



EU Fuel Quality Directive: where do we stand?

ITF Expert Workshop

Mapping standards for low-and zero-emission
electric heavy duty vehicles

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Outline

- 1) FQD Overview – Objectives – Scope – Key provisions
- 2) Life-cycle greenhouse gas intensity of transport fuels (Article 7a)
- 3) Progress towards achievement
- 4) Fuel Quality and Renewable Energy Directives
- 5) FQD technical assessment
- 6) Conclusions

FQD Overview

- Adopted in 1998

Fuel Quality Directive 98/70/EC of 13 October 1998 relating to the **quality of petrol and diesel fuels**

- Amended repeatedly, most recent amendment December 2018

Energy Governance Regulation (EU) 2018/1999 of 11 December 2018 **modifying reporting obligations**

- Consolidated text

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01998L0070-20181224&from=EN>

- REgulatory FITness report adopted on 31 May 2017

SWD(2017) 178 final

FQD Objectives

High level of protection of the environment and human health

- Reduce pollution from transport sector
- Enhance air quality
- Reduce greenhouse gas emissions and ensure biofuel sustainability
- Ensure proportionality (derogations)

Compatibility of fuels with engines and after treatments

- Ensure the proper functioning of engines and after treatment systems
- Guarantee quality of petrol and diesel
- Contribute to the single market for petrol and diesel fuels

FQD Scope

- Fuels used in internal combustion engines on the road and in non-road mobile machinery (NRMM)
- NRMM also covers inland waterway vessels, agricultural and forestry tractors, and recreational craft
- Fuel specifications for petrol, diesel, and biofuel blends, intended to:
 - limit air pollutants, mainly: lead and other metallic additives, SO_x, NO_x, particulate matter, unburnt hydrocarbons, polycyclic aromatic hydrocarbons (PAH), benzenes, and carbon monoxide
 - ensure compatibility with engines
- For NRMM more limited requirements apply (esp. sulphur / lead limits)

Key provisions

- Harmonise petrol and diesel specifications
 - No full harmonisation, focus on environmentally relevant parameters
 - Voluntary CEN standards EN 228 and EN 590 address a broader range of parameters
- Limit summer vapour pressure of petrol (optional derogations for Member States with lower summer temperatures and for ethanol blending)
- Limit sulphur content in petrol, diesel and gas-oil for non-road mobile machinery (optional derogation for petrol use in Outermost Regions)
- Limit maximal content of ethanol and other oxygenates in petrol and of FAME in diesel
- Ban lead
- Ensure the free circulation of transport fuels
- Enable Member States to impose more stringent environmental specifications in specific agglomerations or sensitive environments
- Enable Member States to deviate from fuel specifications in exceptional limit of supply in crude oils
- Greenhouse gas reductions from transport fuels
- Sustainability of biofuels
 - Provisions shared with Renewable Energy Directive (EC DG ENER)
- Calculation of the life-cycle GHG emissions from biofuels
 - Choice between default value or actual value
- Ensure monitoring and reporting
- Regulate other metallic additives
- Set a framework for enforcement including penalties

