



**7th AIEE Energy Symposium**  
**Current and Future Challenges to Energy Security**  
- the energy crisis, the impact on the transition roadmap -

**Sustainable mobility challenges for the transition targets**  
- Plenary Session -

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# The future challenge: 2050 Carbon Neutrality

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- **We fully agree with the EU climate ambitions and we are ready to give all contributions to reach the carbon neutrality by 2050**
- **To meet these goals the energy transition should carefully linked to the security of energy supply and to the social aspects to enable an economic growth also**
- **The messages released during last years which have stopped any new investment in the oil & gas sectors are the main reason for the current energy crisis. A wrong narrative has been addressed to a phase out of traditional energies when the alternatives are not yet fully available.**
- **The security of energy supplies in Europe has been severely weakened disregarding that oil and gas will continue supply the world economy for several decades**



# Wrong narrative: decarbonization not electrification

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- **Electrification has been wrongly identified as the only technological solution able to decarbonise simultaneously multiple sectors of the economy. In transport also the electrification is imposed as the only solution!**
- **Do we really decarbonize the transport sector by limiting tail pipe CO<sub>2</sub> emissions only?**
- **This approach disregards completely the contributions of multiple low carbon solutions the other sectors can deploy, betrays the principle of technological neutrality, do not allow the development of carbon neutral fuels for aviation and maritime and do not have a plan B to meet the environmental target in transport sectors**
- **Our sector has the ability to develop low-carbon technologies at scale, to enable the progressive decarbonization of transport by 2050.**



## The fundamental role of liquid fuels

- **To meet the EU 2050 Climate Neutrality ambition, the deployment of low carbon liquid fuels and carbon neutral liquid fuels will be essential. Low Carbon liquid fuels will be able to abate the CO<sub>2</sub> emissions in transport and in particular to enable the decarbonization of transport sectors hard-to-electrify, especially long distance road transport, aviation and maritime.**

## The oil sector has all the potential to achieve this goal in all transport sectors

- **In the short term: qualitative improvement of fuels, progressive increase of renewable components in fuels, transformation of some refineries into bio-refineries and progressive replacement of fossil raw materials with renewable raw materials in traditional refineries**
- **In the long-term: replacement of fossil raw materials with renewable and low-carbon raw materials (biomass and waste), green and blue hydrogen and CO<sub>2</sub> captured and reused**



- **The ICEs will remain an important component of the car park in the future**
- **There are around 300 million passenger cars across the 27 EU member states, of which only around 1,4% are battery electric vehicles (BEV); 98,6%, on the other hand, have a combustion engine**
- **BEV can be found almost exclusively in the economically strong states in Northern and Central Europe and the cost of BEV will remain very high for long time or perhaps will increase**
- **The assumption that the insensate European legislation will transform the BEV in a mass market product is totally wrong and will produce the following effects:**
  - **The expanding European used-car market**
  - **The growing average age of the EU fleet**
  - **The growing of CO<sub>2</sub> emissions in transport because the LCF deployment will be jammed and road, aviation and maritime will continue to use fossil fuels for very long time**
  - **The total loss of the European Automotive industry competitiveness vs China**
  - **By the way BEV are not zero emission vehicles**



