PLG CONSULTING

The Dynamic U.S. Energy Landscape

And Its Impact on Rail

October 2, 2025
Phoenix, AZ

SWARS 2025
Semi–Annual Meeting

PLG Provides Core Expertise Across Multiple Industries & Services

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- Market analysis
- Due diligence
- Logistics procurement
- Business strategy
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- Assessment and optimization
- Technology
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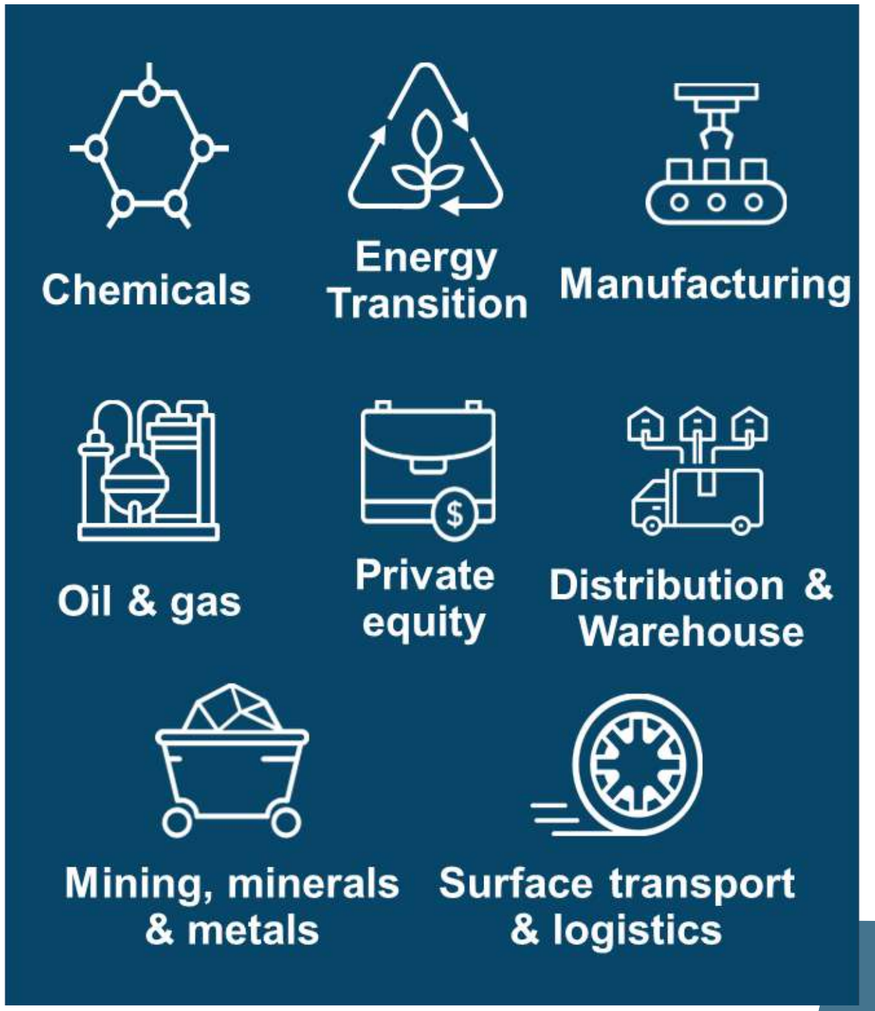
MARKETS



PLG's ENERGY SUPPLY CHAIN INNOVATION HISTORY

2005–2009

ETHANOL

Launch of ethanol transport for fuel blending

2008–2015

WIND POWER

Turbine transport for wind energy expansion

2010–2016

WIND POWER

Optimized logistics for wind components

2011–2014

UNCONVENTIONAL OIL & GAS — Exploration & Production

Rail logistics for frac sand delivery

2012–2014

UNCONVENTIONAL OIL & GAS — Midstream

Expanding tank car fleet for crude-by-rail

2017–2019

UNCONVENTIONAL OIL & GAS — Exploration & Production

Last–mile solutions for increased sand demand

2018–present

LANDFILL GAS (LFG) / RENEWABLE NATURAL GAS (RNG)

Logistics for renewable methane recovery

2019–present

PLASTICS RECYCLING / CIRCULAR SUPPLY CHAIN

Logistics for sustainable plastic processing

2020–present

RENEWABLE DIESEL

Expanding tank car fleet for crude-by-rail

2022–present

GREEN HYDROGEN AND AMMONIA

Logistics for green hydrogen production

2023–present

CARBON CAPTURE, UTILIZATION AND STORAGE (CCUS)

Solutions for CO_2 recovery, storage and delivery

PLG's Energy Innovation History: https://plgconsulting.com/energy-innovation-history/

Today’s Agenda

- I – Energy Overview
- II – Fossil Fuels
- III – US New Energy Technologies
- IV – Implications for Rail

Key Themes Today

U.S. oil & gas “energy dominance" continues

- The U.S. is already a global powerhouse in production and exporting of crude, LNG, and NGLs
- “Drill, baby, drill” – not happening as decisions are driven by large corporate financial objectives
- Production volume growth largely dependent on exports

Data centers will drive power demand growth

- Generative AI voracious appetite for power will drive a new wave of electricity demand growth
- Growth curve may lag forecasts due to electrical generation and grid growth challenges
- Could there be an overbuild in capacity in this frenzied environment?

Impact of tariffs & counter-tariffs has been minimal

- Main impact has been focused on U.S. exports to China being temporarily shifted to other sources
- U.S. exports are finding a home in other markets to offset losses in China
- Some foreign entities have announced U.S. manufacturing investments – impactful in big picture?

Key Themes Today

China's "green dominance" continues

- China has invested heavily in EV and solar supply chains, driving global dominance
- Costs, infrastructure and supply chain challenges will be difficult to overcome in the U.S.

Stormy weather for the U.S. Energy Transition

- OBBBA and Executive Orders favor carbon energy sources, not renewables
- Major negative impacts on U.S. markets for:
  - Wind – On- and Off-shore
  - Solar
  - Green Hydrogen
  - Electric Vehicles

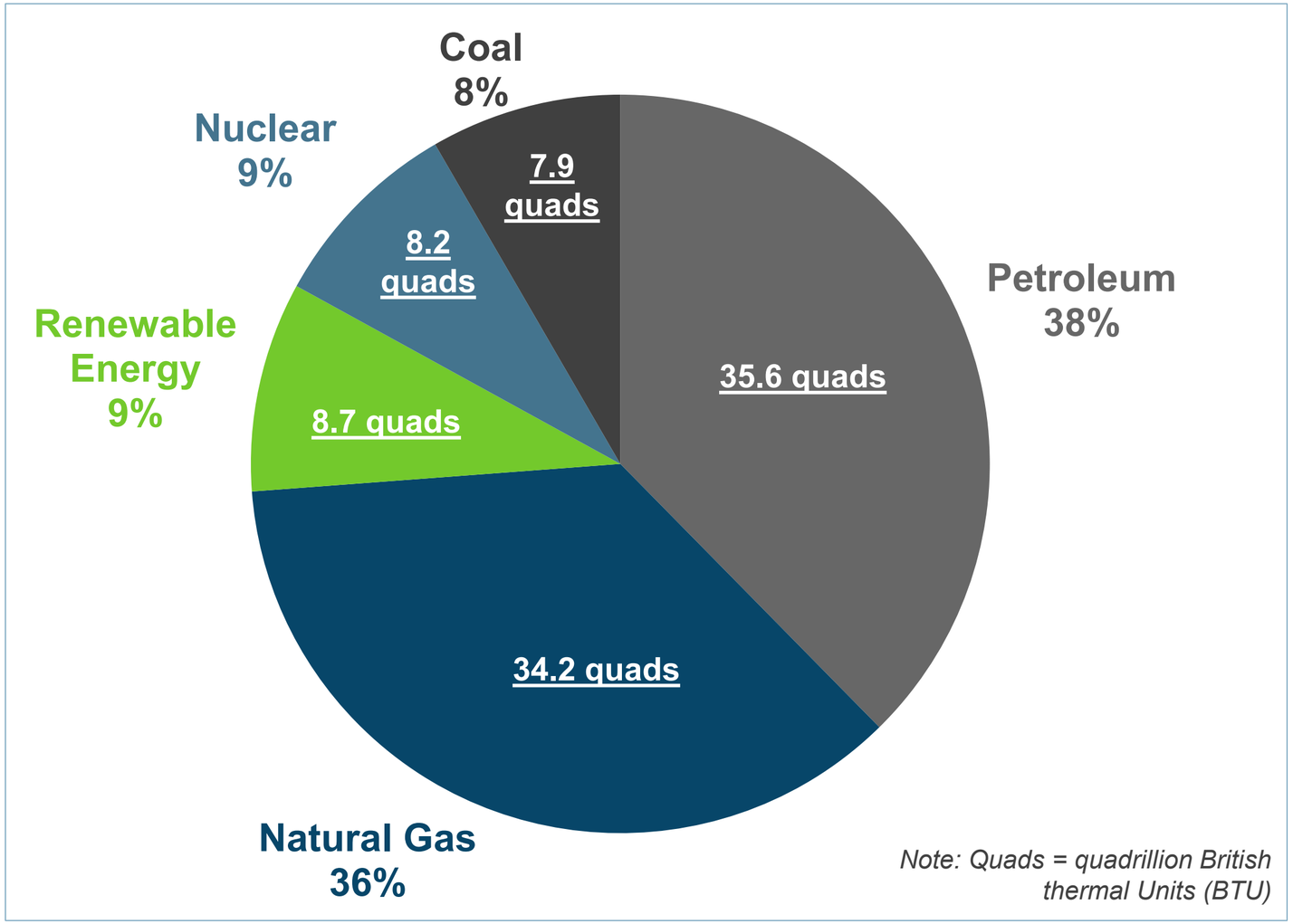
**OBBBA – One Big Beautiful Bill Act*

Impact on freight rail volume and railcars mixed

- LPG, Renewable Diesel and CO2 have some growth potential
- No significant growth seen in industrial, manufacturing or energy markets
- Railcar markets remain tight due to railcar orders being down and healthy retirements

I – Energy Overview

US Energy Consumption by Source

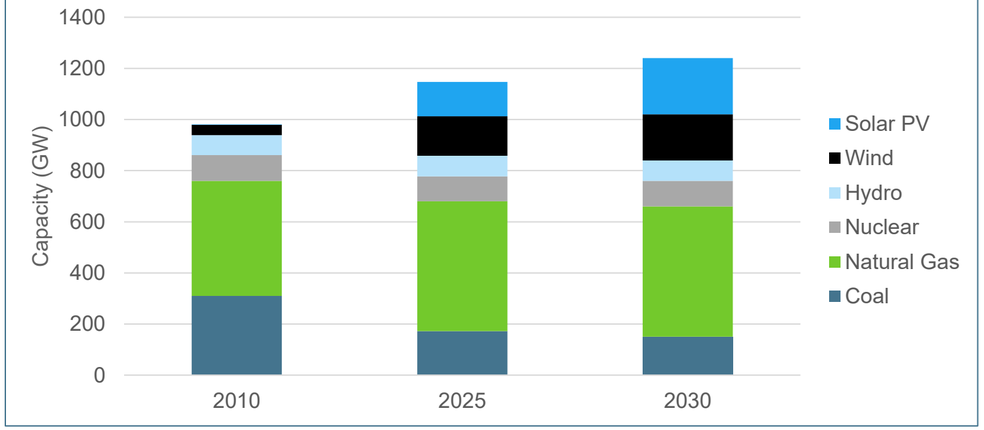


- Fossil fuels still supply ~80% of U.S. energy.
- Generally speaking,
  - Oil fuels transport
  - Gas powers industry
  - Renewables grow in electricity

Source: PLG analysis using EIA data, September 2025

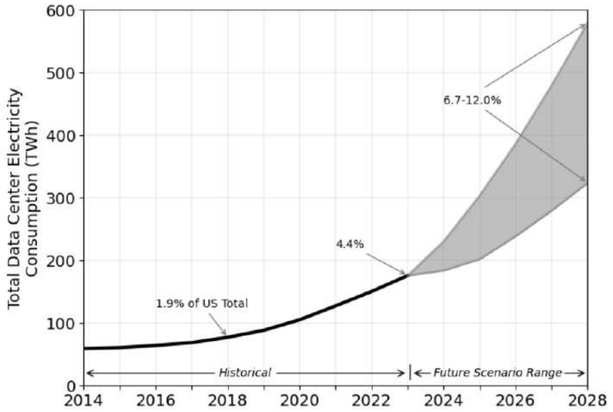
U.S. Electricity Demand Projected to Rise 40% by 2045

US installed power capacity forecast by source



Source: PLG analysis using EIA data, September 2025

U.S. data center electricity use from 2014 through 2028



Source: 2024 United States Data Center Energy Usage Report, December 2024

Growth Drivers

- Data centers and AI are major demand accelerators (see bottom left)
  - Biggest future data center growth seen in Virginia, Texas, and Georgia
- Solar and wind expected to add most new capacity

Bottlenecks

- Few new transmission lines built recently
- Permitting and regulatory processes create delays
- Grid expansion not keeping pace with demand

Uncertainties

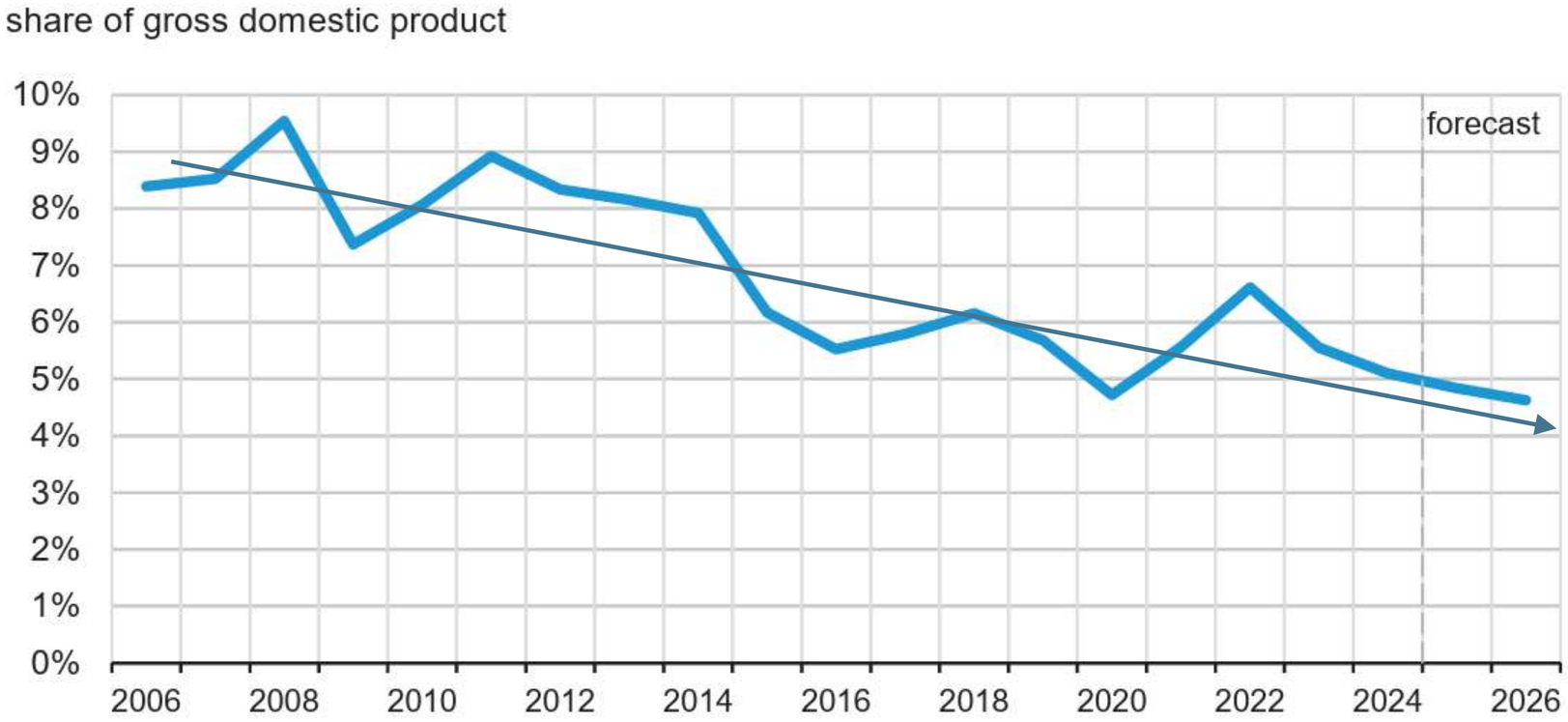
- Gas peaking may be required to backstop renewables
- Coal will lose share, but retirements may be delayed by high electricity demand
- Forecast timing could be overstated (some analysts warn of “boom-and-bust” risk)

“All of the above” energy policy needed to meet expected power demand growth

Shale Revolution Has Lowered Energy Costs

- Shale revolution spurred North American energy independence, lowering costs and improving trade balance
- US has a fundamentally advantaged position in energy that has aided the consumer and industrial economy