Life-cycle greenhouse gas intensity of transport fuels

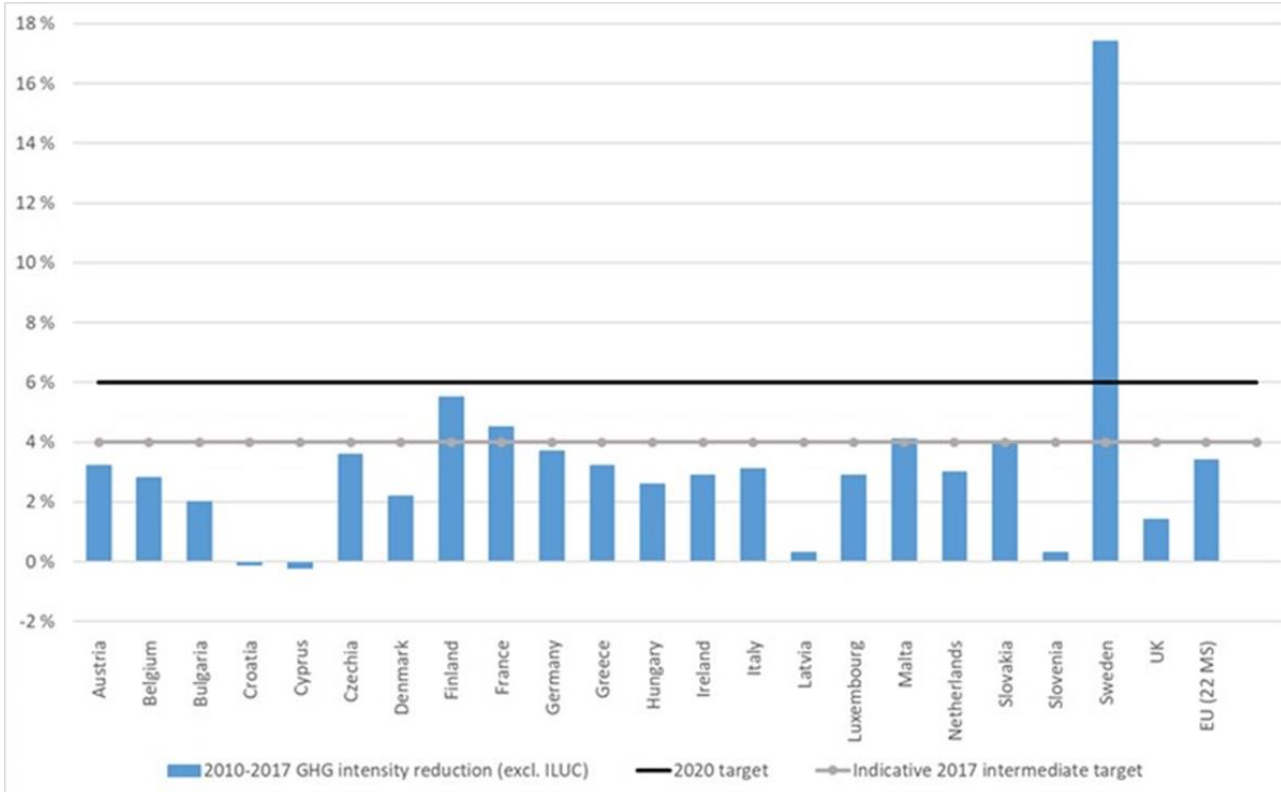
Annual reporting by fuels suppliers

- Methodology set out in Council Directive (EU) 2015/652
- Life cycle approach, covering fossil and alternative fuels, and electricity
- Open ended, reporting deadline 31 December for fuels supplied during the previous year

Reduction target

- Member States have to oblige fuel suppliers to reduce the GHG intensity of transport fuels by 6% relative to a 2010 baseline ($94\text{gCO}_{2\text{eq}}/\text{MJ}$)
- Upstream Emissions Reductions (UER): optional for compliance
 - Scope limited to upstream emissions (before refinery gate)
 - Additionality compared to UER in the most likely counterfactual scenario
 - No double claiming/counting
 - Annual reporting of UER occurring in the reported calendar year consistently with annual reporting of GHG intensity of fuel mix

Progress to 6% GHG reduction target in 2017



- Based on data reported to EEA: compliance rate to 2017 varies widely across MS, average 3,4%
- NOT comprised in EEA report: Estonia, Lithuania, Poland, Portugal, Romania, Spain
- EEA full report available:

<https://www.eea.europa.eu/publications/quality-and-greenhouse-gas-intensities-1>

Fuel Quality and Renewable Energy Directives

Features	FQD	RED
2020 Targets	Requires MS to oblige fuel suppliers to achieve at least 6% GHG saving from fuels supplied in 2020	Requires MS to meet 10% renewable energy share in the transport sector by 2020
Scope	<p>Fuels used in on-road vehicles, NRMM, inland navigation, rail, agricultural/forestry tractors, recreational craft</p> <p>...excludes:</p> <p>Electricity used in rail</p> <p>...opt in:</p> <p>Aviation fuels</p>	<p>Fuels used in on-road vehicles, inland navigation, rail</p> <p>...excludes:</p> <p>NRMM, agricultural/forestry tractors</p> <p>...opt in:</p> <p>Aviation fuels</p>
Compliance means	<p>All transport fuel options</p> <p>Renewable electricity</p> <p>UER (optional)</p>	<p>Biofuels, bio-methane</p> <p>Renewable electricity</p> <p>Multiple counting factors for non food/feed competing feedstocks</p>
Market mechanisms	UER (optional)	None
Sustainability criteria	<p>Mandatory: determining fuels' eligibility in the EU regulatory scheme)</p> <p>Sustainable cultivation and production of biofuels</p> <p>Minimum GHG savings per energy unit (increasing stringency)</p>	
iLUC emissions	<p>Reported but not counting towards targets</p> <p>7% cap on food/feed competing feedstocks</p>	

Renewable Energy Directive recast 2030

- Directive 2018/2001/EU
- 32% Renewable Energy Sources consumption by 2030
- 14% transport sub-target of renewables in energy consumed in road and rail transport by 2030
- Revised sustainability criteria
- Revised default values



FQD technical assessment in a nutshell

#1 Potential barriers to renewable energy transport targets in RED

#2 High(er) blends of alternative fuels

#3 Further evolution of fuel quality requirements and monitoring



**Thanks for
your attention!**

Any questions?



