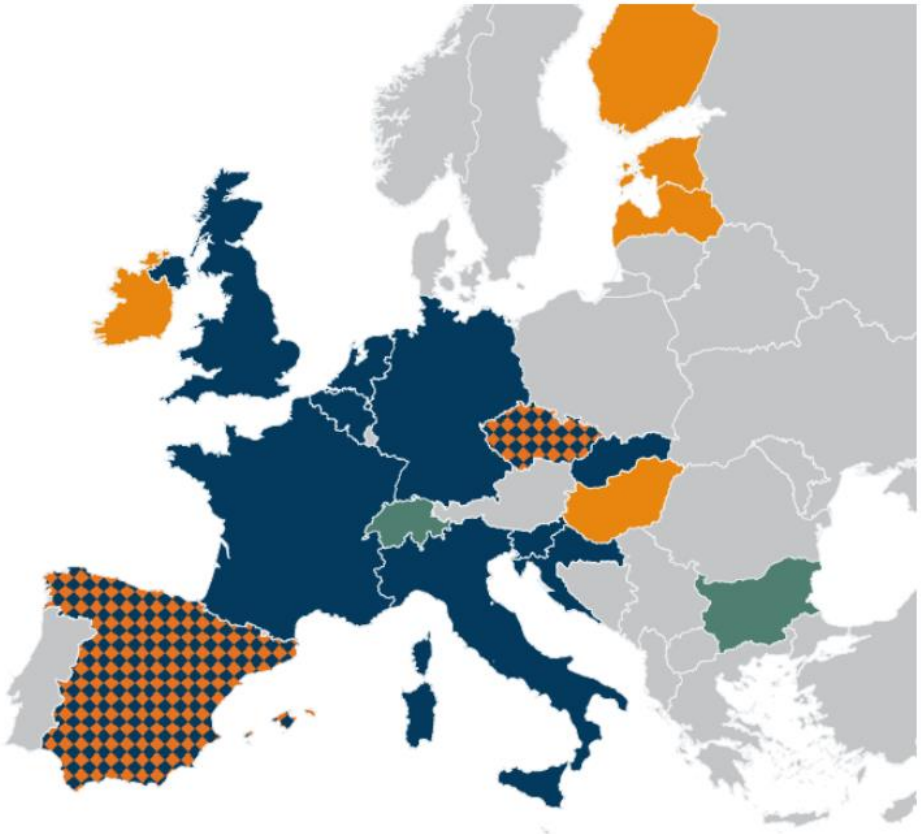
UPEI
2050 VISION

EU Refining Forum
European Commission
21 January 2020

About UPEI

The voice of Europe's Independent Fuel Suppliers

21 members in 18 countries



NEARLY 2,000 EUROPEAN IMPORTERS AND WHOLESALE/RETAIL DISTRIBUTORS OF ENERGY FOR THE TRANSPORT AND HEATING SECTORS, SUPPLYING EUROPE'S CUSTOMERS INDEPENDENTLY OF THE MAJOR ENERGY PRODUCERS.

IMPORT | WHOLESALE | STORAGE | TRADE | RETAIL | TRANSPORTATION | DISTRIBUTION | BUNKERING

About UPEI

A BALANCED MIX OF COMPANIES, INDEPENDENT AND MAINLY FAMILY-OWNED, FROM SMES TO LARGER BUSINESSES

Presentation objectives

Role and implications of the energy transition for the fuel distribution chain

Based on the UPEI 2050 vision, launched in 2019, the presentation will explore:

- technology options and their implications in terms of supply;
- how to re-purpose existing distribution infrastructure;
- the sector short and long-term recommendations for a carbon neutral society.

In an EU Green Deal context !

Context

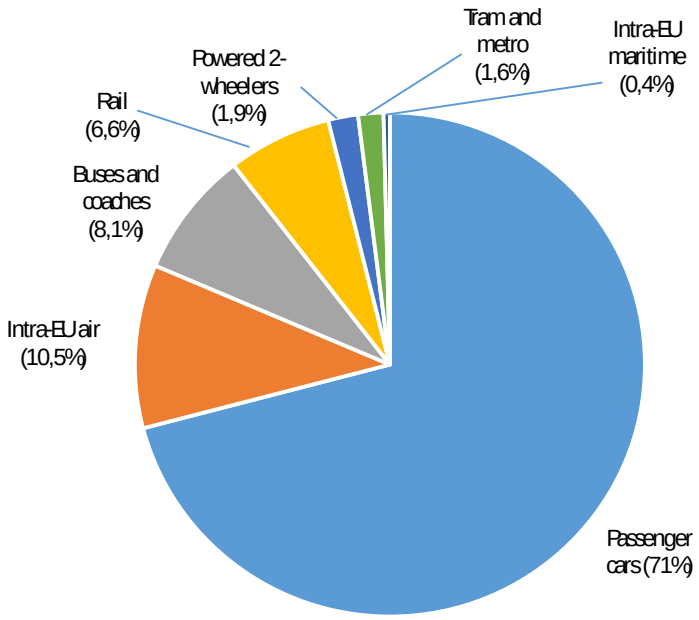
To achieve the carbon neutrality, three significant changes are simultaneously required, while safeguarding economic growth and individual needs:

- Changes in consumer behavior
- Reduction in energy demand thanks to energy savings and efficiency improvements
- Urgent drop of carbon emissions across all sectors, while being sustainable in the long term

