GALIA DAY 2025

Decarbonised transport

Adreas CHOCHOD
Purchasing & Sustainability Business Director
SNECI

Titaina GUEGUEN
CO2 GHG referent for transport and logistics
STELLANTIS

François GRUAU
Group Logistics Engineering & Transport Director
VALEO

Laurent ROSIN
Logistics Sustainability Developer & French Green Corridor Project Manager
VOLVO GROUP

Decarbonised Transport

Freight transport decarbonisation roadmap:

a road towards carbon net-zero?

Green & Efficient Transport workgroup

A strategic review of freight transport decarbonisation

- **Objectives**
  - Monitor the implementation and impacts of "**green transport**" **solutions**. Which ones will emerge?
  - **Anticipate the consequences for the automotive supply chain** (e.g. Network design, lead times, filling rates, infrastructure, costs, etc…).
- **Participation**

AGRATI World Fastener Solutions
CEVA LOGISTICS
FORVIA Inspiring mobility
MICHELIN
OPmobility
STELLANTIS
SNECI
Valeo
VOLVO

Green & Efficient Transport

Working documents

GALIA Green & Efficient Transport workgroup

Reducing Transport CO^2

Draft V0

	Description	Road	Sea	Fluvial	Rail	Air	% CO^2 reduction (W2W)	ZE (T2W)	Pros.	Cons.	Market Readiness	Existing pilots?	Infrastructure	Costs impact (TCO)	Use case	Lead Time impact	Logistic impact	Additional comments
Technology and efficiency decarbonisation levers																		
	trailers...						combination of improvements											
Ship efficiency means	Ship updates/retrofit (Multiple solutions are used to improve consumption and CO^2 efficiency)		x				5% improvement every 5 years (Potential 30%) e.g. smart hull coating, propeller design, on-shore electric power supply...		Pressure on fleets and shipyards to improve ship consumption (And CO^2 emissions)	Not easy to obtain detail transparency			Port power supply, biofuel supply...	Investments for shipowners: - Fleet renewal with more efficient ships - Retrofit operations				See: Efficiency measures chart
Aviation efficiency m																		
Wind assisted propu																		
Large capacity truck																		

- Technology and efficiency decarbonisation levers → Multi criteria review

Theme	Scope	Regulation	Links	Obligations concerning transportation	Who	Next milestone	Logistic impact	Cost impact	Comments
Truck emissions (EU)	Road	EU 2019/1242, amended 14 May 2024 Vehicle Energy Consumption calculation TOol (VECTO)	Reducing CO_2 emissions from heavy-duty vehicles - European Commission	Emissions concerning new registrations of heavy duty vehicles	Truck manufacturers	2030: - 45% compared to 2019		Cost impact for truck manufacturers: - 2025: 4200 € per exceeding g/CO^2 - 2030: 6800 €	Regulation for new vehicles, not for existing fleets.
									Regulation for new vehicles, not for existing fleets.
									Mass of all T2W emissions for CO2, CH4 and N2O. Fuels burned and leaks.
			transport https://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX:32023R2776 https://mer.gouv.fr/marche-carbone-europeen-ets-transport-maritime https://www.ecologie.gouv.fr/politiques-publiques/marches-du-carbone-sege-ue			From 2026, 100 % of emissions are converted in the quotas (including Methane and nitrous oxide)			

- Regulations → Review those really impacting transport activities

KEY COMPANY PROCESSES	Process owner	Goal of the process	impact on the transport demand	Opportunities	Difficulties	Rating: - Easy to improve - Transport CO^2 Impact	Input data of the process (Process Activity data)
RFQ for the parts (e.g. supplier sourcing, at supplier plant level)	Project + Purchasing	- Evaluate supplier tender (based on multiple criteria) - Decide future business - Launch project development with the supplier	- Supplier location will impact transport carbon emissions - Packaging solution may impact filling rates and transport needs (See Packaging)	**- We should have a systematic calculation of the transport CO^2 between the Supplier and the Customer** **- Promote a Total Landed CO^2 approach, from cradle to customer premisses (e.g. including in case of customer responsibility of the**	- Hierarchy between the evaluation criteria (Cost, quality, CO^2...) - Transport footprint perceived as low impact and not ready to integrate - Make sure Transport CO^2 is exchanged between partners - Make sure we don't get lost in too much	**- Easy to improve** **- High Transport CO^2 impact**	- t.km (by means of transport) - transport Filling rates
					specification to be followed - redesign of the parts (if detected too late) - how to detect critical part in the project planning?	**limited scope of parts**	% empty space in container

