

# Road freight decarbonization in Europe

## Are we ready to transition to zero-emission trucking?

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Webinar

# The study

# An ICCT-ECTA study

## About the European Clean Trucking Alliance (ECTA)



ECTA brings together more than 40 European players in the road transport of goods such as leading businesses, organisations and civil society associations that share a strong commitment to accelerate the EU's transition to zero-emissions trucks. They call for clear roadmaps and binding targets to decarbonise urban logistics and long-haul freight by 2050.

ECTA business members include major hauliers, logistics and consumer goods companies in Europe and beyond.

ECTA also counts some of the civil society organisations and associations with the strongest network of members and experience in transport and mobility at the European level.

For more information, please visit the ECTA website: <http://www.clean-trucking.eu/>



## Road freight decarbonization in Europe

READINESS OF THE EUROPEAN FLEETS FOR ZERO-EMISSION TRUCKING

Pierre-Louis Ragon and Felipe Rodriguez

# Consultation with members of ECTA

17

ECTA members  
replied to our survey

19

interviews were  
conducted with ECTA  
members and other  
large fleets

The surveyed organizations  
operate a total of

15,000

trucks (13,400 long-haul /  
1,600 delivery)

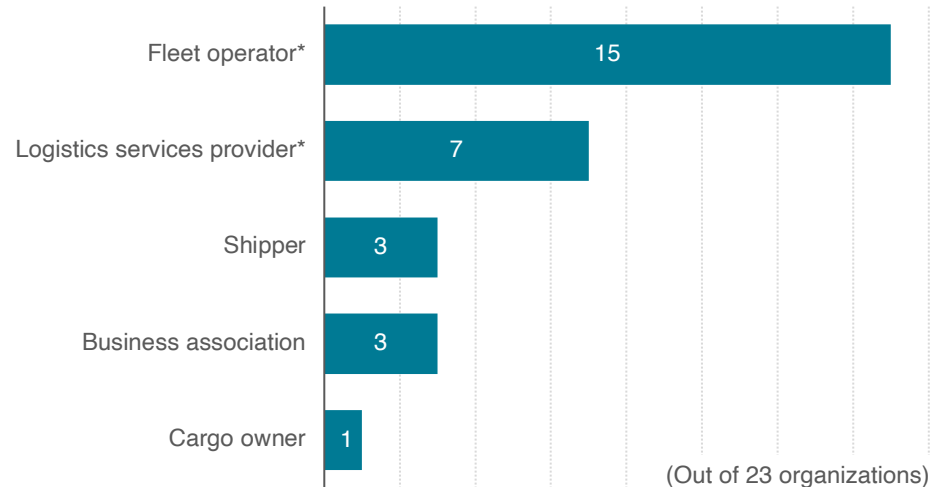
we tracked the public  
announcements of over

20

major European fleets

## Profile of the organizations surveyed and interviewed for this study

\*Some logistics providers only operate a fraction of their transport activities and subcontract the rest. They are therefore labeled as both fleet operators and logistics services providers.

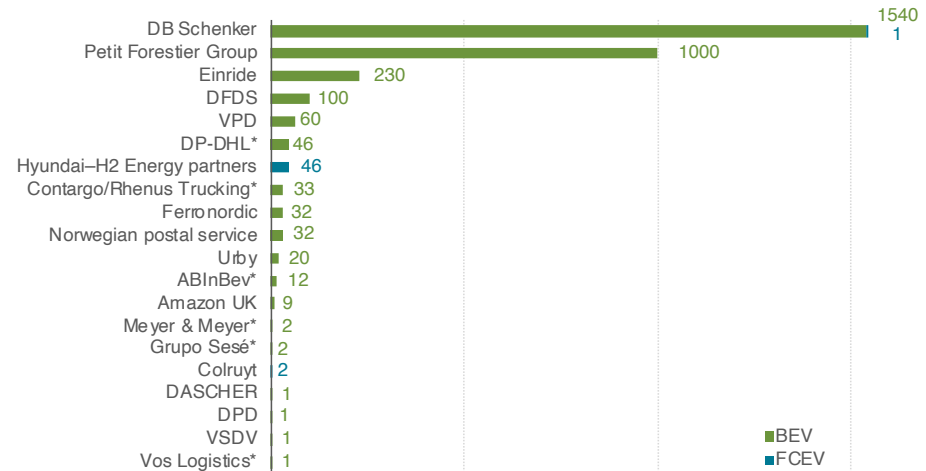


# Findings of the consultation

# The fleet of zero-emission trucks in Europe is limited to a few pilot models showcased by progressive fleet operators

- As of June 2022, we recorded 3,200 heavy trucks deployed or order by European Fleets
- The largest orders are for Volta Trucks vehicles, that have not yet entered series production
- Still, interviewees that have started to deploy a few pilot models described an overall positive experience
- Early movers benefit from first-rate support from OEMs and infrastructure providers

