

Exploring the Impact of LNG Exports on Pennsylvania Families

March 15, 2024



cepc

Center for
Energy Poverty
and Climate

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Pennsylvania Utility Law Project

PULP is a statewide legal services project of Regional Housing Legal Services and is a member of the Pennsylvania Legal Aid Network.

PULP's mission is to secure just and equitable access to safe and affordable utility services for Pennsylvanians experiencing poverty.

We work to achieve our mission by empowering individuals and communities through:

- Legal Representation, Groups, and Individuals
- Education and Training
- Policy Advocacy
- Supportive Services
- Consultation





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Center for
Energy Poverty
and Climate

The Center for Energy Poverty and Climate (CEPC) is a national nonprofit organization whose mission is to develop policies and programs for federal, state and local agencies to help low-and-moderate income families adapt to rising temperatures.

CEPC was founded on the belief that achieving the goal of net zero climate emissions and affordable energy in the residential sector will require coordination from the public, private, and nonprofit sectors.

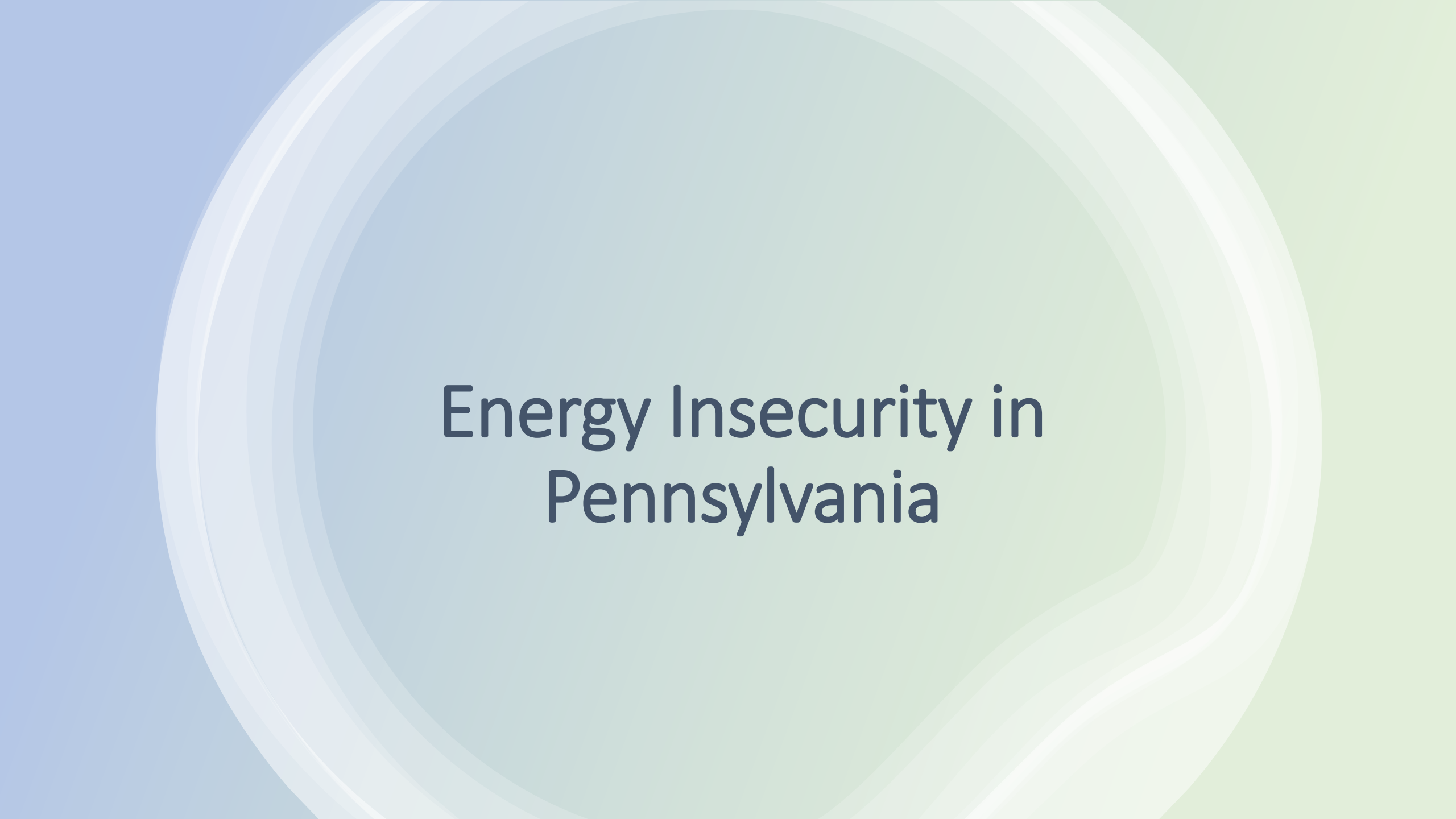


Public Citizen

Established in 1971, Public Citizen is a national, not-for-profit, non-partisan, research and advocacy organization representing the interests of household consumers. We have over 500,000 members and supporters across the United States.

Public Citizen is active before the Federal Energy Regulatory Commission promoting just and reasonable rates. We frequently intervene in U.S. Department of Energy proceedings involving the export of electricity and natural gas.

Our Energy Program Director, Tyson Slocum, is an expert on energy market regulatory matters, serving as a witness on the Department of Energy public interest standard in testimony before the U.S. Congress in February 2023. Slocum also serves on two federal advisory committees of the U.S. Commodity Futures Trading Commission (the Energy and Environmental Markets and Market Risk advisory committees)



Energy Insecurity in Pennsylvania

Nationally, Energy Insecurity is Increasing

The Administration's recent pause on the approval of new LNG facilities will provide an opportunity to take a more granular look at price and affordability.

- **Average Cost of Home Heating Has Increased 16.5% Since the Start of the Pandemic.** The average cost of home heating for all fuel types has increased by close to 16.5% from \$725 to \$868.
- **Households Receiving Energy Assistance Reach Record Levels.** About 7.3 million households received energy assistance in FY 2023, an increase of about 1.5 million, from 5.8 million in FY 2022.
- **Up to 1.5 million families could be cut this year from LIHEAP under current Congressional budget proposals.** Congress is considering reducing the level of funding from \$6.1 billion last year to \$4.1 billion in 2024.
- **Families are Falling Behind on Utility Bills:** More than one out of six households are behind on their energy bills, at 16 percent (21.2 million) of all U.S. households.

“When my gas was shut off for two and a half weeks, I was lucky enough to have an electric stove, I had to boil water to make a hot bath for my kids.”

Clara is a single mom, two kids – 1 and 11. She lives in a home in Gettysburg. She is the caretaker for her 1-year-old, and works a part time job. Clara’s heating bills are about \$300/month – and she is currently behind by \$600. She has diabetes, and relies on insulin.

CLARA

Clara keeps the house at 60 degrees. When bills are tight, she prioritizes feeding her children and keeping up with her car loan so she can get to work in her rural community. Without reliable transportation, she would lose her job.

Clara used to work full time, but she paid her own health insurance and prescription costs. ***“I was struggling then and I’m struggling now.”***

“It is very stressful, I feel like I’m doing everything I can.