U.S. annual energy expenditures



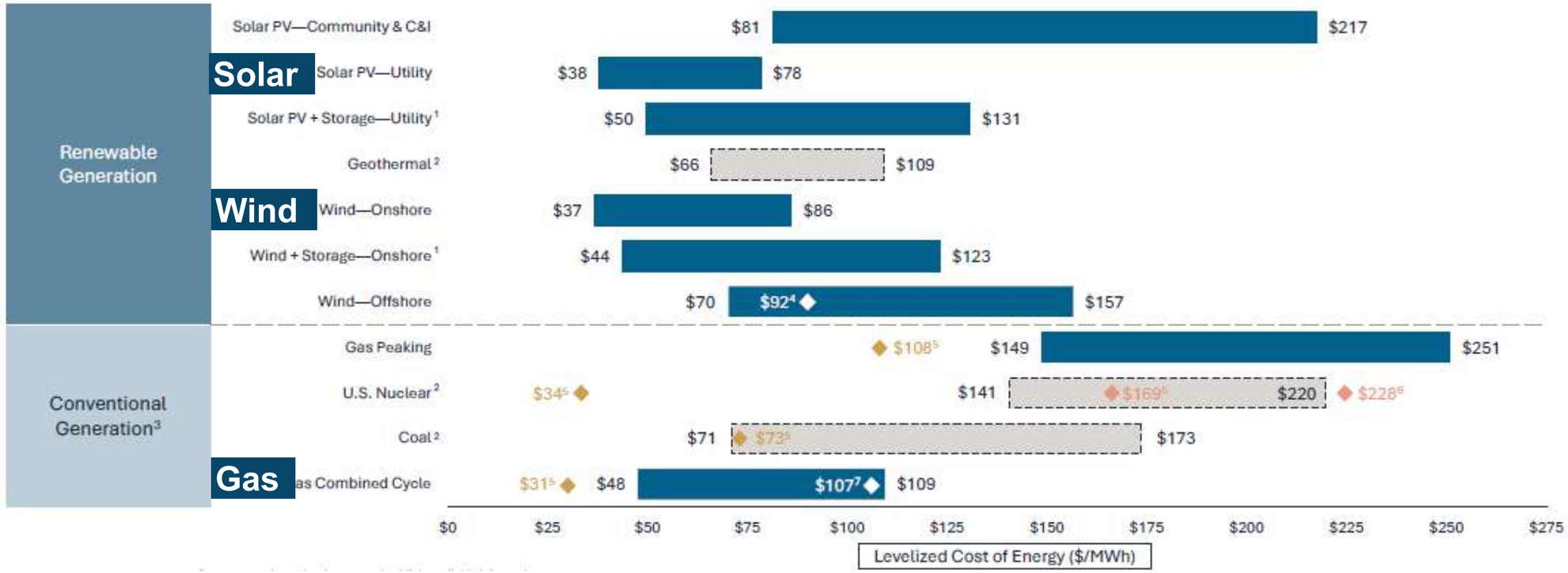
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2025

U.S. Energy costs have gone from ~9% to ~4.5% of GDP in 20 years…Offsetting other inflation

Energy Cost Competitiveness Comparison

Levelized Cost of Energy Comparison (without incentives included)

Selected renewable energy generation technologies remain cost-competitive with conventional generation technologies under certain circumstances



High Cost

1. Gas Peaking
2. Nuclear
3. Coal

Source: Lazard and Roland Berger estimates and publicly available information, June 2025

Full report can be found at: http://bit.ly/3EYQaLT

Onshore wind and utility solar are lowest cost, followed by combined cycle gas – as low as $37 – $48 per MWh

Policy Shifts from OBBBA Reshape U.S. Energy Priorities:

Which energy sources lose or gain under OBBBA?

Technology	IRA Incentives (2022-2025) vs OBBBA Policy Changes (2025 onward)	
Solar & Wind		• 48E and 45Y credits available until 2033 • Phased out after 2027[1]; sourcing rules tightened (FEOC)
Green Hydrogen		• 45V credit available until 2033 • Phased out by 2028
Electric Vehicles		• 30D, 25E, and 45W credits for EVs; 30C for charging infrastructure • Phased out by 2026 (30D/25E/45W by Oct 2025, 30C by Jul 2026)
Manufacturing		• 45X and 28C credits support clean tech supply chain • 45X phased out after 2027 (wind) and 2028 (solar/storage); 48C compromised by sourcing rules
Carbon Capture		• 45Q credit available until 2033 • Preserved; EOR provisions enhanced
Energy Storage		• 48E credit available until 2033 • Preserved in full
Biofuels		• 45Z credit available until 2027 • Extended to 2029; feedstock sourcing rules tightened; capped SAF
Geothermal		• 48E and 45Y credits available until 2033 • Preserved in full
Nuclear		• ITC/PTC for new, 45U for existing plants available until 2033 • Preserved in full; fuel sourcing rules apply after 2028
Oil, Gas		• No support • Gains tax breaks, public land access, and regulatory rollbacks

Phased Out

Preserved

Gained

Source: Columbia Business School – July 2025

Near Term Energy Market Outlook — 2024 to 2026

U.S Energy Market Indicators	2024	2025	2026	3–yr trend
Brent crude oil (dollars per barrel)	81	68	51	↓
Gasoline retail price (dollars per gallon)	3.3	3.1	2.9	↓
U.S. crude oil production (million barrels per day)	13.2	13.4	13.3	=
Natural gas spot price (dollars per million BTU)	2.2	3.5	4.3	↑
U.S. LNG exports (billion cubic feet per day)	12	15	16	↑
Shares of U.S. electricity generation (percentage)				
Natural gas	42	40	40	=
Coal	16	17	16	=
Renewables	23	25	26	↑
Nuclear	19	18	18	=
U.S. GDP (percentage change)	2.8	1.7	2.4	=
U.S. CO_2 emissions (million metric tons)	4,780	4,850	4,830	=

Data source: US EIA, *Short-Term Energy Outlook*, September 2025

Pricing trends: Oil, Gasoline lower; Natural Gas higher
Production trends: Natural Gas growing, Oil up/flat

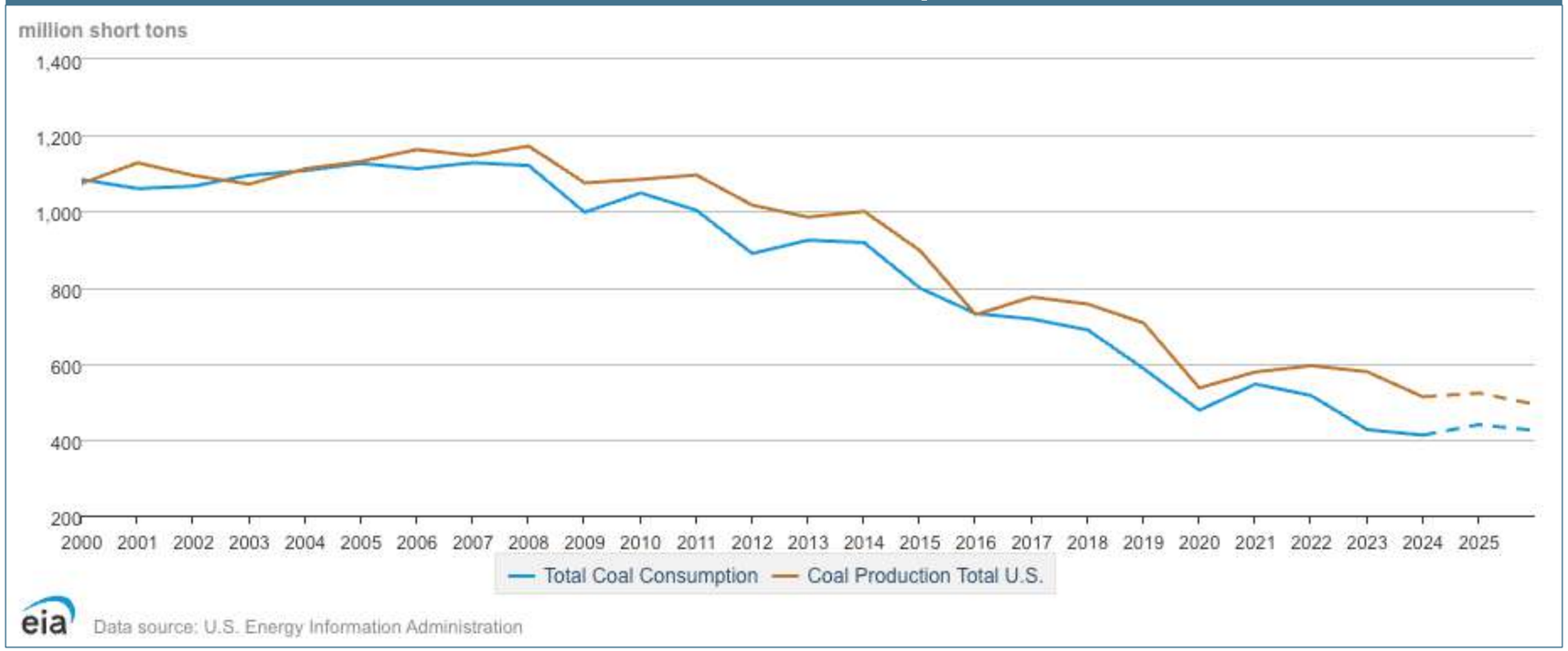
Renewables:
Continued growth

II – Fossil Fuels and Nuclear

Domestic Coal Consumption Continues Structural Decline

- Primarily due to abundant supply of low-cost shale gas, over the past ten years:
  - US coal-fired generating capacity declined by almost 60% since 2013
  - Coal's share of electricity generation mix has been cut in half, to 17%

US Coal Production & Consumption, 2000-2026



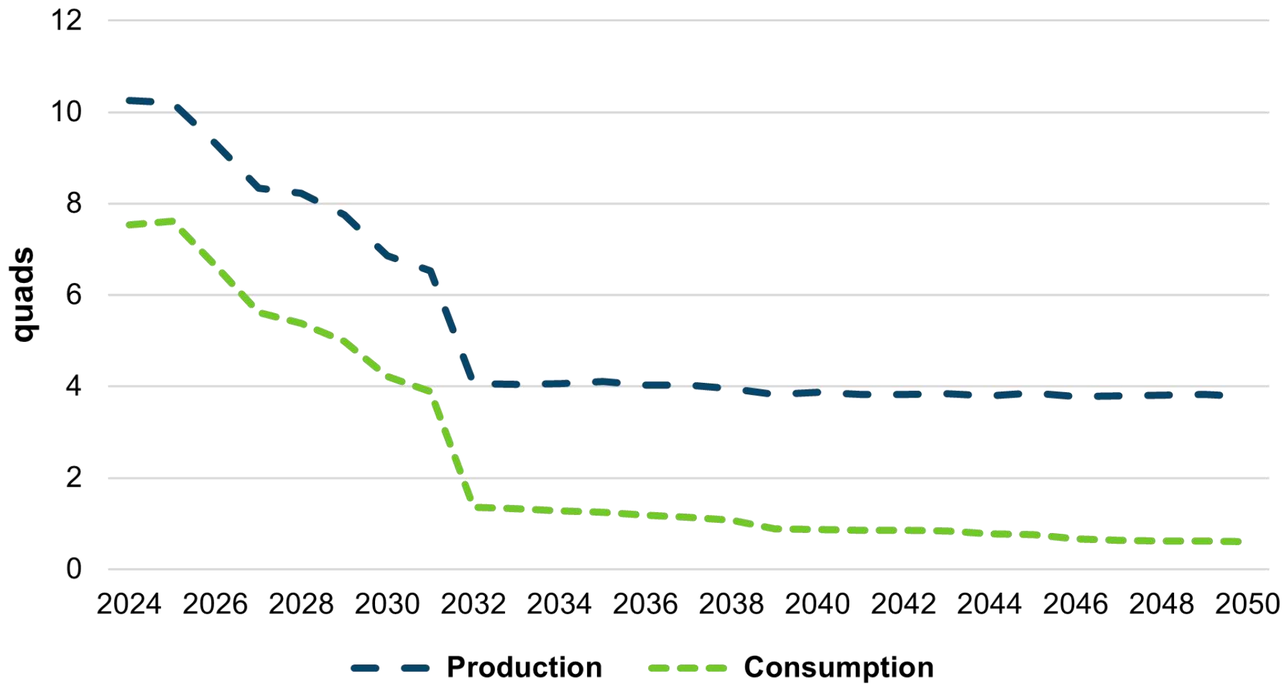
Source: EIA, September 2025

- Exports are becoming an important market for US thermal coal producers (25% of production in 2024)
- Long-term, global coal demand expected to decline due to expansion of renewables
- Although smaller in volume, US metallurgical coal exports remain strong due to high quality

U.S. coal–fired capacity down ~60% since 2013

Long Term U.S. Coal Decline Continues

Total Energy Outlook for Coal until 2050



Source: EIA, September 2025

Headwinds:

- Utility retirement plans
- Lower cost renewables and natural gas
- Headwinds:

Tailwinds:

- Datacenter electricity demand may delay some retirements
- Exports will become a majority of production volume by early next decade
- Political intervention, see below…

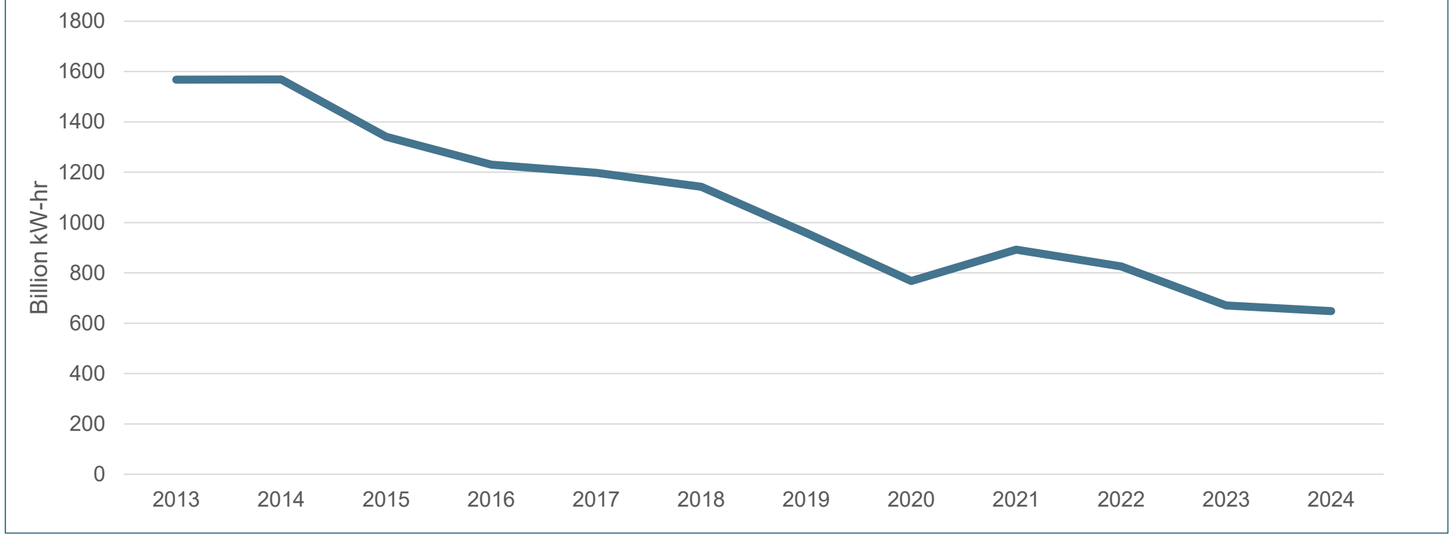
White House Executive Order: "Reinvigorating America's Beautiful Clean Coal Industry" (Apr 8, 2025) – Highlights include:

- Prioritize and expedite coal leasing on federal lands
- Identify and expand National Environmental Policy Act Categorical exclusions to speed mine approvals
- End the prior coal-leasing moratorium process
- Process royalty-rate reductions expeditiously
- Promote coal exports
- Assess coal-powered infrastructure for AI data centers

Domestic coal production might drop another ~60% in next 7 years – despite federal support

Nuclear Has a New Lease on Life

Electricity Net Generation From Nuclear Electric Power Sector



Source: PLG analysis using EIA data, September 2025

Tech & Industry Commitments

- Microsoft – 20-year contract for power from mothballed Three Mile Island plant (PA)
- Amazon – data center campus next to Susquehanna nuclear plant; investing in X-Energy reactors with Dominion Energy VA
- Google – partnered with Kairos Power to buy electricity from small reactors

Policy Incentives

- Goal - Quadruple U.S. nuclear capacity
  - 100 GW → 400 GW by 2050
- NRC licensing reforms to shorten approvals (≤ 18 months)
- Encourage advanced reactor deployment: **Small Modular Reactors (SMRs) and microreactors**
  - Promising alternative to large scale projects for electricity generation, which continue to increase in cost per megawatt hour relative to wind and solar.
  - Commercial deployment still 10 years out.
- Site new reactors on DOE and military properties for national security loads
- AI data centers designated as “defense-critical electric infrastructure”

Nuclear still challenged by high costs, speed to market and waste concerns – new administration supports

