Accordo di Parigi e Agenda 2030 per lo sviluppo sostenibile

Webinar tematici gratuiti

Mercoledì 25 ottobre 2017 (ore 15,30-16,30)
Le politiche europee sulle emissioni dei veicoli.

Veronica Aneris, Senior Policy Consultant - Transport & Enviroment
T&E: 27 COUNTRIES
50 MEMBER & SUPPORT GROUPS
Credibility is our key asset. Therefore we are a non-profit and politically independent, and we are strong believers in the power of science and evidence in policymaking.

OUR MISSION

Transport policy should minimise harmful impacts on the environment and health, maximise efficiency of resources, including energy and land, and guarantee safety and sufficient access for all.
Transport in Europe

$\frac{1}{3}$ OF CARBON EMISSIONS  $\frac{1}{3}$ OF ENERGY  $\frac{1}{2}$ OF ENERGY IMPORTS BILL
Transport sector is where CO2 emissions still growing.
CARS ARE HIGHLY UNSUSTAINABLE
AIR QUALITY
ITALY AT THE FIRST PLACE FOR PREMATURE DEATHS
A BUSY EU AGENDA FOR TRANSPORT POLICIES

• From NEDC to WLTP for CO2
• From NEDC to WLTP and RDE for NOx
• Type Approval Framework Regulation Post Dieselgate
• New Mobility Package (post 2020 car and van regulation/ZEV target)
• New Renewable Energy Directive/Biofuels Policy
A-S-I APPROACH

AVOID / REDUCE
- Reduce or avoid the need to travel

SHIFT / MAINTAIN
- Shift to or maintain share of more environmentally friendly modes

IMPROVE
- Improve the energy efficiency of transport modes and vehicle technology

System Efficiency
Trip Efficiency
Vehicle Efficiency
Car (and van) CO2 standards are lowering Emissions

1998-08 • Voluntary agreement (1.3%)
  • Failed and discredited

2008-15 • 130g/km 2015, (3.9% pa)
  • Overachieved

2015-21 • 95g/km 2020, (4.5%pa)
  • On-track

2021-25 • 75g/km, 2025
  • Increasing hybridisation

2025 – 30 • Electrification
MIND THE GAP: Cars CO2 emissions, much reduction is on paper
Common ways for test manipulating

- Disconnecting the alternator prevents the battery from charging and reduces energy use. (LABORATORY)
- Carmakers can optimise the engine controls to reduce emissions. (LABORATORY)
- Careful lubrication and use of special lubricants help the car run more efficiently. (LABORATORY)
- Altering wheel alignment reduces rolling resistance. (ROAD)
- Fitting special tyres with a lower rolling resistance. (ROAD)
- Overinflating the tyres reduces rolling resistance. (ROAD)
- The rolling road is programmed with the minimum weight or inertia class. (LABORATORY)
- Using higher gears can allow the engine to operate more efficiently than normal. (LABORATORY)
- Taping over indentations of protrusions on the body reduces aerodynamic drag. (ROAD)
- Pushing the brake pads fully into the callipers reduces rolling resistance. (LABORATORY)

CO2 results declared by the manufacturer can be up to 4% below the actual test results. (LABORATORY)

Taking advantage of test tolerances and adjusting the results header. (LABORATORY)
Why test manipulation must be stopped

**Fig 3:** Official CO\textsubscript{2} test results *versus* the real world outcomes in 2014 for private motorists (derived from ICCT, 2016 and EEA official CO\textsubscript{2} data)

- Real-world improvement is only 14.6 g/km
- Widening real-world gap is now 25.5 g/km
From NEDC to WLTP: good but not enough.
RDE + WLTP significantly lower the gap
A not to exceed limit and real world test is needed to deliver emissions reductions on the road.

Gap closure is essential – WLTP + real world testing with a not to exceed limit is the solution.
ISSUES: DIESEL
AIR QUALITY: Dieselgate

Above and beyond the legal NOx limits

Source: Transport & Environment
AIR QUALITY

**NOx standards on the road**

- **Euro 3**
  - 2000: 0.5

- **Euro 4**
  - 2005: 1.0
  - 2009: 0.8

- **Euro 6**
  - 2014: 0.08
  - 2016: 0.6
  - (RDE Step 1) 2019: 0.4
  - (RDE Step 2) 2021: 0.12

**Emission standards (NOx emissions in g/km)**

**Reality (NOx emissions in g/km)**

Source: Transport & Environment and the CEC
MINIMAL RECALL ACTION SO FAR:

At least 80% of dirty diesel cars remain on our roads.

Source: Transport & Environment, EEA and ICCT
Europe: a diesel island
7 in 10 diesel cars and vans are sold in Europe

1% U.S.A.
2% China
3% South Korea
2% Turkey
15% India

Rest of the world: 7%

Source: Global Fuel Economy Initiative & OICA
# Euro emission standards: passenger cars

<table>
<thead>
<tr>
<th>Euro stage</th>
<th>Year of entry into force for new models*</th>
<th>CO g/km</th>
<th>HC</th>
<th>HC+NO\textsubscript{X}</th>
<th>NO\textsubscript{X}</th>
<th>PM</th>
<th>PN number/km</th>
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<tbody>
<tr>
<td><strong>Compression ignition (diesel)</strong></td>
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<tr>
<td>Euro 1</td>
<td>1992</td>
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<td>0.97</td>
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<td>0.14</td>
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<tr>
<td>Euro 2</td>
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<td>0.7</td>
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<tr>
<td>Euro 3</td>
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<td>0.64</td>
<td>-</td>
<td>0.56</td>
<td>0.50</td>
<td>0.05</td>
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<tr>
<td>Euro 4</td>
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<td>0.30</td>
<td>0.25</td>
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<tr>
<td>Euro 5a</td>
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<td>0.005</td>
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<td>Euro 6</td>
<td>2014</td>
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<td>0.17</td>
<td>0.08</td>
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<td><strong>Positive ignition (petrol/gasoline/LPG/CNG)</strong></td>
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<td>Euro 2</td>
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* models already in production must comply typically around one year later
** applicable only to direct injection engines

