LNG Diplomacy: Why It Isn’t Temporary

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JOHN HARPOLE
PRESIDENT / FOUNDER
HARP@MERCATORENERGY. COM
303-825-1100

How did we get here?

This is a trap laid by Vladimir Putin 20 years in the making.

Historical NYMEX Henry Hub Index Prices (2012-June 2022)

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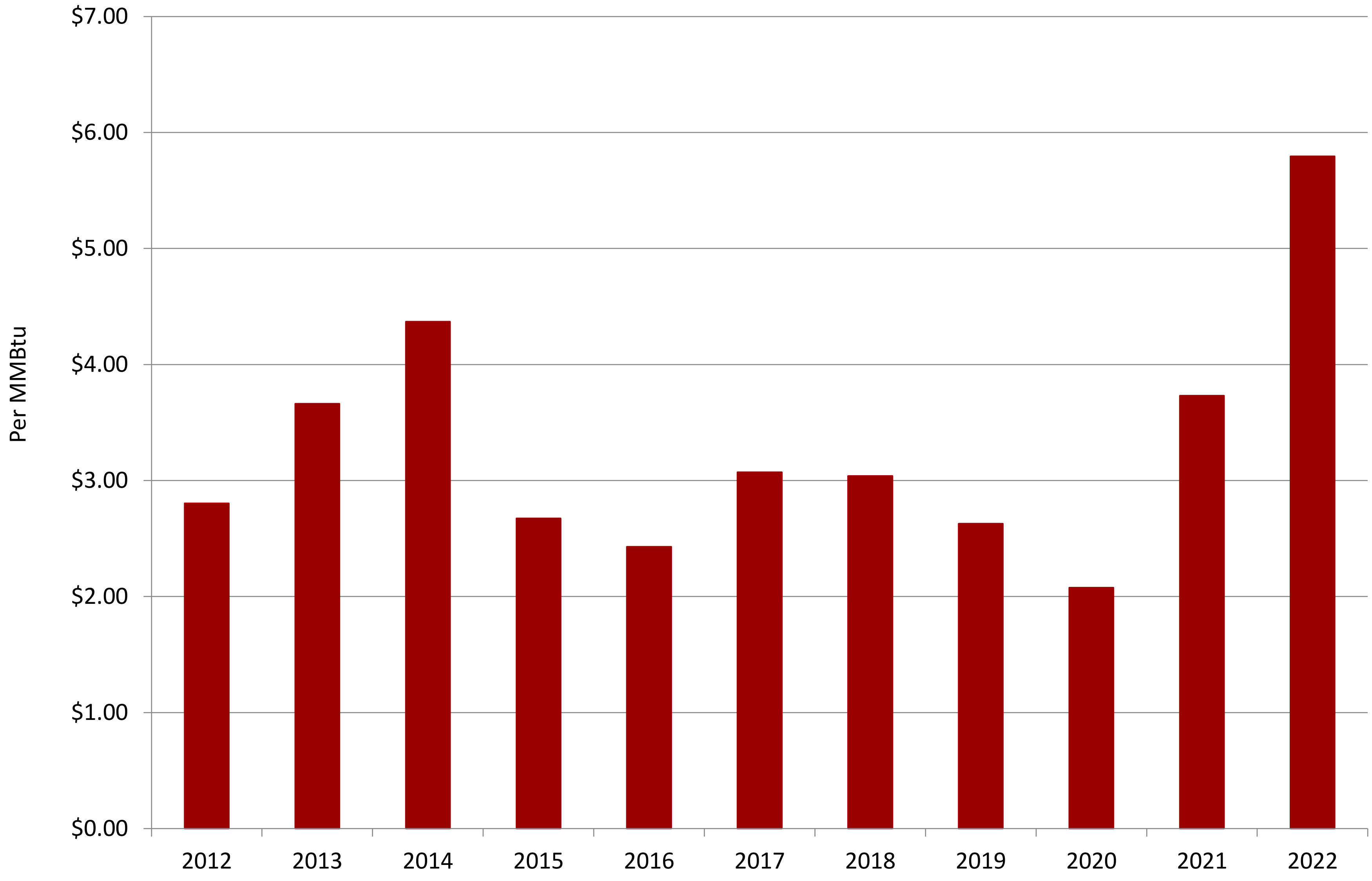

Source: *NYMEX – Average last 3 days of close as reported in Platts Gas Daily Report, An S&P Global Platts publication*

Comparative 3-Year Forward Strip*

NYMEX Henry Hub	$6.190
LNG Japan/Korea Marker (Platts) Futures	$21.754
Dutch TTF Natural Gas (USD/MMBtu) (ICIS Heren) Front Month	$22.907

* Settled price as of June 7, 2022

Source: *cmegroup.com and CIMA Daily Weather and Market Report, June 7, 2022*

What I'll Cover Today

- Putin's trap
- Germany and EU take the bait
- U.S. LNG to the rescue
- The 3-year impact on world LNG markets

4 mistakes made by the European Union (& more specifically, Germany)

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- Over reliance on renewables
- Retired coal and nuclear plants too early
- Under reliance on fossil fuels
- Bought oil and gas from an unreliable supplier (Russia)

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Closing Bell

The Glacial Pace Of LNG Exports

By John Harpole

September 2014

Closing Bell

Time To 'Out' Russia?

By John Harpole

January 2015

Closing Bell

The Putin Vortex

April 2014

By John Harpole

Closing Bell

LNG Diplomacy: Keystone XL Pipeline, Part 2?

October 2012

By John Harpole

The US Shale Gas Revolution & Its Impact on Vladimir Putin & Gazprom

Presentation to:
Broe Companies
Branding Retreat

By:
John Harpole

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June 23-25, 2014

Merkel's Major Mistake – Trusting Putin

Angela Merkel, Chancellor of Germany from 2005 to 2021

“Germany’s reliance on Russian gas surged to 55 percent before Russia’s attack on Ukraine began in February, from 39 percent in 2011, amounting to 200 million euros, or about $220 million, in energy payments every day to Russia.”

Source: *The Former Chancellor Who Became Putin’s Man in Germany, Katrin Bennhold, The New York Times, April 23, 2022*

Why trust Russia? History should have been the lesson.

Russia's Energy Muscle

- Energy Used Over 55 times Against Former Soviet Nations Since 1990

Source: *Europe Doubles Down on Russian Gas to Feed its Energy Appetite*, by Andrew Haney, Ricardo Bracho, Nick Wolfe and Max Faith

April 4, 2009

Gerhard Schroeder, Chancellor of Germany from 1998 to 2005

Gerhard Schröder Bio

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Title	Term	Income
Chancellor of Germany	1998 – 2005	? currently receives $9,000/month stipend
Nord Stream I Chairman/Shareholder	2005 – 2022	$270,000/year
Nord Stream II Board Member	2011 - ?	?
Rosneft Board President	2017 – present	$600,000/year
Gazprom Board Member	2022 - ?	?

“Russia has succeeded in using the personal interests of prominent German political figures against Germany,” said Marcel Dirsus, Non-Resident Fellow at the Institute for Security Policy at Kiel University

Source: *How a German state helped Moscow push a pipeline, weakening Ukraine, Thomas Escritt and Sarah Marsh, February 24, 2022, Reuters*

Gerhard Schröder

“He took advantage of the reputation and influence of the chancellor’s office and offered himself up as an agent for Russian interests to get rich,” said Norbert Röttgen, a conservative lawmaker, former minister and longtime Russia hawk.

Source: *The Former Chancellor Who Became Putin’s Man in Germany, Katrin Bennhold, The New York Times, April 23, 2022*

Why was Nord Stream I so important?

