

OVERVIEW OF BEST PRACTICES IN DECARBONISING FREIGHT TRANSPORT

Stakeholder Consultation Workshop

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On behalf of:



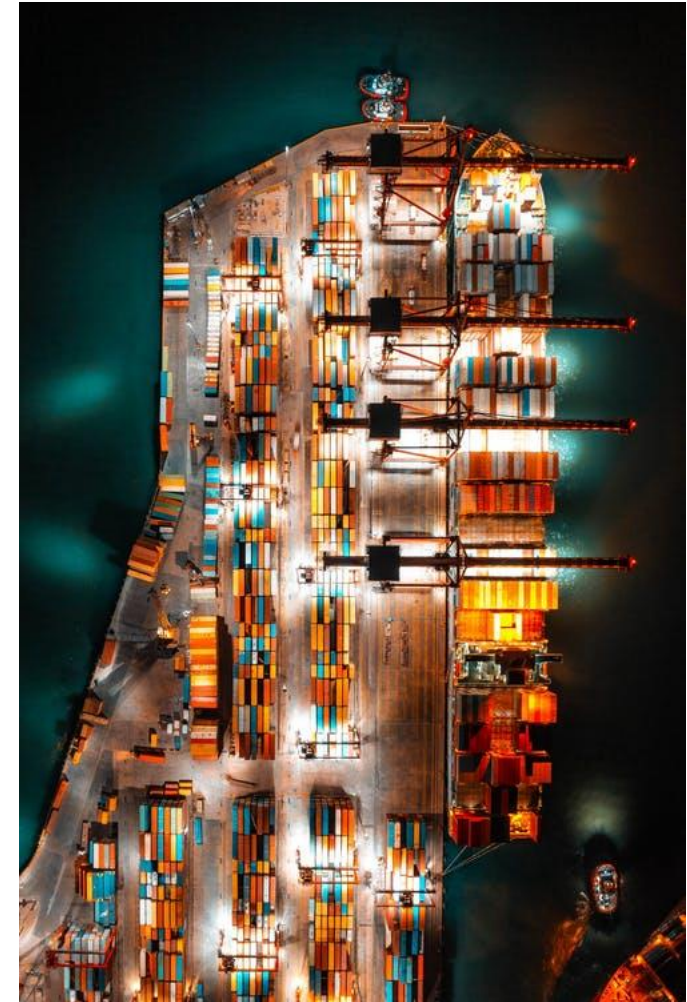
of the Federal Republic of Germany





CO₂ impacts of freight transport

- Freight transport keeps the global economy moving
- In 2019, freight was responsible for 42% of all transport emissions
- The Covid-19 pandemic showed that while passenger transport may fall, freight transport will remain essential
- Without policy interventions, freight emissions will rise with 22% from 2015 to 2050
- Ambitious action is needed!





Action is needed – but how?

ITF Transport Outlook 2021:

- Design stimulus packages that align to support economic recovery, freight decarbonisation and supply chain resilience
- Align price incentives with freight decarbonisation ambitions for carrier buy-in
- Scale-up ready-to-adopt freight decarbonisation measures quickly to cut costs and emissions
- Strengthen international co-operation to combat freight emissions
- Accelerate standardisation procedures to speed up the adoption of new clean technologies
- Tailor decarbonisation pathways to regional realities to address gaps in standard solutions
- Broaden access to privately owned data to improve policy design



Areas of national decarbonising actions

- Ensure sustainable outcomes with **appropriate regulation and standards**
- Incentivise cleaner alternatives with **financial instruments**
- Explore the benefits of **innovation**
- Create a **shift to cleaner modes**
- Transition to **alternative fuels and electrification**
- **Private sector** initiatives



Ensure sustainable outcomes with appropriate regulation and standards

- **Ensure sustainable strategic planning**
 - Green public procurement in shipping
 - Life-cycle evaluation of low-carbon shipping fuels
 - Sustainable finance regulations
 - Financial instruments to support decarbonisation
- Low- and zero-emission vehicle mandates
- Internal combustion engine and diesel bans

- **Impact (Dublin)**
 - Diesel vehicle ban: 370 k tonnes CO₂ reduction potential



Ensure sustainable outcomes with appropriate regulation and standards

- Strive for **sustainability in the maritime sector**
 - Regulate short-lived pollutants in maritime transport
 - National action plans for maritime transport
 - Vessel scrappage and retrofit schemes
- **Impact**
 - Black carbon reduction up to 80% reduction, 26% for methane
 - Bulbous bow: 3-7% fuel savings on large cargo carriers
 - Coatings: 1-4% engine fuel savings
 - Propeller upgrades and other propulsion improving devices: 1-25% CO₂ reduction