It’s almost like you’re in a never-ending cycle and you can’t get out of it.”

Utility Insecurity in Pennsylvania

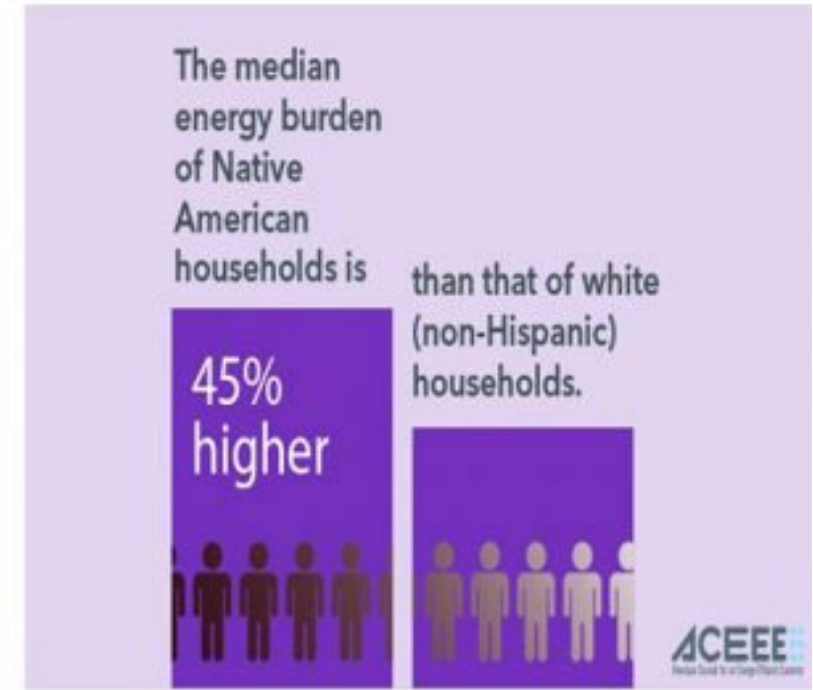
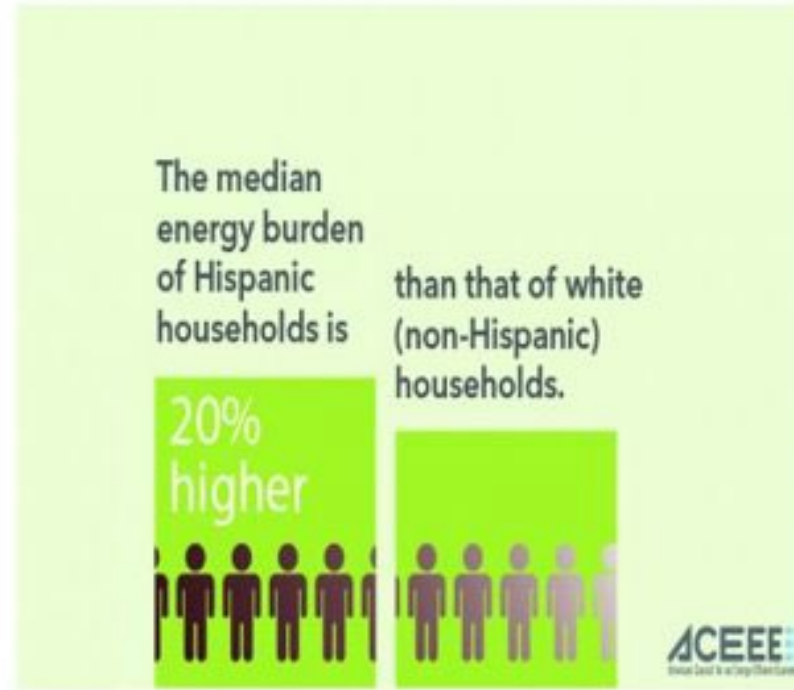
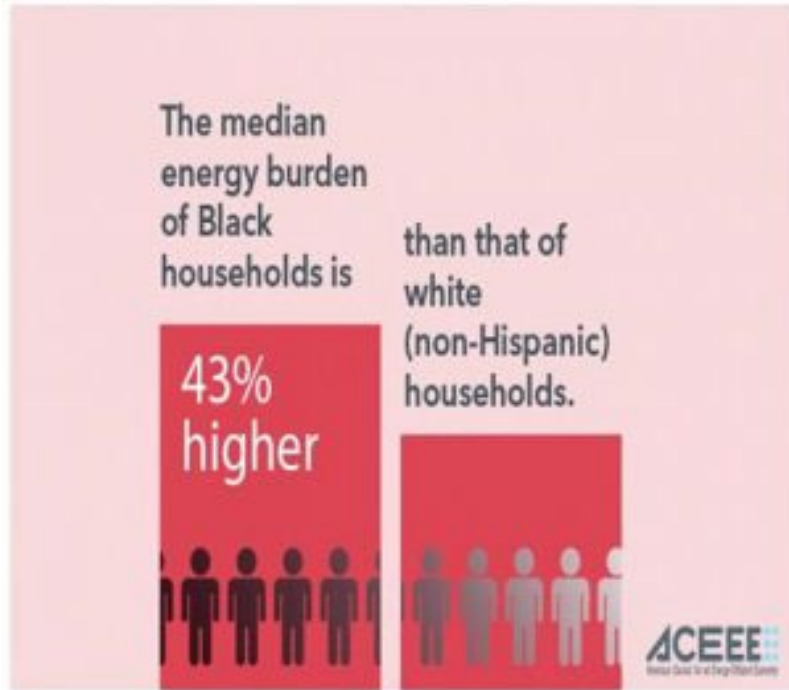
- Over **330,000** Pennsylvania households experienced an involuntary gas, electric, or water shut off in 2023 due to non-payment.
 - **Gas terminations increased 40% year-over-year, from December 2022 to December 2023.**
- Over **10,000** Pennsylvania households entered winter without a safe heating source.



Low income Pennsylvanians regularly pay **30%** of income towards home energy costs, compared to **3-4%** for middle income households.

Home Energy Affordability Gap		
Federal Poverty Level	Home Energy Burden	# of Households
Below 50%	33%	282,747
50-100%	18%	329,656
100-125%	12%	183,370
125-150%	10%	192,284
150-185%	8%	285,880
185-200%	7%	129,934
Total	---	1,403,871

Black, Latino/a/x, and Indigenous households have significantly higher energy burdens compared to white households.



ACEEE, How High are Household Energy Burdens? An Assessment of National and Metropolitan Energy Burdens Across the US (Sept. 2020).

Consequences of Utility Insecurity

- Negative health outcomes
- Exposure to unhealthy / unsafe temperatures
- Interrupts family unity (CYS / custody disputes)
- Hinders child learning and development
- Severs communication with work/school
- Long-term impact on credit
- Liens (municipal utilities) encumber property
- Destabilizes housing and communities
 - Catalyst for eviction, foreclosure, and homelessness
 - Condemnation / Blight
 - Difficulty Relocating
 - Ineligibility for public and private housing

Factors Driving Utility Insecurity

- **External Market Forces**
- Inefficient Housing
- Infrastructure Costs
- Energy Transition
- Residential Energy Competition
- Punitive Collections and Termination Policies
- Inadequate Assistance Programs
- Inequitable Rate Design



Energy in Pennsylvania

Pennsylvania...

