

Hydrogen – the key energy building block across interdependent molecular energy strategies

John Cooper – Director General

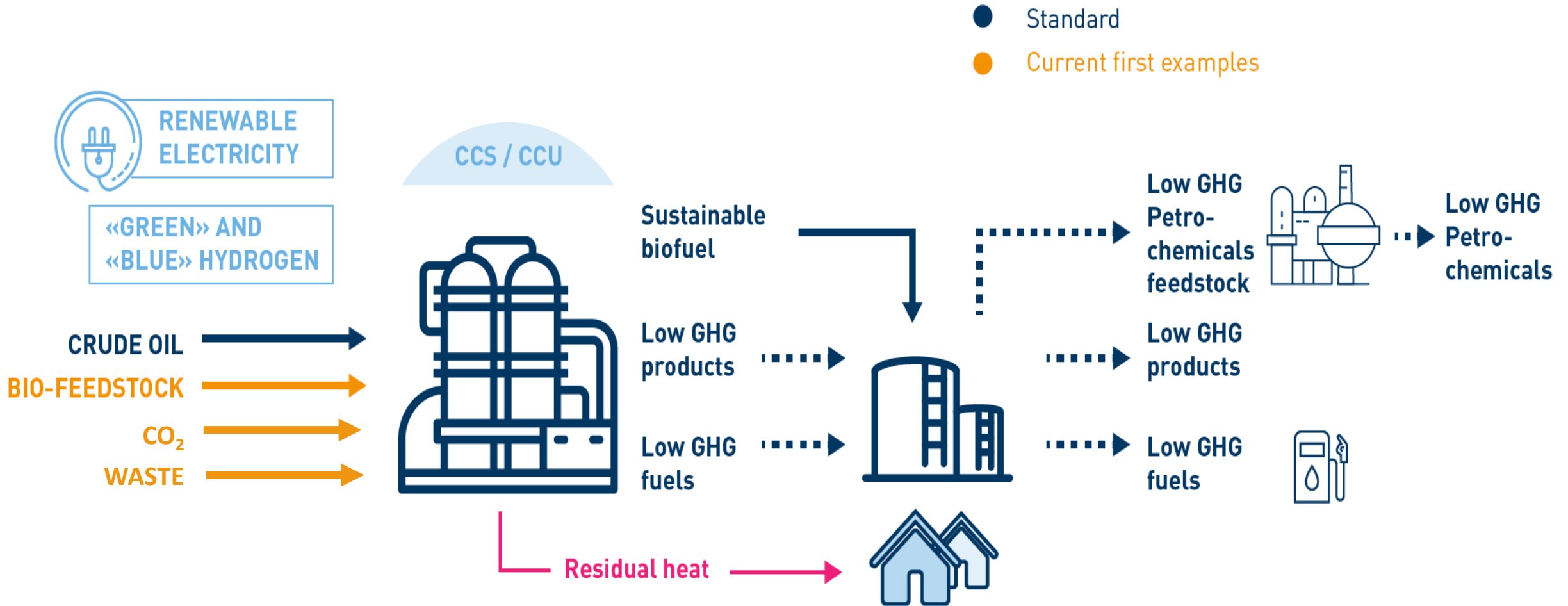
European Hydrogen Week, 26 October 2022



FuelsEurope represents 38 Member Companies



The refinery is already transitioning to an ENERGY HUB

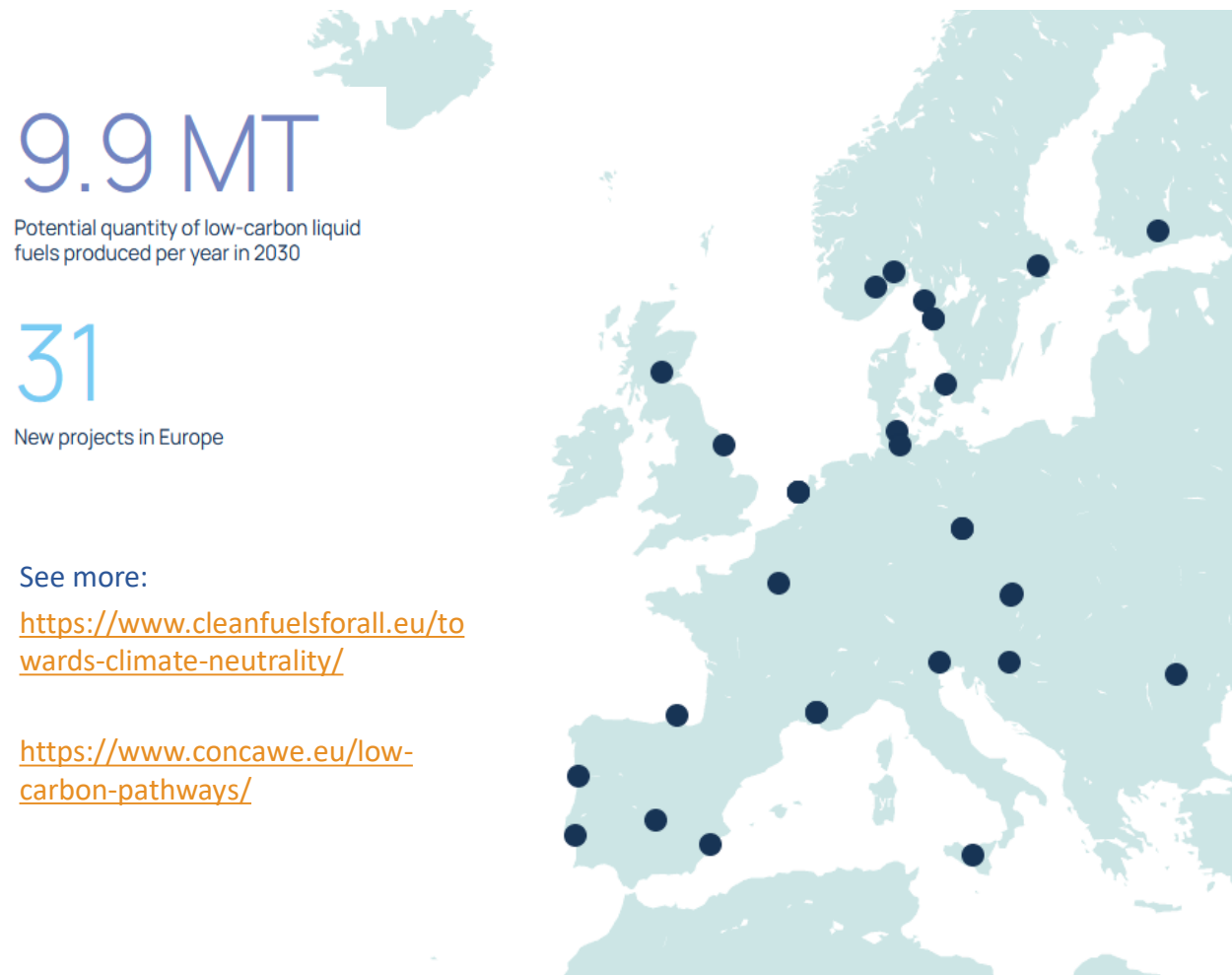


Fuels Manufacturers Transition to low-carbon liquid fuels - Projects

- FuelsEurope's members pursue a wide range of low-carbon initiatives across at least 12 Member States in different phases of the project cycle, including CCUS, E-Fuels, Green H2, Advanced biofuels, bio-refinery conversions, waste to fuel, etc.
 - Well over 20 projects for low-carbon liquids have already been started or are planned until 2030 (in the public domain).
 - Projects facilitate industrial clustering through links with Chemicals, Recycling, Steel and Cement Industries, ...
 - Scaling up and increasing the overall number of projects will be possible with the right enabling framework in place.

Provisional examples*:

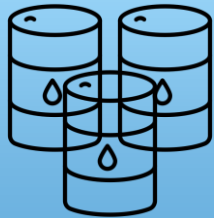
- [9 Advanced biofuel projects](#), with capacities between 100.000 and 750.000 tonnes of output.
- [7 CCUS projects](#), up to 6 mt. of capacity for CO2 sequestration.
- [12 Green Hydrogen Projects](#), some of which lower the GHG intensity of manufacturing processes, others combine the green H2 with captured carbon to produce synthetic fuels with a capacity of up to 3.4 million tonnes of output per year.
- [3 Waste-to-fuel projects](#), with a capacity of up to 100.000 tonnes per year in output (derived from urban waste).



*While the final list of projects may differ from the map or the list shown here, these projects are being considered by FuelsEurope's members to be put forth for support under the EU Recovery Fund.

