# Progress in progress


▼ The Energy Union is targeting a 40 per cent reduction in GHG within the next 13 years

## A new Strategic Transport Research and Innovation Agenda for the European Union, presented by **Maria Cristina Marolda**

The Energy Union Package defines a framework strategy for a resilient Energy Union with a forward-looking climate change policy, whose main targets for 2030 are: at least 40 per cent reduction of greenhouse gas emissions, at least 27 per cent share of renewable energy and at least 27 per cent improvement in energy efficiency. Reaching and exceeding these intermediary objectives will allow the EU to pursue the goal of an 80-95 per cent decrease in greenhouse gas (GHG) emissions by 2050.

Transport today accounts for 23 per cent of all EU GHG emissions and for 33 per cent of its energy consumption and therefore is one of the sectors that by 2050 will need to undergo one of the most profound transformations in order to allow the EU to reach its climate and energy goals.

The general increase in transport activities together with almost exclusive dependence of transport on oil products and fossil fuels for its energy needs are the main reasons of the growth of transport emission levels by 19 per cent between 1990 and 2013; this trend is expected to remain unchanged if no drastic measures are implemented to decarbonize transport and cut emissions by 67 per cent by 2050 in order to meet the Transport White Paper goal. The need of decarbonising transport has stimulated development of technologies whose implementation represents an opportunity that the EU industry must seize: e.g. zero tailpipe emissions cars at vehicle level or more efficient traffic management and mobility services by using emerging digital technologies, share-economy models, etc. at system level.

The Energy Union called for the establishment of a new Strategic Transport Research and Innovation Agenda (STRIA) to respond to the urgency, the magnitude and the complexity of the transformation to be achieved through a new long-term approach on transport research and innovation (R&I).


▲ **LEZs are a common sight in major European cities, such as London**

## RESEARCH, THEN INNOVATE

This need was underlined by the public consultation carried out between March and May 2016 which identified as "most urgent objectives of low carbon economy transformation for which technology innovation is needed" three priorities in transport: more efficient use of energy, reducing energy intensity of the overall system; and developing and deploying competitive new alternative fuels.

In addition to the public consultation, the European Commission carried out a process aimed at gathering the views of a wide range of transport experts and stakeholders. The input provided by the experts helped identifying the necessary R&I actions to be undertaken in order to accelerate the development and deployment of key transport innovative low-carbon technologies. For each of the seven technology areas selected on the basis of their potential to decarbonise and transform the transport system, a roadmap has been developed.

The seven thematic areas are:

1. Connected and automated transport
2. Electrification
3. Alternative fuels
4. Vehicle design and manufacturing
5. Infrastructure
6. Network traffic and management
7. Smart mobility and services

For each of the seven technology areas, short- to long-term actions and directions are identified. These outline the contribution of transport R&I to support the political ambition identified in the EC Communication "Accelerating Clean Energy Innovation". At the same time, STRIA gives a prominent role to the human-centred dimension in shaping the transport strategy and highlights the need for a coordinated mobilisation of all transport sector players, public and private, including policy makers and the civil society.

Short- to long-term actions have been identified in the following areas:

*Transport electrification.*

From an R&I perspective, the development of energy storage technologies and devices remains the cornerstone of a fully electrified transport system, well-integrated in a clean energy network. Decreasing batteries' costs while increasing their energy density and lifetime will speed up electrification of road transport. In the near term, electrification is expected to penetrate primarily road transport, while advancements in battery technologies and deployment of infrastructure will facilitate applications in other transport modes. The deployment of a network of recharging points, homogeneously covering the entire EU road network, represents another key enabling condition for the uptake of transport electrification.

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*Alternative Fuels.*

Despite rapid progress in electrification, certain modes, such as aviation, waterborne and heavy duty vehicles (HDV) will continue to rely on combustion engines as their main source of propulsion power for the foreseeable future. The shift toward a greater use of alternative fuels such as methane, LPG/CNG, synthetic paraffinic fuels, alcohols and ethers and esters, however, poses a number of technical challenges both in terms of their provision and of their consumption. From a

▼ **Battery electric vehicles are a vital element for the success of sustainable transport solutions**

*"The European Commission is now preparing a governance structure that is expected to oversee the implementation of the strategic transport research and innovation agenda"*

transport R&I perspective, efforts should focus on the development of engines optimised for a greater and more efficient use of alternative fuels with the aim of decreasing $CO_2$ and pollutant emissions.

*Connected and automated transport (CAT).* These technologies can contribute to increase the efficiency and safety of the transport system, by improving traffic flows, optimising the use of infrastructure, lower noise levels, shift greater volumes of passengers' traffic toward public transport, increase the efficiency of goods transport and foster the emergence of multi-modal transport solutions. From the R&I perspective there is the need to test the technological readiness, reliability and safety of automated transport in complex real traffic situations at large scale.

Systemic aspects of transport and mobility include Network and Traffic Management systems, responding to the challenge of the transition towards an advanced multimodal transport system that requires the optimisation of the entire transport network, as active network management and a better organisation and optimisation of traffic flows in the system play a key role in this process; Smart mobility and services, addressing users' behaviour and lifestyle, smart and sustainable city strategies, management of mobility demand and land use, smart mobility services for people and freight transport, innovative operating and business models; Transport Infrastructure, where main challenges have been identified in governance, pricing and finance, integration of transport systems to achieve synchromodality and interoperability, as well as the need to optimize the whole infrastructure life cycle and operation, making best use also of digital and automation technologies.

The European Commission is now preparing a governance structure that is expected to oversee the implementation of the strategic transport research and innovation agenda and act as a high level platform where the involved parties can discuss, steer the implementation strategy and monitor its progress.

At the same time a new tool, the Transport Research and Innovation Monitoring and Information System (TRIMIS), is being developed and will monitor progress of transport research and innovation actions to provide better feedback to implementers and policy makers.

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