wales Hydrogen

Project Overview:
14.2 MW Green Hydrogen production facility

Dragon Renewables Energy Park

Project Overview:
Three new onshore wind turbines, integrated with the existing solar farm

Criterion Quay

Project Overview:
A dedicated marshalling and O&M facility supporting floating offshore wind

Energy Security Has A Geography

Deep Water Harbour
LNG Infrastructure
Oil Refinery
Major Power Generation
Skilled Workforce
Available Industrial Land
Marine Expertise
Future Energy Opportunities

Securing Britain’s Energy Today While Enabling Tomorrow’s

Port of Milford Haven

THE UK’S LEADING ENERGY PORT

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Alex Froley

Senior LNG Analyst
ICIS

National Gas Energy Forum, 15 October 2026

How Global LNG Markets will Impact Europe this Winter

Alex Froley
Senior LNG Analyst, ICIS
Alex.Froley@icis.com

Part 1: The Strait of Hormuz

The Strait of Hormuz remains *mostly* shut for LNG

Normally up to around 90 cargoes per month cross the Strait of Hormuz from Qatar and the UAE.

This fell to as low as six to seven cargoes per month crossing Hormuz during March-August. Numbers were increasing in recent weeks.

Three LNG tankers with Qatari cargoes have reportedly been hit by Iran, the *Al Rekayyat* the *Gaslog Shanghai* and the *Maran Gas Mystras*, in July, August and October.

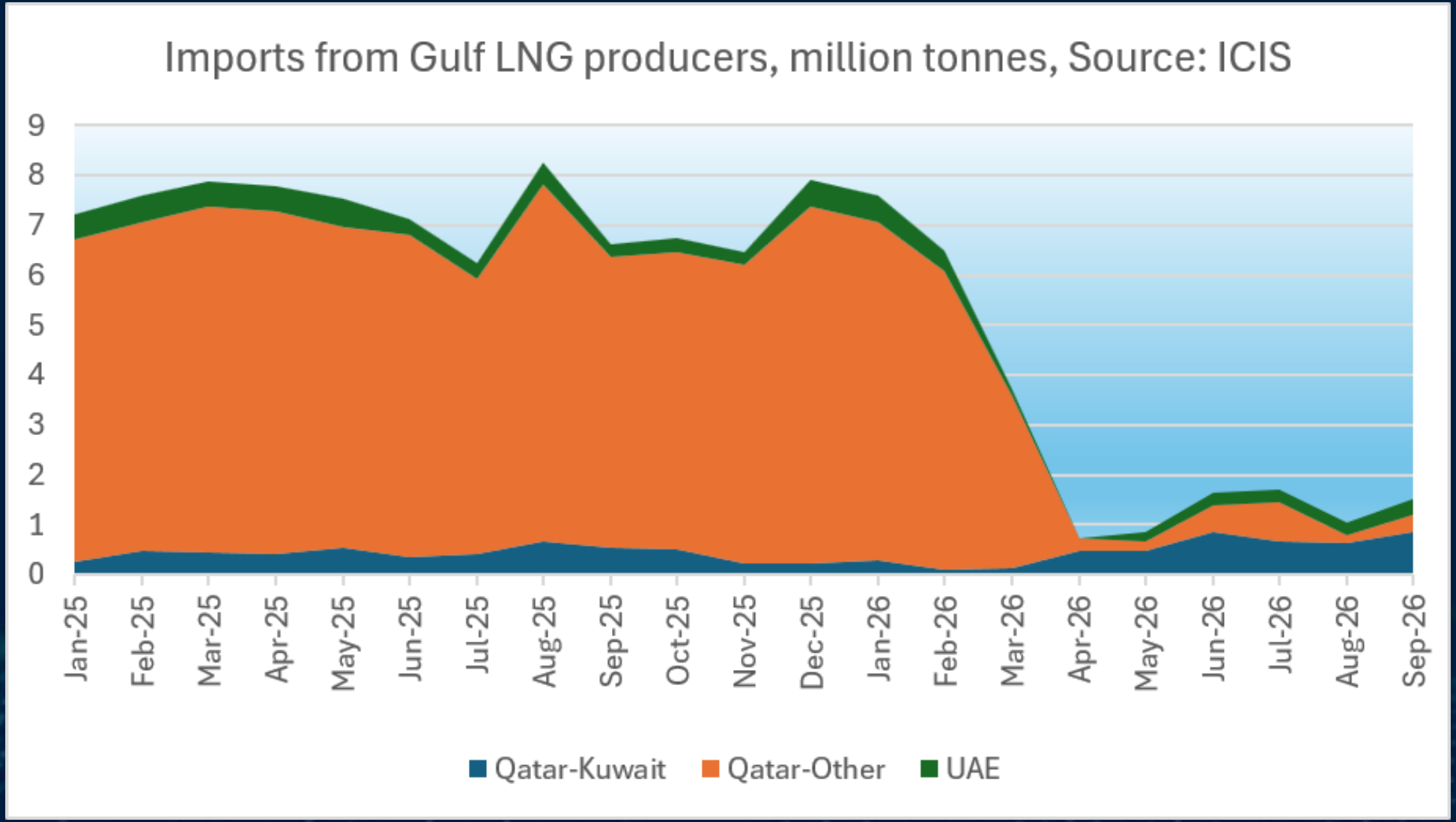
QatarEnergy has 14 trains, two damaged in March

	(Former Qatargas)	(Former RasGas)
	QatarEnergy North	QatarEnergy South
Train 1	3.3	3.3
Train 2	3.3	3.3
Train 3	3.3	4.7
Train 4	7.8	4.7
Train 5	7.8	4.7
Train 6	7.8	7.8
Train 7	7.8	7.8
Total	41.1	36.3

Qatar has fourteen trains, divided into two production complexes. Capacity shown in mtpa.