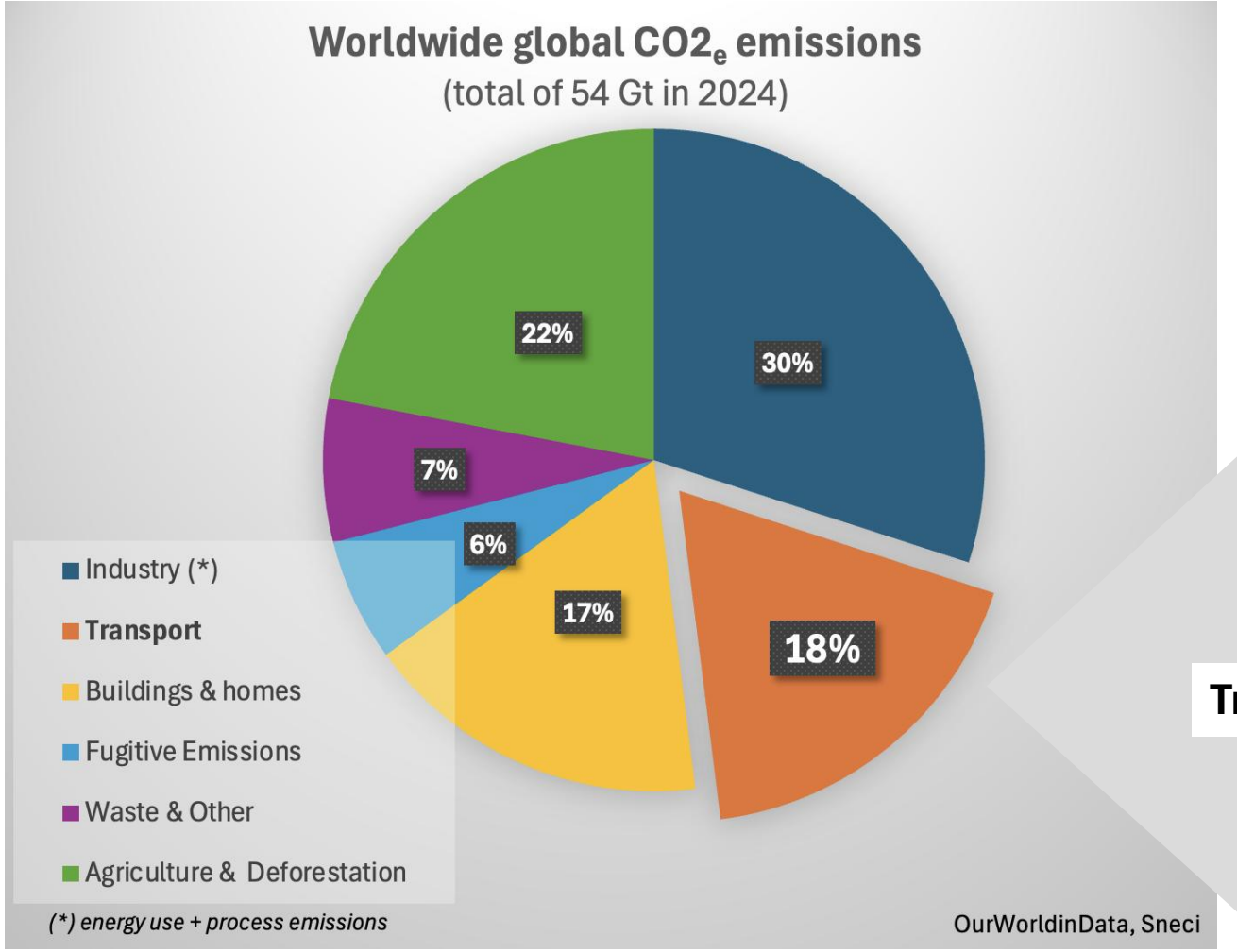
- Company methods and processes → To reduce transport needs

