POTEN & PARTNERS

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GLOBAL ENERGY EXPERTISE FOR A SUSTAINABLE FUTURE
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US Gulf LNG Competitiveness C Henry Hub Scenario Forecasting

2025
NOVEMBER

PREPARED FOR
2025 RBAC User Conference

POTEN & PARTNERS

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Poten & Partners, Inc.
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1. Introduction to Poten s Partners

Global Energy Expertise for a Sustainable Future

POTEN & PARTNERS

A leading provider in energy and shipping solutions built on trust, expertise and partnership

Poten's Suite of Services

Brokerage

Advisory

Intelligence

Global Energy Expertise for a Sustainable Future

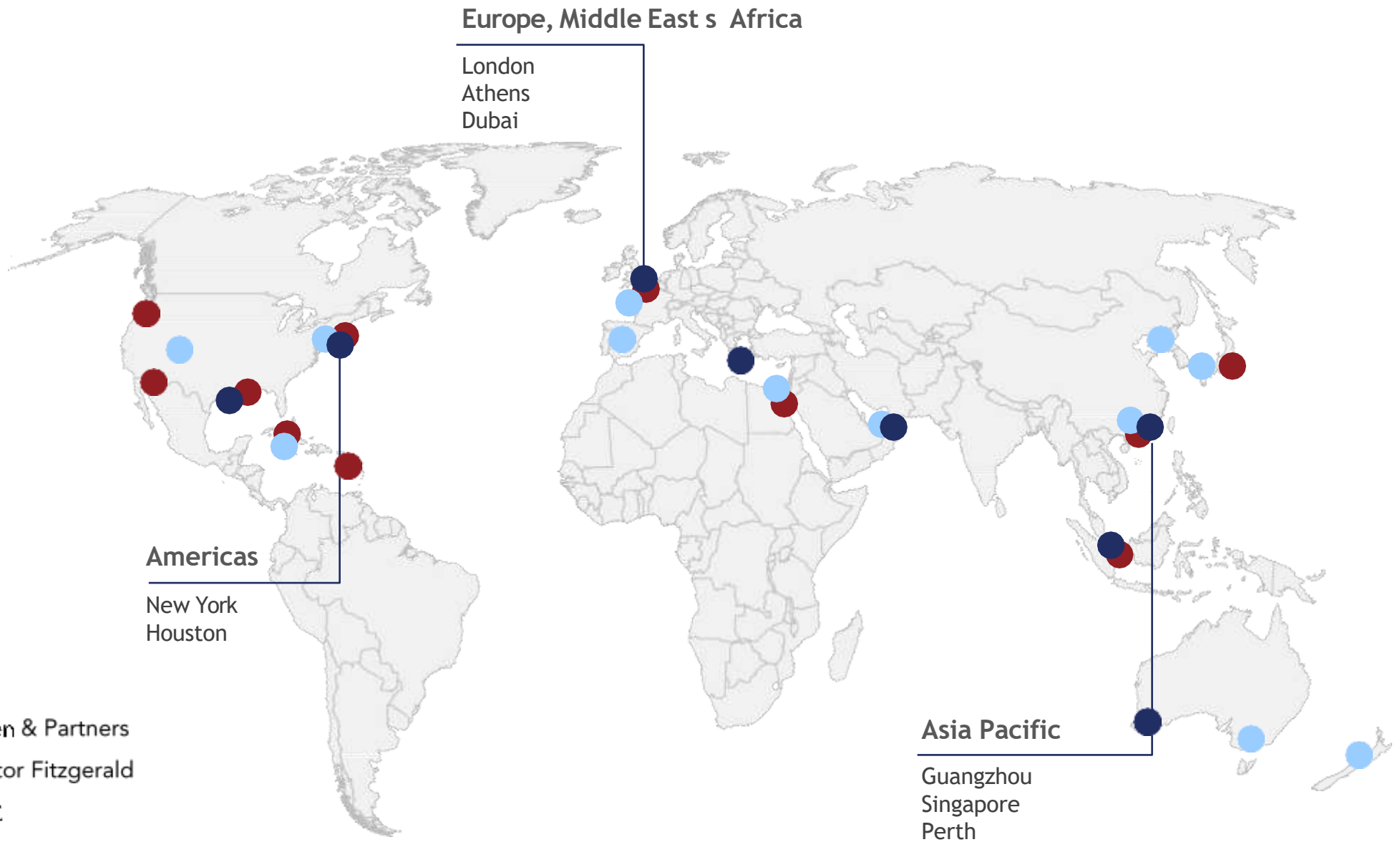
200+	11 Offices	80+	120+
Employees	Worldwide	Years of Operation in Energy s Shipping	Countries Serviced

Founded 1338 and part of BGC Group since 2018

Sectors: LNG, LPG, Crude Oil, Refined Products, Asphalt, Hydrogen, Ammonia and Methanol, Biofuels

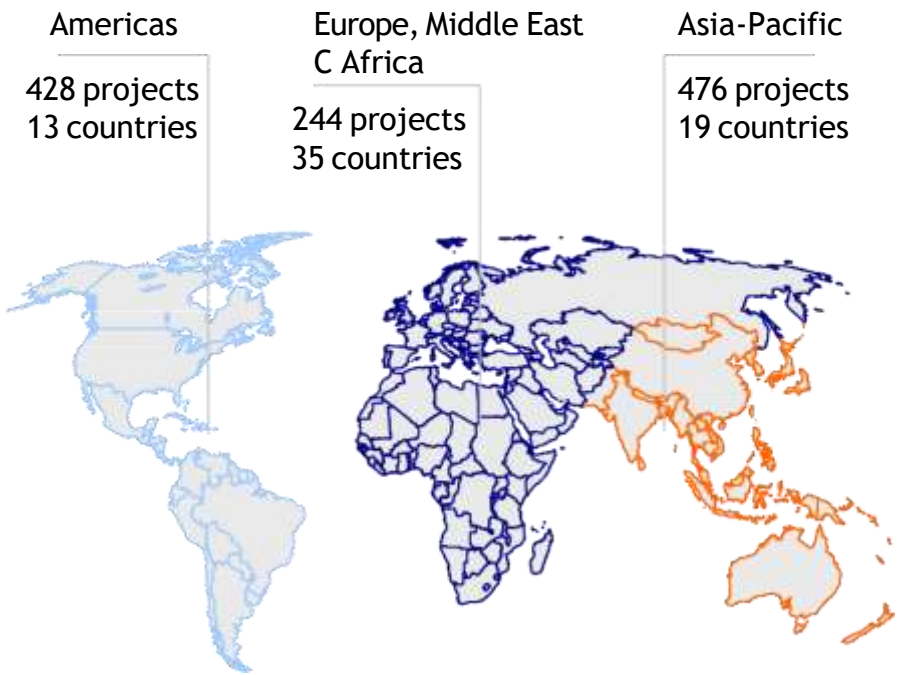
bgc

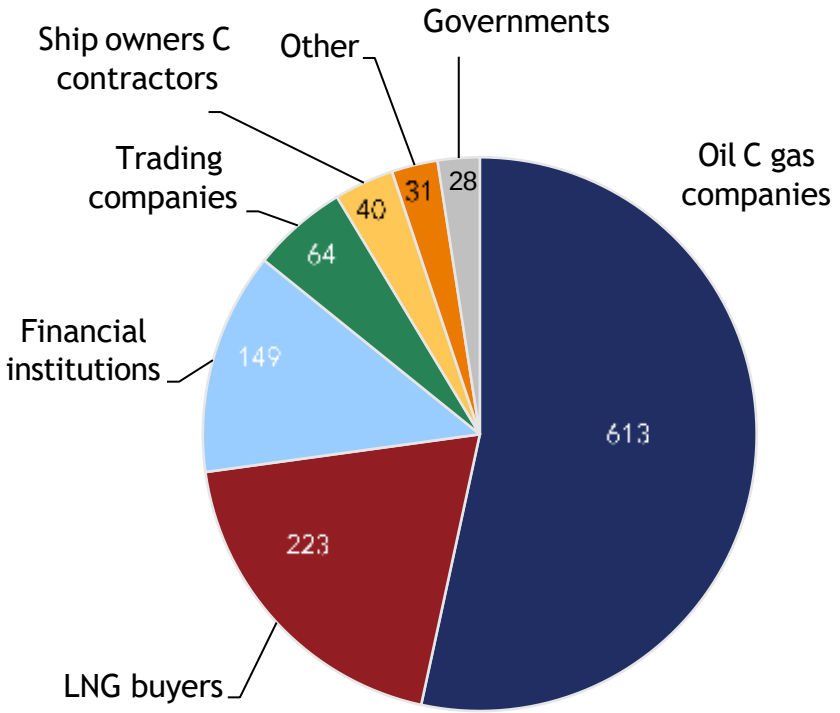
Global presence



Poten's Natural Gas C LNG Advisory Team has completed over 1,000 projects in 67 countries over the last 10 years