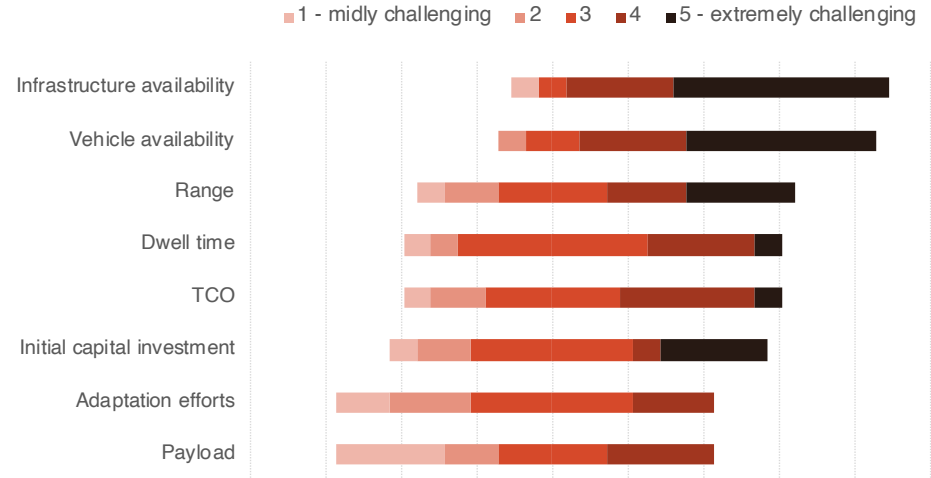
Zero-emission trucks deployed or ordered by European fleets as of June 2022 according to public announcements. \*Members of ECTA



# Financial, technical and operational challenges exist, but they are not as significant as the lack of vehicle and infrastructure availability

- The lack of infrastructure is widely seen as the most important barrier to transitioning to zero-emission trucking
- Vehicle availability is problematic, both in terms of production volumes and model diversity
- Operational constraints resulting from limited driving ranges is challenging, although it is recognized that technologies improve fast
- Financial challenges, both in terms of TCO and initial capital investment, are also central

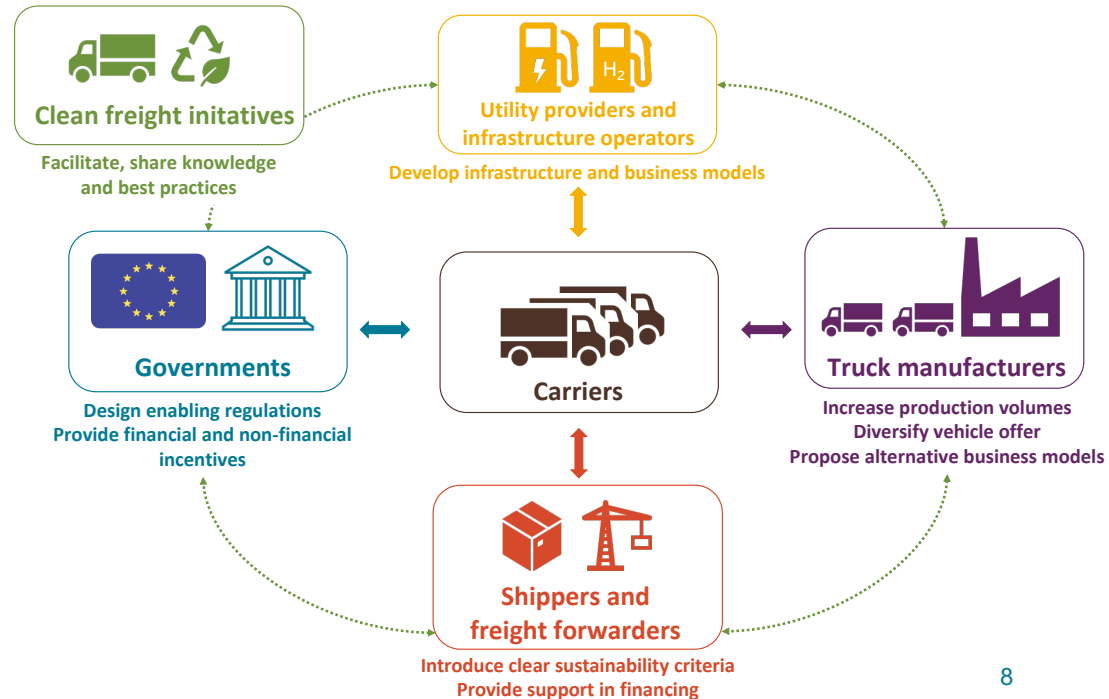
**Key barriers remain for the transition to zero-emission trucking**  
including technical, financial and operational barriers



