

# Role of transshipment infrastructure towards Net Zero economy

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## LONG TERM APRROACH: CLIMATE-NEUTRALITY BY 2050



#### ROADMAP TO CLIMATE NEUTRALITY



Our overarching environmental commitment is to improve energy and operational efficiency, reducing CO2 emissions, and transitioning towards low-carbon product portfolio to achieve climate neutrality.

#### PATHWAY TO INTEGRATE ESG INTO KN ENERGIES BUSINESS

#### SETTING THE FOUNDATION

- Improve value proposition for liquid products transshipment.
- Scale up global LNG terminals business.
- Set the foundations for new energy businesses.

#### **COMMERCIALIZING NEW ENERGY**

- Capitalize on hydrogen carriers.
- Carbon transshipment.
- Maintain business and improve operations.

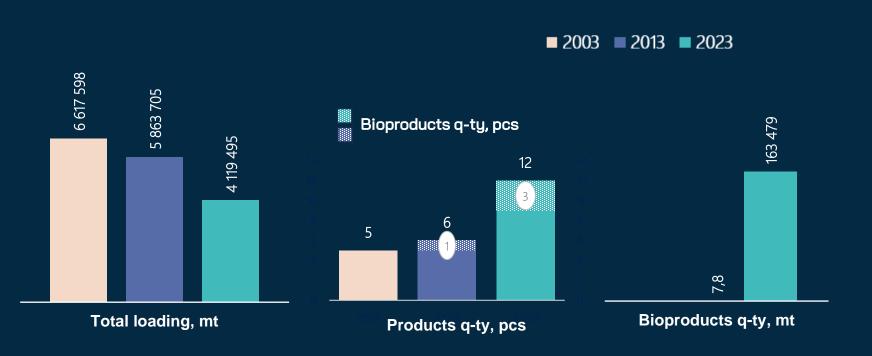
# EXPANDING THE FOOTPRINT

Expand footprint of renewables.





## CASE: TRENDS OF PRODUCTS IN KLAIPEDA LIQUID ENERGY TERMINAL



Biodiesel				13 Jul 2023		
Region	Product	Delivery	Publ.	USD/mt	Prev.	
West-EU	FAME 0	FOB ARA	12 Jul	1,209	3.07%	
West-EU	FAME B10	FOB ARA	12 Jul	635	0.41%	
West-EU	FAME B20	FOB ARA	12 Jul	687	0.32%	
West-EU	FAME B30	FOB ARA	12 Jul	739	0.25%	
West-EU	FAME B50	FOB ARA	12 Jul	843	0.12%	
West-EU	FAME B100	FOB ARA	12 Jul	1,083	-0.09%	
West-EU	HVO (Tallow)	FOB ARA	12 Jul	2,009	0.27%	
West-EU	HVO (UCO)	FOB ARA	12 Jul	2,125	0.26%	
West-EU	HVO (Vegetable)	FOB ARA	12 Jul	1,907	0.29%	
West-EU	POME	CIF ARA	12 Jul	860	0%	
West-EU	RME	FOB ARA	12 Jul	1,210	1.62%	
China	UCO 5% FFA	FOB China	12 Jul	885	0%	
West-EU	UCO 5% FFA	CIF Rotterdam, Flexitanks	12 Jul	880	-12.24%	
West-EU	UCO 5% FFA	CIF Rotterdam, Isotanks	12 Jul	915	-8.75%	
West-EU	UCO 5% FFA	EXW Netherlands	12 Jul	1,061	5.80%	
West-EU	UCOME	FOB ARA	12 Jul	1,428	1.54%	
Exchange rate used EUR/USD: 1.1146 Previous: 2.75% WOW						