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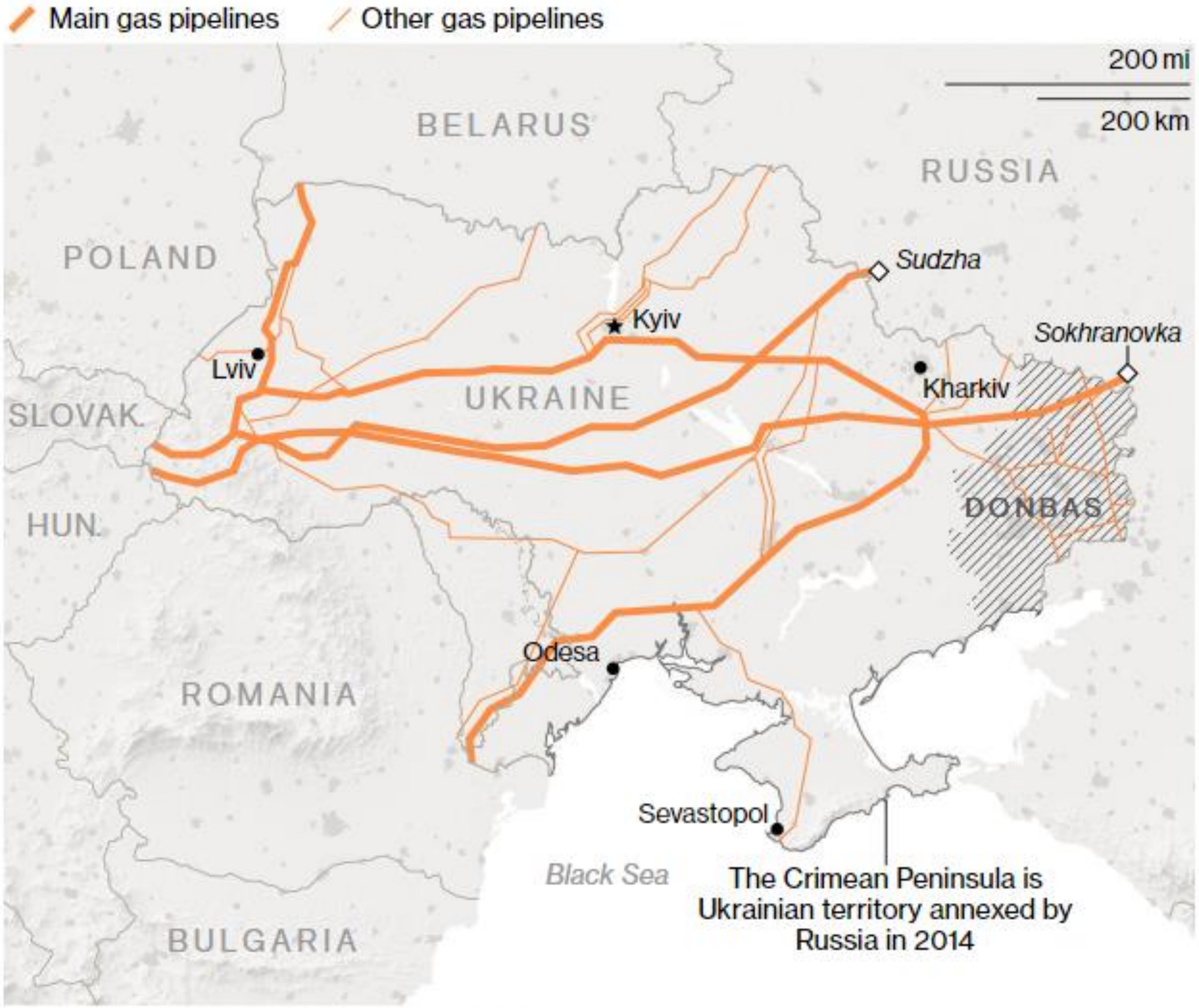
Linking the Super Powers

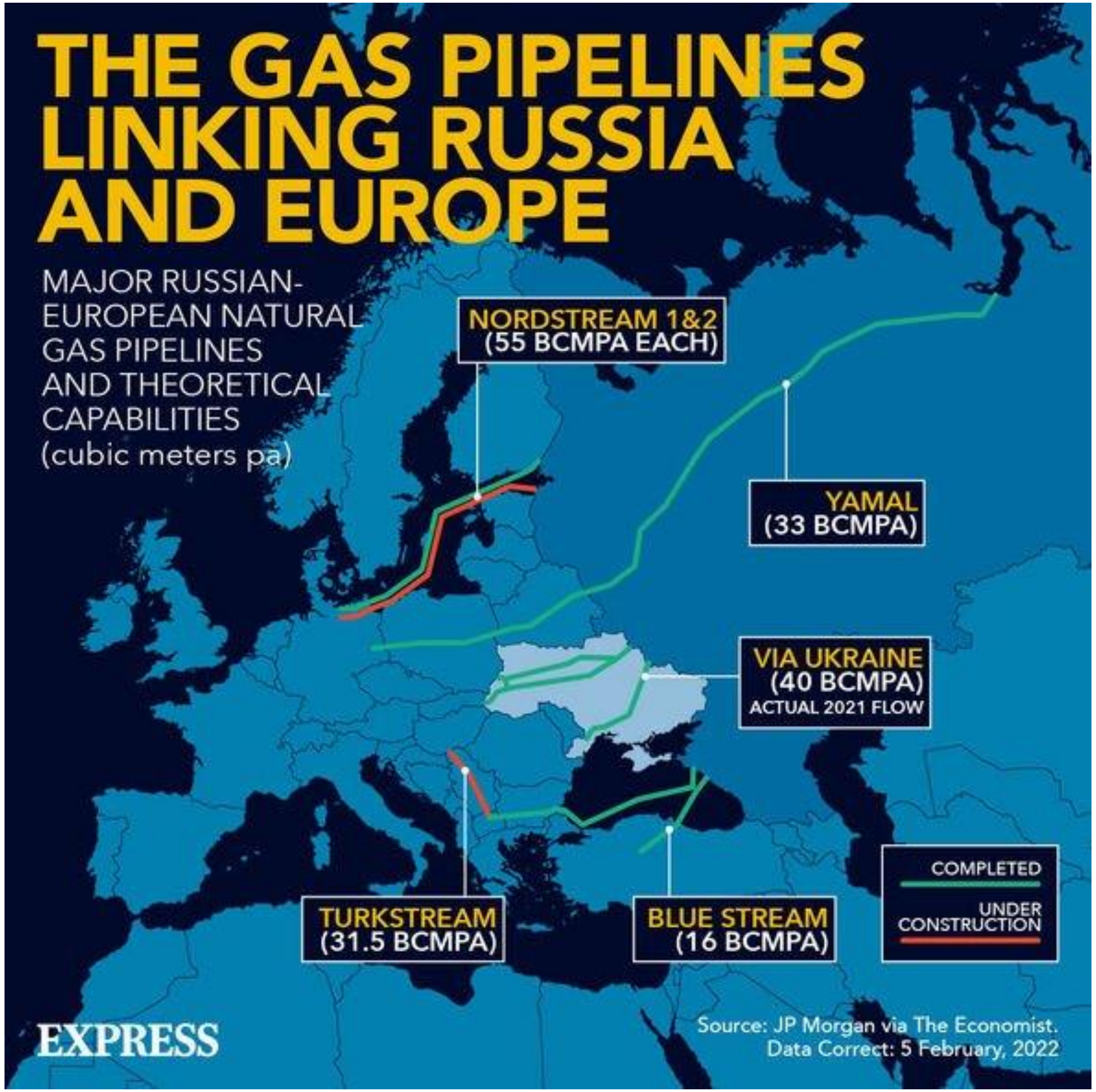
Source: *Europe Doubles Down on Russian Gas to Feed its Energy Appetite*, by Andrew Haney, Ricardo Bracho, Nick Wolfe and Max Faith

Natural Gas Runs Through Ukraine



Source: The Oxford Institute for Energy Studies
Note: Only the portion of pipelines that run through Ukraine are displayed on the map

Source: *Ukraine, Russia Gas Clash Raises Threat to Europe's Supply, Bloomberg; Elena Mazneva, Daryna Krasnolutska, Anna Shiryaevskaya; May 10, 2022*



Source: *Europe's gas supply visualised: The route Russian gas travels from source to households, Express, March 9, 2022*

$35.4 Billion Demanded in Letter to EU

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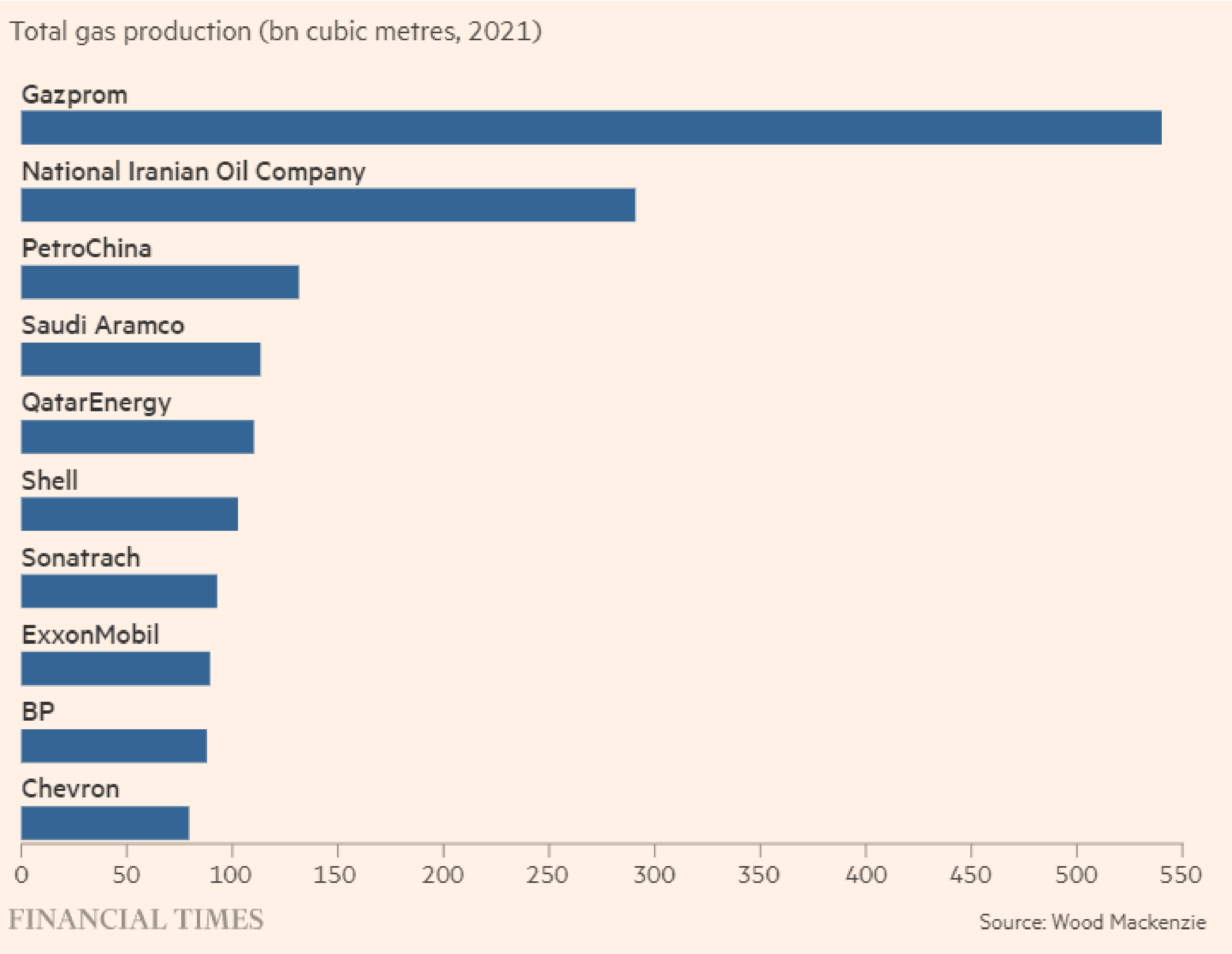
Bloomberg

