



The Gas Crisis – how will Europe manage without Nord Stream 1?

October 2022

MATT BROWN, LUCY FIELD

DISCLAIMERS AND RIGHTS

NOTHING IN THIS REPORT IS OR SHALL BE RELIED UPON AS A PROMISE OR REPRESENTATION OF FUTURE EVENTS OR RESULTS. AFRY HAS PREPARED THIS REPORT BASED ON INFORMATION AVAILABLE TO IT AT THE TIME OF ITS PREPARATION AND HAS NO DUTY TO UPDATE THIS REPORT.

AFRY makes no representation or warranty, expressed or implied, as to the accuracy or completeness of the information provided in this report or any other representation or warranty whatsoever concerning this report. This report is partly based on information that is not within AFRY's control. Statements in this report involving estimates are subject to change and actual amounts may differ materially from those described in this report depending on a variety of factors. AFRY hereby expressly disclaims any and all liability based, in whole or in part, on any inaccurate or incomplete information given to AFRY or arising out of the negligence, errors or omissions of AFRY or any of its officers, directors, employees or agents. Recipients' use of this report and any of the estimates contained herein shall be at Recipients' sole risk.

AFRY expressly disclaims any and all liability arising out of or relating to the use of this report except to the extent that a court of competent jurisdiction shall have determined by final judgment (not subject to further appeal) that any such liability is the result of the wilful misconduct or gross negligence of AFRY. AFRY also hereby disclaims any and all liability for special, economic, incidental, punitive, indirect, or consequential damages. **Under no circumstances shall AFRY have any liability relating to the use of this report.**

All information contained in this report is confidential and intended for the exclusive use of the Recipient. The Recipient may transmit the information contained in this report to its directors, officers, employees or professional advisors provided that such individuals are informed by the Recipient of the confidential nature of this report. All other use is strictly prohibited.

All rights (including copyrights) are reserved to AFRY. No part of this report may be reproduced in any form or by any means without prior permission in writing from AFRY. Any such permitted use or reproduction is expressly conditioned on the continued applicability of each of the terms and limitations contained in this disclaimer.

Our presenters



Matt Brown

MATT BROWN

Vice President

matt.brown@afry.com

+44 7973 199 112



Lucy Field

LUCY FIELD

Senior Gas Expert

lucy.field@afry.com

+44 7825 415 673

The Gas Crisis – how will Europe manage without Nord Stream 1?

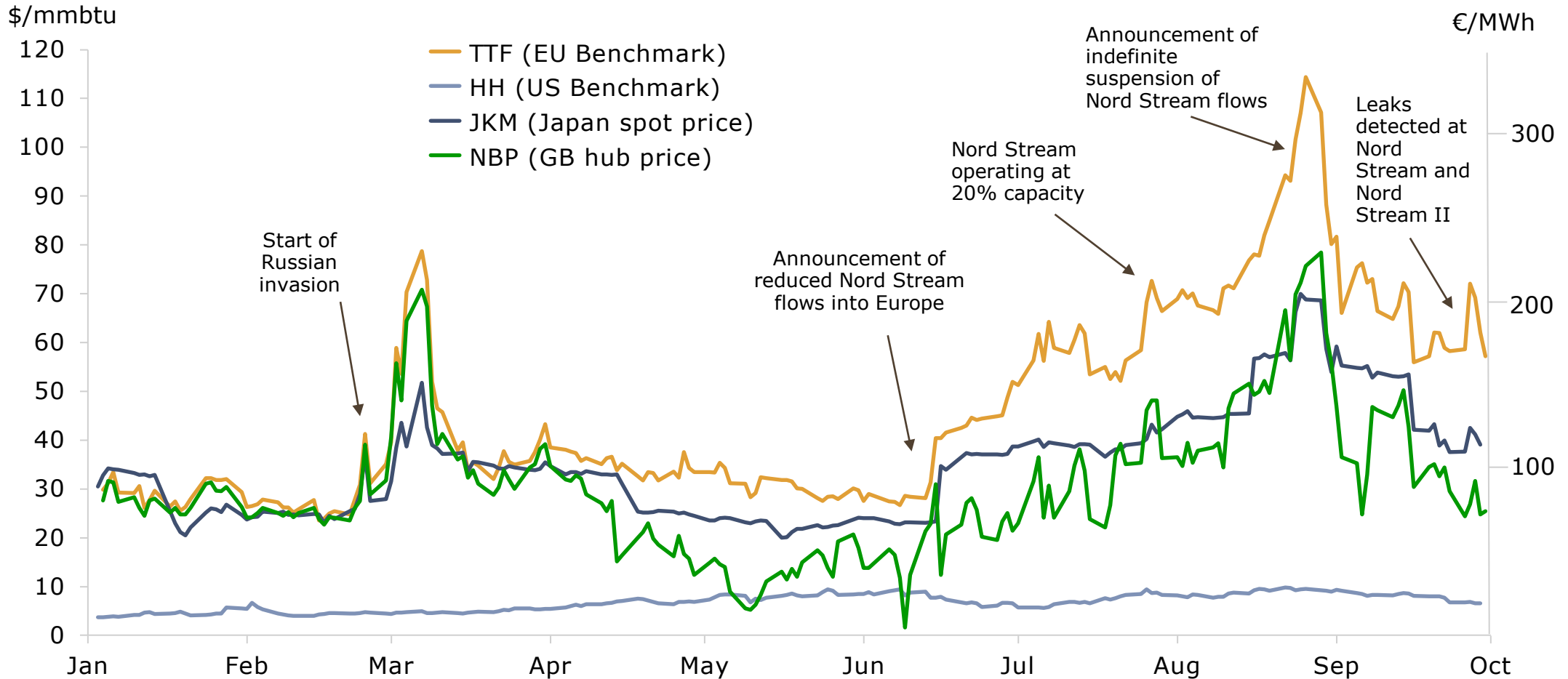
1. Recent market developments

2. How much Russian gas is entering Europe now?
3. How quickly is the US building its LNG export capacity?
4. Outlook



RECENT MARKET DEVELOPMENTS

Since April GB gas prices have decoupled from the EU due to capacity constraints; but the closure of Nord Stream has pushed prices up



Source: Refinitiv

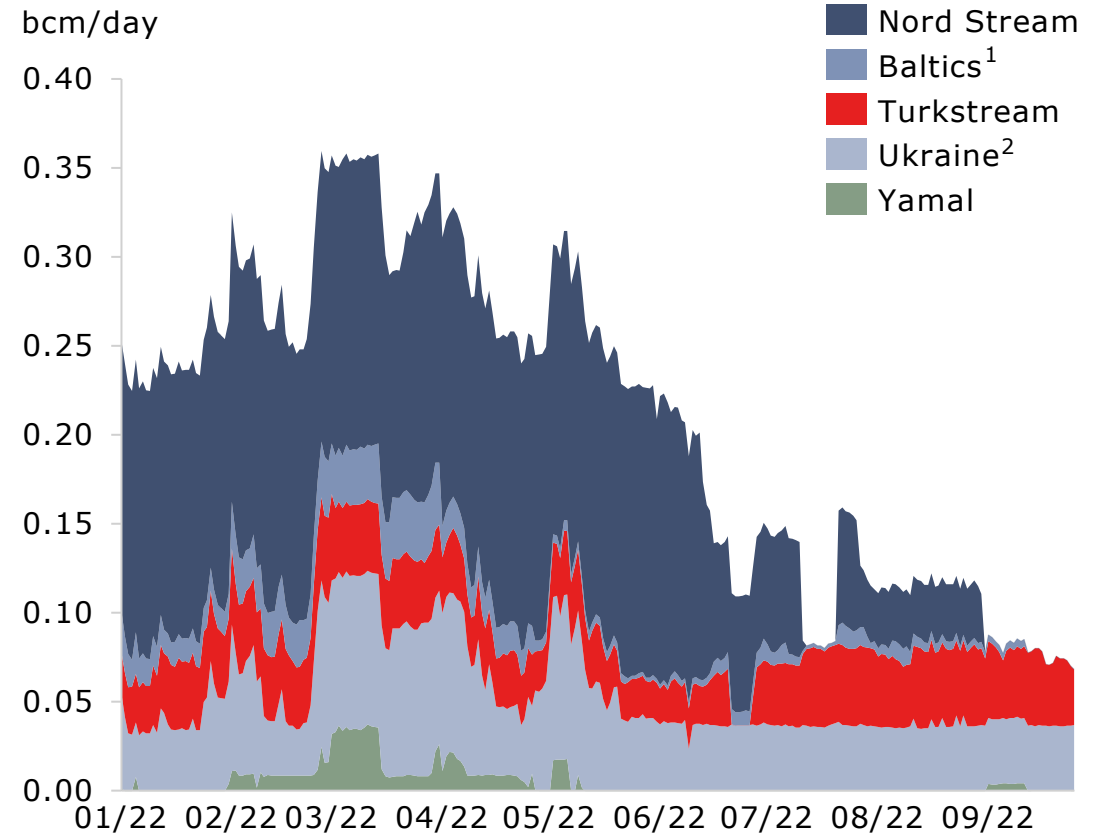
RECENT MARKET DEVELOPMENTS

Since the closure of Nord Stream 1, the only remaining routes for Russian gas to Europe are via Ukraine and Turkstream (via Turkey)

ROUTES OF RUSSIAN GAS INTO EUROPE



DAILY RUSSIAN GAS FLOWS 1 JAN – 25 SEP 2022



1 Comprises entry at Imatra, Narva, Luhamaa, Varska, Kotlovka, Tieterowka and Wysokoje 2 Comprises entry at Velke Kapusany, Beregradaroc, Medieusu Aurit and Isaccea 3 Converted to standard European measurement 40 MJ/scm Sources: IEA WDS, ENTSOG, S&P

The Gas Crisis – how will Europe manage without Nord Stream 1?

