

Prepared for:



WASHINGTON MARINE CARGO FORECAST 2024

Prepared by:



In association with:



MARCH 2025

OUTLINE

- ONE** PROJECT BACKGROUND
- TWO** INTERNATIONAL & DOMESTIC TRADE TRENDS
- THREE** MARINE CARGO FORECAST
- FOUR** MODAL SPLIT
- FIVE** PORT ASSESSMENT



ONE PROJECT BACKGROUND



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PROJECT SCOPE

INTERNATIONAL TRADE OVERVIEW.

Detailed discussion of leading marine cargo trends at Washington state ports and economic conditions among leading trading partners and blocs; domestic trade trends; geopolitical issues; and other factors shaping current and future cargo volumes.

MARINE CARGO FORECAST.

With breakouts by containerized, bulk, breakbulk, and neo-bulk, and by sub-state regions.

PORT-LEVEL ASSESSMENT.

Discussion of port operations, infrastructure, access, and individual port project lists and transportation system investments.

MODAL SPLIT BY CORRIDOR.

Discussion of landside transportation issues related to the marine cargo forecast, including by truck, rail, and barge.

EMERGING ISSUES AND OPPORTUNITIES.

Trends and industry developments that will shape future marine cargo flows, with a special focus on offshore wind.

PARTICIPATING PORTS



SOURCES AND METHODS

DATA INPUTS

FREIGHT DATA

- WiserTrade
- USA Trade Online
- USACE Data
- Merchandise Trade Statistics

MODAL BEHAVIOR

- FAF 5.1

INTERVIEWS

FORECASTING

FREIGHT ECONOMY MODEL

- US BEA Benchmark IO
- OECD ICIO

ECONOMIC GROWTH

- Moody's
- BLS Employment Data
- CENSUS County Business Patterns

OUTPUTS

DETAILED ORIGIN/ DESTINATION IMPORTS/ EXPORTS

- Trading Partner
- Container/Bulk/
Breakbulk/Neo-bulk
(project cargo)
- Port of Entry/Exit
- Domestic Mode
- Commodity



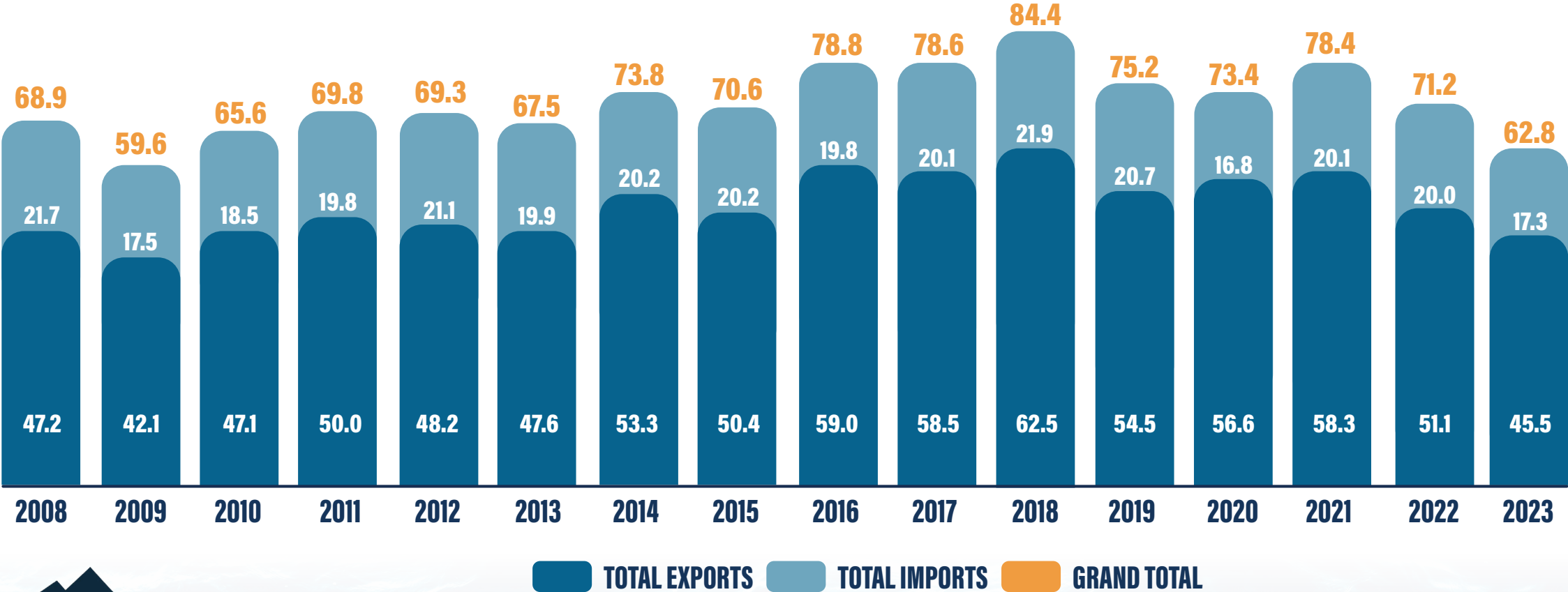
TWO **INTERNATIONAL AND** **DOMESTIC TRADE TRENDS**



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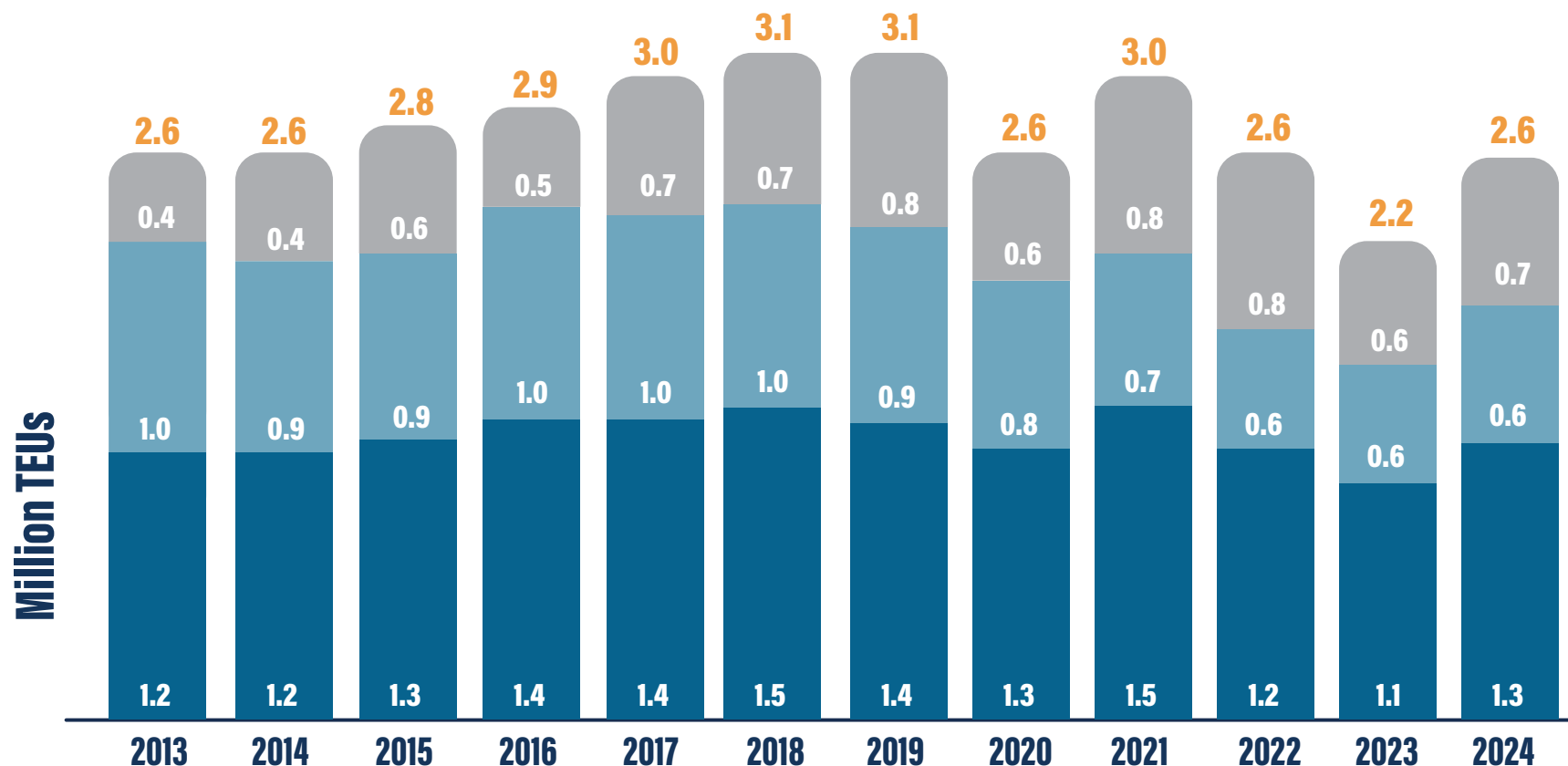
WATERBORNE IMPORTS AND EXPORTS

THROUGH WASHINGTON STATE PORTS, MILLIONS OF METRIC TONS, 2008-2023



CONTAINERIZED INTERNATIONAL TRADE

LOADED AND EMPTY CONTAINERS, IMPORTS AND EXPORTS, WASHINGTON STATE PORTS, 2013-2024

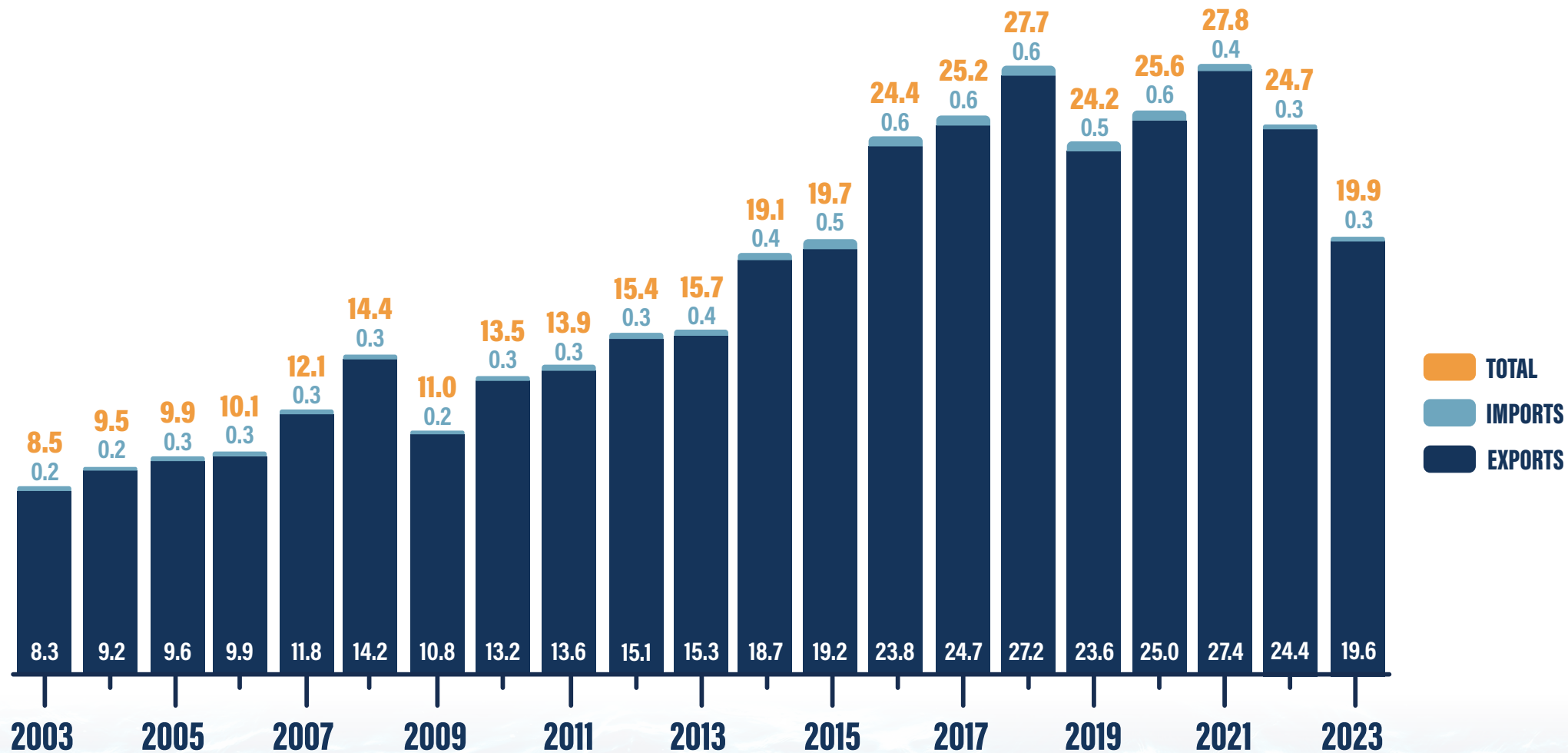


- TEUs from China down 41% between 2018 and 2023.
- Containers from or to Vietnam through The NWSA up 127% between 2017 and 2023.

