EU climate- and energy policies

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Overview EU climate-, energy- and land-use policies

Policy	Coverage sectors	Policy goal
Energy Efficiency Directive	Economy-wide	20% energy efficiency improvement for 2020
		32.5% for energy efficiency for 2030
Effort sharing	Non-ETS: transport, buildings, agriculture, waste	10% GHG reduction in non-ETS sectors covered by 2020 compared to 2005 levels
		30% GHG reduction in non-ETS sectors covered by 2030 compared to 2005 levels
Renewable Energy Directive	Economy-wide	32% of final energy consumption by 2030
F-gas Regulation	Economy-wide	By 2030 F-gas emissions are decreased by two-thirds compared with 2014 levels.
Emission Trading System		In 2020, emissions from ETS sectowill be 21% lower than in 2005
		In 2030, emissions from ETS sectors will be cut by 43% from 2005 levels
Innovation fund		ETS revenues are invested in innovations
CO2 performance standards cars and vans	cars	Average fleet-wide standard for new registrations of 95 gCO2/km in 2021
		15% reduction of average fleet-wide standard of new registrations relative to 2021 by 2025
		37.5% reduction of average fleet-wide standard of new registrations relative to 2021 by 2030
		15 % low emissions share of the new passenger cars by 2025
		35 % low emissions share of the new passenger cars by 2030
	vans	Average fleet-wide standard for new registrations of 147 gCO2/km in 2020
		15% reduction relative to 2021 by 2025
		31.5% reduction relative to 2021 by 2030
		15% reduction of average fleet-wide standard of new registrations relative to 2020 by 2025
		30% reduction of average fleet-wide standard of new registrations relative to 2020 by 2030
CO2 performance standards trucks and busses	large lorries	Start 2021
		15% reduction relative to 2020 by 2025
		30% reduction relative to 2020 by 2030
		Credit system for low emission trucks

Policy	Coverage sectors	Policy goal
	smaller lorries, buses, coaches and trailers.	Start 2023
		Targets are not decided yet
Renewable Energy Directive		10 % share of energy from renewable sources in transport by 2020
		share of renewable energy within the final consumption of energy in the transport sector is at least 14 % by 2030
Fuel Quality Directive		Reduction of the greenhouse gas intensity of transport fuels by a minimum of 6% by 2020
		on a life-cycle basis against a 2010 baseline of 94.1 gCO2eq/MJ
		Biofuels sustainability criteria
Car Labelling Directive		Labelling
Shipping Strategy		Labelling
		Supporting IMO greenhouse gas strategy
Emission Trading System (Aviation)		CO2 emissions from aviation have been included in the EU ETS) since 2012 (flights within EU)
Buildings Directive		all new buildings must be nearly zero-energy buildings (NZEB) from 31 December 2020
		Since 31 December 2018, all new public buildings already need to be NZEB
		EU countries making energy efficient renovations to at least 3% per year of buildings owned and occupied by central governments
		Minimum energy efficiency standards and labelling for a variety of products

#EU greenhouse gas emissions

Energy efficiency directive

```
## New names:
## * `` -> ...1
## * `` -> ...2
## * `` -> ...3
## * `` -> ...4
## * `` -> ...5
## * ... and 7 more problems
```

- TIMER includes other European countries beside those from the EU
- The Roadmap includes all EU28 countries
- The Roadmap seperately reports Energy Branch energy use
- The IEA data is calculated based on the TIMER regions WEU+CEU and EU
- Roadmap gross inland consumption including 'energy branch consumption' is high, assuming it is included in TPES number from IEA and TIMER
- Acccording to Eurostat/IEA energy statistics manual Eurostat's "Gross inlandconsumption" is essentially the consumption of net externally provided supply. It could be a negative figure if exports were sufficiently large. To reproduce the IEA"Domestic supply" figure, it is necessary to add the refinery production of gas/dieseloil within the transformation output part of the balance —> CONCLUSION, definition differences, but not exatly sure what exactly https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Gross_inland_energy_consumption Trends to 2030: Energy branch consumption: "Energy consumed in refineries, electricity and steam generation and in other transformation processes."

Renewable energy directive

Emission Trading System

```
## New names:
## * `` -> ...1
## * `` -> ...2
## * `` -> ...3
## * `` -> ...4
## * `` -> ...5
## * ... and 7 more problems
```

Transport sector

Renewable Energy Directive - renewable transport

Greenhouse gas emissions per mode

Policies modelled in TIMER * CO2 performance standards for **cars**, including electric share * Renewable target for **cars** (biofuels, electric cars) * CO2 performance standards for heavy trucks

Transpor modes not included * Policies for medium-trucks * Policicies for aviation (part of ETS), shipping (IMO standards) * Policies that impact train (train, high-speed train, freight train)

Transport policies not included * Fuel quality standard * CO2 performance standards, will be implemetned after 2022 review

Reducing CO2 emissions from vehicles

1. Light-duty vehicle

- Cars
- Vans

3. Heavy-duty vehicles

CO2 performance standards for cars

Policy: CO2 performance standards for cars

Indicator: gCO2/km for new car registrations pander(EU_CO2_cars_target)

Assumptions: * CO2 intensity fuels is based on the assumption that there is a fixed ratio between gasoline and diesel (gasoline=43%), and this intensity also applies to other fuels. ** CO2 intensity gasoline is 2.4 gCO2/l, and CO2-intensity diesel is 2.7 gCO2/l * Energy intensity fuel is 34.841 MJ/l * load cars is 1.6 persons

Methods: * Energy use cars in TIMER is described in terms of MJ/pkm. CO2 intensity cars is calculated by translating this to CO2/km. * CO2 performance standards are implemented in TIMER by increasing the energy tax on oil and gas to a level that results in achieving the co2 performance standards for new cars.

Improvements: * Calculate blending share for road freight vehicles. As structure is different in freight module, this is not straight forward

Future improvements for modelling co2 car standards

- Include vans (other light-duty vehicles) –> but to which TIMER travel category do they belong, cars or medium trucks?
- Improve co2 performance standards ** Make load car dependent on TIMER data ** Currently only of gasoline and diesel are used to calcualted co2-intensity fuels, and gasoline is assumed to be 43% and diesel 57%. Add other fuels such as gas and biofuels, and make weight dependent on TIMER share in fleet
- EU CO2 standard allows for EV credits, add this to the TIMER indicator

Future improvements for modelling electric share

- EU electric share target also includes plugins. Change TIMER indicator to include plugins.

CO2 performance standards for heavy-trucks

Future improvements modeling heavy-trucks standard

- Where do medium trucks fit? And how do they compare to light-duty vehicles?
- Add busses (after 2022)

Building directive

F-Gas regulation