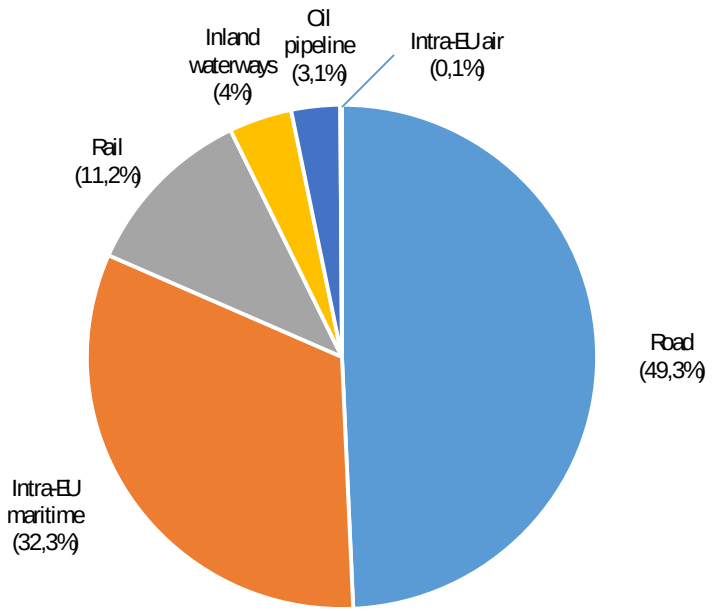
Context

…especially in the road transport sector

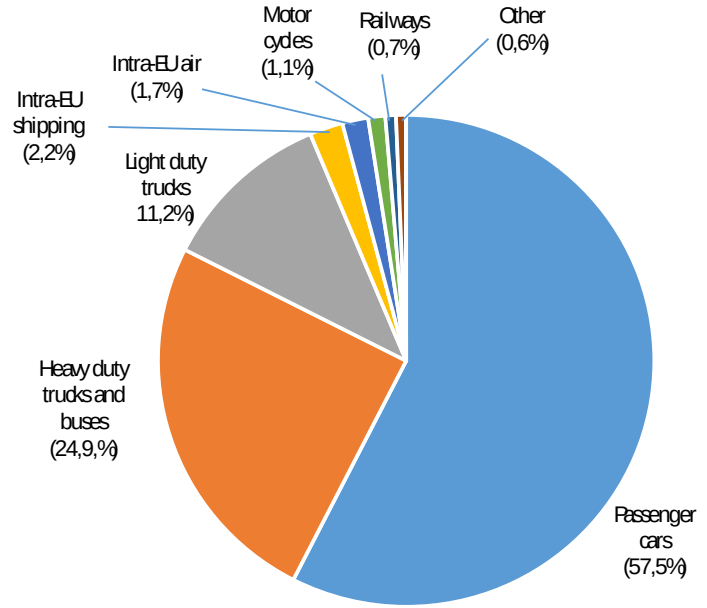
Passenger transport in EU28 (2016)



Goods transport in EU28 (2016)



Greenhouse emissions in transport sector in EU (2016)

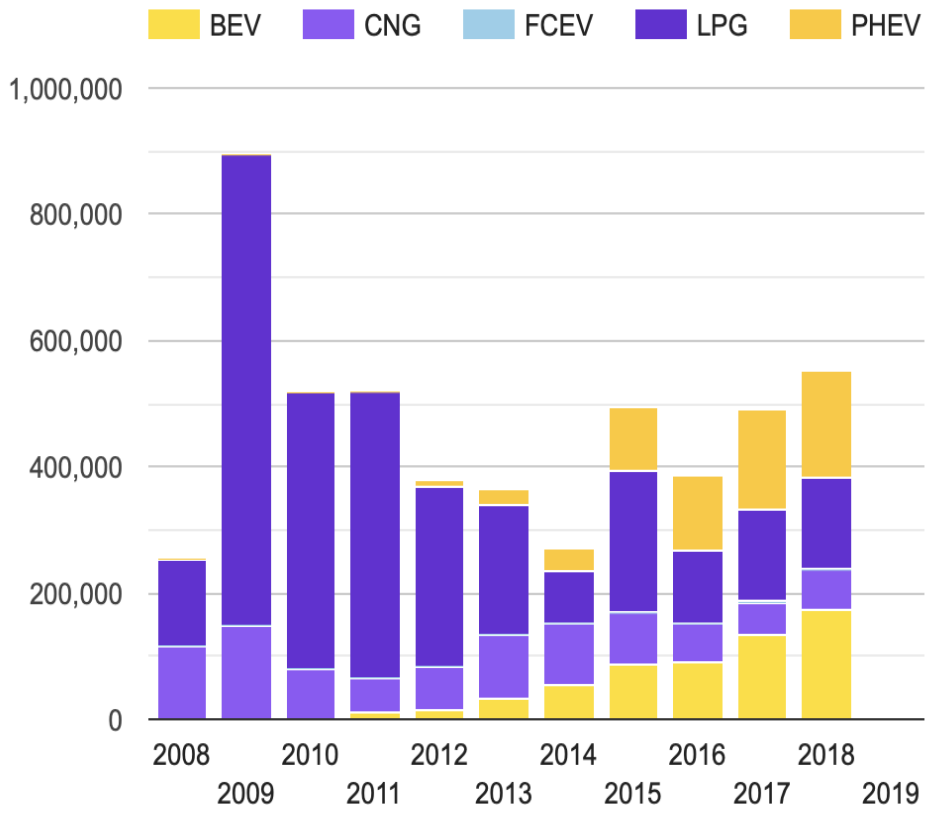


Road transport depends for 93,6% on oil

Source: EC, 2018, Transport in figures

Context

Battery-electric vehicles and plug-in hybrids:



Source: EAFO

Today

2030

2050

- 2.4% of new cars sales
- Approx. 0.3% of Europe's current vehicle fleet

- 9-15% of Europe's car fleet
- 6-10% of vans

Source: European Commission, Ricardo

- 63% of total fleet

Source: Eurelectric

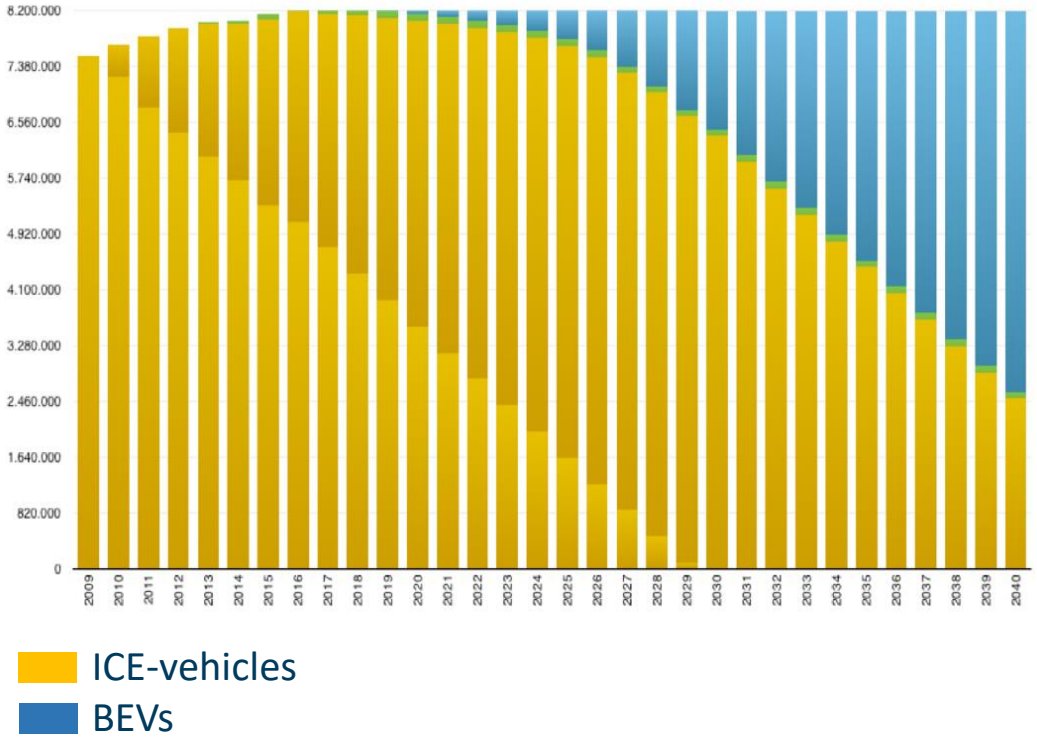
Uncertainties:

- Recharging infrastructure
- Grid capacity
- Consumers' acceptance
- Sustainability of batteries

Context

There is no single solution – while battery-vehicles are being introduced,
we also need to clean up the existing vehicle stock to achieve climate objectives.

Development of passenger car fleet composition
in the Netherlands

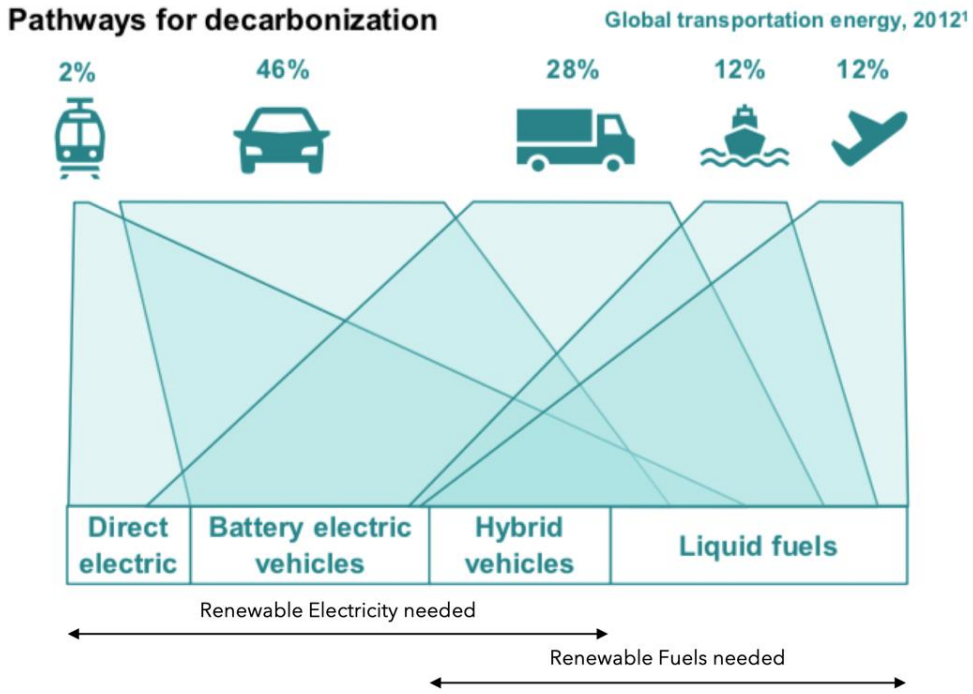


- Total fleet growing slightly
- 20 years lifetime of cars
- Carbon budget depleted by 2034
  - even in the most optimistic EV deployment scenario (e.g. the Netherlands), other solutions are needed