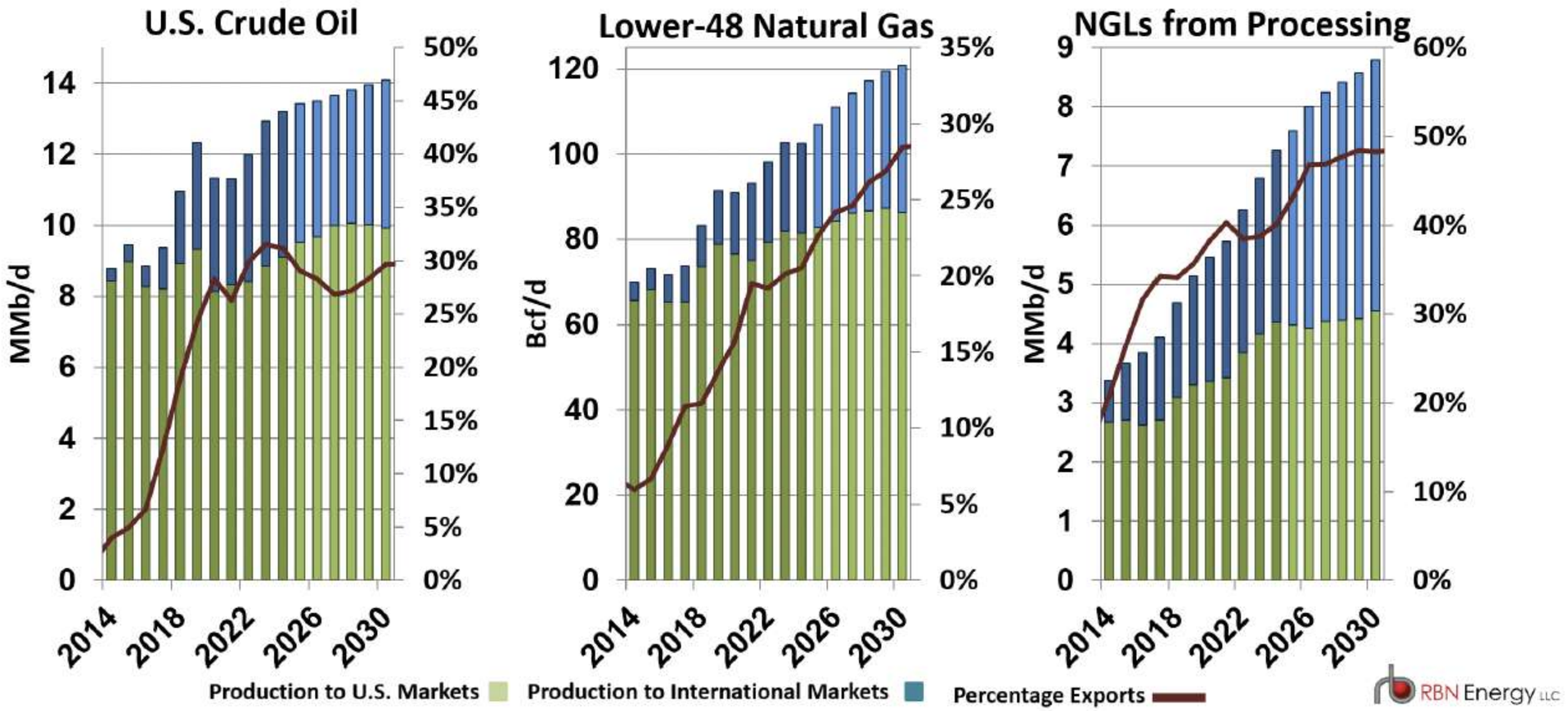
OBBBA Boosts Oil & Gas Through Tax and Leasing Incentives

- **Largest impact** — restores and makes permanent the 100% first–year bonus depreciation allowance
- Expands leasing on federal lands and waters
- Delays the Methane Waste Emission Charge until 2035
- Reduces federal royalty rates (from 16.7–18.7% down to 12.5–16.7%)
- Improves carbon capture incentives with enhanced oil recovery (EOR), which boosts oil production by increasing the economic appeal of EOR
- Looser compliance for foreign entity restrictions
  - Reduces administrative friction for oil & gas firms implementing carbon capture

OBBA will benefit O&G companies but won't be a major growth driver – global markets dictate

Shale → U.S. Energy Independent & Export Power

US Hydrocarbon Exports and Forecasts

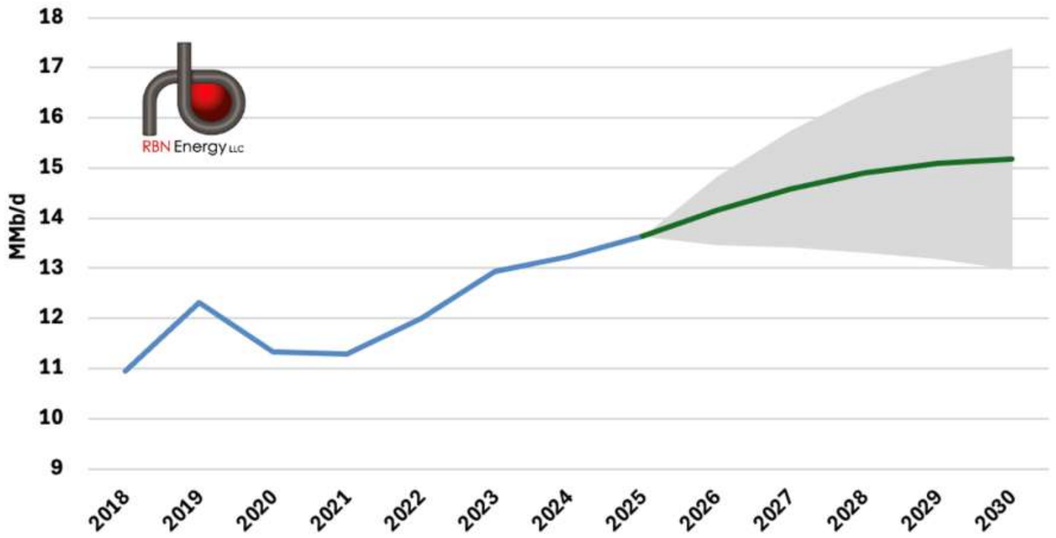


Source: RBN Energy, September 2025

Future export growth led by LNG, not oil and NGLs……NGLs will export ~50% of production

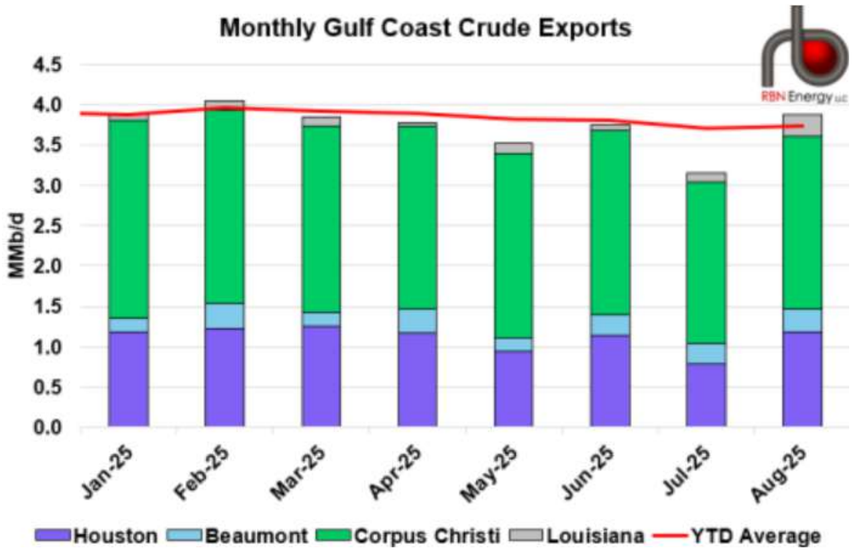
US Crude Production and Exports

US Crude Oil Production



Source: RBN article, January 2025

Crude Exports Resilient Despite Trade Wars



Source: RBN article, September 2025

Permian leads U.S. crude growth

- Growth mainly driven by increased exports
- Production growth rate will likely slow later this decade
- Forecast based on $70/barrel oil price

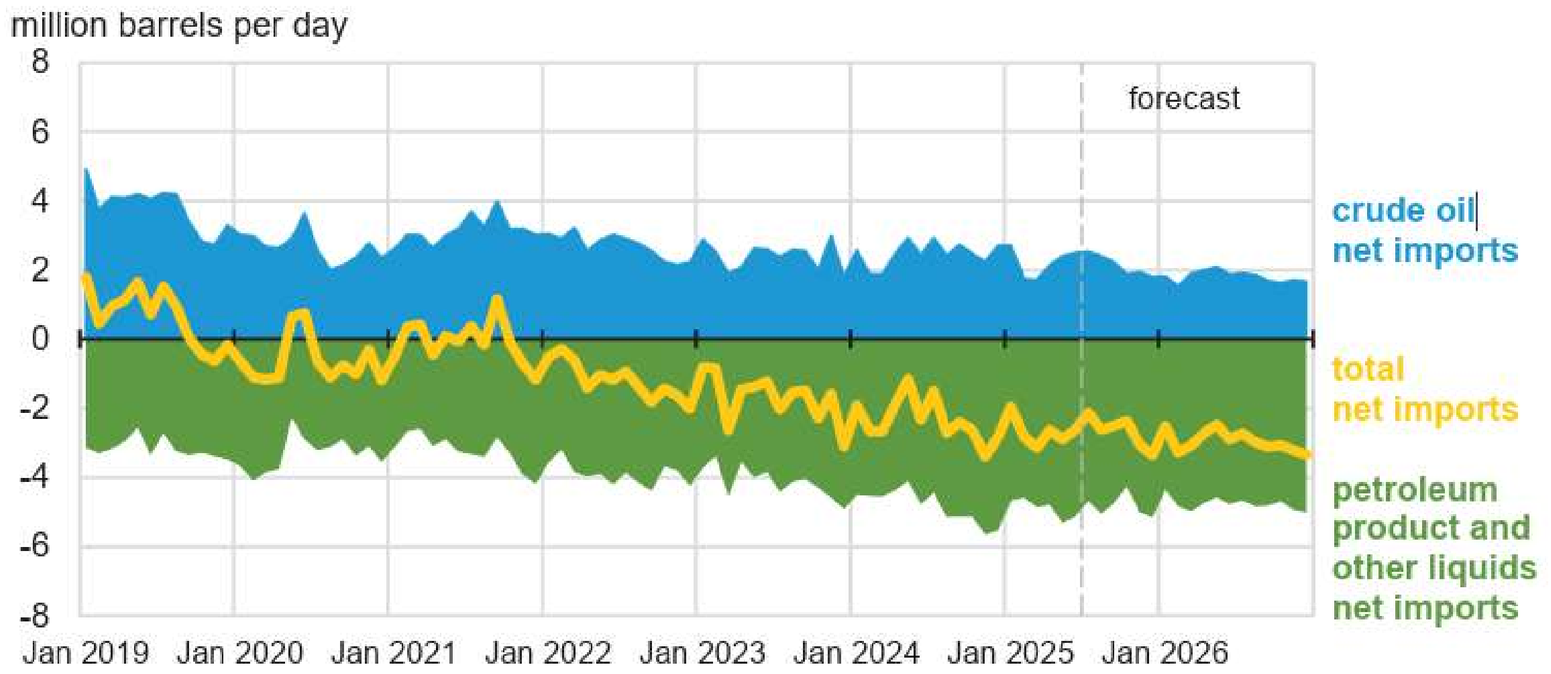
Exports shift from China to Europe/Asia

- China exports have decreased significantly
- Volume growth has been spread across the Netherlands, South Korea, Canada, and India
- China has bought more oil from Russia, Middle East and Canada

Trade Surplus Driven By Refined Products

- Crude oil imports continue to decline
- US supplies of refined products, particularly **diesel**, have played a critical role in **offsetting Russian crude** previously refined in Europe
- Cost effective and abundant crude feedstocks plus large and advanced refining capacity make US refined products competitive in Europe, Latin America, and Asia
- Note that petroleum products includes NGLs which is a large export growth driver

US net imports of crude oil and liquid fuels



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2025

Note: Petroleum product and other liquids include: gasoline, distillate fuels, hydrocarbon gas liquids, jet fuel, residual fuel oil, unfinished oils, other hydrocarbons/oxygenates, and other oils.

Export Propane, Butane, and Fuels driving trade surplus

Natural Gas Production Continues to Grow

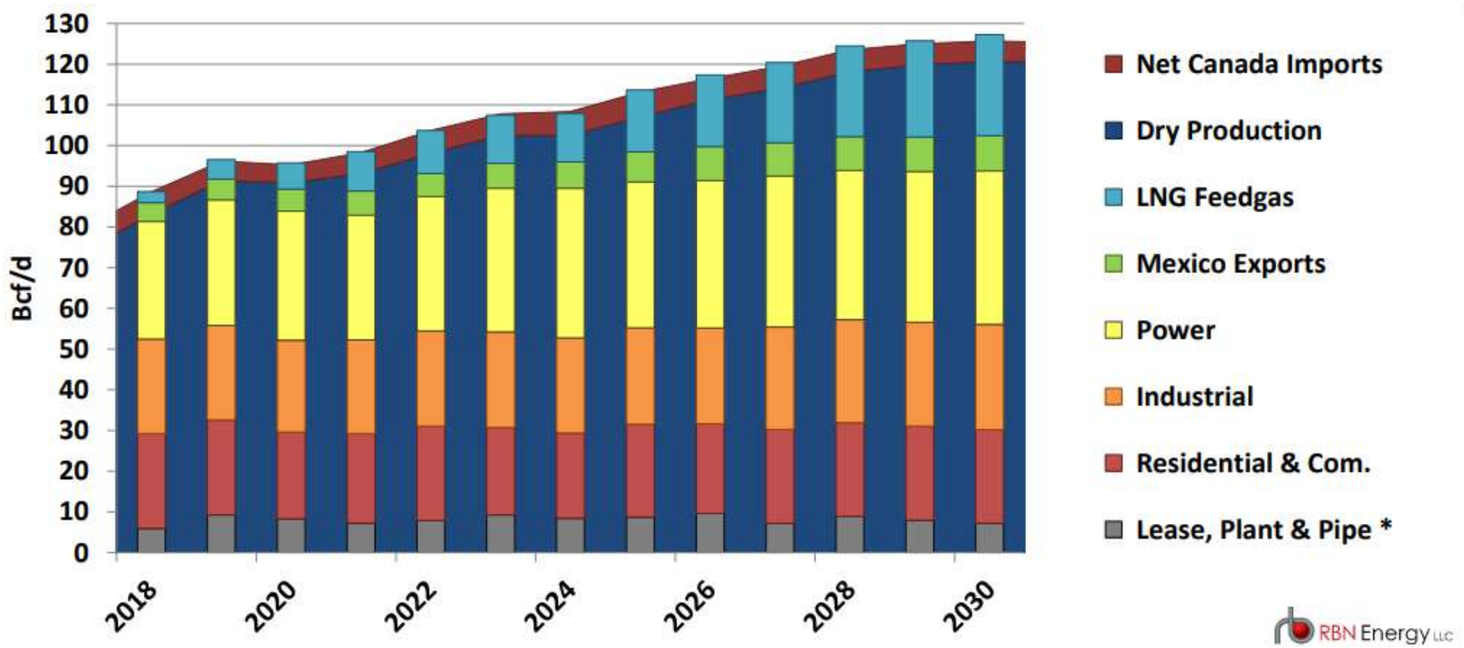
Supply Drivers

- Permian & Haynesville basins expanding Feeding LNG export terminals along the Gulf Coast
- Appalachian output capped by pipelines
  - Production growth limited until new takeaway capacity comes online.

Demand Drivers

- AI and data centers boost consumption
  - New facilities create a sustained load growth not seen in decades.
- U.S. became the #1 global LNG exporting nation in 2025
  - Asia is the top importing region with over 50% of the global demand

Lower 48 Natural Gas Supply/Demand Balance



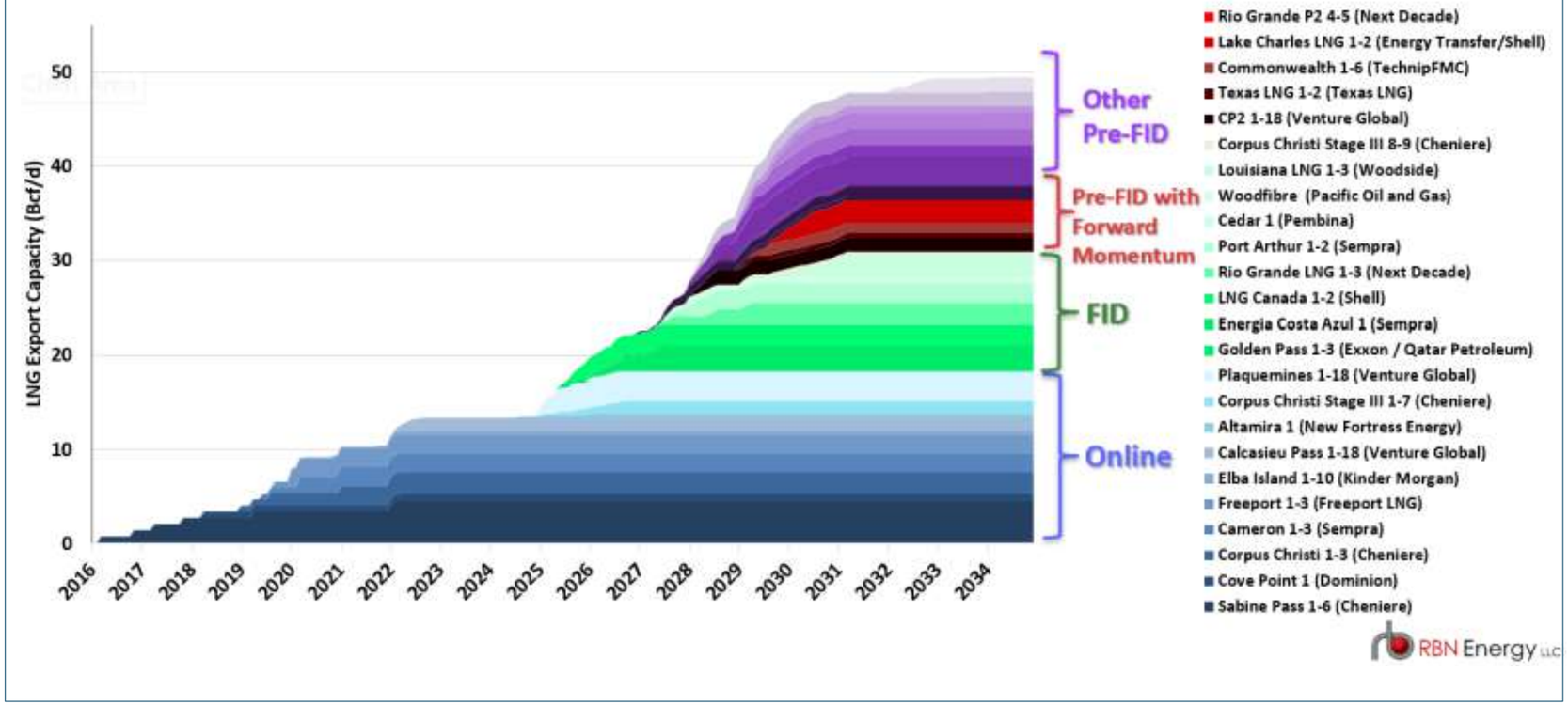
Source: RBN article, EIA AEO, May 2025

** Lease and Plant Fuel, Pipeline & Distribution Use, Change in Storage Balance, Balancing Item.*

Strong LNG Export Growth + Electricity Demand from Data Centers = Gas Growth Drivers