Imports, loaded Exports, loaded Empties Total

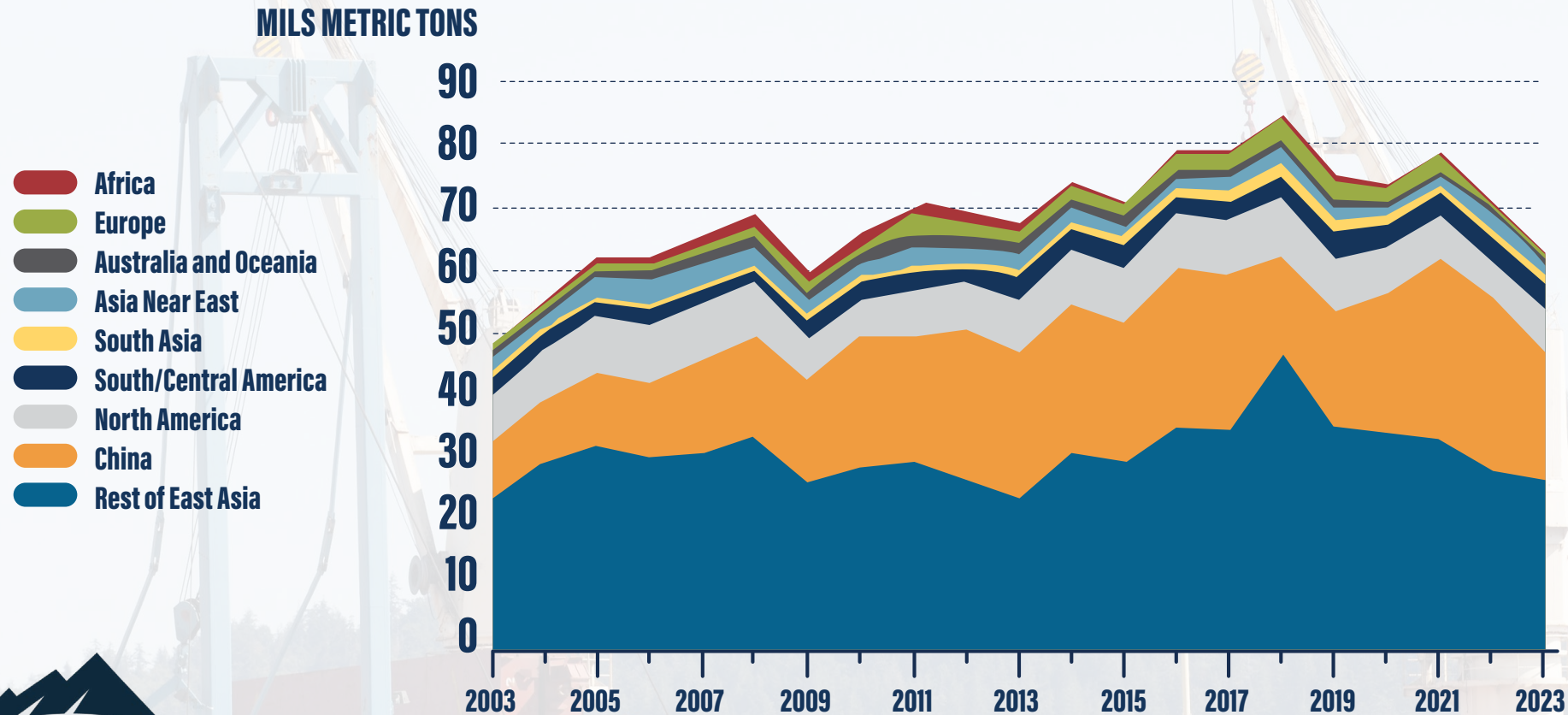
AGRICULTURAL CARGO

WASHINGTON PORTS AGRICULTURAL COMMODITIES TWO-WAY TRADE, MILLIONS OF METRIC TONS, 2003-2023



TOP TWO-WAY WATERBORNE TRADING PARTNERS

COUNTRY AND REGIONAL TRADING PARTNER WITH WASHINGTON STATE PORTS, 2003-2023, MILLIONS OF METRIC TONS

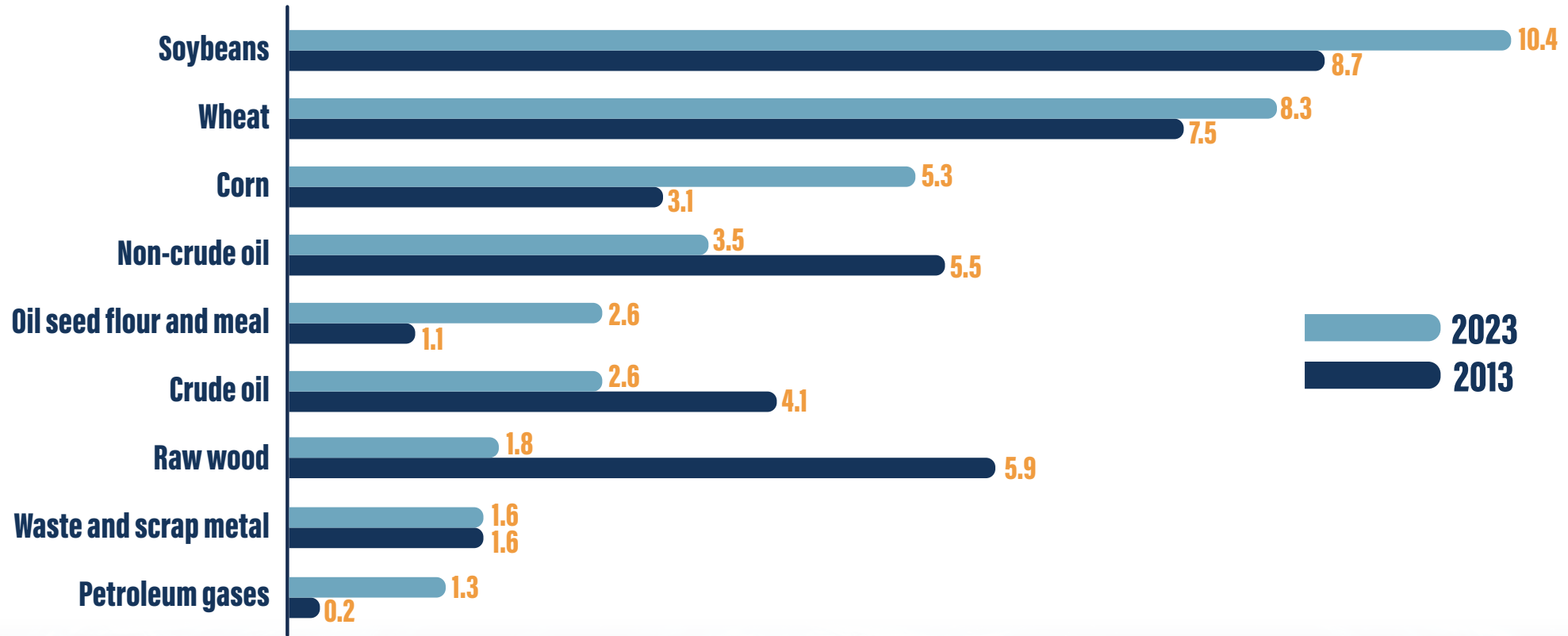


- Washington state ports' trade with China declined 30% in volume between 2021 and 2023.

DATA SOURCE: U.S. CENSUS BUREAU, USA TRADE® ONLINE, 2024.

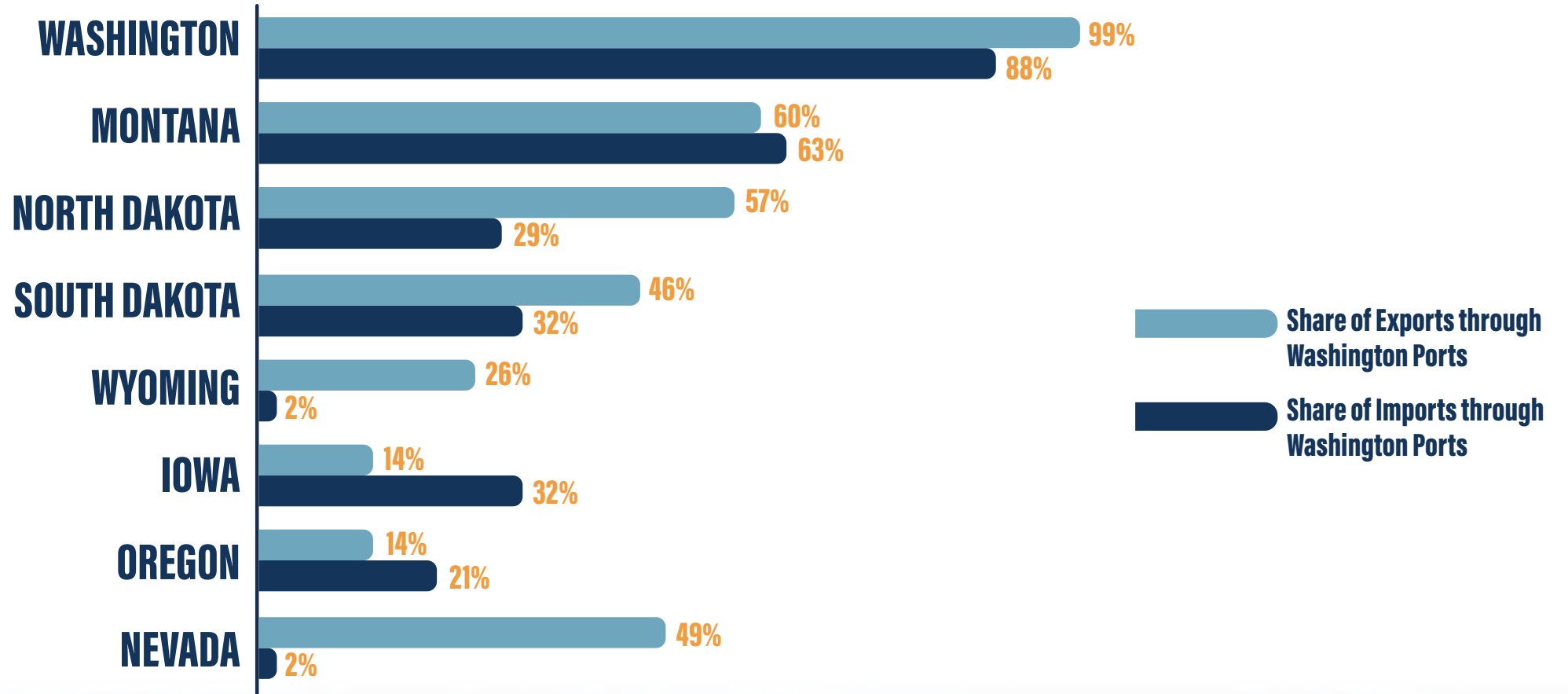
LEADING INTERNATIONAL BULK, BREAK BULK, AND NEO-BULK CARGO

THROUGH WASHINGTON STATE PORTS, BY MILLIONS OF METRIC TONS, TWO-WAY (IMPORTS AND EXPORTS), 2023



HINTERLAND CONNECTIONS

STATES WITH HIGHEST INTENSIVE USE OF WASHINGTON STATE PORTS FOR IMPORTS AND EXPORTS, 2023, BY TONNAGE



DATA SOURCES: WISER TRADE, 2024; U.S. CENSUS BUREAU, 2024; U.S. DEPARTMENT OF AGRICULTURE, 2023.