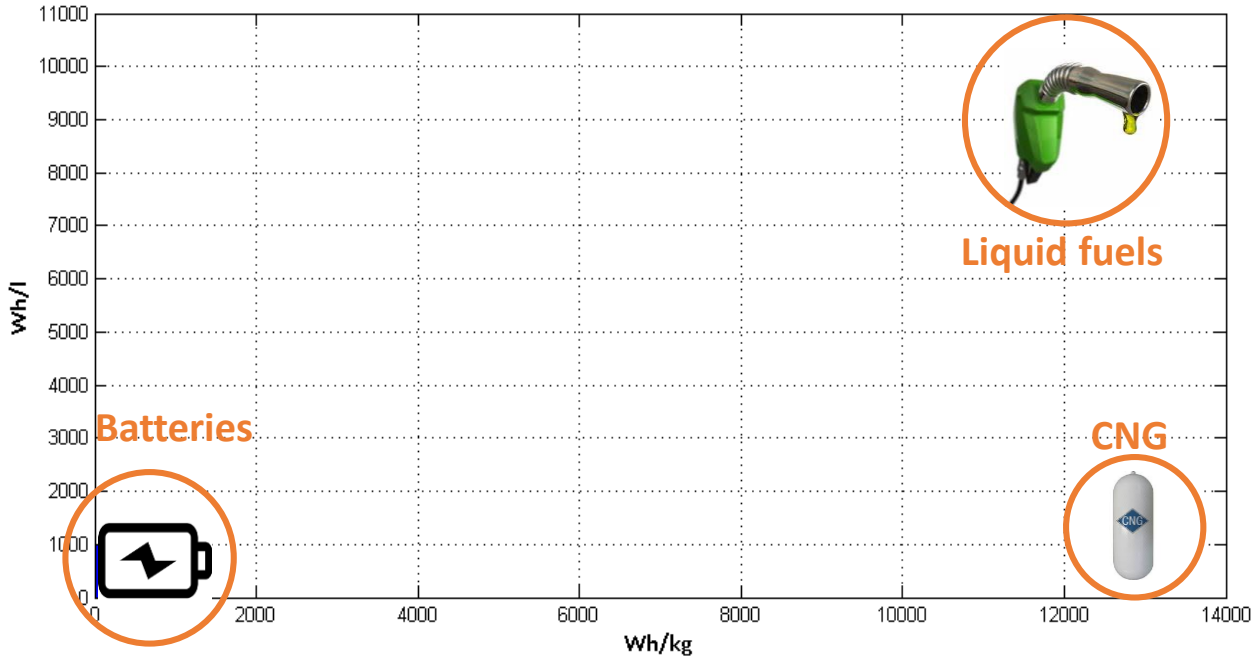
Source: Studio Gear Up analysis, 2017

Context

Each challenge requires a dedicated response – including carbon neutral solutions for segments or applications which are difficult, or not effective to electrify.



Source: Tremel, Siemens, 2018, Strombasierte Kraftstoffe, presentation at the Fuels of the Future Conference, 2018

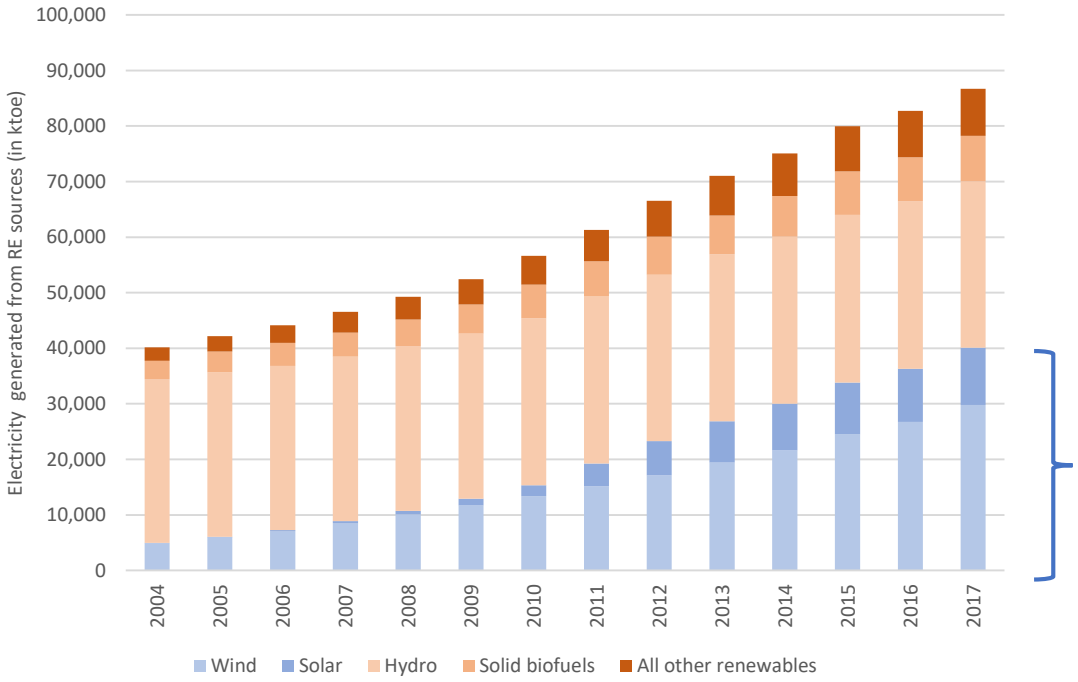


Source: Somers, Tue, Road towards green Transport, presentation at NL-RVO/PDB seminar, 2017, The Hague