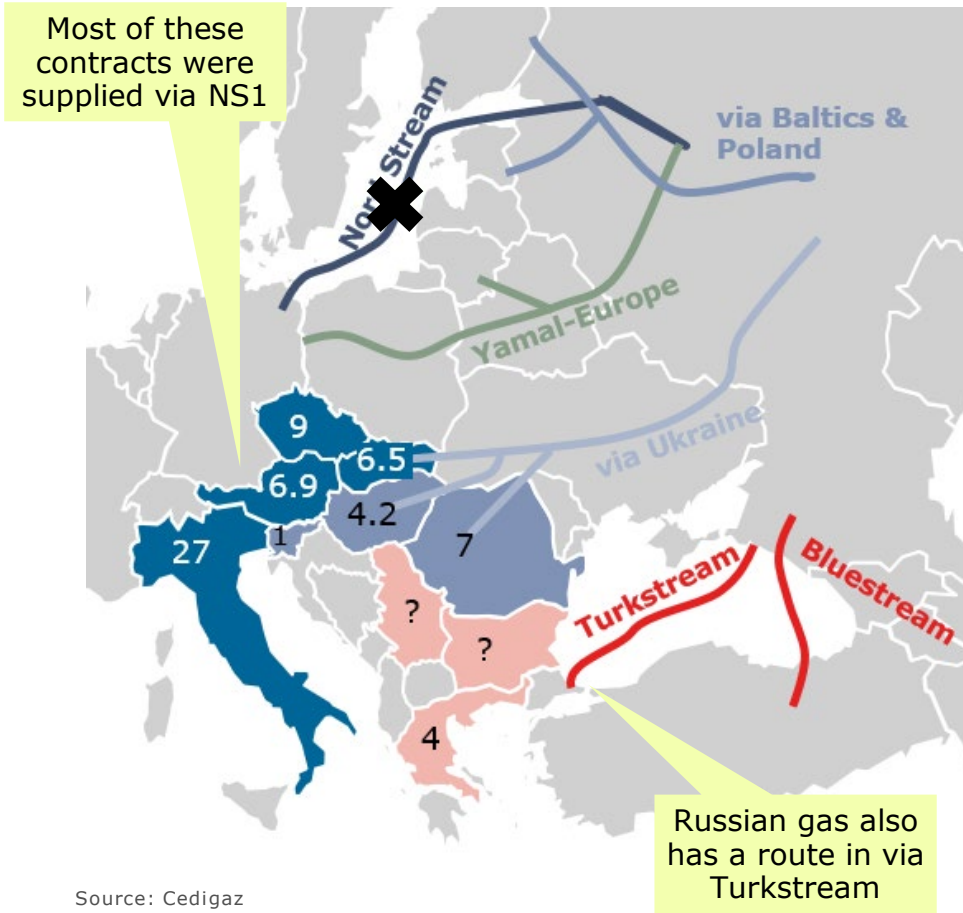
1. Recent market developments
- 2. How much Russian gas is entering Europe now?**
3. How quickly is the US building its LNG export capacity?
4. Outlook



HOW MUCH RUSSIAN GAS IS ENTERING EUROPE NOW?

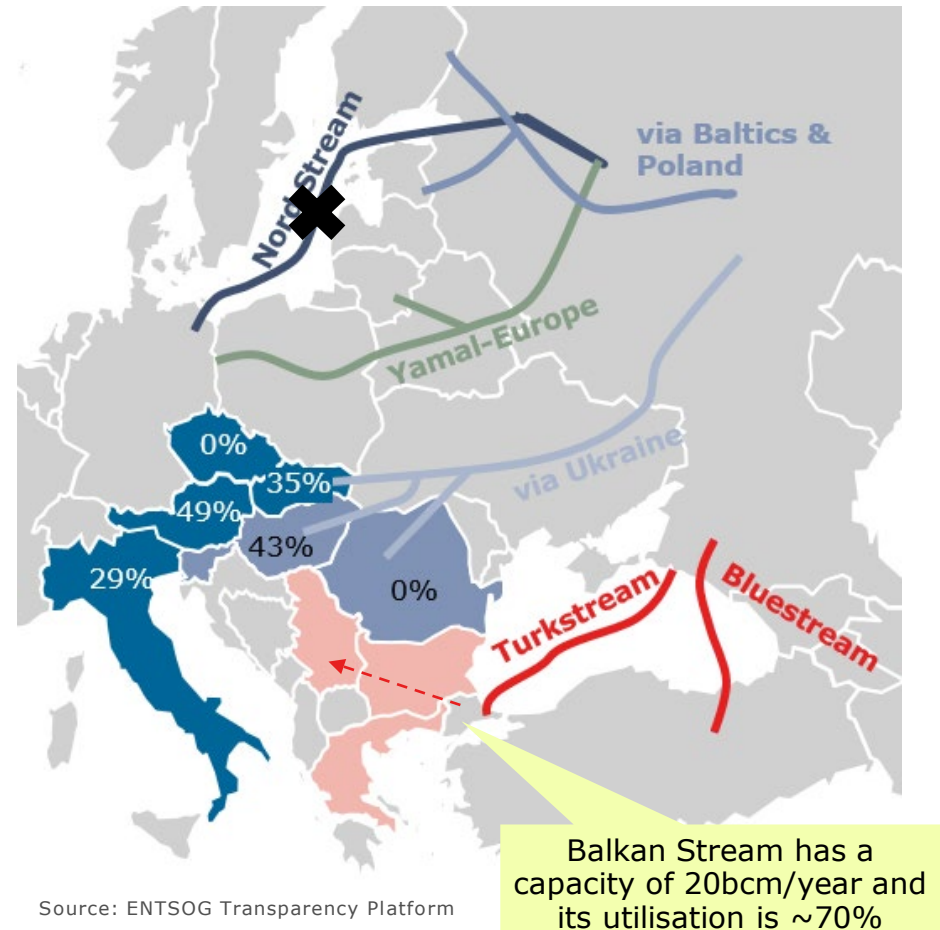
Some Gazprom contracts are being partially met with volumes flowing via Ukraine; and SE Europe is importing gas via Turkstream

CONTRACTED VOLUMES (BCM/YEAR)