Ensure sustainable outcomes with appropriate regulation and standards

- Provide **standards and certification**
 - Vehicle efficiency
 - Vehicle weight
 - Fuel, based on carbon intensity
- Use **environmental labelling** (voluntary or mandatory)
 - Vessels
 - Vehicles and fuels
 - Impact depends strongly on national implementation and synergies with fiscal measures
- **Impact** of environmental labelling (EVDI):
 - 20% of tonnage shifted away from poorly rated (F or G) ships
 - 5-9% emissions savings



Financially incentivise cleaner alternatives

- There are a range of **financial options to incentivise the use of cleaner alternatives**:
 - Carbon tax for road vehicles
 - Road charging and tolls
 - Abolish fossil fuel tax exemptions for maritime transport
 - Environmentally differentiated port pricing, e.g. using ESI
 - Aviation fuel tax
- **Impact of carbon tax for road vehicles (Sweden)**:
 - 6.2% CO₂ reduction with a carbon tax increasing from USD 30 per tonne of CO₂ in 1991 to USD 132 in 2015
- **Impact of aviation fuel tax**:
 - Carbon tax of USD 200 per tonne of CO₂ could reduce aviation emissions by 8%



Explore the benefits of innovation

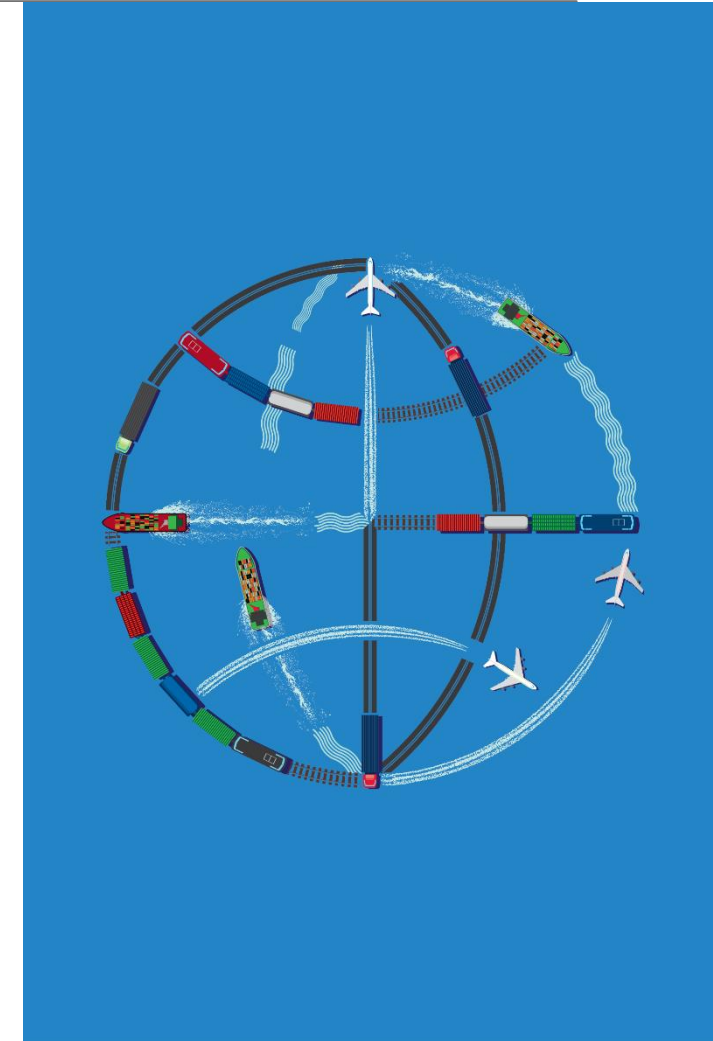
- Smooth driving: from eco-driving to automated vehicles
- Intelligent Transport Systems
- Capacity increases in rail by automation and digitalisation
- Asset sharing and digital platforms
- **Impact:**
 - ITF study to be published (June, 2022): digital transformation could lead to 22% lower CO₂ emissions in 2050
 - Pooling of freight resources in the United Kingdom showed reductions up to 40%