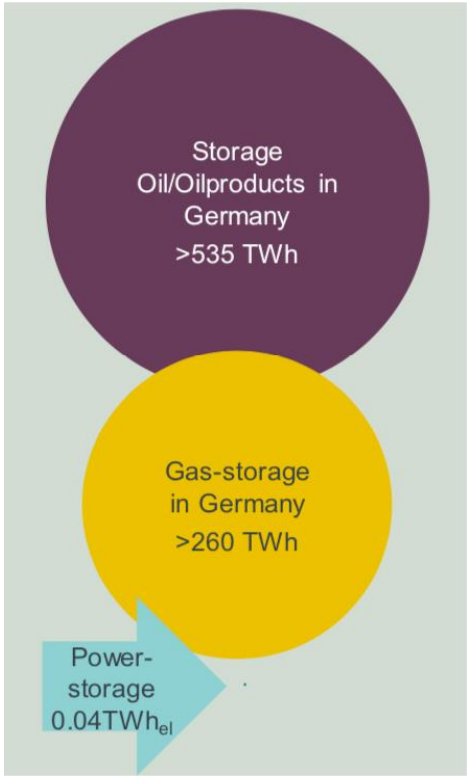
Context

Renewable electricity production is growing – we need solutions to balance fluctuating generation and store the energy long-term.

Development of electricity generation from renewable sources, 2004-2017



Perspectives for the German Economy and international trade



Sources: Studio Gear Up, data from Eurostat 2019, SHARES summary results 2017, Synthetic energy Sources, Frontier Economics, 2018

UPEI 2050 vision

UPEI vision promotes the use of existing technologies and the improvement of energy efficiency to reduce emissions immediately.

2030

IN THE SHORT TERM

The following solutions can immediately bring benefits:

- **Focus on energy efficiency first**
  - technological and design developments to reduce fuel consumption of new appliances
  - more efficient supply systems
- **Increased use of sustainable biofuels blended into conventional fuels**
  - higher blends
  - deployment in applications where they are not yet commonly used (aviation, non-road mobile machineries, maritime transport, heating & cooling)
- **Increased deployment of other alternative fuels**
  - based on their suitability for each application
  - must able to compete fairly against each other

UPEI 2050 vision

In the long term, UPEI promotes the development of carbon neutral fuels to suit all needs and applications by 2050.

Advanced biofuels and biogases
Produced from biogenic feedstocks

E-fuels or Power-to-X
Advanced renewable fuels produced from renewable electricity via electrolysis

Recycled carbon fuels
Fuels produced from industrial waste gases or based on non-recyclable plastics

2050

IN THE LONG TERM

Those carbon neutral fuels should be fully deployed to reach net zero carbon at the horizon 2050, alongside green electricity and hydrogen.

UPEI 2050 vision

It is not a choice between electricity and fuels, but rather a move from fossil to renewable and low carbon fuels: for electricity, liquid and gaseous fuels.

The battery is only one out of two clear and complementary modes of electricity use:

Battery Electric

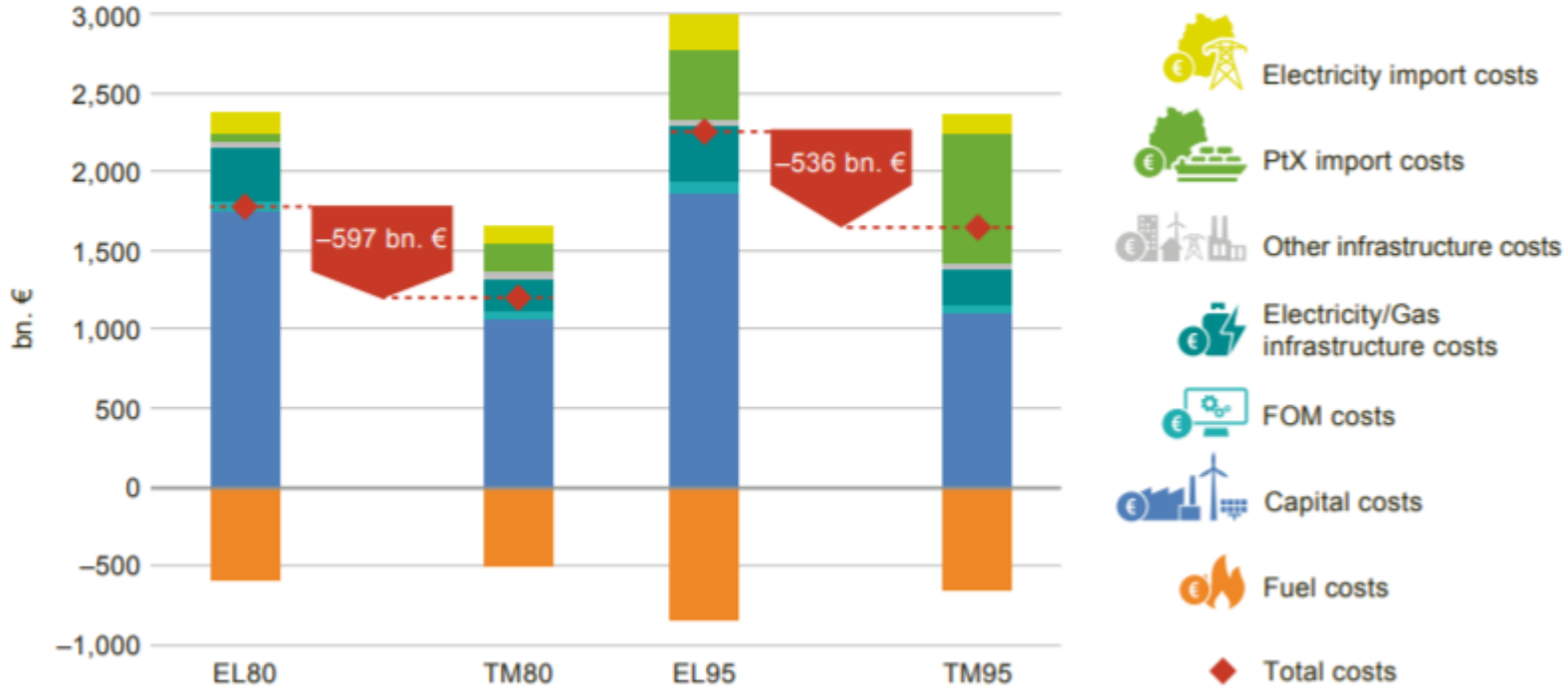
Storage
of renewable electricity for (indirect) consumption
- Transport fuels
- Heating