ECONOMIC OUTLOOK FOR LEADING TRADE PARTNERS

REAL GDP GROWTH, GLOBAL AND MAJOR REGION, 2008-2023 (ACTUAL) AND 2024-2029 (FORECAST)

REGION	SHARE OF WASHINGTON STATE TRADE, 2023		COMPOUND ANNUAL GROWTH RATES	
	<i>By Tonnage</i>	<i>By Value</i>	<i>2020-2023</i>	<i>2024-2029</i>
Advanced economies	35%	42%	3.3%	1.7%
Euro area	2%	2%	3.2%	1.3%
Major advanced economies (G7)	23%	25%	3.1%	1.6%
Other advanced economies*	16%	20%	3.4%	2.2%
European Union	2%	3%	3.4%	1.6%
ASEAN-5	10%	9%	4.5%	4.6%
Emerging market and developing economies	60%	53%	5.1%	4.1%
Emerging and developing Asia	44%	47%	5.9%	4.7%
Emerging and developing Europe	0%	0%	3.9%	2.7%
Latin America and the Caribbean	13%	5%	4.6%	2.5%
Middle East and Central Asia	2%	1%	3.9%	3.7%
Sub-Saharan Africa	1%	0%	4.0%	4.1%
World			4.4%	3.1%
<i>Select Countries/Regions</i>				
China	28%	28%	5.5%	3.8%
Japan	14%	22%	1.8%	0.7%
Taiwan Province of China	4%	4%	3.5%	2.5%
Hong Kong SAR	1%	0%	1.9%	2.7%
Vietnam	4%	8%	5.2%	6.4%
Korea	8%	13%	2.8%	2.2%

 SLOWER GROWTH FORECASTED

 MORE RAPID GROWTH FORECASTED

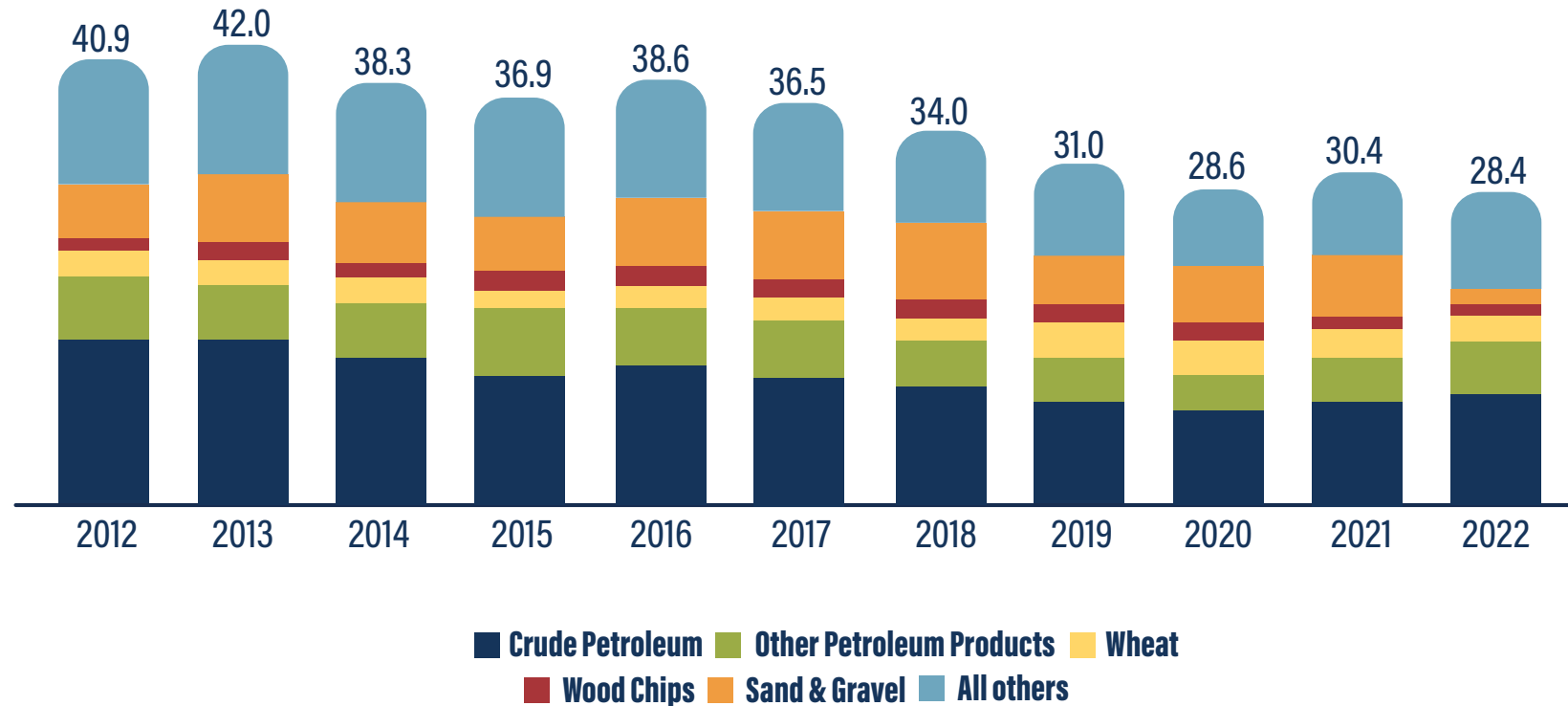
*Advanced economies excluding G7 and euro area.

Real growth based on constant prices.

Source: International Monetary Fund, April 2024.³

DOMESTIC TRADE

TONNAGE HANDLED AT WASHINGTON STATE PORTS (MILLIONS OF SHORT TONS)



- Petroleum products comprised 70% of the total domestic cargo tonnage between 2013 and 2022.
- Washington ports have handled an average of 5 million tons of crude oil each year, largely inbound from Alaska.
- In 2017, domestic TEUs were at a low of 700,000 and peaked in 2022 with 990,000 TEUs moved.

GEOPOLITICS AND ECONOMICS

CONSIDERATIONS FOR LONG-TERM CARGO VOLUMES THROUGH THE PNW

**Trade
agreements
and tariffs.**

**U.S.-China rift,
trade war, etc.
Impact on
volumes.**

**Limited
connections
with other
markets.**

**Disruptions
and Houthis.**

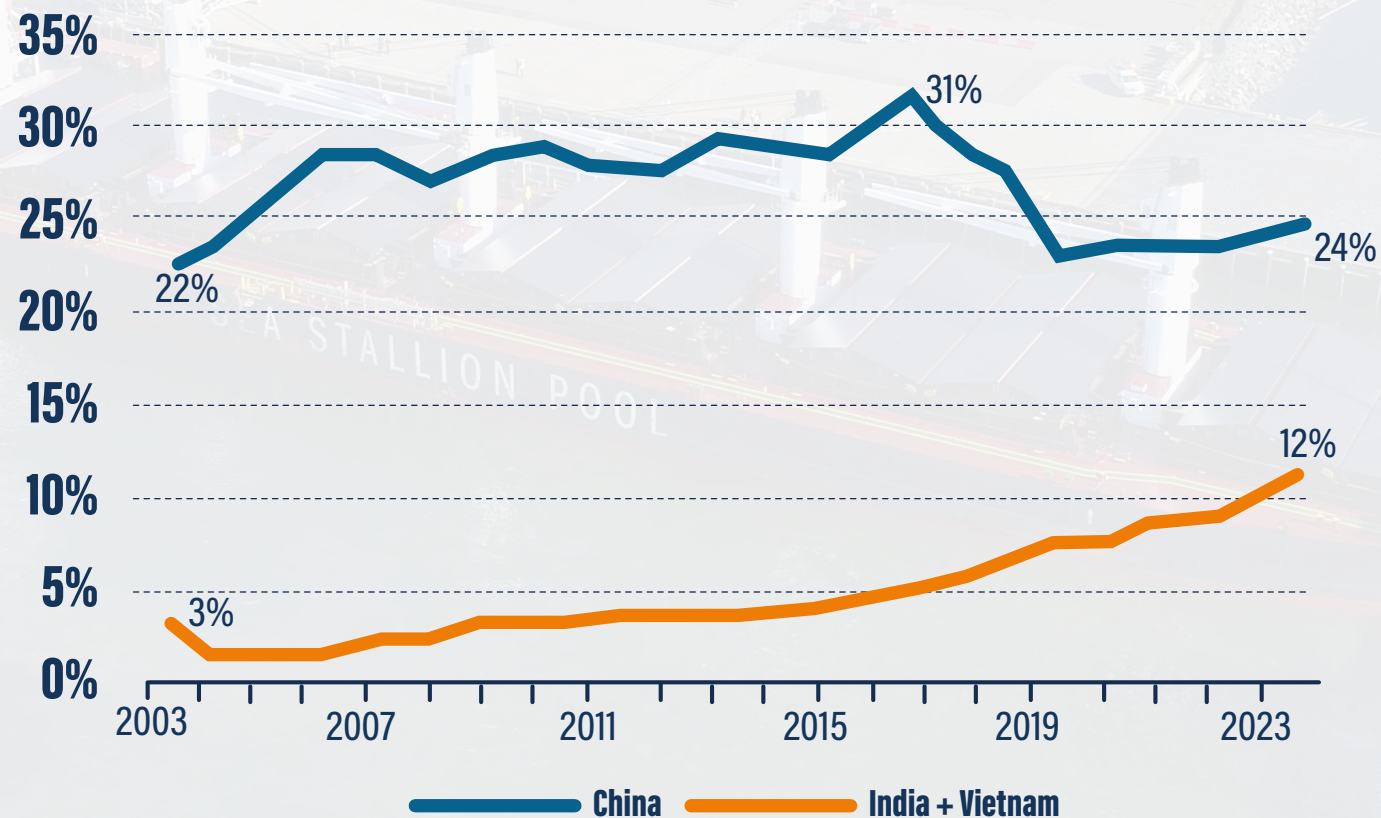
**Supply chain
diversification
and
re-shoring.**

PORT COMPETITIVENESS

- **NWSA: #4 container loading center in N. America in 2019; #8 in 2024**
- **NWSA lost 18% of cargo market share to BC ports in recent years**
- **Canada ports have advantages in policies, funding, procedures, cost**
- **Harbor Maintenance Tax (HMT) disproportionately affects WA ports**
- **Congestion in WA leads to higher costs, reduced efficiency**
- **Other US ports expanding (ex. Savannah)**
- **Recent legislative changes to HMT should improve Washington's competitive position**