Decarbonised Transport

About freight transport carbon emissions

Freight transport decarbonisation roadmap

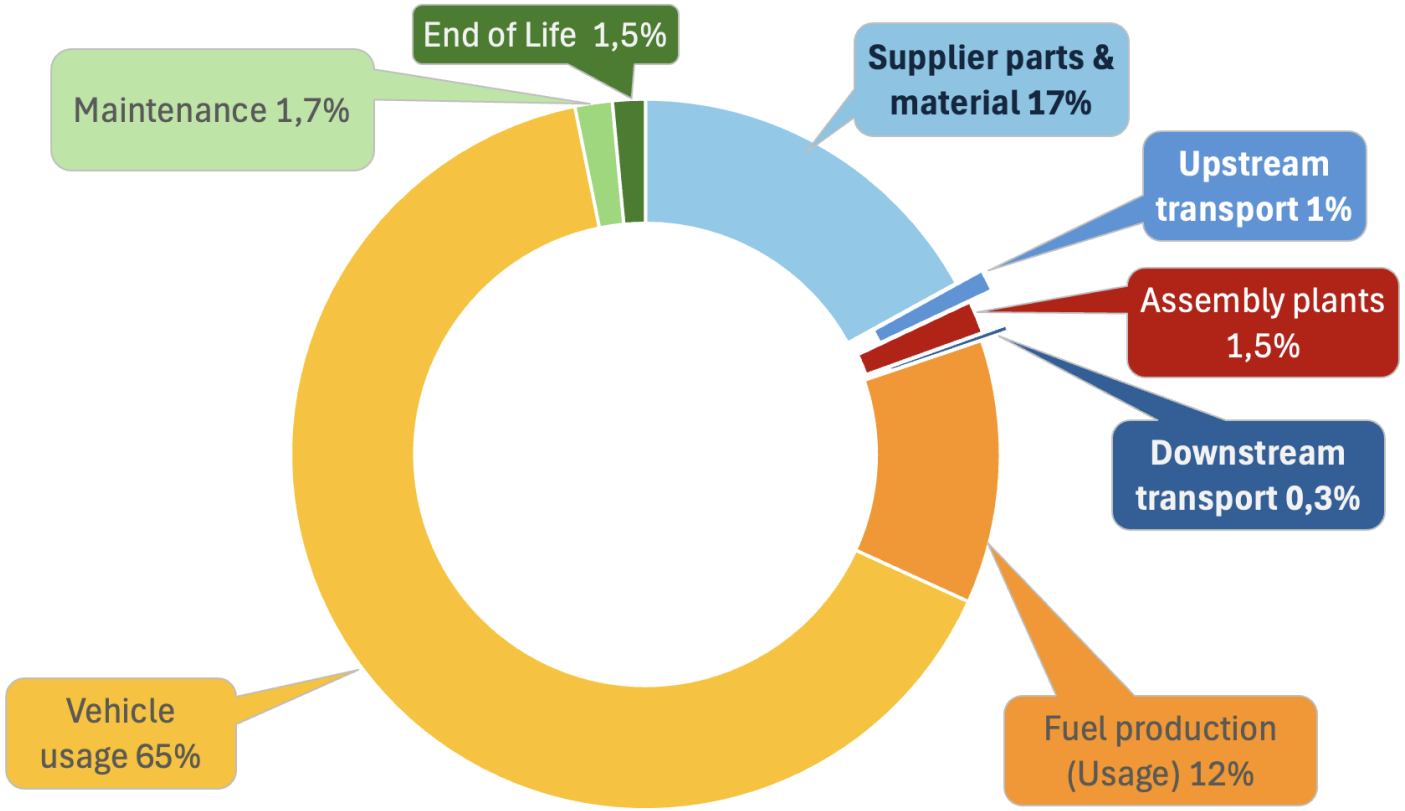
What does freight transport carbon emissions represent?



- ✓ **Transport** represents 18% of the total $CO2_e$ emissions worldwide, and even 30% in Europe
- ✓ **45%** of transport emissions are for **Freight**

Freight transport decarbonisation roadmap

What about in the automotive industry?



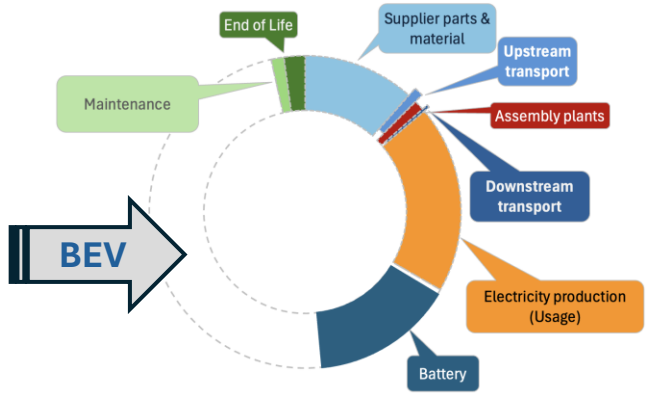
CO2 Complete Life Cycle

ICE vehicle (10 years – 150 000 km)

- ✓ **Usage** approx. 80% is main CO_2 source,
- ✓ **Parts & vehicle production** 19% (only 1,5% for assembly),
- ✓ **Transport 2-3%,** partly in supplier parts,