- Is the second highest gas producing state, after Texas.
- Is the third highest electric producing state, after Texas / Florida.
 - **54% of Pennsylvania's electricity is produced by gas-fired power plants.**
- Uses only about 25% of the gas it produces for in-state consumption.
- Has the most underground gas storage facilities, and the fourth-largest storage capacity in the nation.

Key Facts:

- **Pennsylvania has deregulated electric and gas markets.**
 - **Energy “supply” – the electrons or gas you use in your home – accounts for between 30-60% of your total electric/gas bill.**
 - **If you do not “shop” for a competitive energy provider, you receive default service from your gas or electric distribution company (NGDC or EDC).**
 - **Pennsylvania NGDCs: PECO, PGW, Peoples, National Fuel Gas, Columbia, and UGI**
 - **Pennsylvania EDCs: PECO, PPL, FirstEnergy (MetEd, Penelec, Penn Power, West Penn Power), Duquesne Light, Pike County Power and Light**
 - **Default service is provided at the “least cost over time”.**
 - **Utilities purchase energy through **laddered contracts** and pass the cost to consumers w/out markup**
 - **The price for Default Service is known as the PRICE TO COMPARE (PTC) or PURCHASED GAS COST (PGC).**
 - **The PTC/PGC changes quarterly.**

Residential Gas Pricing (PTC/PGC), PA

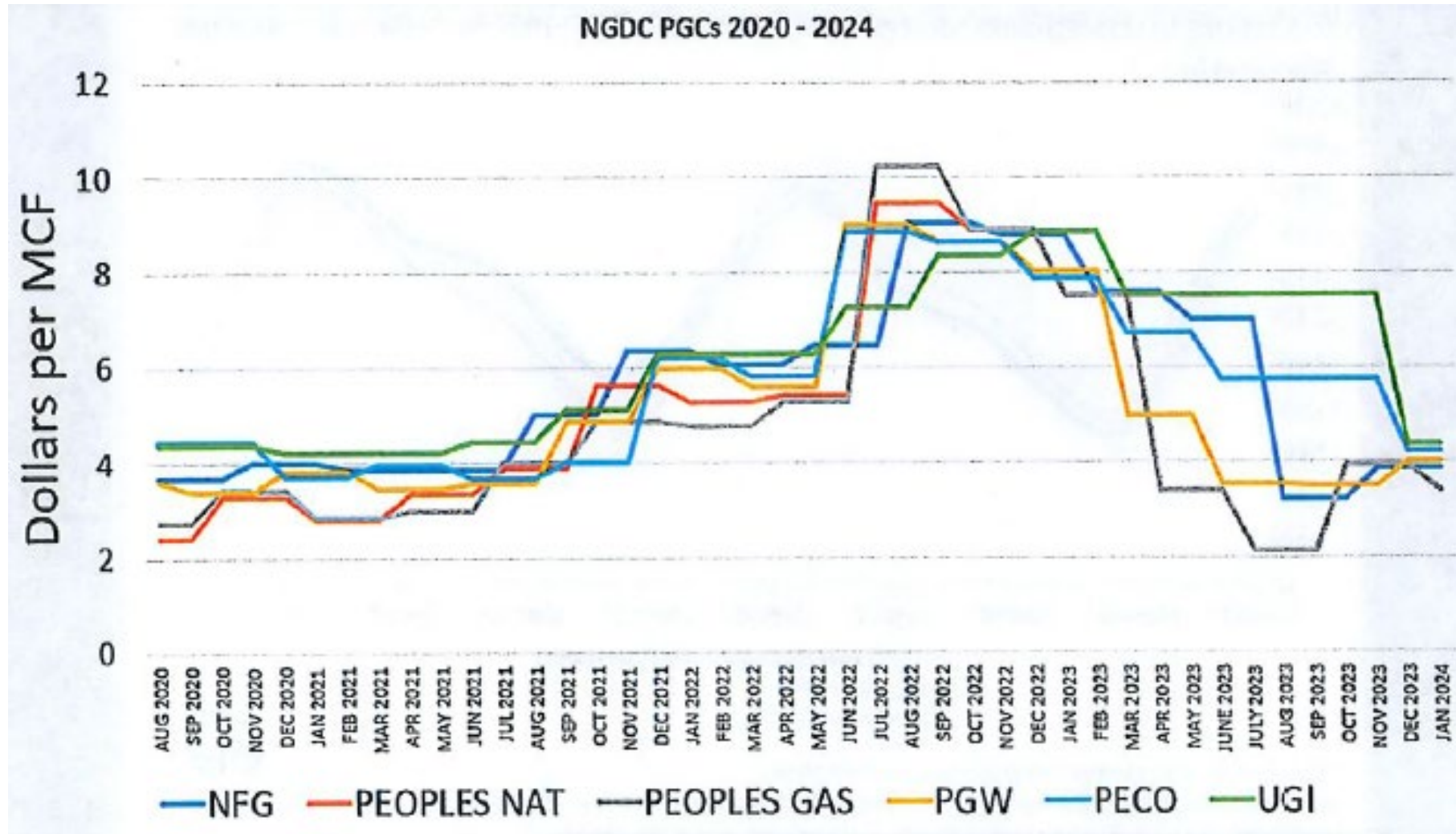
\$/Mcf	January 2021	January 2022	January 2023	January 2024
NFG	\$4.01	\$6.36	\$8.79	\$3.87
Peoples Natural	\$2.82	\$5.29	\$7.52	\$3.42
Peoples Gas	\$2.86	\$4.78	\$7.52	\$3.42
PGW	\$3.85	\$6.01	\$8.02	\$4.00
PECO	\$3.74	\$6.22	\$7.88	\$4.24
UGI	\$4.24	\$6.27	\$8.85	\$4.37
AVERAGE	\$3.59	\$5.82	\$8.09	\$3.88

Average residential gas usage in January is about ~11 Mcf/month, with some regional variation.

Avg. Bill Impact (Supply Only)	\$39.49	\$64.02	\$88.99	\$42.68
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Data on this slide compiled from PUC reports and average usage data from Peoples (Pittsburgh) and PGW (Philadelphia).

Pennsylvania Residential Gas Pricing (PTC)



Energy crisis stemming from Ukraine war 'cost £1k for every UK adult'

Conflict came on top of our over-reliance on gas, says Energy and Climate Intelligence Unit



How the Ukraine-Russia conflict may push up prices for Americans

PUBLISHED THU, MAR 3 2022 1:44 PM EST | UPDATED THU, MAR 3 2022 3:20 PM EST

ENERGY TRANSITION

Russia-Ukraine war has nearly doubled household energy costs worldwide – new study

Feb 20, 2023

Independent Statistics and
U.S. Energy Information Administration

TODAY IN ENERGY

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LNG exports have raised natural gas prices for U.S. households

November 30, 2023
Clark Williams-Derry

What does Ukraine invasion mean for energy bills?

David McHugh The Associated Press

Published 10:21 a.m. ET Feb. 27, 2022

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Article | Published: 16 February 2023

Burden of the global energy price crisis on households

GLOSSARY > FAC

JANUARY 3, 2023

Energy commodity prices in 2022 showed effects of Russia's full-scale invasion of Ukraine

LNG Exports

What is Liquefied Natural Gas (LNG)

Liquefied natural gas (LNG) is methane that has been condensed into a liquid form by reducing its temperature to -260°F. This process is known as liquefaction.

