Plans of the Spanish government for decarbonising transport

Spanish National Energy and Climate Plan (NECP) 2021-2030
Long term strategy for 2050

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Transport sector consumes the most energy in Spain, reaching near 42% of the final energy consumption. Only the private vehicle represents 15% of all the final energy consumed in Spain.

Participation (%) of Energy Consumption by Transport Modes in the Transport sector in Spain, 2000-2016

Fuente: MITECO/IDAE
Annual variations (2018/2017):

Transport increased emissions with respect to 2017 by + 2.7%, mainly due to the increase in emissions from road transport (which in itself represents 25% of the total GHG emissions from the Inventory), experiencing an interannual increase of + 2.6%, due to an increase in gasoline consumption of + 4.8% and an increase of + 2.0% in diesel consumption.
### Spain: Projection of Emissions in the Target Scenario

(Units: thousands of tonnes of CO2 equivalent)

<table>
<thead>
<tr>
<th>Year</th>
<th>Transporte</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>59,199</td>
<td>287,656</td>
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<tr>
<td>2005</td>
<td>102,310</td>
<td>439,070</td>
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<tr>
<td>2015</td>
<td>83,197</td>
<td>335,809</td>
</tr>
<tr>
<td>2020</td>
<td>85,722</td>
<td>327,437</td>
</tr>
<tr>
<td>2025</td>
<td>74,638</td>
<td>266,337</td>
</tr>
<tr>
<td>2030</td>
<td>57,695</td>
<td>226,731</td>
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*Fuente: OECC, MITECO*
The objective of mitigation of emissions to 2030 is to decrease 100 MTCO2-eq in the period of PNIEC 2021-2030, achieved mainly through:

- Decarbonization of the electricity generation sector: decreases 44 million tons of CO2 equivalent in the Plan period
- Reduction in emissions in the mobility-transport sector: decreases 28 MTCO2-eq
- Combustion Industry and Residential, Commercial and Institutional sectors, which decrease 7 MTCO2-eq. each.

In the decade 2031-2040, another 97 million tons of CO2 equivalent would have to be reduced. The Transport-Mobility sector will have to make the decisive contribution in absolute figures, since the forecast is that in 2030 it is the largest issuer with 58 MTCO2-eq, 25% of the total.
CHALLENGES FACED BY THE TRANSPORT SECTOR TO REDUCE ITS GHG EMISSIONS

• Sector’s **diffuse emission sources**. Difficult to approach.

• The fuels used in transport are **oil-based products**, with a high carbon intensity.

• The **economic and population growth** is deeply related to passenger and freight activity. Traffic growth could outpace mitigation measures, unless emissions can be strongly decoupled from economic growth and the increase in private car ownership rates.

• The population will continue the tendency to concentrate in **large cities**
Draft National Plan on Energy and Climate (2021-2030)

- 21% of GHG emission reduction economy wide (vs.1990).
- 38% of GHG emission reduction diffuse sectors (vs 2005)
- 42% renewable energy in final energy consumption
- 39.6% energy efficiency improvement

-40% GHG emission reduction

≥32% Renewable energy

≥32.5% Energy efficiency
Spanish NECP, 2021-2030

This National Plan fixes a reduction of GHG at least 21% in relation to 1990 by the year 2030: **mitigate one of every three tons of CO2** equivalent between the present moment and the end of the Plan, 2030.

It is an **ambitious Plan. In terms of energy efficiency**, fixed an improvement in energy efficiency of 39.6% (the target set by the European Commission is 32.5%).

The **Transport sector should contribute 38%** to the goal of cumulative final energy saving, 36,809 ktep in the period 2021-2030.

Accumulated final energy savings by sectors, 2021-2030
In the transport sector, a significant increase in final energy consumption is expected between 2015 and 2020, and from then on a very significant decrease as a result of the modal shift towards public transport and non-emitting modes. **An accelerated introduction of the electric vehicle is foreseen** (5 million vehicles, of which there are more than 3.5 million cars), accompanied by an increase in the percentage of renewable energies in the electric power generation sector of 74% for the year 2030.
• The high penetration of ER is an opportunity for the electrification of transport to contribute to the decarbonization of the economy.
• VE can play a key role in storage, along with self-consumption applications
Challenges within the Spanish NECP (2021-2030)

2018

1. National emissions of CO2 18% above those of the year 1990.

2. Fleet of 35 million vehicles, with a high dieselization, electric vehicles penetration rate of 0.6%.

3. Vehicle culture owned

4. Centralized electric generation

5. High use of the private vehicle (15% of final energy consumption)

Scenario Year 2030

1. Transport sector must reduce its emissions by 34% (in year 2030 compared to present moment)

2. Vehicle fleet with a minimum electric vehicle penetration rate of 15%, of which about 1/3 are dedicated to shared mobility services.

3. Culture of mobility services. Vehicle will be electric, connected, autonomous and shared.

4. Distributed electric generation, with an important role of self-consumption.

5. Modal shift: Passenger-km transfer of 35% to public transport in the urban areas
A low-emission mobility requires a combination of measures:

• The promotion of **intermodality**, prioritizing more efficient ways

• The use of cleaner and more efficient vehicles and **propellants**, prioritizing electromobility in a scenario of strong penetration of renewable energy.

