

TRANSPORT TECHNOLOGY RESEARCH GROUP

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“DANGEROUS FUELS” FOR CARS – A WAY TO SAVE THE WORLD



IC engines?



future automotive powertrain



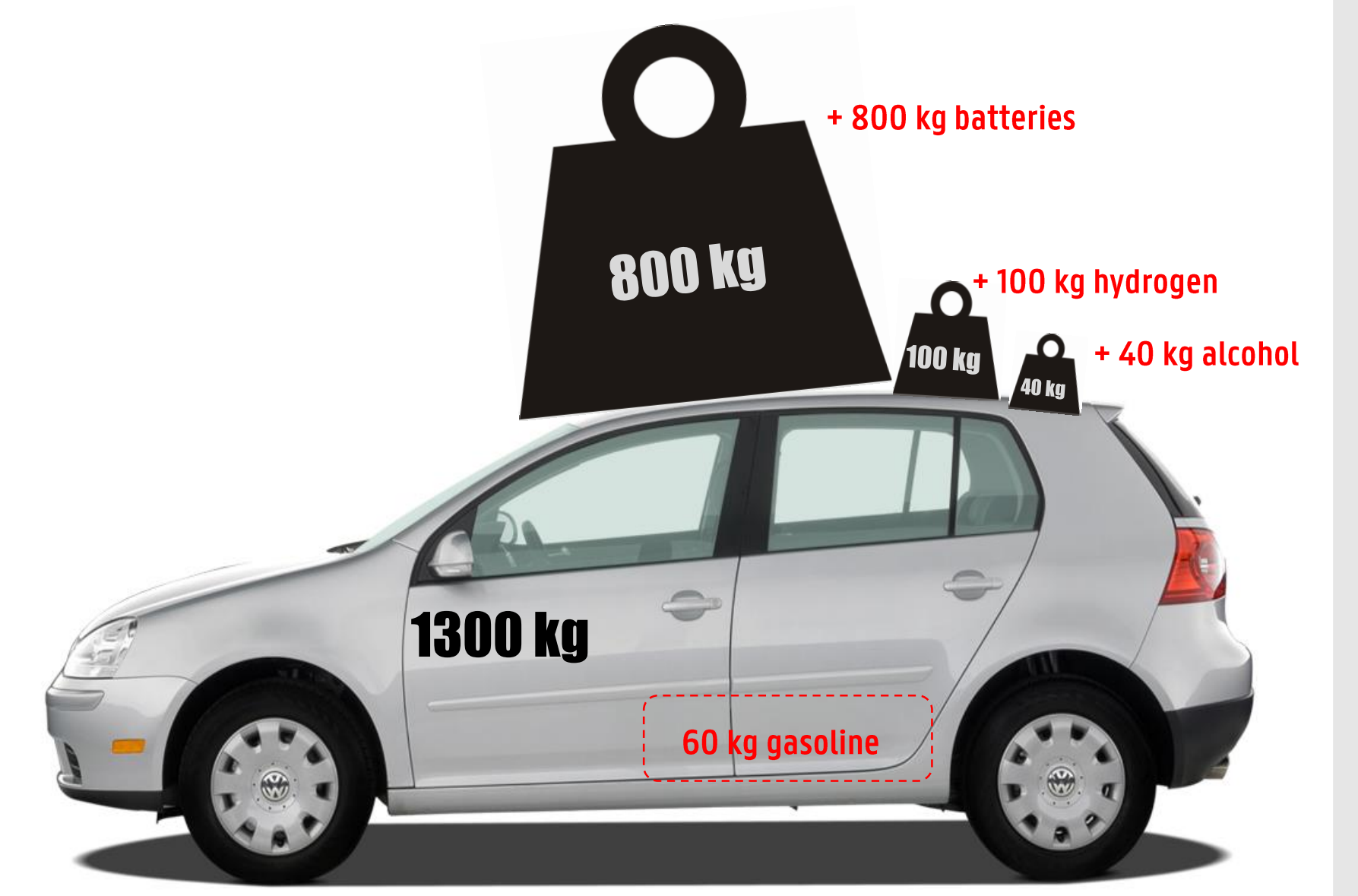
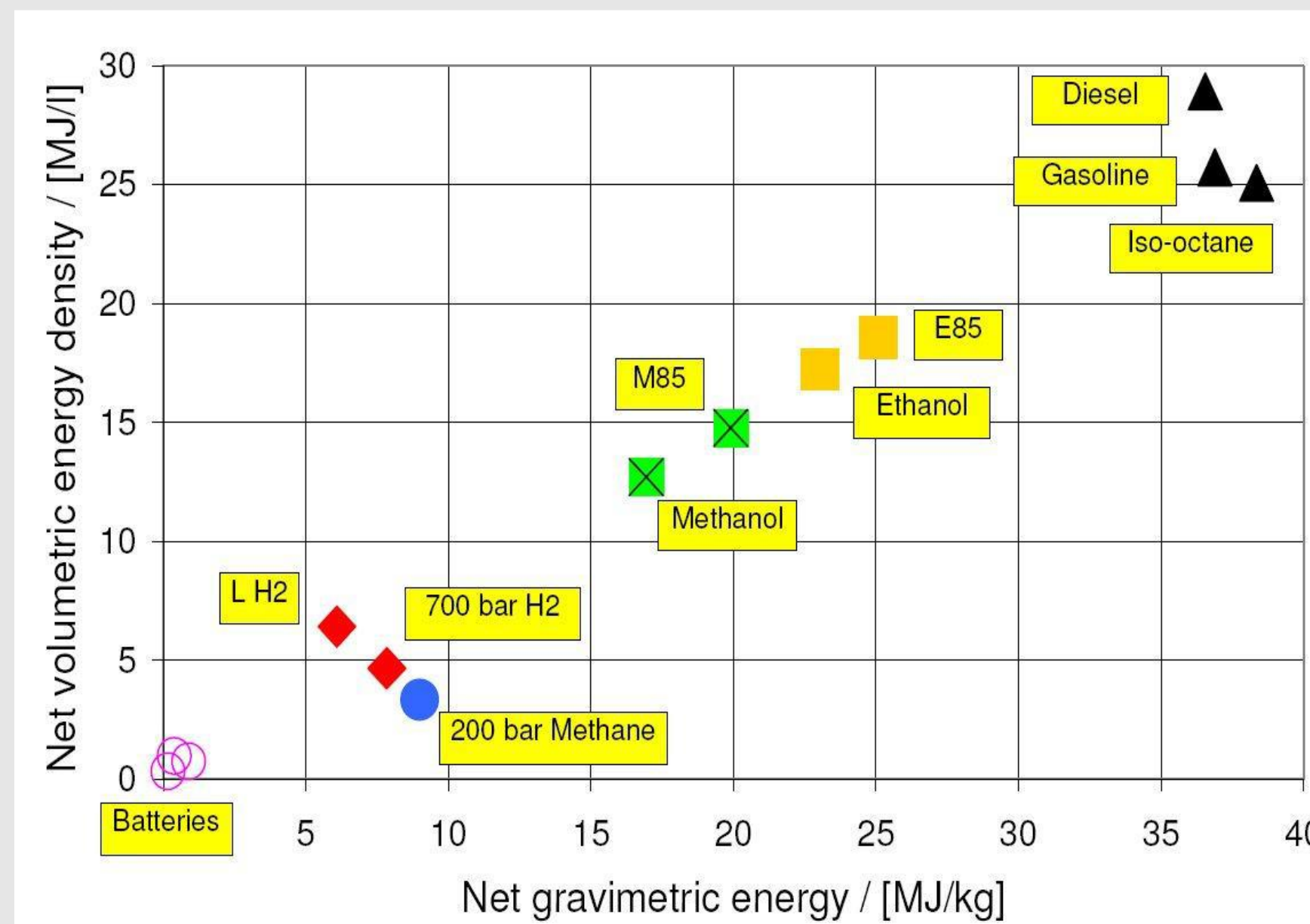
batteries?