Create a shift to cleaner modes

- Create a shift towards cleaner modes
 - Promotion of **inland waterways**
 - Enhanced and expanded rail for freight
 - Improve multimodal freight **interfaces**
 - Make **road more sustainable** with high capacity vehicles
- **Impact**
 - Netherlands: shift of 2.8% from road to inland waterways: 43% CO₂ reduction for distances of 100-300 km, up to 80% for distances of 300-500 km
 - Trains are 8 times more energy-efficient than trucks, resulting in 10 times lower emissions per tonne-kilometre
 - Operational improvements: emission reduction can be as high as 50%
 - Barcelona: TEUs moved by rail increased by factor 6 after adopting a rail-oriented strategy to develop its hinterland





Transition to alternative fuels and electrification

- Electrification of the transport system
 - Infrastructure
 - Support on-shore power and electric charging facilities in ports
 - Setting standards and targets for promoting charging infrastructure
- Support and accelerate low-carbon fuel infrastructure
 - Support bunkering infrastructure for alternative fuels
 - Procurement of alternatively-powered rolling stock (hydrogen or battery)
 - Fuel blending mandate
- **Impact** (United Kingdom):
 - Hydrogen powered train and hydrogen hybrid train led to CO₂ decreases of 59% and 77%, compared to diesel propulsion
 - Europe: potential CO₂ mitigation of hydrogen powered trains around 40%



Private sector initiatives

- Voluntary programmes to reduce emissions in logistics
 - To increase logistic efficiency, reduce emissions
 - Main players are private companies
 - Sharing best practices, uniform tracking and accounting of fuel consumption and emissions, increasing efficiency
 - Foster adoption of specific measures
 - Benefits: increased efficiency and public recognition
- Impact on CO₂ emissions depends on the agreed measures
- Costs:
 - Low, administrative costs
 - Non-monetary rewards



Catalogue of CO₂ mitigation measures



**Transport
Climate Action
Directory**

<https://www.itf-oecd.org/tcad>

- Provide **targeted analytical assistance** for countries and partners to identify climate actions that work
- Gather and shares **evidence for best practices** that will accelerate the transition to carbon-neutral mobility
- **Shape the climate change debate** by building a global policy dialogue and by bringing the transport perspective to the table

"The International Transport Forum's TRANSPORT CLIMATE ACTION DIRECTORY is a key tool for moving from ambition to climate action - our most urgent challenge in climate policy today.

Governments now have a new resource to help them choose mitigation and adaptation measures that work in their specific context and that support their objectives."



