

The Contribution of Advanced Renewable Transport Fuels to Transport Decarbonisation in 2030 and beyond

How to introduce the future transport system
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Main barriers

- Costs for building the new infrastructure
- Multitude of fuel/vehicle options
- Complexity of stakeholder system
- Transposing societal benefits into cost benefits
- Fluctuating policy

Current and future transport system

100 years of optimization

- Well-performing fuel/engine/after-treatment combinations
- Established material compatibility
- Many vehicle models available
- Robust vehicle repair infrastructure
- Good driving range
- Well-established fuel production
- Ubiquitous refueling infrastructures
- Existing fleet uses existing fuels

Offers predictable income to established stakeholders

Infrastructure yet to be built

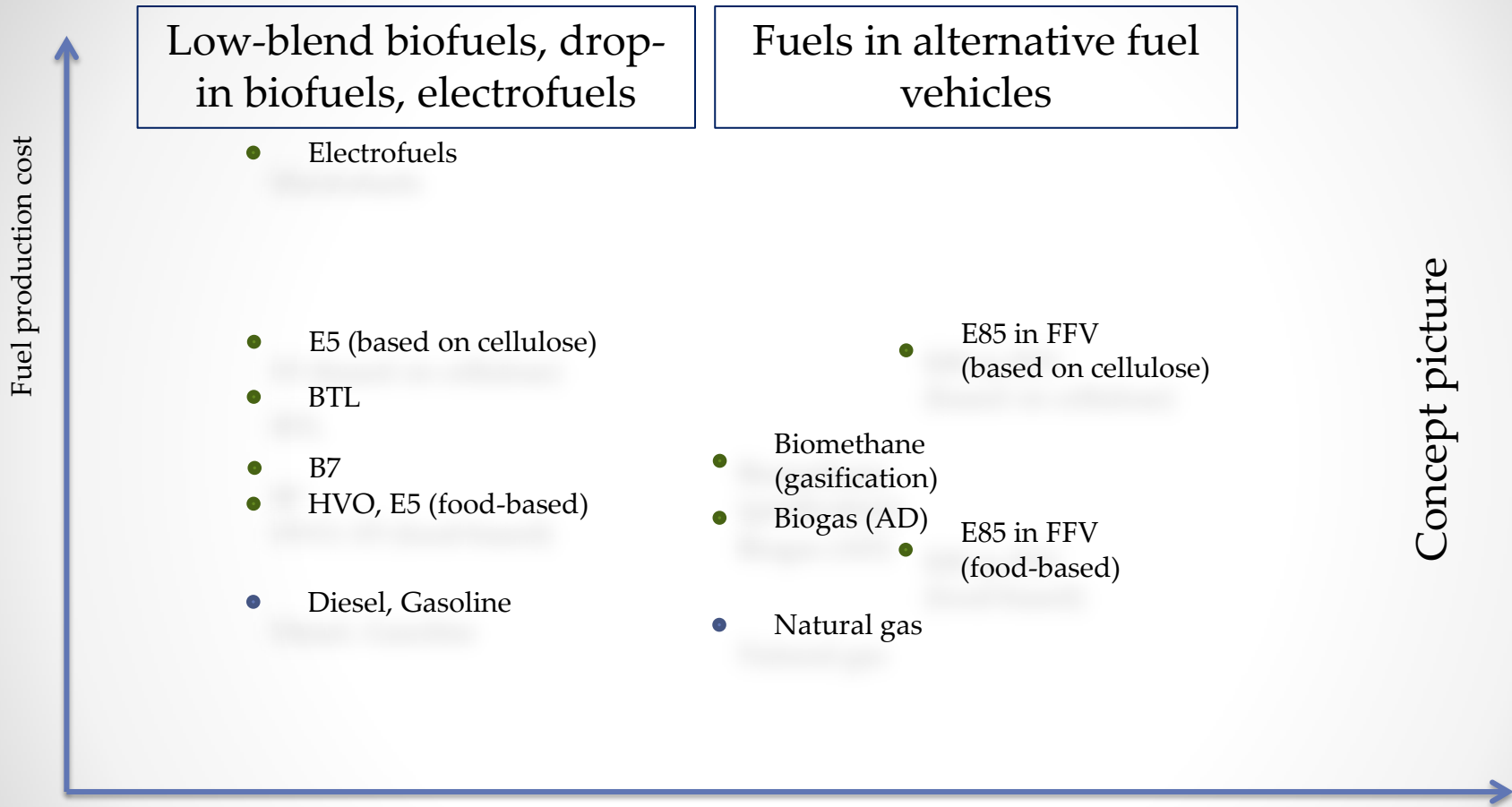
- Adaptation of fuel/engine/after-treatment system required
- Ev. lack of material compatibility
- Few models available
- New repair knowledge required
- Sometimes lower driving range
- Fuel production infrastr. has to be built
- Refueling infrastructure has to be built and might not be profitable
- New fleet has to be built up