QatarEnergy North shown in yellow
QatarEnergy South shown in blue

Collapse in Gulf LNG exports to low levels



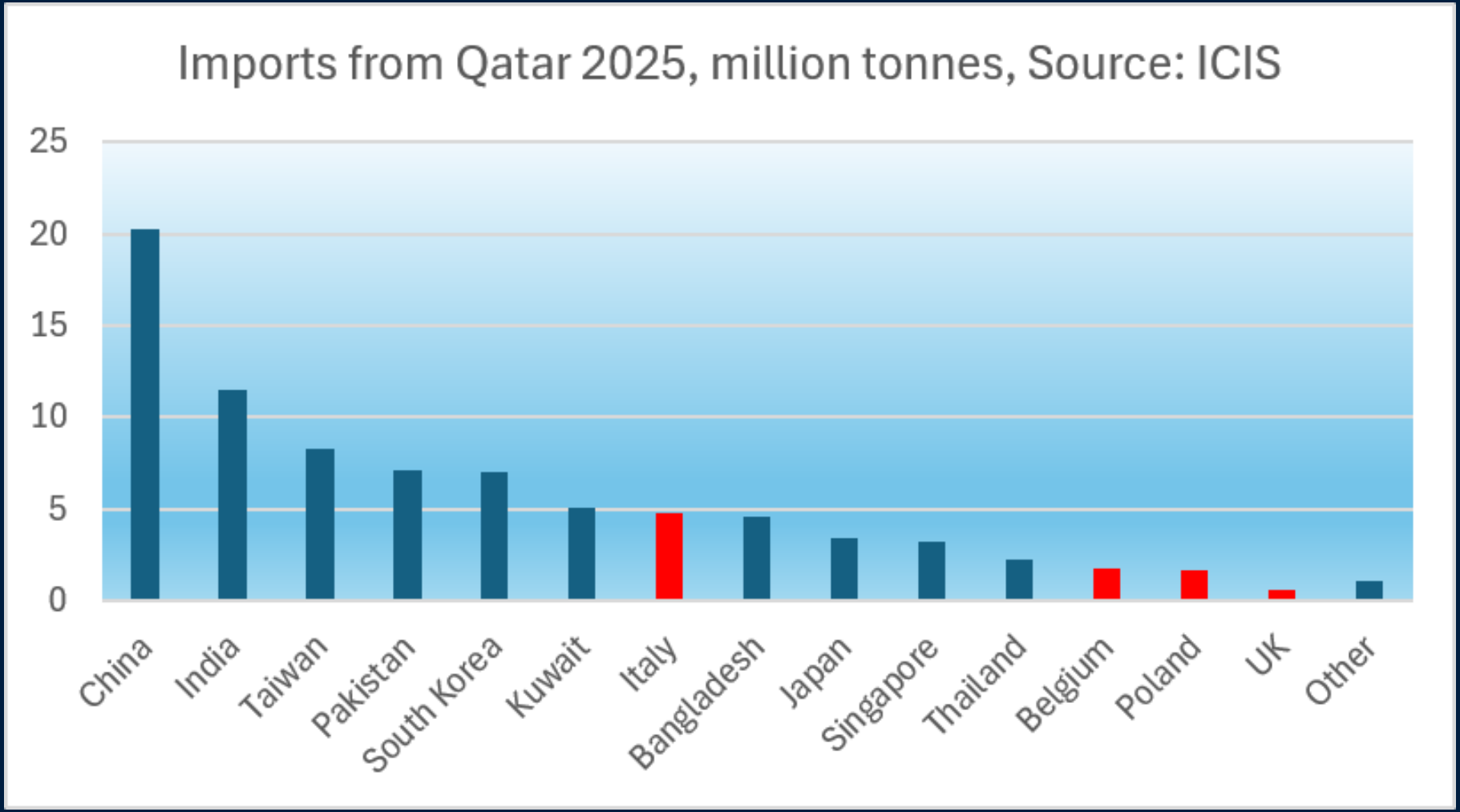
QatarEnergy CEO’s latest comments

- “Qatar is ready to resume normal operations within a few weeks of the reopening of the Strait of Hormuz.”
- Two damaged LNG trains will take three years to repair.
- LNG can’t be sent by bypass pipelines to Oman. This would require new liquefaction. “This makes no economic sense”.
- “In the very near future, we will be the largest LNG trader in the world by far.”
- US Golden Pass trains 2 and 3 are due “in full operation” next year.

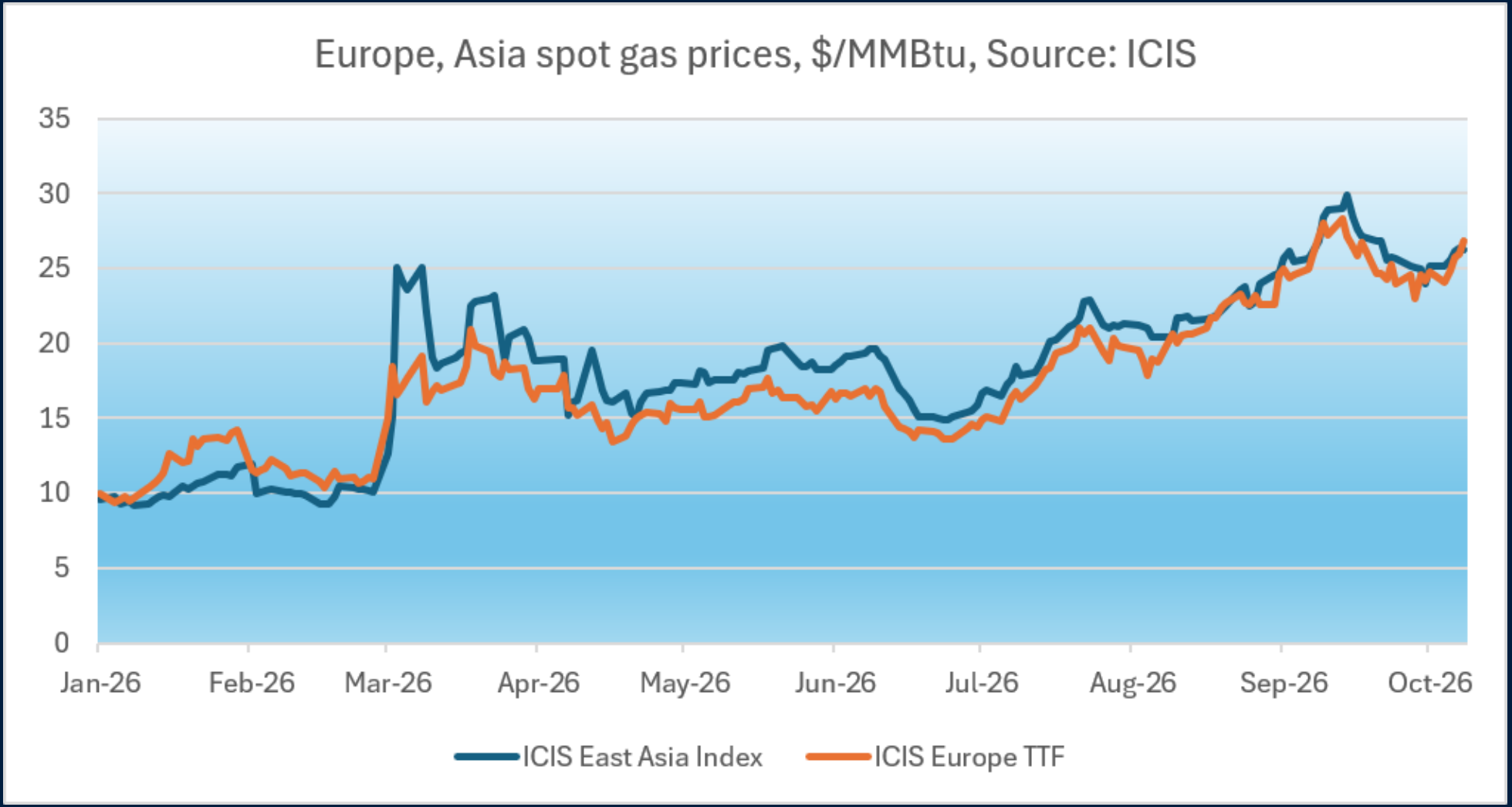
QatarEnergy CEO Saad Sherida al-Kaabi, speaking at the Qatar Economic Forum in New York on 20 September 2026