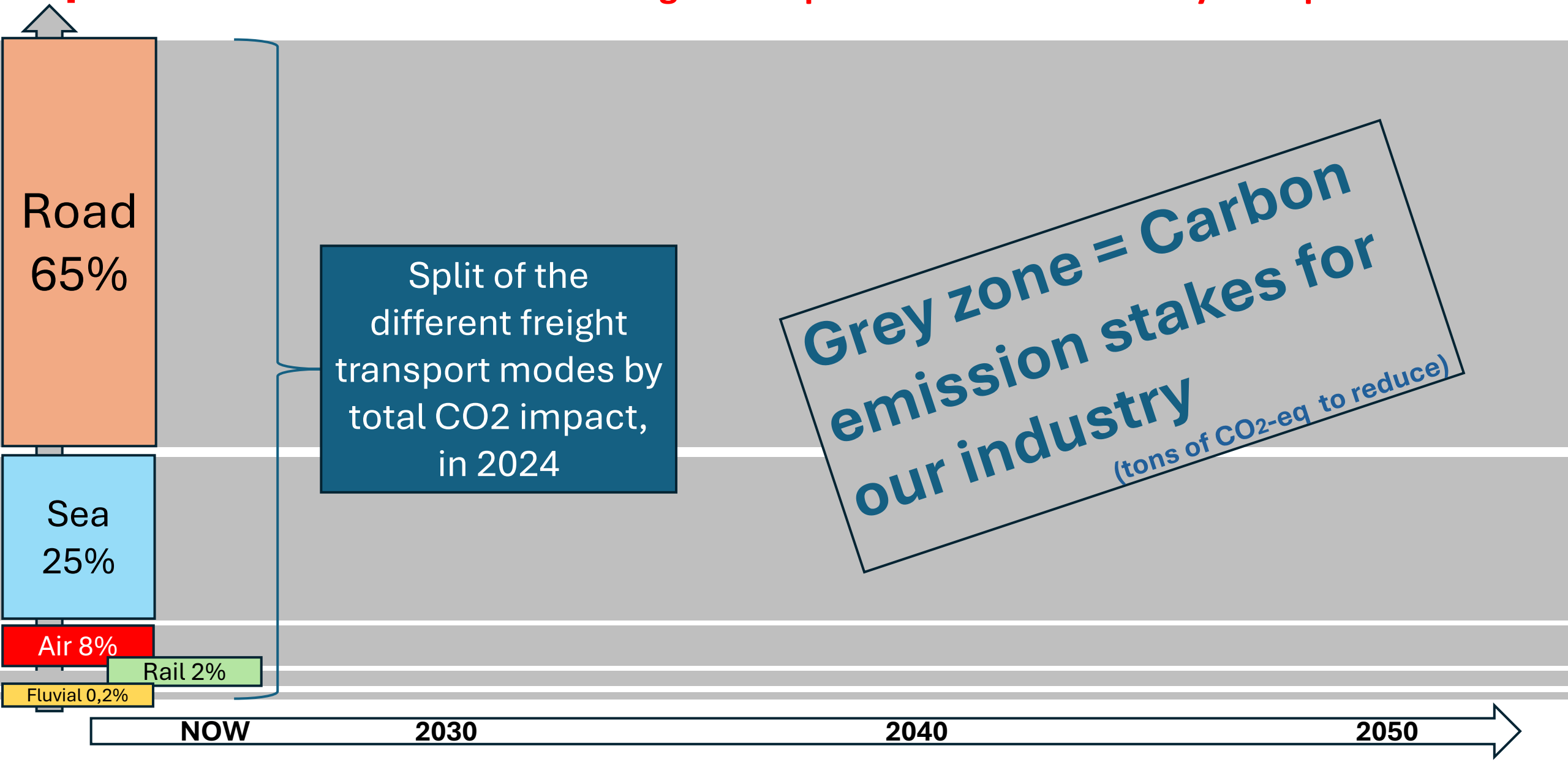
👉 **Transport % risk more than double,** with BEV switch and "green" production plans

CO2 Complete Life Cycle, future trend



Freight transport decarbonisation roadmap

What is the breakdown of freight transport carbon emissions by transport modes?



Decarbonised Transport

Regulations impacting carbon emission of the transport sector

Freight transport decarbonisation roadmap

Main impacting regulations (extract)

Transport Carbon emission stakes for our industry

Road 65%

Sea 25%

Air 8%

Rail 2%

Fluvial 0,2%

EU "Tolls" for use of road infrastructures Directive

Vehicle Energy Consumption calculation TOol (VECTO)

→ Truck OEMs (New trucks)

- 2030: - 43% compared to 2019
- 2040: - 90%

National carbon taxes

National Trading Systems

Etc., etc.