Patricia Espinosa

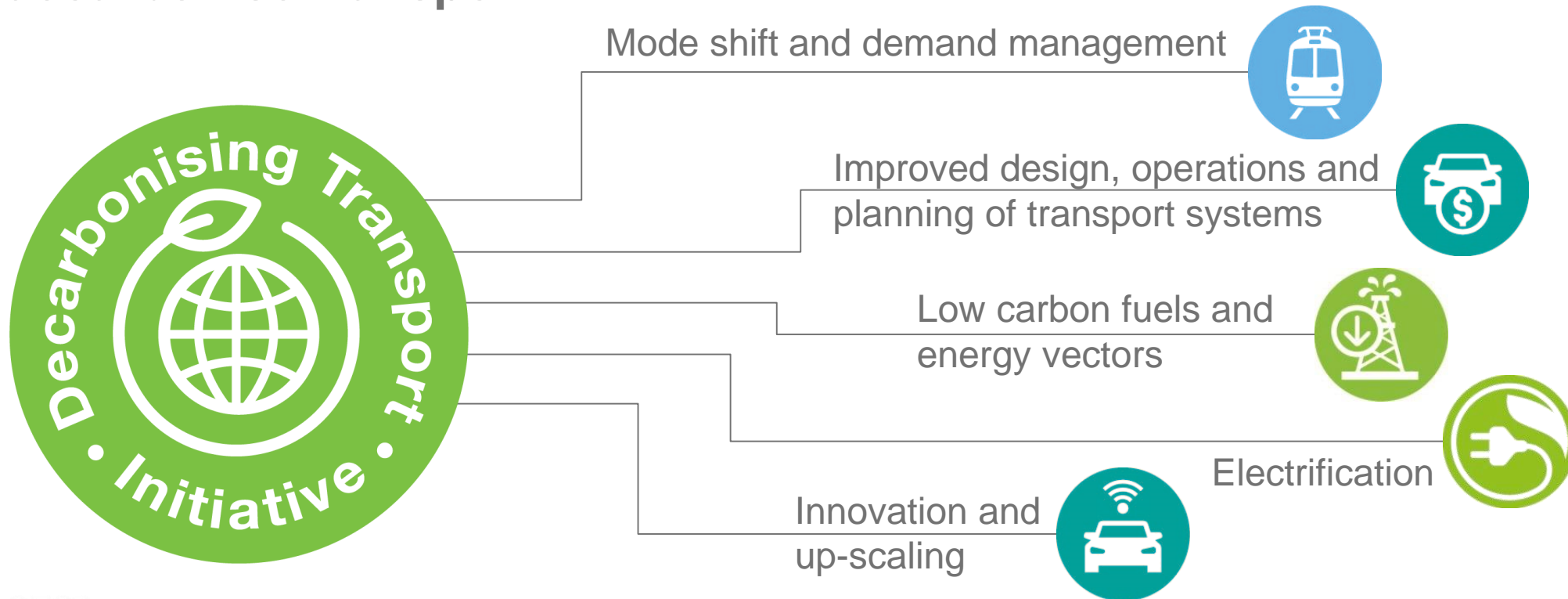
Executive Secretary
UNFCCC



Transport Climate Action Directory



Multiple objectives must be achieved, across different sectors, to decarbonise transport





Transport Climate Action Directory



A tool for delivering decarbonisation

The Transport Climate Action Directory allows you to translate your decarbonisation ambitions into actions to achieve your climate objectives. Over 60 mitigation measures with the evidence to assess their effectiveness are included. Each contains information on CO₂ emissions impacts, costs, co-benefits and other considerations. Use the filters to refine your requirements.

Filter by:

Measure Type

Policy Outcome

Transport Mode

Geographic Scope

Activity Type

Apply

Reset all

Propose a new measure

Urban

Education and awareness raising



Campaigns



Public transport information

Economic





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Filter by:

Measure Type

- Economic
- Regulatory
- Infrastructure
- Innovation / R&D
- Education and awareness raising
- Logistics

Policy Outcome

Transport Mode

Geographic Scope

Urban

Education and awareness raising

- Campaigns
- Public transport information

Economic

- Green public procurement
- Road charging and tolls
- Pricing measures



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Filter by:

Measure Type

Policy Outcome

- Improved design, operations and planning of transport systems
- Electrification
- Low-carbon fuels and energy vectors
- Mode shift and demand management
- Innovation and up-scaling

Transport Mode

Geographic Scope

Urban

Education and awareness raising



Economic





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Filter by:

Measure Type

Policy Outcome

Transport Mode

- All Transport
- Aviation
- Maritime
- Rail
- Road
- Walking and Cycling

Geographic Scope

Urban

Education and awareness raising


Campaigns


Public transport information

Economic





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Filter by:

- Measure Type
- Policy Outcome
- Transport Mode
- Geographic Scope
 - Urban
 - National
 - International

Urban

Education and awareness raising


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Filter by:

Measure Type

Policy Outcome

Transport Mode

Geographic Scope

Activity Type

Passenger

Freight

Urban

Education and awareness raising


Campaigns


Public transport
information

Economic



Transport Climate Action Directory



Economic

Abolish fossil fuel tax exemptions for maritime transport

Overview:

The maritime sector enjoys waivers from fuel taxation in the vast majority of markets. The IMF (2021) categorises energy taxes below efficient taxation levels as post-tax subsidies. An efficient taxation level would correspond with tax rates applicable to other consumer products or be high enough to internalise negative externalities from fuel use, including greenhouse gas emissions. Taxation rates for transport fuels undercut efficient levels in many markets. This can be, for example, low taxes on diesel justified with the policy objective of promoting economic activity. Transport fuel taxation also generally falls short of incorporating the costs of causing climate change. However, the international shipping sector and international aviation are the only transport sectors that commonly do not pay fuel excise duties (ITF, 2020).

For the maritime sector, exemptions from taxation generally apply to international shipping and many markets also waive domestic shipping from fuel taxes (OECD, 2019). ITF (2019) takes stock of maritime subsidies, which many governments offer to the maritime sector due to its importance for national economies and high exposure to international competition. The authors identify fuel tax exemptions as one of the most prominent subsidy types made available to shipping companies, along with tonnage taxation schemes that offer more attractive conditions than regular corporate taxes applicable to other sectors.

Energy subsidies can distort markets and lead to suboptimal environmental and social outcomes. In the maritime sector, low fuel prices reduce incentives for ship owners to invest in fuel saving technologies.

