

### **Rockies West LDC Forum Presentation**

Stan Brownell VP Business Development Natural Gas & LNG August 2022



Market Reporting

Consulting

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Events

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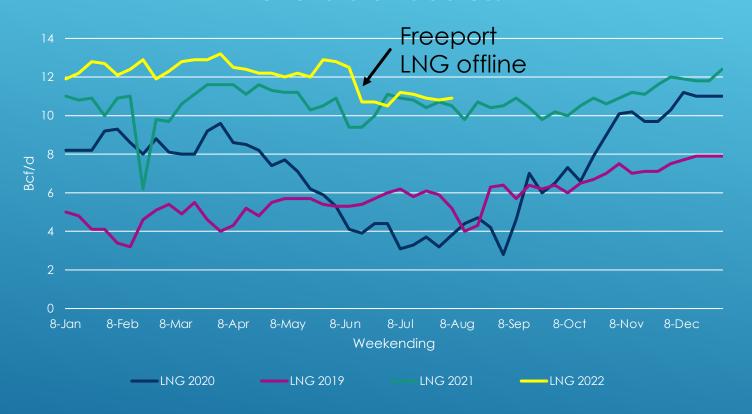






# US LNG EXPORTS FALL TO 2021 LEVELS

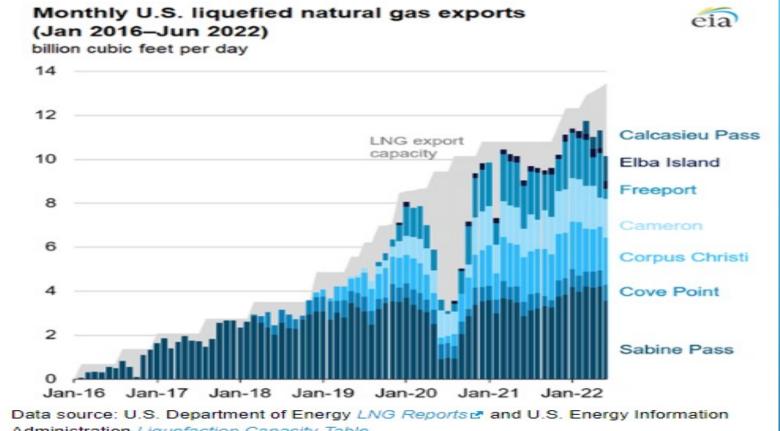
#### LNG Demand for Natural Gas



- 2021 Avg 10.7 Bcf/d
- 2020 Avg 7.2 Bcf/d
- 2019 Avg 5.7 Bcf/d
- 2022 Jan-July 12.1 Bcf/d



