



# EGVIA workshop on future energy needs in road transport

## What technology mix to achieve zero net carbon energy carriers in road transport by 2050?

On October 21st, the European Green Vehicles Initiative Association (EGVIA) hosted a workshop on the future energy needs in road transport. The workshop has been a great success, with the participation of 100 experts from all around Europe.

**SUMMARY REPORT**  
**#Energy4Transport**  
**Workshop**  
October 21, 2019



As stressed in the opening session both by Josef Affenzeller, EGVIA Secretary General, and Jean-François Aguinaga, head of unit “Future Urban & Mobility Systems” in DG Research and Innovation, a close collaboration between road transport and the energy supply will be key to achieve the vision of EC president elected Ursula von der Leyen to “strive for more, by being the first climate neutral continent in 2050”. Horizon Europe, the next EU framework programme supporting research and innovation, is paving the road for such collaboration through its cluster 5 “Climate change, energy and mobility”, aiming at reinforcing synergies and increasing the impact of European R&I in achieving our objectives of CO2 emissions reduction, as well as making the targets of the Paris Agreement a reality.

The half-day discussion with experts from transport and energy sectors had been organised to give some avenues to answer the critical question “**what technology mix to achieve zero net carbon energy carriers in road transport by 2050?**”.

**Two opening presentations were given, to set-up the landscape, both on the transport side and on the energy side.**

Prof. Zissis Samaras from Aristotle University Thessaloniki and ERTRAC Vice-Chair presented the three scenarios developed in the “EU Road Vehicle Energy Consumption and CO2 emissions by 2050” paper prepared by an ERTRAC expert group. The results both as percentage of CO2 emissions reduction compared to 2015 and as energy consumption (from Tank-to-Wheel) have been presented to the audience. The conclusions highlighted an important increase in electrical energy needs in the EU, of about 30% compared to today’s level, the need to combine all types of measures (vehicle efficiency improvements, improvements in traffic flow and road transport reductions) to achieve our CO2 emissions and energy reduction targets, as well as the necessity to invest in road transport research and innovation, zero carbon electricity, renewable fuels and new assessment methods.

An update of this study is currently under preparation and an even more complete picture will soon be available, considering Well-to-Wheels, the impact of connected and automated transport, as well as a better consideration of the potential benefits of transport smoothing measures.





Apostolos Petropoulos, from the Directorate of Sustainability, Technology and Outlooks of the International Energy Agency (IEA), presented the main findings of the *World Energy Outlook 2018 report*. One of the key chapters of this report is the estimation of the oil peak demand date, which will be different depending on the sectors, but also on the part of the world: in developing economies, oil energy demand will still be rising in 2040. The IEA has been working on various scenarios with high levels of fleet electrification (in the sustainable development 2040 scenario, 3 out of 4 new cars are electric), but benefits are limited due to the limited changes in low carbon energy production. To make a real contribution, the further electrification of transport needs to go hand in hand with cleaner electricity generation. His presentation ended with a summary of the topics which will be in the focus of the 2019 energy outlook report: solar energy production in Africa, offshore wind parks, renewable hydrogen and synthetic fuels & Carbon Capture, Utilization, and Storage (CCUS).

The **panel discussions** have then been organised to structure the discussions around two main themes: *Renewable Fuels*, kindly moderated by Neville Jackson from Ricardo, and *Electrification*, kindly moderated by Matthias Brendel from AVL.

The **renewable fuels panel** started with some opening remarks calling for a holistic perspective and consideration of embedded CO2 emissions, opening the discussion with a question on the true meaning of sustainability. Discussions continued with speeches from Jean-Marc Sohier, Science director at CONCAWE, David Bothe, Associate Director from Frontier Economics Limited, Kai Tullius, Policy officer at DG MOVE (European Commission), Patrick Klintbom, Senior Research, Sustainable Mobility in RISE and chair of the ETIP Bioenergy, and Staffan Lundgren, Director of Technology Exploitation and Strategy in Volvo. Each speaker had the opportunity to express his opinion and a fruitful discussion began after the forewords. It appeared clearly that there is no silver bullet to overcome the issues we are facing and that all pathways should be investigated.

The international dimension has been an important aspect of the discussions, with two different topics covered:

- The need to provide solutions that will work around the globe and the related need to investigate both fossil and renewable fuels options to provide solution in Europe and beyond.
- The risk management also appeared as an important item to be considered in the future. Knowing that 2/3 of the energy is imported in Europe and 1/3 of this amount is dedicated to the transport sector, the EU energy security is an important parameter to be considered.



Discussions continued on the EU energy independence, the possibility to generate the fuels locally and the related supply chains. The balance between the energy efficiency and the cost of the different solutions has also been extensively discussed, together with the topic of infrastructure development, the need for technology neutrality and the necessary modifications of the regulatory framework to consider a WtW approach or, preferably, an LCA approach, to



provide a 360° analysis of the different solutions. Yet (road) transport is not the only sector that will need renewable fuels in the decades to come, and we need to ask ourselves how can we produce sufficient amounts of sustainable fuel for road transport, and for the other sectors, in the future.

The **last panel of the day** was the discussion on **electrification**. It included Mateja Poredos from the EU office of Innogy, Pepijn Vloemans, Head of Communication at Fastned, Frank Breust, Director Government and External Affairs in BMW and Maher Chebbo, from General Electric and representing ETIP-SNET, the Technology Platform of Smart Network for Energy Transition.



Following some preliminary remarks from the panellists, the discussions highlighted the opportunity electric vehicles will represent to make the energy transition a success. However, the picture is not as simple as it seems, and many challenges will arise from the large-scale deployment of electro-mobility across Europe. Smart charging will be one of the solutions to allow flexibility and could act as an opportunity to stabilise the grid while digitalisation will be an enabler of a truly decentralised energy system. Smart charging and smart homes will go hand in hand and will contribute to reduce the huge investments needed to upgrade the distribution network; however, improvements will be needed in the exchange of data between the cars and the grid, opening a new field of activities in standardisation.

The customer experience has been one of the main topics of discussion in the panel, and various items have been covered:

- The necessity to make EVs more affordable to the customers, including by developing national incentives schemes to support the uptake of e-mobility
- The pressing need of developing the recharging infrastructure, across the whole continent.

The discussion on the recharging infrastructure highlighted the need of developing both home and office charging opportunities, for the daily use, which will need to be combined to fast charging solutions (located in cities and on the highways, for example reusing the space of former gasoline stations), working as an add-on and offering a travel experience not too different from the existing one. The convenience of some solutions, such as inductive charging, has also been discussed, together with the challenges of interoperability and roaming of EV charging. The electromobility market appears extremely fragmented, and achieving a true single market for e-mobility was identified as a potential action path for the Green New Deal. Lastly, the need to find the right balance between battery size, range, cost of EVs and charging speed requirements has been picked out as one of the areas needing strong cross-sectoral collaboration in the future?

The workshop ended with concluding remarks from the EGVI Chairman, Stephan Neugebauer. He highlighted the need to remain technology neutral in order to provide the best mix of solutions: electrification, hydrogen and synthesised fuels. To properly address the challenges ahead of us, Research and Innovation shall act as the main instruments, and a strong European Public Private Partnership will be needed to work on these.