Part 2: Global supply/demand changes

Qatar’s exports were focused mainly on Asia



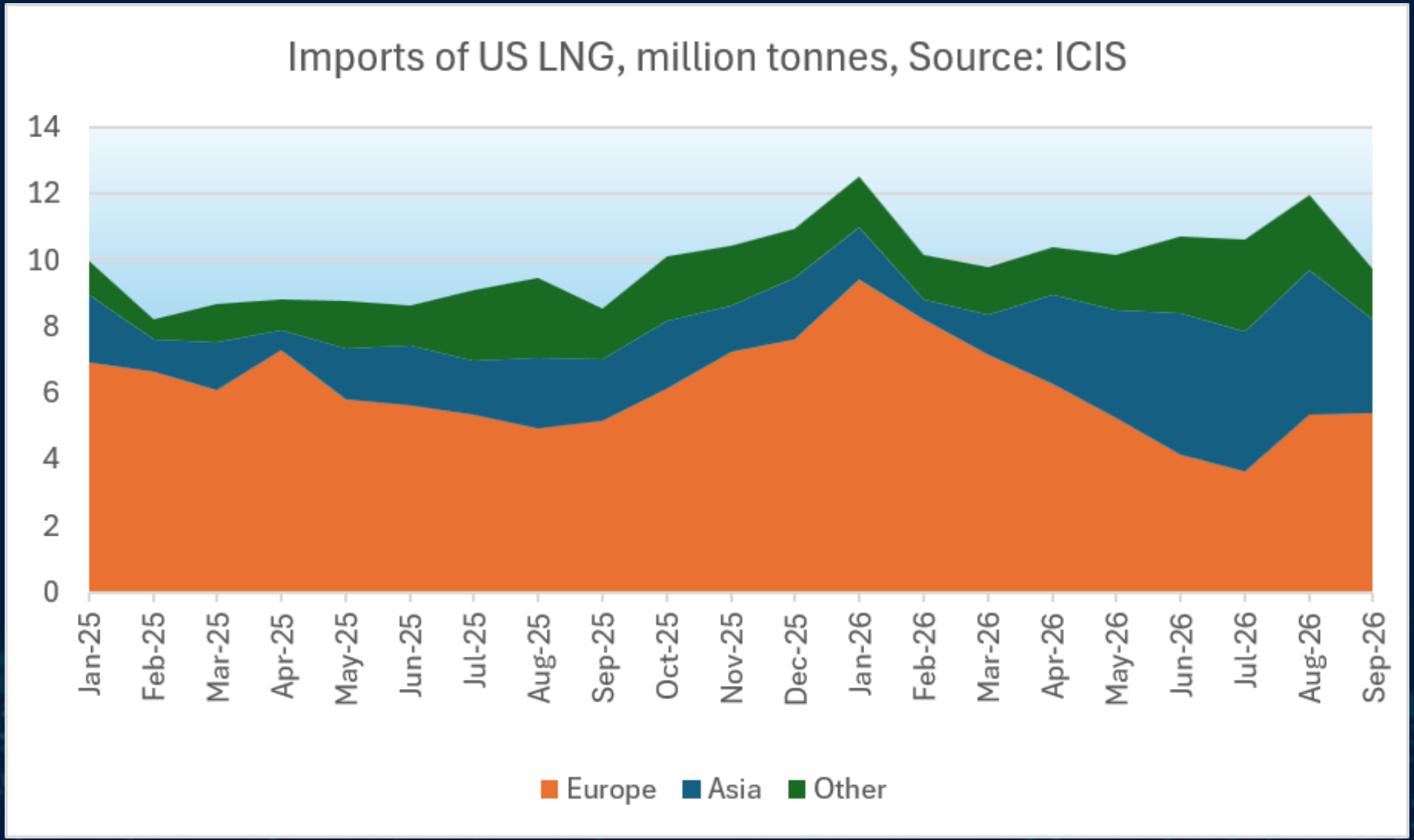
Asia holds premium over summer, Europe rises for winter



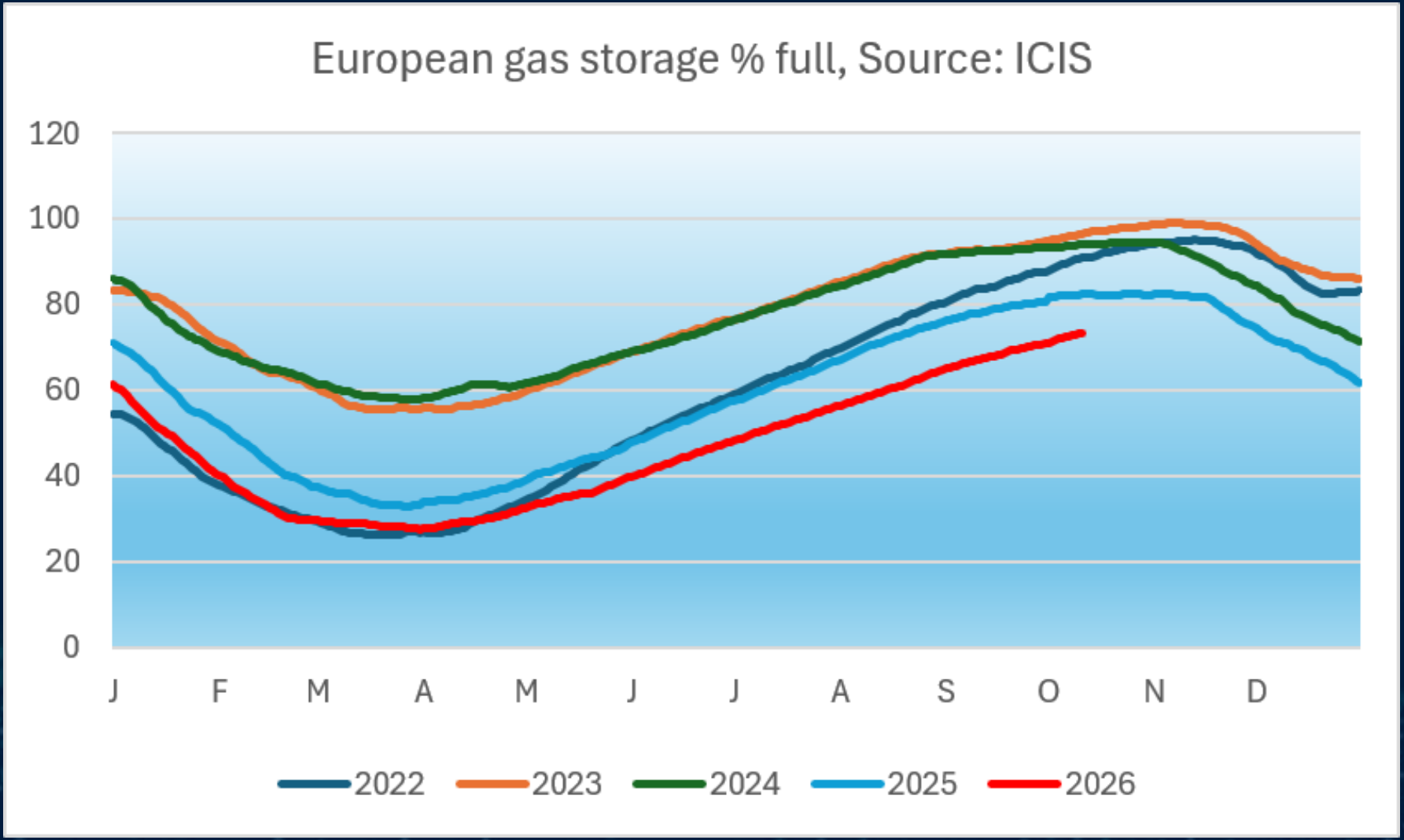
Steady stream of US cargoes heading southeast to Asia

ICIS LNG Edge ship-tracking

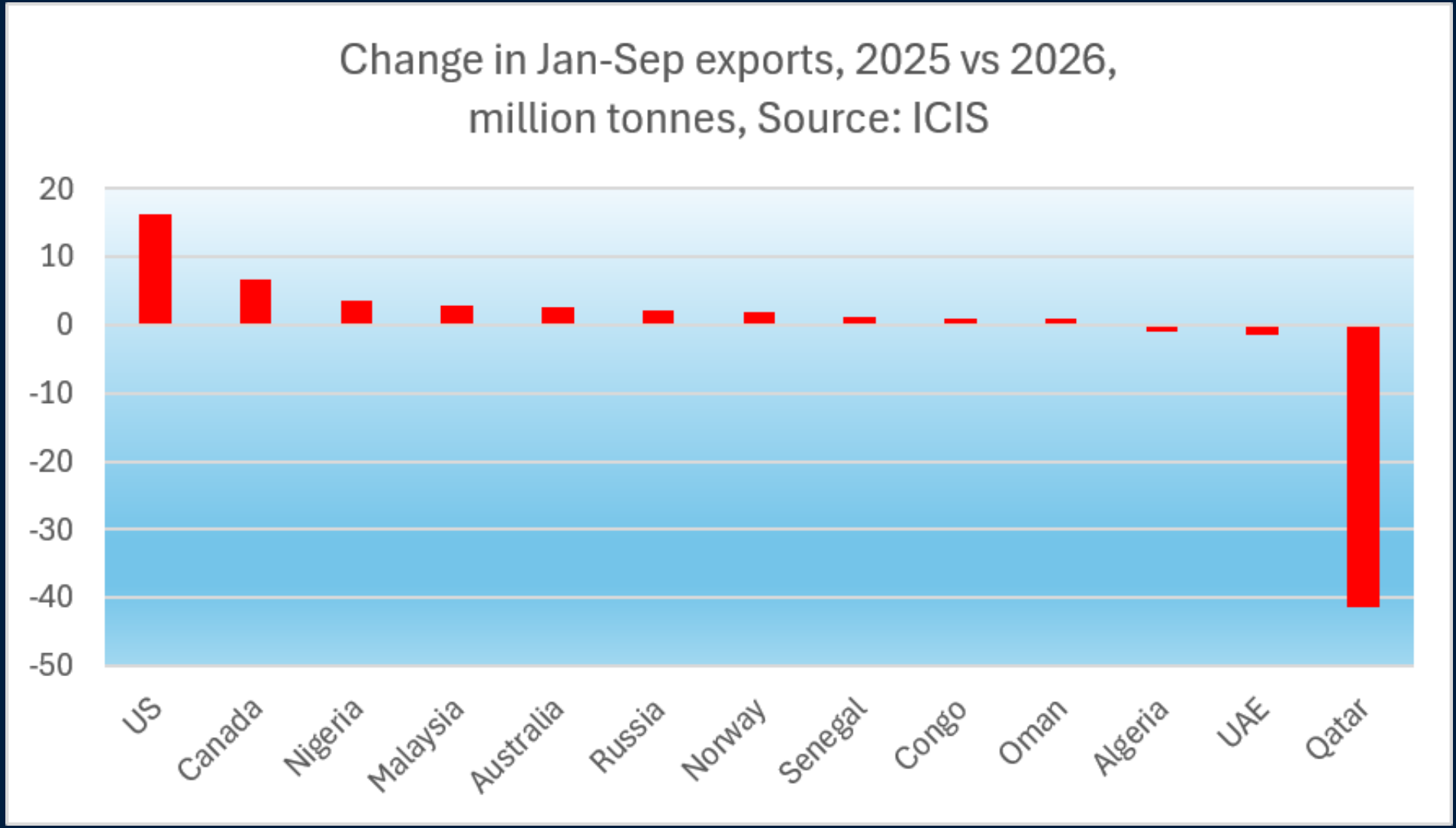
Asia takes increased share of US cargoes over summer