2015 - 2024 LNG Advisory Projects





Full Value Chain Support

Our interdisciplinary expertise allows us to provide “360° Service”

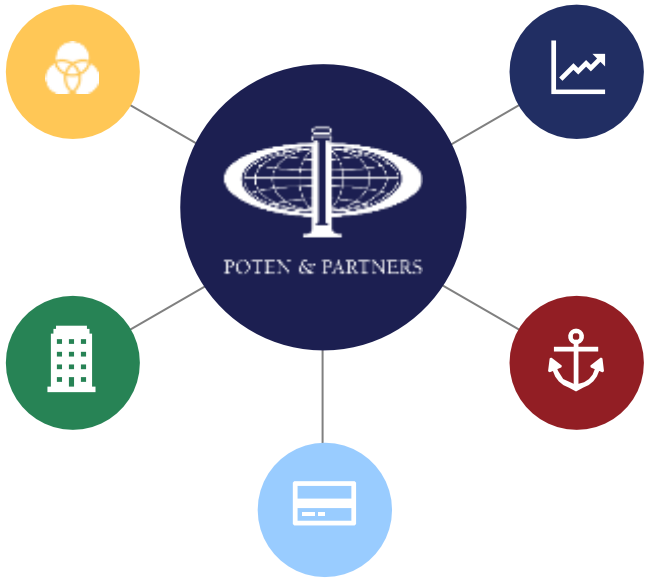
Advice that makes sense from every angle

Flagship 360° Services

Strategy
Energy Master Planning
Project Development
Terminal Development
Lender / Investor Due Diligence
Capabilities Assessment C Development

Technical

Technology Assessment, Site Selection
Pre-feasibility / Feasibility Studies
Techno-economic Analysis
Conceptual Design C Costing
EPC Contracting
Owners’ Engineering



Commercial

Procurement C Sales
Commercial Negotiation Support
Trading C Risk Management
Price Review Support
Independent Price Assessment
Portfolio Valuation C Development

Market

Global Market Forecasts C Analysis
Profitability C Price Forecasts
Country and Regional Market Studies
Power Generation C Inter-Fuel Competition
Short-Term Markets
Delivered Cost Competitiveness Analysis
Market Entry Strategy

Shipping s Marine

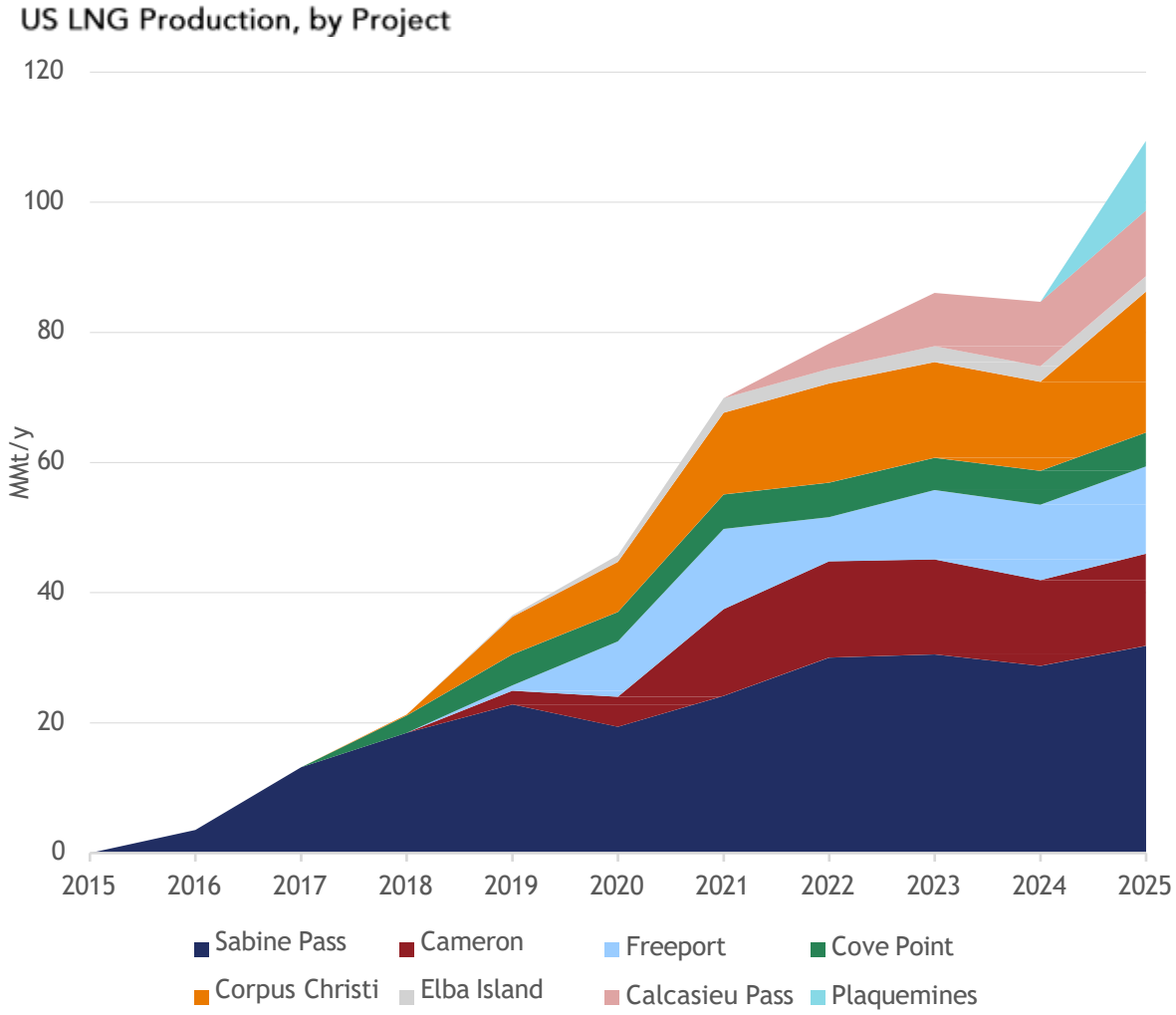
Shipping Strategy C Cost
Shipping Market Analysis
Shipping C Marine Due Diligence
Project Feasibility and Development
Technical Support for Time Charter Tenders C Agreements
Small-Scale C Bunkering