European Trading System (ETS2)

→ Fuel producers (Freight transport companies)

2027: CO_2 quotas include road transport

2030: - 42% compared to 2005

EU Renewable Energy Directive

→ Fuel and energy providers

In the transport sector:

- 2030: 29% of renewable energy
- 2030: 5,5% of non-food feedstock biofuel and biogas

European Trading System (ETS)

→ Maritime companies

- 2024: CO_2 quotas for Maritime Transport
- 2026: 100% emissions

FuelEU Maritime Regulation

→Maritime companies, ports, fuel providers

- 2025: - 2% compared to 2020 (Fuel carbon intensity)
- 2030: - 6% and onshore electric power supply in ports
- 2050: - 80%

IMO Net-Zero Framework

→ International maritime companies

- 2028: will apply if validated???
- Annual Greenhouse gas Fuel Intensity (GFI) reductions

NOW 2030 2040 2050

Decarbonised Transport

Long haul BEV trucks in operation

Laurent ROSIN - VOLVO GROUP

French Green Corridor
Battery electric truck

Laurent Rosin

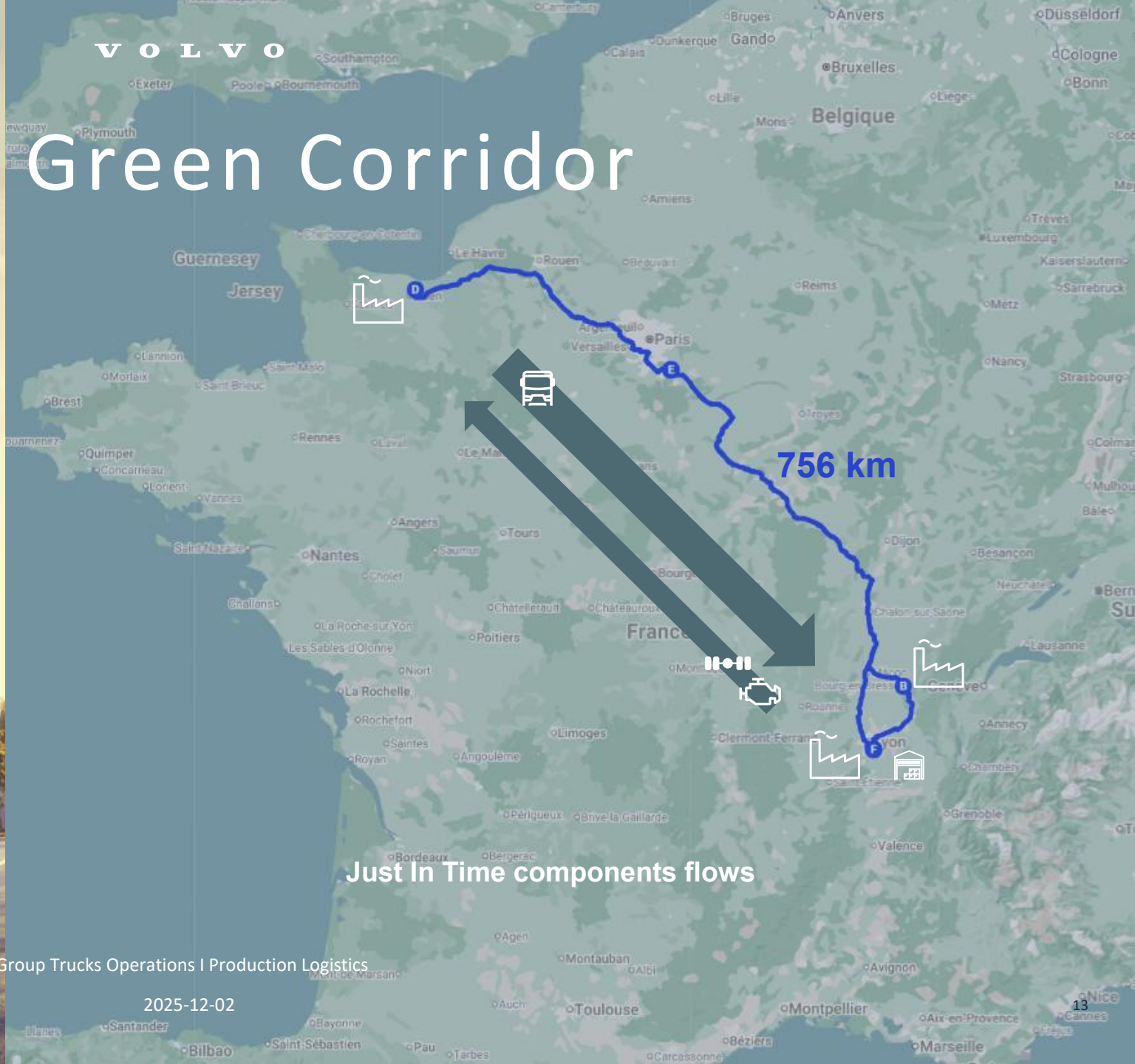
Group Trucks Operations I Production Logistics I Sustainability