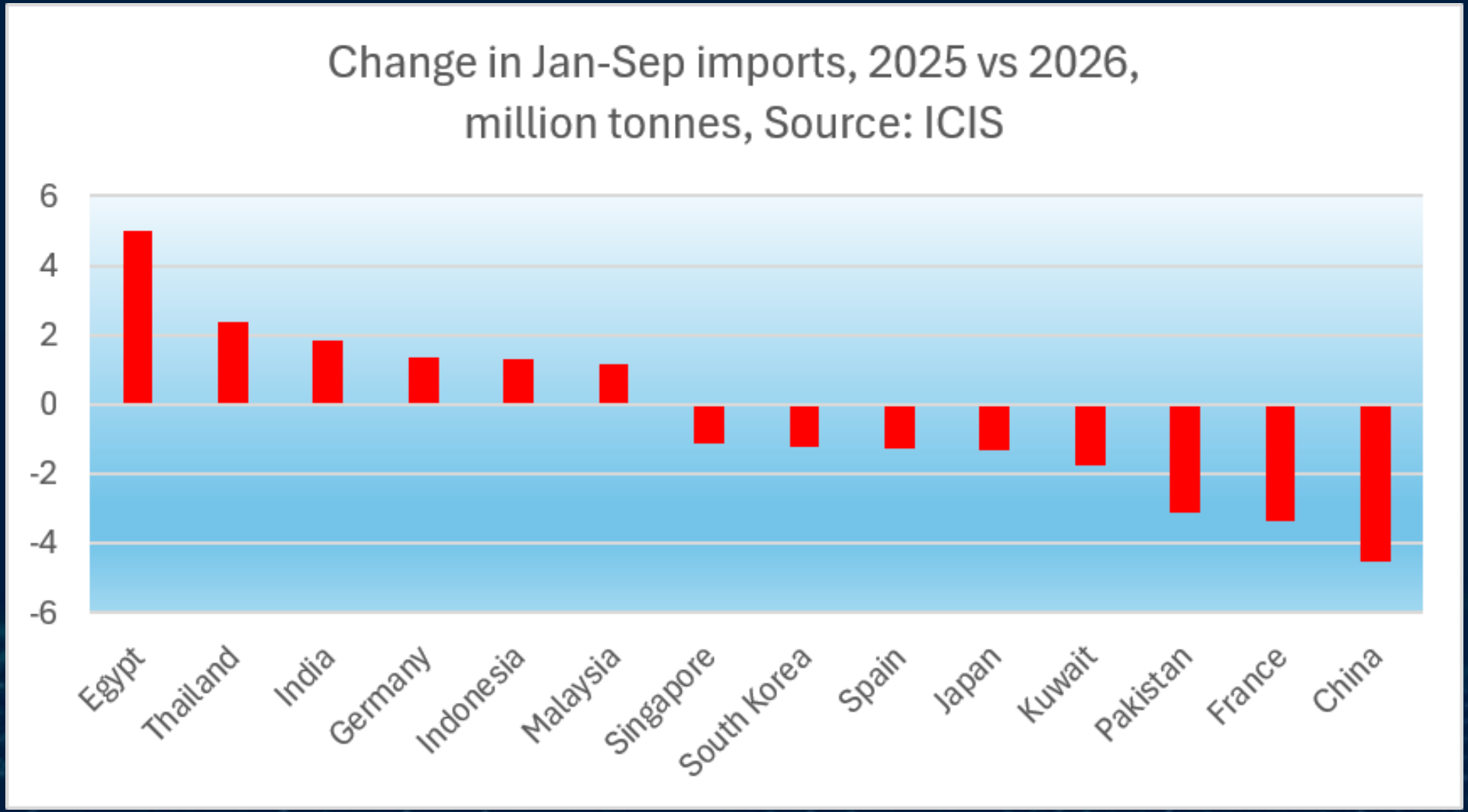
Europe’s lost summer share limits storage injections