Liquification involves large heat exchangers, which function as giant refrigerators. These heat exchangers are arranged at the facility in a connected series, called trains.

LNG takes up about 1/600th of the volume of natural gas in its natural, vapor state, making it more economical to ship across oceans.

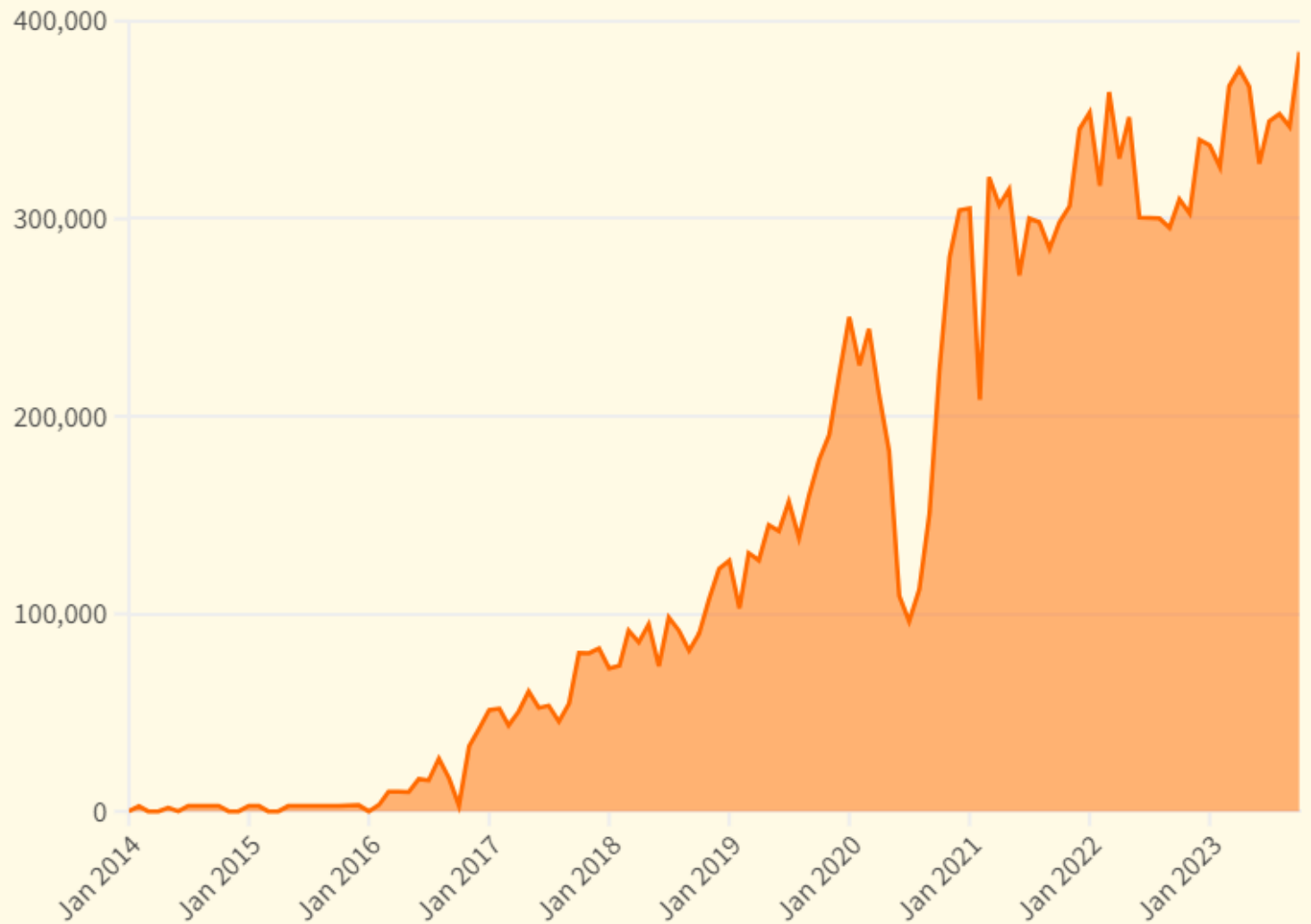
Today, the United States is both the world's largest natural gas producer and exporter.

America produces 25% of the world's natural gas supply. The recent explosion in LNG exports have resulted in dramatic domestic energy price spikes for American families.

America is the world's largest gas exporter, and 20% of our domestic gas production is exported

U.S. LNG exports have soared since 2016

Monthly liquefied natural gas exports from the U.S. in million cubic feet

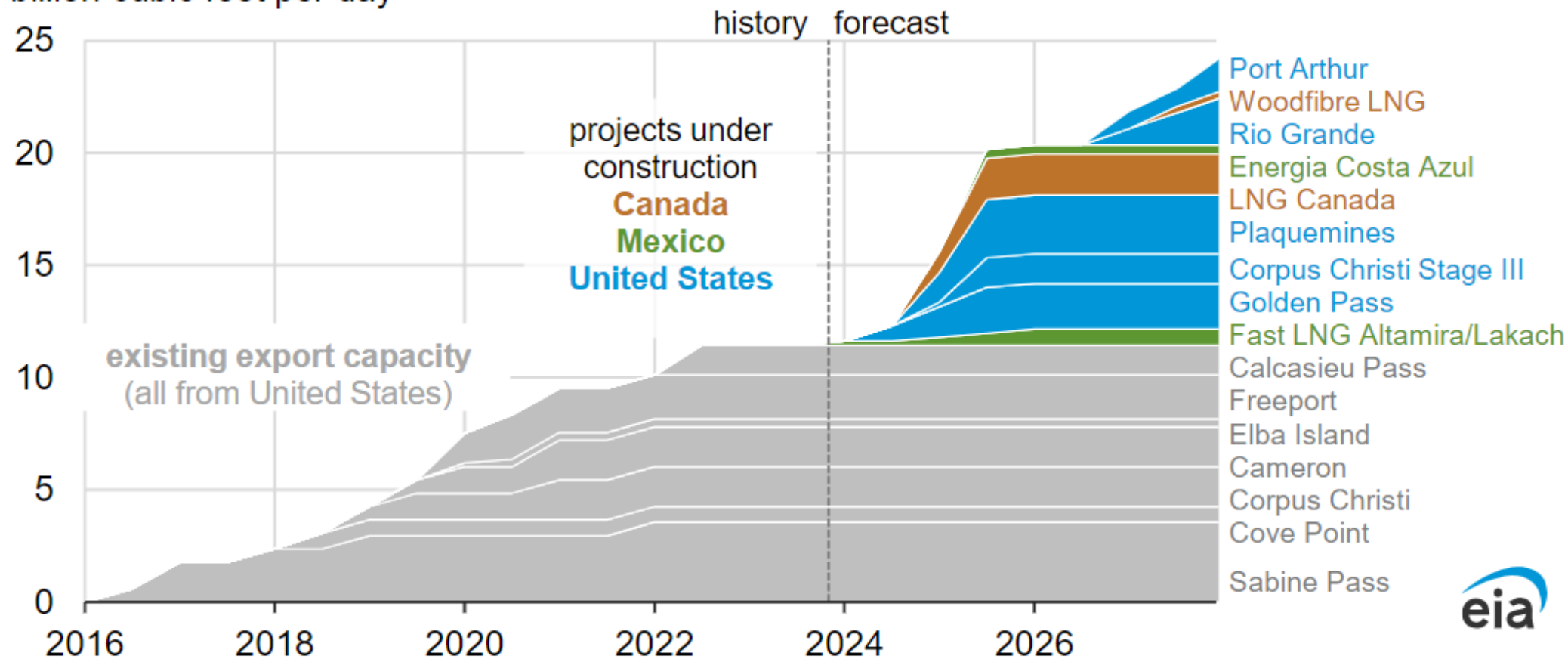


Source: [U.S. Energy Information Administration](#)