### LNG EXPORT CAPACITY CONTINUES TO INCREASE

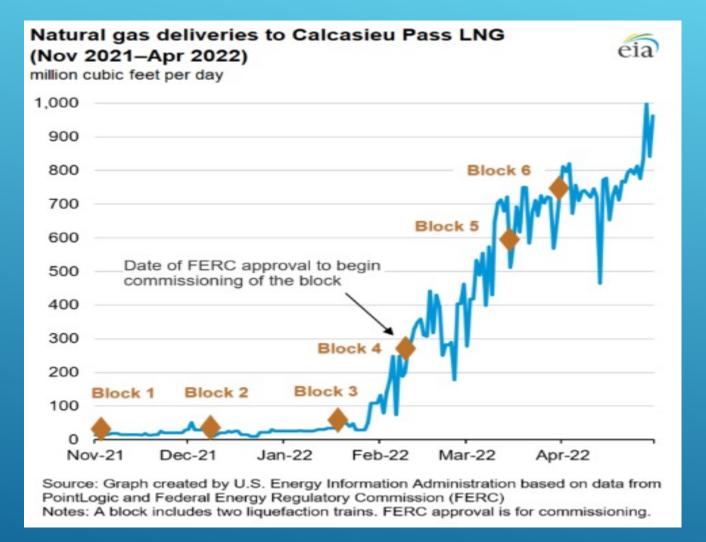


**US** Export Capacity increased by 2.1 Bcf/day since November 2021

Administration Liquefaction Capacity Table

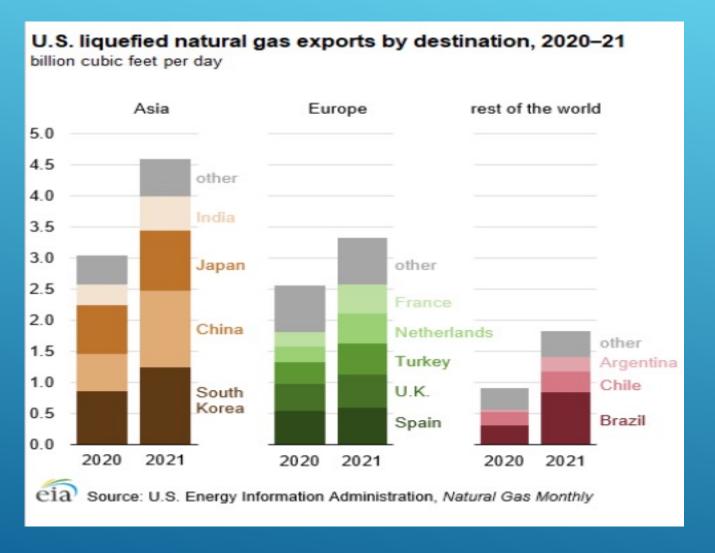
Note: June 2022 LNG exports are EIA estimates based on tanker shipping data. LNG export capacity is an estimated peak LNG production capacity of all operational U.S. LNG facilities.

# CALCASIEU PASS LNG RAMPS UP



Calcasieu Pass is a 1.3
Bcf/day facility

# WHERE IS THE LNG GOING?

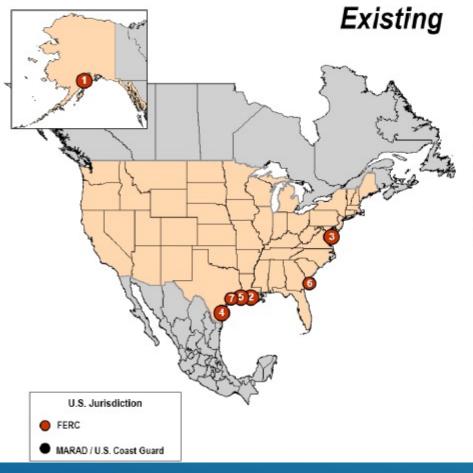


- 2021 avg send-out: 9.2 Bcf/d
- 3.2 Bcf/d increase over 2020

# CURRENT LNG EXPORT CAPACITY

# Cont.

### **North American LNG Export Terminals**



#### **Export Terminals**

#### UNITED STATES

1. Kenai, AK: 0.2 Bcfd (Trans-Foreland)

Liquefaction Trains 1-3)

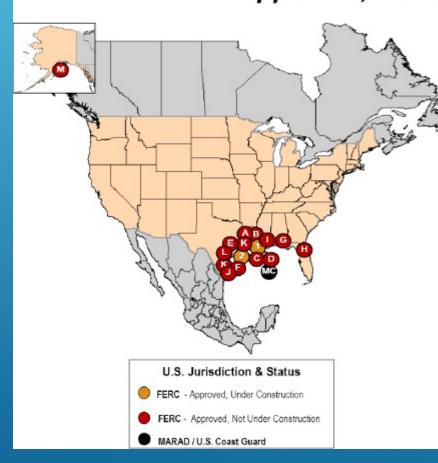
- 2. Sabine, LA: 4.55 Bcfd (Cheniere/Sabine Pass LNG Trains 1-6)
- 3. Cove Point, MD: 0.82 Bcfd (Dominion-Cove Point LNG)
- 4. Corpus Christi, TX: 2.40 Bcfd (Cheniere Corpus Christi LNG Trains 1-3)
- Hackberry, LA: 2.15 Bcfd (Sempra-Cameron LNG, Trains 1-3)
   Elba Island, GA: 0.35 Bcd (Southern LNG Company Units 1-10)
- Elba Island, GA: 0.35 Bcd (Southern LNG Company Units 1-10)
   Freeport, TX: 2.13 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG

As of April 5, 2022 No updates since previous issuance Total Export
Capacity: 13.9
Bcf/d (fuel
Adjusted)