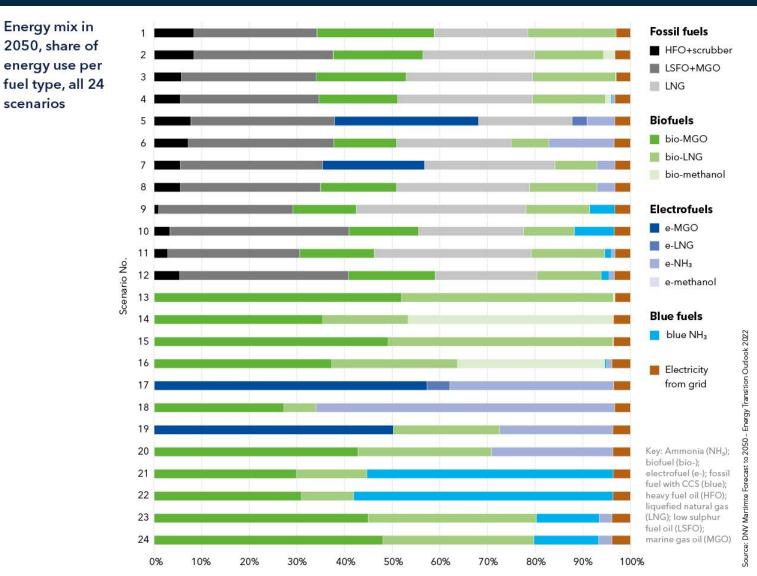
- > Due to energy transition (decarbonatization) number of products handled in terminal is increasing which affects logistics and has influence on total volume.
- > This means that batches of products are getting smaller but more diverse.
- > This puts pressure on the logistics chains of terminals to become more agile or to enhance their flexibility.





#### WHAT TO BET ON?

- On the journey towards a carbon-neutral economy by 2050, various energy sources may be employed as disruptive technologies emerge, influencing the total cost of ownership along the value chain.
- E.g. DNV for martitime sector alone forecasts 24 different scenarios for the uptake for each fuel type in 2050.
- It is expressed by the range from minimum to maximum across all scenarios within the pathways IMO ambitions and Decarbonization by 2050 (DC2050). (Figure on the right)

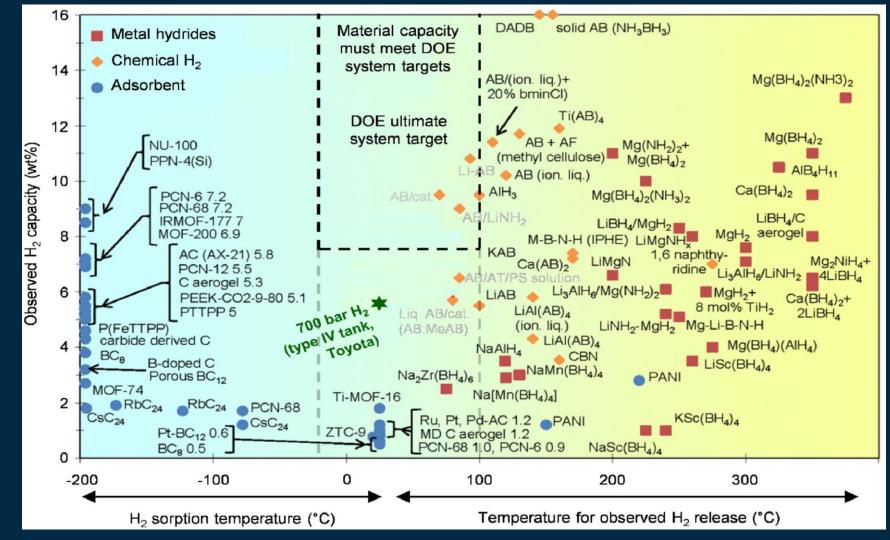


#### **EXAMPLE OF VARIETY OF HYDROGEN COMPOUNDS FOR STORAGE**



- Materials in terms of hydrogen gravimetric capacity as a function of hydrogen release temperature.
- These materials are still facing challenges of cost, reproducibility, and recyclability along with high temperature desorption.
- Despite all these years of explorations material with desired thermodynamic, kinetic, and physical properties combination is missing.

Metal hydrides, chemical hydrogen, and adsorbents temperature of operation with respect to the hydrogen storage capacity



# INFLUENCE OF INFRASTRUCTURE ON COMMODITY PRICE







#### **FINAL NOTES**

- As we transition towards a net-zero economy, the variety of products is increasing, while volumes per product batch – decreasing. Therefore, huge investments in new infrastructure are required.
- Lesson learnt is that development of new commodities value chain requires simultaneous investments in production, transshipment and storage, as well as end-use.
- The best practice is to start with partnership agreements of MoU's and develop coordinated FID's to establish new value chains.



# THANK YOU!