LNG export capacity from North America is likely to more than double through 2027

Annual North American liquefied natural gas export capacity by project (2016–2027)

billion cubic feet per day



Data source: U.S. Energy Information Administration, [Liquefaction Capacity File](#), and trade press

Note: LNG=liquefied natural gas. Export capacity shown is project's baseload capacity. Online dates of LNG export projects under construction are estimates based on trade press.

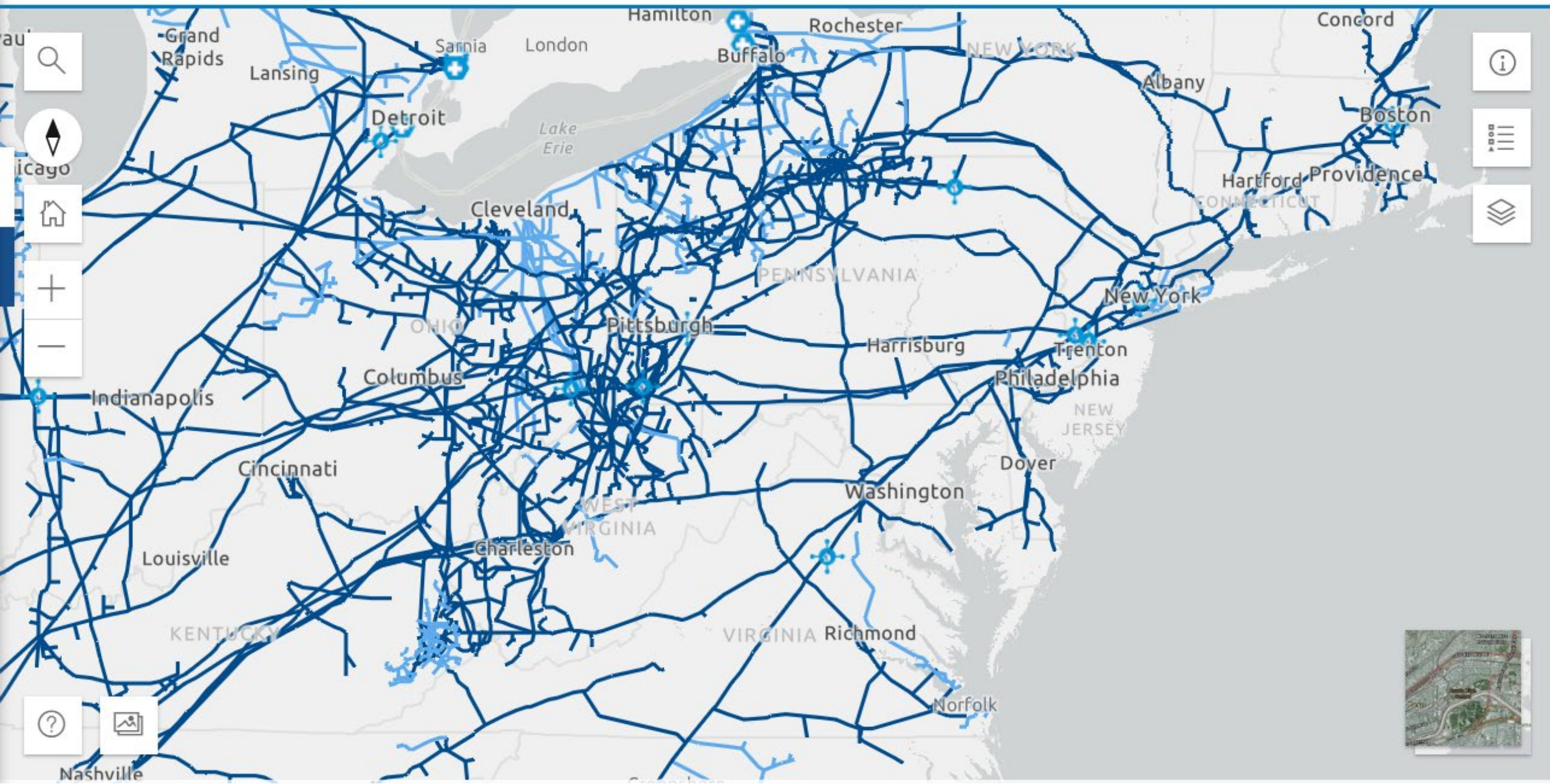
North America liquefied natural gas export facilities, existing and under construction (2016–2027)



Data source: U.S. Energy Information Administration, *Liquefaction Capacity File*, and trade press