Source: Cedigaz

ESTIMATED % CONTRACT GAS SUPPLIED SINCE NS1 CLOSED

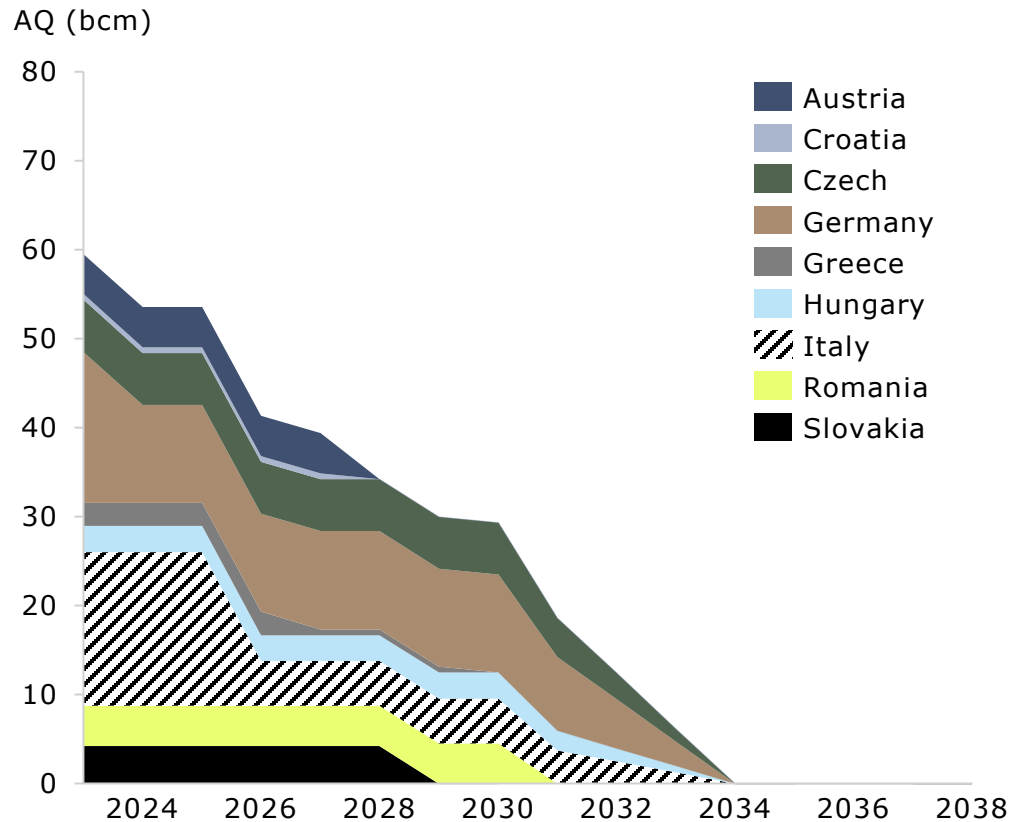


Source: ENTSOG Transparency Platform

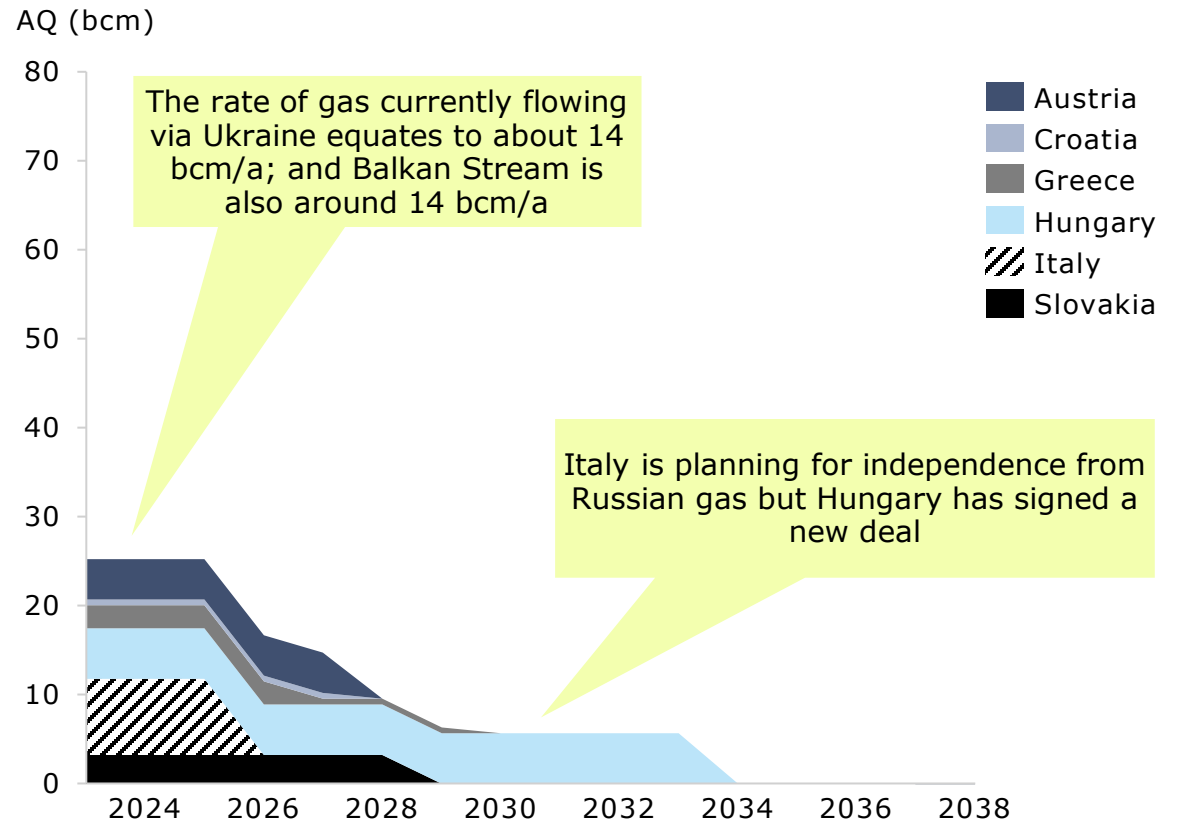
HOW MUCH RUSSIAN GAS IS ENTERING EUROPE NOW?

AFRY is greatly reducing its assumptions regarding contracted Russian gas deliveries and these may be reduced further

Q3 2022 OUTLOOK FOR RUSSIAN CONTRACTS



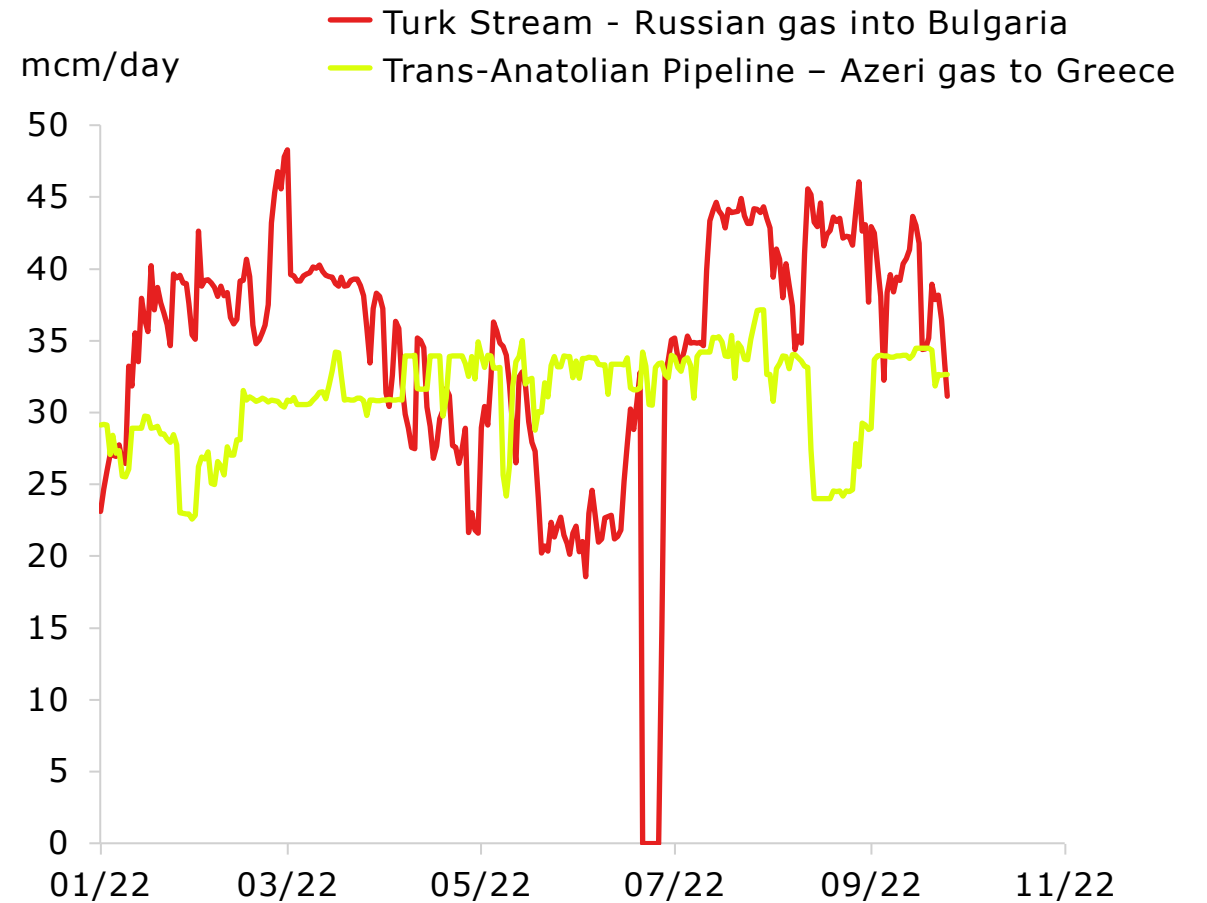
Q4 2022 OUTLOOK FOR RUSSIAN CONTRACTS



Source: Cedigaz and AFRY database

HOW MUCH RUSSIAN GAS IS ENTERING EUROPE NOW?