Changes in global supply: North America helps offset Qatar

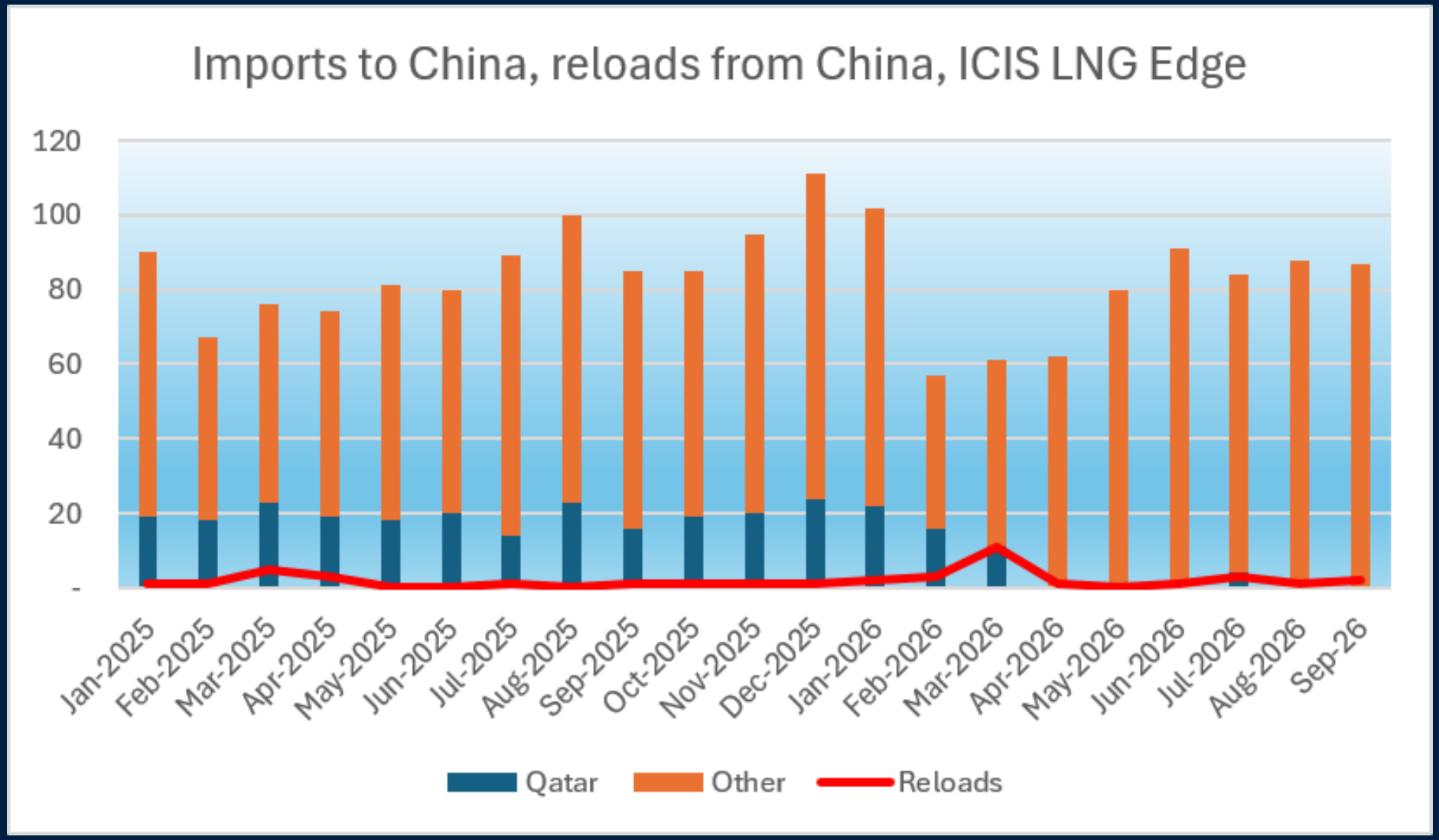


Changes in global demand: Egypt grows as others fall

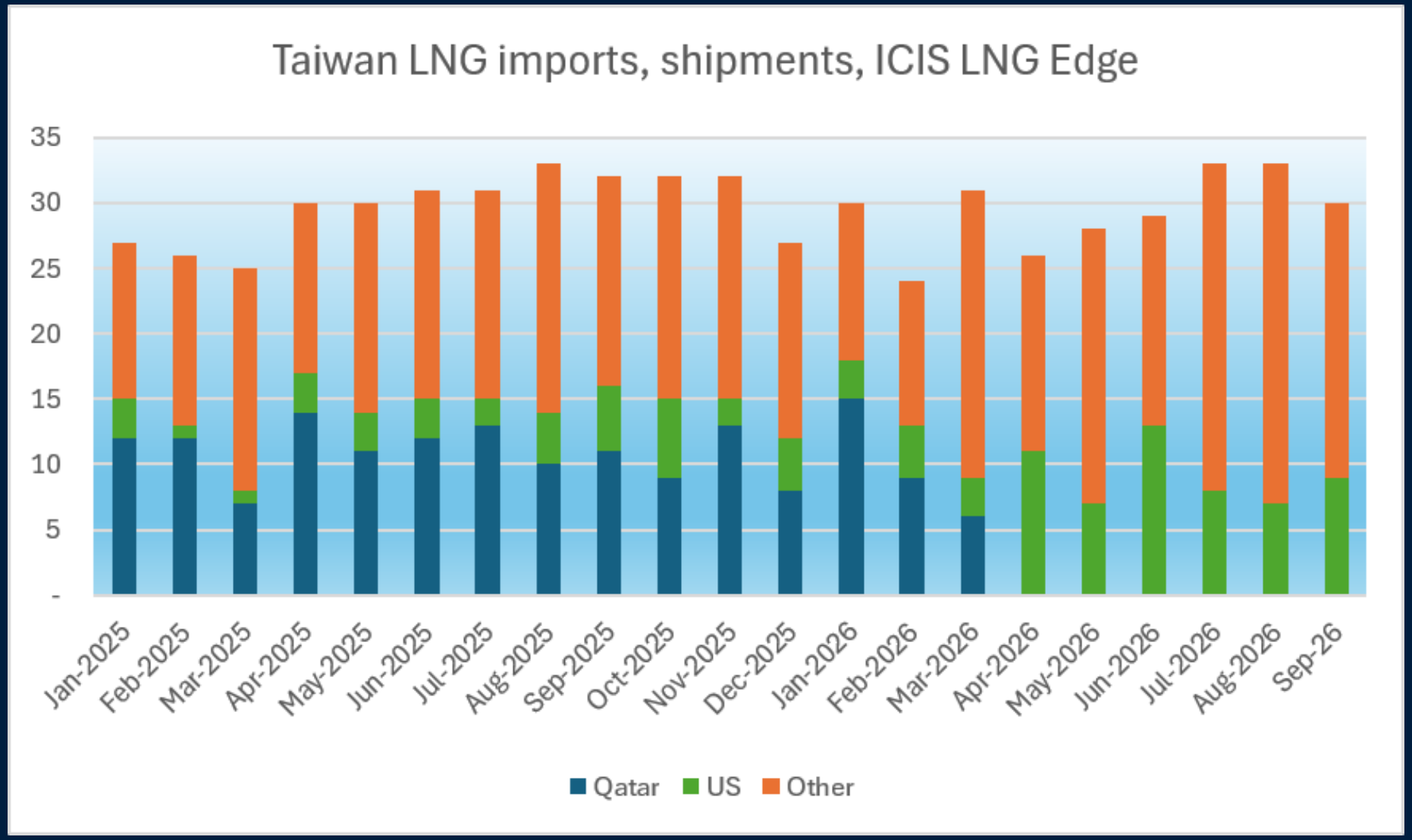


Part 3: Demand in Asia

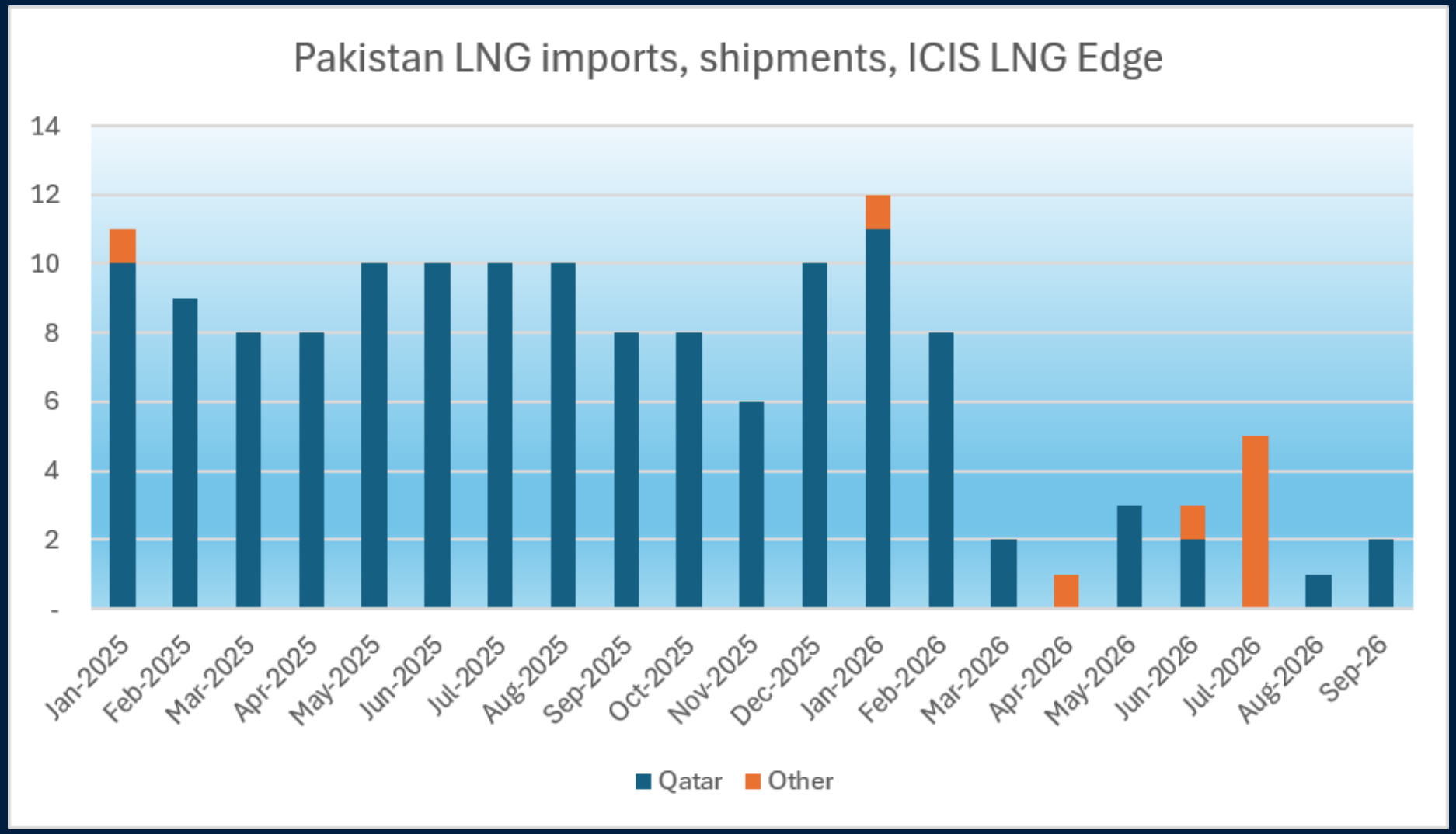
China … demand falling before Hormuz closed