Putin Calls on Europe to Aid Ukraine or Face Gas Supply Risk

FOX NEWS

Putin warns Europe about Ukraine gas debt

The 10 largest gas companies



Rosneft and Gazprom represent 25%-40% of Russia’s budget

ROSNEFT

GAZPROM

Shale Revolution?

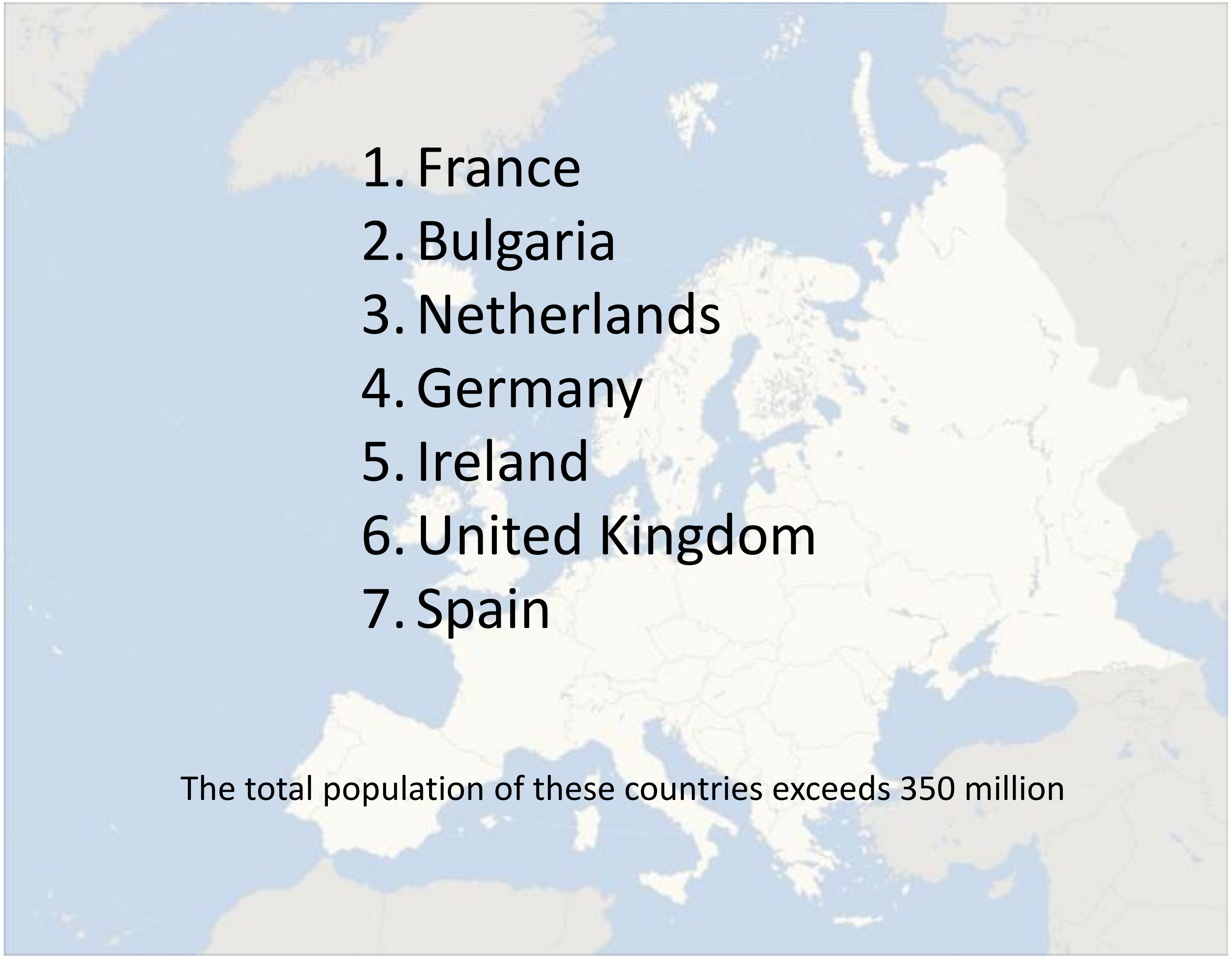
Putin spends $95 million on fracking disinformation campaign

Former NATO Secretary General Anders Fogh Rasmussen backs up the Romanian claim. He said in London recently,

"Russia, as part of their sophisticated information and disinformation operations, engaged actively with so-called nongovernmental organizations – environmental organizations working against shale gas – to maintain [Europe's] dependence on imported Russian gas."

- Former NATO Secretary General Anders Fogh Rasmussen

EU Fracking Bans/Moratoriums Still in Place



1. France
2. Bulgaria
3. Netherlands
4. Germany
5. Ireland
6. United Kingdom
7. Spain

The total population of these countries exceeds 350 million

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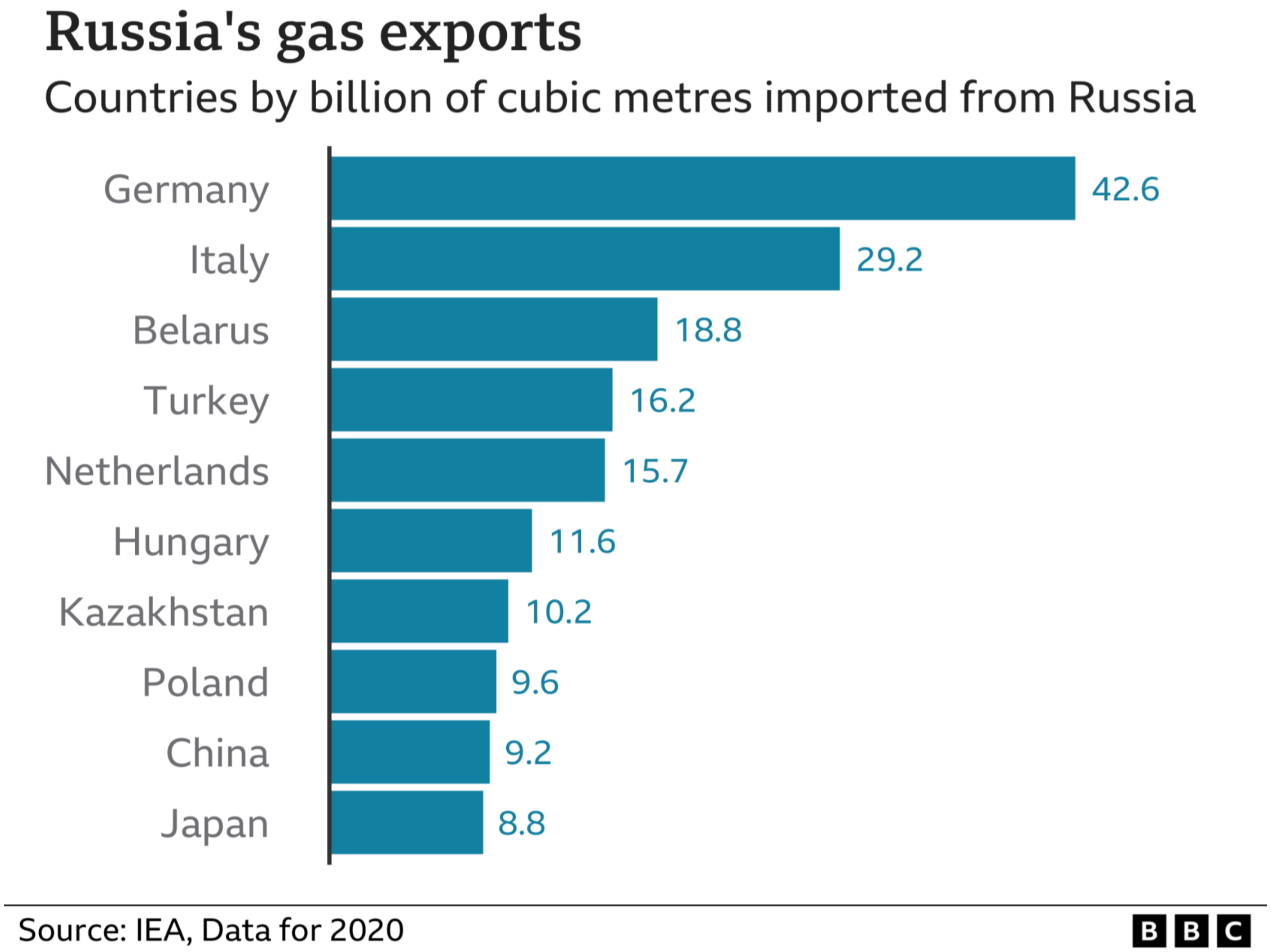
Energy Security?