Gas entering Europe from Turkey is equally Russian and Azeri



Source: ENTSOG

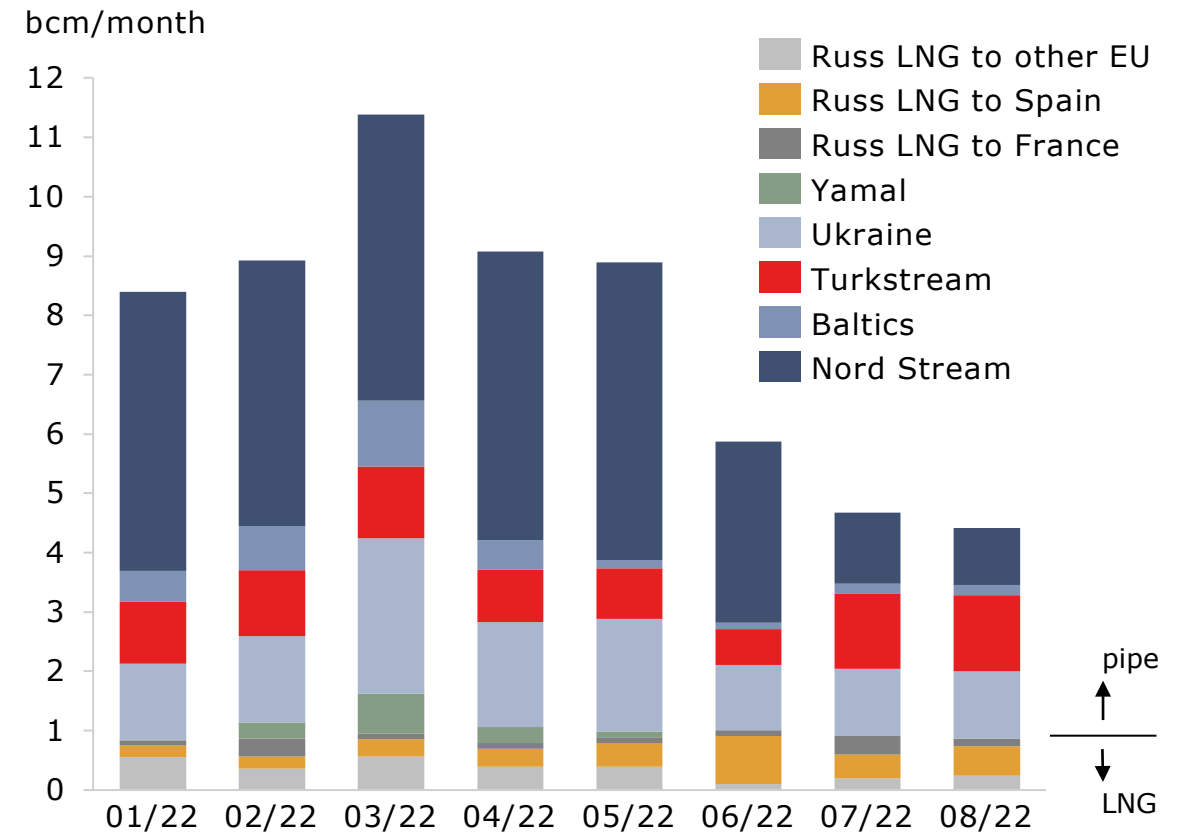
HOW MUCH RUSSIAN GAS IS ENTERING EUROPE NOW?

Russian LNG is still being delivered into Europe

ROUTES OF RUSSIAN GAS INTO EUROPE



MONTHLY RUSSIAN GAS FLOWS 1 JAN – 31 AUG 2022



Other countries receiving Russian LNG include Sweden, Netherlands, Belgium, Portugal

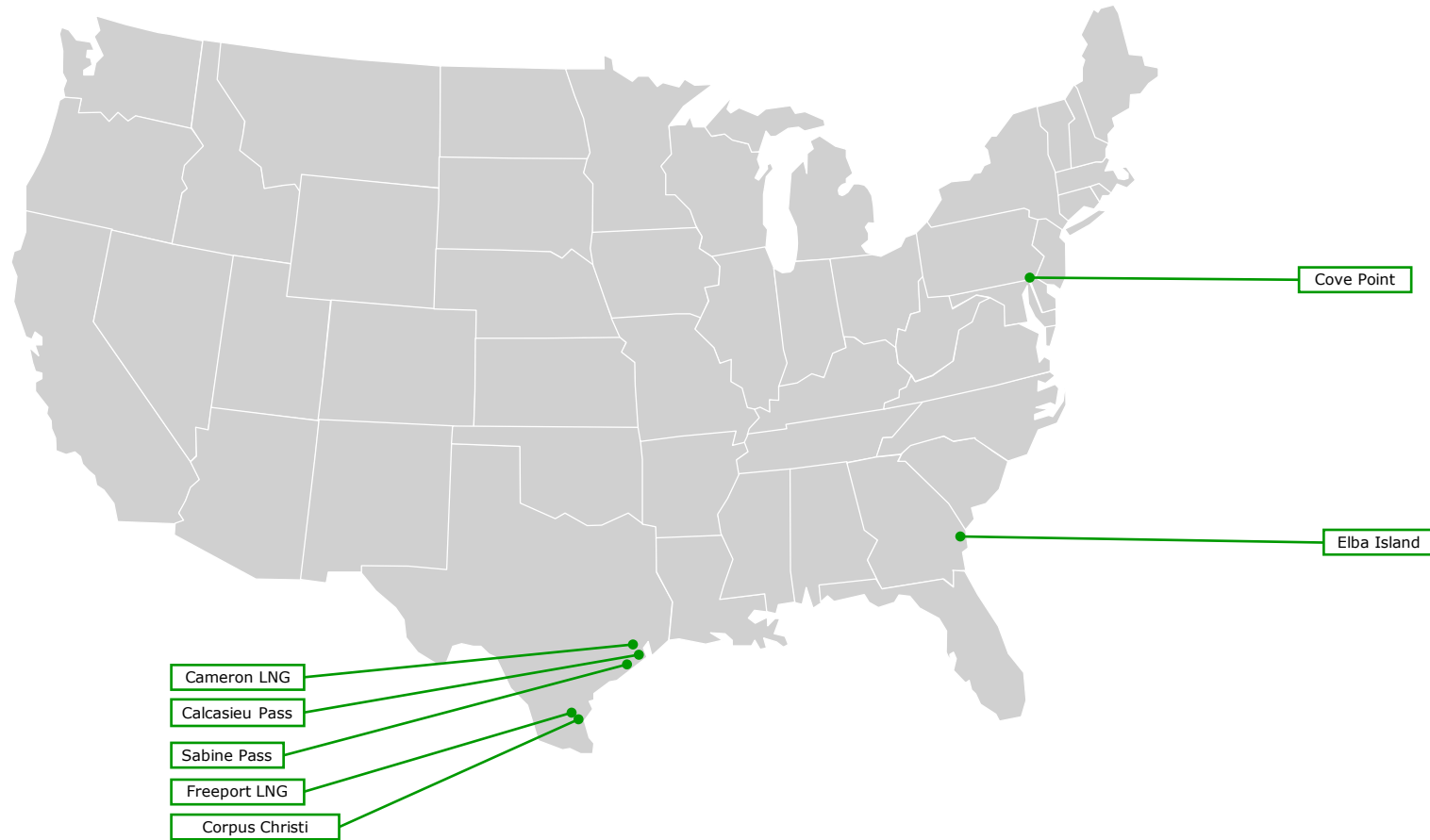
The Gas Crisis – how will Europe manage without Nord Stream 1?