LNG Export Terminal Development Accelerating

U.S. Export Capacity



Source: RBN's LNG Voyager July 2025

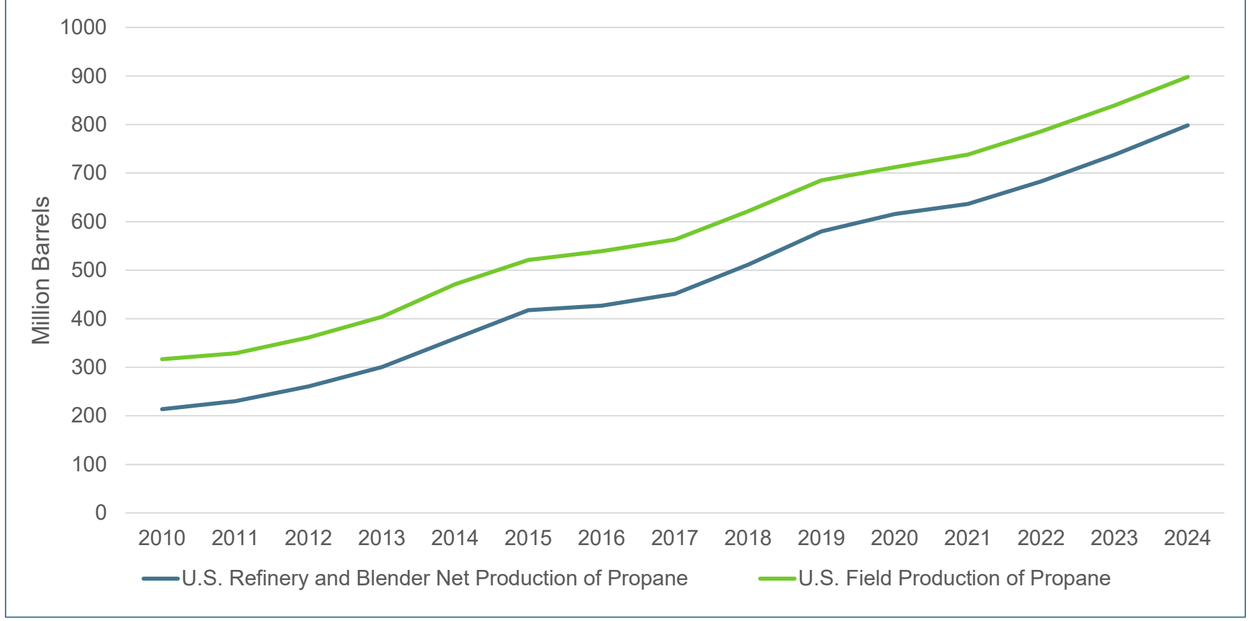
In the Jan 20, 2025 EO **'Unleashing American Energy**,' President Trump directed the DOE to restart LNG export application reviews immediately

- **Growth**
  - 4 projects online by 2026
  - 8 more in queue
- **Risks**
  - 5 projects delayed by legal sanctions
  - courts could slow future growth

LNG export growth will grow into the next decade – legal battles holding back some projects

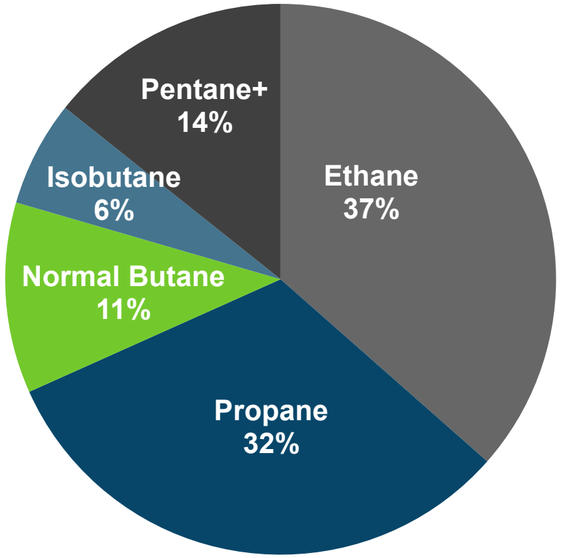
US NGL Production Growth Continues

U.S. Propane Production



Source: EIA, September 2025

The Standard NGL Barrel



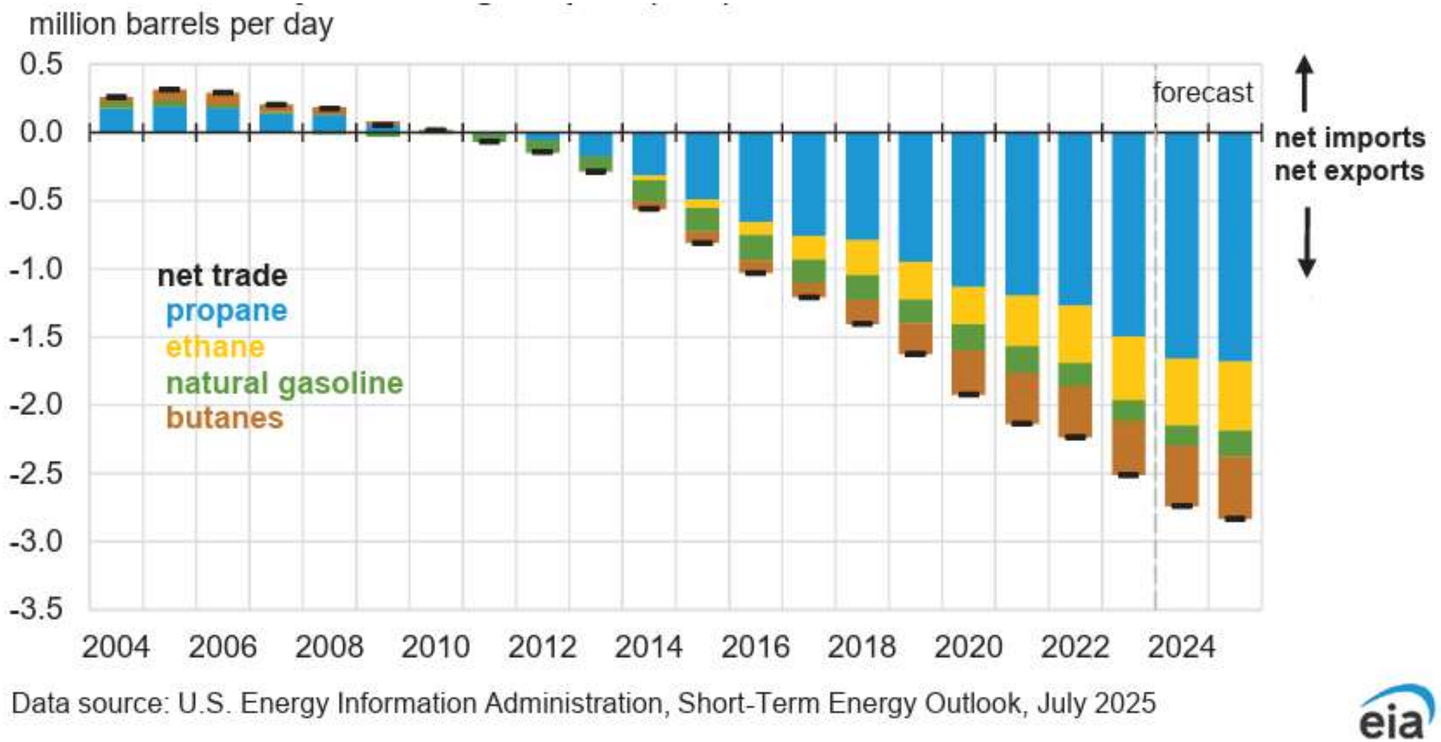
Source: Hart Energy

- Byproduct of associated gas from crude oil production, especially in the Permian, Alberta, and the Bakken
- Largest US production area is Permian Basin followed by gas-rich Appalachia (Marcellus/Utica shale play)
- Record exports of propane and ethane from the US Gulf Coast and East Coast terminals
- Further entrenches North American “ethane advantage” and global petrochemical competitiveness

U.S. Is an Export Powerhouse in NGLs

- US NGL production has more than tripled over the last 15 years, vastly exceeding domestic demand
- Over 40% of NGL (mainly ethane, propane and butane) production is exported predominantly from the Gulf Coast
- Asia (China, India & Asia Pac) is major demand growth region and pulling in nearly all the U.S. production growth
  - Used mainly for petchem feedstock, heating and cooking
- Additional ethane is exported in the form of ethylene and its derivatives, including polyethylene resin

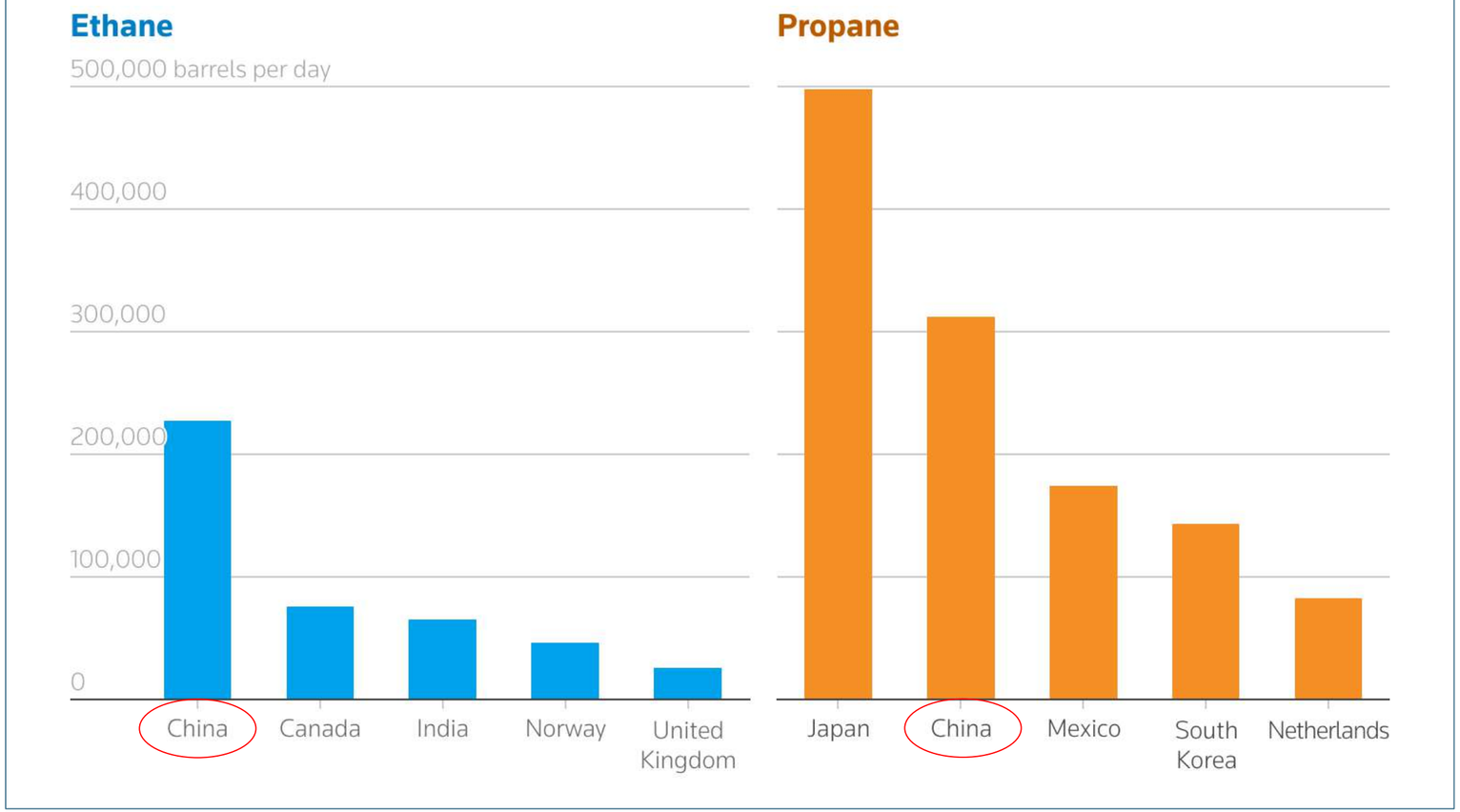
U.S. net trade of hydrocarbon gas liquids (HGL)



Note: HGL (EIA's terminology) = NGL

Impact of 2025 Trade War on US LPG

Top Destinations for US Ethane, Propane Exports in 2024



Source: U.S. Energy Information Administration
Pasit Kongkunakornkul • April 16, 2025 | REUTERS

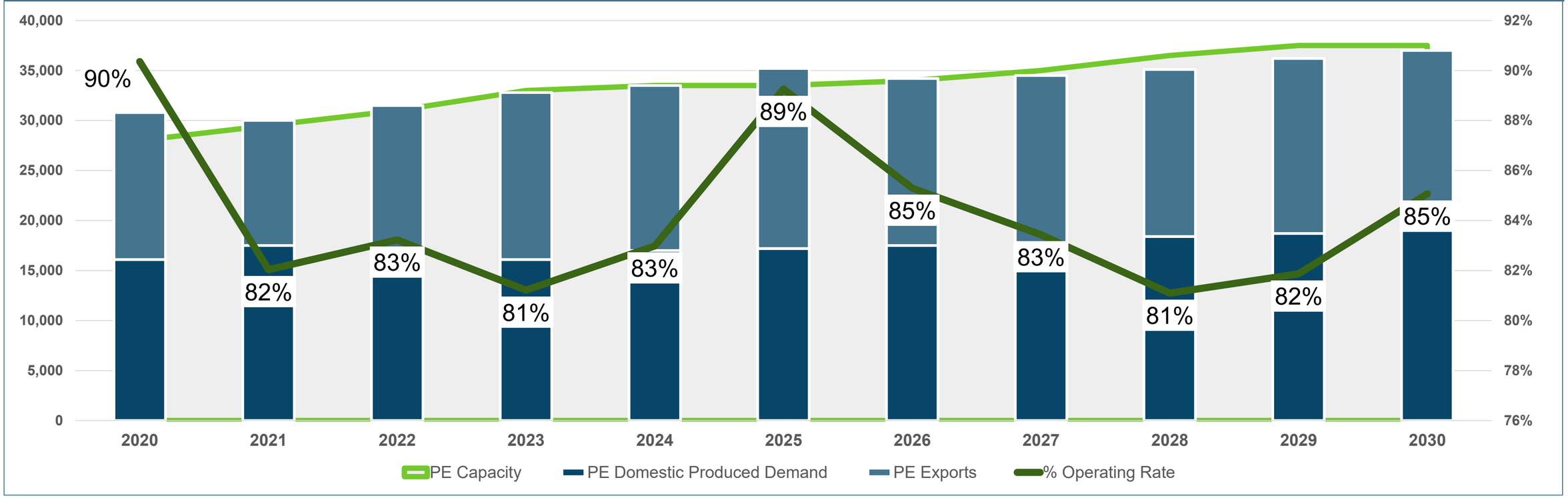
- **China tariffs (Spring 2025):** Beijing imposed counter-tariffs on U.S. LPG, sharply reducing direct flows into China
- **Trade diversion:** U.S. exports hit record highs in April 2025 as volumes shifted to India, Brazil, Japan; China's share shrank
- **Product split:**
  - Butane: exports reached record levels even as Middle East cargoes were redirected to China
  - Propane: dipped in May but remained above 2024 levels
- **China's workaround:** partial tariff waivers on ethane preserved flows, but higher reliance on naphtha imports for petchem feedstocks

NGL exports projected continuing to grow despite trade war redistributing demand from China

NA Polyethylene Expansion is Export–Oriented

- Polyethylene capacity and production is a proxy for overall chemical demand
- Because domestic demand is flat, global growth has slowed, and some plants are still ramping up; the utilization rate for U.S. plants will dip over the next three years