# Road freight decarbonization relies on coordinated efforts from all stakeholders

- All interviewed organizations highlighted the need for support from, and collaboration with, other stakeholders of the value chain
- Carriers, shippers, truck OEMs, utilities and infrastructure providers, governments, and clean freight initiatives all have a role to play to facilitate the adoption of zero-emission trucks

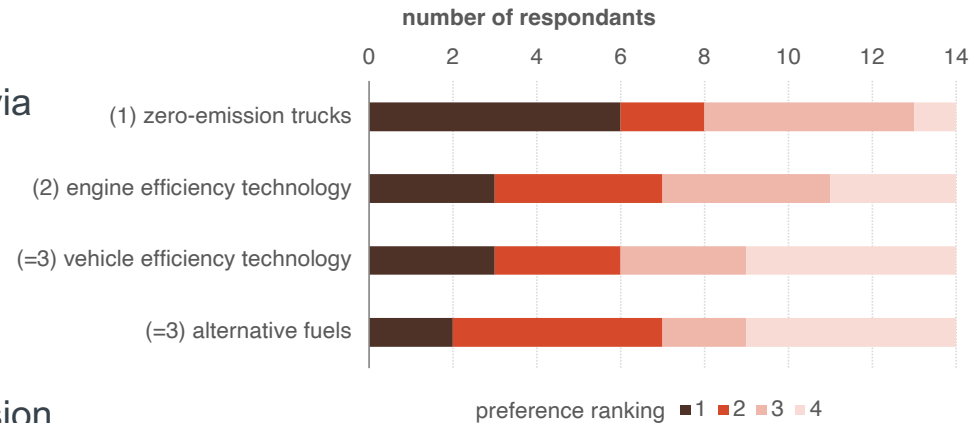
Role of different stakeholders in increasing fleets' demand for zero-emission trucks as aggregated from interviews with ECTA members





# A fast deployment of zero-emission trucks is the preferred approach to decarbonize the road-freight sector

- Most logistics operators rely on the Avoid-Shift-Improve principle to decarbonize operations
- Interviewees suggested that there is limited remaining potential to further avoid emissions via backhauling and route optimization
- Modal shift presents a lot of potential, but significant barriers exist (eg. rail capacity constraints)
- In terms of technology investments, zero-emission trucks are regarded as the preferred pathway

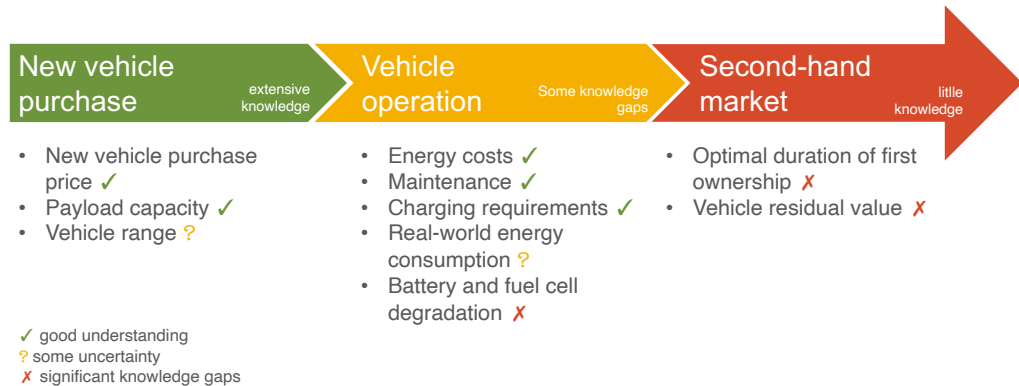


# Accelerating the deployment of zero-emission trucks in Europe

# 1. Continue to build knowledge on zero-emission trucking technology

- **Carriers:** run pilot programs
- **Truck manufacturers / infrastructure operators:** communicate technology developments, adapt to feedback from early movers
- **Shippers/freight forwarders:** share knowledge with transport partners
- **Electric utilities:** plan for necessary grid upgrades and adapt tariff structures
- **Clean freight initiatives:** contribute to knowledge sharing