1. Recent market developments
2. How much Russian gas is entering Europe now?
- 3. How quickly is the US building its LNG export capacity?**
4. Outlook



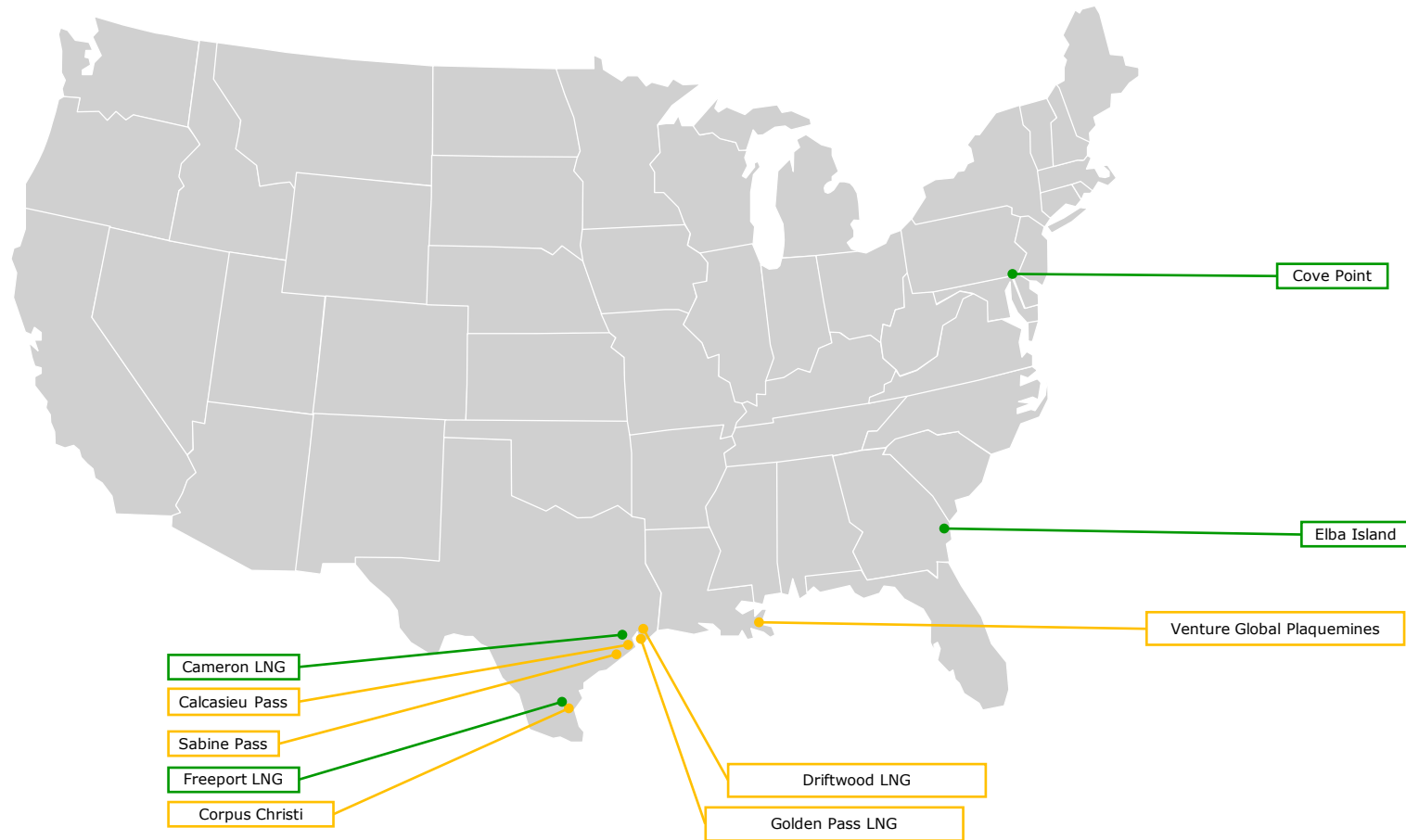
HOW QUICKLY IS THE US BUILDING ITS LNG EXPORT CAPACITY?

Operating large scale U.S. liquefaction facilities



HOW QUICKLY IS THE US BUILDING ITS LNG EXPORT CAPACITY?

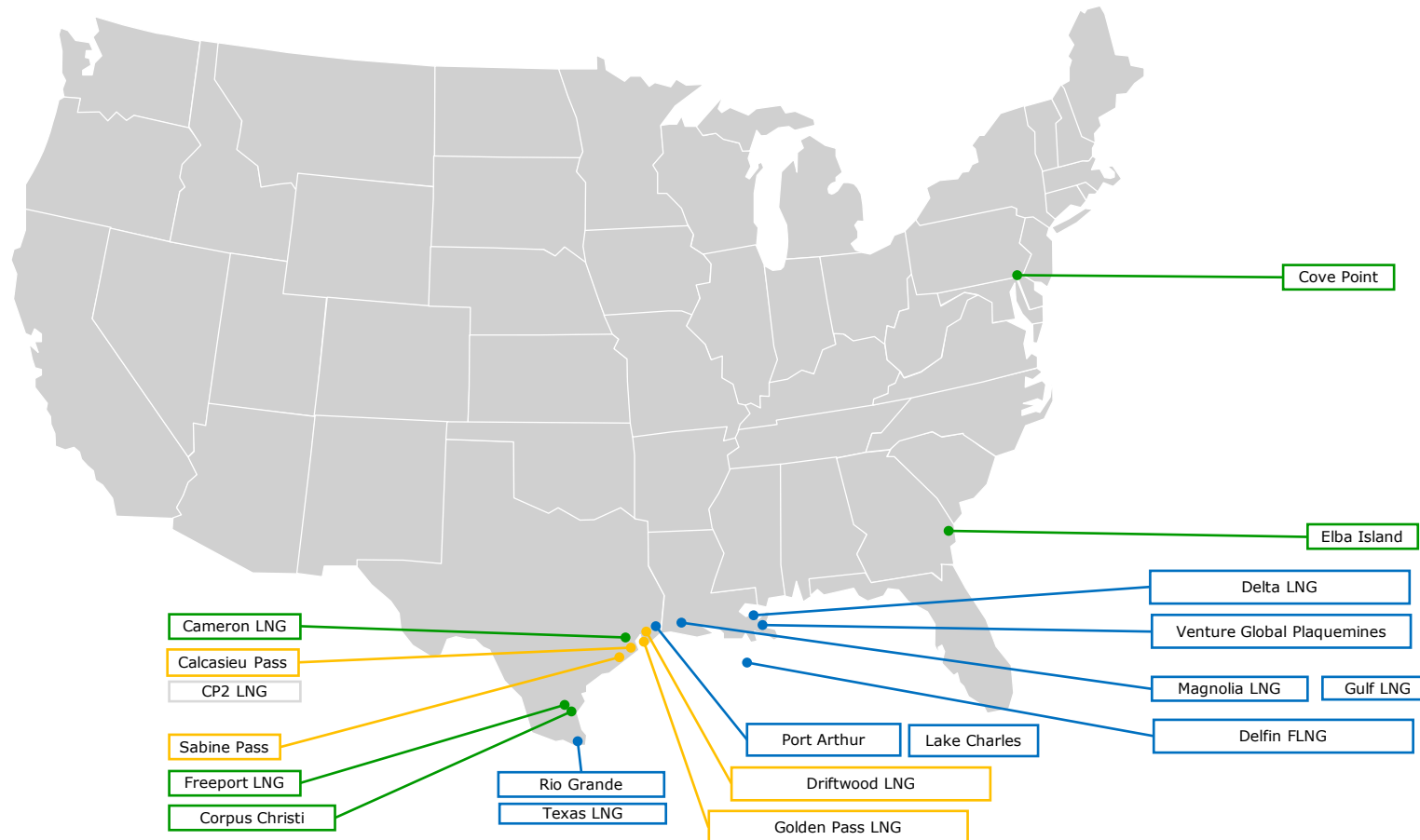
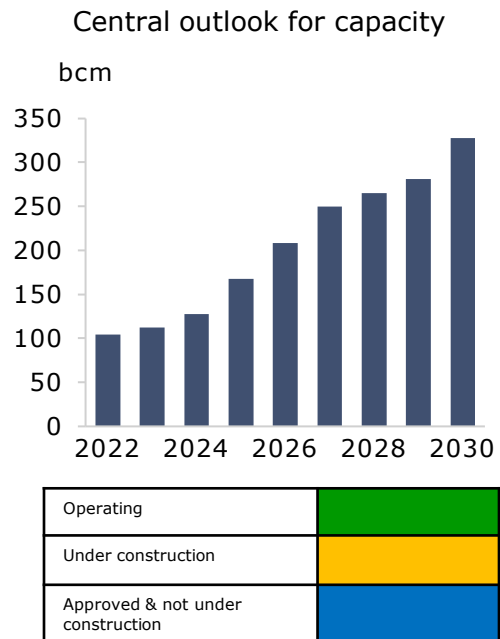
Operating, under construction, and FID large scale U.S. liquefaction facilities



Operating	Green
Under Construction & FID Liquefaction plants	Yellow

HOW QUICKLY IS THE US BUILDING ITS LNG EXPORT CAPACITY?