SHIFTING SHIPPING LANES

CHANGES IN SHARES OF U.S. TWO-WAY TRADE (BY TONNAGE) WITH CHINA AND INDIA AND VIETNAM

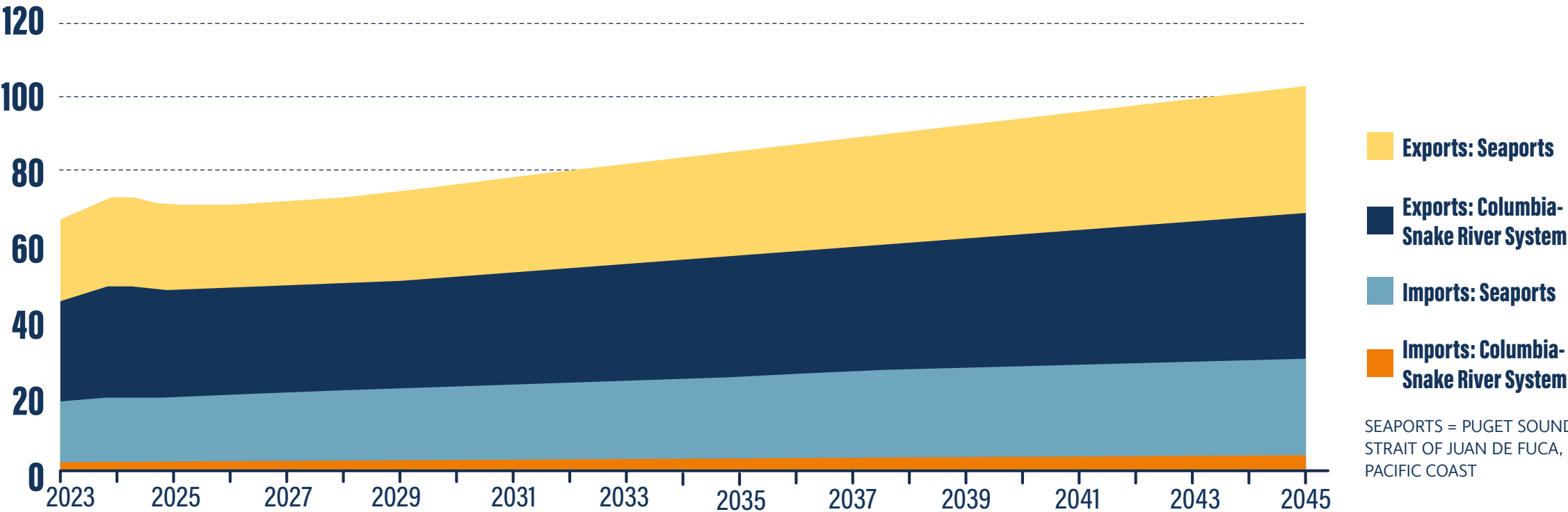




THREE MARINE CARGO FORECAST

FORECASTS BY SUB STATE REGION

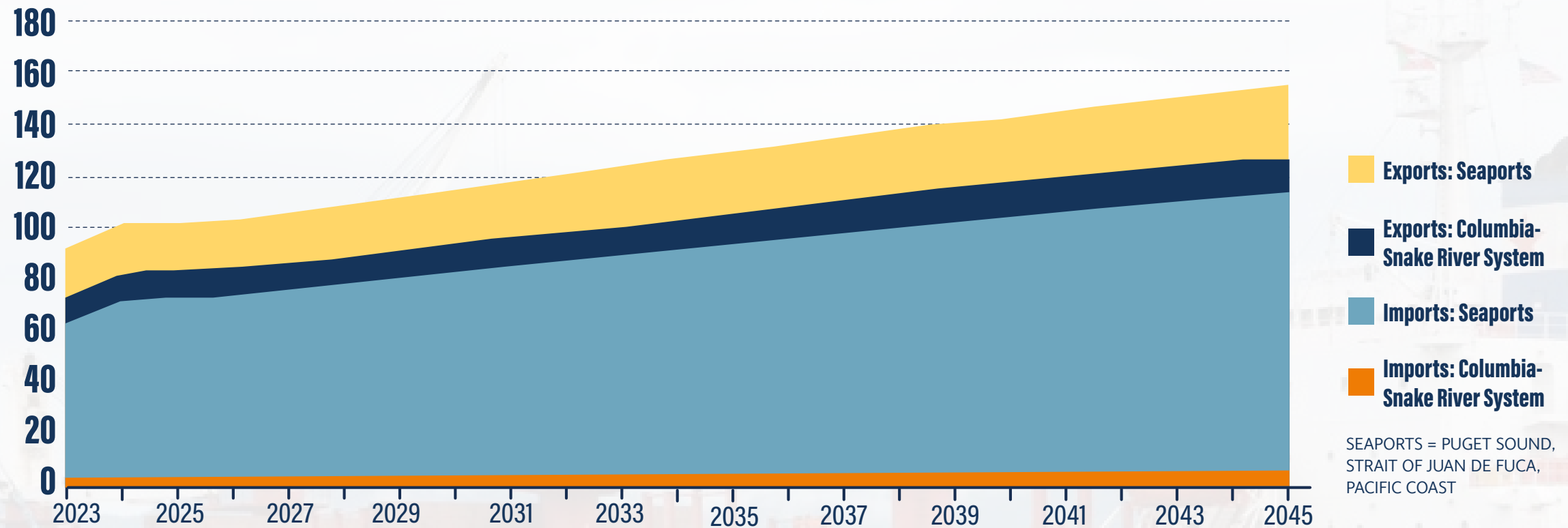
GROWTH IN TONNAGE | TONS OF CARGO (MILLIONS)



SEAPORTS = PUGET SOUND,
STRAIT OF JUAN DE FUCA,
PACIFIC COAST

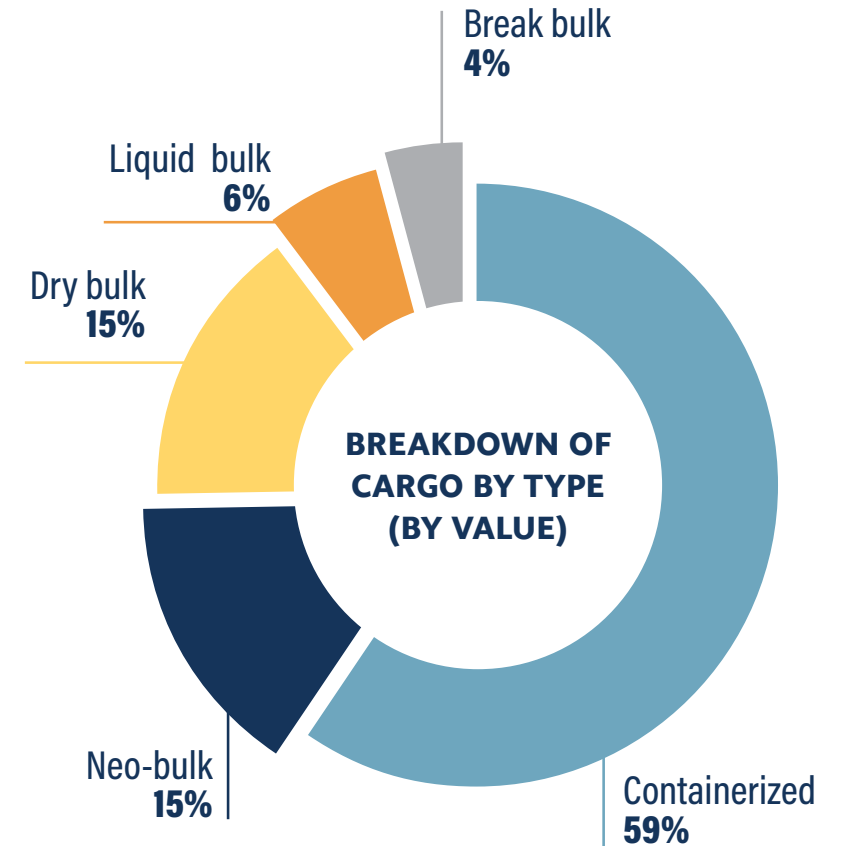
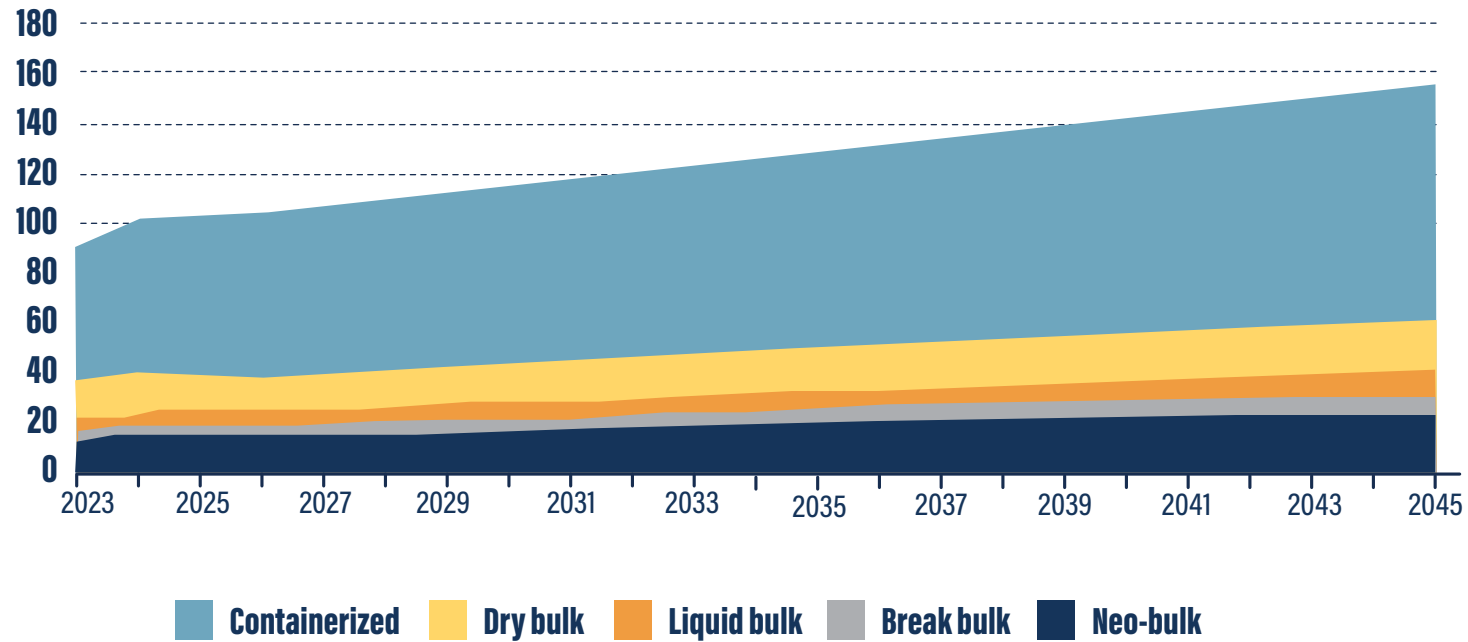
FORECASTS BY SUB STATE REGION