- By the year 2020, Gazprom will supply nearly 70% of the European Union’s natural gas.
- Would you pursue a conflict with a country that you depend on for the majority of your energy needs?



Source: *Russia sanctions: Can the world cope without its oil and gas?; Jake Horton, Daniele Palumbo and Tim Bowler; BBC Reality Check, May 31, 2022*

Russia and LNG

- When the Sakhalin II project is fully on stream, it will supply around 5% of the world's LNG and make a significant contribution to strengthening global energy security." (February 18, 2009)

- Sakhalin, formerly owned by Shell Exploration, was "nationalized" by Gazprom. Gazprom currently owns 51% of the project.

April 4, 2009

Kovykta Gas Field

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- Reserves amount to 2 trillion cubic meters of natural gas (70 TCF)
- More than 600 million barrels of gas condensate
- 3-4 BCF gas/day

History of Kovykta

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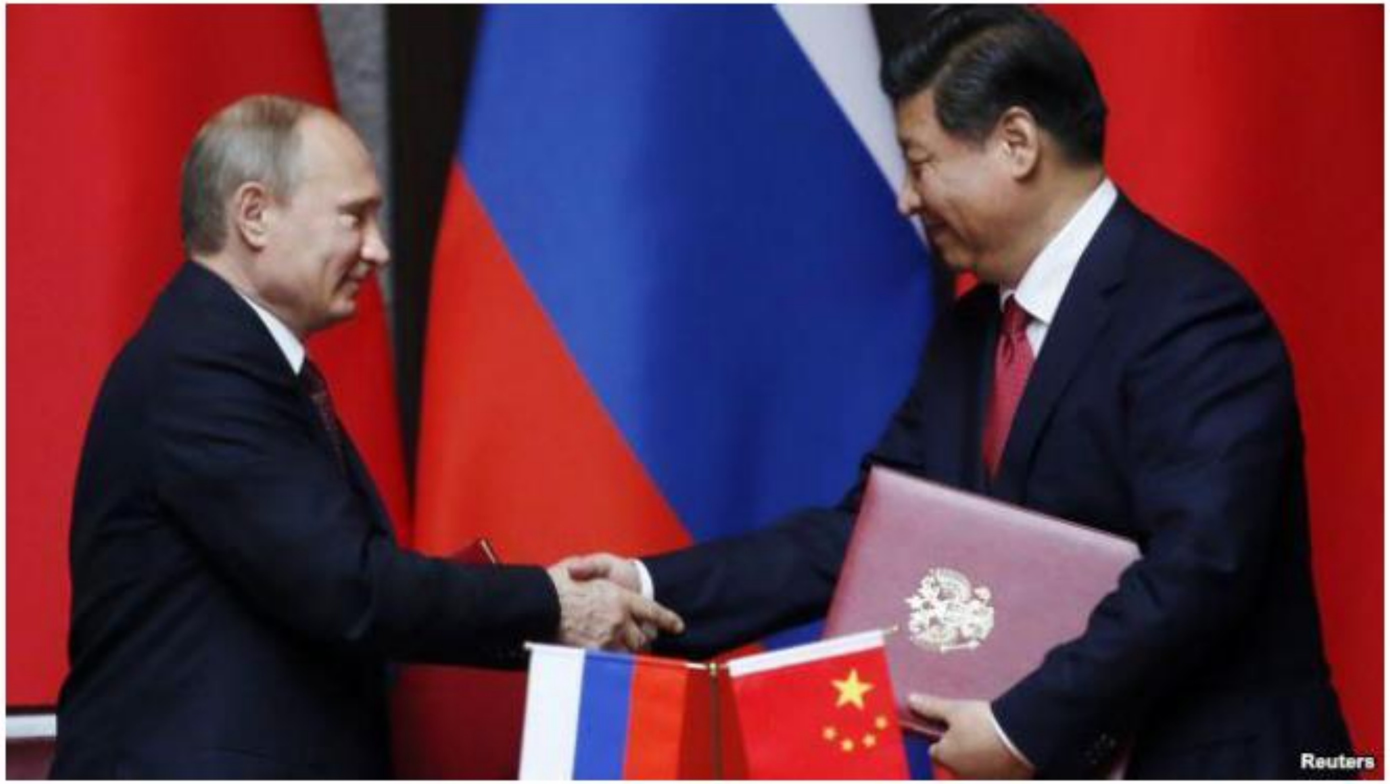
- **1987** – Kovykta discovered
- License to develop held by Russia Petroleum (Majority of RP owned by TNK-BP)
- **June 2006** – Top TNK-BP Engineer Enver Ziganshin murdered
- **June 2007** – TNK-BP offered to sell stake for $700-$900 million to Gazprom, but deal never materialized
- **June 2010** – Russia Petroleum filed for bankruptcy
- TNK-BP attempted to sell field to state owned Rosneft but failed
- **March 2011** – Gazprom bought Russia Petroleum's assets, including Kovykta, for $711 million

May 2014 -

The Washington Post

China, Russia sign $400 billion gas deal



Power of Siberia Gas Pipeline Map

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Source: *wikipedia*

U.S. liquefied natural gas exports to Europe increased during the first 4 months of 2022

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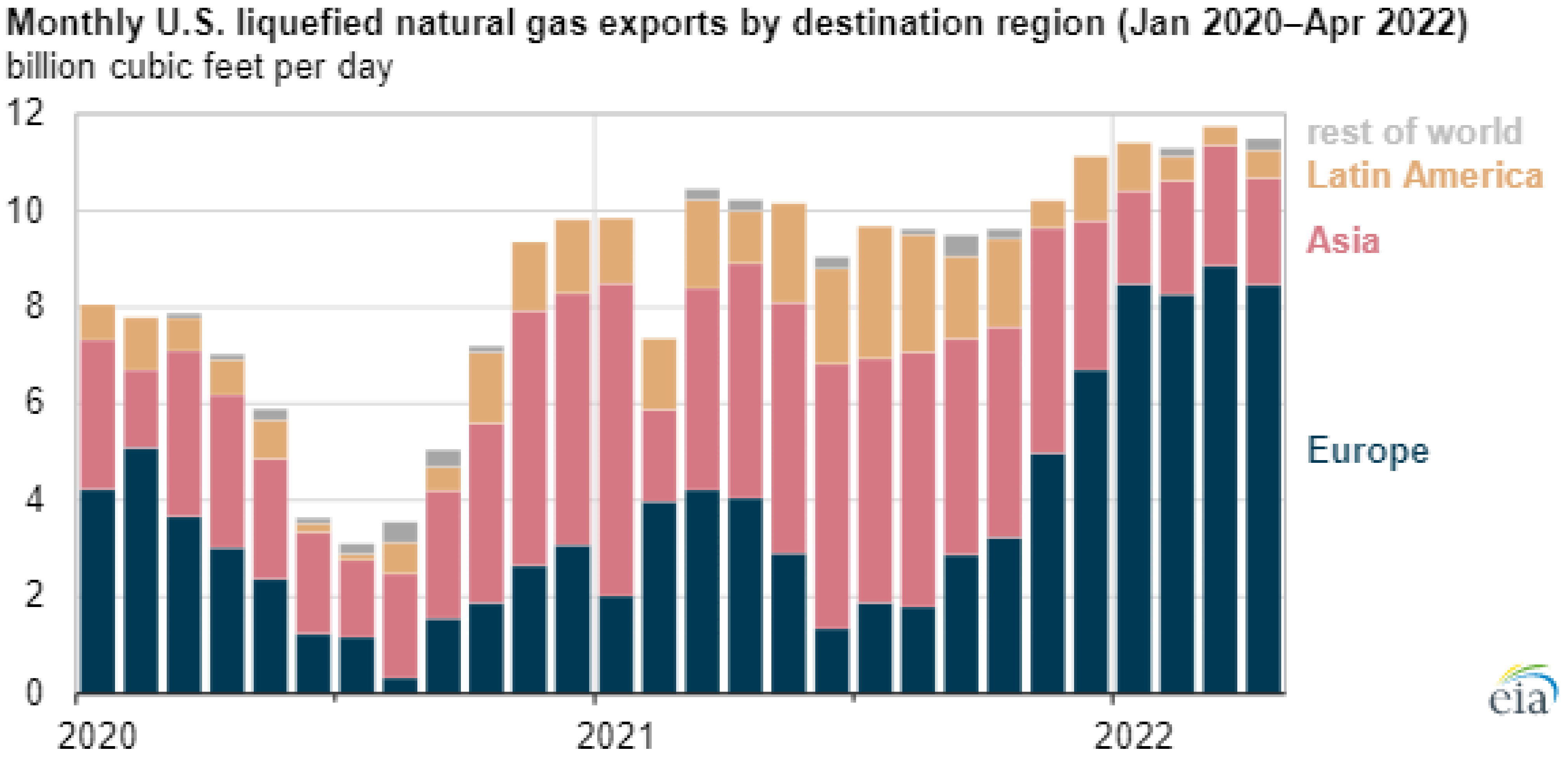