...plus approved, not under construction U.S. liquefaction facilities



The Gas Crisis – how will Europe manage without Nord Stream 1?

1. Recent market developments
2. How much Russian gas is entering Europe now?
3. How quickly is the US building its LNG export capacity?

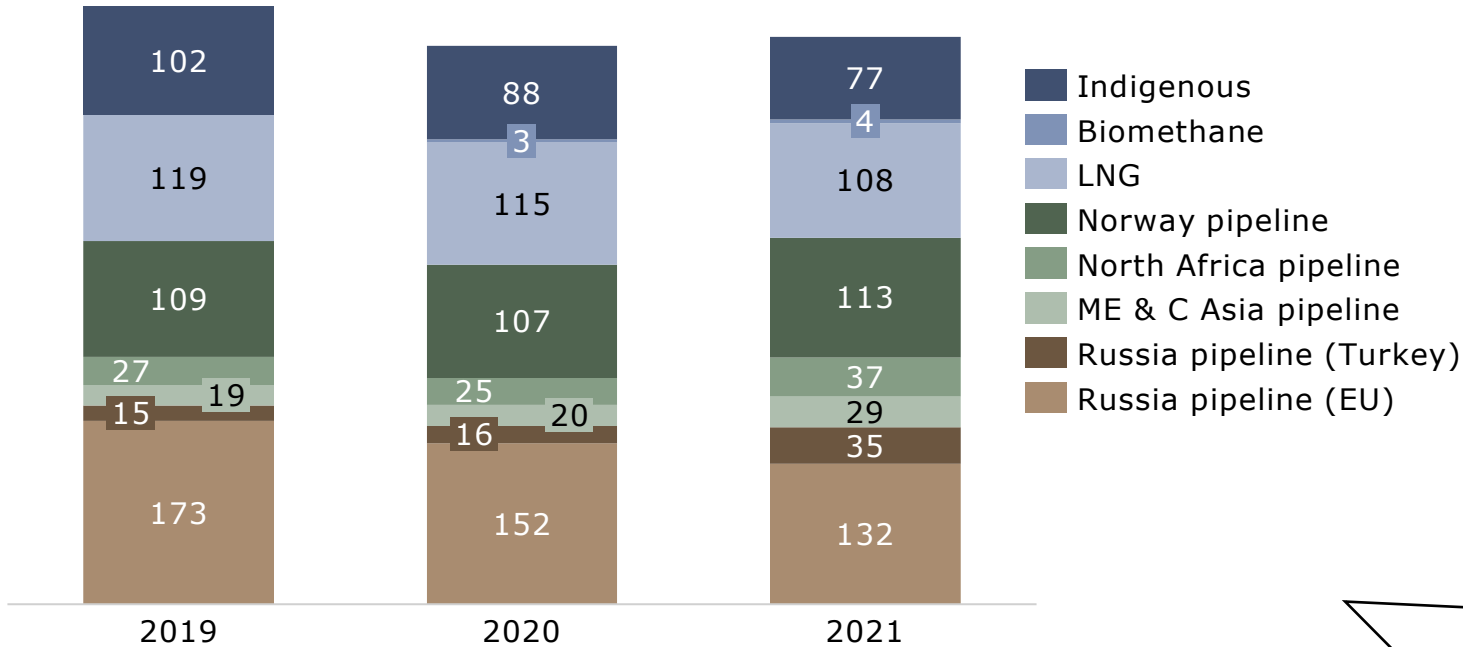
4. Outlook



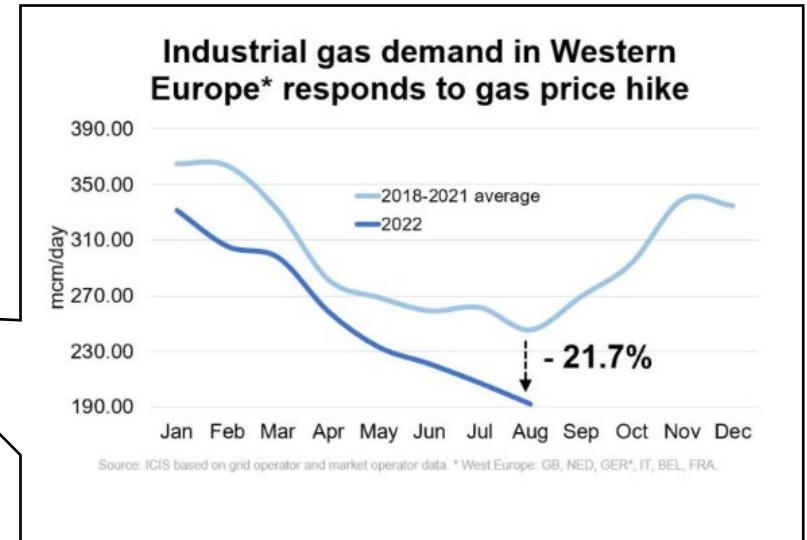
OUTLOOK

The EU reduced gas imports from Russia in 2021 and the prices in 2022 have been further reducing gas demand – especially industrial

GAS SUPPLIES TO EUROPE (BCM)



INDUSTRIAL GAS DEMAND HAS FALLEN FAST IN 2022

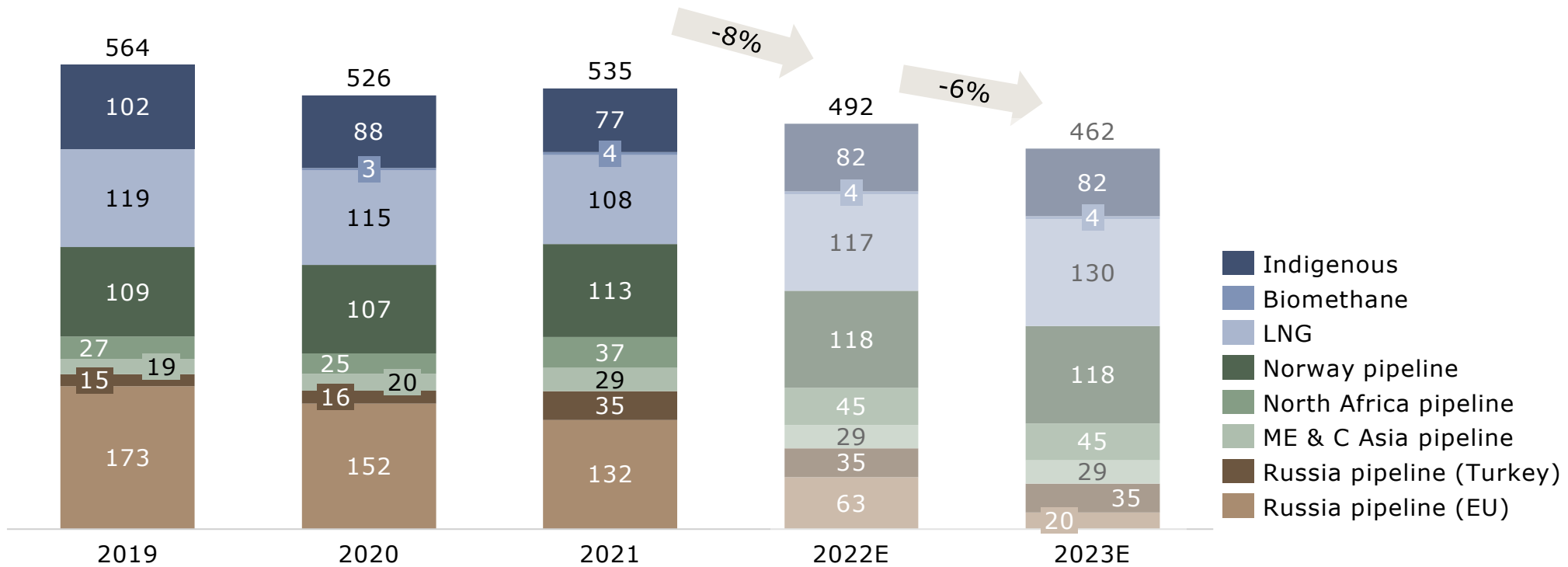


Sources: BP Energy Statistics, ICIS, AFRY analysis
 Note: Europe includes EU, Switzerland, UK and Turkey

OUTLOOK

LNG supply contracts are being signed and gas demand is falling – how much of the demand reduction will be voluntary?