## LNG EXPORT CAPACITY YET TO COME

### North American LNG Export Terminals Approved, Not Yet Built





#### **Export Terminals**

#### UNITED STATES

#### FERC - APPROVED, UNDER CONSTRUCTION

 Cameron Parish, LA: 1.41 Bcfd (Venture Global Calcasieu Pass) (CP15-550) Sabine Pass, TX: 2.26 Bcfd (ExxonMobil – Golden Pass) (CP14-517, CP20-459)

#### 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 (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. Plaquemines Parish, LA: 3.40 Bcfd (Venture Global Plaquemines) (CP17-66)

J. Brownsville, TX: 0.55 Bcfd (Texas LNG Brownsville) (CP16-116)

K. Brownsville, TX: 3.6 Bcfd (Rio Grande LNG – NextDecade) (CP16-454)

L. Corpus Christi, TX: 1.86 Bcfd (Cheniere Corpus Christi Stage III) (CP18-512)

M. 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 April 5, 2022 No updates since previous issuance

**Total Export** Capacity: 33.6 Bcf/d (fuel Adjusted)

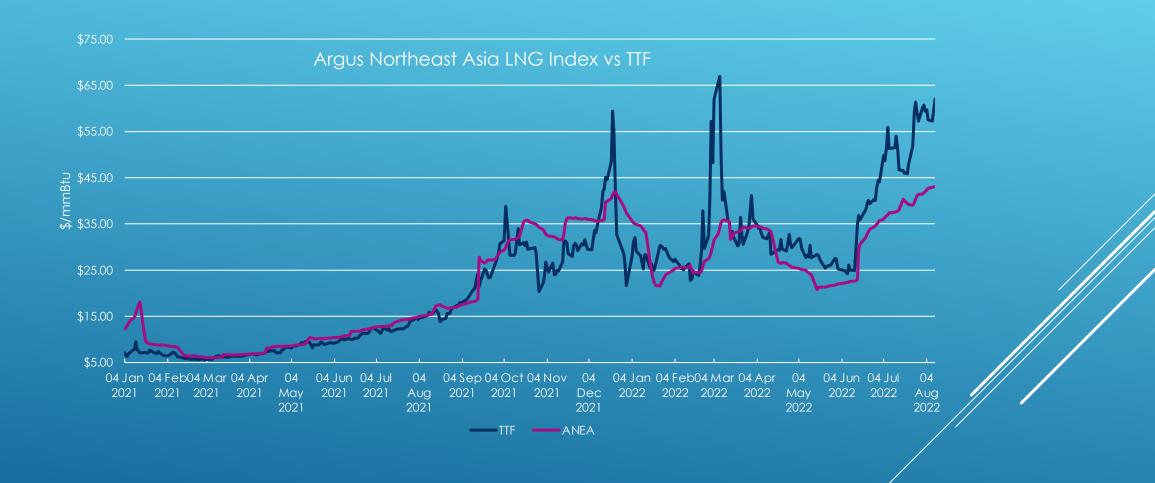
### ASIAN LNG MARKETS REACH NEW HIGHS







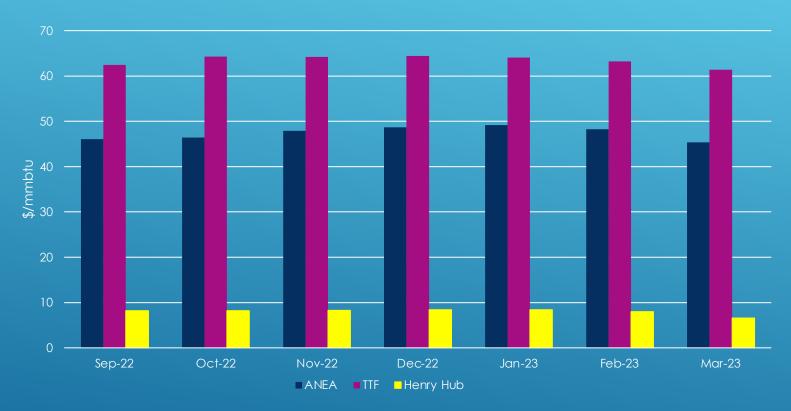
### LNG DESTINED FOR ASIAN A BARGAIN COMPARED TO THE TTF





### ASIAN AND EUROPEAN SPREAD EXPECTED TO PERSIST

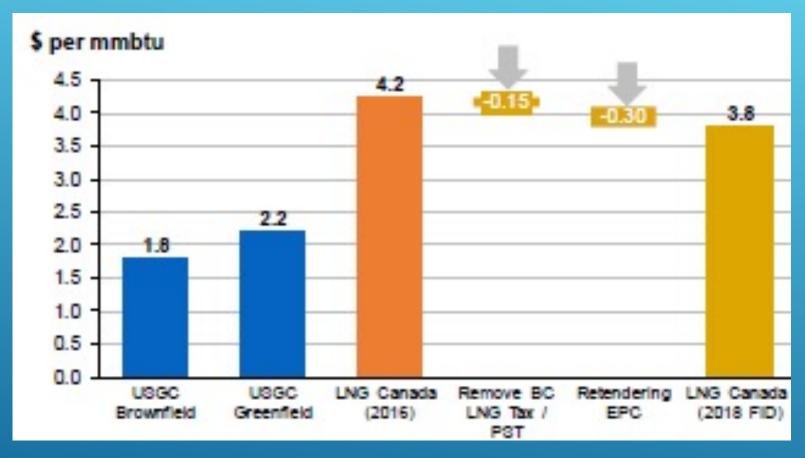




Note: Prices based on August 10, 2022 Close



# CAPITAL COST COMPARISON FOR LIQUEFACTION (US VS CANADA)



Capital Costs for LNG Liquefaction Double US Costs

Source: Canadian LNG Competitiveness



# WEST COAST LNG SHIPPING ADVANTAGE

					8	
Days	Sabine Paas, LA to Tokyo	23.25			9,209.00	Nautical Miles
shipping Rate:		\$ 80,430.50	\$1,870,009.13			
Panama Canal			\$ 595,800.00			
			2,465,809.13	Total Cost		
				cost per mmbtu		
Days	Vancouver, CN to Tokyo	10.29			4,081.00	Nautical Miles
shipping Rate:		\$ 80,430.50	\$ 827,629.85			
Panama Canal			\$ -			
			\$ 827,629.85	Total Cost		
			\$ 0.14	cost per mmbtu		
Days	Topolobampo, MX To Tokyo	13.75			5,452.00	Nautical Miles