# Why do we need LCF to decarbonize transport sectors

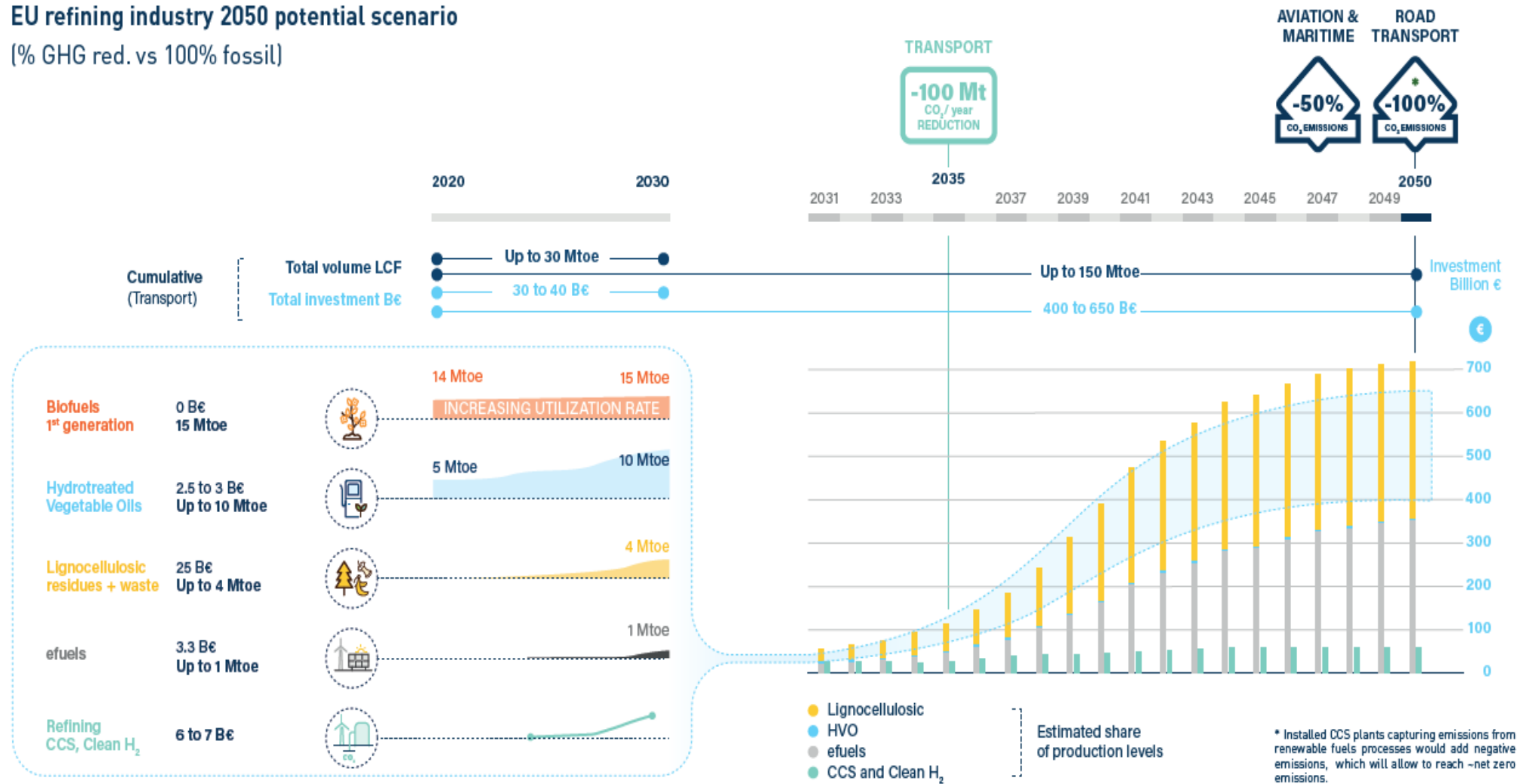
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- **LCF immediately achieve a consistent reduction of GHG emissions in transport in all-existing fleets without any technical adaptation, without waiting the very costly and very long vehicles replacement cycles**
- **LCF and e-fuels in particular can accumulate large quantities of non-programmable renewable electricity from wind, photovoltaic and hydroelectric, ensuring both grid stability and production flexibility**
- **LCF are completely compatible with traditional liquid allowing the same, identical existing logistics and distribution infrastructures without any adaptation.**
- **Over time, LCF volumes will shift to the aviation and maritime sectors, making the e-fuels early contributions to decarbonizing road transport a stepping stone for their availability for hard-to-abate transportation sectors.**



# Investments, production and CO2 abatement

EU refining industry 2050 potential scenario  
(% GHG red. vs 100% fossil)