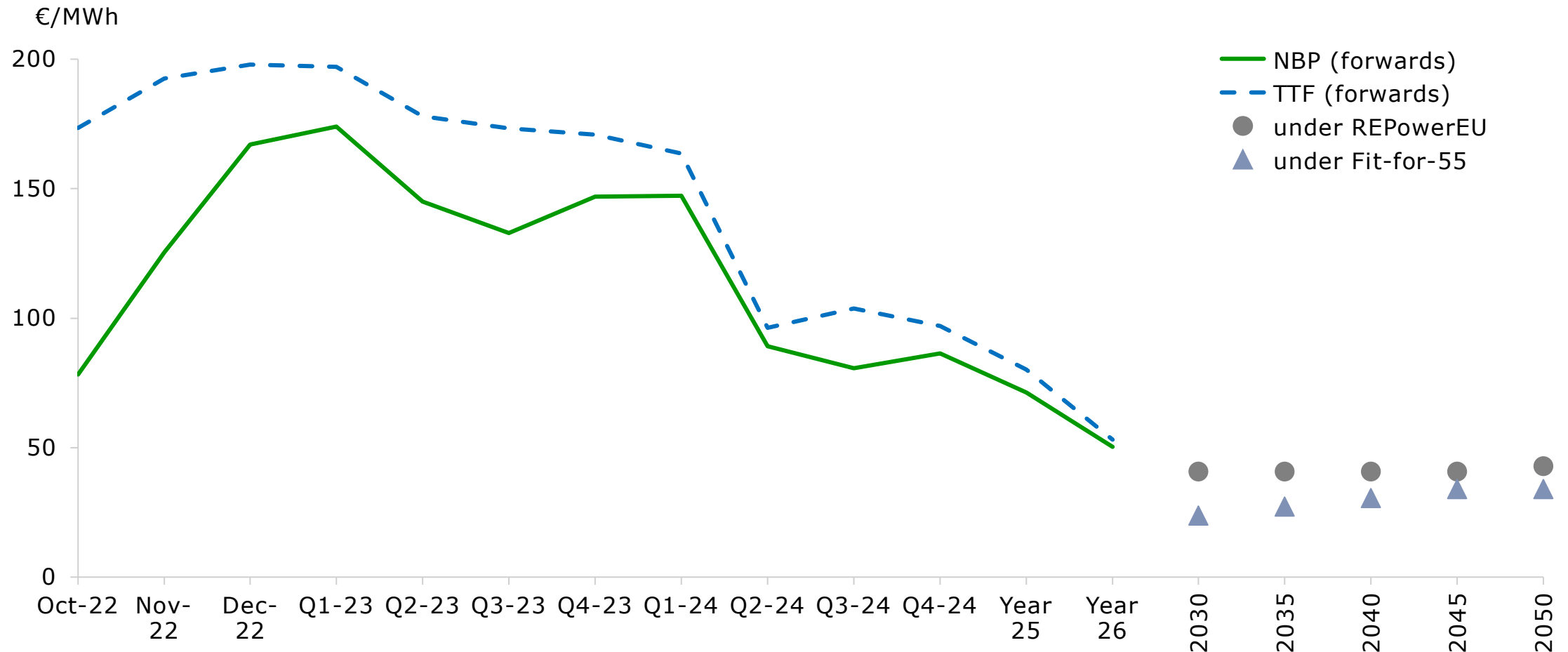
GAS SUPPLIES TO EUROPE (BCM)



Sources: BP Energy Statistics, ENTSOG transparency, AFRY analysis
 Note: Europe includes EU, Switzerland, UK and Turkey

OUTLOOK

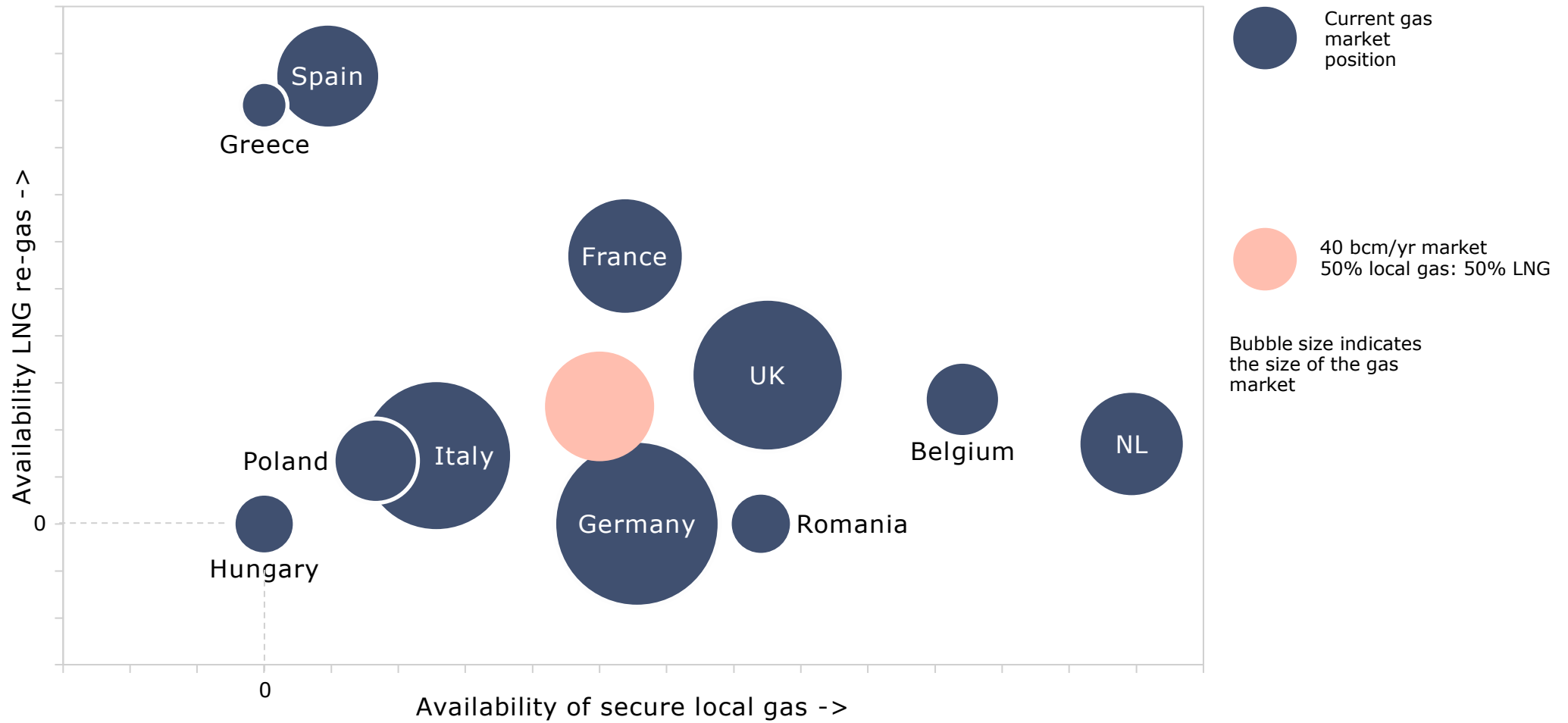
Forward markets and EU projections suggest gas prices return to more familiar levels in the late 2020s



Sources: 'Implementing the REPowerEU Action Plan', European Commission, 18 May 2022, Data from Refinitiv Forwards taken on 26 September 2022