Liquid Electric

UPEI 2050 vision

It is more economical to achieve the 95% climate target with a technology mix strategy than with an electrification strategy

Accumulated additional costs of the energy system 2018–2050 compared to reference

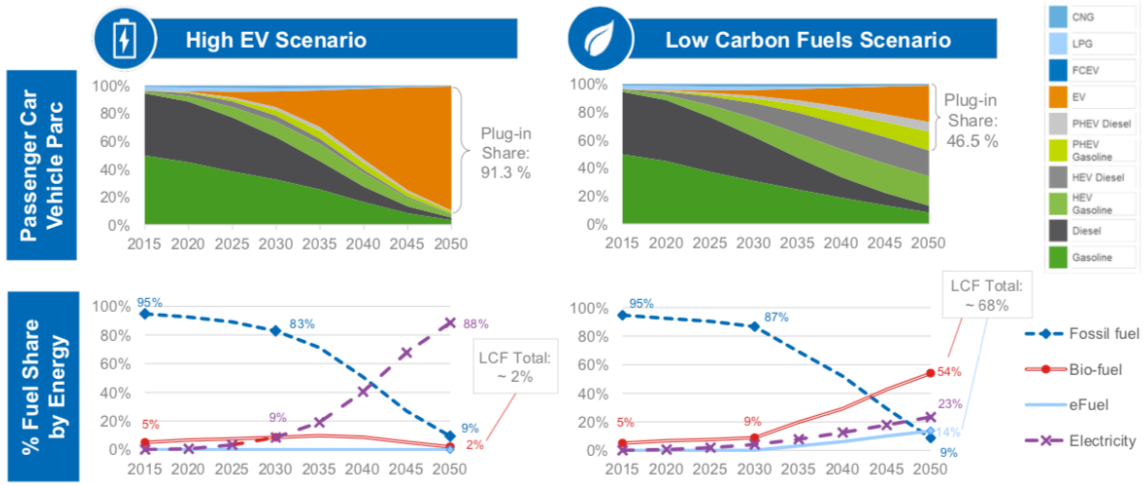


Sources: DENA, 2019, expert report from ewi Energy Research & Scenarios gGmbH

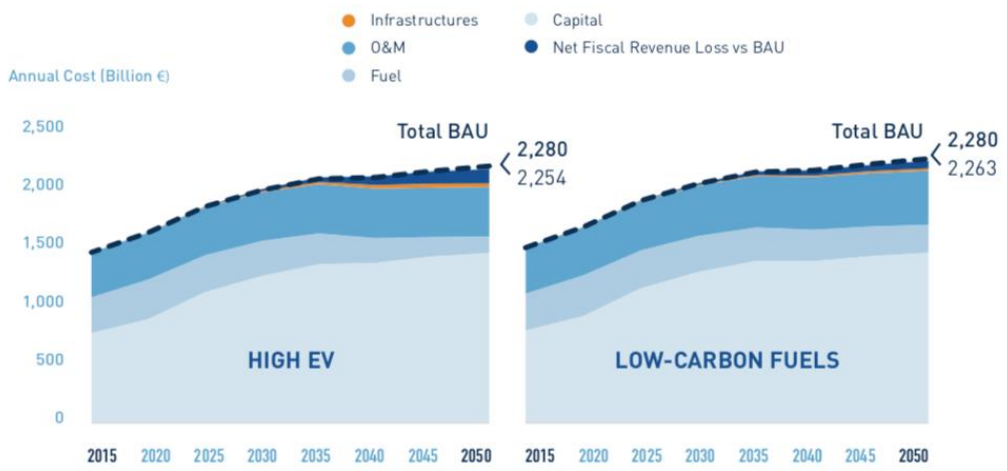
UPEI 2050 vision

Similar reduction levels can be achieved by different combination of electrification and low-carbon fuels deployment scenarios, at comparable costs.

Comparison of the vehicle fleet and share of various energy carriers in the High EV and Low Carbon Fuels Scenario of RICARDO study