Note: Europe includes Turkey

Source: *U.S. Energy Information Administration (EIA), Natural Gas Monthly and EIA estimates for April 2022*

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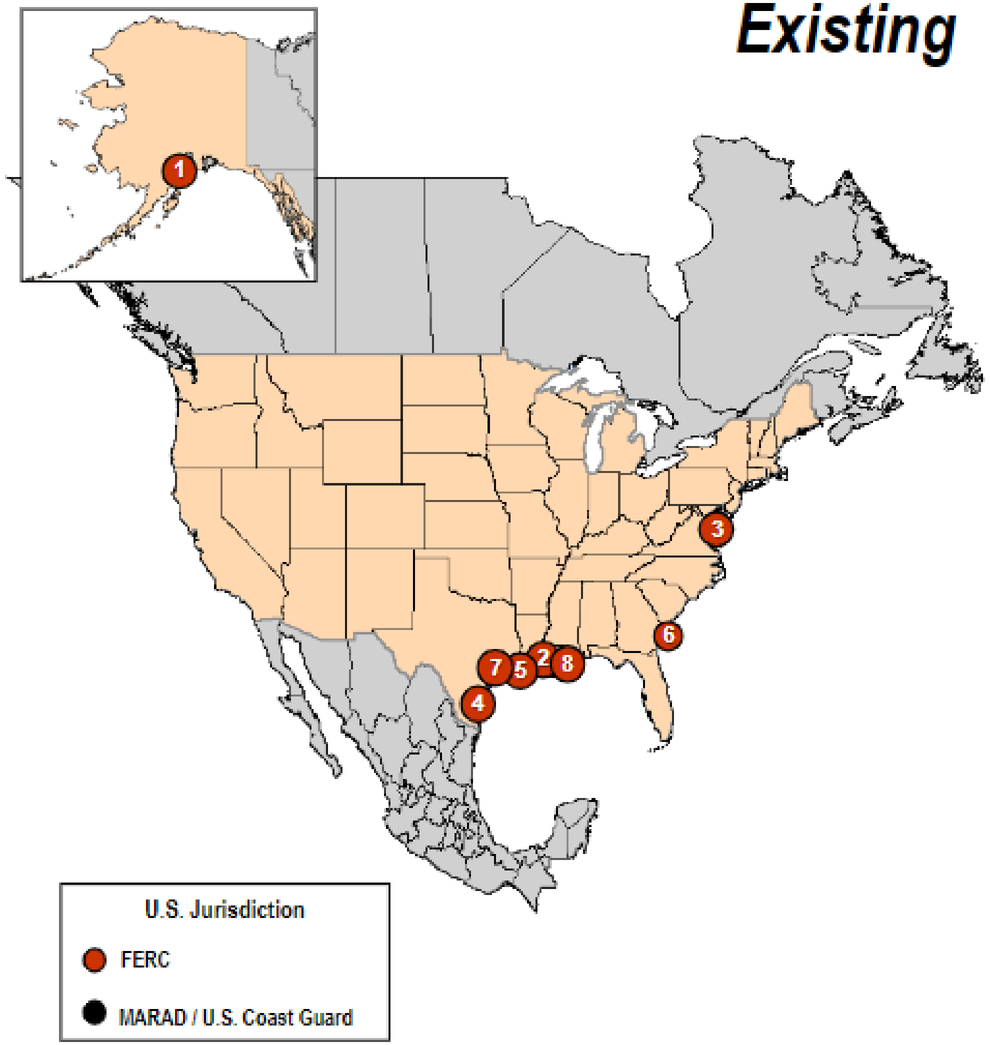
North American LNG Export Terminals
Existing



Export Terminals

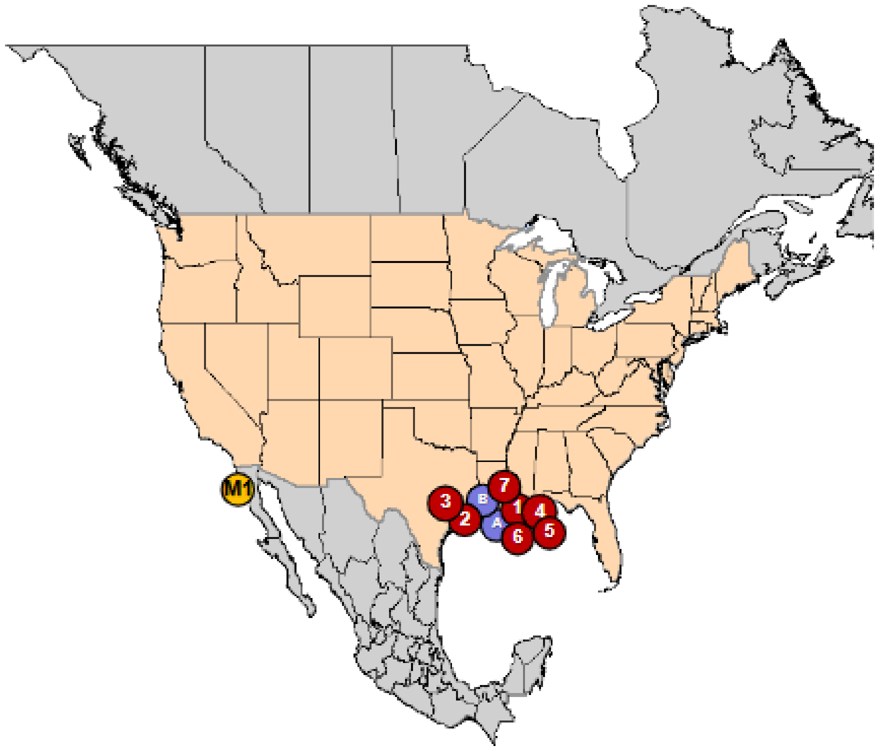
UNITED STATES

1. **Kenai, AK:** 0.2 Bcfd (Trans-Foreland)
2. **Sabine, LA:** 4.55 Bcfd (Cheniere/Sabine Pass LNG – Trains 1-6)
3. **Cove Point, MD:** 0.82 Bcfd (Dominion–Cove Point LNG)
4. **Corpus Christi, TX:** 2.40 Bcfd (Cheniere – Corpus Christi LNG Trains 1-3)
5. **Hackberry, LA:** 2.15 Bcfd (Sempra–Cameron LNG, Trains 1-3)
6. **Elba Island, GA:** 0.35 Bcd (Southern LNG Company Units 1-10)
7. **Freeport, TX:** 2.14 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction Trains 1-3)
8. **Cameron Parish, LA:** 0.74 Bcfd (Venture Global Calcasieu Pass Units 1-4)

As of June 7, 2022
No updates since previous issuance

Source: *Federal Energy Regulatory Commission*

North American LNG Export Terminals
Proposed



UNITED STATES

PROPOSED TO FERC
Pending Applications:
1. Cameron Parish, LA: 1.18 Bcfd (Commonwealth, LNG) (CP19-502)
2. Port Arthur, TX: 1.86 Bcfd (Sempra - Port Arthur LNG Trains 3 & 4) (CP20-55)
3. Freeport, TX: 0.24 Bcfd (Freeport LNG uprate) (CP21-470
4. Cameron Parish, LA: 1.45 Bcfd (Venture Global CP2 Blocks 1-9) (CP22-21)
5. Cameron Parish, LA: .057 Bcfd (Venture Global Calcasieu Pass) (CP22-25)
6. Hackberry, LA: -0.45 Bcfd (Sempra - Cameron LNG Vacate T5 & modify T4) (CP22-41)
7. Plaquemines Parish, LA: 0.45 Bcfd (Venture Global Plaquemines) (CP22-92)

Projects in Pre-filing:
A. LaFourche Parish, LA: 0.65 Bcfd (Port Fourchon LNG) (PF17-9)
B. Plaquemines Parish, LA: 2.76 Bcfd (Delta LNG - Venture Global) (PF19-4)

CANADA
For Canadian LNG Import and Proposed Export Facilities:

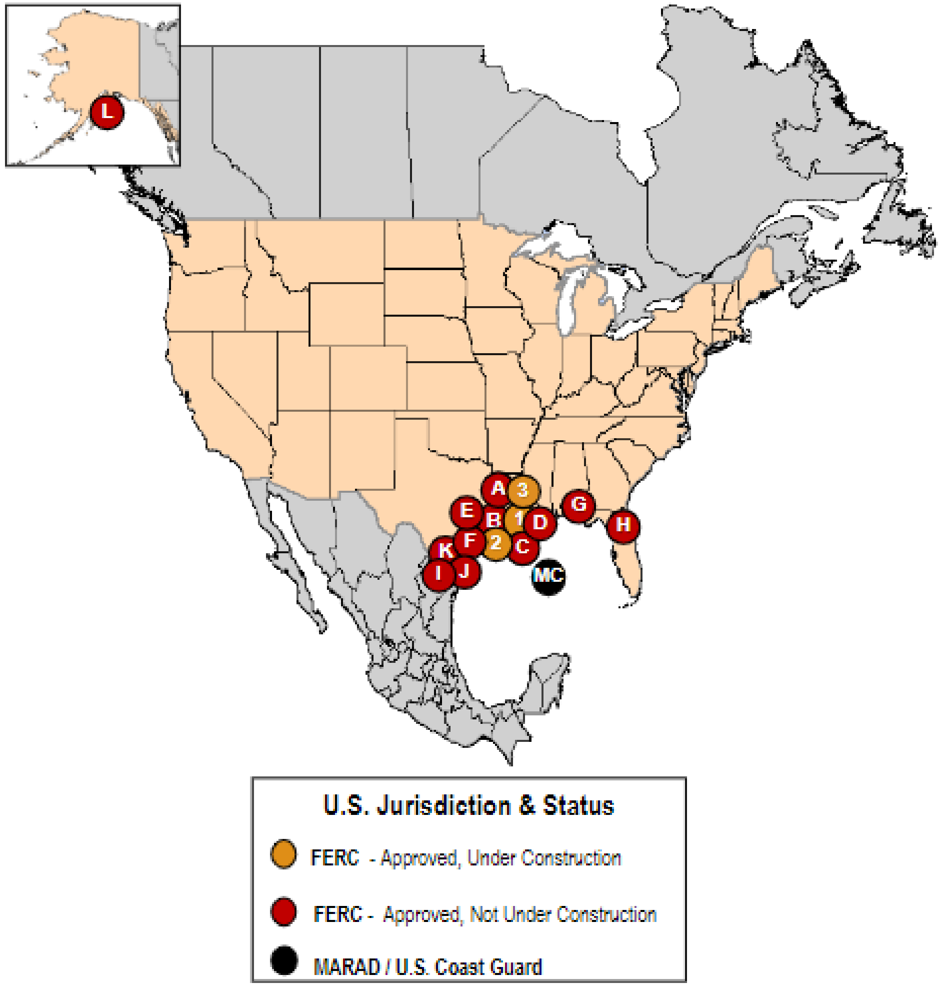
https://www.nrcan.gc.ca/energy/natural-gas/5683

MEXICO (Projects in advanced planning/development stages)
M1. Baja California, MX: 0.4 Bcfd (Sempra – Energía Costa Azul Phase 1)

As of June 7, 2022
No updates since previous issuance

Source: *Federal Energy Regulatory Commission*

North American LNG Export Terminals
Approved, Not Yet Built



Export Terminals

UNITED STATES

FERC – APPROVED, UNDER CONSTRUCTION

1. **Cameron Parish, LA:** 0.92 Bcfd (Venture Global Calcasieu Pass Units 5-9) (CP15-550)
2. **Sabine Pass, TX:** 2.26 Bcfd (ExxonMobil – Golden Pass) (CP14-517, CP20-459)
3. **Plaquemines Parish, LA:** 3.40 Bcfd (Venture Global Plaquemines) (CP17-66)

FERC – APPROVED, NOT UNDER CONSTRUCTION

A. **Lake Charles, LA:** 2.2 Bcfd (Lake Charles LNG) (CP14-120)
B. **Lake Charles, LA:** 1.186 Bcfd (Magnolia LNG) (CP14-347)
C. **Hackberry, LA:** 1.41 Bcfd (Sempra - Cameron LNG Trains 4 & 5) (CP15-560)
D. **Calcasieu Parish, LA:** 4.0 Bcfd (Driftwood LNG) (CP17-117)
E. **Port Arthur, TX:** 1.86 Bcfd (Sempra - Port Arthur LNG Trains 1 & 2) (CP17-20)
F. **Freeport, TX:** 0.72 Bcfd (Freeport LNG Dev Train 4) (CP17-470)
G. **Pascagoula, MS:** 1.5 Bcfd (Gulf LNG Liquefaction) (CP15-521)
H. **Jacksonville, FL:** 0.132 Bcf/d (Eagle LNG Partners) (CP17-41)
I. **Brownsville, TX:** 0.55 Bcfd (Texas LNG Brownsville) (CP16-116)
J. **Brownsville, TX:** 3.6 Bcfd (Rio Grande LNG – NextDecade) (CP16-454)
K. **Corpus Christi, TX:** 1.86 Bcfd (Cheniere Corpus Christi Stage III) (CP18-512)
L. **Nikiski, AK:** 2.63 Bcfd (Alaska Gasline) (CP17-178)

MARAD/USCG – APPROVED, NOT UNDER CONSTRUCTION

MC. **Gulf of Mexico:** 1.8 Bcfd (Delfin LNG)

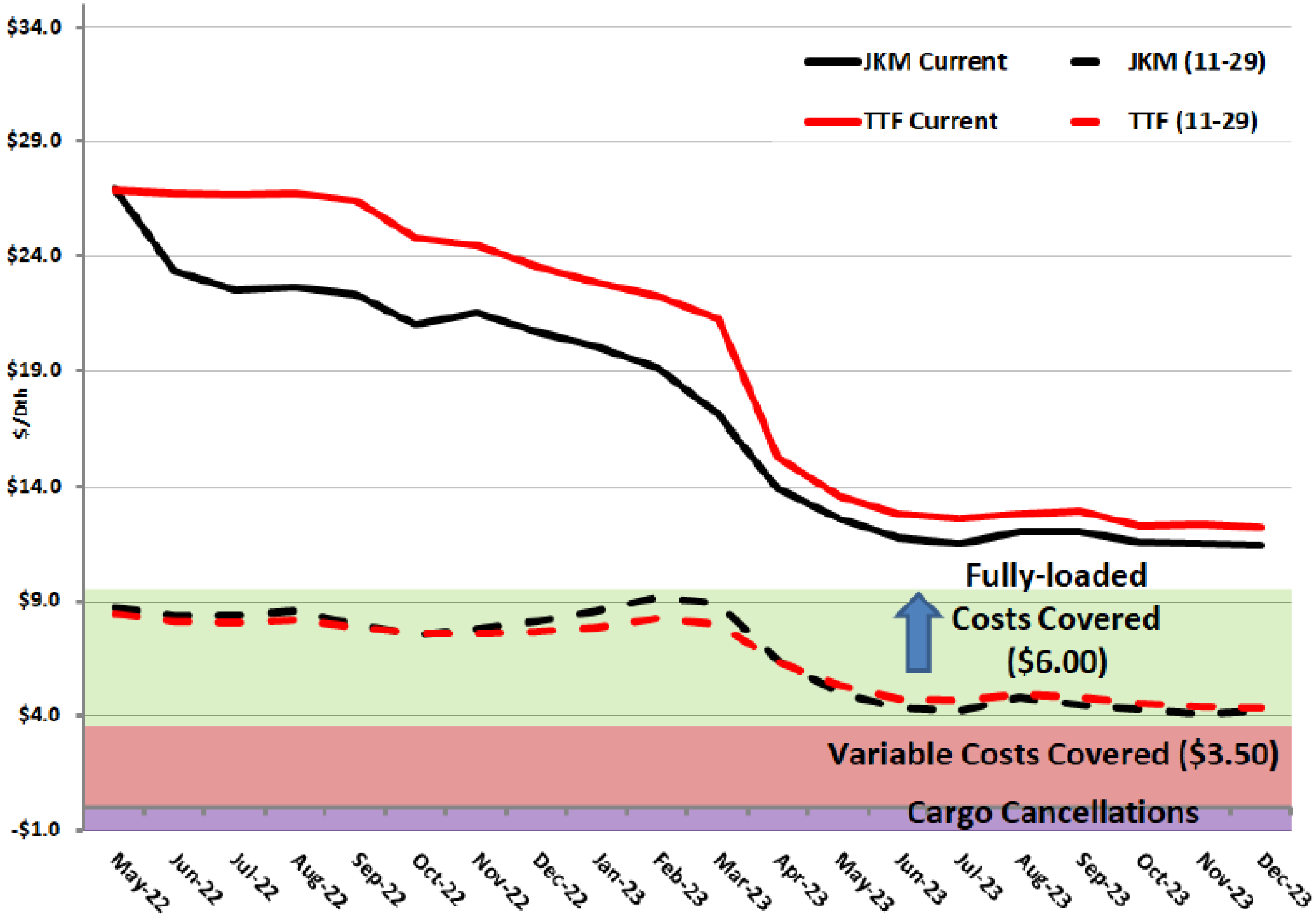
CANADA - LNG IMPORT AND PROPOSED EXPORT FACILITIES
https://www.nrcan.gc.ca/energy/natural-gas/5683