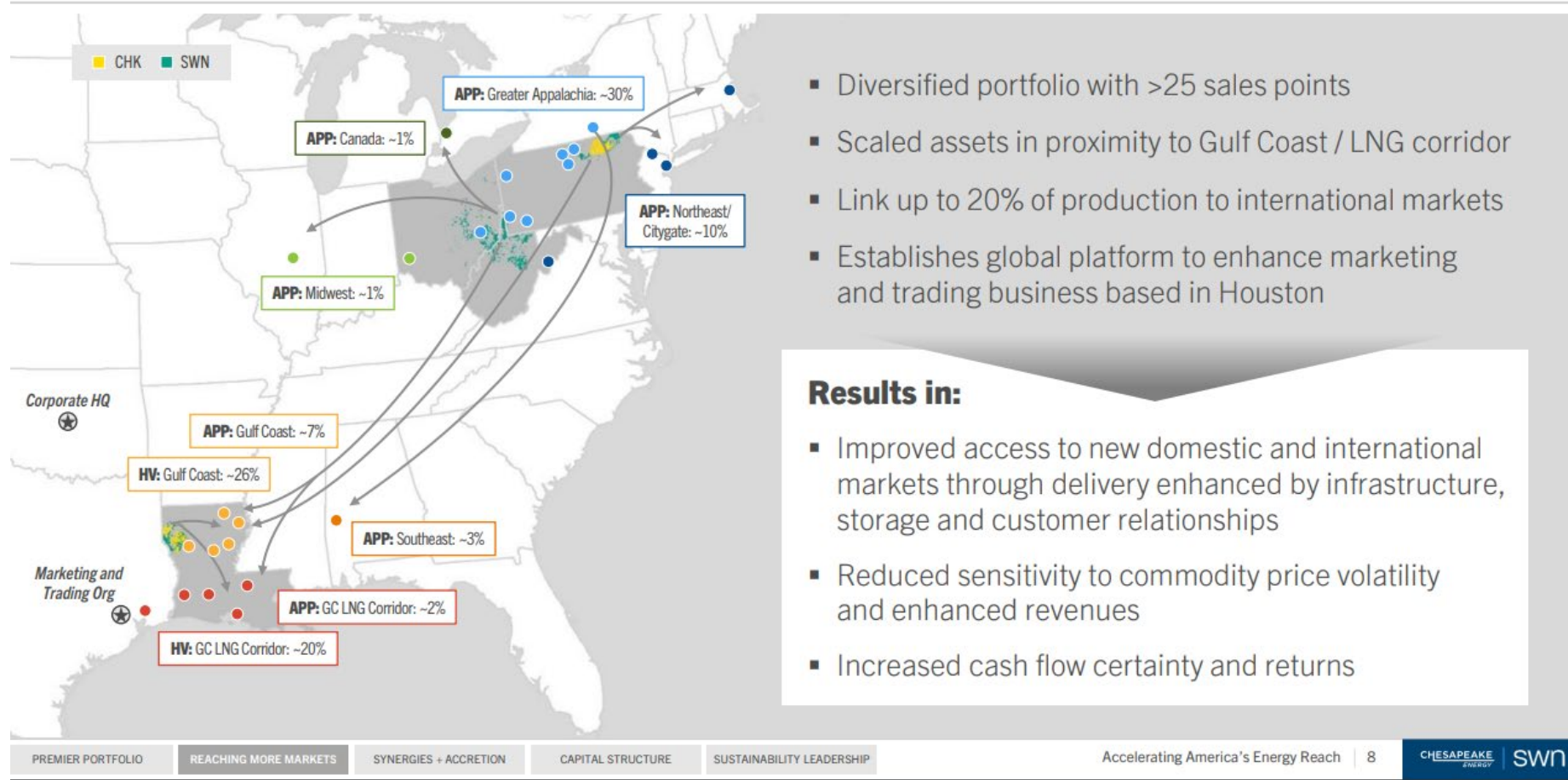
Note: Bcf/d=billion cubic feet per day. Map current as of October 2023.

Natural Gas Infrastructure and Resources



A wave of natural gas mergers (ONEOK/Magellan, Energy Transfer/Crestwood, EQT/Equitrans) cite the role LNG exports have in fattening profits. See this January 2024 presentation on Chesapeake/Southwestern's merger

Together We Are LNG Ready



(a) MANDATORY AUTHORIZATION ORDER

After six months from June 21, 1938, no person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the Commission authorizing it to do so. The Commission shall issue such order upon application, unless, after opportunity for hearing, it finds that the proposed exportation or importation will not be consistent with the public interest. The Commission may by its order grant such application, in whole or in part, with such modification and upon such terms and conditions as the Commission may find necessary or appropriate, and may from time to time, after opportunity for hearing, and for good cause shown, make such supplemental order in the premises as it may find necessary or appropriate.

The Federal Natural Gas Act of 1938 Recognizes Gas As Essential Utility Service, and prohibits its export if it “**will not be consistent with the public interest.**”

1992 Amendments to the Natural Gas Act designate exports to nations with whom we have a free trade agreement on natural gas as automatically in the public interest.

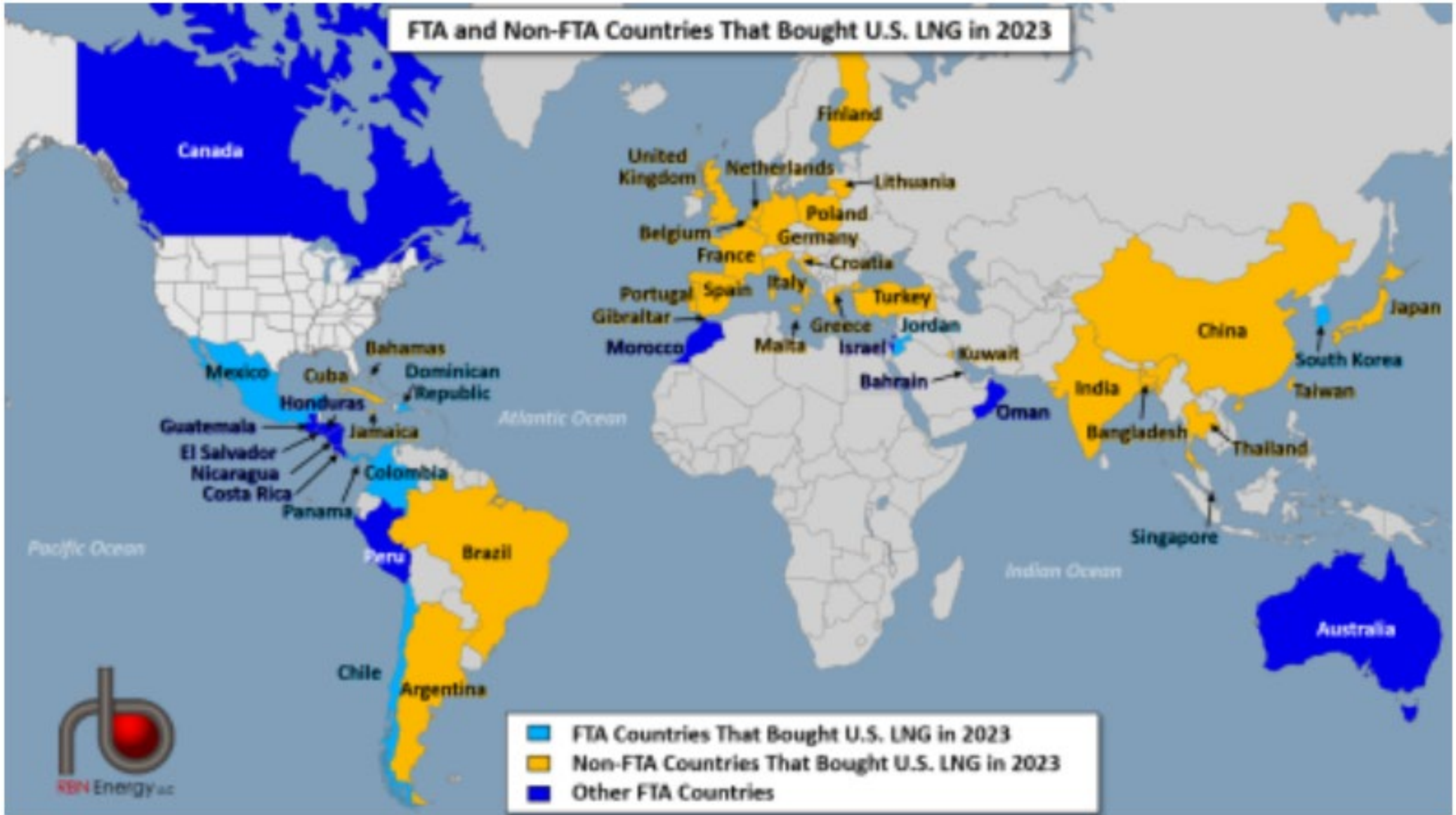
Only 18 countries meet this test, with none in Europe and only two (S. Korea & Singapore) in Asia:

Australia, Bahrain, Canada, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama & Peru

The overwhelming majority of LNG exports go to non-FTA nations (89.6%) vs. FTA countries (10.4%).