Internal combustion engines

- Scalable, high power density, cheap
- Sustainable (close CO₂ cycle)
- Fuel flexible (fossil fuels, biofuels, synthetic fuels)
- Efficiency improvement possible



KEEP THE ENGINE, CHANGE THE FUEL



Methanol as an alternative fuel

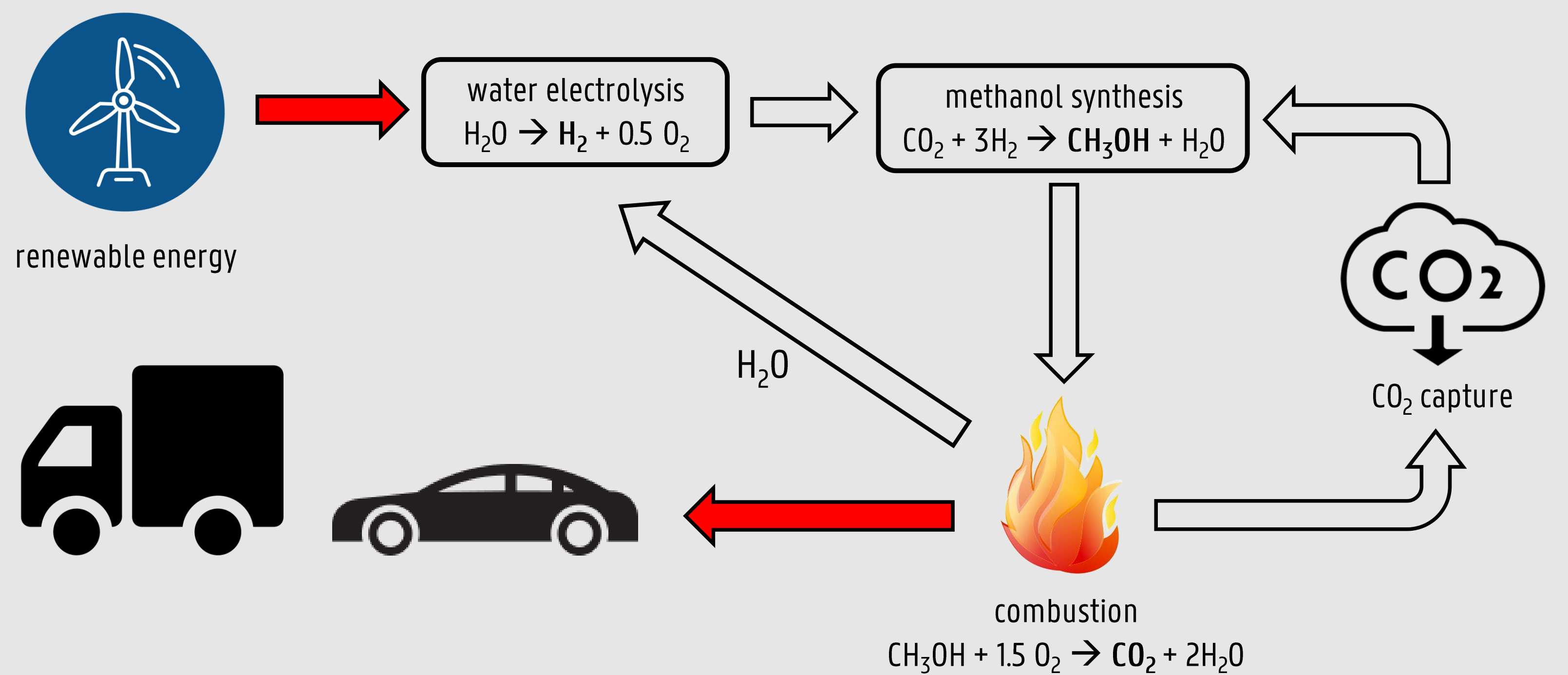
Produced in a carbon-neutral cycle

- Hydrogen is generated using renewable energy
- CO₂ is captured directly from the air or from the combustion
- H₂ and CO₂ are directly to create synthetic methanol