2025-12-02

French Green Corridor

Renault Truck T E-Tech 4x2

300km range



VOLVO

Battery Electric Truck Corridor

Just in time components flow – France set up example

JIT flows

756 km to cover

Explore new logistic set ups to increase utilization and productivity

Work closely with carrier

Carrier Home depot high-power charging

North Loop: 11 trucks

Blainville

1 shift
261km round trip (x2)

Trailer + driver swap + home depot charge

809km
per truck/day

1 shift
548km round trip

Trailer swap and home depot charge

South Loop: 11 trucks

1 shift
480km round trip

Trailer + driver swap + home depot charge

704km
per truck/day

1 shift
224km round trip (x2)

Bourg en Bresse Venissieux

22 x Renault Trucks E Tech T 4x2 (300km range)

18h
Maximized tractor daily utilization

2869 CO_2t saved/year
=130 CO_2t saved per truck/year

Driver back home every day

Volvo Group
Group Trucks Operations I Production Logistics I Sustainability I Laurent Rosin

Flow electrification success factors for carriers & shippers

How to secure efficiency & competitiveness for **long distance** BEV contracted door to door services

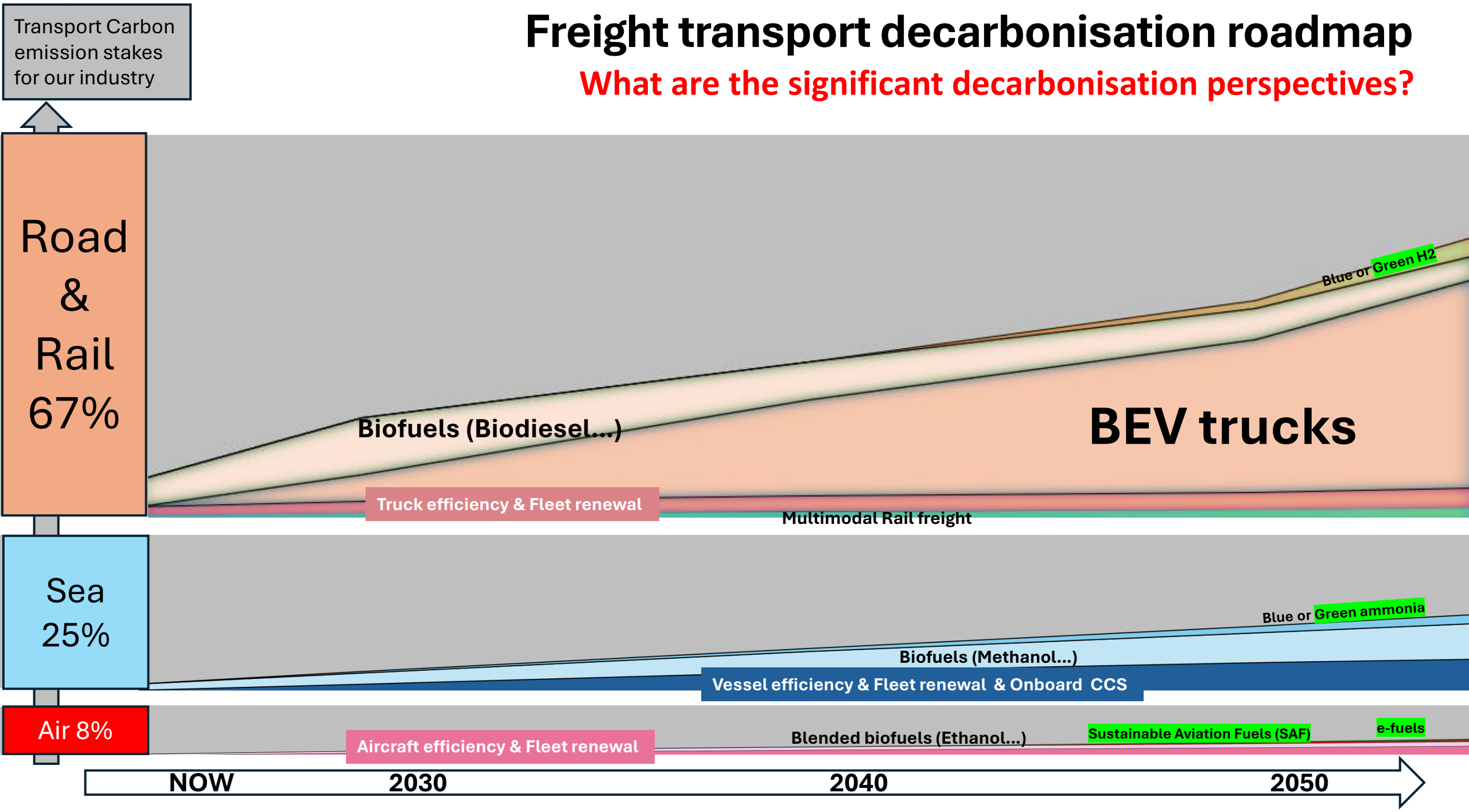
Key elements	Success factors	Obstacles	Negative impact on TCO
Electrification strategy	✔	-	X
Mindset	▪ Embrace BEV specificities ▪ Pro-active (carrier)	▪ BEV=ICE ▪ No pro-activeness	
Charging infrastructure	▪ Long term strategy ➔High speed chargers ▪ @ home depots with full access ▪ Identified public charging station as back-up	▪ Limited to the flow energy needs @lowest costs ▪ Standard use of public charging ▪ Charger access not secured	X
Flow set-up design	▪ BEV supply chain design competences ▪ BEV operation simulations tools ▪ Combined flows to balance round trip	▪ Same as ICE ▪ “Single” flow approach	X
Carrier’s network	▪ Home depots aligned with transport buyer & other customer’s flows	▪ Home depot not optimized for transport buyer nor other customers flows	X
Truck utilization	▪ Maximized with alternatives customers in case of unbalanced flow	▪ Dedicated to transport buyer flow ▪ No opportunities with other customers to minimize empty/unbalanced trips	X
Partner structure	▪ 1 partner ▪ Assets owner ▪ Supportive organization	▪ Several small/medium carrier(s) ▪ Subcontractor ▪ Limited resources	X
Flow orchestration & monitoring	▪ Standards & tools enabling interoperability ▪ Integrated TMS solution	▪ No or several solutions not connected	