To make multi-billion dollar export facilities viable, obtaining export authority to non-FTA countries is essential.

FTA and Non-FTA Countries That Bought U.S. LNG in 2023



On January 26, the Department of Energy Announced That It Was Pausing Pending Export Reviews Until It Updates Its Methodology of Assessing Whether Exports Are Consistent With the Public Interest

The Department of Energy (DOE) is responsible for assessing if domestic natural gas can be authorized for export as liquefied natural gas (LNG) to non-Free Trade Agreement (FTA) countries.

To make that determination, the DOE evaluates and analyzes a range of factors related to economics, national security, market and environmental data to determine whether that LNG export request is in the “public interest.”

Recently, the DOE **announced** it would be pausing review of pending export applications while it updated its economic and environmental analysis that underpin this review. The last time these were formally updated were in 2018 and 2019, respectively. At that time, U.S. LNG export capacity was less than 4 billion cubic feet per day (Bcf/d). Today, that capacity has more than tripled, and the U.S. is the world’s largest LNG exporter with capacity set to nearly double by 2030 because of additional projects currently under construction. Cumulative approved exports are at 48 Bcf/d, over three times our current export capacity.

A lot has changed since 2018. Americans should have the latest understanding of what higher exports mean for our economy, our security, and our health before U.S. energy leaves our shores.



RBN Energy

@RBNEnergy



DOE pause on non-FTA export licenses for LNG likely to delay pre-FID development, but FID projects can still move forward as planned...For all the details, see: rbnenergy.com/analyst-insigh...

Export Licenses for Pre-FID LNG Terminals		
Project with Licences	Original Authorization Expiry	Projects under Review
Pierdae*	2/5/2023	CP2
Delfin	6/1/2024	Altimira FLNG
MPL LNG	12/14/2025	Commonwealth
Driftwood	5/2/2026	MPL Phase 2
Cameron Phase 2	5/6/2026	New Fortress
Freeport 4	5/28/2026	Port Arthur Phase II
Gulf LNG	7/31/2026	Gulfstream LNG
Rio Grande	2/10/2027	Corpus Christi Midscale
Texas LNG	2/10/2027	Lake Charles
ECA Phase 2	6/11/2028	Magnolia
Amigo (Epsilon) LNG	12/8/2027	
Vista Pacifico	12/20/2029	



DOE Public Interest Determination Is Outdated

- Over the last two years, Public Citizen has intervened and protested nearly a dozen export applications, challenging DOE's outdated public interest determination.
- Our legal challenges ensured that we have standing to petition federal court to review DOE's deficient public interest methodology—so the pause avoids a lengthy legal battle.
- Biden's DOE currently relies on analyses conducted under the Trump Administration.
 - The Trump Administration's [2018 macroeconomic report](#) concluded that higher rates of LNG exports would improve the standard of living of all U.S. households—and therefore all LNG exports must be in the public interest.
 - The study claimed that “as U.S. LNG exports increase ... households who hold shares in companies that own liquefaction plants receive additional income from take-or-pay tolling charges for LNG exports. These additional sources of income for U.S. consumers outweigh the income loss associated with higher energy prices.”

The Sudden And Vast
Expansion of U.S. LNG
Exports Have Upended
Domestic Energy
Markets, Exposing
American Families to
Higher Prices

The Federal Energy Regulatory Commission's [Winter Energy Market and Reliability Assessment](#) concludes:

“[C]ontinued growth in net exports, including from liquified natural gas (LNG) export facilities, will place additional pressure on natural gas prices this winter ...

Traditionally, domestic fundamentals drive U.S. natural gas prices; this winter, international markets will likely also affect U.S. natural gas markets and prices . . . the expansion of LNG export capability has integrated formerly disparate North American regional natural gas markets into the global market”.

The May 2023 U.S. Energy Information Administration report [Effects of Liquefied Natural Gas Exports on the U.S. Natural Gas Market](#) concludes that increased LNG exports directly result in higher energy prices for American consumers:

“[H]igher LNG exports create a tighter domestic natural gas market (all else held equal), increasing domestic natural gas prices”

Public Citizen analysis of U.S. Energy Information Administration data concludes that expanded LNG exports will cost American consumers **\$58 billion in higher energy costs through 2050** – for an average annual increase of \$2 billion/year.

- +
 -
 - Financial Traders International Oil Companies & Chinese Firms Are The Big Financial Winners of LNG Exports

Most LNG exports are controlled by financial traders (Vitol, Gunvor), so-called portfolio traders (Exxon, Shell, Chevron, Conoco) and [Chinese national firms that re-sell LNG cargoes](#) to exploit significant price differentials between various global price benchmarks. These third-party traders are making windfall profits taking relatively inexpensive U.S. gas and selling to the most expensive foreign market. Their trades effectively force American consumers to compete with their counterparts in Berlin and Beijing for access to U.S. gas.

China Will Be The Largest Buyer of U.S. LNG

- FERC: “[U.S. LNG will be increasingly exported to Asia, with China building 8.5 Bcfd of new regasification capacity.](#)”
- The temporary surge in LNG exports to Europe since the Russian Federation’s attack on Ukraine is not translating into long-term demand. Contracts with European customers represent the smallest share (18%) from pending LNG facilities. Contracts with Asia Pacific customers account for 30% of total volume, with the remaining 52% going to commodity firms and other portfolio buyers.
- [Nearly a quarter of the total pending contract volume is with companies headquartered in China.](#)
- [FERC approved a massive new pipeline](#) last month that will export U.S. produced gas through Mexico to new LNG export terminals proposed on Mexico’s pacific coast, bypassing the backlogged Panama Canal for easier transit to China.



October 2022: Coordinated Letters by Consumer, EJ and Climate Leaders

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October 27, 2022

Secretary Jennifer Granholm
U.S. Department of Energy
1000 Independence Ave SW
Washington, DC, 20585
The.Secretary@hq.doe.gov

Re: April 8, 2013 Petition for Rulemaking Regarding Natural Gas Export Policy

Dear Secretary Granholm:

In 2013, the undersigned—Sierra Club, Friends of the Earth, Earthworks, Environmental Defense Fund, Delaware Riverkeeper, and the Center for Biological Diversity—petitioned the U.S. Department of Energy to promulgate regulations or guidance defining how the Department will

WHAT WE DO	GET INVOLVED	LATEST	JUSTICE40RWA
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EJLF Letter to DOE Regarding Guidelines on LNG Exports

October 27, 2022
The Honorable Secretary Jennifer Granholm

Congress of the United States

Washington, DC 20515

November 14, 2023

The Honorable Jennifer Granholm
Secretary
U.S. Department of Energy
1000 Independence Ave. SW
Washington DC 20585

Dear Secretary Granholm:

We write to urge the Department of Energy (DOE) to update how it determines whether new licenses for liquefied natural gas (LNG) exports are in the public interest. Under the Natural Gas Act, DOE is required to use determine whether it is in the public interest to export LNG to counties where the U.S. does not have an existing free trade agreement (FTA). We are concerned that DOE's current approach does not fully or accurately consider how LNG exports negatively impact the climate, environmental justice communities, or increase domestic energy prices. US LNG exports have doubled over the past four years, and projects currently under development are set to almost double exports again.^{1 2 3}DOE's case-by-case approach to approvals ignores the aggregate impact that the explosive growth in U.S. LNG exports is having on climate, communities, and our economy.