Source: European Commission
BETTER ENFORCEMENT NEEDED

EU Market Surveillance Mechanism

Spot check cars on EU roads
Audit national authorities
Investigate complaints on non-compliance

Management Board

Commission
National vehicle experts
Industry: carmakers, testing services
Civil society, NGOs

Source: Transport & Environment
ALTERNATIVES

E-mobility & biofuels
NOT ALL FUEL SUBSTITUTES REDUCE EMISSIONS

Direct emissions plus land emissions

- Sunflower
- Rapeseed
- Soy
- Palm
- Wheat
- Maize
- Sugar beet
- Sugar cane
- Cereal straw ethanol
- Short-rotation coppice
- Forest residues
- Waste wood
- Used cooking oil diesel

Source: RED II, ILUC directive, Globiom, IFPRI
**NATURAL GAS – NOT A CLIMATE OPTION**

- Very inefficient in reducing climate gas and air pollution
- High societal costs
- Not a ‘bridge fuel’ but dead end

### Natural gas vehicles: High costs, few benefits

<table>
<thead>
<tr>
<th>VS.</th>
<th>Natural gas emissions</th>
<th>Natural gas costs</th>
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<tbody>
<tr>
<td></td>
<td>CO₂</td>
<td>NOₓ</td>
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<tr>
<td>Diesel cars</td>
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<td>–</td>
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<tr>
<td>Petrol cars</td>
<td>–</td>
<td>€</td>
</tr>
<tr>
<td>Vans</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Small rigid trucks</td>
<td>–</td>
<td>–</td>
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<tr>
<td>Articulated trucks</td>
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<td>–</td>
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<tr>
<td>Buses</td>
<td>–</td>
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</tr>
</tbody>
</table>

![Image](https://via.placeholder.com/150)

*Source: Adapted from Ricardo Energy & Environment*
EVs: THE MOST EFFICIENT SO FAR

Cars: Battery electric most efficient by far

- **Direct charging battery electric vehicle**
  - 73% efficiency
  - 22% energy losses
  - 5% energy losses

- **Hydrogen fuel cell vehicle**
  - 22% efficiency
  - 30% energy losses
  - 48% energy losses

- **Power to liquid conventional vehicle**
  - 13% efficiency
  - 31% energy losses
  - 56% energy losses

100% renewable electricity

Source: WTT (I.BST, IEA, World bank), TTT, T&E calculations
INDUSTRY COMPETITIVENESS
CHINA: LEADING EV MARKET GLOBALLY

Europe: world’s 2nd largest EV market

Source: adapted from IEA, Global EV outlook 2016, only BEVs
EU: LIMITED CHOICE UNDERMINING DEMAND FOR EVs

Number of Models available on EU market 2016

425

28

20

ICEV  PHEV  BEV
EV SUPPLY LAGGING BEHIND

Marketing spent in 2016 across EU core markets

Source: Transport & Environment, ElaQuity
ZEV TARGET: THE FUTURE IS ELECTRIC

- Aids smart, renewable grid balancing
- Creates charging infrastructure business case
- Creates pathway to 2050 goals
- Drives EU investment in EV & cell manufacturing
- Reduces long term compliance costs
- Increased choice of models & marketing

Increased choice of models & marketing

Reduces long term compliance costs

Creates pathway to 2050 goals

Drives EU investment in EV & cell manufacturing

Creates charging infrastructure business case

Aids smart, renewable grid balancing

Con il sostegno del Ministero dell’Ambiente
NOVEMBER MOBILITY PACKAGE:
OPTIMAL DESIGN OF POST 2020 CAR AND VAN CO2 STANDARDS

- Targets cars
  - 2025 75 g/km (WLTP)
  - 2030 55 g/km (WLTP)

- ZEV Mandate
  - ZEV sales target
    - 2025 15-20%
    - 2030 35-50%

- Cost reduction
  - Real World Testing & 115% Not to Exceed limit
  - Footprint metric for 2025
  - Mileage weighting factor

- Infrastructure
  - Member States need to speed up infrastructure deployment
  - Normal infrastructure at home and work (non-residential buildings)
  - Fast-charging infrastructure along TEN-T network
WHAT THE EU SHOULD DO?

- Type approval reform: independent & effective enforcement at EU level
- 2025 CO2 targets for cars, vans and trucks
- ZEV mandate as part of CO2 regulations
- Technology neutral Euro 7 standard
- Phase out land-based biofuels by 2025
- In use checks & real-world tests
Accordo di Parigi e Agenda 2030 per lo sviluppo sostenibile

Grazie per l’attenzione!
Veronica Aneris

Prossimo webinar:
Mercoledì 15 novembre 2017 (ore 15,30-16,30)
L'alternanza scuola – lavoro, opportunità per i giovani e le aziende.
Laura Bruni, Schneider Electric - GdL "Efficienza Energetica" Kyoto Club

Per l’elenco completo dei webinar consulta: www.kyotoclub.org/formazione/accordo-parigi-agenda-2030-sviluppo-sostenibile