shipping Rate:		80,430.50	1,105,919.38			
Panama Canal		850,000.00	-			
			1,105,919.38	Total Cost		
			0.18	cost per mmbtu		

Panama holds only 2 slots per day for LNG Tankers.

Panama has let up to 4 LNG Tankers per day

The travel time for a Gulf Coast LNG Tanker must travel an additional 7,673 nautical miles

Going around Cape Horn increases the shipping cost to \$0.57/mmbtu

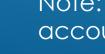
Note:

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LNG Tankers travel @ Max speed of 20 to 25 knots, avg 16.5 Knots LNG Tankers from Sabine avg 174,000 cubic meters or 6.1 Bcf Panama Canal rate is 2023 to 2025 avg tariff rate

### WEST COAST LNG MAY HAVE A PRICE ADVANTAGE TO ASIAN MARKETS

	Tokyo Delivered LNG Cost Difference (\$/Mmbtu)							
	US Gulf Delivered			Canada Aeco			Mexico Waha	
Gas Supply Differential	\$	0.71		\$	(1.14)		(5	(0.900
Liquefaction	\$	2.20		\$	3.80		\$	2.20
Shipping	\$	0.40		\$	0.14			0.18
Total	\$	3.32		\$	2.80		\$	1.48
B/E Incremental transpor	t			\$	0.52		\$	1.83
Forward Curve Average NYMEX 2023 -			-2027		\$4.75	on Augus	t 10,	2022



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Note: Calculation does not take into account boil off or LNG used as fuel

### KEY TAKEAWAYS SHORT TERM:

- Expect US LNG demand to increase as projects come online
- Expect strong competition from Europe for LNG cargoes due to the need replace Russian supplies
- Expect closer alignment between the TTF and price of LNG to Asia



### LONG TERM CONSIDERATIONS:

- What approved LNG projects will reach FID
- Are any pipeline expansion approved to serve new LNG facilities
- Can Western Canadian production ramp up
- ▶ Will the Asia markets switch to west coast supplies
- > Will Japan be able to restart 4 nuclear plants as announced

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### THANK YOU!

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