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Thank you



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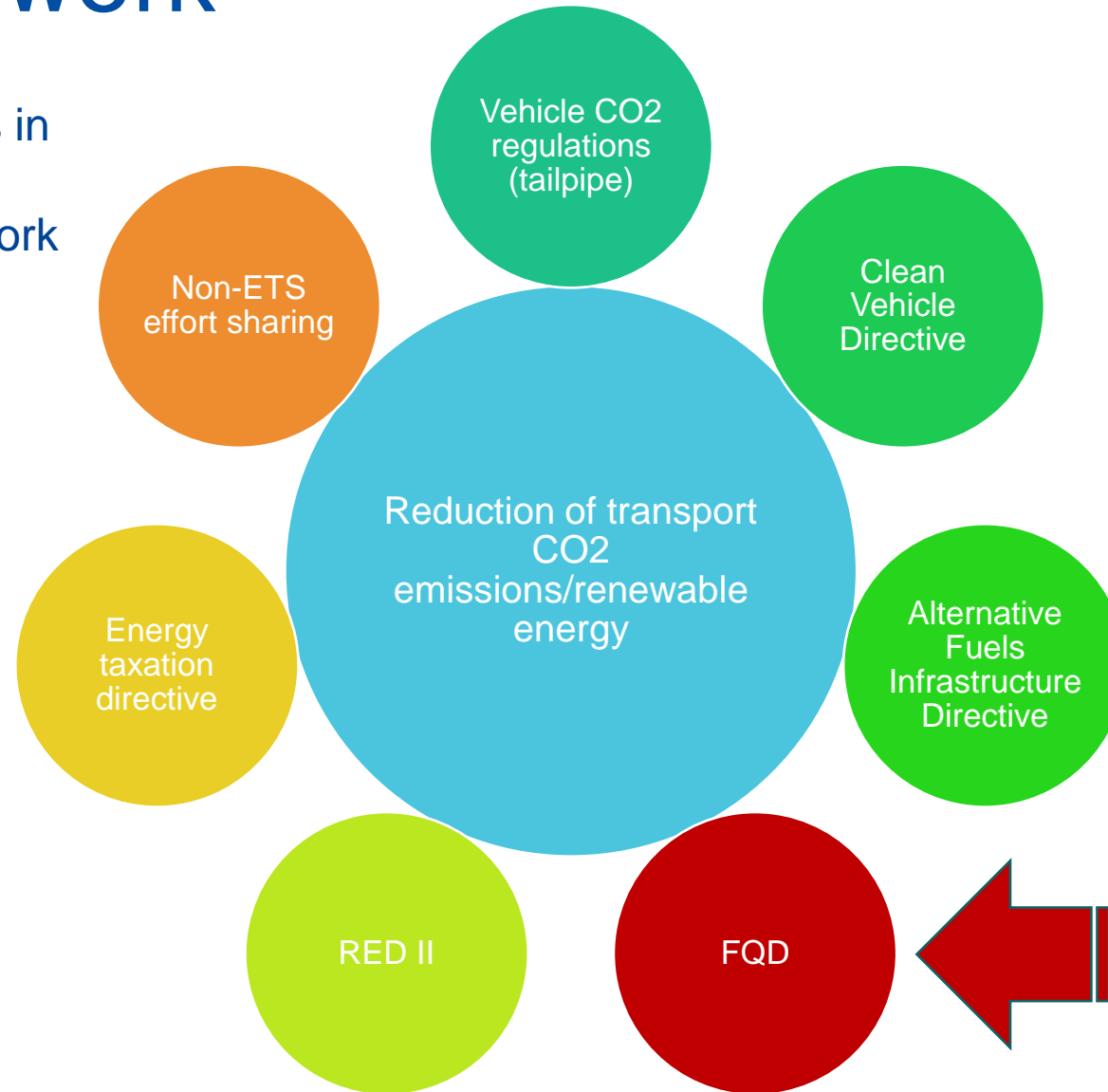
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Backup slides

The framework

Multiple legal acts in
a coordinated
regulatory framework



GHG savings thresholds in RED II

Greenhouse gas savings thresholds in RED II			
Plant operation start date	Transport biofuels	Transport renewable fuels of non-biological origin	Electricity, heating and cooling
Before October 2015	50%	-	-
After October 2015	60%	-	-
After January 2021	65%	70%	70%
After January 2026	65%	70%	80%

RED scope

Calculation of the overall RED-% of renewable energy in transport (Art. 3(4) of the RED):

$$\text{RED-\%} = \frac{\text{All types of energy from renewable sources consumed in all forms of transport}^{1)}}{\text{Petrol, diesel, biofuels consumed in road and rail transport, and electricity (in transport) but excluding off-road}^{2)}}$$

1) Renewable energy in Road, Rail, Aviation, Inland Navigation and Pipeline Transport

2a) Off-road means mobile machinery (forestry, agriculture, and construction)

2b) CNG & LPG in road transport are not included, BUT: Biogas (= biofuel) is included

Application of factors:

- "Advanced Biofuels" count 2 times in numerator (support)
 - Definition: biofuel from waste, residue and non-food cellulosic material, Article 21(2)
- "Green Electricity" for road transport counts 2.5 times in numerator & denominator (efficiency factor)
 - Definition: electricity from renewable sources, Article 3(4)

FQD scope

Calculation of the overall FQD-% GHG emissions saving in transport (Art. 7a of the FQD):

$$\text{FQD-\%} = \frac{\text{Fossil transport fuels GHG intensity 2010 } ^2) - \text{All transport fuels GHG intensity in 2020 } ^1)}{\text{Fossil transport fuels GHG intensity 2010 } ^2)}$$

1) GHG intensity includes fuels used in on-road vehicles, non-road mobile machinery, rail, agricultural and forestry tractors and recreational craft and excludes:

- ☐ Electricity used in rail
- ☐ Aviation fuels