NA Polyethylene Supply and Demand

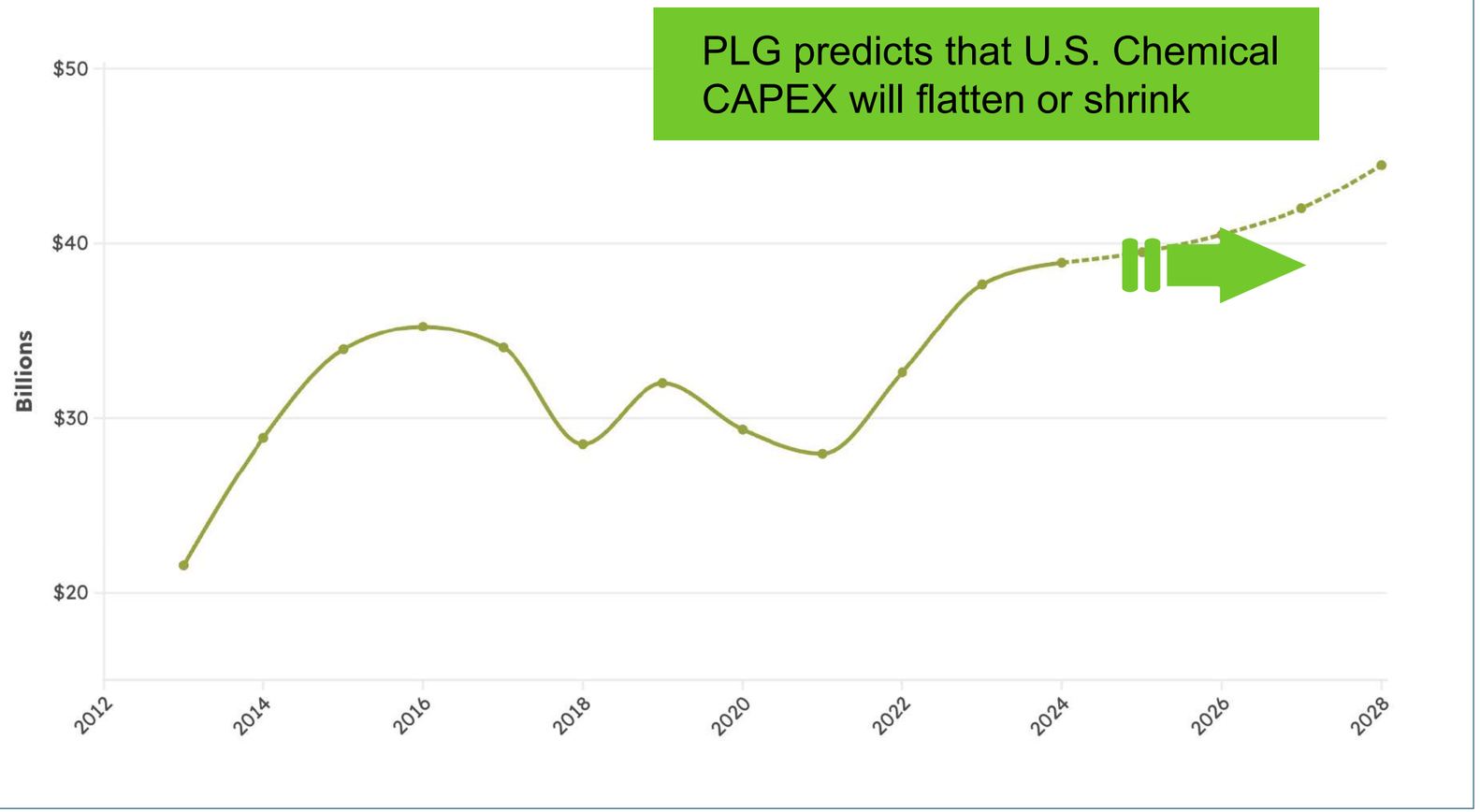


Source: Asterisk Advisors, February 2025

Mid 80s% utilization keeps the industry in a healthy balance – tough times ahead

U.S. Chemical Industry CAPEX flattening

US Chemical Industry Capital Expenditures – ACC Forecast



Source: ACC, September 2025

- Global demand for plastics is flattening which had driven U.S. production/ export growth for the past decade
- "Third Wave" of crackers is fizzling out. Only remaining announced PE projects remains:
  - 2028 – ChevronPhillips/Qatar Energy JV, Orange, TX – Under construction
  - Others cancelled or on hold

Global PE demand will not support additional U.S. PE capacity for export

PLG Energy Market “Weather Forecast” Definitions

Background/Assumptions

- This is a high-level forecast for the U.S. energy markets
- Combining supply and demand and is directional
- Forecast window is roughly the rest of the decade
- Like a weather forecast, it is subject to change!
- We appreciate your input and opinions…..

Legend

	Sunny – competitive & growing production, federal support
	Partly cloudy – steady state production, challenges exist
	Cloudy – volume challenges, little federal support
	Stormy – uncompetitive U.S. production, little/no federal support

U.S. Fossil Fuel "Weather Forecast”

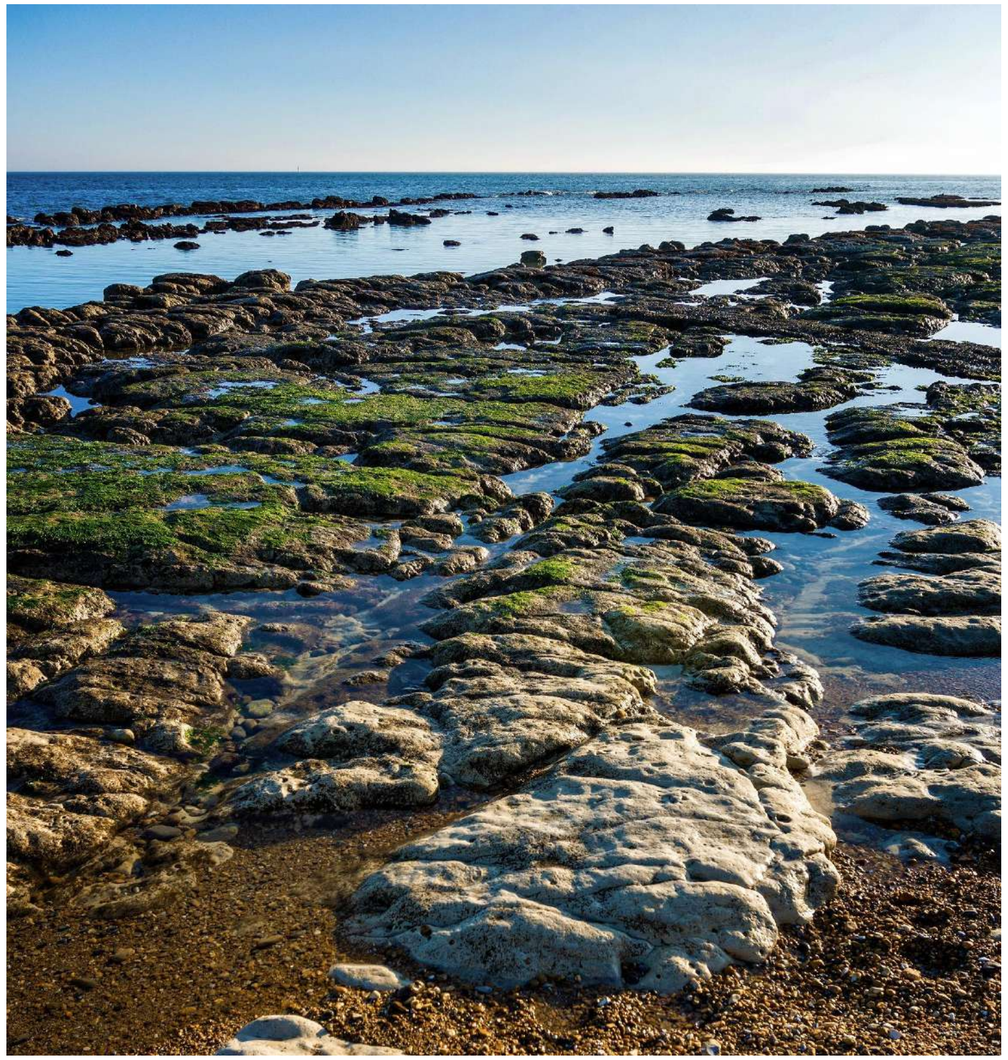
Energy Type	Forecast	Comments
Crude Oil		▪ U.S. has cost-advantaged shale and Canada has abundant heavy crude ▪ Exports will grow for both countries
Natural Gas / LNG		▪ U.S. LNG exports will continue to grow due to increased Asian demand – all new export terminals in USGC ▪ Data center energy demand will also increase NG usage
NGLs		▪ Growing Asian demand will be satisfied by U.S. exports which will stimulate U.S. production growth in Permian and Marcellus/Utica
Coal		▪ Plant retirements will continue into next decade despite federal support causing reduced domestic volumes into early 2030’s
Chemicals		▪ Shale gas gives U.S. feedstock cost advantage that will continue for years to come. ▪ Slowing global plastics demand will limit U.S. production expansion
Nuclear		▪ Nuclear has significant challenges in cost, project complexity and long lead time, but federal support still in place

Steady to growth for all markets except coal

III – US New Energy Technologies

Changing Tide in U.S. Decarbonization Path

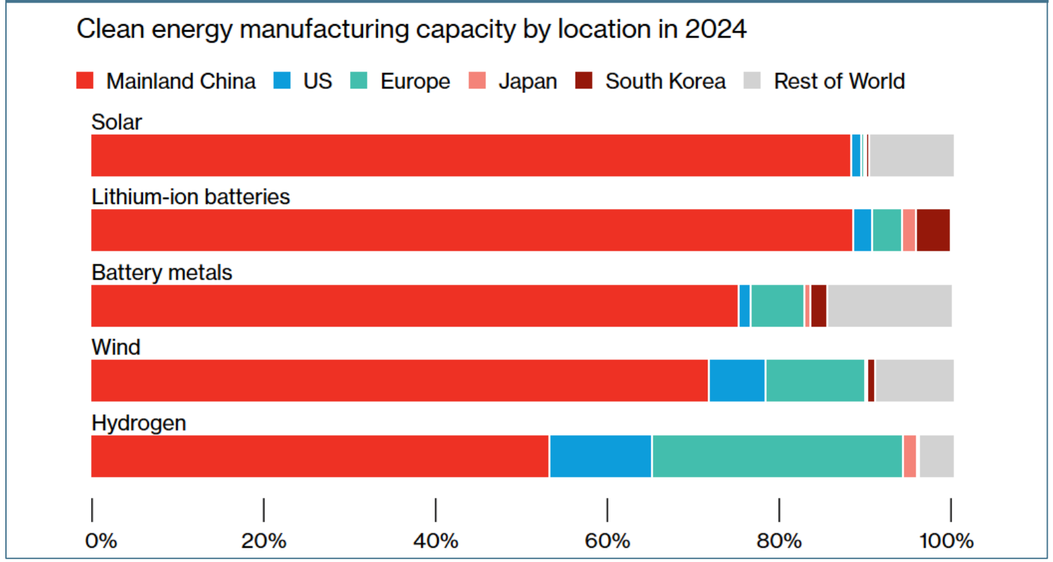
- **Policy Shift**
  - Federal incentives under OBBBA reduce or remove tax credits for **wind, solar, and electric vehicles**.
  - **Biofuels and renewable diesel** receive stronger support, creating uneven momentum across clean energy sectors.
  - **Net effect**: clean power projects lose financing momentum, while liquid fuels gain policy tailwinds.
- **State Programs**
  - **California's Low Carbon Fuel Standard (LCFS)**, revised in 2025, increases carbon intensity reduction targets (30% by 2030; 90% by 2045).
  - Similar LCFS-style programs in other states ensure **continued demand for renewable fuels**, even as federal support shifts away from wind/solar.
  - Provides a regional counterbalance to federal rollbacks, sustaining investment in renewable liquid fuels and feedstocks



Princeton ZERO Lab predicts OBBBA will reduce clean energy projects by $500B by 2035

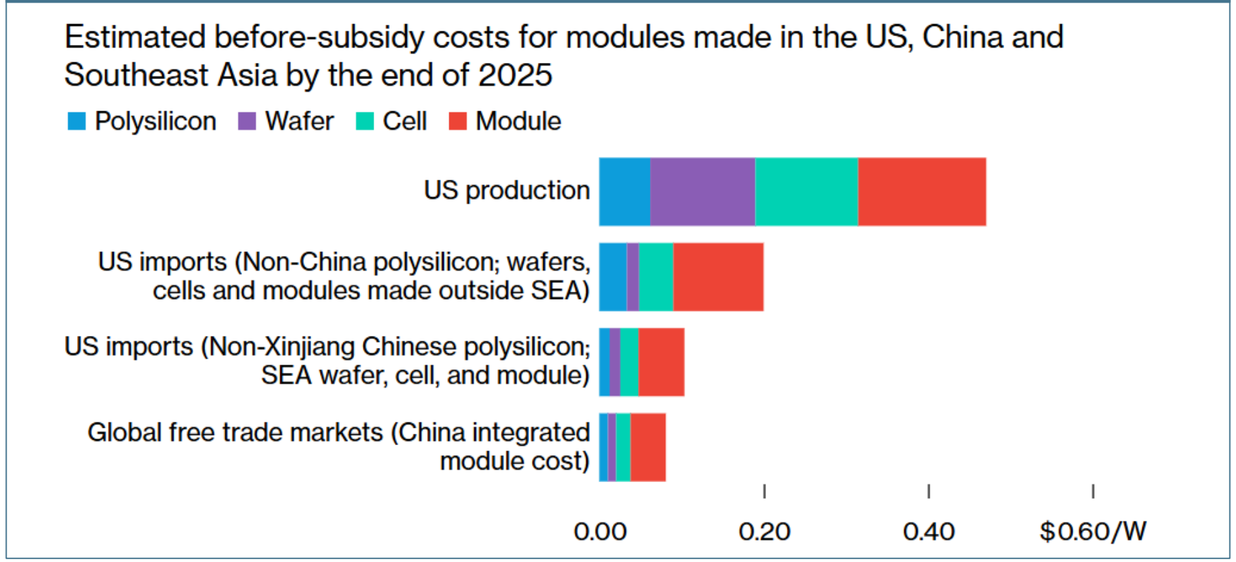
China Dominates Clean Energy Supply Chains

Mainland China Dominates Clean–Tech Manufacturing



September 2025

US Solar Production Costs Are Six Times Higher Than China



September 2025

Another key mineral for the energy transition is rare earth minerals with China's market share at:

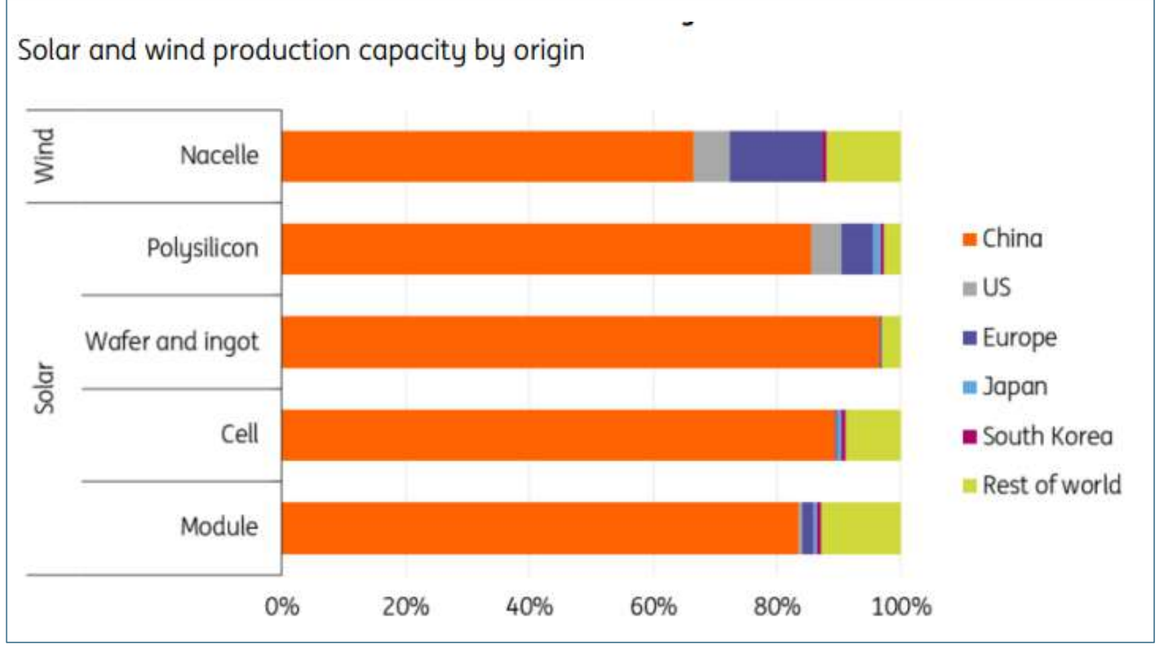
- 70% of global production
- 90% of global processing

- U.S. polysilicon is significantly more expensive than Chinese production
- There are currently no wafers made in the U.S. with only two cell makers
- U.S. solar module assembly global share is in the single digits

China's lead in solar, batteries, minerals and rare earth minerals appears insurmountable

China–dependent Solar Install Will Drop in 2026

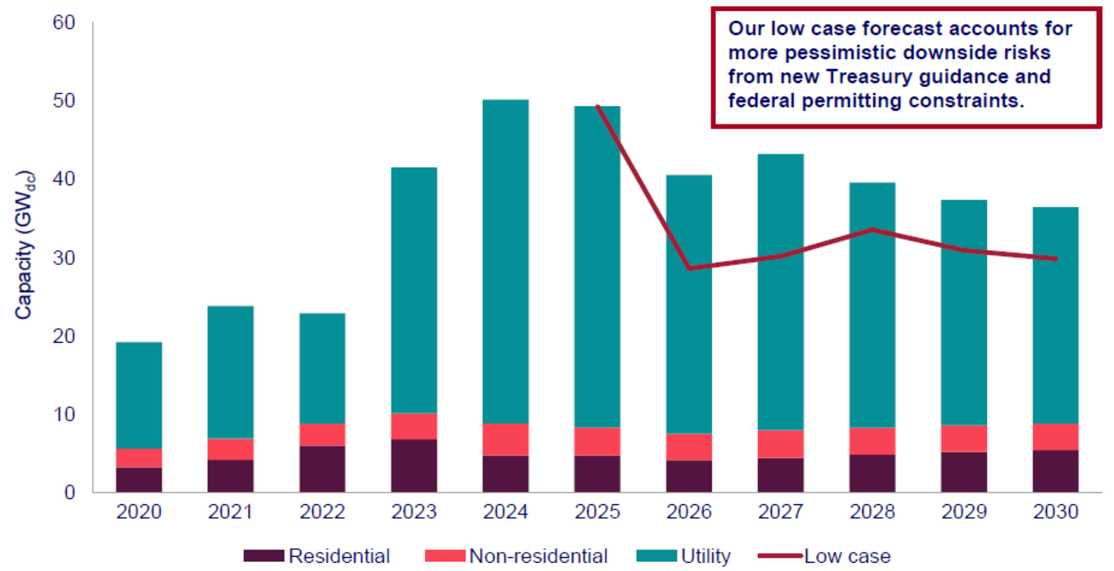
China's dominance in solar and wind manufacturing