2. US Gulf LNG Overview

A supply success story

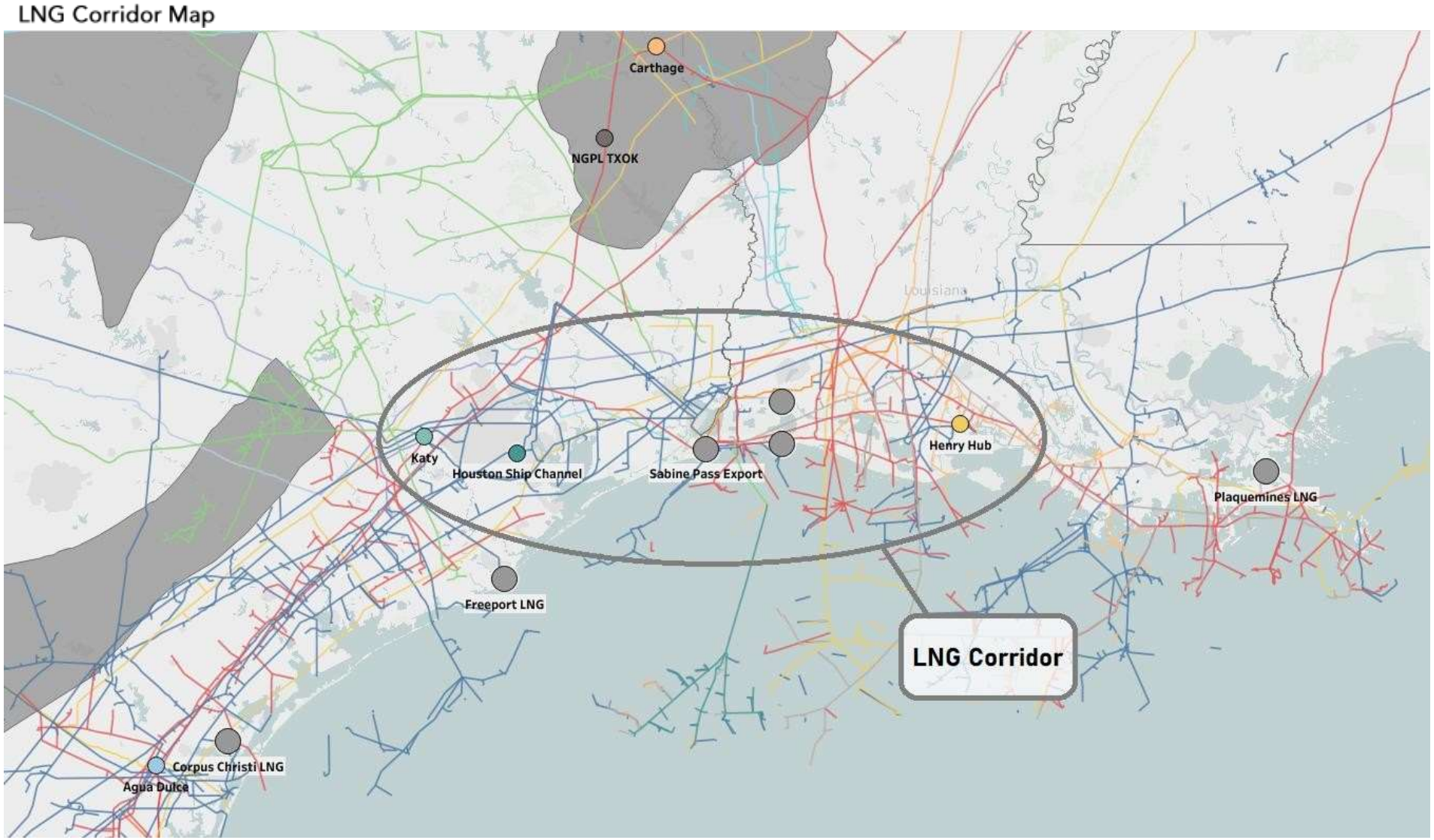
US LNG, an unprecedented success story which our clients intend to further

- **From nowhere to the world's leading LNG exporter in a decade, through a convergence of unique circumstances**
  - A huge domestic market – supply, demand, infrastructure
    - Liberalized, integrated market gave ready access to gas supply
  - Shale gas revolution made import terminals redundant, creating foundation for export infrastructure
  - Competitively priced feedgas and a (long-term) balanced market helped to provide long-term competitiveness of US exports
  - A new commercial model for LNG exports that attracted independent developers, facilitated financing, and offered flexible and diverse supply to offtakers
  - Liberalizing global LNG market valued flexibility and price diversity – and to date, only the US offers this at scale
  - Global uncertainty increases the value of this advantage for the US
- **Success continues as these US market norms persist…**
  - Supply-demand fundamentals must be balanced in order to keep this success story moving forward, especially in the "LNG Corridor"
  - Most relevant variables within the LNG Corridor include:
    - Abundant volume flows
    - Interconnectedness and access to liquidity
    - Competitive feedgas prices (hub prices and minimal transport costs)
    - High propensity to expand gas network infrastructure (permitting, legal, ect)



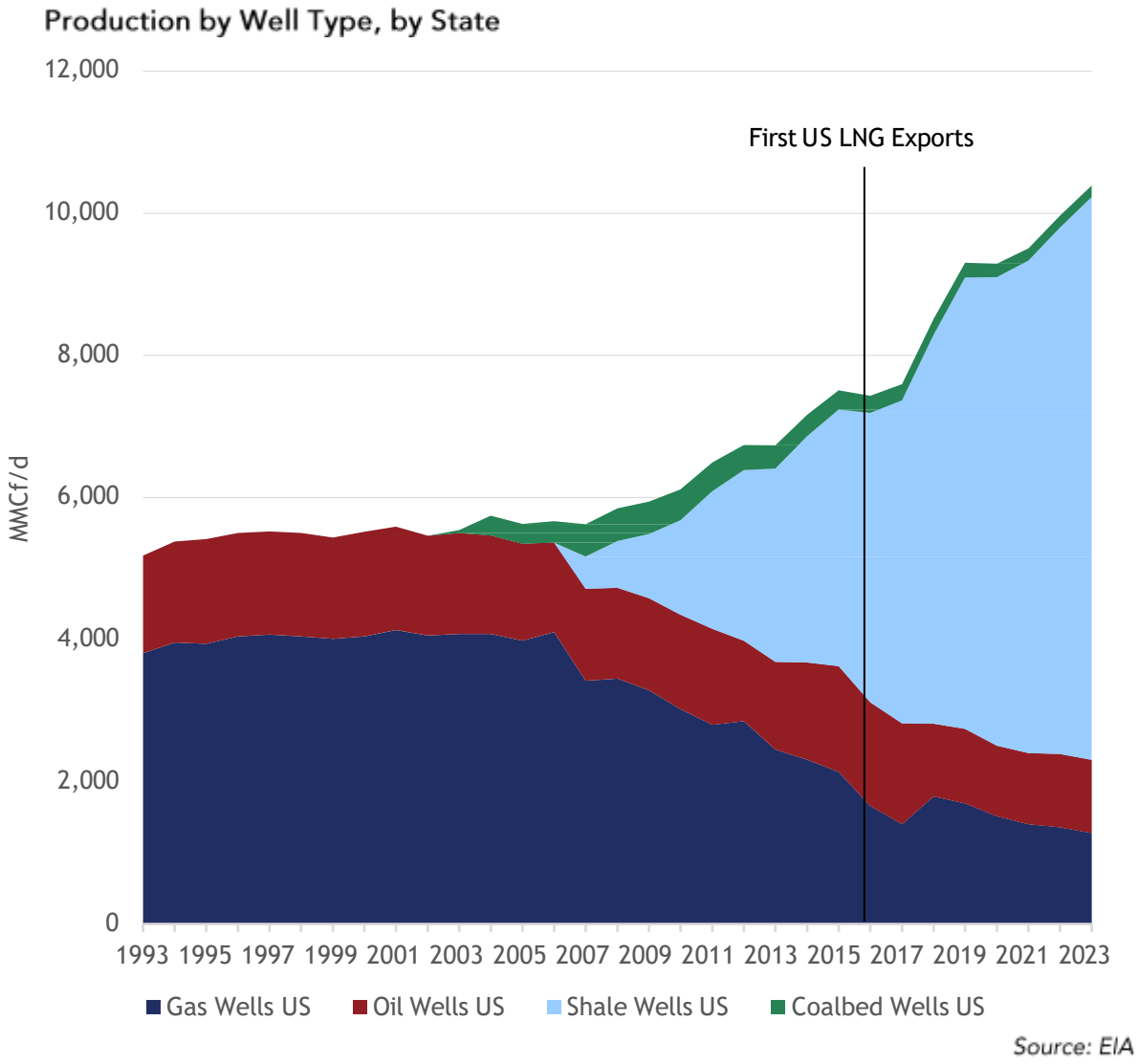
Source: Poten & Partners

LNG Corridor is evolving rapidly; it is also most consequential to Poten clientele