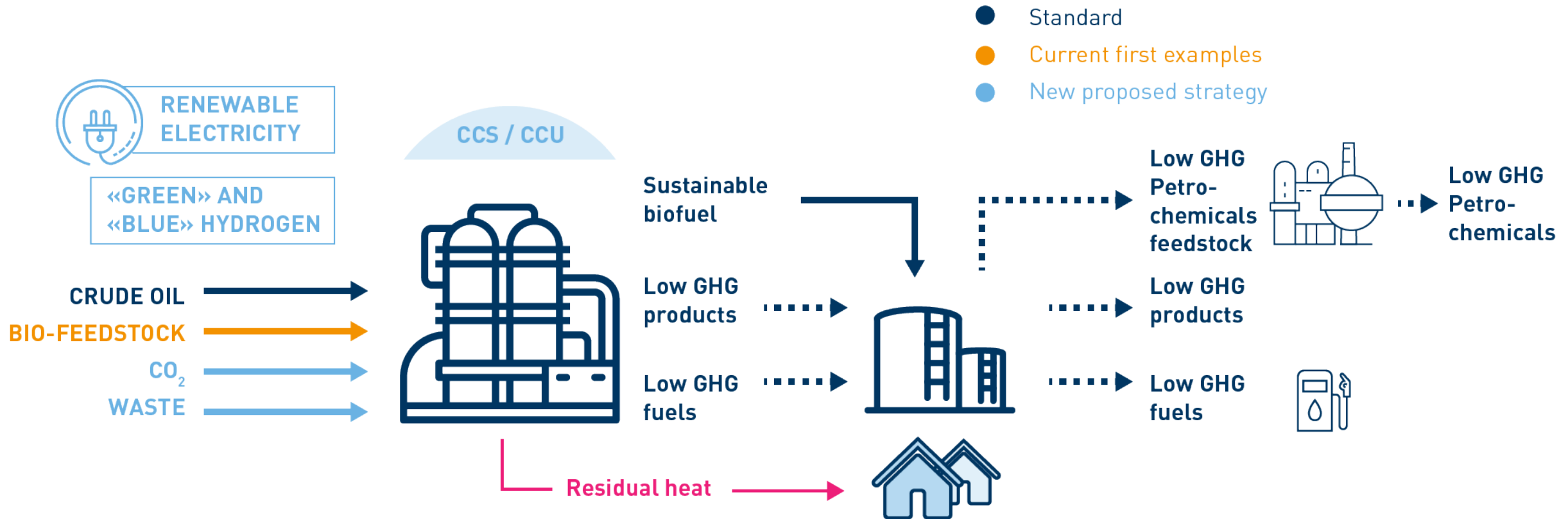


- **For the future of refining industry, we foresee an important role into the integrated energy system that will help ensure safe and affordable energy for all consumers**
- **We already started the transformation of our mineral oil refineries towards a progressive decarbonisation of process and products**
- **The refining system will evolve towards production methods where oil, as a raw material, will be gradually replaced by other feedstocks such as biomass, renewables, waste, captured CO<sub>2</sub> from CCS/CCU technologies and clean H<sub>2</sub>**
- **Refineries will be able to operate in industrial clusters by providing a range of low-carbon energy and products (for transport, for petrochemicals, heat for civil uses, etc.), clean and low carbon hydrogen and by implementing common CCS and CCU schemes within these clusters**





# The refinery as an ENERGY HUB within an INDUSTRIAL CLUSTER



- **To achieve all the above advantages it's essential that the current EU Regulation on CO2 emissions limits need to be revised to encourage and enable investments**
- **The Tank-to-Wheel approach adopted by the CO2 Regulation betrays the technological neutrality avoiding any differentiation between the fossil CO2 and renewable CO2 tailpipe emissions. Moreover does not take into account the CO2 emissions emitted upstream both for the production of fuels and for the production of electricity.**
- **Car manufacturers are currently forced to deploy only the BEV technology in order to avoid the high penalties laid down into the Regulation for failing to meet their fleet targets.**
- **Engines powered by decarbonised liquid fuels reduce CO2 by almost 100% but the current CO2 Regulation does not recognize these positive effects. It is therefore essential to consider GHG emissions released along the entire fuel supply chain and to link the legislation on fuels with that on cars.**





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