Bloomberg New Energy Finance, ING Research

- China dominates solar supply chain due to 20-year investment cycle
- China's manufacturers are significantly over capacity and can manufacture several times the global demand
- U.S. reinvestment in supply chain is just starting – long and expensive process

U.S. Solar PV Installations and Forecast by Segment, 2020-2030

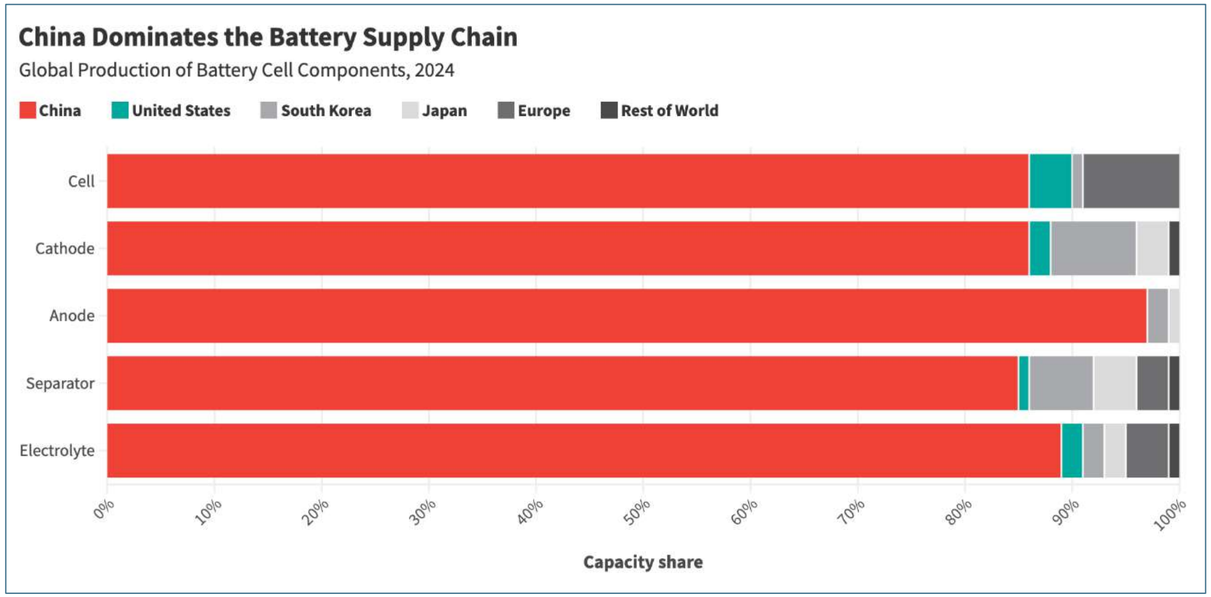


Source: Wood Mackenzie, September 2025

- Developers are pulling ahead projects to this year to capture as many IRA incentives as possible
- 2026 utility solar volume will decrease significantly due to incentive reduction coming in 2027

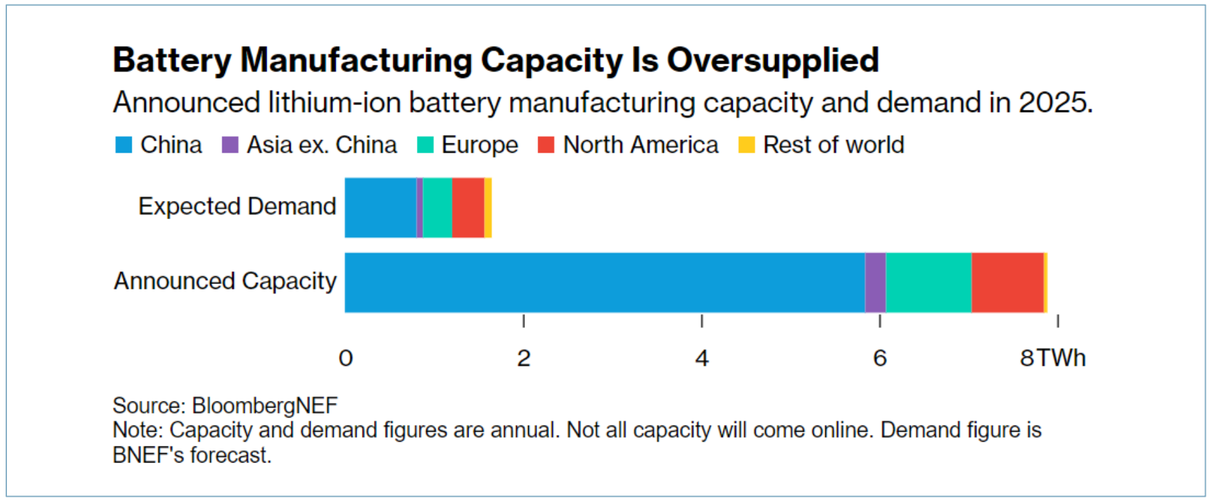
Solar is cost competitive, but removal of incentives will reverse growth curve this decade

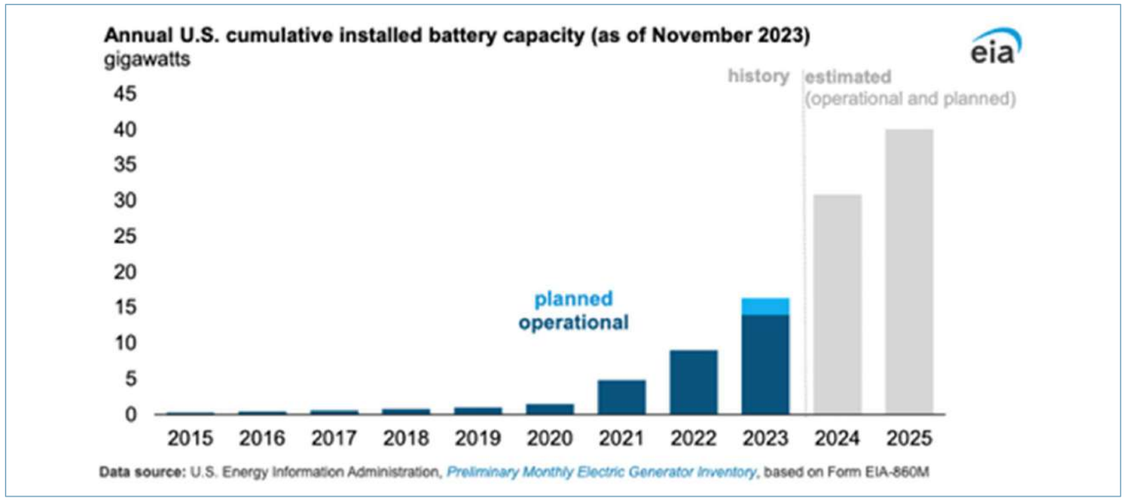
China Battery Dominance Impacts EV and BESS



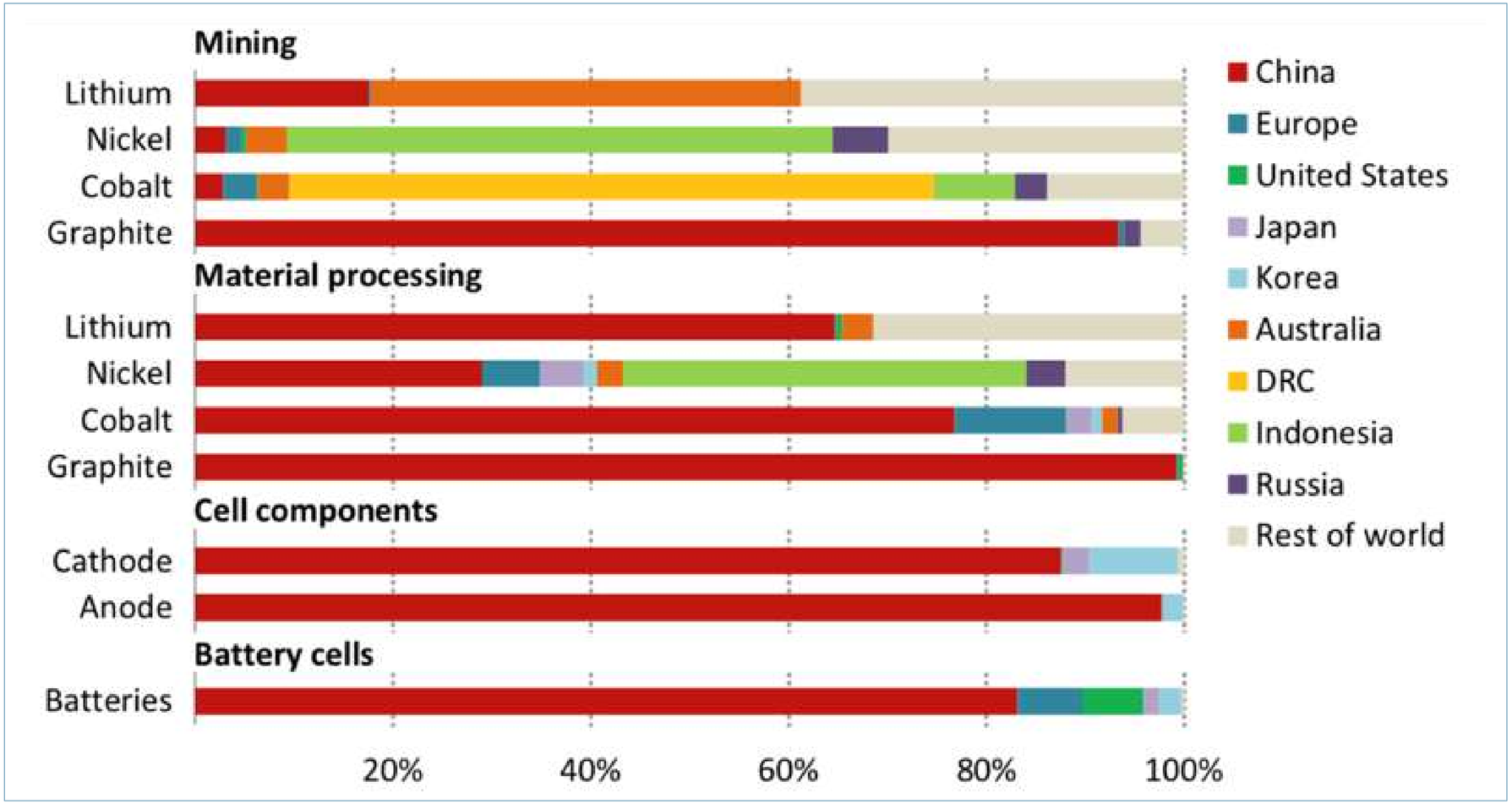
Source: Bloomberg NEF, Long-term EV Outlook, 2024

- **China**
  - 20 years of subsidies → lithium-ion dominance for EVs and BESS (Battery Energy Storage Systems)
- **U.S.**
  - Incentives remain to grow domestic supply, but projects face global oversupply impact





U.S. Energy Transition Minerals Rely on Foreign Mining and Processing

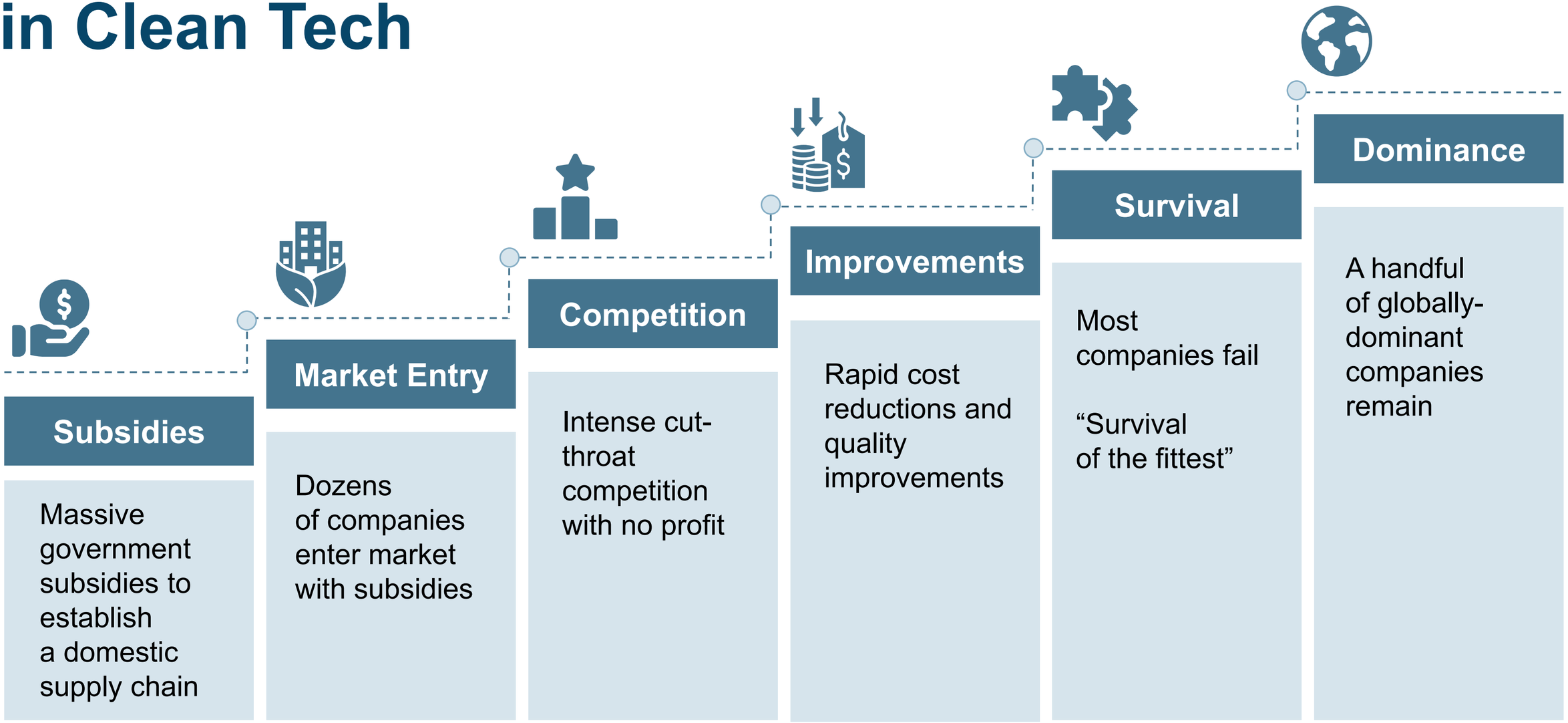


Source: IEA, April 2024

- IRA and energy transition needs call for 25% CAGR of lithium, cobalt, and nickel between now and 2035
- IRA introduced new rules and incentives for domestic supply of ETMs or, at a minimum, avoiding dependency on “countries of concern”
- Where US supply lags, incentives allow for sourcing from countries with FTAs with US

Global market oversupply and incentive doubt has put U.S. ETM mining/processing projects at risk

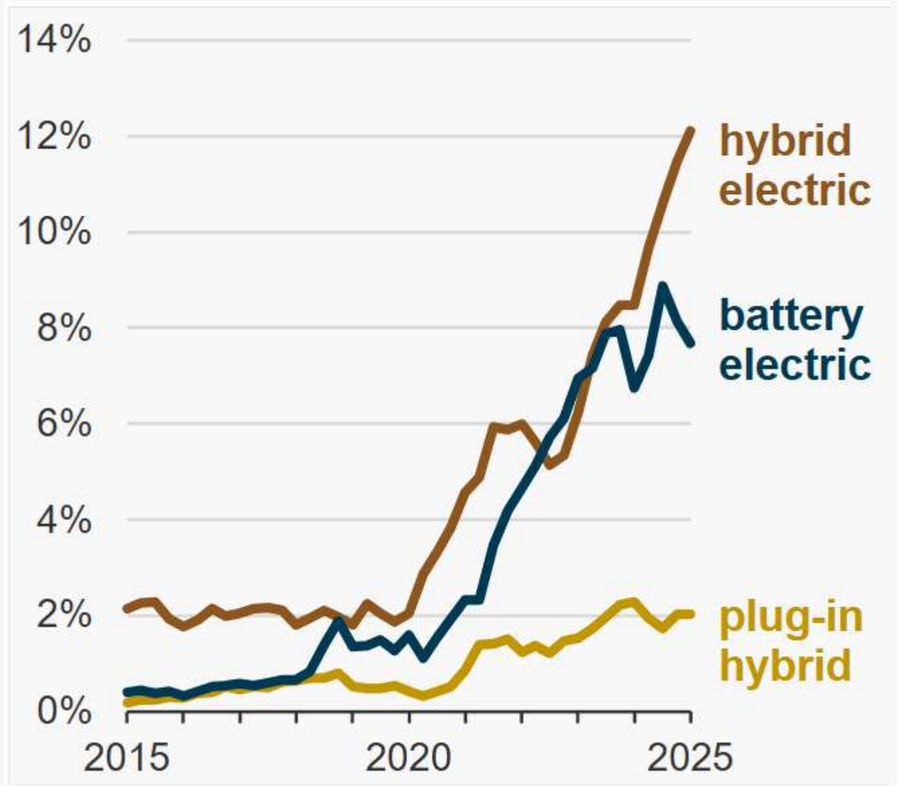
China's Playbook: Subsidies to Dominance in Clean Tech