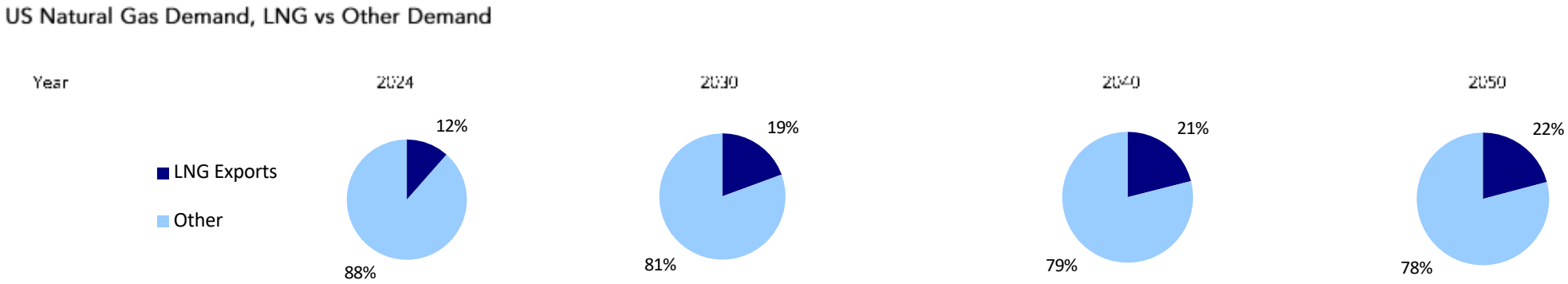
Source: Poten & Partners

LNG export success was driven by massive shale gas and is key to continued success



- **Advancing technologies and increased efficiency have improved shale gas economics**
  - Advancements in directional drilling and hydraulic fracturing allowed drilling into shale rock formations
  - High commodity prices meant high breakeven drilling prices, supporting more expensive technologies at larger scale
- **Ensuring abundant gas supply at a competitive price was key to US LNG exports**
  - The Shale Gas Revolution spurred the US LNG export industry
  - Competitively priced feedgas is essential, but accessing that gas in a reliable price environment is critical, too
  - The Marcellus and Haynesville stood out as core supply zones for US LNG exports
    - The variables were conducive for LNG projects to originate: reasonable transportation accessibility, cheap hub prices, and either nearby production or strong highways to production (underutilized pipeline segments and reversal of flows)

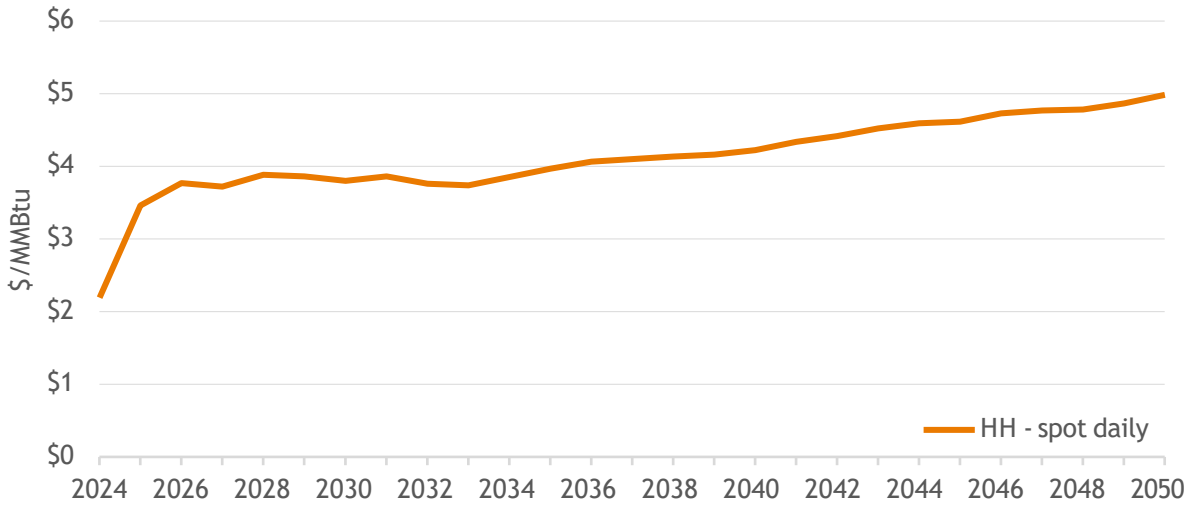
Increased demand and LNG exports will put upward pressure on Henry Hub – but not significantly



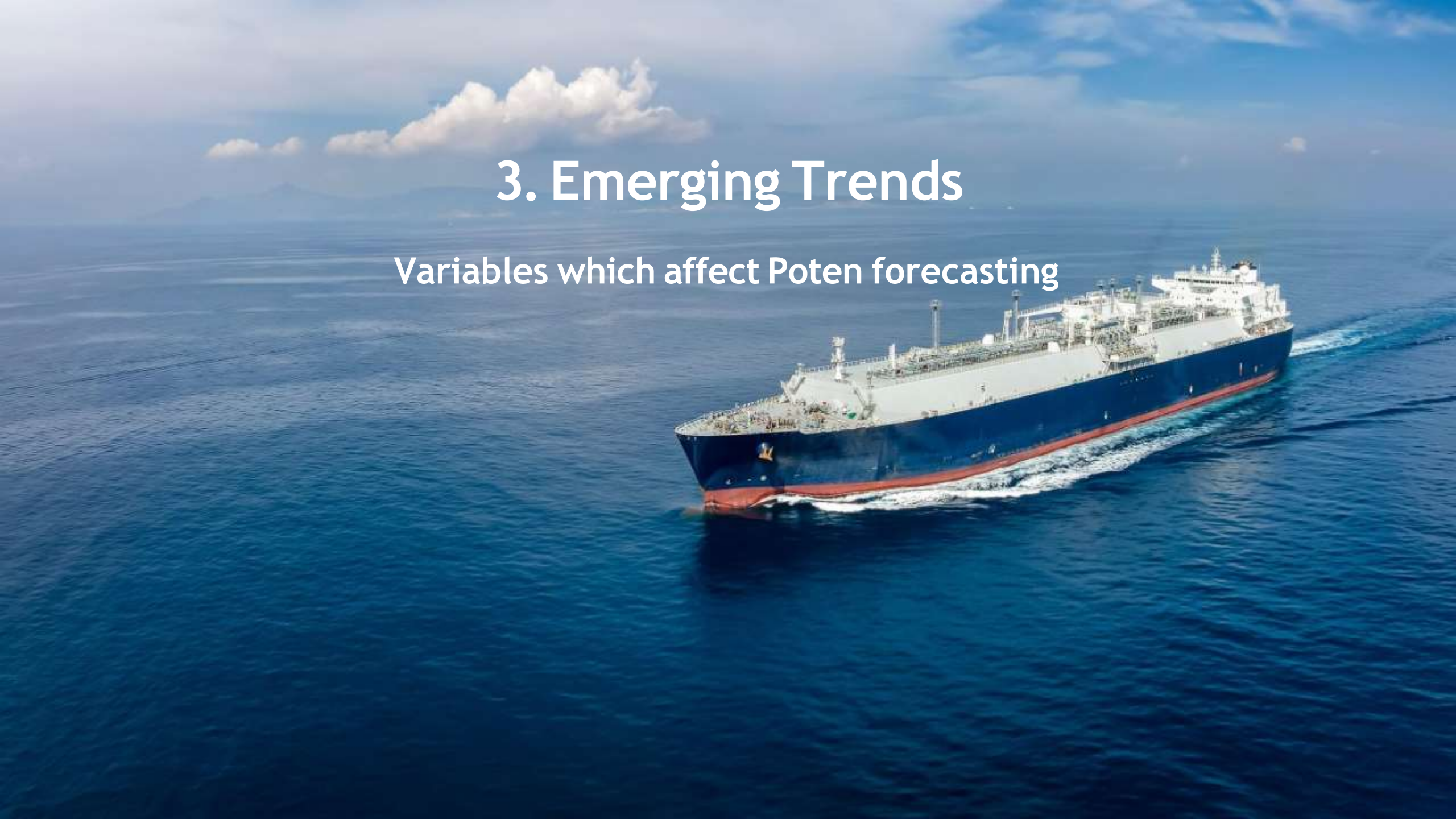
- **We do not view gas supply availability as a constraint for US LNG export**
  - Ample reserves exist to both maintain current production and support growth
  - Top operators in major basins possess significant inventories of high-quality drilling locations
  - Current technologies and value chain economics are also likely to continue to improve over the coming years, increasing prospects for additional development
  - We project that around 31 Bcf/d of feedgas will be required to supply LNG exports by 2050*. The key to this supply will be continued expansion of pipeline transport capacity linking producing areas to the project locations

*Assuming US average of ~10% of feedgas used in liquefaction/losses before LNG is exported.