As of June 7, 2022
No updates since previous issuance

Source: *Federal Energy Regulatory Commission*

LNG Export Trends

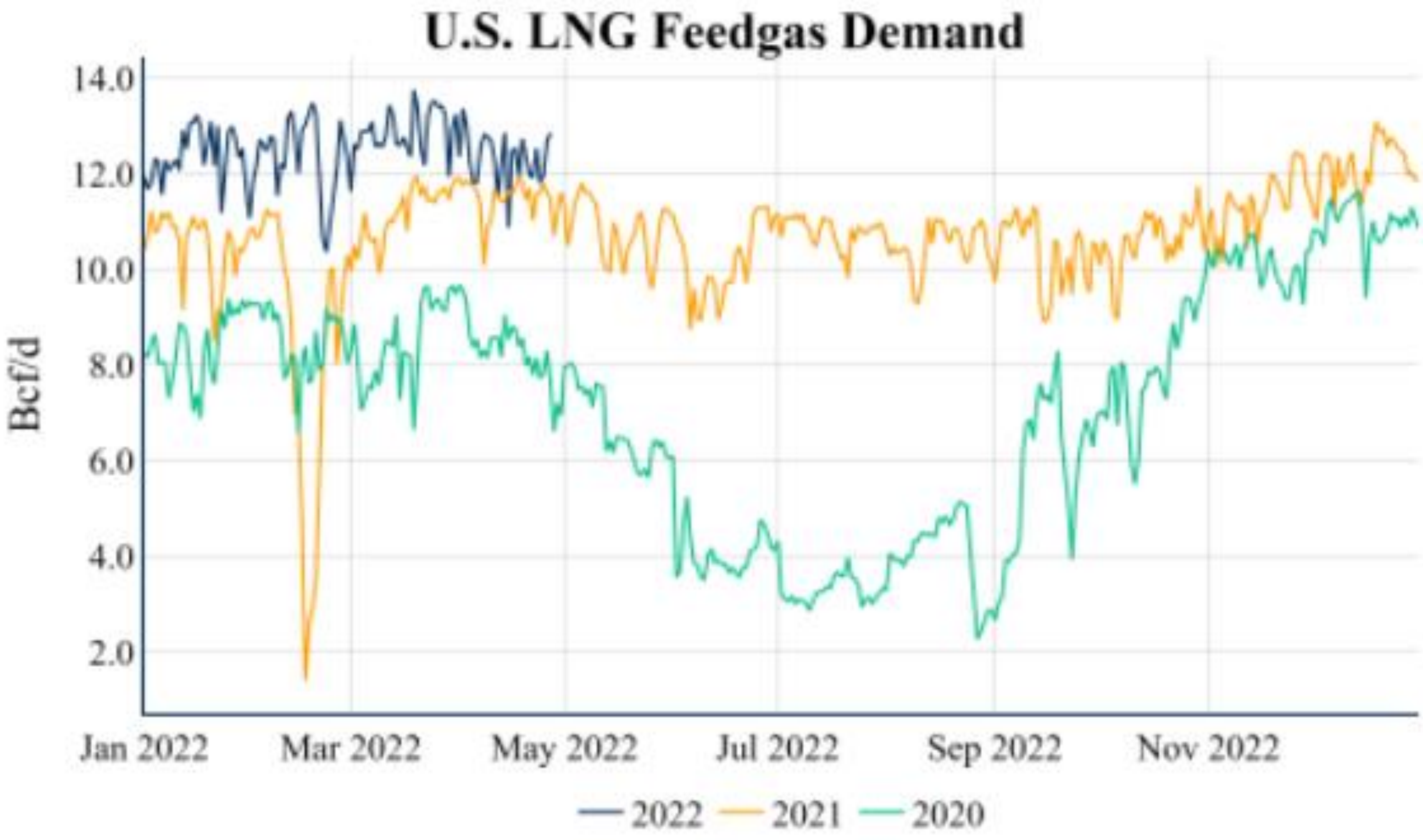
Near Term Outlook Margins



Margins through ‘23 well above fully loaded costs. Supply demand balance remains tight due to greater demand in Asia and Europe. Competition for cargos between Asia and Europe and Russia/Ukraine conflict sustaining elevated prices in both markets.

Nord Stream 2 will not enter service for the foreseeable future with current situation in Europe

Sources: *CME, NGI, KM Analysis, Kinder Morgan presentation, March 30, 2022,*

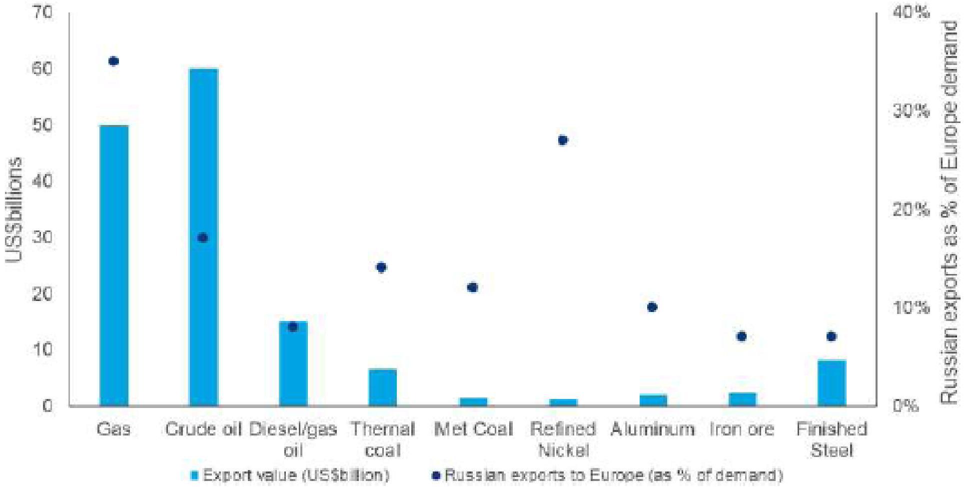


Source: *Aegis Hedging, Market Insights, April 27, 2022*

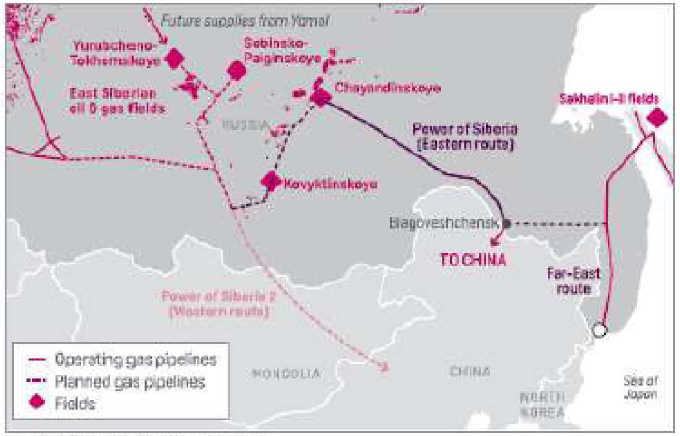
LNG Export Trends

Russian gas supply to Europe and China

European exposure to Russian commodity imports and its monetary value (2021)



RUSSIAN GAS LINKS TO CHINA



Source: S&P Global Platts, Gazprom

- Russian gas and oil have a significant share of the EU Mkt.
- Russian gas supplies ~38% of European demand
- Russia supplies ~50% of Germany's demand and ~30% of Italy's demand
- May be limits to increase pipe supply from non-Russian sources

- Russian piped gas flows to Europe on the following routes;
- Nord Stream 1 flowing at capacity 5 Bcfd
- Nord Stream 2 (uncertain outcome), capacity of 5 Bcfd
- Yamal (via Poland) capacity of 3.2, not flowing at capacity
- 3 pipes thru Ukraine, capacity 8.1 Bcfd, limited flow currently due to higher cost of transport. Russia has a 3.8 Bcfd flow or pay kt. with Ukraine thru '24
- TurkStream and Blue Stream (via Turkey to Italy /southern EU), capacity of ~3 Bcfd

- Russia currently supplies China and is looking to expand
- Russia supplies China via the Power of Siberia PL; 3.9 Bcfd, supplying ~7% of its gas demand
- In discussions to develop Power of Siberia 2, 5.1 Bcfd
- Entered into new long-term gas agreement with China's CNPC for 1 Bcfd