Methanol is the simplest type of liquid synthetic fuel

Methanol is a great fuel for internal combustion engines

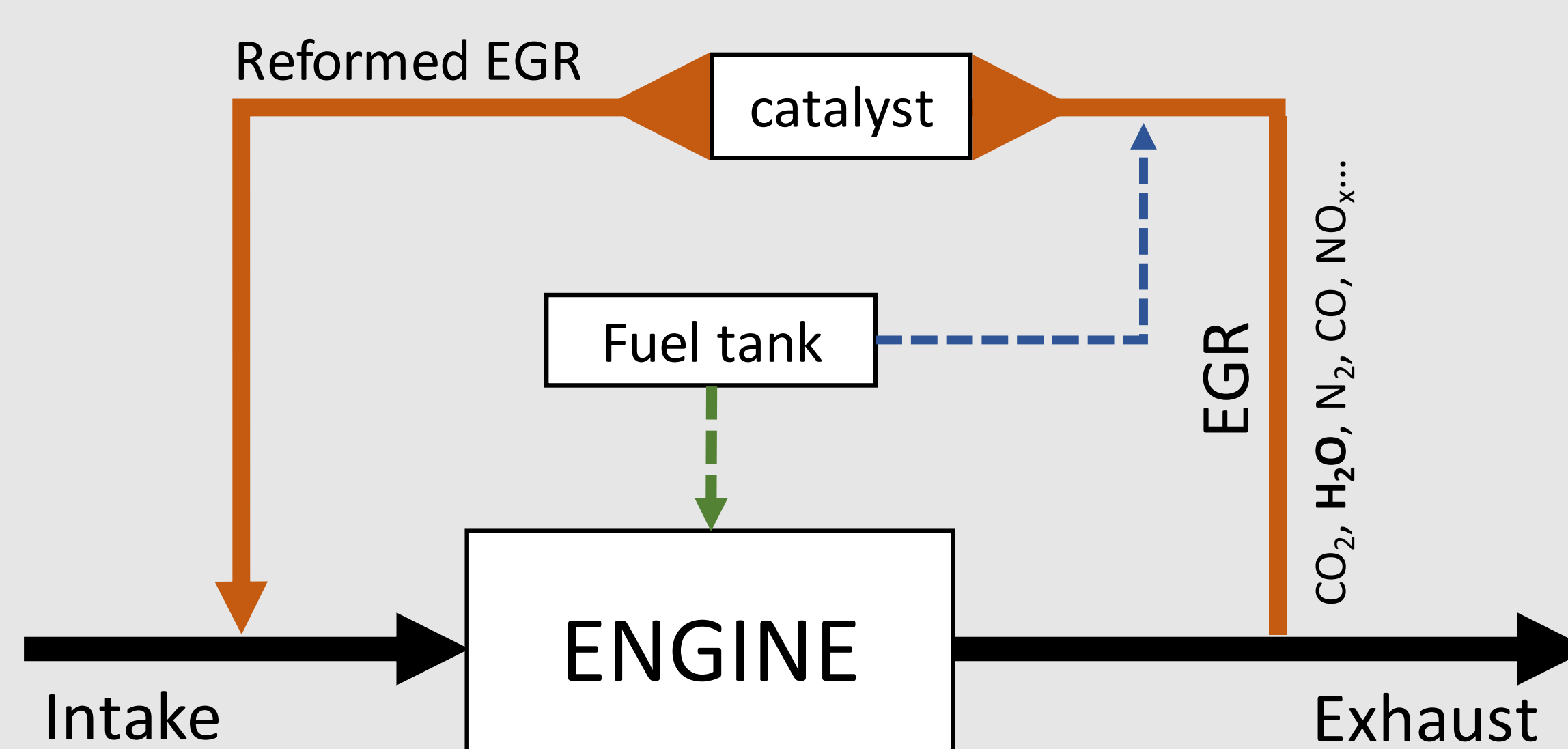
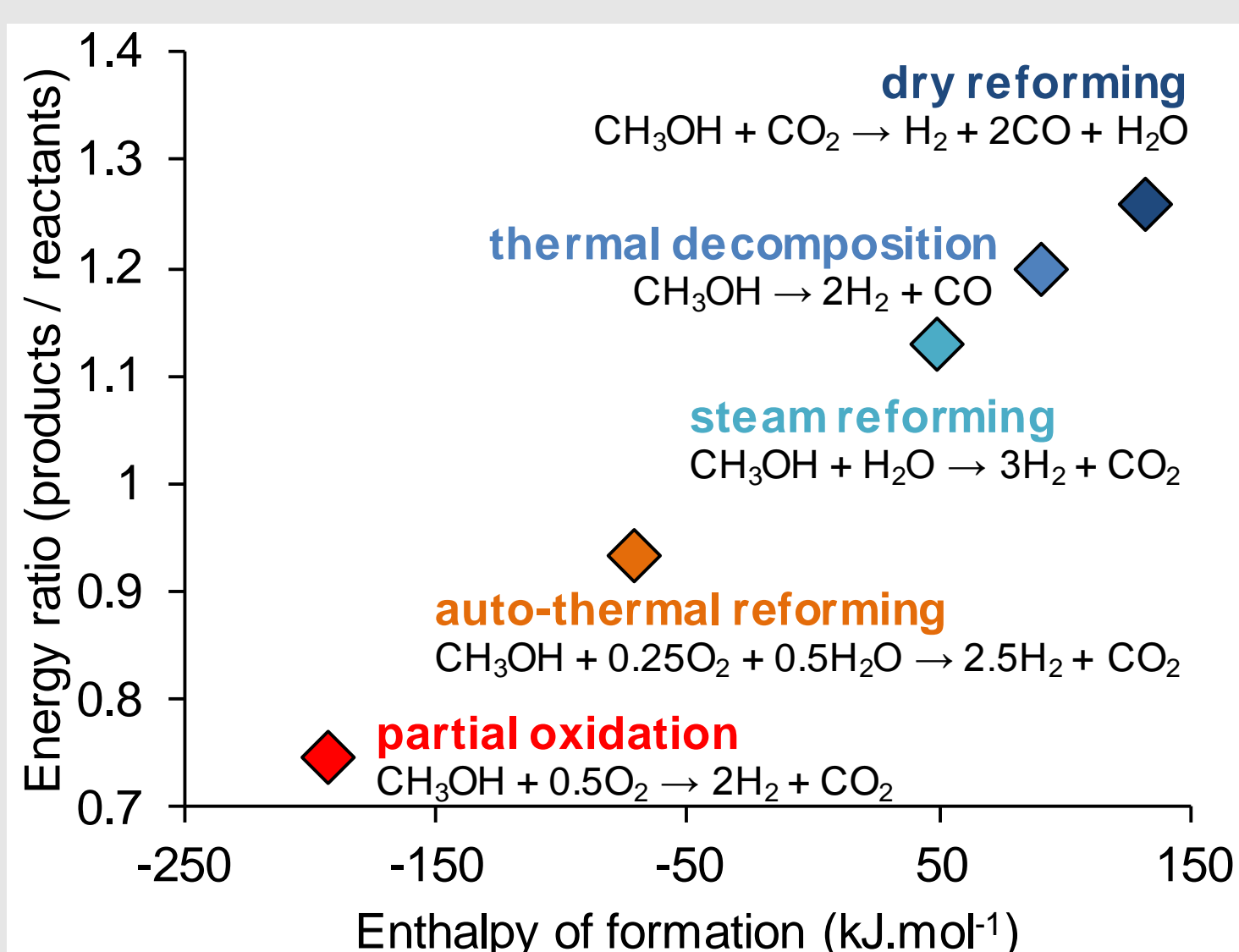
- Low CO₂ emissions from the combustion
- High engine efficiency



Highly efficient methanol engines with on-board fuel reforming

Recovering of engine exhaust heat for methanol reforming

- H₂-rich gas is produced through an endothermic process
- Products have a higher energy than the inlet
- Engine is fuelled with methanol and H₂-rich gas



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