Higher costs and risks

→ Unclear and risky business cases

Alternative fuel and vehicle options

- Biodiesel
- Ethanol
- HVO
- BTL
- Bio-methane
- Methanol
- DME
- ED95
- Electricity
- Electrofuels
- Hydrogen
- Gas engines
- Dual-fuel engines
- Flex-fuel vehicles
- Battery electric vehicles
- Hybrid electric vehicles
- Plug-in hybrid electric vehicles
- Fuel cell vehicles



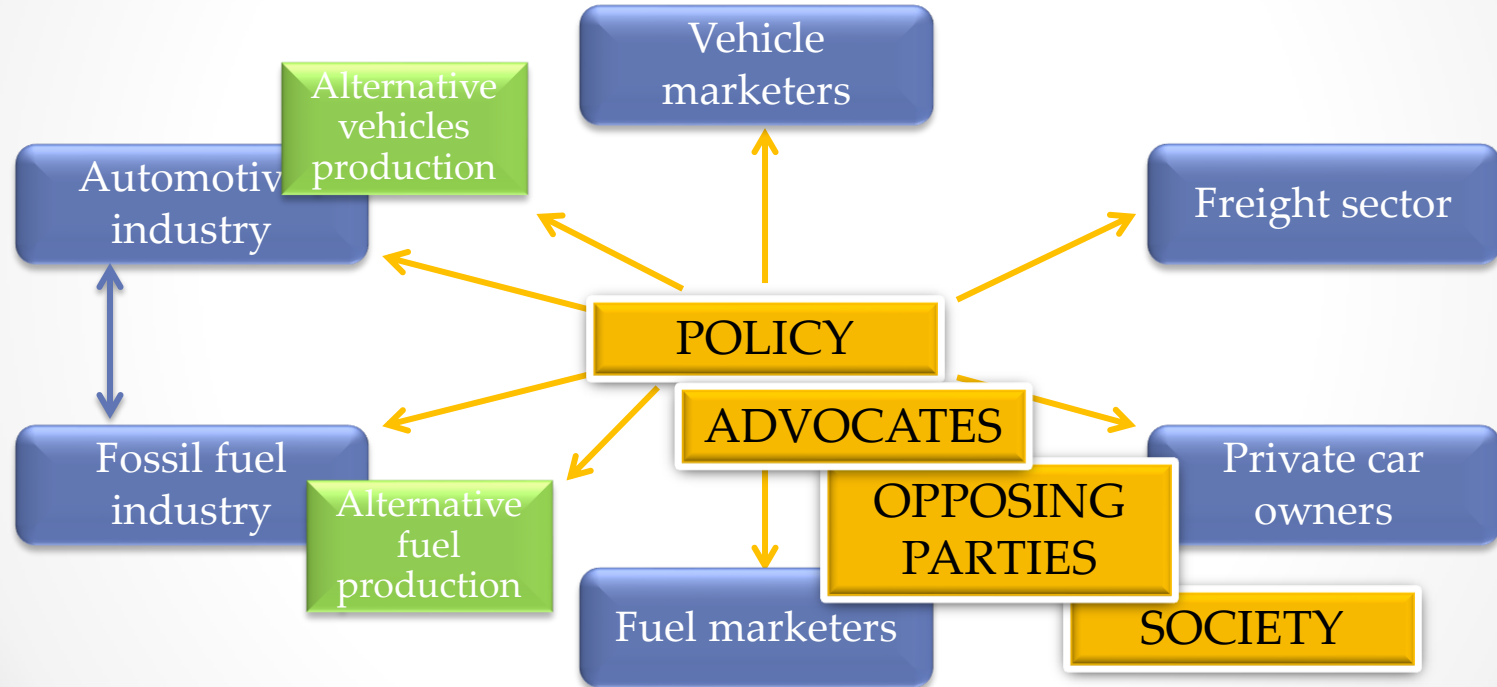
Choice of fuel/vehicle system

Is based on

- Cost considerations
- Availability of feedstock and fuel
- Sustainability / GHG emission reductions offered
- National fuel demand per sector
- National production capacity / potential imports

→ No single fuel/vehicle alone will solve it all

Multiple stakeholder system



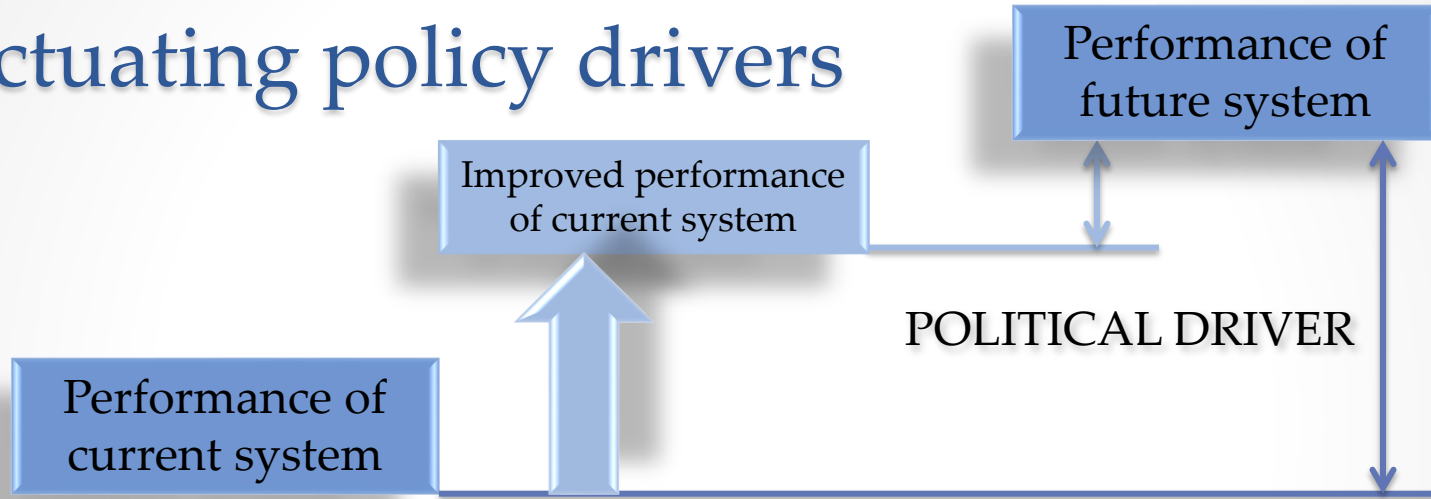
Set of political measures

- RD&D funding programmes
- Loan guarantees for demonstration facilities
- Corporate tax breaks to newly built biofuel facilities
- Biofuel production incentives
- Sustainability safeguards
- Alternative vehicle purchase incentives
- Blending mandates
- Tax reductions/exemptions
- Renewable/low-carbon fuel standards

Technology push
(RD&D support)

Market pull
(investment support &
price support)

Fluctuating policy drivers



Improved current system:

- New oil/gas supplies, lower oil/gas prices
- Improved conventional technologies (fuel/after-treatment/control)
- Competition from other alternatives / questioning of biofuels sustainability

Future system:

- Better energy diversity
- Lower local emissions
- Lower GHG emissions
- More rural income

Policy recommendations

- Long-term predictable policy
- Beginners: blending mandate
- For higher contributions: low carbon fuel standard
- Send strong price signals
- Address the complex system of stakeholders
- Be technology neutral
- Measures can be adapted over time, but the support to the original goal has to remain at high level

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More information: <https://iea-amf.org/content/news/TD-WS>

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