Taiwan, high exposure, replaced by spot purchases

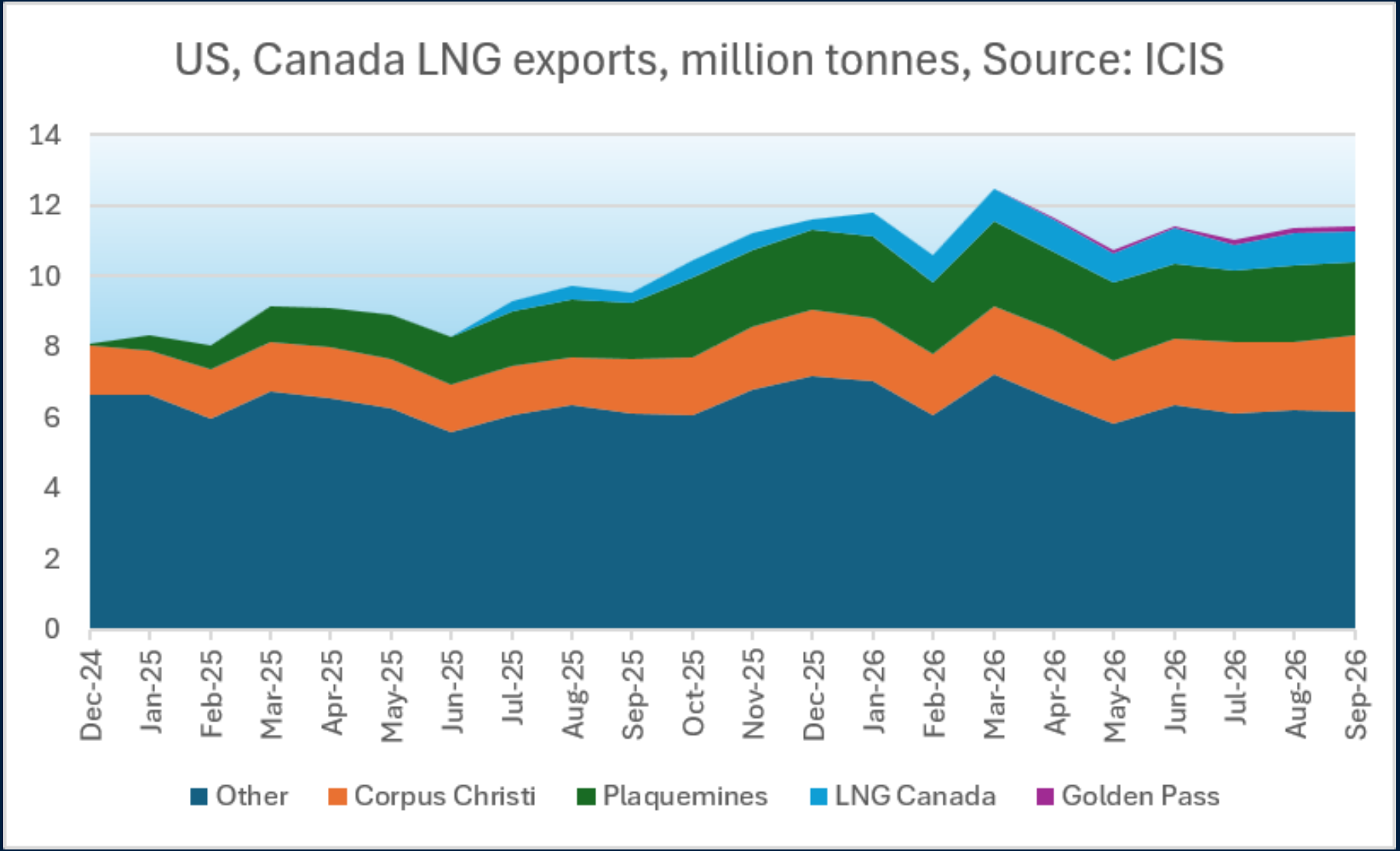


Pakistan, very highly exposed, energy shortages

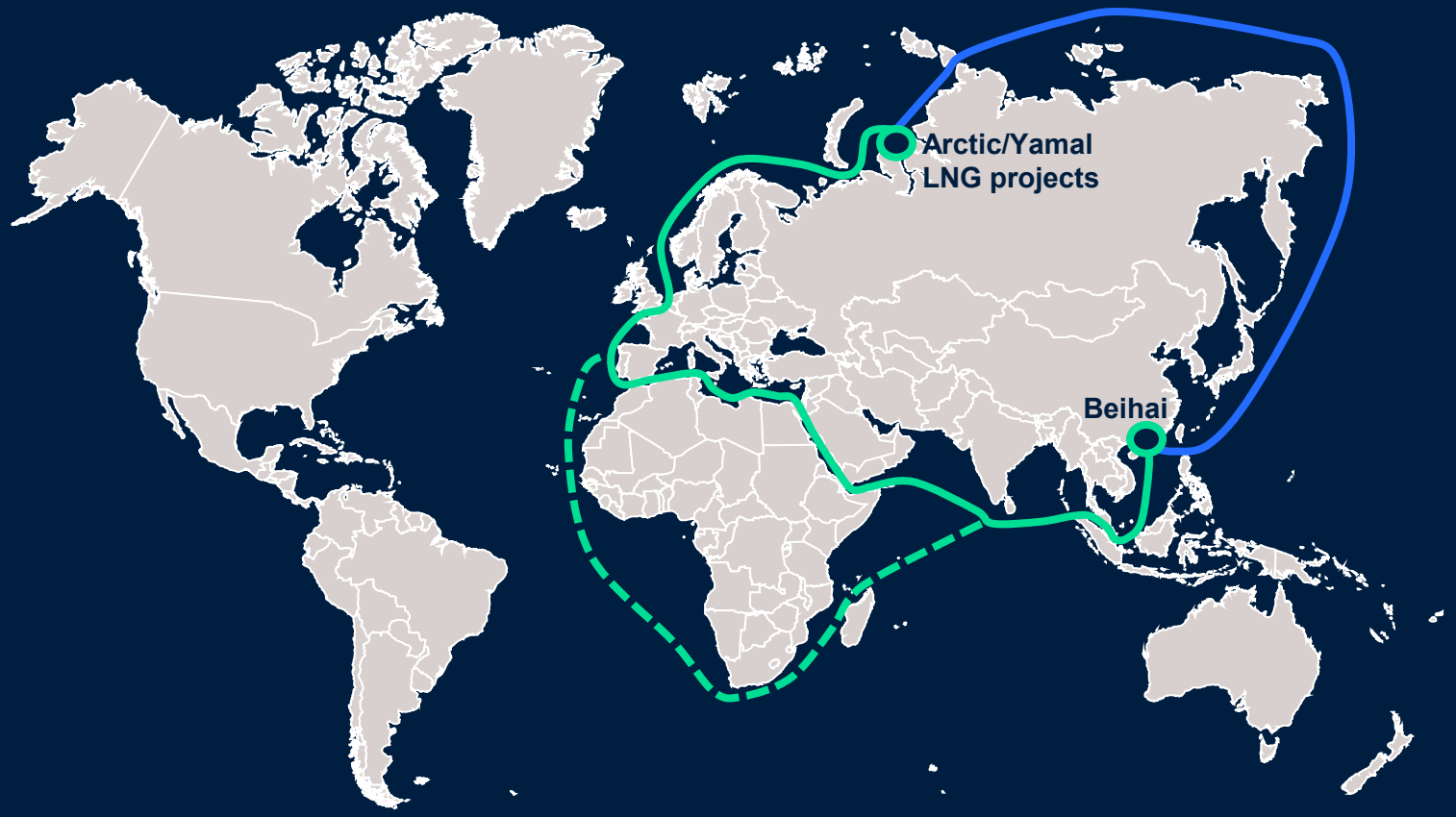


Part 4: Alternative supplies

North American growth has helped partly offset Qatari losses



Russian LNG faces logistical challenges from sanctions



- The Northern Sea Route (blue) through the Arctic to Asia is only available for half the year, around June to December.
- The sanctioned Arctic LNG 2 project has faced restricted output due to the long delivery chain to its only customer at Beihai in China.