Total parc annual costs to end user for all light duty vehicles



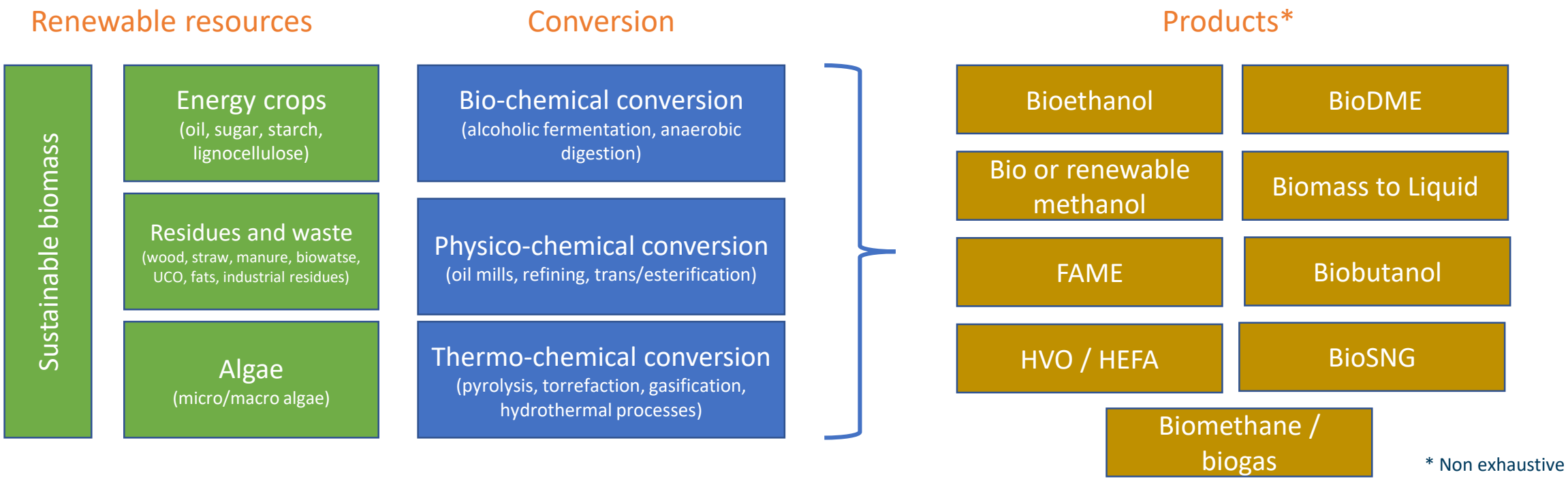
- Policy makers should be careful in making early technology choices, as the developments and progress in the various options available to achieve climate neutrality in transport are very dynamic.

Sources: RICARDO, 2018, Impact Analysis of Mass EV adoption and Low Carbon Intensity Fuels Scenarios
RICARDO, 2019, Key findings – a comparison of mass electric vehicles adoption and low-carbon intensity fuel scenarios.

Low carbon and carbon neutral fuels: types and uses

Advanced biofuels and biogases

- produced from the feedstocks listed in Part A of Annex IX of RED II (whereas waste-based fuels are listed in Part B of IX)



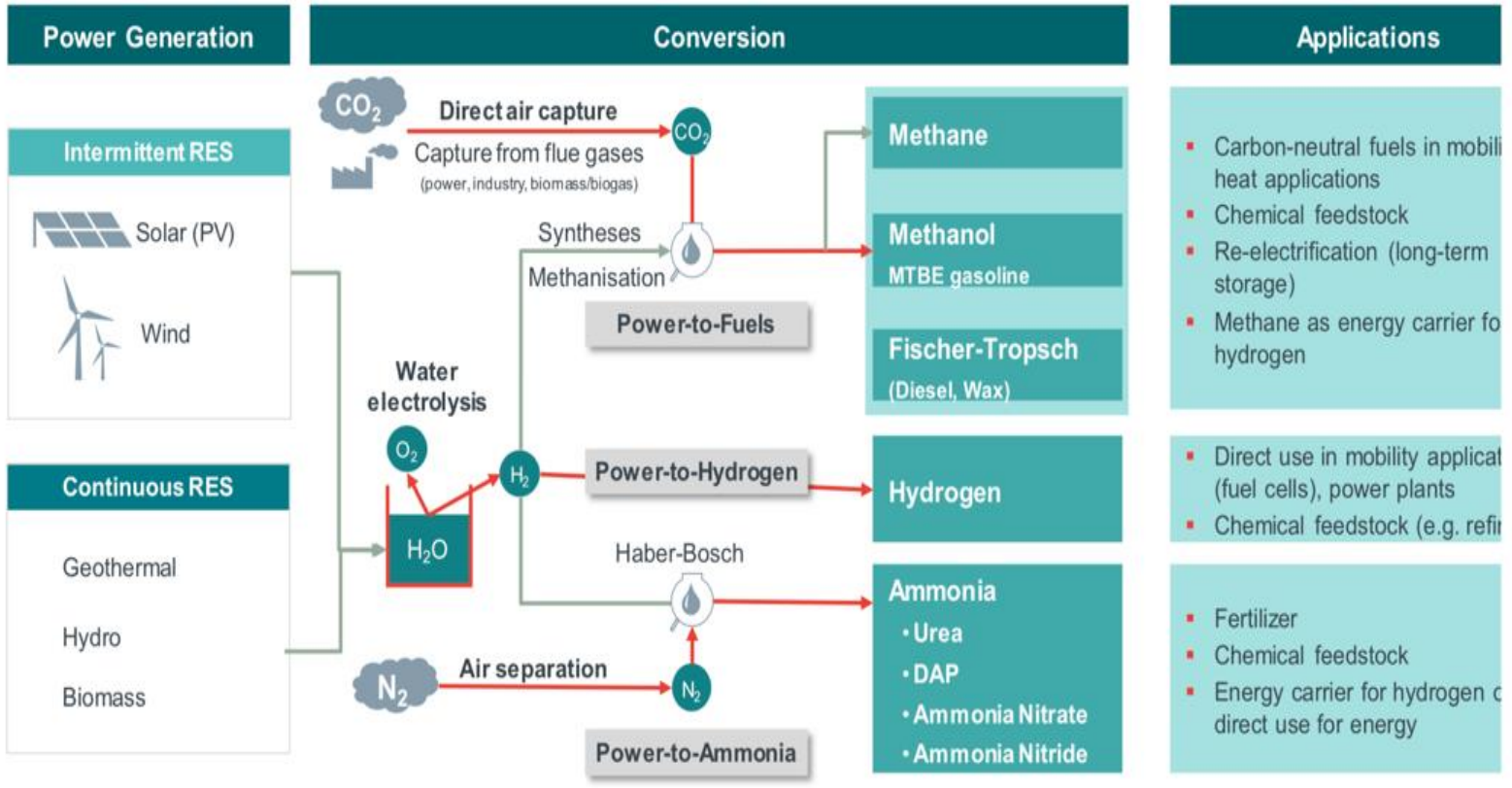
* Non exhaustive

Low carbon and carbon neutral fuels: types and uses

E-fuels – synthetic renewable fuels

In all pathways
the outcome is
carbon neutral, provided
that the electricity used
comes from renewable
sources