Freeport LNG plant suffers explosion, nearby residents evacuated - police

June 08, 2022 — 02:38 pm EDT

Written by [Liz Hampton](#) for Reuters →



By Liz Hampton



June 8 (Reuters) - A explosion and fire on Wednesday hit the massive Freeport LNG liquefied natural gas plant on the Texas Gulf Coast, prompting an evacuation of nearby residents in Quintana, Texas.

ENERGYWIRE



Troubled LNG plant sparks rage in Texas town

The backlash in Freeport, Texas, against liquefied natural gas highlights concerns about 40-year-old federal regulations overseeing the industry.

BY: **SHELBY WEBB** | 02/24/2023 06:43 AM EST



Freeport Texas Plant Explosion Was Caused by Human Error

Nov. 15, 2022, 7:01 PM



- Worker fatigue also cited in report about US LNG terminal
- Report to regulators rules out cyber attack as cause of blast



Ari Natter
Bloomberg News

A blast that knocked out a key Texas natural gas export facility in June was caused by human error and other factors, according to a heavily redacted report on the incident filed with federal regulators by Freeport LNG.

An over-pressurized line led to the June 8 explosion and fire at the Freeport LNG terminal, according to the report, a [version](#) of which was released by the Pipeline and Hazardous Materials Safety Administration Tuesday. The incident occurred after

Nov 15 (Reuters) - Federal pipeline safety regulators released on Tuesday a heavily redacted consultant's report that blamed inadequate operating and testing procedures, human error and fatigue for the June 8 explosion that shut Freeport LNG's export plant in Texas.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) issued the report after Freeport disclosed earlier in the day a summary of the consultant's review. PHMSA said it accepted the redacted report but would later make its own determination on what to exclude.

Causes of the incident were deficiencies in valve testing procedures, failure to adjust alarms that could warn operators of rising temperatures during operations and operating procedures that allowed "operator discretion" to close valves that might cause LNG to be isolated in pipes, the report said.

It described a control room that did not adequately show when temperatures soared in the pipeline that breached. Other alarms were "constantly indicating" on equipment out of service for years, leading to what some operators described as alarm fatigue.

"Severely damaged" electrical wiring likely ignited the released gas from the pipeline breach and led to fireball, the report said.

Freeport LNG
Quintana Island, Texas

June 8, 2022 - Loss of Primary Containment
Incident Investigation Report

National Bureau of Economic Research

The Market and Climate Implications of LNG Exports

“We estimate that the resulting increase in domestic prices due to LNG exports is approximately comparable to imposing a carbon tax on natural gas of \$30 per metric ton (MT) of CO₂ emissions, and a carbon tax on coal of \$20/MT, in the absence of exports.”

-James H. Stock, Harvard University

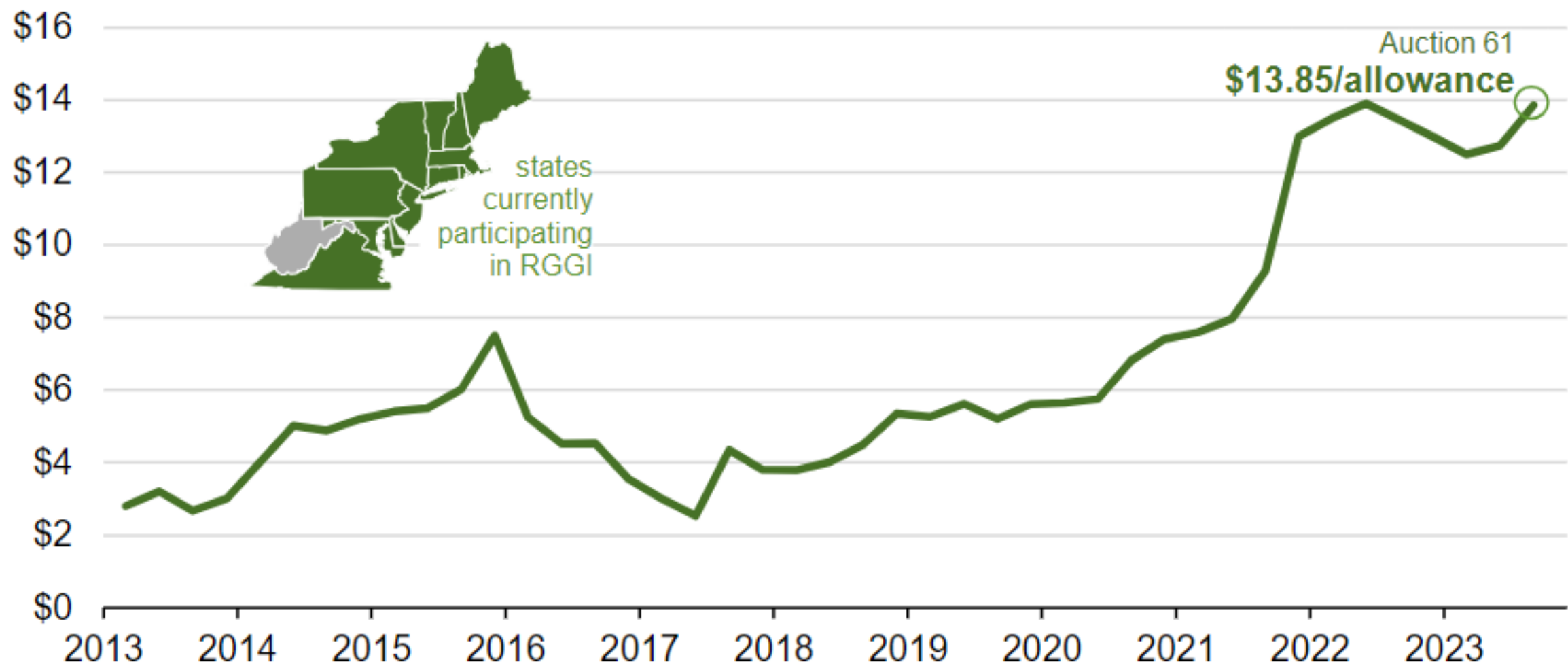
-Matthew Zargoza-Watkins, UC Davis

https://www.nber.org/system/files/working_papers/w32228/w32228.pdf



Regional Greenhouse Gas Initiative (RGGI) allowance clearing price (Mar 2013–Sep 2023)

dollars per allowance (one allowance = one short ton of carbon dioxide)



Data source: [Regional Greenhouse Gas Initiative](#)

Next Steps

- Talk to your friends and colleagues and help correct inaccuracies.
- Comment in review of the “public interest” standard.
 - DOE will update the economic and environmental analyses used to assess NEW LNG projects over the next few months.
 - **Key Potential Reform:**
 - **Add distributional income analysis.**
 - **Evaluate localized economic impacts.**
 - **Improve public education and participation in decisions**
 - DOE will publish draft report / identified policy revisions.
 - Once published, a public comment period (min. 60 days) will allow Pennsylvania agencies and organizations to weigh in.

Questions?

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