- Europe has banned all Russian LNG deliveries to Europe from January 2027, which will force Yamal LNG cargoes to also take longer routes to Asia.

LNG market now shrinking slightly in 2026

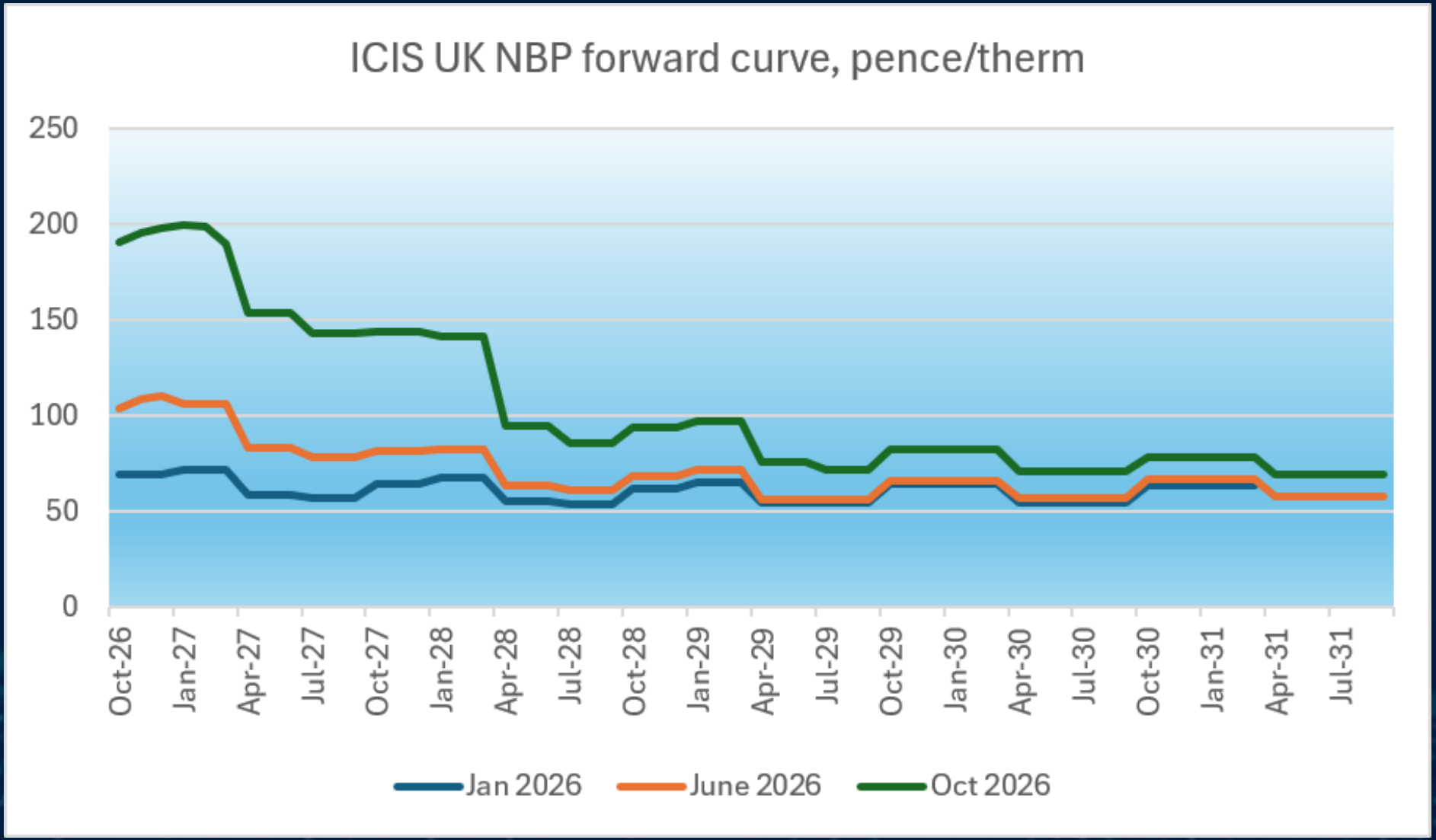
At the start of the year we expected 2026 to be a year of supply growth and a move to lower prices, likely to pre-2022 levels.

We now see the LNG market shrinking in 2026 from the year before.

Our base case is to return to growth in 2027, but this depends on Hormuz re-opening.

Part 5: Winter risks and outlook

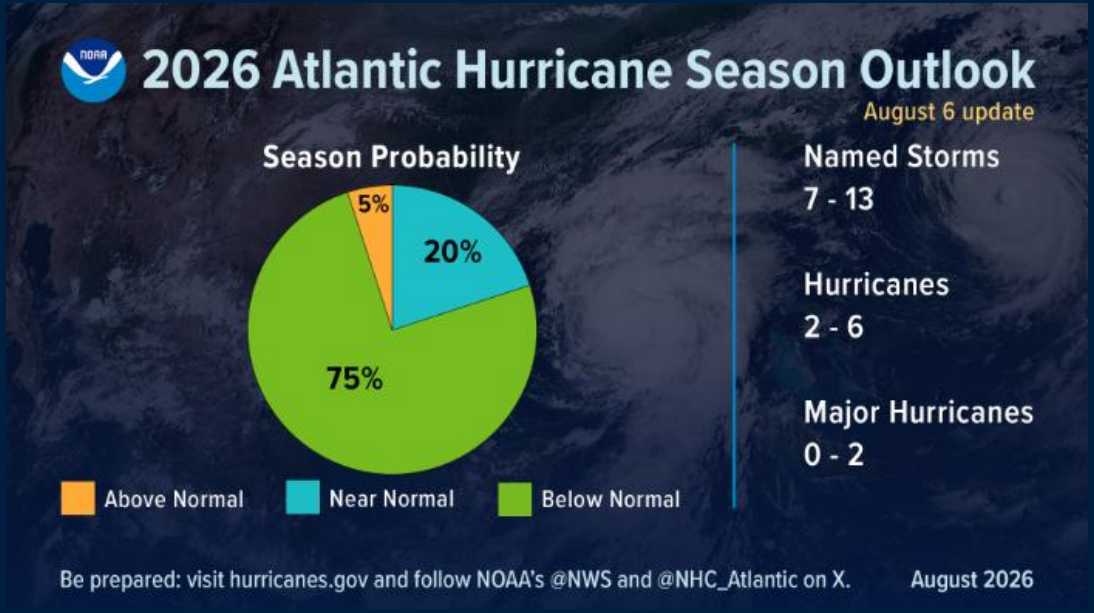
Forward curve pushed higher as winter risks near