Poten Henry Hub projections reflect a shale Breakeven point increasing from around $3/MMBtu to close to $5/MMBtu by 2050 in Real 2024$



Source: Poten & Partners



3. Emerging Trends

Variables which affect Poten forecasting

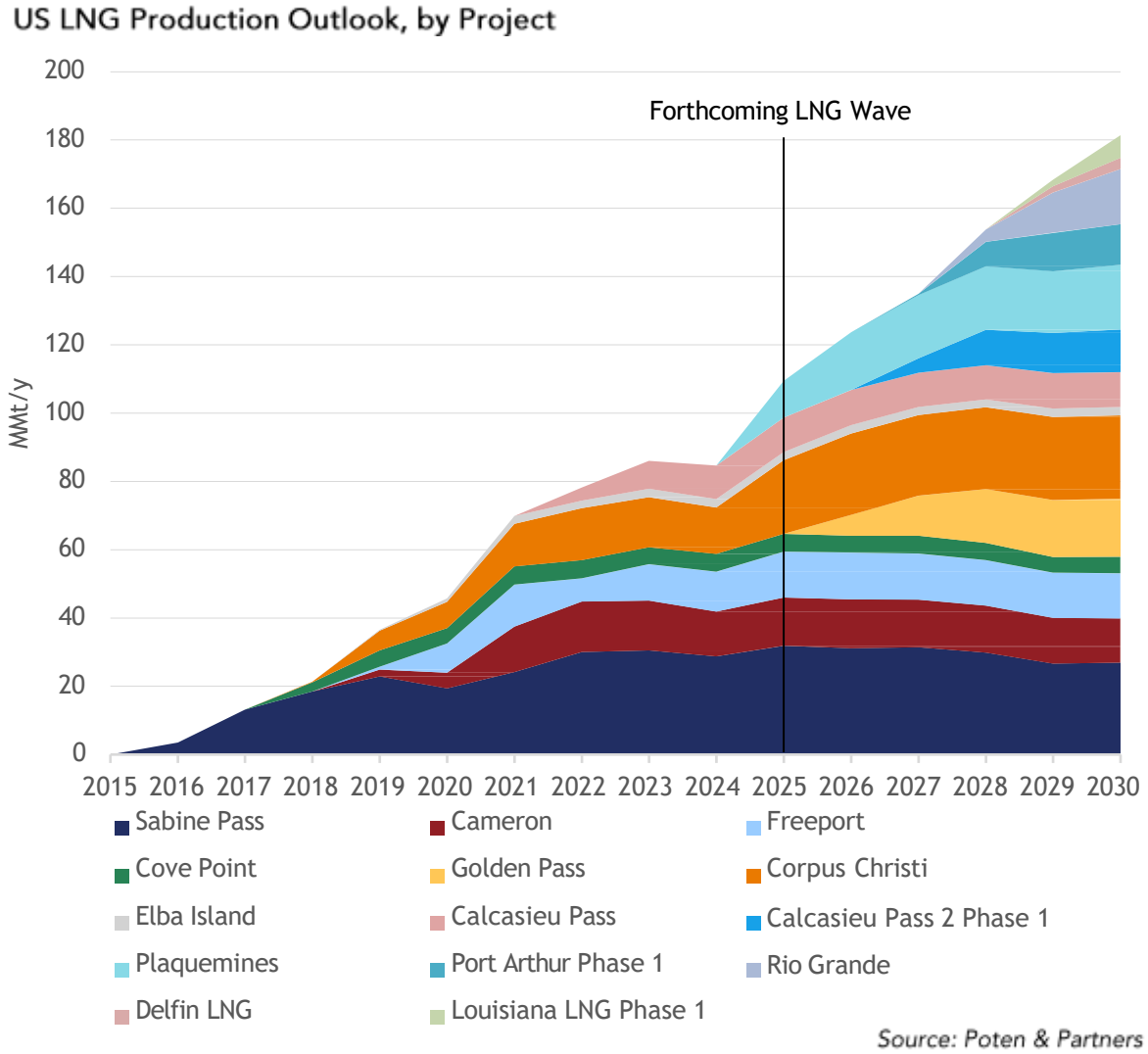
The key variables most relevant to Poten US feedgas analysis are located in the US Gulf

- **Demand: LNG Exports**
- **Demand: Gas-to-Power, AI-driven Data Centers**
- **Midstream: Infrastructure Development s Liquidity**
- **Supply: Shale Gas s Associated Gas**

- **GPCM offers an immense number of “levers” in the model**
  - Poten’s analysis focuses on the variables above to assess LNG project development for both developers and lenders
  - GPCM outputs are then combined with Poten’s global advisory analysis and our quarterly Global LNG Outlook (GLO)
  - GLO analysis pairs US LNG competitiveness with global regasification demand – project-level regasification demand globally and price/cost competitiveness

LNG demand for natural gas continues to ramp up upon the next wave of development

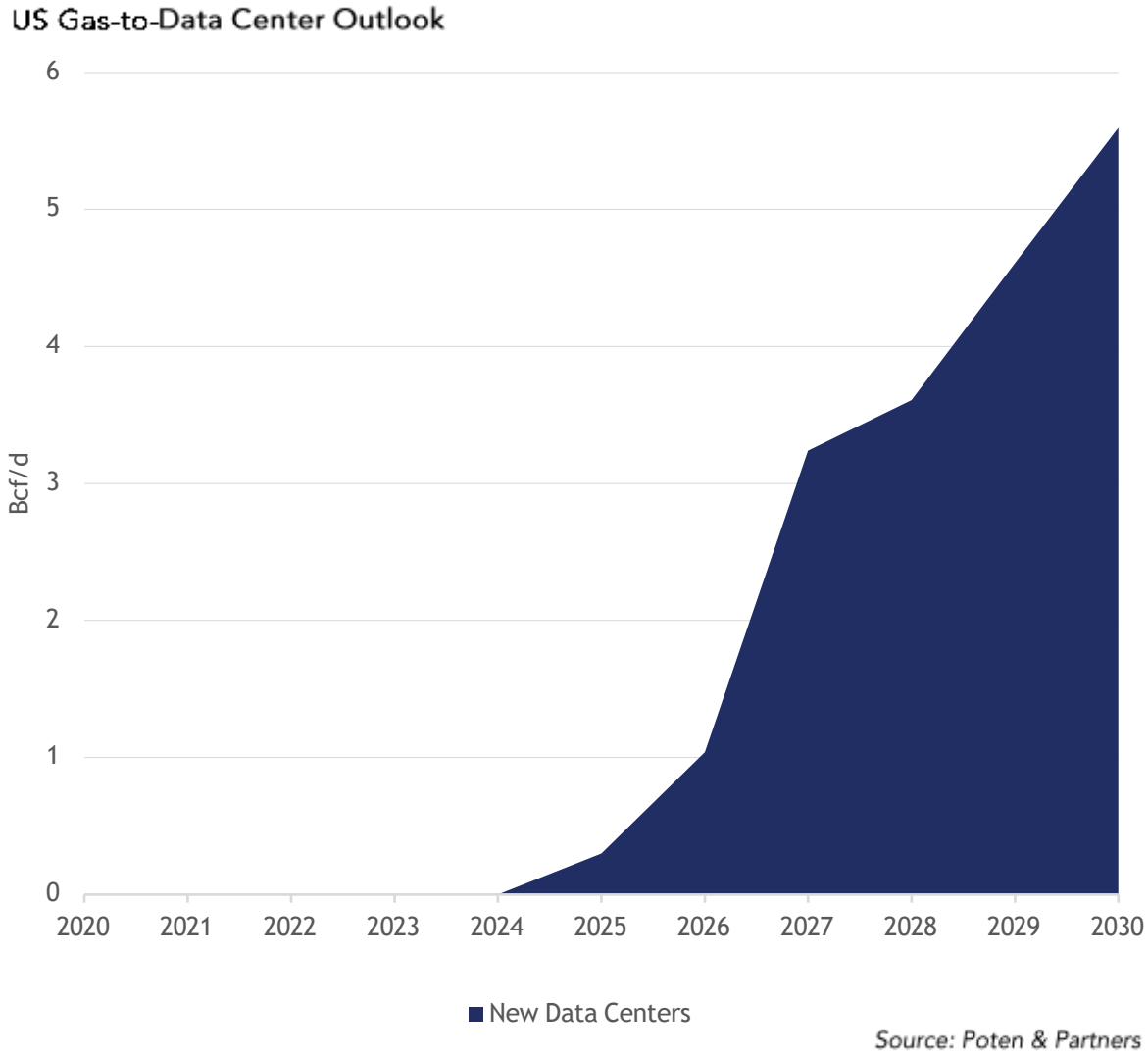
- **US LNG demand for natural gas experienced a wave of buildout – and is now entering a second wave**
  - Greenfield and expansion projects both add to US LNG buildout
  - Unprecedented volumes are already being drawn to the LNG Corridor; Venture Global's Plaquemines LNG (2024 startup) is already operating above nameplate capacity
  - Poten considers the overwhelming concentration of feedgas demand in the US Gulf when analyzing nearby hub price outlooks and availability of gas
- **LNG feedgas availability was not the core concern during the first wave of project development**
  - Over the past decade, LNG projects have far less underutilized pipeline capacity and limited regional gas demand competition
  - Upon the onset of the next wave of LNG, more competition exists along the US Gulf for both volumes and midstream infrastructure
- **Poten expects more projects to reach FID imminently**
  - Thus, further projects will bring more US Gulf demand for gas
  - Although, projects' success will be determined first by their ability to fit within the range of current supply and available global LNG demand