GROWTH IN VALUE | \$BILLIONS



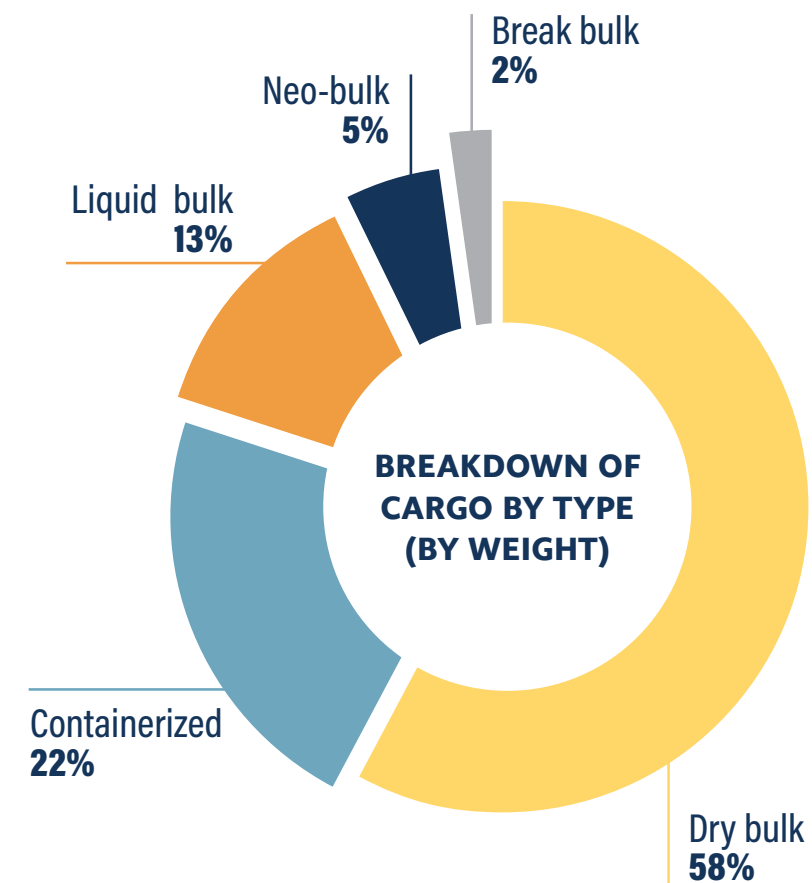
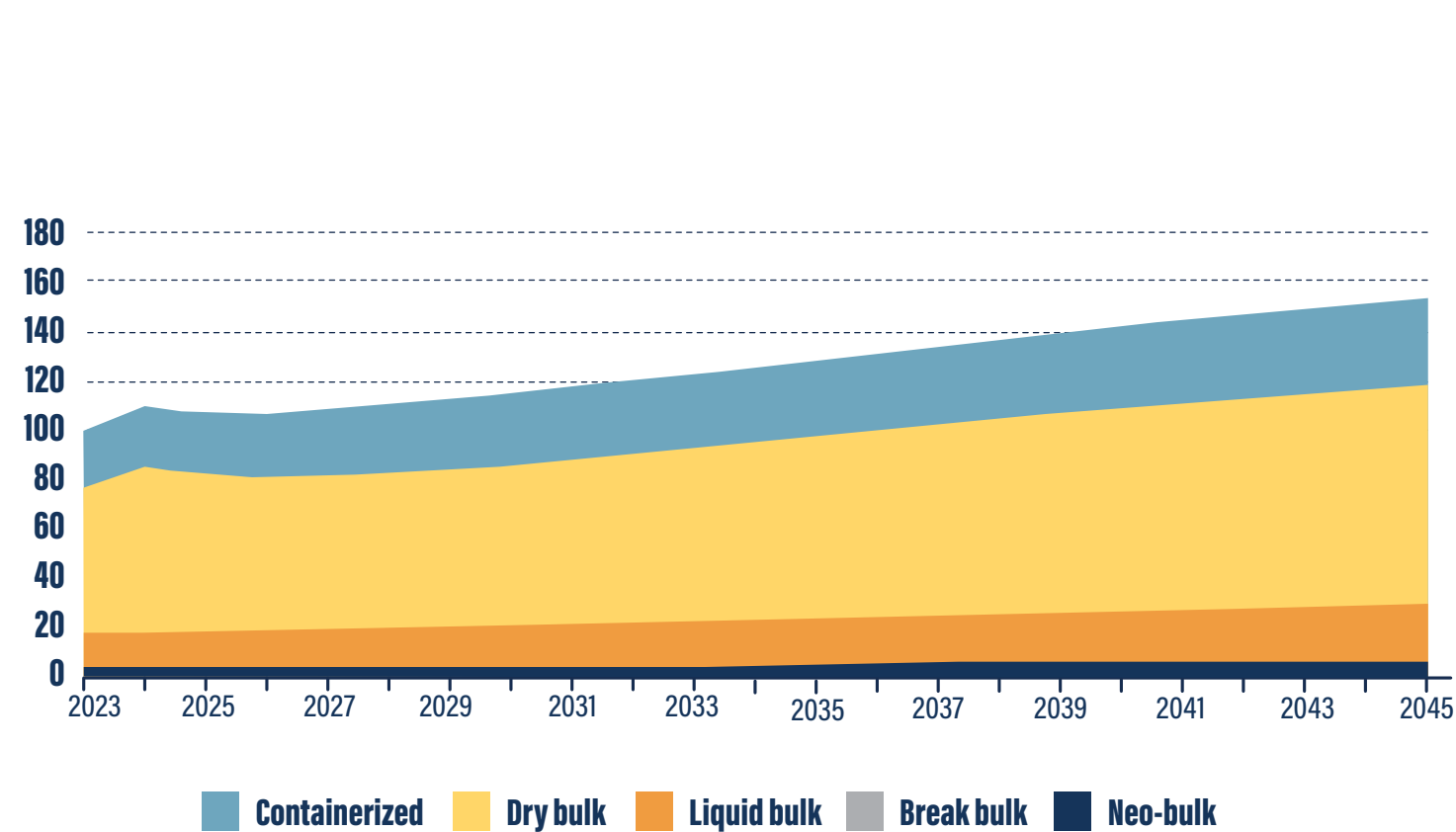
CARGO SEGMENTS

PROJECTED GROWTH IN CARGO (BY TYPE, VALUE IN \$BILLIONS)



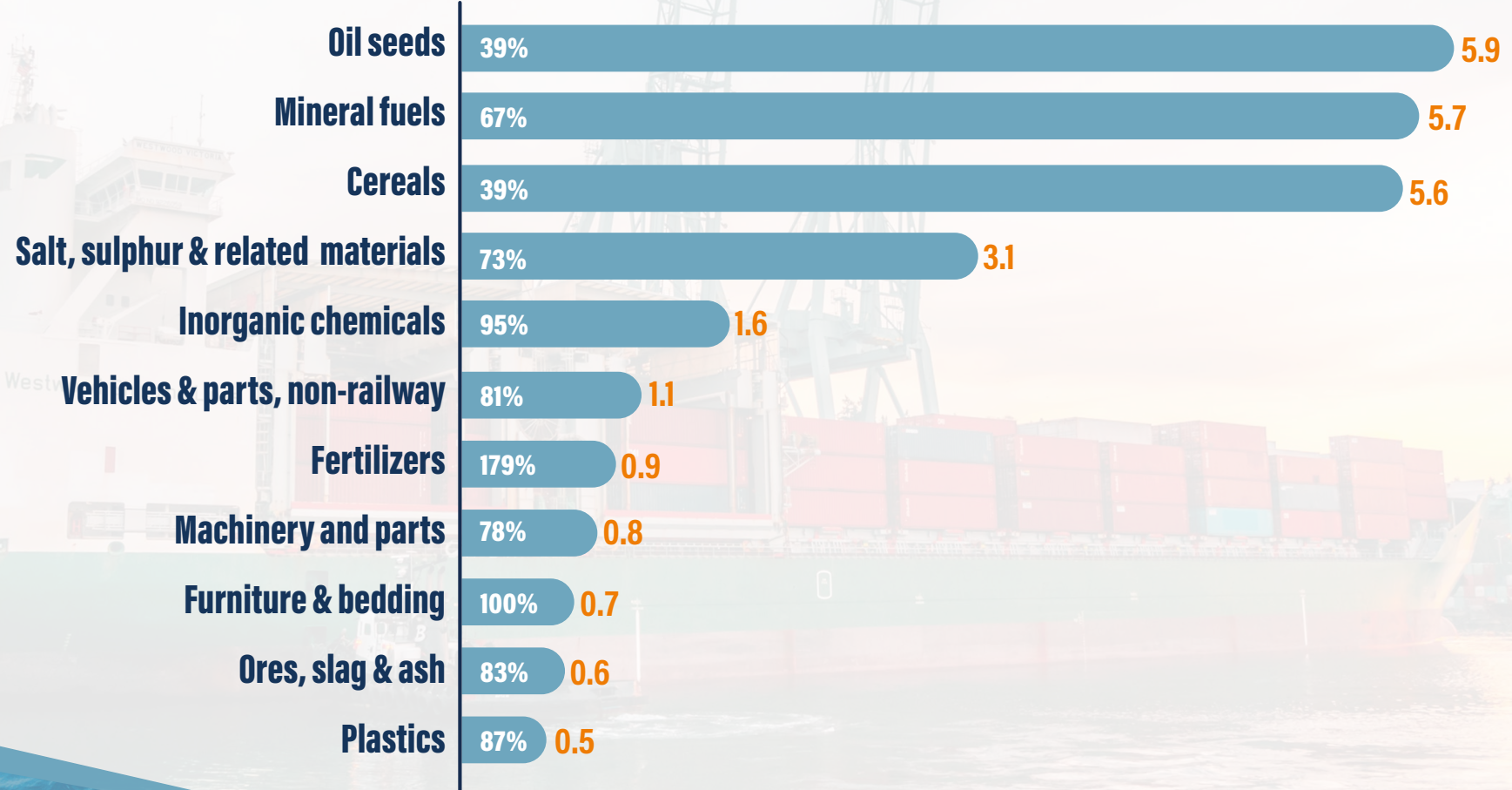
CARGO SEGMENTS

PROJECTED GROWTH IN CARGO (BY TYPE, BILLION KILOGRAMS)