China has used this formula in solar, EVs, batteries, hydrogen and wind

EV Growth Will Be Stunted

U.S. Light Vehicle Powertrain Share Q1 2025



Source: EIA September 2025

2025 U.S. Light Vehicle Share

- 78% Internal Combustion Engine (ICE)
- 22% Hybrid, EV, Plug In Hybrid (PIH)
  - With EV's making up 8% of total

2030 U.S. Forecast according to LMC Automotive

- 70% ICE
- 30% Hybrid, EV, PIH
  - With EVs making up 7% of total

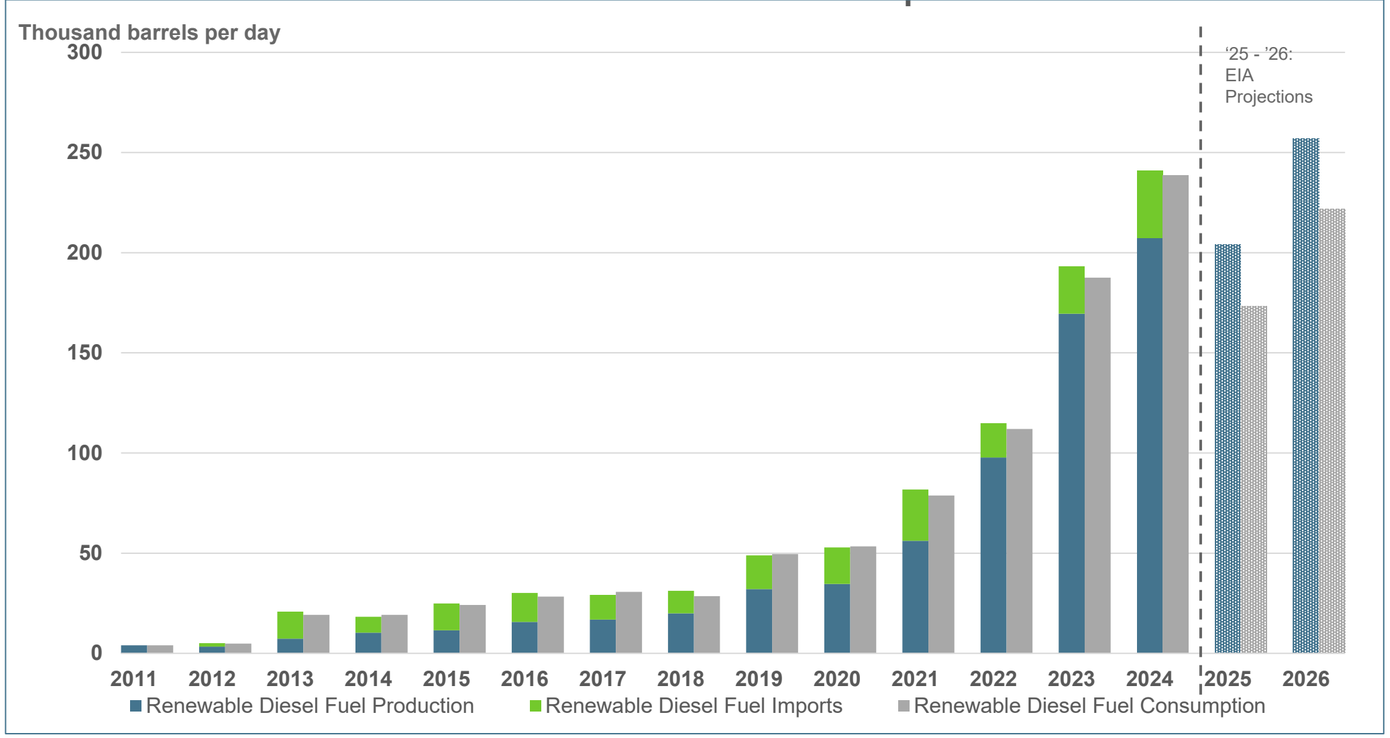
Forecasted EV sales loss in the short term will likely be replaced by Hybrid sales growth due to:

- Range anxiety fears
- Lower price
- Significantly smaller batter packs

Internal Combustion Engines (ICE) will lose share mainly to Hybrids and Plug In Hybrids

Renewable Diesel Creates New Rail Opportunities

US RD Production and Consumption



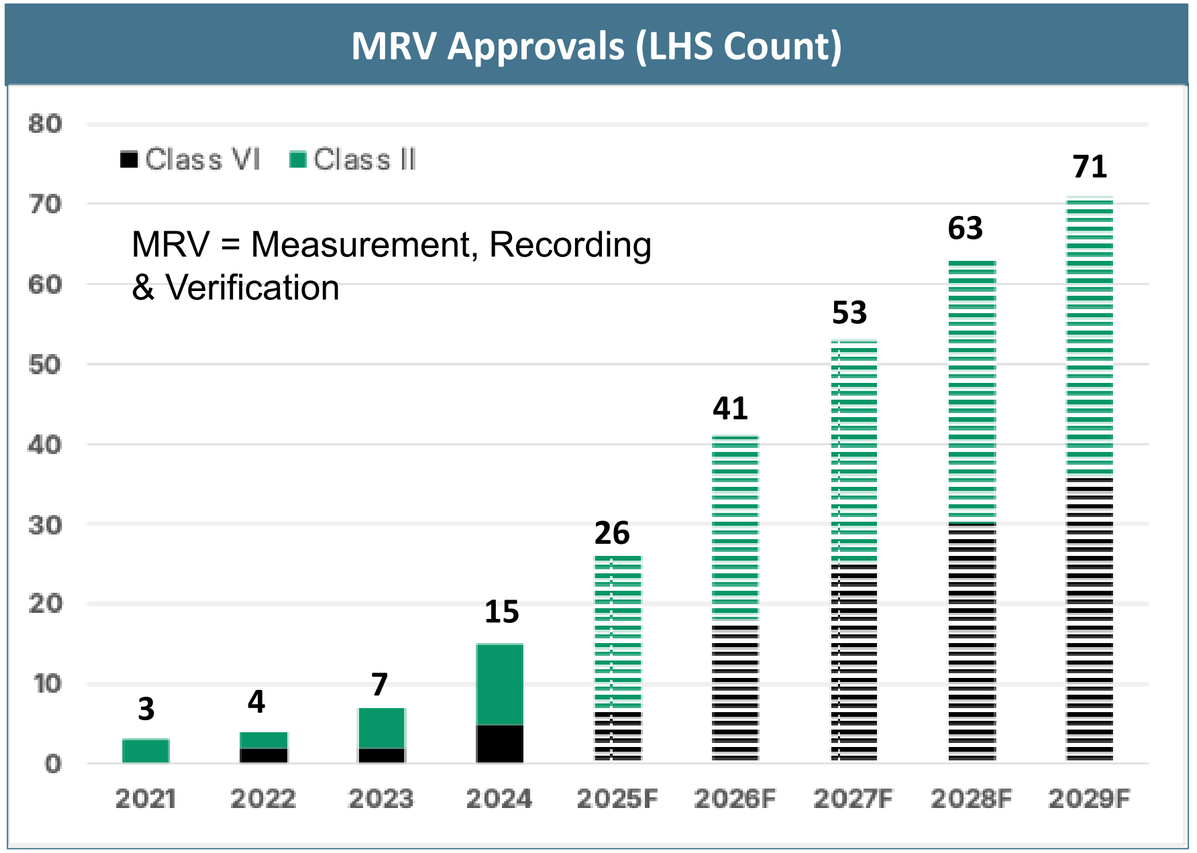
Source: PLG analysis using data from EIA, September 2025

- **Federal incentives:** Extended 45Z production tax credit + Renewable Fuel Standard targets support RD growth and use.
- **Administration stance:** Current policies continue to favor "drop-in" liquid fuels such as renewable diesel and ethanol.
- **State actions:** Western LCFS programs (e.g., California) have been tightened, further improving economics for producers and sustaining demand.
- **Net effect**: incentives ensure near-term RD growth, but feedstock limits still apply

- **Rising consumption:** U.S. RD production and import grew to ~240 kbpd in 2024 and is projected to keep climbing as new capacity (Neste JV and others) comes online.
- **Feedstock locations**: Most feedstocks (soy, canola, sunflower, distillers' corn oil, tallow, UCO) are produced in the Midwest and USGC, while demand is concentrated on the West Coast.
- **No direct pipelines:** With no pipelines linking Midwest/USGC supply to California, Oregon, and Washington, rail provides the most practical link.
- **Rail opportunity:** Significant carload growth potential in **moving feedstocks and finished RD** to West Coast markets, supported by state-level LCFS programs.

CO_2 Capture Projects May Incent Rail Traffic

- **Proven but slow to scale**
  - CCUS has been used for decades in Enhanced Oil Recovery (EOR), but deployment remains limited. High costs, lengthy permitting, and local opposition continue to delay many of the 300+ announced projects.
- **Pipelines dominate transport**
  - Most captured CO_2 is expected to move by pipeline to storage sites, but not all emitters are located near existing networks. These stranded projects will need alternative logistics solutions.
- **Rail as a "virtual pipeline"**
  - High-pressure tank cars are being developed to move CO_2 where pipelines cannot reach. Improvements in railcar design could create a new, niche opportunity for railroads in carbon capture logistics.



decarbonfuse

Class II – smaller volume – gas processing facilities
Class VI – larger projects – chemicals, ethanol, steel, cement

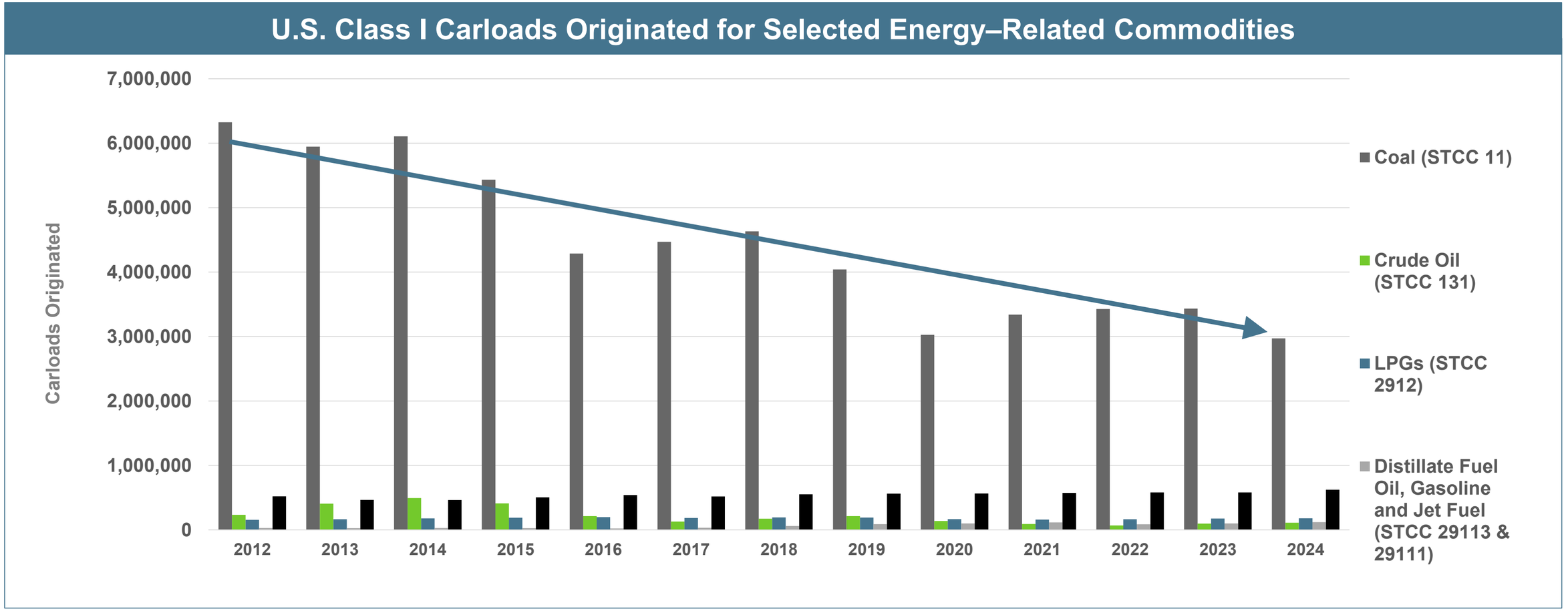
Lack of pipelines will create opportunities for CO_2 pipeline–by–rail movements

U.S. New Energy Technology “Weather Forecast"

Energy Type	Forecast	Comments
Solar		▪ Low-cost energy source, quick deployment ▪ Supply chain remains highly dependent on China – tariff impact ▪ OBBB reduces or removes incentives for new installations
Onshore Wind		▪ Low-cost renewable energy source, developed supply chain ▪ OBBB reduces or removes incentives for new installations
Offshore Wind		▪ Undeveloped U.S. supply chain, high cost, permitting challenges ▪ OBBB and US EPA policy will effectively reduce or eliminate
BESS		▪ Key enabler for renewable energy – supplied mainly from China ▪ Growth will slow as solar and wind slows
Lithium / ETM		▪ Mines and processing plants are years away if they happen ▪ Federal government considering stake in Lithium Americas
Green Hydrogen		▪ Uncompetitive cost structure, most projects cancelled/delayed ▪ 45V rules (after 2 years) are too restrictive to enable ramp up
Blue Hydrogen/Ammonia		▪ Will utilize carbon capture to mitigate carbon ▪ Demand currently driven by Asian and European customers
CCUS		▪ Technology is capable but major project challenges persist ▪ Can rail be a pipeline for projects without pipelines?

IV – Implications for Rail

Lost Coal Volumes Not Being Offset by Shale–related Commodity Growth

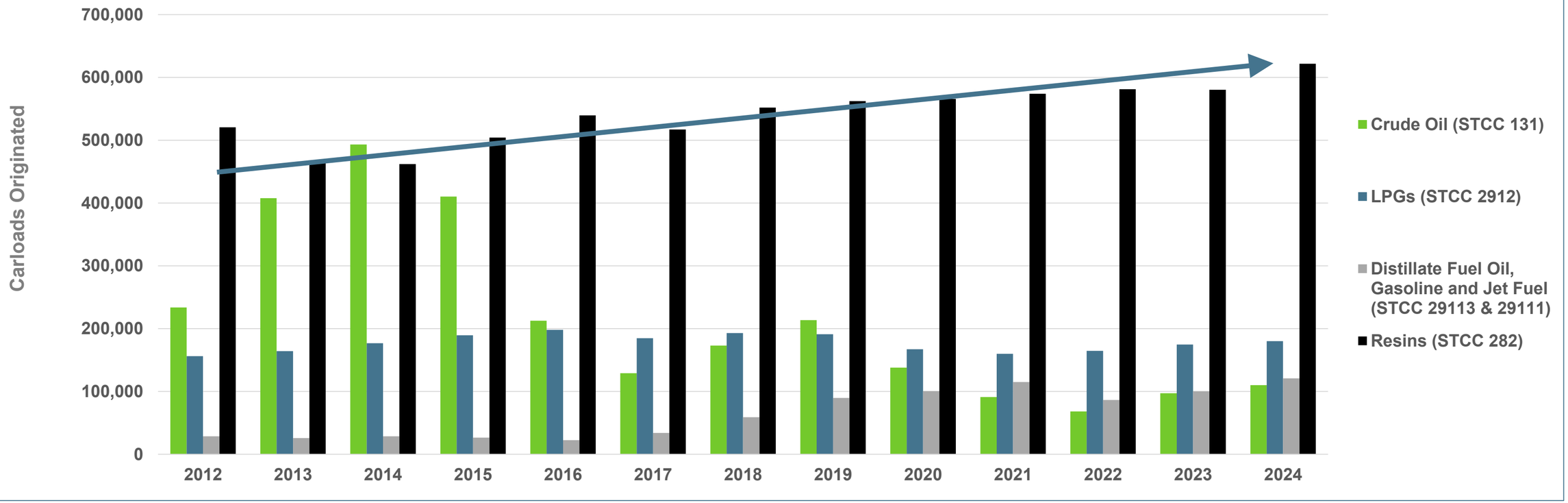


Source: Surface Transportation Board, February 2024

Coal volume continues to decline – could flatten for a year or two, before rapid descent

Shale Development Helped to Spur Growth in Several Commodities

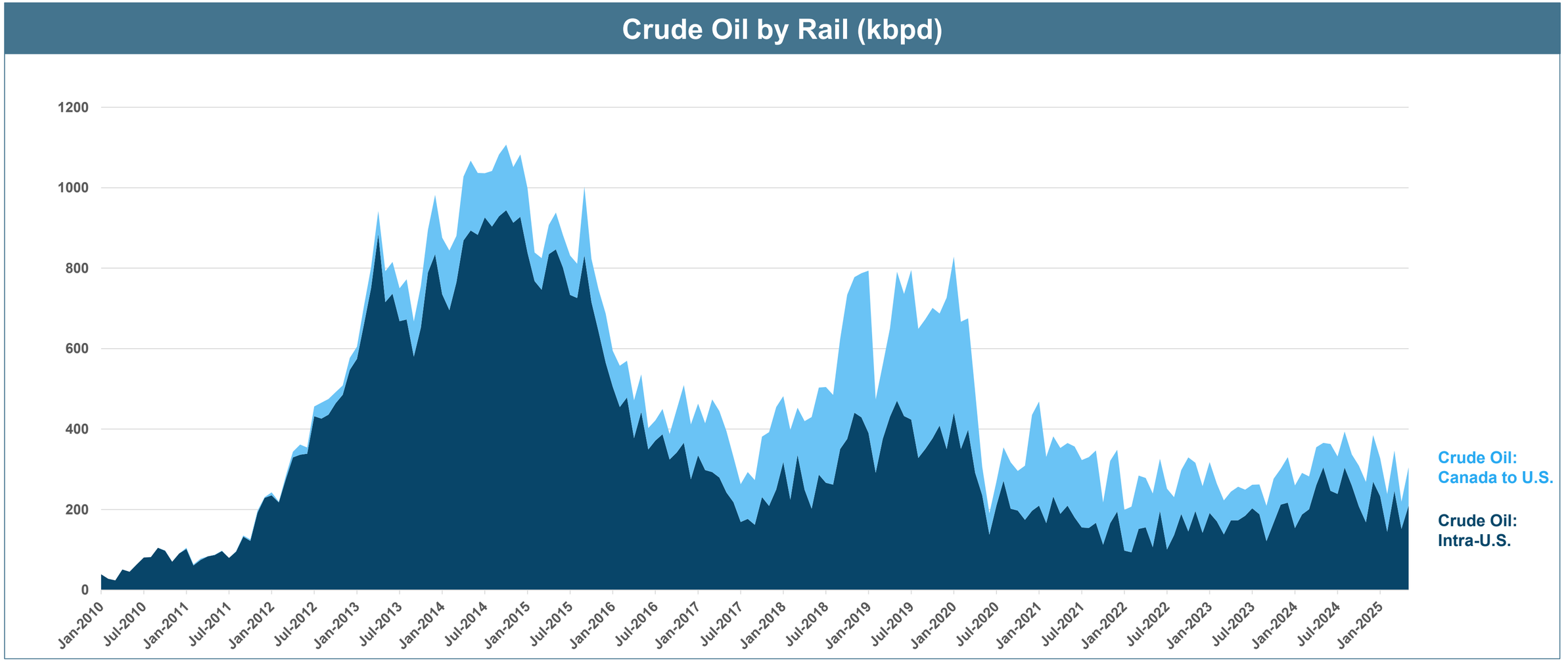
U.S. Class I Carloads Originated for Selected Energy–Related Commodities