**Knowledge gaps remain on zero-emission trucking technology**  
several uncertainty areas still need to be addressed



## 2. Increase access to charging and refueling infrastructure

- Early engagement is needed between fleets, infrastructure providers, utilities and governments to
  - Identify current and future infrastructure needs
  - Plan infrastructure roll out and grid upgrades where needed
- Policy support is needed in the form of
  - Binding targets (AFIR)
  - Incentives
  - Grid management

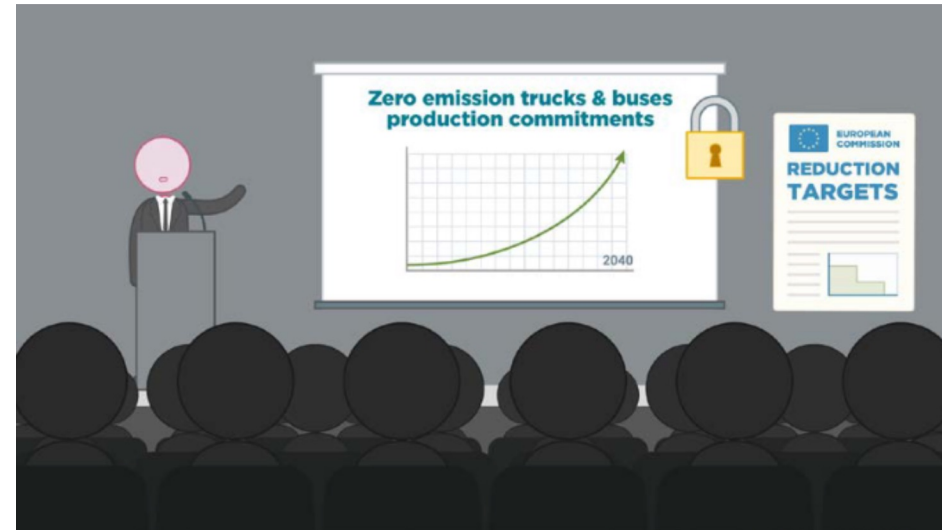
**Charging at the depot can cover a large portion of fleets' energy needs.**  
The rest should be covered by a dense network of publicly accessible chargers



# 3. Increase vehicle supply and model diversity through binding CO<sub>2</sub> regulation





- Stringent CO<sub>2</sub> regulation is crucial to increase vehicle supply
  - Clear decarbonization roadmap
  - OEM announcements → binding targets
- Manufacturers should leverage the existing technology to bring a greater diversity of models to the market.
- New players are seen as an opportunity

Stringent CO<sub>2</sub> standards are an opportunity to enshrine the ambitious of EU truck manufacturers into binding targets



# 4. Support diverse business models to help overcome the financial challenges associated with zero-emission trucking

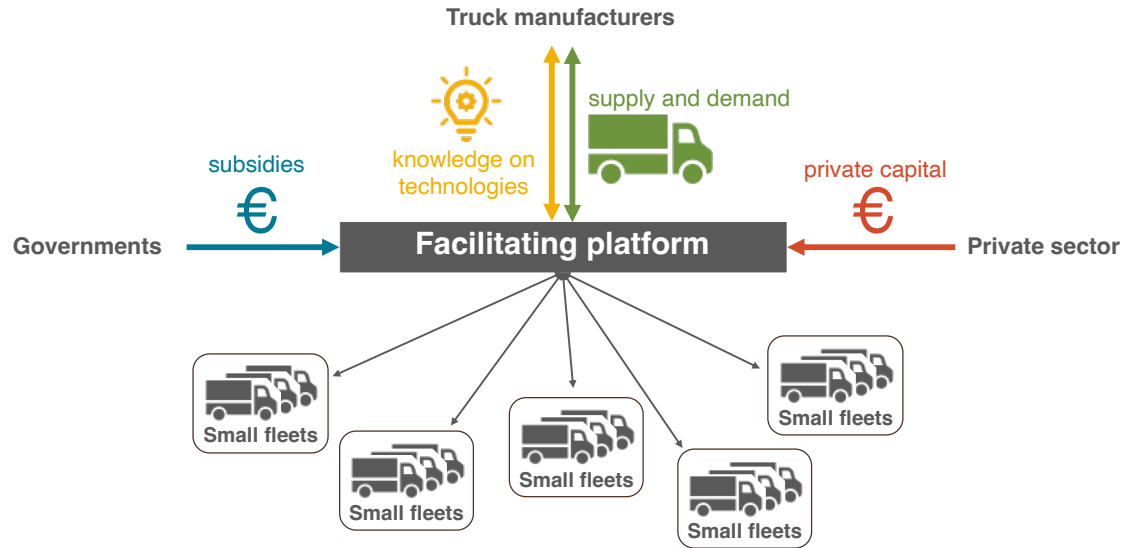
Alternatives to the traditional ownership model can help fleets benefit from the economic opportunities of zero-emission trucking  
Business models such as trucking-as-a-service were often mentioned as an interesting alternative