Source: Poten & Partners

Data centers are the emerging source of demand competition for US LNG

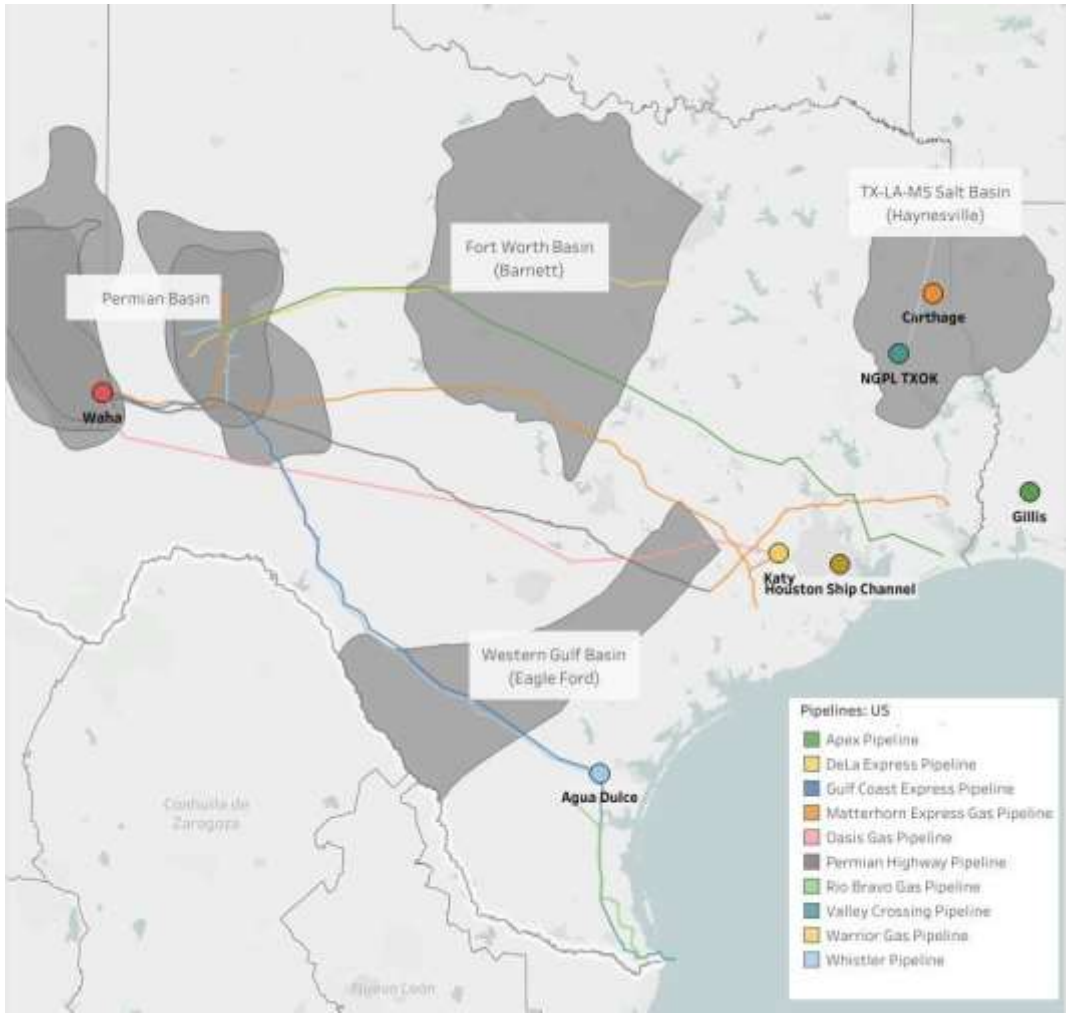
- **AI-driven data center demand for natural gas is a new, large entrant to the US natural gas network**
  - The US gas-to-power sector has largely remained flat for more than a decade
  - Greenfield data center demand for power is expected to increase US power demand greatly; Poten believes natural gas will be an early and longstanding source of electrons to meet this rapid demand growth
  - Overall, Poten expects any limits to data center gas-to-power demand to stem from limited upstream and midstream availability
- **The data center demand ramp up coincides with the new wave of LNG export demand**
  - Data centers are expected to add significant gas demand across the US, but the US Gulf region will also see significant gas-to-power demand growth
  - While nationwide data center demand impacts LNG export supply-demand fundamentals, the data centers sited in US Gulf states and along major pipeline systems also impact LNG competitiveness



Source: Poten & Partners

Midstream variables along the US Gulf are conducive for LNG development, but must be maintained