Storage for Energy Security

Liquid fuels strategic stocks
in EU-27



2000 TWh

Source: Eurostat June 2021

Natural gas strategic stocks*
in EU-27



1000 TWh

* Source: EPRS June 2022 at 90% at capacity

Electric cars as grid storage



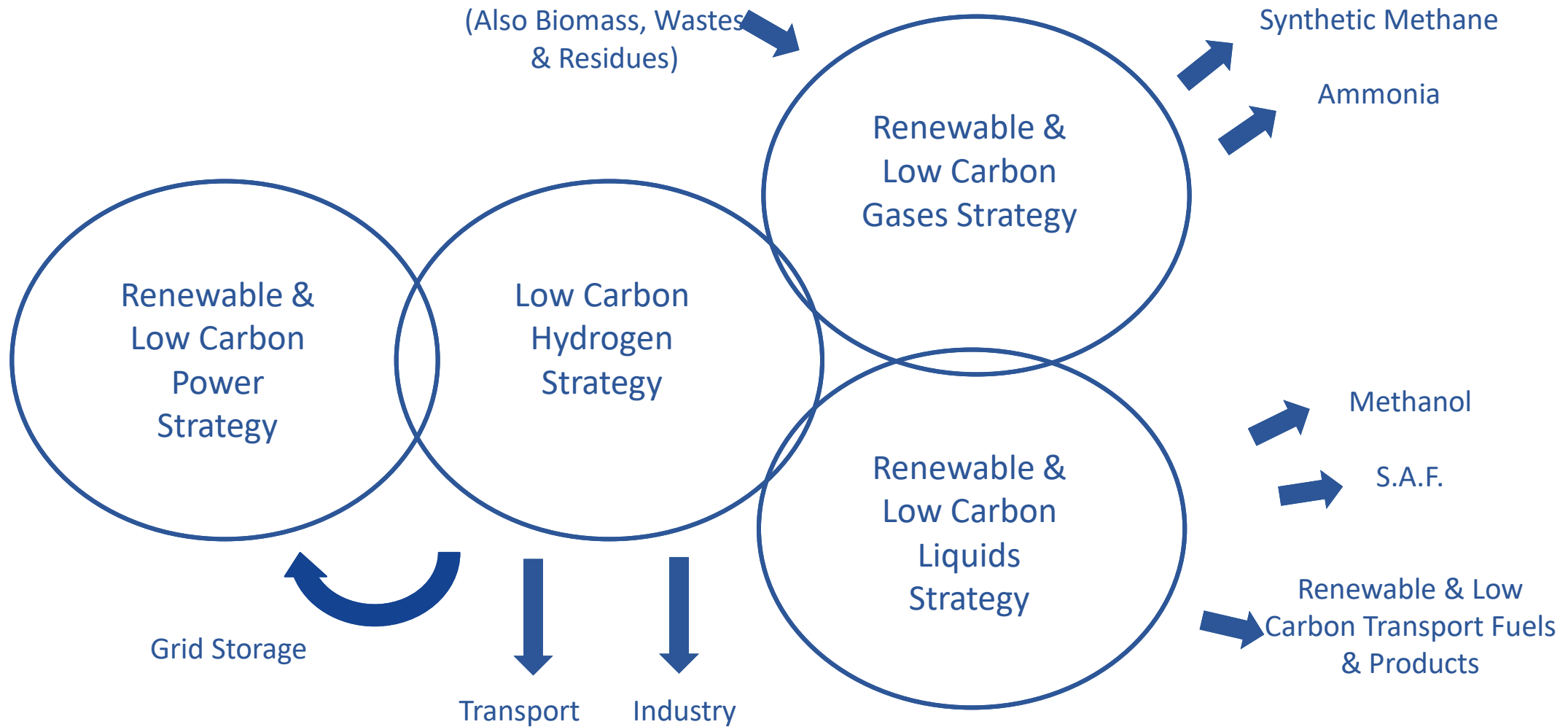
200 million EVs each with
100 KWh battery fully charged

2-way plugged in (vehicle-to-grid)