OUTLOOK

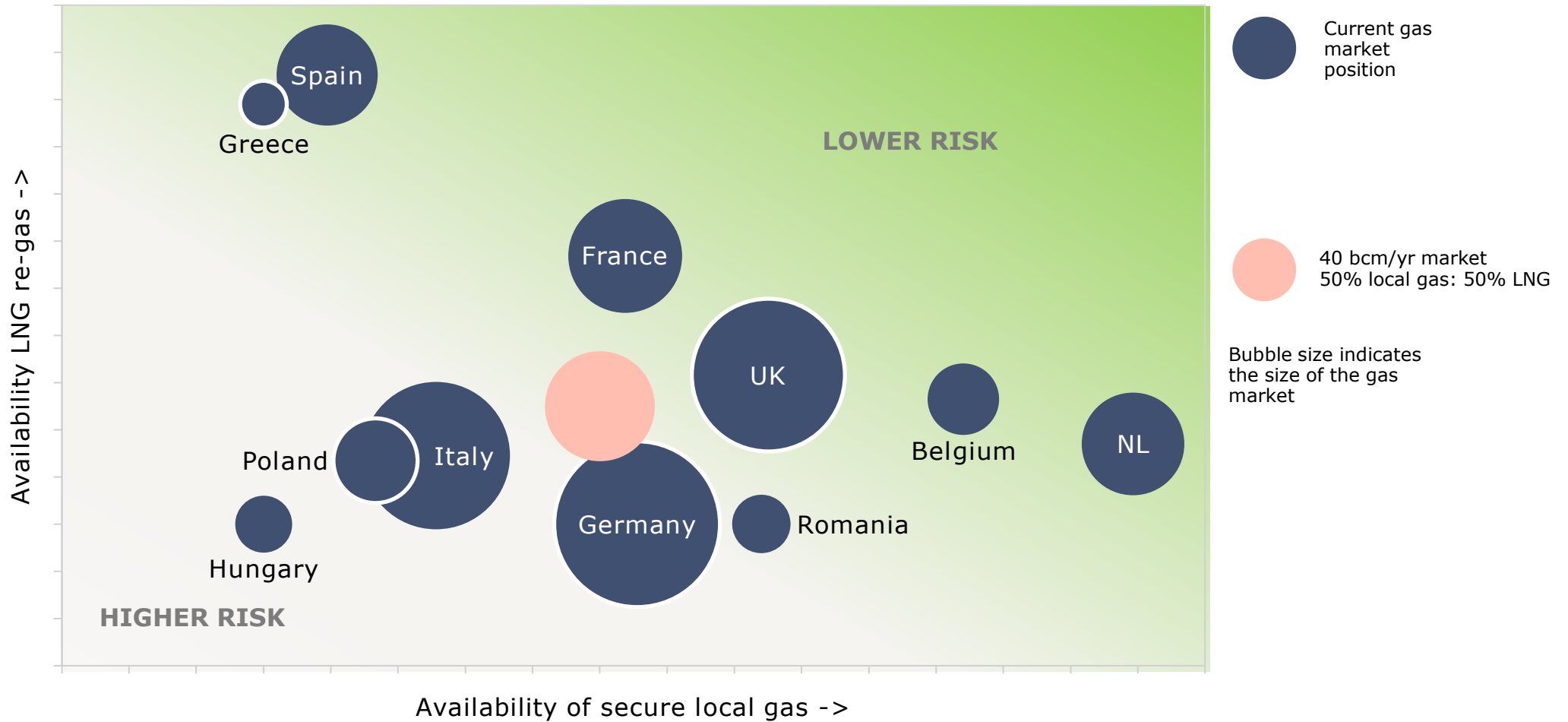
North Sea gas and re-gasification capacity gives Europe some security



Availability LNG re-gas = LNG re-gas cap now and as in AFRY Central in Oct 2023 (as % of 2021 gas demand)
 Availability of secure local gas = 2020 supply of EU +UK +Norway gas and indigenous production (as % of 2021 gas demand)
 Sources: BP Energy Statistics 2021 and 2022, Cedigaz and AFRY Central scenario Q3 22

OUTLOOK

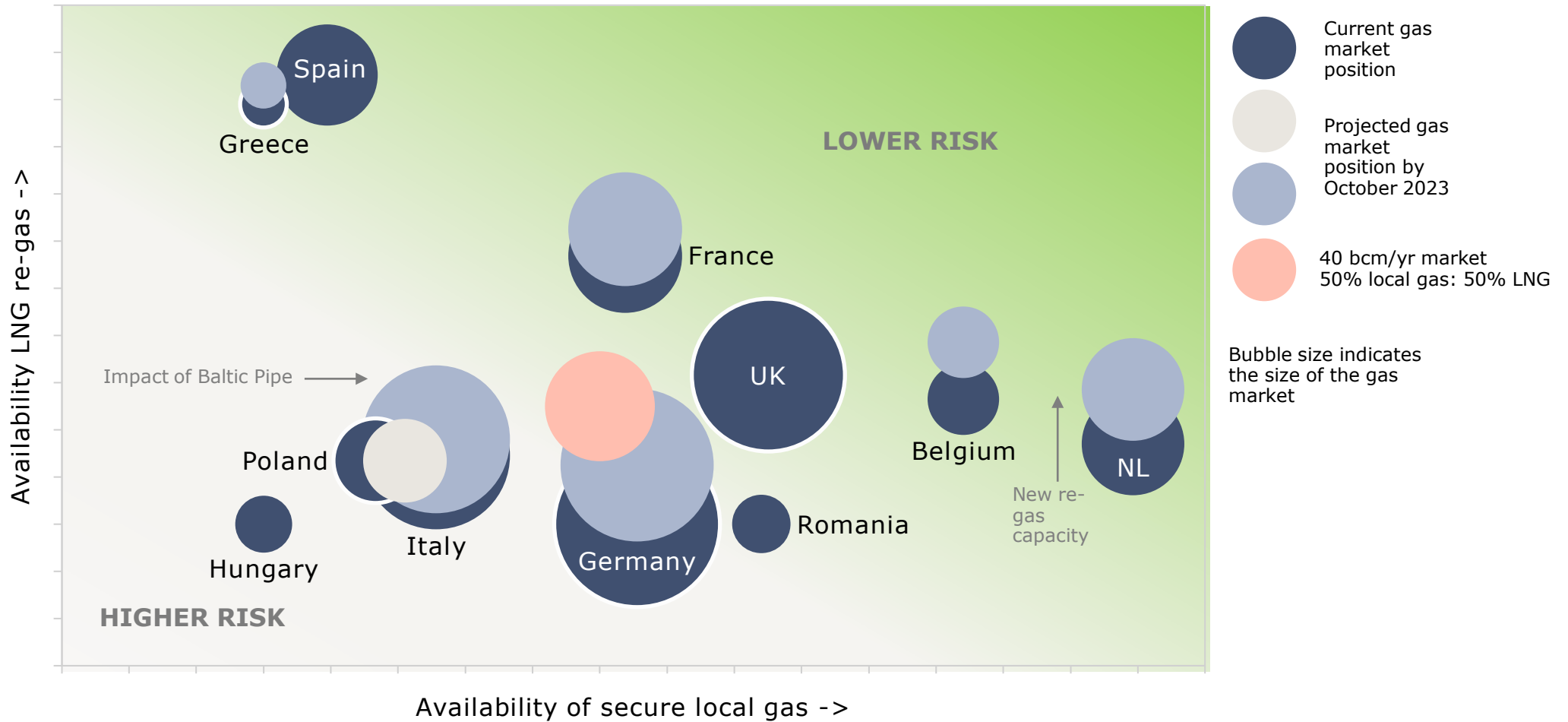
Spain and Greece have more re-gasification capacity than they need



Availability LNG re-gas = LNG re-gas cap now and as in AFRY Central in Oct 2023 (as % of 2021 gas demand)
Availability of secure local gas = 2020 supply of EU +UK +Norway gas and indigenous production (as % of 2021 gas demand)
Sources: BP Energy Statistics 2021 and 2022, Cedigaz and AFRY Central scenario

OUTLOOK

Europe is building its way back to secure gas supplies



Availability LNG re-gas = LNG re-gas cap now and as in AFRY Central in Oct 2023 (as % of 2021 gas demand)
 Availability of secure local gas = 2020 supply of EU +UK +Norway gas and indigenous production (as % of 2021 gas demand)
 Sources: BP Energy Statistics 2021 and 2022, Cedigaz and AFRY Central scenario

OUTLOOK

European energy markets will be reshaped



Higher gas and electricity prices

Behavioural change and a gradual move away from using gas should mean lower demand, mitigating price increases to some extent. However, it is unlikely the expected gas and electricity price increases would be fully offset as more expensive gas sources are used.



Lower gas and electricity demand

We expect gas and electricity demand to drop as a sign of solidarity and also in response to higher prices.



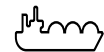
Accelerated deployment of RES

This will most likely mean some form of fast-tracking at the licensing stage but also potentially expansion of RES support schemes in some European countries.



Stranded assets

An accelerated move away from gas will inevitably result in some gas stranded assets much sooner than expected.



Development of additional LNG capacity

More LNG terminals will go ahead to help with diversifying the gas mix.



Deeper cooperation and integration of European energy markets

The current events may act as a spark for accelerating existing initiatives for greater sharing of resources across Europe.



Windfall profits for some technology types

Nuclear, hydro and weather variable RES benefit from high commodity prices, but we would expect that there is some form of regulatory intervention to re-distribute economic surplus and protect consumers from high prices.



More control and regulation in some areas

We may expect to see greater levels of regulation and control in some parts of the energy market in line with e.g. Germany's new storage law

Contact



LUCY FIELD
Senior Gas Expert
lucy.field@afry.com
+44 7825 415 673



MATT BROWN
Vice President
matt.brown@afry.com
+44 7973 199 112

Next webinar

The benefits of long duration storage in the GB market

Following the publication of a report investigating the benefits of long duration electricity storage, AFRY and BEIS will together present the key findings in an upcoming webinar on Tuesday, 11th October at 11:00 BST / 12:00 CEST.

Register