Power-to-X – conversion of renewable power into various forms of chemical energy carriers



Source: Frontier Economics, WEC, 2018, International aspects of a power-to-X roadmap

Benefits of carbon neutral fuels

- **SIGNIFICANT ENERGY CONTENT PER MASS**

  Especially for applications requiring high amounts of energy such as planes and ocean-going vessels.

- **STORAGE PRE-USE**

  They can be stored in liquid of gaseous forms, in the long term, without energy losses.

- **PORTABILITY**

  Both in liquid and gaseous form they can be transported virtually anywhere, from the place of production to the place of consumption, thanks to the existing supply infrastructure.

- **OPTIMISATION OF THE EXISTING DISTRIBUTION INFRASTRUCTURE**

  Thanks to their properties, they can be used in the existing supply and distribution infrastructure, making the most of existing assets in Europe.

- **ENERGY SECURITY AND RELIABILITY**

  Their storability and portability allow to stock necessary volumes to use them in case of black out or any other supply issue with other energy carriers.

Putting the vision into action

State of the legislative framework

- Strict definitions and criteria for sustainability, indirect land-use change, GHG emission savings
- 2030 target of 32% bioenergy
- Actual physical shares of renewable energy in transport may not increase sufficiently to fulfil its contribution to the overall GHG emissions reduction objectives for the sector, although renewable energy goals would be met on paper; this would result in a CO2 gap.
- Urgent need to speed up production of renewable energies to ensure their availability and actual market deployment beyond RED II requirements.


L 328/82 EN Official Journal of the European Union 21.12.2018

DIRECTIVES

DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 11 December 2018
on the promotion of the use of energy from renewable sources
(recast)
(Text with EEA relevance)

Putting the vision into action

Our recommendations to European and national policy makers

1 Technology neutrality

- Life-cycle approach to evaluate the carbon footprint and the environmental footprint of all solutions and emissions from all applications
- EU methodology to harmonise the approach to certificates of origin delivered for putting renewable and carbon neutral fuels on the market
- Revised definition of “efficiency” towards “system efficiency” to factor in the cost efficiency of renewable fuels

Putting the vision into action

Our recommendations to European and national policy makers

2 Favourable framework for innovation and investments

- Stable and predictable sustainability criteria for fuels from biomaterial origin, beyond 2030, to give the right signal to the market to invest in necessary production facilities;
- Robust sustainability criteria for batteries and e-fuels as a complement (including emissions at production, transport, raw material, recycling);
- Europe-wide e-fuel strategy to boost R&D, investment and commercialisation;
- Revised CO2 emission regulations for light and heavy-duty vehicles to incorporate a crediting system recognising the use of low carbon fuels.

Putting the vision into action

Our recommendations to European and national policy makers

3 Long-term targets

- Long-term targets rather than politically motivated draconian measures and u-turns in policy

4 Social aspects

- Social implications of the energy transition and its affordability fully considered
- Increased costs due to the use of low and carbon neutral fuels communicated and adequately compensated

5 Internal market

- Consistent implement of the EU framework to avoid creating barriers for market players

Our contribution

UPEI members can channel the transition, as critical elements of the connecting tissue that keeps the energy and mobility systems in operation

UPEI members:

- are fully aware of the climate impact of the current fuel mix for fuels;
- are committed to provide flexible, affordable and clean energy to the consumer, to meet Europe's short- and long-term climate objectives;
- have a major role to play in bringing these energies to the end users, in a context where renewable energy production will become more diversified and decentralised.

UPEI members commit to:

- Actively contribute to the formulation of the pathways to climate neutrality
- Continue and step up their efforts to bring viable low carbon and carbon neutral products to European consumers, in cooperation with fuel producers
- Educate and train their staff on the technical aspects of these solutions
- Invest in the infrastructure to ensure the effective supply of carbon neutral fuels
- Communicate the energy transition and low carbon mobility options to consumers

Our contribution

Repurposing and investing in distribution infrastructure

- UPEI members have an extensive infrastructure for storing and moving products and own more than a fifth of the total retail network in Europe.

Making the most of their expertise

- They have developed an expertise in the supply and distribution of fuels and energies and they have a strong track record in pioneering the supply of renewable fuels in the EU.

UPEI MEMBERS WILL CONTRIBUTE BY:

Making the link with consumers

- They are the closest to consumers, as retailers are the last elements of a long supply chain. Retail stations will therefore help communicate effectively the energy transition to the consumers.

Leaving no one behind

- They can supply consumers outside main conurbations, in mountainous and rural areas, and generally push prices down by bringing competition in the market, ensuring affordability.

UPEI

WHO WE ARE

UPEI represents nearly 2,000 European importers and wholesale/retail distributors of energy for the transport and heating sectors, supplying Europe’s customers independently of the major energy producers and covering more than a third of Europe’s current demand.

UPEI brings together national associations and suppliers across Europe, representing the sector at the European level.