Impact on CO₂ emissions:

Phasing out post-tax subsidies for maritime fuels would incentivise the sector to invest in fuel-saving measures that reduce CO₂ emissions. The effectiveness of these incentives depends on the chosen rate of maritime fuel taxation, the available measures to reduce fuel use, and their costs. The ITF (2020) provides an overview of available solutions. In the short term, solutions include using onshore renewable power at berth as well as retrofitting existing ships with energy-saving technologies with short payback times, for example, wind assistance technologies. In a longer timeframe, phasing out maritime fuel post-tax subsidies can improve the cost competitiveness of lower carbon emission fuels with taxation rates differentiated by the well-to-wake carbon intensity of fuels. Mundaca et al. (2021) evaluated impacts from a carbon price of USD 40 per ton CO₂ on emissions from maritime transport of heavy products. They project that this would achieve a 7.65% emission reduction for this segment.

Transport Mode

- All Transport
- Aviation
- Maritime
- Rail
- Road
- Walking and Cycling

Geographic Scope

- Urban
- National
- International

Feedback



Transport Climate Action Directory



Improved design, operations and maintenance of transport systems

Electrification

Low-carbon fuel and energy vectors

Mode shift and management

Innovation and digitalisation

Transport Mode

All Transport

Aviation

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International

Activity Type

Costs:

Post-tax energy subsidies for the maritime sector represent foregone tax revenues for governments. Phasing in excise duties would generate income for governments. The amount raised would depend on the taxation benchmark. For instance, regulators can apply the same rate as other freight transport sectors, such as for diesel use in the road freight segment. Alternatively, a higher level that better incorporates negative externalities from fuel use may be chosen. The ITF (2019) reports that there is no global assessment about the costs of existing fuel taxation waivers for the maritime sector. The authors cite EEA (2007), which estimated the annual value of tax exemptions in the EU-25 region at EUR 3-19 billion for both domestic and international shipping.

Phasing in fuel taxes for the maritime sector would not only generate government revenues but also create costs to the maritime sector through higher energy prices. Rojon et al. (2021) reviewed studies about potential impacts on trade from increased transport costs were the shipping sector to be subject to carbon pricing. They found that carbon pricing would have similar effects as a fuel taxation rate aimed at incorporating externalities from GHG emissions. Expected impacts are not uniform across different goods. The authors found that the trade of bulk goods such as agricultural produce or construction materials would suffer most. However, the price increase for most products would remain below 1% if fuel costs and thus transport costs increased. The authors stressed that impacts would not fall evenly across regions. Small developing island states (SDIS) and least developed countries (LDC) far from major shipping corridors already pay comparably high transport charges and would experience proportionally higher impacts from increased costs. Targeted support programs for vulnerable groups may alleviate potential impacts from increased fuel costs (Marten and van Dender, 2019).

Co-benefits:

Phasing out energy post-tax subsidies for maritime fuel use would incentivise the sector to reduce fuel consumption. This would not only reduce CO2 emissions but also some air pollutant emissions.

Other considerations:

Phasing out fuel post-tax subsidies in the maritime sector can reduce negative impacts but faces challenges. The sector is highly globalised and increasing fuel taxes can prompt ship operators to bunker fuel at ports with lower taxes, undermining policy effectiveness. A global approach to maritime fuel taxation can prevent reforms resulting in fuel bunkering and carbon leakage, but there is no international consensus on a collective policy response. There are also legal challenges. For example, the Energy Tax Directive in the European Union explicitly forbids member states to tax fuel used in international shipping (this provision is under revision as of fall 2021 [EC, 2021]).

A first step towards efficient taxation of maritime fuels can be introducing fuel taxation for domestic or regional shipping in large regions with limited potential for fuel bunkering. Initiatives to phase in excise duties for domestic maritime fuel use have emerged in some markets. In the US state of California, for example, the state taxes maritime fuel purchased and used in the state until the first out-of-state destination (ITF, 2020).

Measures to support decarbonisation

Measures to support the development of inland waterways

Feedback



Transport Climate Action Directory



Improved design of operations and of transport systems

Electrification

Low-carbon fuel energy vectors

Mode shift and management

Innovation and

Transport Mode

All Transport

Aviation

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Urban

National

International

Activity Type

Selection of related measures available in TCAD:

- > [Conditionalities in subsidies or tax subsidies in maritime transport](#)
- > [Financial instruments to support decarbonisation](#)

Cite this measure as:

ITF (2021) Transport Climate Action Directory – Abolish fossil fuel tax exemptions for maritime transport
<https://www.itf-oecd.org/policy/abolish-fossil-fuel-tax-exemptions-marit...>

Sources:

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Financial instruments to support decarbonisation

Carbon pricing of inland waterways

Feedback



THANK YOU FOR YOUR ATTENTION

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