Source: Surface Transportation Board, February 2024

Resin volume growth has dwarfed all other shale-related commodities

US & Canadian Crude By Rail Volumes

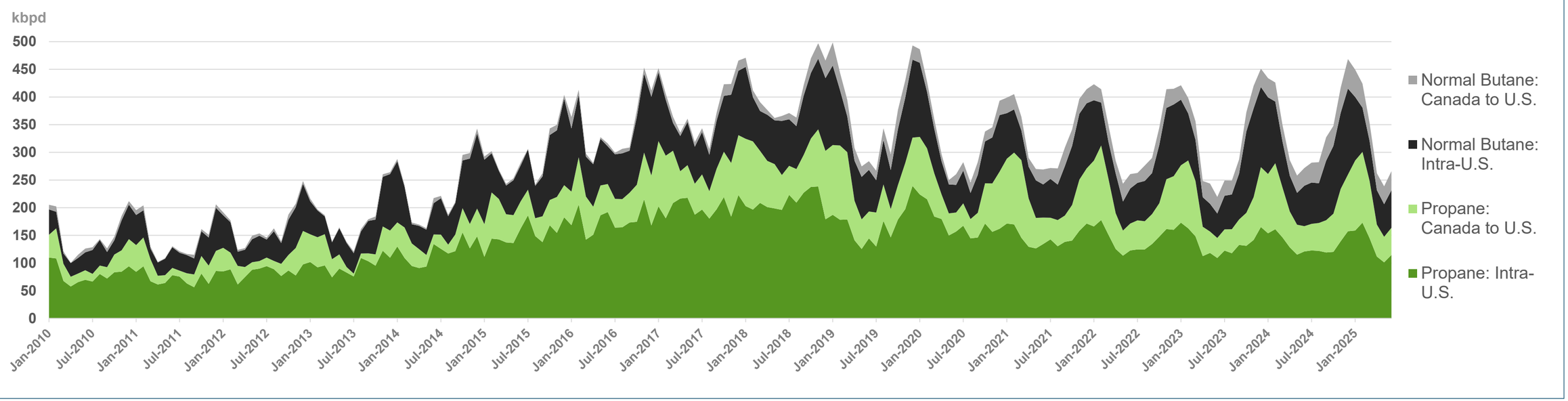


Source: EIA, August 2025; does not include intra-Canada movements

North American CBR volumes will likely remain in similar volume range the next several years

US & Canadian LPG By Rail Volumes

Propane and Butane by Rail (kbpd)



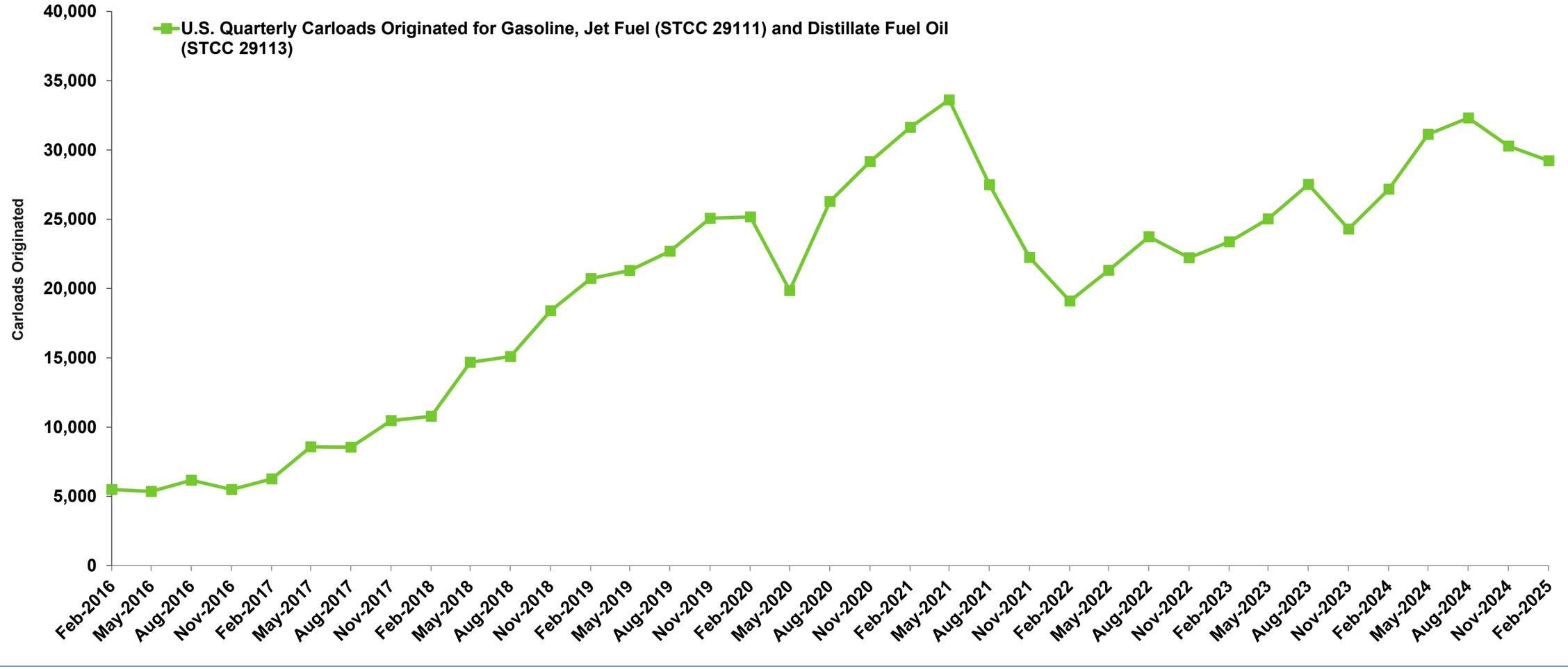
Source: EIA, September 2025; does not include intra-Canada movements

- LPG rail volumes remain seasonal and constrained by pipelines
- Growth opportunities in landlocked basins (Bakken, Western Canada)
- Repauno (PA) terminal, rail–only–served East Coast export hub, may add volumes after storage expansion

LPG by rail is limited by pipelines and is highly seasonal – some future growth is possible

Gasoline, Jet, and Diesel Rail Shipments Stable

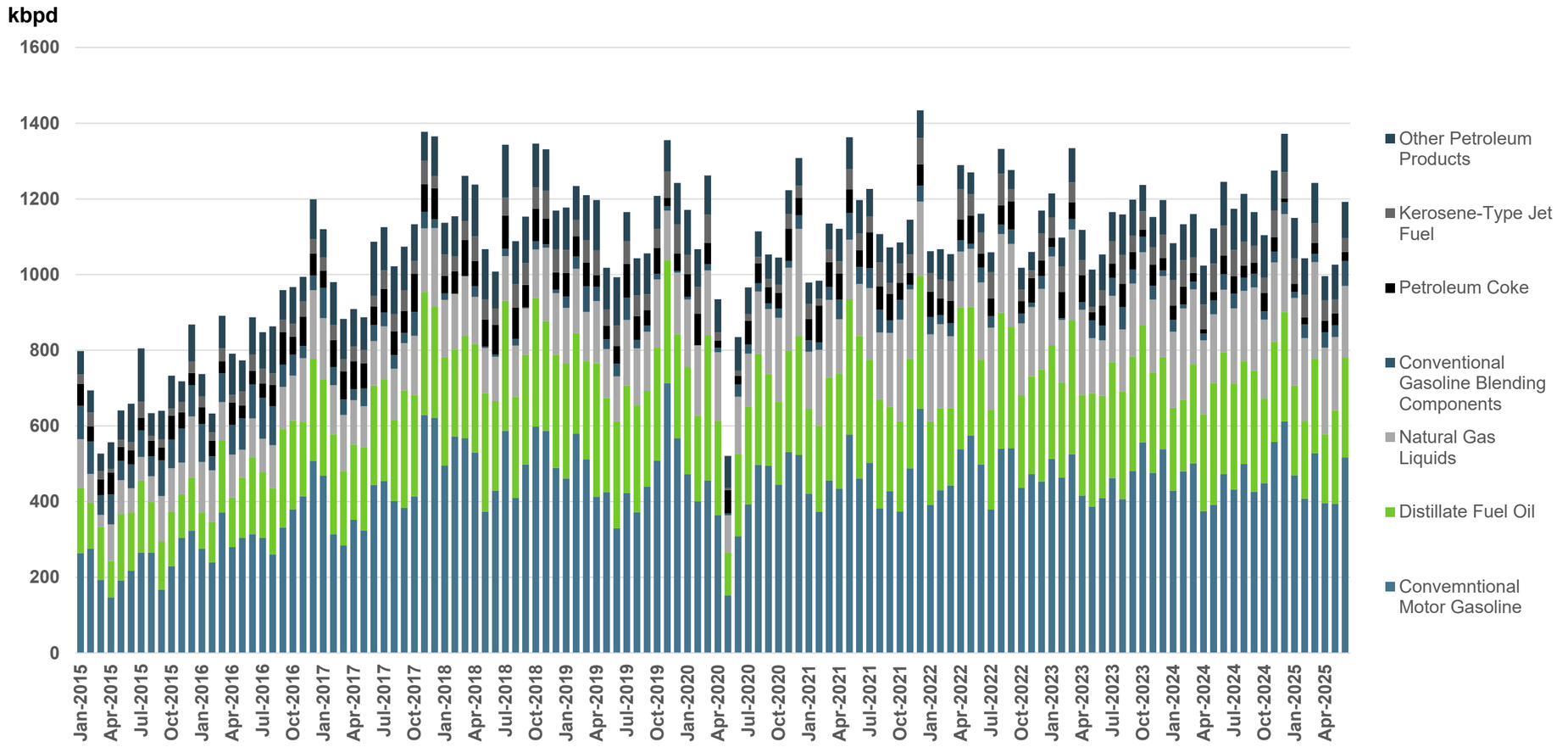
U.S. Class I Carloads Originated for Selected Petroleum Products



Source: Surface Transportation Board, February 2024

US Refined Products Export Volumes to Mexico Remaining Stable

U.S. Exports to Mexico

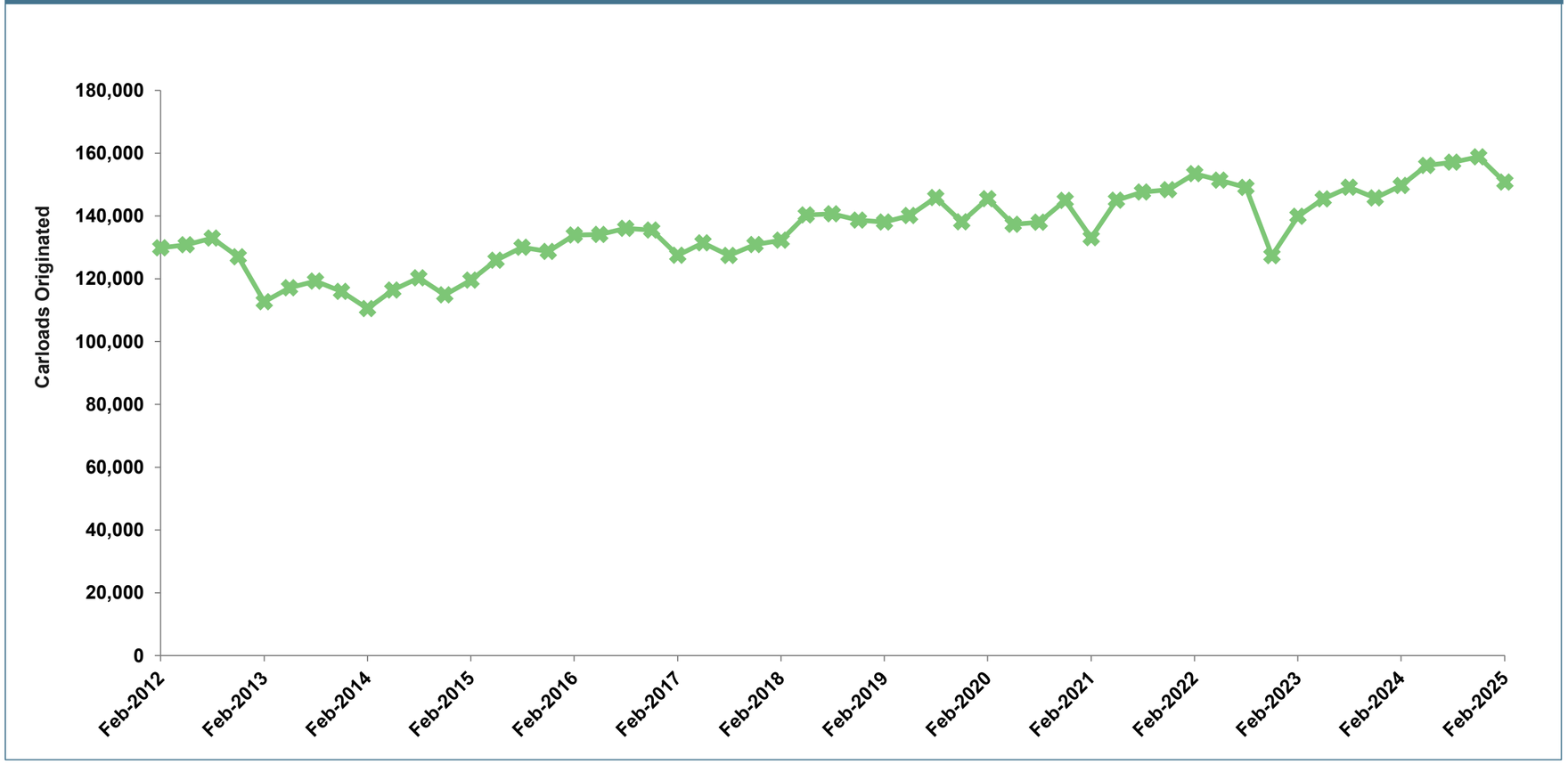


- Dos Bocas refinery running at ~200 kbpd, far below 340 kbpd capacity.
- As long as output lags, Mexico continues importing U.S. refined products (diesel, gasoline).

Source: PLG analysis using EIA data, September 2025

Plastic Resin Related Railcar Originations

U.S. Quarterly Carloads Originated for Plastics Materials and Synthetic Resins, Synthetic Rubbers and Fibers (STCC 282)



Source: Surface Transportation Board - December 2024

- Expansion of US plastics production continues to be export-oriented
- Except for certain plants, most new volume moving via rail to packagers, ports

Resin car movement growth will slow and flatten as export market growth slows

Scorecard: Rail Opportunities Over Next Few Years

Rail Commodity	Outlook	Key Factors	Railcar Types
Coal		▪ Continued decline in coal production & consumption due to transition away from coal as an electricity fuel source	Hopper (open top)
Crude oil		▪ No significant changes foreseen	Tank (GP)
Propane/ Butane		▪ Growing production of NGLs, particularly in the Bakken, Appalachia, and Western Canada ▪ Potential pipeline takeaway constraints ▪ Expansion of export terminals in British Columbia and U.S. East Coast	Tank (pressure)
Chemicals		▪ North American ethane feedstock advantage is stable and expected to sustain chemical production for decades ▪ “Third Wave” of PE plants may only be one more plant under construction	Tank (multiple types), covered hopper (resins)
Renewable Diesel/SAF		▪ RFS and state LCFS programs expected to expand use of biofuels, including ethanol ▪ RD in particular involves rail in both feedstocks and finished product ▪ However, California LCFS seed oil limitations and federal rulings on imported feedstocks may limit finished fuel product growth potential	Hopper (grain), tank (GP)
Energy Transition Minerals	?	▪ Lithium mining projects are still under development – not sure they will make it ▪ Elimination of federal EV incentives in the U.S. will result in headwinds	Box, gondola, hopper (open top and covered)
Ammonia		▪ Ammonia production growth will be focused on exports from Gulf Coast	Tank (pressure)
CO_2 by Rail		▪ Technical issues being resolved to allow rail to become virtual pipeline solution for remote plants ▪ While IRA 45Q remains, new pipeline construction projects face significant permitting and construction headwinds, thus favoring virtual pipelines by rail	Tank (pressure)

Questions?

Thank You!

For follow up questions and information, please contact:

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