Emission reduction strategies for the Italian transport sector, EUKI Initiative

EUKI SUMMIT, 14th June 2019
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EUKI project report: Italy

Strategie di riduzione delle emissioni del settore trasporti in Italia

Uno studio realizzato nell’ambito dell’iniziativa EUKI

European Climate Initiative
EUKI

EU TRANSPORTATION ROADMAP MODEL
Powered by T&E

TRANSPORT & ENVIRONMENT

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
EUKI project report: Italy

PROCESS

- Workshop, 3 December 2018 Rome (Italy): Presented to main environmental national NGOs in an ad hoc workshop. Extensive discussion followed.

- 22 December 2018: Deadline to receive feedback from NGOs

- 24 January 2019: Publication

- Since January 2019: main findings of the report largely used, in particular as a base for the NECP 2030 discussion.

- Report was mentioned in many articles, papers public speeches (E.G. Qualenergia, Il Fatto Quotidiano, Mobilitaria 2019..)
Italy’s emissions target

ESD and ETS contributions and targets for Italy

GHG Emissions (Mt CO2 eq)

Year


-13% -2.3% p.a.
-20% -2.9% p.a.
-43% -4.1% p.a.
-90%

ESD Starting point

ETS

non ETS (ESD & CAR)

ETS Targets

ESD Targets
Italy’s GHG emissions

Evolution of GHG emissions in Italy

GHG Emissions (Mt CO2 eq.)


Evolution of GHG emissions in Italy

ITALY CO2E EMISSIONS IN 2016

Buildings 19.0%
Agriculture 6.9%
Waste 4.2%
Transport & Bunkers 23.9%
Transport 23.9%
Industry 24.7%
Public Electricity & Heat 17.4%
Bunkers 3.9%
ESR and transport shares in Italy

**SHARE OF ESR SECTORS IN ITALY IN 2016**
- Transport: 38%
- Buildings: 30%
- Industry: 14%
- Waste: 7%
- Agriculture: 11%

**ITALY ROAD TRANSPORT SHARES 2016**
- Cars: 63%
- Heavy duty trucks and buses: 22%
- Light duty trucks: 12%
- Motorcycles: 3%
Baseline and Assumptions

Road transport

2030 BaU emissions ~100 Mt CO₂

Biofuels - constant at 2016 levels

Equal share of CAR target of -33%

-33% CAR target for Road Transportation

Required Emissions Cut
2030 and 2050 Targets for Italy and EU measures 2030 contribution

- **Mt CO2e in 2030:**
  - Total: 76.8 Mt
  - Contributo misure EU: 23.8 Mt
  - Gap: 53.0 Mt

- **Mt CO2e in 2050:**
  - Total: 15.6 Mt
  - Gap restante: 6.1 Mt
  - Riduzione dalle auto: 6.1 Mt
  - Riduzione dai furgoni: 5.0 Mt
  - Riduzione da camion e bus: 4.5 Mt

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**Notes:**
- Taglio di emissioni richiesto al 2030 (target ESR)
- Taglio di emissioni richiesto al 2050

**Sources:**
- Transport & Environment
- transenv
- transportenvironment.org
## EU REQUIREMENTS 2030

<table>
<thead>
<tr>
<th>Regulation/Directive/Strategy</th>
<th>Target 2025/2030</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR</td>
<td>-33%</td>
<td>Italy</td>
</tr>
<tr>
<td>Cars CO2 standard</td>
<td>-15% / -37.5%</td>
<td>Producer</td>
</tr>
<tr>
<td>Vans CO2 standard</td>
<td>-15% / -31%</td>
<td>Producer</td>
</tr>
<tr>
<td>Trucks/Buses CO2 standard</td>
<td>15% / 30%</td>
<td>Producer</td>
</tr>
<tr>
<td>REDII</td>
<td>14% RES in Transport (7% binding from advanced biofuels and renewable electricity/ 7% max from conventional biofuels optional)</td>
<td>Fuel supplier</td>
</tr>
<tr>
<td>Clean Vehicles Directive</td>
<td>45%/65% of Buses to be “Clean vehicles” of which at least 22.5%/ 32.5% to be zero-emission</td>
<td>Public Administration</td>
</tr>
<tr>
<td>2050 long-term strategy</td>
<td>Europe economy to be climate neutral by 2050</td>
<td></td>
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</tbody>
</table>
EU standards contribution and remaining gap

Ambitious proposal for car, van, truck standards (revision expected in 2022)

57% gap reduction, or 11.8 Mt CO₂
Closing the gap is possible: policy recommendation for Italy

**POLICY MEASURES**

- **Fuel Tax**
  - Normalisation
  - Harmonisation of diesel/petrol

- **Road Charging**
  - Distance-based (environmental)
  - Digitalisation
  - Eurovignette

- **Alternative Infrastructure**
  - Foot/cycle paths
  - Multimodal ticketing
  - Public transport improvements
  - Electric charging infrastructure

- **Congestion Zone Charging**
  - Time-based charging

**IMPACT**

- **Demand Reduction**
- **Modal Shift**
- **Load factors**

**RESULT (% activity from car or truck by 2030; * by 2025)**

- Modal shift to walk/bike (2.5%)
- Share of car shift to bus (2%)
- Share of car shift to rail (2%)
- Reduction in-use fuel consumption of vehicles (5%)
- Car/Bus/Truck load factor increase (5% / 10% / 6.25%*)
- Truck logistic improvement (5%)
- Share of truck shift to rail (10%)
Summary of different pathways

- No action could cost €13 billions in allowances purchases in BaU
Figure 14: Long term trajectories of tank-to-wheel CO$_2$e emissions in Italy, compared to the 33% reduction target on 2005 levels.
Policy recommendations: outside CAR

Shipping:
• Tighter air pollution standards for SOx, NOx and PM emissions;
• Electrify Ro-Ro ships (passenger and cargo) involved in short-sea shipping
• Electrify ports

Aviation
• Maintain City Tax for departing flights
• Consider introducing banded rates that reflect the increased climate damage from longer flights
• Cancel fiscal advantages for kerosene
THANK YOU FOR YOUR KIND ATTENTION :)

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Long term emission reductions
Meet the 2030 target is possible!