= 20 TWh

**Europe needs a liquid & gaseous fuels
transition strategy**

Energy Strategy for Low Carbon & Supply Security



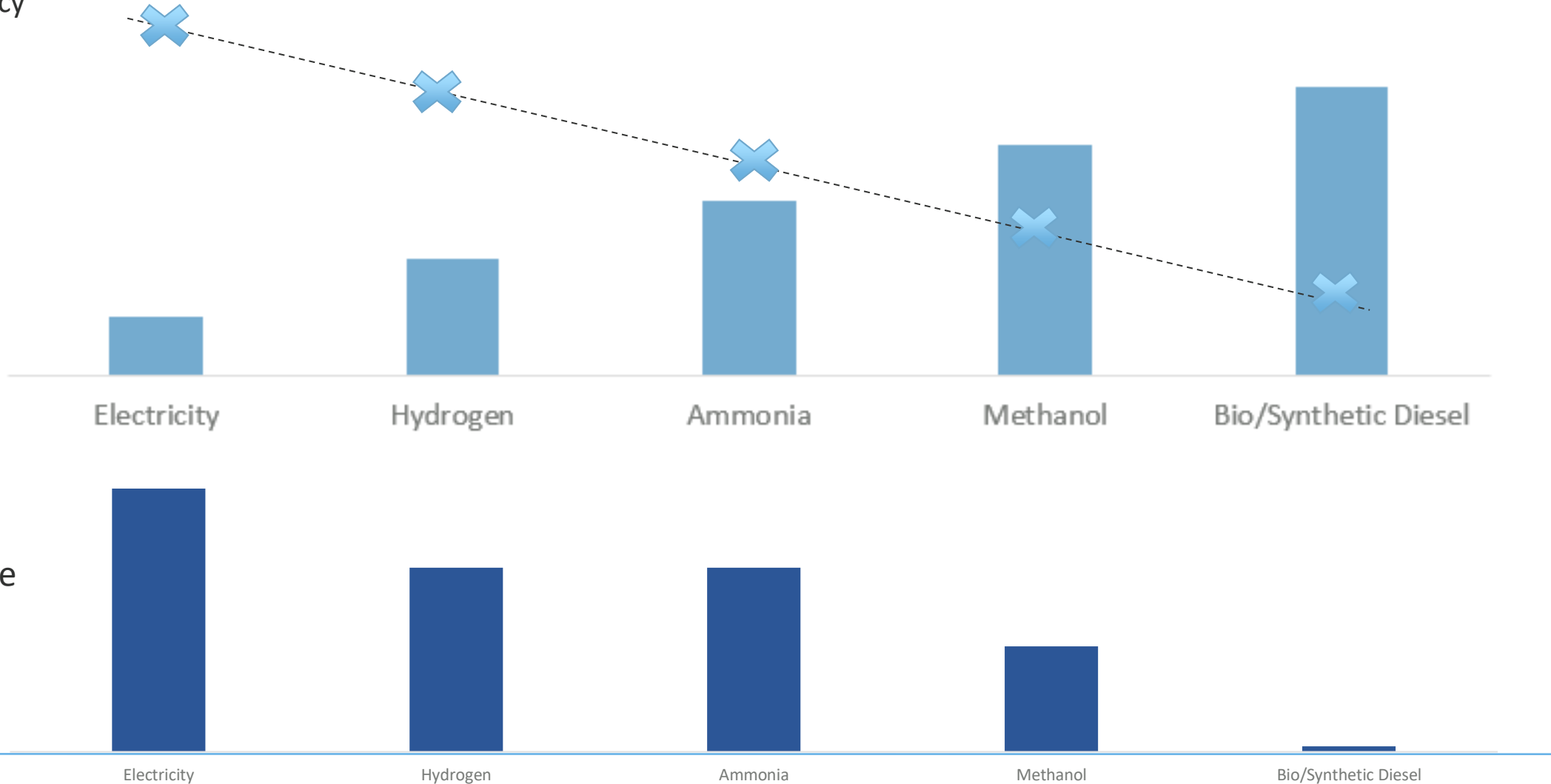
Transport Renewable Fuels Options

Energy Efficiency

Sun
Wind
Biomass

Fuel cost

Equipment+
Infrastructure
Cost



Conclusions

Interdependent elements of European strategy for low carbon and supply security:

- Fuels industry has deep Hydrogen experience and is transitioning to Low Carbon Hydrogen Technologies.
- Europe's energy strategy needs molecular energy in many forms – to complement electrification.
- Hydrogen is the critical building block across interdependent strategies.
- Each sector /sub-sector should make choices of energy carrier with the best compromise – efficiency vs infrastructure vs costs.
- Renewable & Low Carbon gases and liquids strategies are emerging but require more policy support and development.

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Thank you for your attention

www.fuelseurope.eu

www.cleanfuelsforall.eu