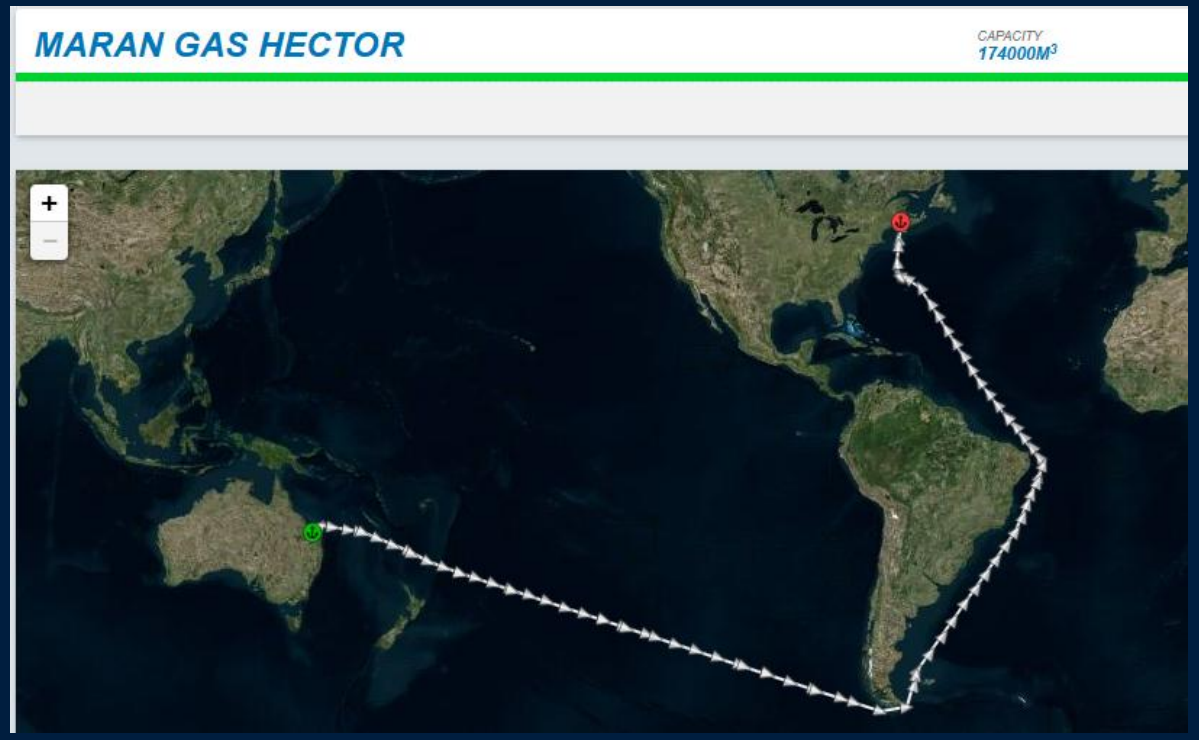
Warnings of high temperatures during “Godzilla” El Niño

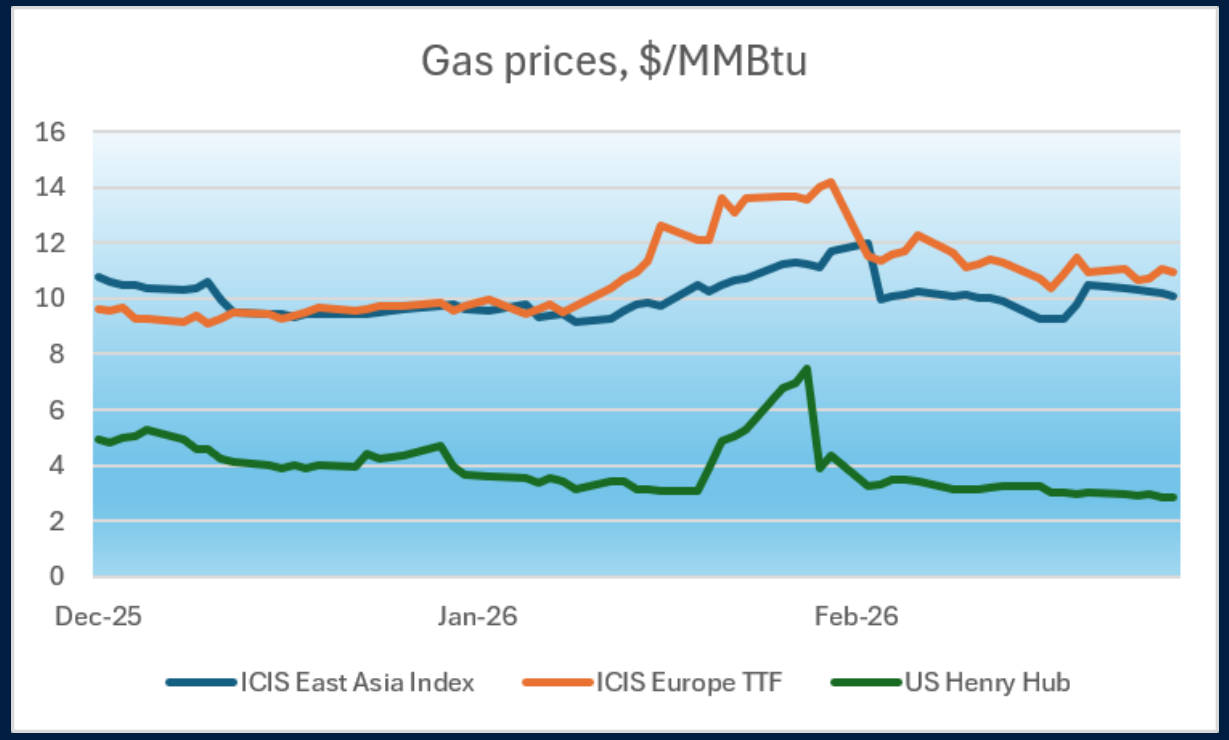
The UN urged all countries on Tuesday to bolster early warning systems after confirming the onset of El Niño, warning that the Pacific Ocean-warming phenomenon will bring above-average temperatures “nearly everywhere” and fuel more extreme weather.

- A record El Nino will boost temperatures in the Pacific Ocean. Europe could potentially see milder, wetter Q4 weather.
- Atlantic hurricanes reduced, cutting risks to US Gulf LNG.
- Potential colder spells late winter.



Late winter cold snap risk remains





- In January 2026 the US suffered another extreme cold snap (also in February 2021), which drew Pacific cargoes into the Atlantic, including an unusual Australian cargo to east coast Canada.
- Late cold winter snaps in Europe include the February/March 2018 “Beast from the East”.

Winter Gas Market Risks

- Europe's storage is low for the time of year. Prices are soaring higher as Europe competes harder against Asia for cargoes ahead of winter.
- A record El Niño is due this year. It could bring a warmer start to Europe's winter, which could help reduce heating and also cut the risk of hurricanes affecting US supplies. But El Nino can also be linked to a risk of a colder end to the season next year.
- Russian LNG flows to Europe are banned from January 2027. Russia is increasing its shipping length, but overall exports could be constrained and it adds uncertainty to the middle of winter.
- The forward curve will continue to react to prompt market events. It could lower if Hormuz is resolved soon, but a cold winter or more permanent damage could push the forward curve up yet higher.
- If Hormuz is resolved early next year, 2027 could still be a year of LNG market growth, but Europe will need to refill storage again next summer and a prolonged Hormuz outage could limit supplies. In the longer term, however, the market should return to growth and lower prices later in the decade.

Thank you for attending!

We look forward to seeing you online on 3rd December 2026 & in person on 28th January 2027

If you would like to provide any feedback on the forum, please email Box.OperationalLiaison@nationalgas.com

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