	 <b>Truck ownership</b>	 <b>Infrastructure ownership</b>	 <b>Operational expenses</b>	 <b>Payment</b>
<b>Traditional ownership</b>	Carrier	Carrier	Carrier	One-off upfront payment
<b>Leasing</b>	Carrier/manufacturer	Carrier	Carrier	Fixed monthly payment
<b>Trucking-as-a-service (TaaS)</b>	Service provider	Service provider	Carrier	Fixed monthly payment
<b>Pay as you drive</b>	Service provider	Service provider	Carrier	Monthly fee based on usage
<b>Charging-as-a-service (CaaS)</b>	Carrier	Service provider	Carrier	Fixed monthly payment

# 5. Facilitate the access of small fleets to the zero-emission truck market

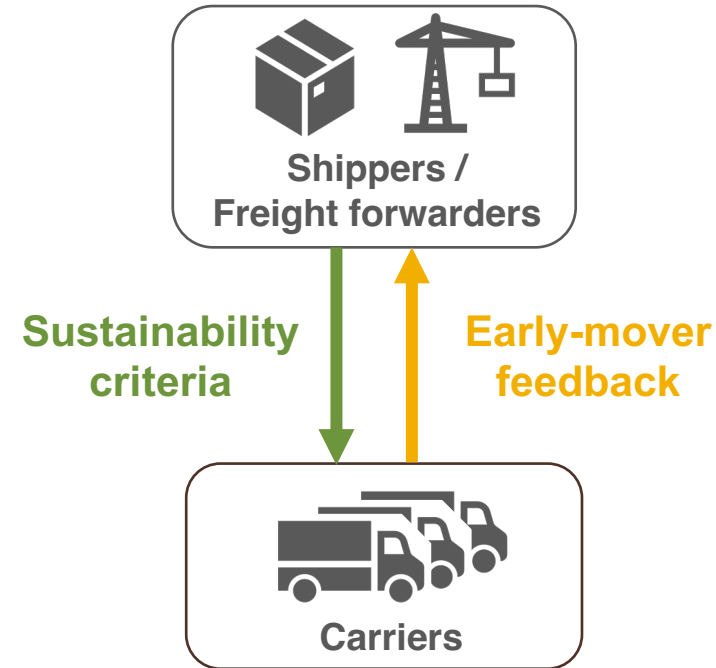
- Small fleets do not yet contribute greatly to the transition. Yet, many see opportunities in transitioning to zero-emission trucking
- 3rd parties aggregating demand from small fleets can support their access to the market and boost demand for manufacturers by
  - Knowledge
  - Public funding
  - Private capital

**Third party platforms can facilitate small fleet access to the zero-emission market**  
At the same time, aggregating the orders from small carriers can boost market demand and therefore reduce the risk for manufacturers to commit to zero-emission



# 6. Develop best practices through enhanced collaboration between stakeholders

- Most interviewees see a unique opportunity in becoming an early adopter
- Sharing experience regarding financing and on how to address operational challenges is critical in overcoming barriers
- Knowledge sharing should also include smaller fleets
- As sustainability criteria for shipping contracts becomes common practice, the environmental performance of the hired fleets will also become a key performance indicator for the competitiveness of shippers and freight forwarders





# Key takeaways

# Accelerating the transition to zero-emission trucking in Europe

- There is **growing demand** from fleet operators for zero-emission trucks, and progressive fleets have started to roll-out pilot models
- Still, fleets are facing **availability challenges** to engage a large-scale transition to zero-emissions trucking
- **Policy intervention** can help secure more availability of trucks and infrastructure
- Increased **collaboration and early engagement** between fleets, truck OEMs, shippers, infrastructure providers and electric utilities, and governments is critical to:
  - Assess future energy needs and plan **infrastructure roll-out** as of today
  - Address remaining **knowledge gaps** on ZE truck technology (real-world performance, battery and fuel cell degradation, etc.)
  - Develop **business models** that are adapted to ZE trucks and provide **non-regulatory incentives** to fleet operators

Questions?  
Contact [p.ragon@theicct.org](mailto:p.ragon@theicct.org)

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