Decarbonised Transport

Decarbonisation perspectives & challenges for freight transport

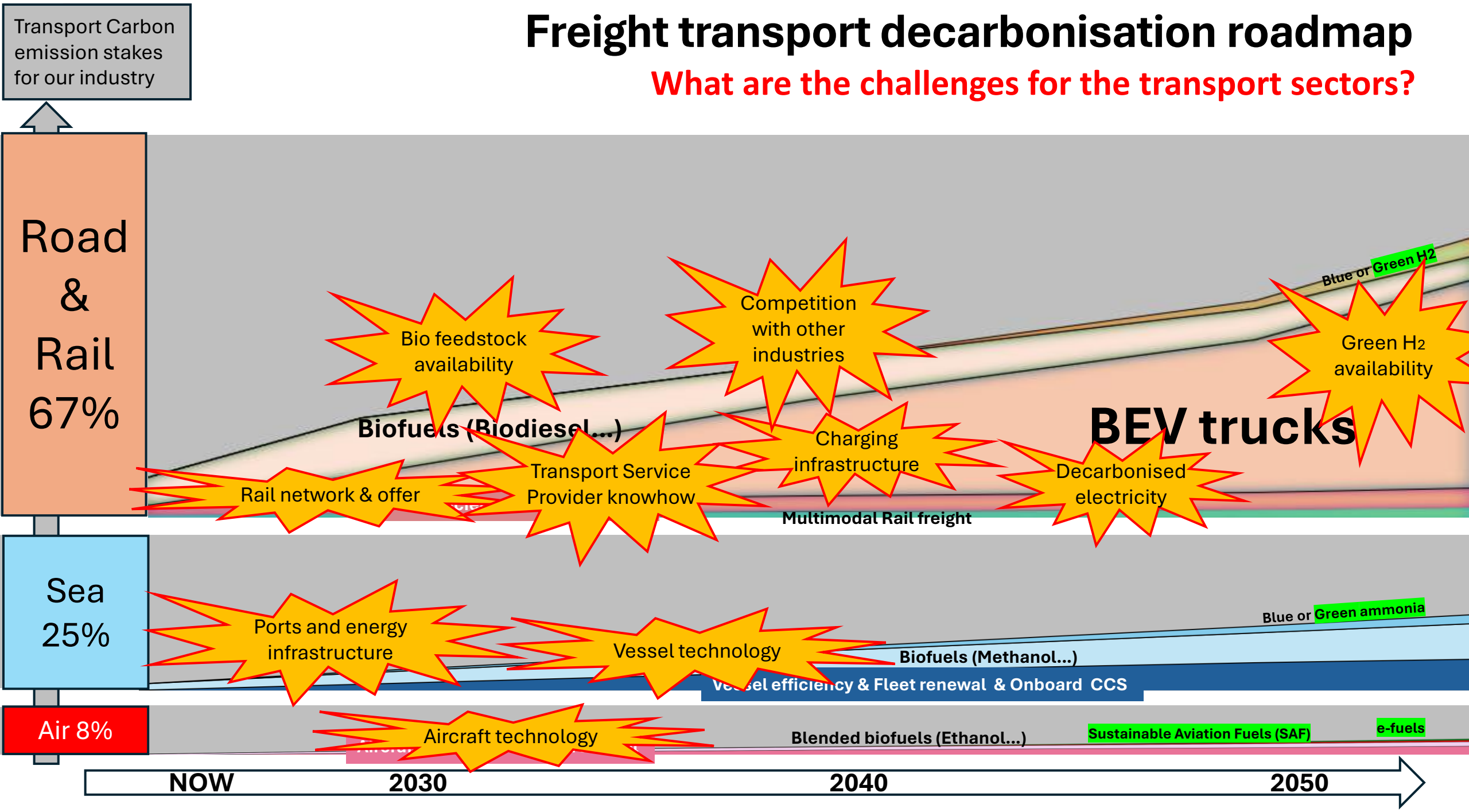
Freight transport decarbonisation roadmap