Sources: *Wood Mac, Platts, RBN, Kinder Morgan presentation, March 30, 2022*

European LNG infrastructure

Source: *European Commission 2022, Clean Energy Wire*

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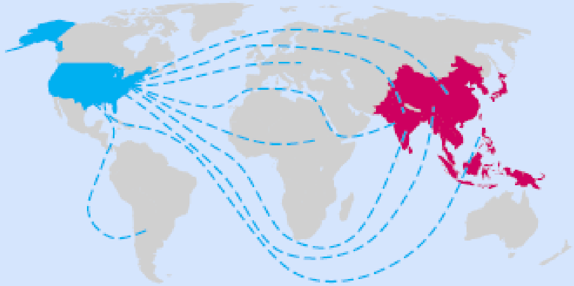
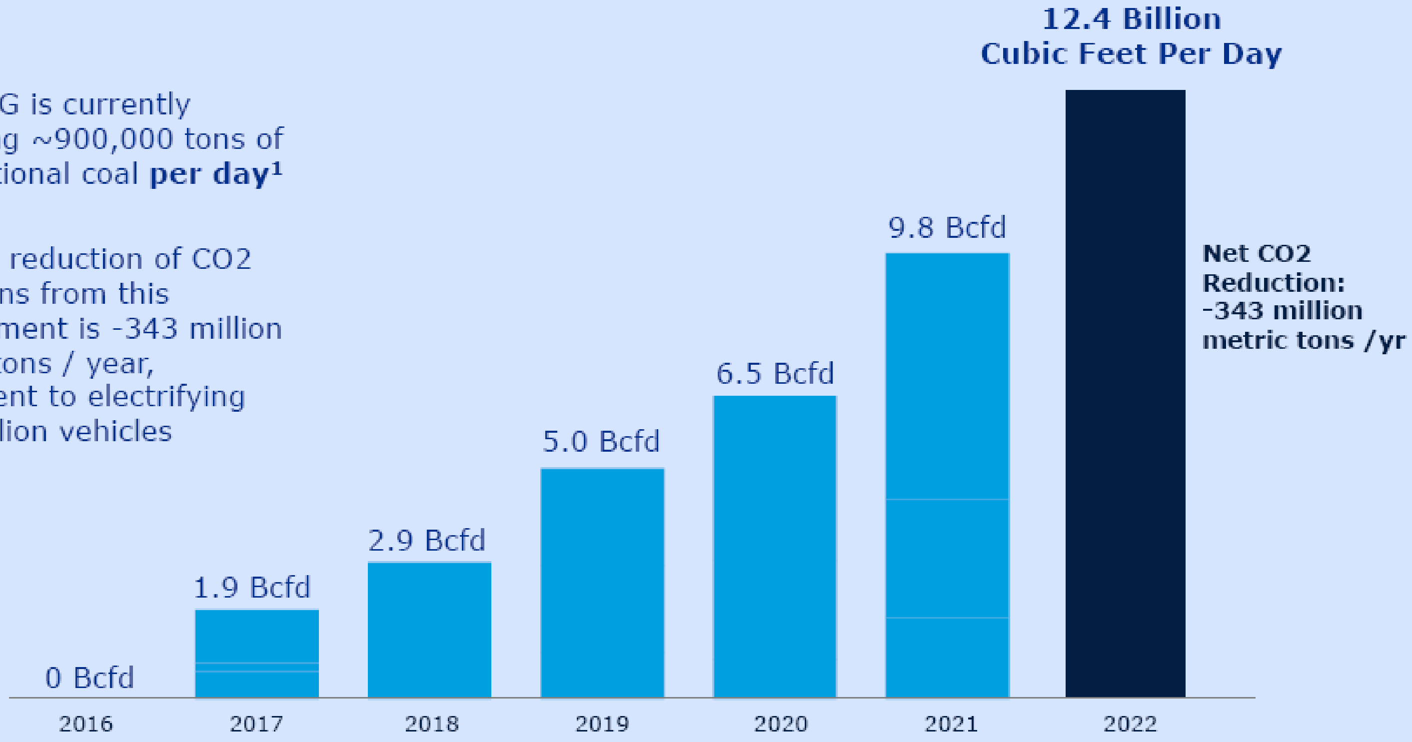
U.S. LNG Export Capacity



LNG export facilities are currently located predominantly on the Gulf Coast

U.S. LNG is currently replacing ~900,000 tons of international coal **per day**[1]

The net reduction of CO_2 emissions from this replacement is -343 million metric tons / year, equivalent to electrifying 125 million vehicles



1. International coal displaced is calculated by total thermal unit generated by gas divided by average heating content of coal (~19.8 mmbtu/short ton) // Net GHG reduction is calculated based on the emission differential between coal and natural gas (~560 CO2e kg/MWh) based on a study from ICF.

Source: EIA U.S. Natural Gas Exports and Re-Exports by Point of Exit, Reuters, EIA CO2 emission coefficient.

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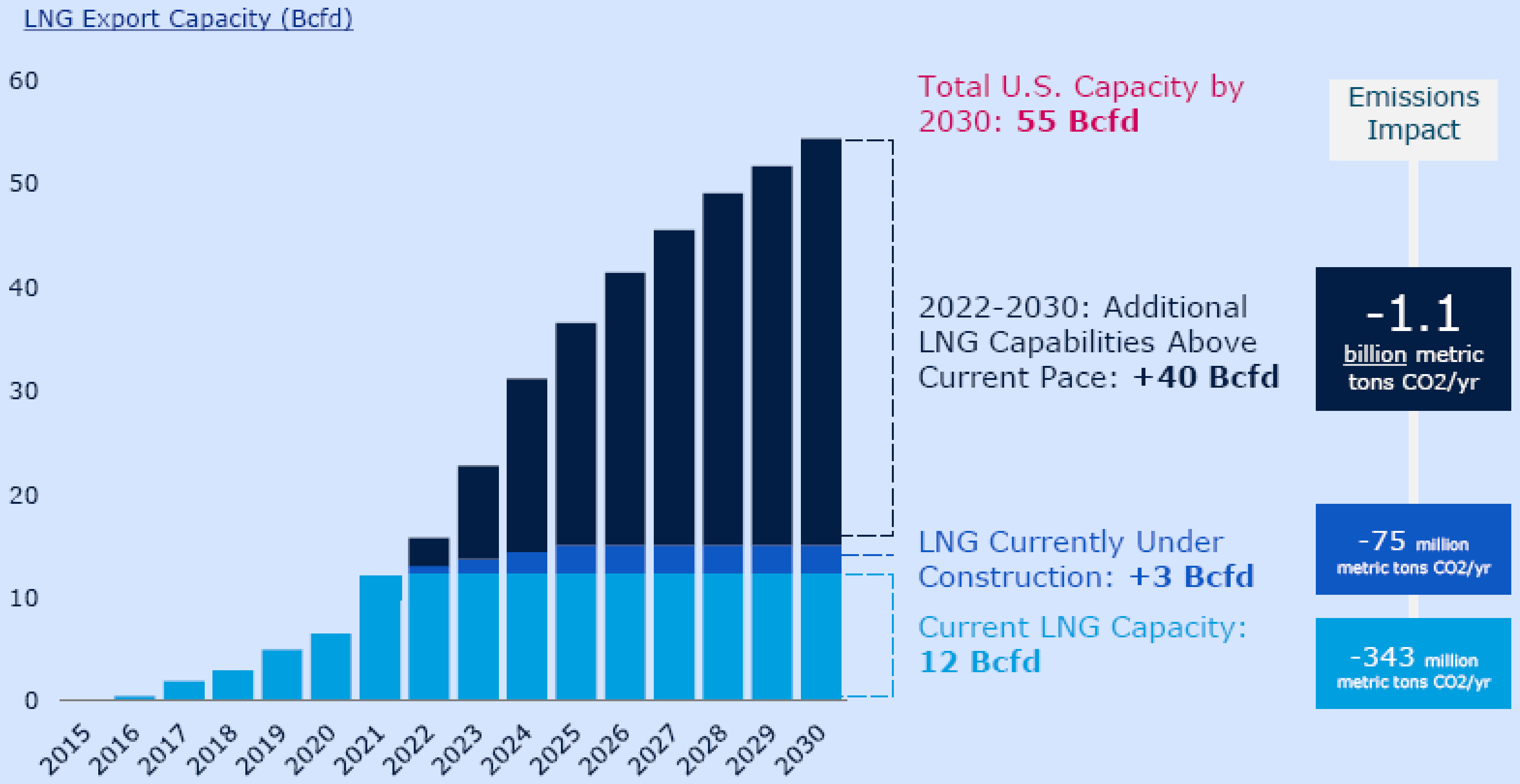
Source: *EQT presentation CERA Week LNG, Unleashing U.S. LNG: The Largest Green Initiative on the Planet*

Projected LNG Export Capacity Through 2030[1]



1. Based on an internal study, U.S can produce 40 bcfd production surplus by 2030. 2. There is 3 bcfd capacity currently under construction, and another 3 bcfd anticipated. Therefore, projected incremental capacity is 6bcfd. To reach an additional 40 bcfd, the incremental needs to be 6x, which is in line with non-obstructed pace. 3. Assuming 3 bcfd under construction, and 40 bcfd additional capacity by 2030.

Source: ICF Update to the life-cycle analysis of GHG emissions for U.S. LNG exports analysis to calculate emissions saving from coal to gas; EQT analysis for additional production (based on Enverus data)

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Source: *EQT presentation CERA Week LNG, Unleashing U.S. LNG: The Largest Green Initiative on the Planet*

The SWIFT Bank Exception

Two banks exempted from SWIFT bank sanctions:

GAZPROMBANK

SBERBANK

Source: *EU bars 7 Russian banks from SWIFT, but spares those in energy, Philip Blenkinsop, Reuters, March 2, 2022*

Ukraine Invasion – Putin Miscalculated

U.S. LNG Responded

Germany's Angst

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Germany's pursuit of peace in trade with Russia failed

"Roughly half of Germany's homes rely on natural gas for their heating, and 55 percent of the country's gas comes from Russia."

A near-term cut-off of Russian gas supplies to Germany could cost their economy $120 billion. Germany would be rationing natural gas.

Source: *After Germany Moves Toward Gas Rationing, Putin Appears to Offer a Workaround, Melissa Eddy, The New York Times, March 30, 2022*

Germany’s About Face Gives Hope

“We must change course to overcome our dependence on imports from individual energy suppliers,”

- Chancellor Olaf Scholz

This will include building two liquefied natural gas (LNG) terminals, one in Brunsbuettel and one in Wilhelmshaven, and raising its natural gas reserves.

Source: *Nuclear, coal, LNG: ‘no taboos’ in Germany’s energy about-face; Christoph Steitz, Riham Alkousaa and Maria Sheahan, Reuters, February 27, 2022*

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The far green left still doesn't understand scale.

Daniel Yergin: "… this is a $90 trillion world economy that gets 80% of its energy from hydrocarbons. It's not going to change overnight."

Source: *Energy conference leader pans Kerry's 2050 climate goals: 'Going to still be an energy mix,' Tyler Olson, Fox Business, March 15, 2022*

Contact Information

John Harpole
President
Mercator Energy
26 W. Dry Creek Circle, Suite 410
Littleton, CO 80120
harp@mercatorenergy.com
(303) 825-1100 (work)
(303) 478-3233 (mobile)