Major Eastbound Permian Takeaway Pipelines Assessed by Poten

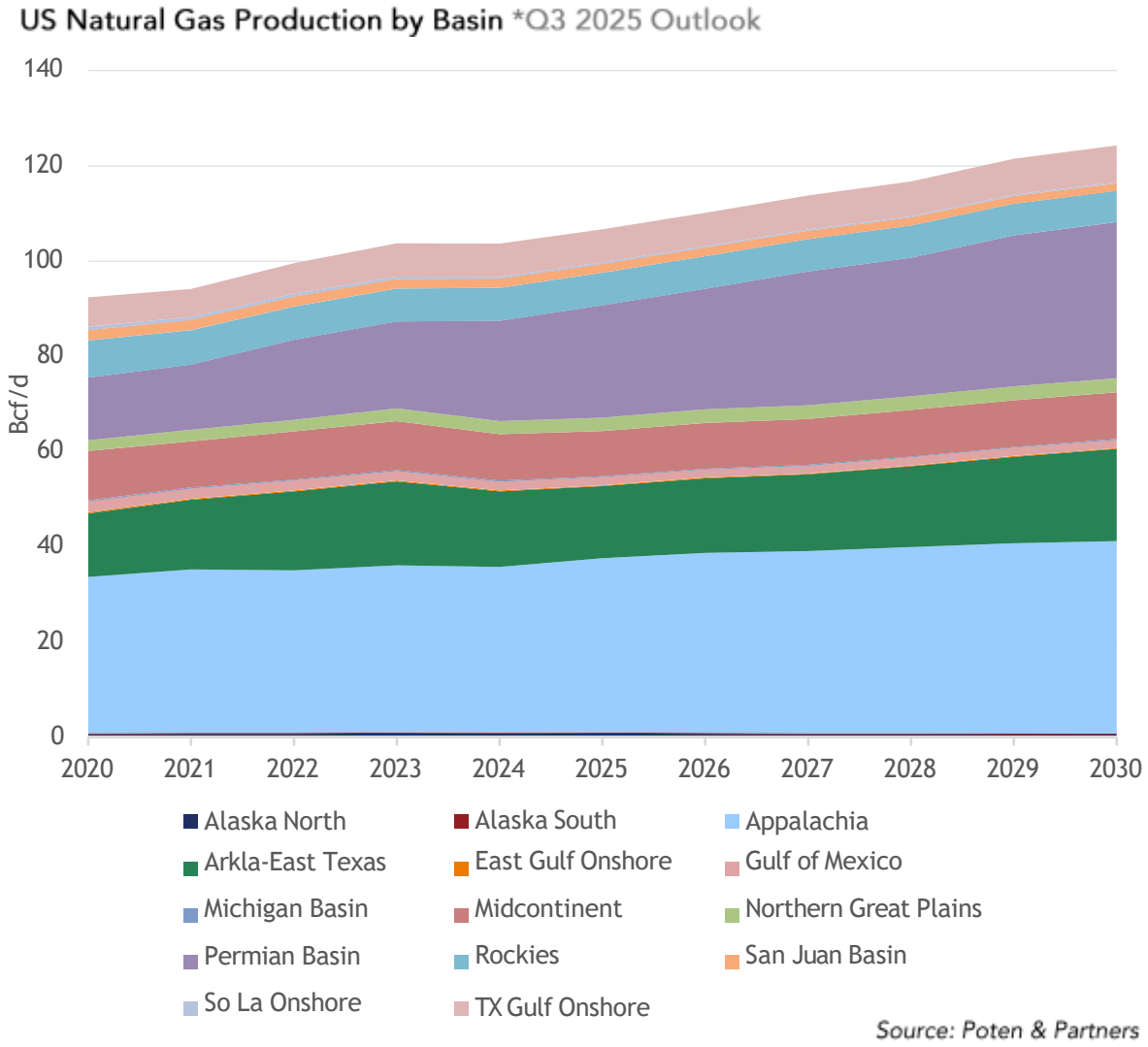


Source: Poten & Partners

- **Poten focuses midstream analysis effort on specific pipeline project development and new gas hub development**
- **Infrastructure development across the US is essential – Poten conducts analysis on major pipeline systems which deliver to US Gulf states**
  - First, accessing Permian production has long been a goal of LNG developers, thus eastbound Permian Basin takeaway pipelines have been a recent strategic focus
  - Permian associated gas is a new frontier for many gas buyers
  - Second, LNG-specific pipelines are of course a major consideration
  - Third, pre-existing LNG supplier pipeline systems which bring Marcellus/Haynesville production south are also a major consideration; how these pipeline systems help further develop liquidity in the LNG Corridor is critical
- **Liquidity development is also critical to LNG development**
  - Henry Hub is the US benchmark, but feedgas deliveries are often made at other LNG Corridor hubs with significant levels of liquidity (Katy, Houston Ship Channel)
  - Increasing liquidity at alternative hubs assists LNG projects' reliable access to gas
  - Gillis is a major intersection of interest to players in the LNG space (developers, lenders, ect) despite its current lack of development

US gas producers' ability to meet demand is also a key consideration

- **Suppliers' ability to meet demand is an essential piece to assessing feedgas availability**
  - Traditional shale gas basins largely supplying LNG projects remain strong and responsive; developers and lenders require confidence this trend will persist
  - Associated gas is also a core piece of many developers' strategy
- **Production is largely a function of a buyer's willingness to surpass a basin's breakeven costs, but there is not a perfectly elastic relationship between the two**
  - In other words: the ability for supply to further grow is dependent on cheap shale gas to persist and for producers to respond effectively to demand growth signals
  - Also, the ability for new supply to meet demand is essential, as discussed with midstream infrastructure
- **Additionally, associated gas is a continuing question in the age of slowing crude production growth and depressed WTI prices**



Source: Poten & Partners

4. Poten Scenario Building

LNG Analysis Variables in GPCM Usage

To generate US Gulf LNG competitiveness analysis, which levers does Poten utilize to best capture the trends described previously?

- **Supply: producers' ability to respond to price signals**
- **Midstream: infrastructure's ability to allow supply to meet demand**
- **Demand: natural gas buyers' propensity to further increase their demand**

- **Key levers utilized:**
  - Elasticity of Supply
  - AutoExpand project selections and Rate Mult
  - LNG Demand1 = Demand2
  - Data Center-relevant ELC Demand2
- **Additional relevant levers utilized:**
  - Pipeline Available: Header Pipelines
  - Pipeline Link: Start Date, capacity, FDQ/ZDQ/NDQ
  - Demand Link: Start Date
  - Interconnect Link: Header receipt volume size

Supply: How much producers respond to price

GPCM Supply Selection (Varying Elasticities)

Summary | Isoprices | Isograms | Export Iso | Shift | Append | Recomp | Compare | Import | Export | Make New | Rename | Delete | Close

Location	Supply Play	Type	Period	Segment	Supply1 mmcf/d	Price1 $/mmbtu	Supply2 mmcf/d	Price2 $/mmbtu	Elasticity
			Dec-2050						
LNG Sabine Pass	LNG	LNG	Dec-2050	0	2	2.194	2	3.658	0.001
LNG Sabine Pass	LNG	LNG	Dec-2050	1	2	3.658	2	14.630	0.000
LNG Saint John	LNG	LNG	Dec-2050	0	0	0.670	0	4.925	
LNG Saint John	LNG	LNG	Dec-2050	1	0	4.925	0	6.591	
MA	Bio-Methane	GREEN	Dec-2050	0	0	0.097	0	4.871	
MA	Bio-Methane	GREEN	Dec-2050	1	0	4.871	0	14.612	
Mackenzie Delta	CONV	CONV	Dec-2050	0	0	0.433	0	1.732	0.490
Mackenzie Delta	CONV	CONV	Dec-2050	1	0	1.732	0	3.896	0.490
MD	Bio-Methane	GREEN	Dec-2050	0	0	0.081	0	4.069	
MD	Bio-Methane	GREEN	Dec-2050	1	0	4.069	0	12.206	
ME	Bio-Methane	GREEN	Dec-2050	0	6	0.097	7	4.871	0.013
ME	Bio-Methane	GREEN	Dec-2050	1	7	4.871	7	9.741	0.070
MI	Antrim Shale	SHALE	Dec-2050	0	36	0.761	72	3.045	0.490
MI	Antrim Shale	SHALE	Dec-2050	1	72	3.045	123	9.135	0.490
MI	Bio-Methane	GREEN	Dec-2050	0	20	0.761	22	3.045	0.037
MI	Bio-Methane	GREEN	Dec-2050	1	22	3.045	23	9.135	0.044
MI	CONV	CONV	Dec-2050	0	3	0.761	5	3.045	0.490
MI	CONV	CONV	Dec-2050	1	5	3.045	9	9.135	0.490
MN	Bio-Methane	GREEN	Dec-2050	0	2	0.067	2	3.351	0.013
MN	Bio-Methane	GREEN	Dec-2050	1	2	3.351	2	10.054	0.044
MO	Bio-Methane	GREEN	Dec-2050	0	0	0.067	0	3.327	
MO	Bio-Methane	GREEN	Dec-2050	1	0	3.327	0	9.982	
MS	Bio-Methane	GREEN	Dec-2050	0	2	0.813	2	3.251	0.037
MS	Bio-Methane	GREEN	Dec-2050	1	2	3.251	3	9.752	0.044
MS	CONV	CONV	Dec-2050	0	15	0.813	30	3.251	0.490
MS	CONV	CONV	Dec-2050	1	30	3.251	52	9.752	0.490
MT Powder River	CBM	CBM	Dec-2050	0	0	0.789	0	3.155	
MT Powder River	CBM	CBM	Dec-2050	1	0	3.155	0	7.099	
MT Powder River	CONV	CONV	Dec-2050	0	0	0.789	0	3.155	0.490
MT Powder River	CONV	CONV	Dec-2050	1	0	3.155	0	7.099	0.490