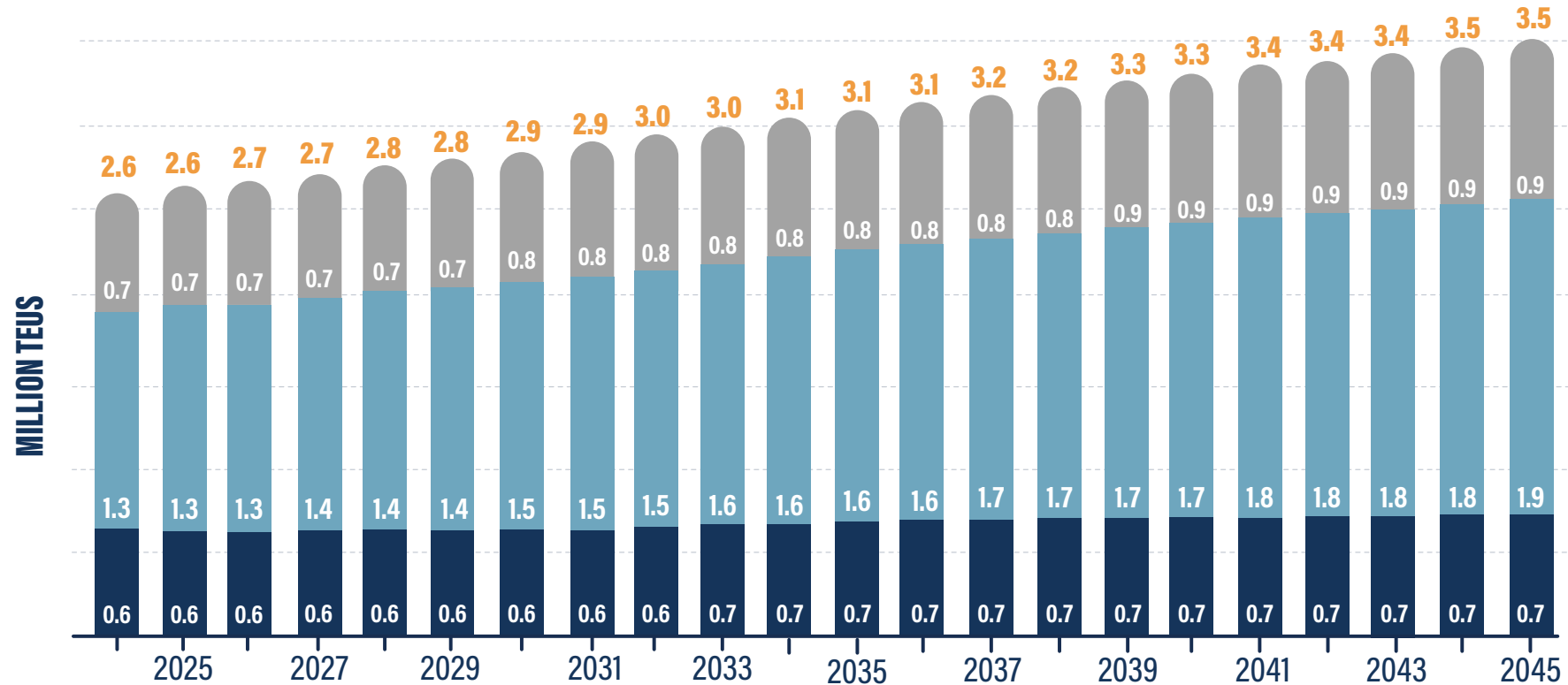
TOP GROWING COMMODITIES

NET CHANGE IN BILLIONS KG AND % GROWTH, 2023-2045



CONTAINER FORECAST

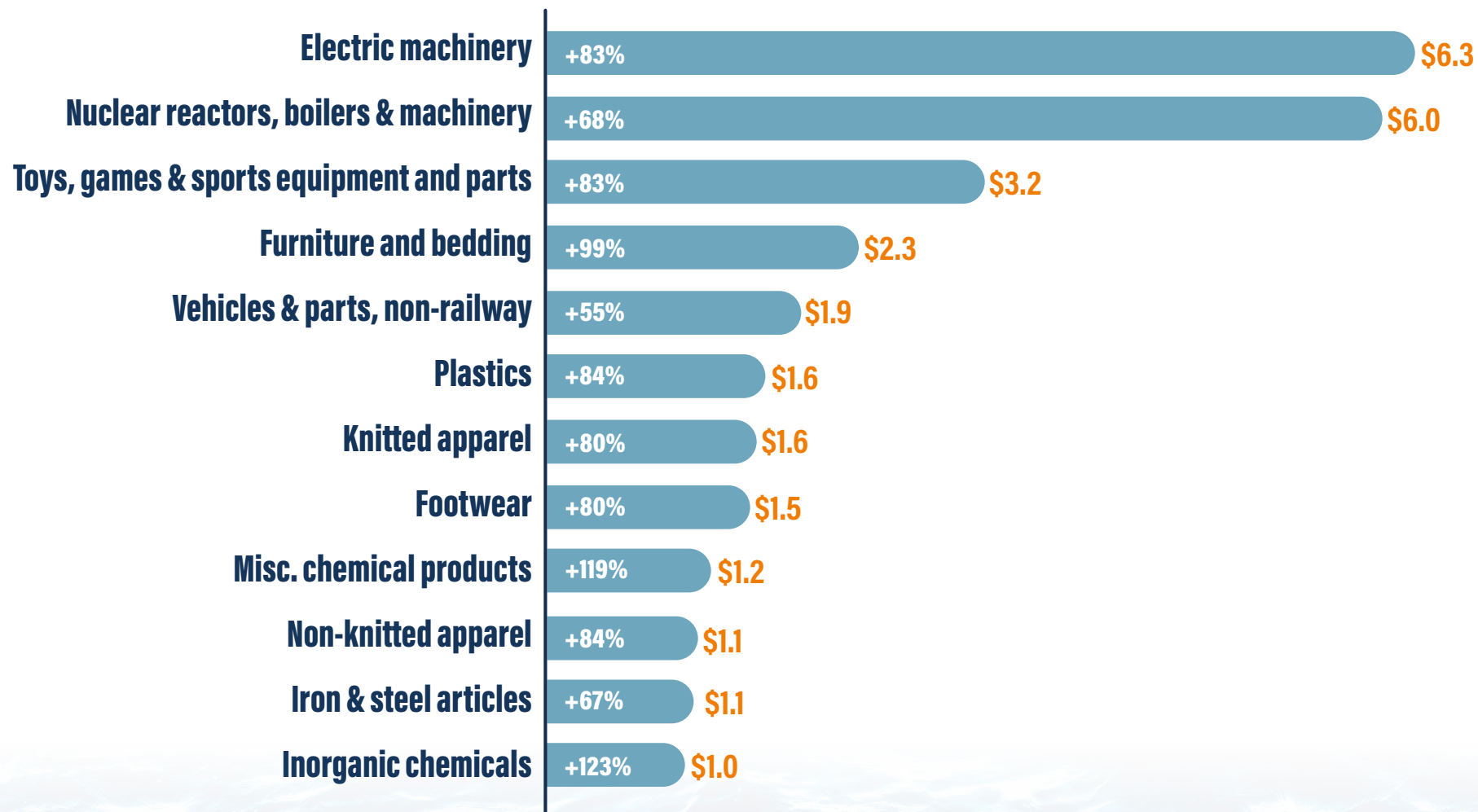
INTERNATIONAL CONTAINER FORECAST, LOADED AND EMPTY, WASHINGTON PORTS (MILLIONS OF TEUs)



Exports, loaded Imports, loaded Empties Total

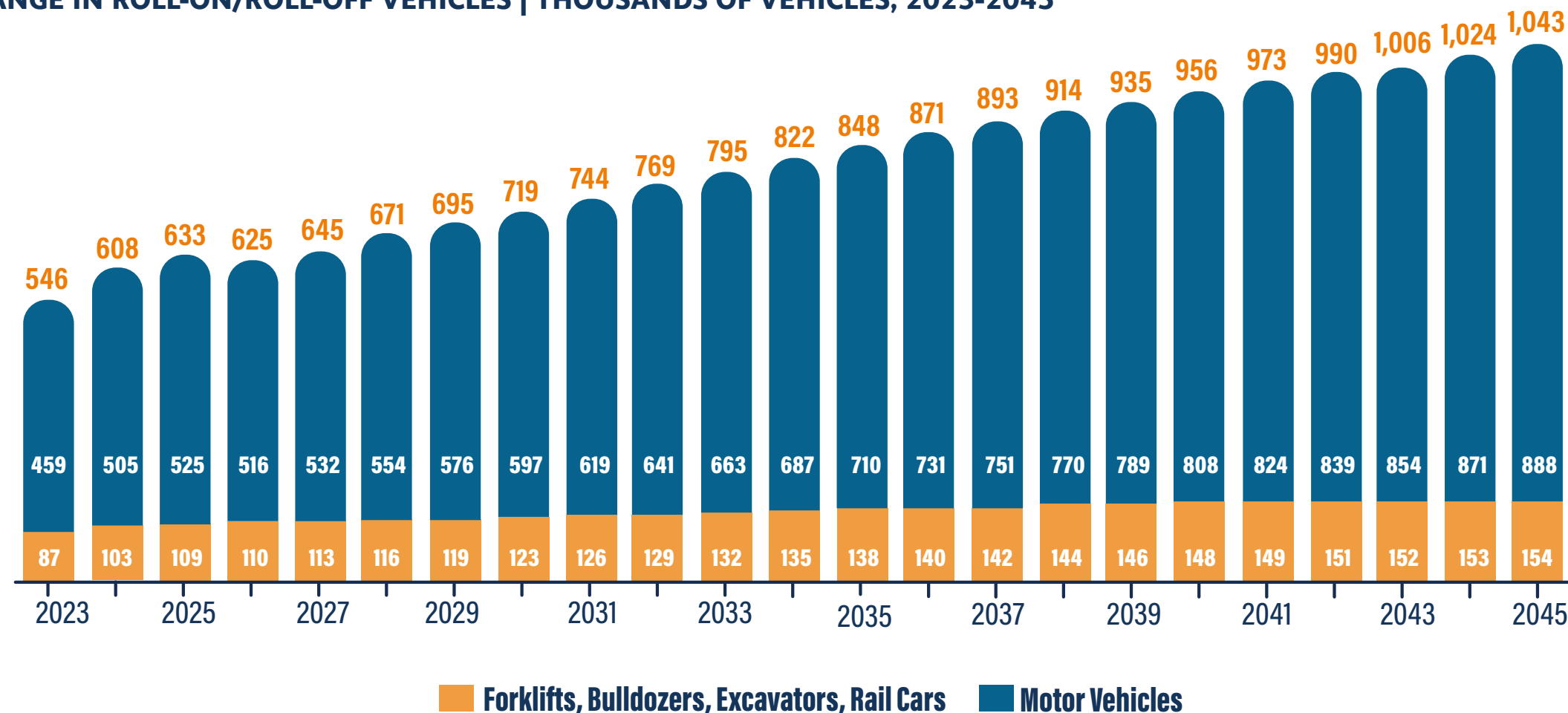
CONTAINER FORECAST

TOP GROWING CONTAINERIZED COMMODITIES BY NET CHANGE, \$BILLIONS AND % GROWTH, 2023-2045



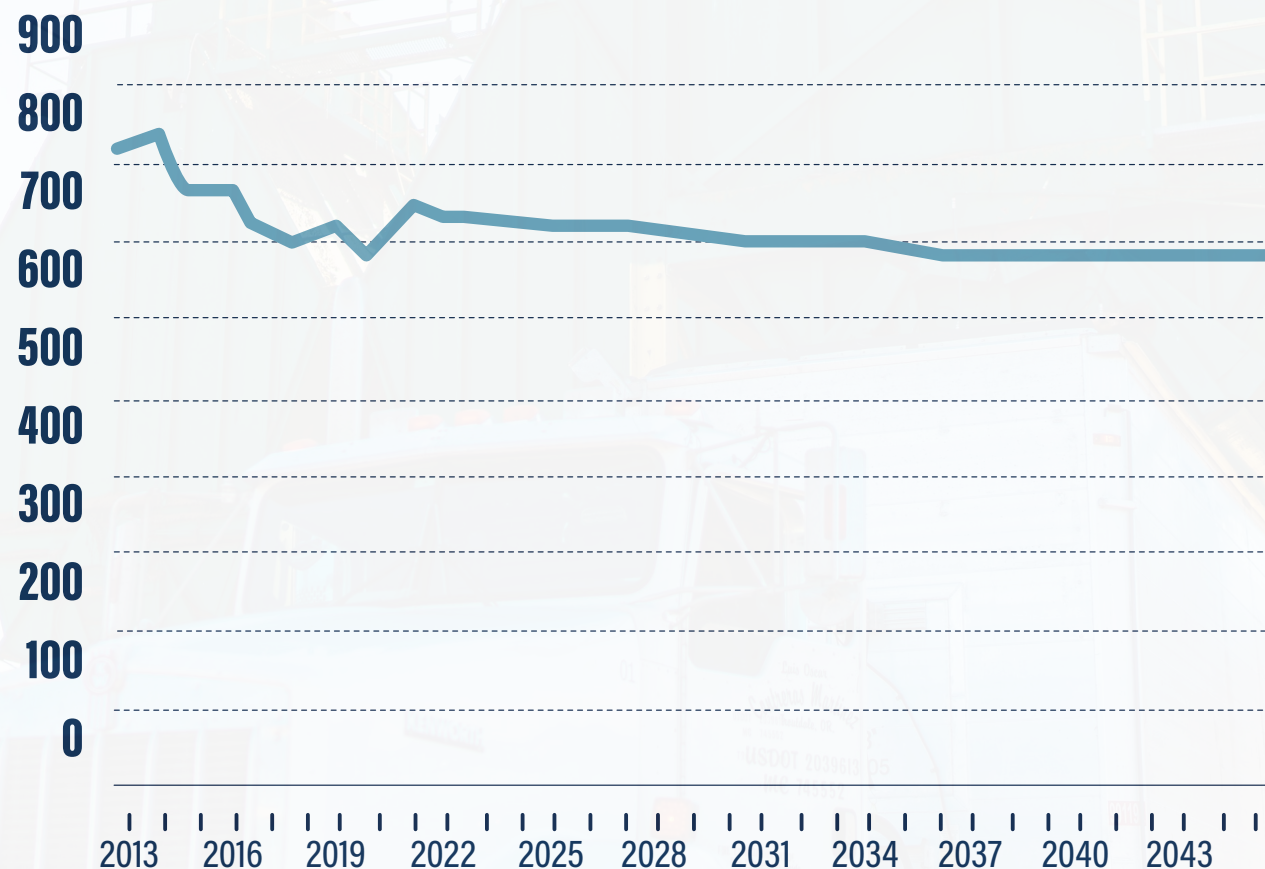
RO-RO FORECAST

CHANGE IN ROLL-ON/ROLL-OFF VEHICLES | THOUSANDS OF VEHICLES, 2023-2045



DOMESTIC CARGO

PROJECTED DOMESTIC CONTAINER CARGO (TEUS), LOADED AND EMPTY (THOUSANDS OF TEUS)



SOURCES: THE NORTHWEST SEAPORT ALLIANCE, 2024; U.S. ARMY CORP OF ENGINEERS COMMERCIAL WATERBORNE DATA, 2024. MOODY'S, 2025.

FACTORS AFFECTING FORECAST

- **U.S.-China rivalry**
- **Shifting supply chains**
- **Decline or deceleration in global trade**
- **Slowdown in global economic growth**
- **Geopolitical uncertainties and risks of future conflicts**
- **Growing demand for higher quality foods**
- **Larger container ships ⇒ fewer vessel calls**
- **Increased competition from other ports**
- **Changes in value of U.S. dollar**

TARIFF UPDATE

As of May 9, 2025

- **U.S.: 145% tariffs on Chinese imports.**
- **China: 125% retaliatory tariffs on U.S. imports.**
- **Base tariff of 10%.**
- **46% tariff on Vietnamese imports but being renegotiated.**
- **Auto tariffs capped at 25%.**