• The promotion of **technological innovation**

• The promotion of a more attractive **public transport**

• **Efficient use** of modes.
Lately measures taken by national government heading to descarbonise the transporte sector

- Royal Decree Law 15/2018, of October 5, on urgent measures for the energy transition and the protection of consumers
- Draft Law on Climate Change and Energy Transition
- Draft National Plan on Energy and CLimate (NPEC)
- MOVES and DUS Programmmmes
- Transposition of Buildings Directive 2018/844

- Elimination of the figure of “gestor de carga”
- Promoting self-consumption. Elimination of the "sun tax" and shared self-consumption
- Limitation of registration / circulation of combustion vehicles in 2040/2050
- Installation of recharge in EESS
- Restrictions traffic in cities
- 42% RE in final energy consumption, 74% in electric generation
- 39.6% energy efficiency improvement
- Energy dependency from 73% to 59%:
  > 75,000 M € savings in 2030 from fossil fuel import
- Subsidies to acquire alternative vehicles, VE infraestructure deployment and sustainable mobility (Companys and municipalities)
- Obligations points recharge in buildings
PROPOSED ENERGY EFFICIENCY MEASURES IN THE TRANSPORT SECTOR (2020-2030)

• **Modal shift** in urban areas (foot, bicycle, public transport, shared vehicle), achieving a reduction in passenger traffic (passenger-km) in urban environments by 35% until 2030 and interurban traffic of the order of 1.5% per year.

• Increase the **efficiency** of the modes of transport used (management in the fleets, more efficient engines / technologies, efficient driving).

• **Renewal of the vehicle fleet** towards the most efficient.

• **Electrification** of the vehicle fleet, reaching 5 million electric vehicles in 2030, thus integrating renewable energy in transport.

• Promotion of the transfer of goods and passenger from road to rail.

• Electrification of railway network and electricity supply of ships in ports.

• **Biofuels** in aviation and greater energy efficiency in the sector.
MECHANISMS OF ACTION TO INCREASE ENERGY EFFICIENCY IN THE TRANSPORT SECTOR

• **Public support**: Public support programs, with FEDER OT4 (EBC) co-financing to promote the implementation of the Sustainable Urban Mobility Plans (SUMPs) of the Town Councils and PTTs in companies. The coordination between central, regional and local administration is fundamental.

• **Legislation and regulations** of the central autonomic and Local administrations. Incorporation of measures such as: Public Transport Financing Law, obligation to have PTTs in companies, restrictions on traffic in urban areas, parking management, promote MaaS, reservation of lanes to public and collective transport and other measures such as traffic calming.

• **Financial instruments** to mobilize investments that allow the transfer of merchandise and passengers from the road to the railroad, with the aim of achieving a 7.5% transfer of the ton-km and passenger-km and for the renewal of the last mile delivery fleets.

• Communication and **use of the TICs** applied to the MaaS services, to the management of the fleets, especially freight transport by road and last mile.

• **Fiscal measures**, aimed at internalizing the externalities of fossil fuels.
Promotion of the electric vehicle and recharging infrastructure

VE current park: 72,000 electric vehicles
Target to 2030: 5 million vehicles, of which 3.5 million will be passenger cars.

This objective means that about 15% of the vehicle fleet will be electric by 2030.

Key aspects to achieve this objective:

- Achieve price parity between electric and combustion vehicles
- Adequate and sufficient deployment of public recharging infrastructure

Mechanisms of action promoting electric vehicle

- Public aid required until the year 2025: € 1,000M (for vehicle and infrastructure)
- Tax reform that allows the externalities of fossil fuels to be internalized.
- Regulatory measures that speed up the deployment of the recharging infrastructure and that favor the penetration of the electric vehicle in the cities (parking management, bus-HOV lanes, access restrictions to the center, ...).
- Communication. Information available to the citizens and companies. (PSA / CEF projects)
### Long Term Strategy Options

<table>
<thead>
<tr>
<th>Main Drivers</th>
<th>Electrification (ELEC)</th>
<th>Hydrogen (H2)</th>
<th>Power-to-X (P2X)</th>
<th>Energy Efficiency (EE)</th>
<th>Circular Economy (CIRC)</th>
<th>Combination (COMBO)</th>
<th>1.5°C Technical (1.5TECH)</th>
<th>1.5°C Sustainable lifestyles (1.5LIFE)</th>
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<td>GHG target in 2050</td>
<td>80% GHG (excluding sinks) [&quot;well below 2°C” ambition]</td>
<td>80% GHG (incl. sinks) [&quot;1.5°C” ambition]</td>
<td>-90% GHG (incl. sinks) [&quot;1.5°C” ambition]</td>
<td>-100% GHG (incl. sinks) [&quot;1.5°C” ambition]</td>
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Reduce the GHG emissions in transport sector will require efficiency measures (modal shift, MaaS, ecodriving, fleet management,...) and substitute oil-based products (depending on the transport mode) with liquid biofuels, natural gas, electricity or synthetic gases (hydrogen, synthetic methane) produced from low-emissions sources.
The Ministry for the Ecological Transition (MITECO) is working on the elaboration of the long-term Strategy towards a modern, competitive and climate neutral Europe in 2050, within the framework of a Decarbonized European Union.

MITECO will hold a day of information, presentation and debate on the draft of the Strategy to 2050 in September-October 2019.

The forecast of the Strategy will be to reduce by 90% GHG emissions / 1990, reducing to 29 MtCO2eq in 2050.