<table>
<thead>
<tr>
<th>Policy Lever</th>
<th>Measure</th>
<th>Change by 2030 (*2025)</th>
<th>Main policy interactions and justification</th>
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<tbody>
<tr>
<td>1</td>
<td>SHARE OF CAR PASSENGER ACTIVITY SHIFTED TO BUS</td>
<td>2.00%</td>
<td>Petrol and diesel fuel tax harmonisation, new electric buses being able to offer cheaper services, low emission zones in cities, a ban on the future sales of diesel/petrol cars, coach market expansion. 2% of car passengers represent just under 15% of current bus passengers.</td>
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<td>2</td>
<td>BUS LOAD FACTOR INCREASE (PASSENGERS/VEHICLE)</td>
<td>10.00%</td>
<td>As more passengers are lured onto buses (policy lever 1), buses will tend to be filled, increasing efficiency. This will be supported by service improvements (that will follow from increased ridership), pricing, and multimodal ticketing.</td>
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<td>3</td>
<td>SHARE OF CAR PASSENGER ACTIVITY SHIFTED TO RAIL</td>
<td>2.00%</td>
<td>If half of this shift is in urban centres, this represents a doubling of current tram, metro and train ridership; a 15% increase on long distance journeys. This will be facilitated from fuel tax normalisation, TEN-T network implementation, intermodality, train pricing and improved punctuality, competition offering new and more attractive services.</td>
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<td>4</td>
<td>MODE SHIFT FROM CAR PASSENGER TO WALK/BIKE</td>
<td>2.50%</td>
<td>As part of a city infrastructure investment (foot and bike paths), congestion charges that reduce traffic in order to reclaim space, more people willing to take public transport.</td>
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<td>CAR LOAD FACTOR INCREASE (PASSENGERS/VEHICLE)</td>
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<td>Priority access to carpooling cars. High congestion charge for single occupancy vehicles, higher vehicle registration tax, low emission zones, higher fuel prices and taxes, car Ownership not a status symbol anymore (social justification), car sharing.</td>
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<td>CAR PASSENGER ACTIVITY REDUCTION FROM BARE CAR</td>
<td>1.00%</td>
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<td>Fuel taxes harmonisation and ending the rebate to truckers, road charging, digitalisation.</td>
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<td>8</td>
<td>SHARE OF HHOW ACTIVITY SHIFITED TO RAIL*</td>
<td>10.00%</td>
<td>Combination of diverse measures required to enable rail freight to be more competitive. Trucks should be charged for their pollution and infrastructure damage through fuel taxes and road charging. Improved connections with France and Germany with the TEN-T.</td>
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<td>9</td>
<td>FREIGHT TRUCK PAYLOAD INCREASE (METRIC TONNE/VEHICLE)</td>
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<td>Eurovignette and distance based charging, digitalisation.</td>
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Examples of measures

Fuel Tax
Normalisation of diesel/petrol (income €3 bln, or 12.8% incr)

Road Charging
Distance-based charging differentiated on environmental performance of vehicles. Extend to trucks tolls to secondary roads. Eurovignette (2020)

Alternative Infrastructure Investment
Foot/cycle paths to promote modal shift Multimodal ticketing (eg Netherlands OV Chip Kaart) Roadside and strategic electric charging infrastructure

Congestion Zone Charging
Time-based charging based on geographical boundary (i.e.

Digitalisation
Logistic efficiency in freight Application based transport (share cars, ride hailing, e-bikes, e-scooters) C-ITS

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<td>SHARE OF HEAVY ACTIVITY SHIFTED TO RAIL*</td>
<td>10.00%</td>
<td>Combination of diverse measures required to ensure freight is more competitive. Trucks should be better placed for their pollution and infrastructure damage through taxes and road charging. Improved connections with France and Germany with the TEN-T.</td>
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Regulated trucks in 2018 standard

Truck categories regulated in the 2018 standard

**Vehicle category 4**
- 4x2* rigid trucks
- >16t
- 7% of sales
- 6% of HDV CO₂ emissions

**Vehicle category 5**
- 4x2 truck tractor units
- >16t
- 34% of sales
- 48% of HDV CO₂ emissions

**Vehicle category 9**
- 6x2 rigid trucks
- All
- 11% of sales
- 8% of HDV CO₂ emissions

**Vehicle category 10**
- 6x2 truck tractor units
- All
- 9% of sales
- 18% of HDV CO₂ emissions

*4 wheels, 2 of which are driven

Source: ICECT, 2016 sales statistics provided by IN, CO₂ emissions calculated from mileage and fuel consumption assumptions used in EC LOT1 and LOT2