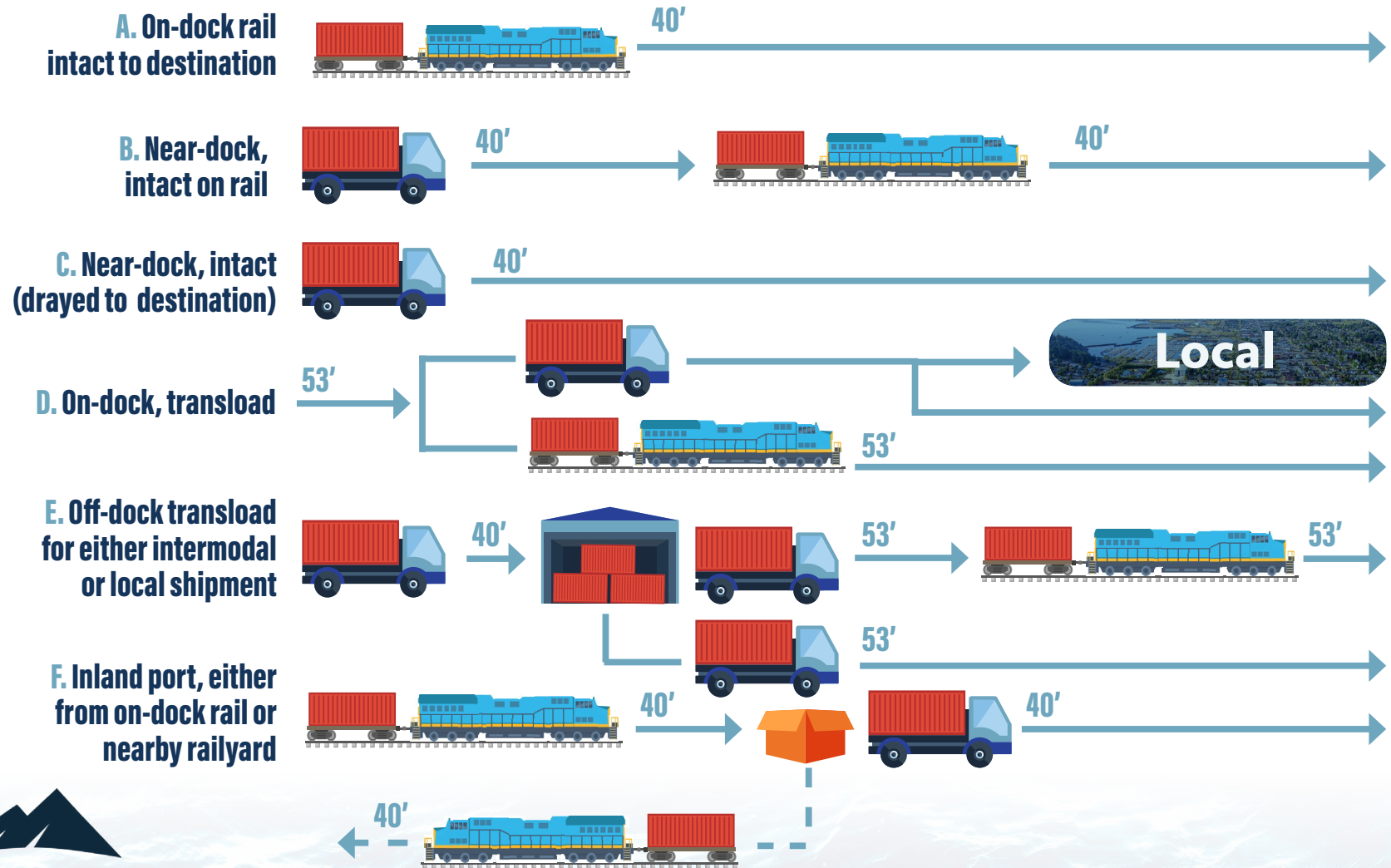


FOUR TRANSPORTATION MODAL SPLIT



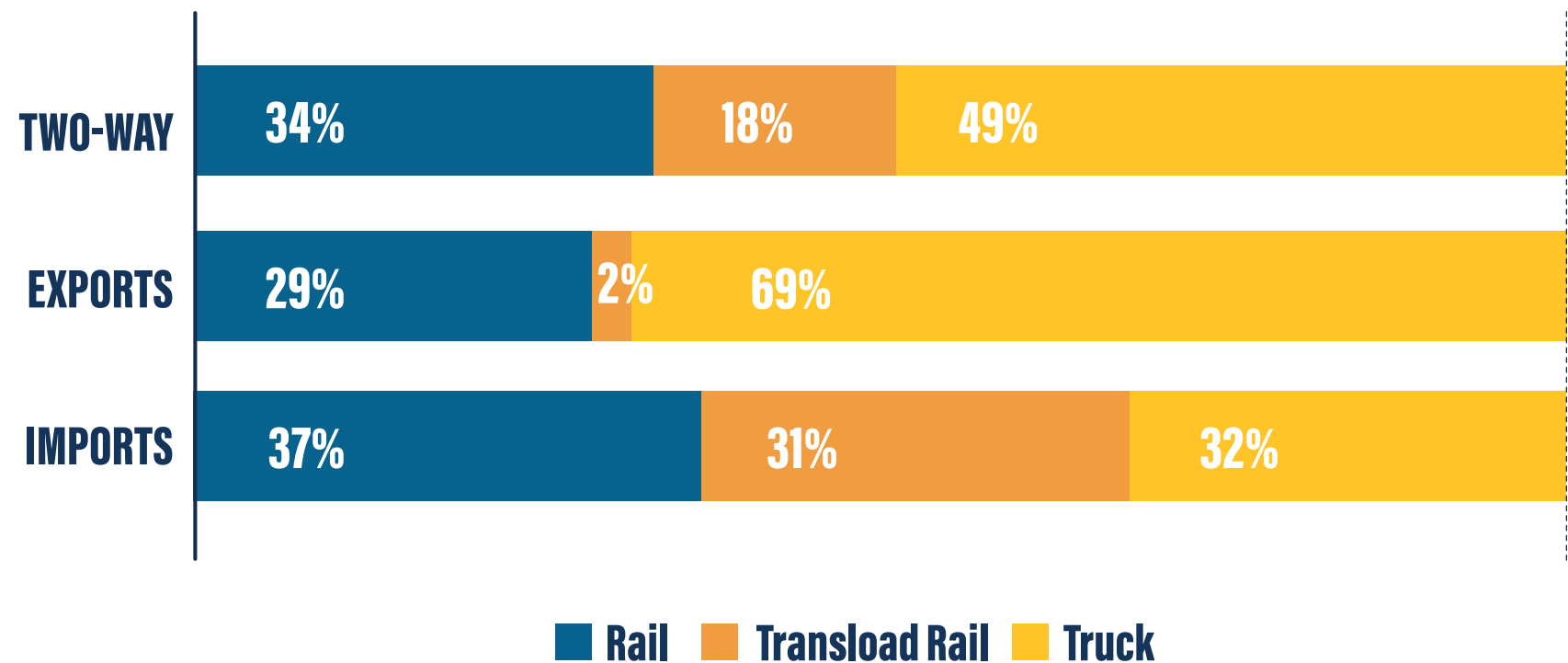
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IMPORTED CONTAINER MODAL SPLITS



CONTAINERIZED CARGO BY MODE TO/FROM WASHINGTON STATE PORTS, 2023

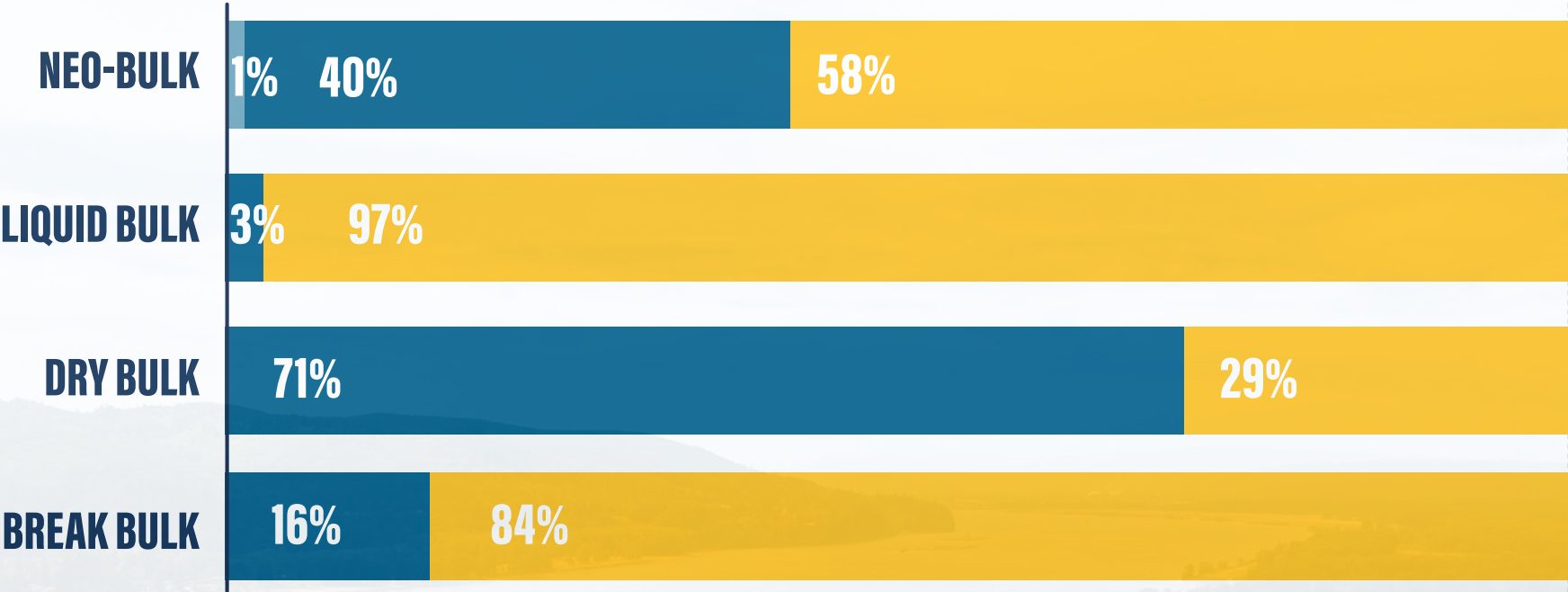
BASED ON TONNAGE



SOURCES: U.S. CENSUS BUREAU, 2024; PROJECT TEAM ANALYSIS.
FIGURES MAY NOT SUM TO TOTALS DUE TO ROUNDING.

NON-CONTAINERIZED CARGO BY MODE TO/FROM PUGET SOUND, STRAIT OF JUAN DE FUCA, AND PACIFIC COAST PORTS, 2023

BASED ON TONNAGE

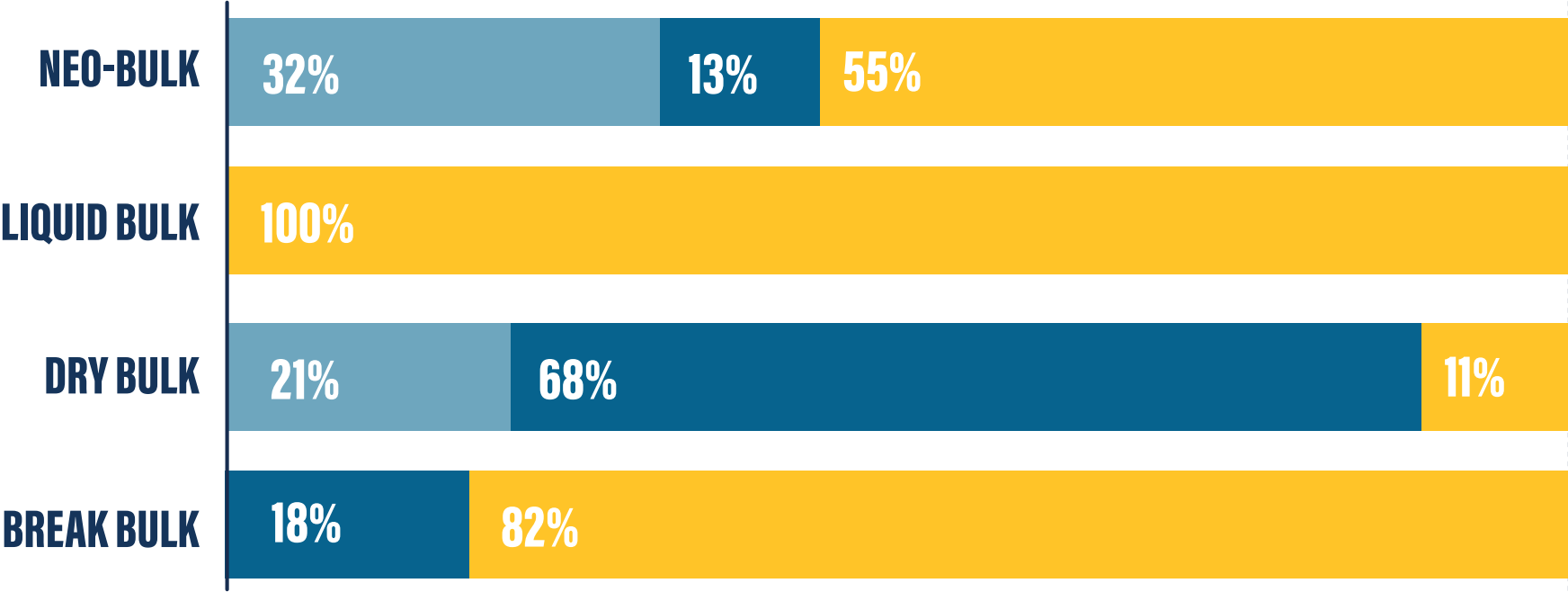


■ Barge ■ Rail ■ Truck

SOURCES: U.S. CENSUS BUREAU, 2024; PROJECT TEAM ANALYSIS.
FIGURES MAY NOT SUM TO TOTALS DUE TO ROUNDING.