What are the significant decarbonisation perspectives?



Freight transport decarbonisation roadmap

What are the challenges for the transport sectors?



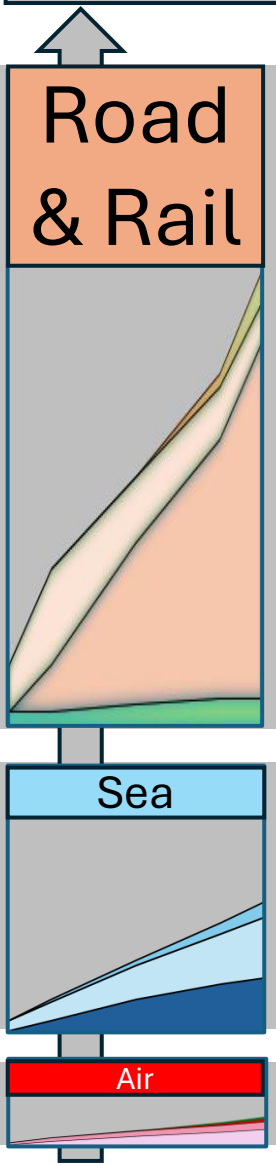
Decarbonised Transport

Challenges for the automotive supply chain?

Freight transport decarbonisation roadmap

What are the automotive supply chain challenges?

Transport Carbon emission stakes for our industry



Economic balance

Carbon offsetting risk

Improved partnerships with Transport Service Providers

Transport Network design

Dedicated investments for Transports

Robustness to disruptions

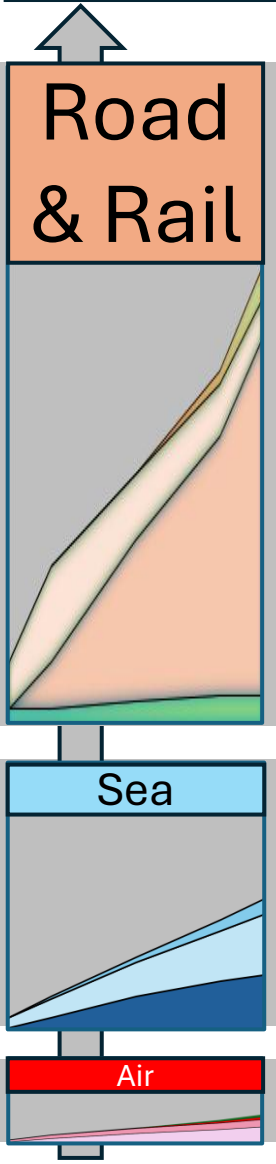
Avoid using airfreight as standard

NOW 2030 2040 2050

Freight transport decarbonisation roadmap

What are the key automotive supply chain actions?

Transport Carbon emission stakes for our industry



Economic balance

- Transport strategy
- Regulations' monitoring
- Fuel costing specialists

Improved partnerships with TSP

- Purchasing strategy
- Transport specifications
- Transport Service Provider evaluation

Transport network design

- Transport engineers (new competencies)
- Transport optimisation: distance, incoterms, filling rates, inventories…

Dedicated investments

- Invest in dedicated means
- Share infrastructures

Robustness to disruptions

- Backup-ready solutions
- Expedite freight reduction

Carbon offsetting

- Company carbon strategy
- Industrial and suppliers' footprint
- Total cost and carbon footprint ownership

Avoid using airfreight

- Reconsider as standard flow

- Decarbonisation Test & Trials
- Transport master data management and tools (TMS, carbon calculators)
- AI tools
- Transport frugality
- Internal company processes to reduce transport demand