Source: Poten & Partners, RBAC

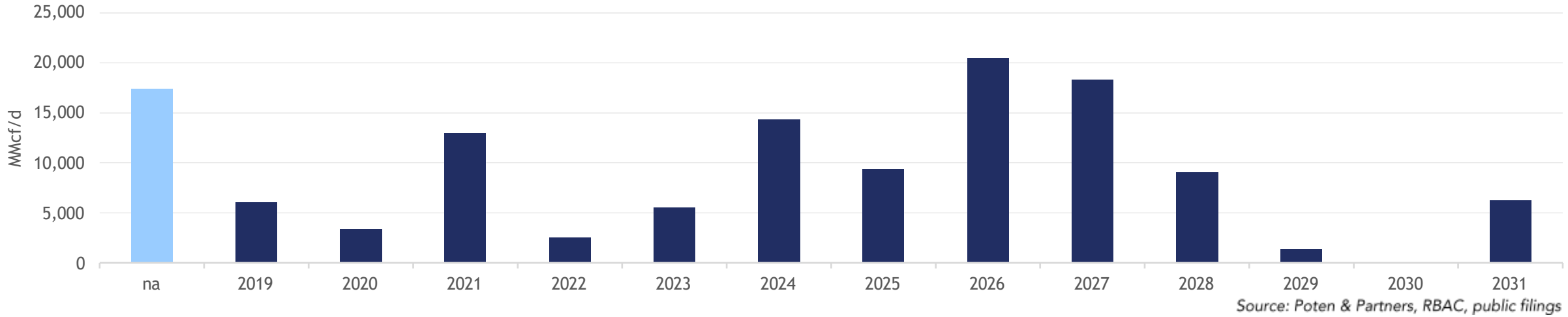
Midstream: Developers ability to bring projects online signals more liquidity

GPCM AutoExpand Selection

Pipeline	Filterset / Zone	Beg Date	AutoExpand	Max Exp	Min Cost	Rate Mult
	State: LA					
Enable Gas Transmission	EGT CP Line	Apr-2029	☑	50%	$0.200	3.00
Enable Gas Transmission	EGT CP Line	Apr-2039	☑	75%	$0.200	3.00
Enable Gas Transmission	EGT CP Line	Apr-2049	☑	100%	$0.200	3.00
Enable Gas Transmission	EGT South (LA/AR)	Apr-2029	☑	50%	$0.200	3.00
Enable Gas Transmission	EGT South (LA/AR)	Apr-2039	☑	75%	$0.200	3.00
Enable Gas Transmission	EGT South (LA/AR)	Apr-2049	☑	100%	$0.200	3.00
Enable Gas Transmission	EGT South (LA/AR) Sup	Apr-2029	☑	50%	$0.200	3.00
Enable Gas Transmission	EGT South (LA/AR) Sup	Apr-2039	☑	75%	$0.200	3.00
Enable Gas Transmission	EGT South (LA/AR) Sup	Apr-2049	☑	100%	$0.200	3.00

Source: Poten & Partners, RBAC

Pipeline Capacity Additions (Texas & Louisiana selections)



Source: Poten & Partners, RBAC, public filings

Demand: LNG Exports C Power (New Data Centers)

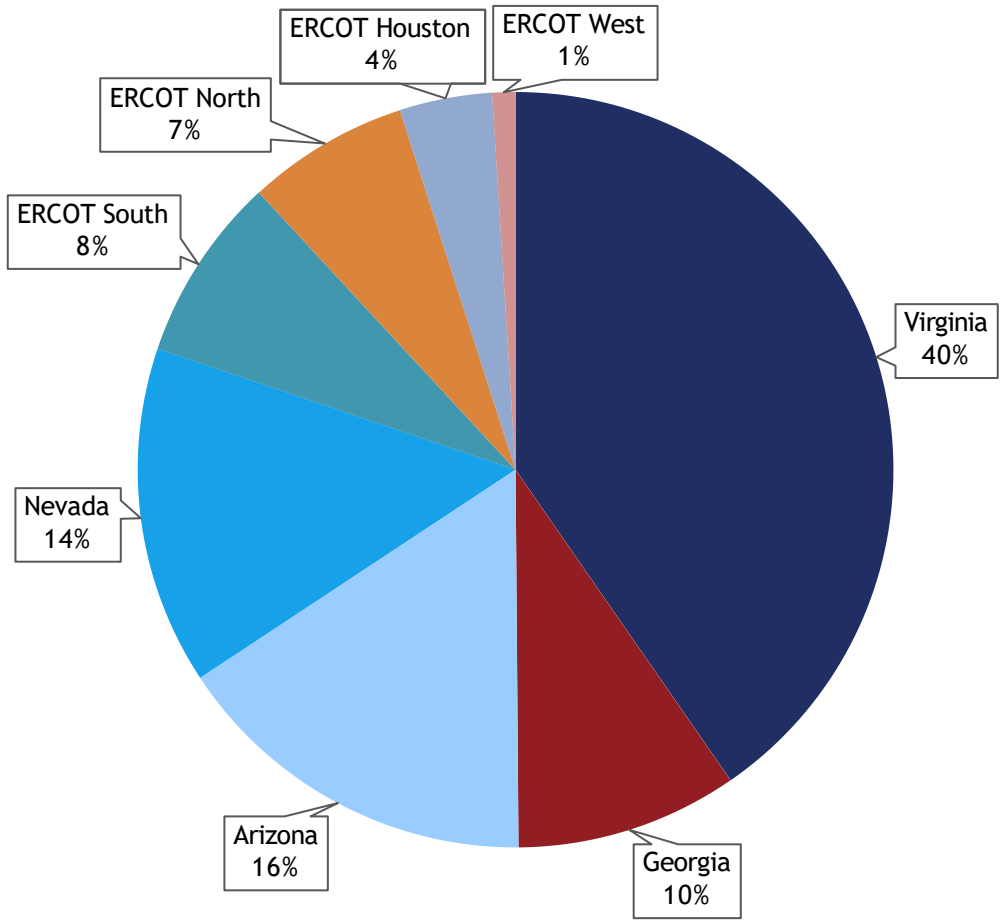
GPCM Demand Selection (Demand1 vs Demand2)

Demd1 mmcf/d	Price1 $/mmbtu	Demd2 mmcf/d	Price2 $/mmbtu
1,748	15.000	2,330	5.000
1,476	15.000	1,716	5.000
1,867	15.000	3,548	5.000
1,132	15.000	1,316	5.000
938	15.000	1,255	5.000
1,974	15.000	2,632	5.000
303	15.000	352	5.000
452	15.000	526	5.000
363	10.000	363	5.000
4,120	10.000	4,120	5.000
2,086	10.000	2,086	5.000
2,110	10.000	2,110	5.000
3,761	10.000	3,761	5.000
2,618	10.000	2,618	5.000
1,488	10.000	1,488	5.000
2,036	10.000	2,036	5.000
2,835	10.000	2,835	5.000
2,998	10.000	2,998	5.000
2,253	10.000	2,253	5.000

Demd1 mmcf/d	Price1 $/mmbtu	Demd2 mmcf/d	Price2 $/mmbtu
219	19.616	383	1.209
29	19.616	50	1.209
365	19.616	638	1.209
111	19.616	193	1.209

Source: Poten & Partners, RBAC

Distribution of New Data Center Natural Gas Demand



Source: Poten & Partners, Energy Policy Research Foundation, ERCOT

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