NON-CONTAINERIZED CARGO BY MODE TO/FROM COLUMBIA SNAKE RIVER SYSTEM PORTS, 2023

BASED ON TONNAGE



■ Barge ■ Rail ■ Truck

MODAL SPLIT FACTORS

21% of dry bulk cargo handled at river ports is transited via barge.

63% of container imports are transloaded or trucked inland.

Investments in rail capacity and inland logistics services can help mitigate truck congestion at/near terminals.

Short sea shipping could create resiliency for moving goods along the I-5 Corridor or to parts of the Olympic Peninsula.



FIVE PORT ASSESSMENT



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PORT MARINE CARGO CAPABILITIES AND ASSETS

PORT	TYPE	SURFACE ACCESS		CARGO TYPE (✓) = PLANNED					MAJOR COMMODITIES	MAJOR MARKETS	CARGO INFRASTRUCTURE	PLANNED CARGO PROJECTS
		Rail	Highway	Liquid bulk	Dry bulk	Break bulk	Neo-bulk	Container				
Anacortes	Seaport	None	SR20		✓	✓	✓		Petcoke, sulfur	Mexico, India, East Asia	<ul style="list-style-type: none"> • Deepwater dock • Barge dock • Laydown space 	<ul style="list-style-type: none"> • Pump-out • Electrification • Improved road access • Warehouse
Bellingham	Seaport	Class I: BNSF (planned)	I-5		(✓)	(✓)	(✓)	(✓)	none currently	n/a	<ul style="list-style-type: none"> • Cargo dock • Barge dock • Warehousing • Laydown space 	<ul style="list-style-type: none"> • Marine Terminal • Modernization • Dredging • Connection to BNSF Electrification
Benton	Riverport	Shortline: Southern Connection	I-82 I-182 SR240 SR224			✓			Decommissioned nuclear materials	U.S. Navy	<ul style="list-style-type: none"> • Barge terminal • Container crane 	<ul style="list-style-type: none"> • Rail extension • Intermodal facility/Inland port
Chehalis	No water access	Class I: BNSF, UP	I-5 SR6 SR12		(✓)				none currently	n/a	6 industrial inland properties	<ul style="list-style-type: none"> • Southwest Washington Grain Project • Public grain storage and transloading facility

PORT	TYPE	SURFACE ACCESS		CARGO TYPE (✓) = PLANNED					MAJOR COMMODITIES	MAJOR MARKETS	CARGO INFRASTRUCTURE	PLANNED CARGO PROJECTS
		Rail	Highway	Liquid bulk	Dry bulk	Break bulk	Neo-bulk	Container				
Everett	Seaport	Class I: BNSF	I-5 US2 SR529		✓	✓	✓	✓	Cement, project cargo, aerospace components	Japan, South Korea, China	<ul style="list-style-type: none"> • 2 marine terminals with 8 berths • Barge terminal • Satellite intermodal facility 	<ul style="list-style-type: none"> • Hewitt Terminal pier 3 electrification • South Terminal clean up • Pacific Terminal improvements
Grays Harbor	Seaport	Class I: BNSF, UP via PSAP	I-5, US 101 US 12		✓	✓	✓		Seafood, forest products, autos, liquid bulk	Southeast Asia, South Korea	<ul style="list-style-type: none"> • 4 deep water terminals with 5 berths • Warehousing • Rail loops • Paved cargo yard 	<ul style="list-style-type: none"> • Terminal 4 Expansion & Redevelopment • Wood Pellet Manufacturing & Export Facility
Kalama	Riverport	Class I: BNSF, UP, Northern Pacific	I-5	✓	✓	✓			Grain, wheat, soybeans, corn, sorghum, steel, logs, chemicals	China, Japan, South Korea, rest of East Asia	<ul style="list-style-type: none"> • 5 marine terminals • 2 grain elevators • Cargo dock • Barge dock • Liquid bulk facility • Warehousing 	Expansion of grain terminal rail infrastructure
Klickitat	Riverport	Class I: BNSF, UP	I-84				✓		Logs	Domestic	<ul style="list-style-type: none"> • Barge marine terminal • Log yard 	Paving for additional storage capacity, stormwater management investments

PORT	TYPE	SURFACE ACCESS		CARGO TYPE (✓) = PLANNED					MAJOR COMMODITIES	MAJOR MARKETS	CARGO INFRASTRUCTURE	PLANNED CARGO PROJECTS
		Rail	Highway	Liquid bulk	Dry bulk	Break bulk	Neo-bulk	Container				
Longview	Riverport	Class I: BNSF, UP	I-5	✓	✓	✓	✓		Grain, petcoke, potash, project cargo (oversized industrial), steel	China, Japan, Korea, Philippines	<ul style="list-style-type: none"> • Three marine terminals with 9 berths • Ro-Ro • Portable conveyor • Cranes, stackers, lifts • Industrial Rail Corridor 	<ul style="list-style-type: none"> • Berth 4 Revitalization • Industrial Rail Corridor Expansion • Rail overpass
NWSA, Seattle, Tacoma	Seaport	Class I: BNSF, UP Shortline: Tacoma Rail	I-5 I-90 SR18 SR167	✓	✓	✓	✓	✓	Furniture, machinery, hay, frozen potato products, grains, autos, various containerized consumer goods	China, Japan, Vietnam, South Korea, Taiwan, Alaska, Hawaii	<ul style="list-style-type: none"> • 10 container terminals and 47 cranes • 5 non-container terminals for breakbulk cargo and automobiles • Bulk terminals • On-dock rail and nearby intermodal yards 	<ul style="list-style-type: none"> • T91 cold storage facilities • Rail and intermodal facility expansion • Waterfront electrification program • Industrial stormwater and air quality mitigation
Olympia	Seaport	Shortline to BNSF; UP Class I	I-5		(✓)	✓			Logs, Paper Pulp	China, Japan, South Korea	<ul style="list-style-type: none"> • 70k sqft Warehouse on berth • 3 berths • Logyard • Cargo Yard • Rail Access 	Second Warehouse 70,000 sq. ft. on Berth 1

PORT	TYPE	SURFACE ACCESS		CARGO TYPE (✓) = PLANNED					MAJOR COMMODITIES	MAJOR MARKETS	CARGO INFRASTRUCTURE	PLANNED CARGO PROJECTS
		Rail	Highway	Liquid bulk	Dry bulk	Break bulk	Neo-bulk	Container				
Pasco	Riverport	Class I: BNSF	I-182 US12 US395		✓			✓	Wood chips, grains, frozen foods	Domestic	<ul style="list-style-type: none"> • Barge terminal • Rail served industrial center • Large scale food processing facility • Dairy processing facility 	<ul style="list-style-type: none"> • Warehousing and industrial park • Waterfront expansion area for open storage and industrial use • Darigold Processing Facility • Barge terminal improvements
Port Angeles	Seaport	None	US101 SR117		✓	✓	✓		Logs, wood chips	China, Japan, Domestic	<ul style="list-style-type: none"> • 6 marine cargo terminals • Logyard • IHTF • Cargo surge area • Warehousing 	<ul style="list-style-type: none"> • Marine Terminal (T1/T3) rehabilitation • Industrial property acquisition • Marine Terminal 1 • Warehouse rehabilitation
Vancouver	Riverport	Class I: BNSF, UP	US101 SR117	✓	✓	✓	✓		Soy, wheat, mineral & liquid bulk, vehicles, soda ash, project cargo	Southeast Asia, China	<ul style="list-style-type: none"> • 5 marine terminals with 17 berths • Grain elevator • On-dock rail • Auto processing facility • Heavy-lift dock • Laydown storage 	Terminal 5 development (early stages)

PORT	TYPE	SURFACE ACCESS		CARGO TYPE (✓) = PLANNED					MAJOR COMMODITIES	MAJOR MARKETS	CARGO INFRASTRUCTURE	PLANNED CARGO PROJECTS
		Rail	Highway	Liquid bulk	Dry bulk	Break bulk	Neo-bulk	Container				
Walla Walla	Riverport	Class I: BNSF, UP	US12	✓	✓	✓	✓	✓	Grain, liquid animal feed, apples, onions, hay, potatoes, alfalfa seed	Domestic, Asia	<ul style="list-style-type: none"> • 2 grain storage complexes • 3 barge slips • 2 cargo docks • Stackyard • Warehousing 	<ul style="list-style-type: none"> • Industrial water system upgrades • Expansion of intermodal rail
Whitman County	Riverport	Short lines: PCC Railroad Camas Prairie Railroad	SR194 SR193 SR127	✓	✓		✓		Grain, logs, wood chips, fertilizer	Domestic	<ul style="list-style-type: none"> • 3 barge facilities with grain elevators • Log yard • Industrial Rail 	None
Woodland	Riverport	Class I: BNSF, UP	I-5		(✓)				None currently	n/a	n/a	Barge facility

PORT OPPORTUNITIES AND CHALLENGES

**Inland ports and
logistics cluster
strategy**

**Port
electrification
and shore power**

Offshore wind

**M5 and M84
marine corridors
and short sea
shipping**

Power capacity

**Environmental
compliance**

**Industrial lands
preservation**

**Climate and
environmental
factors**

Dam removal

PORT OPPORTUNITIES AND CHALLENGES (CONT'D)

Transportation Bottlenecks

- **Grade separations**
- **Highway congestion**
- **I-5 Nisqually River viaduct**
- **Legacy projects**
- **Extending Tacoma Rail arrival and departure tracks**
- **Ports of Benton and Walla Walla: truck turn times**
- **Port of Longview: berths for bulk commodities**
- **Rail and intermodal bottlenecks**
- **High, Wide, and Heavy cargo**
- **Lower Columbia maintenance dredging**

KEY TAKEAWAYS

NEW TARIFFS AND GLOBAL UNCERTAINTY

- Elevated and retaliatory tariffs creating uncertainty for businesses and ports.
- Trade war causing increase in blank sailings and pressures on inland logistics infrastructure.
- Uncertainty around tariffs may cause economic downturn, further impacting cargo volumes.
- New fees on carriers using Chinese-built vessels will increase shipping industry costs.

RECENT DECLINE IN OVERALL TRADE VOLUMES

- Total volumes down 34% 2018-2023.
- International containers (loaded and empty) through NWSA up 17% in 2024; still 16% below historic peak in 2018.
- Driven by declines in trade with China.
 - 41% decrease in TEUs 2018-2023 (Trade War).

EAST ASIA: DOMINANT MARKET FOR WASHINGTON STATE PORTS

- Downturn in trade with East Asia can have profound impact on overall trade volumes.

DOMESTIC TRADE VOLUMES DOWN SINCE 2013

- Much of decline due to crude oil.
- Containerized trade (two-way): up from 700,000 TEUs in 2017 to 990,000 TEUs in 2022.

KEY TAKEAWAYS (CONT'D)

BARGE PLAYS SIGNIFICANT ROLE ON COLUMBIA SNAKE RIVER SYSTEM

- 21% of two-way international dry bulk shipments in CSRS.
- 32% of neo-bulk shipments in CSRS.

INTERNATIONAL TRADE VOLUMES PROJECTED TO GROW BETWEEN 2023 AND 2045, DEPENDING ON MODE/COMMODITY

- Annual oil seed exports: projected to grow by 5.9 million metric tons by 2045 (39%).
- Mineral fuels: projected to grow by 5.7 million metric tons.
- Cereals (primarily wheat): projected to grow by 5.6 million metric tons.
- Container volumes: projected to grow more than 2% annually.
- RoRo trade: projected to grow 3% annually.

A VARIETY OF FACTORS COULD IMPACT LONG-TERM PROJECTIONS

- Shifting supply chains affecting shipping lanes.
- Global downturns in trade and economic growth.
- Structural changes in the shipping industry.
- Increased competition from other ports.

RESOURCES

Deliverables

Marine Cargo Forecast

Port Profiles

Technical Appendix

Available at

www.washingtonports.org/2025-marine-cargo-forecast

Questions:

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