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Bioenergy and Sustainable Technologies

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Lessons Learned from Alternative Fuels Experience

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Background

DECARBONISING THE TRANSPORT SECTOR

= key goal of national and international climate change mitigation policies

ALTERNATIVE FUELS AND PROPULSION SYSTEMS to reduce greenhouse gas emissions and local pollutant emissions from the transport sector

Former Market introduction

- Since energy crisis of the 1970s – many countries promoted the use of alternative fuels
- Different set of policy measures
- Implementation attempts not always successful

  - What are the reasons for that?
  - What are success factors or what are obstacles?
  - What can be learned from this former attempts?

Project AMF Lessons Learned

Project Info

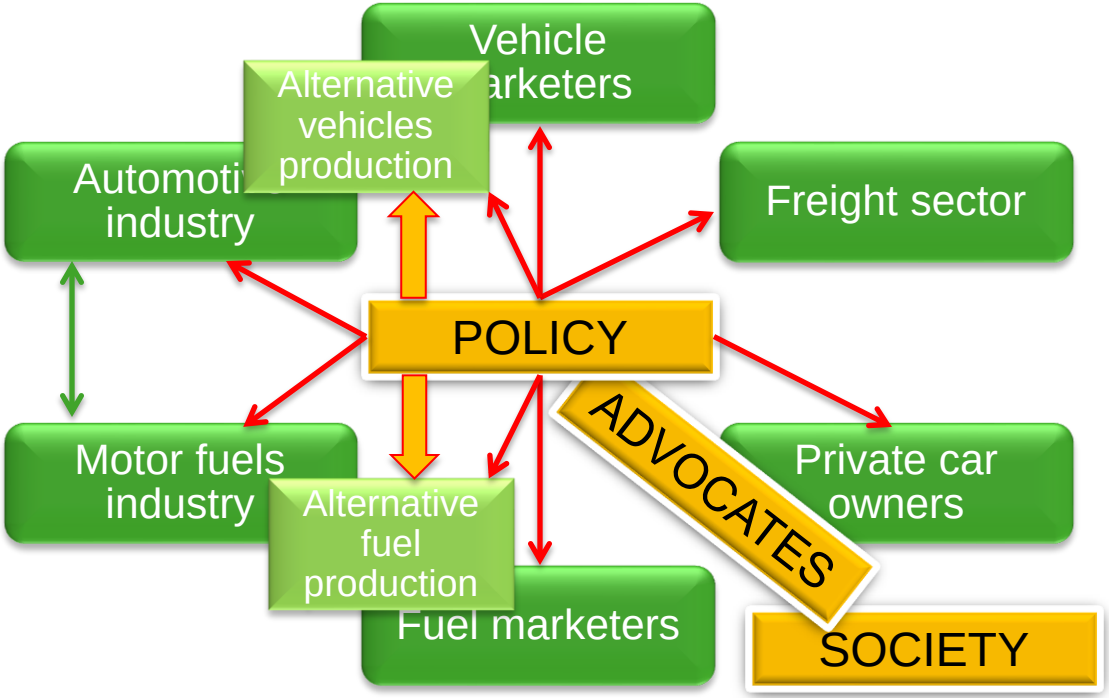
- IEA Advanced Motor Fuels Technology Collaboration Programme
  www.iea-amf.org
- Annex 59 Lessons Learned from Alternative Fuels Experience
  https://www.iea-amf.org/content/projects/map_projects/59
- 04/19-09/20
- 6 participating countries

Methodology

Case Studies

Austria	China	Finland	Japan	Sweden	USA
Low blend biofuels	Ethanol	E10	Low blend biofuels	Reduction obligation	Low and high level blends of ethanol
E10		E85	Natural gas	High blend biofuels and biogas	Methanol and FFVs
Natural gas / biogas		Drop-in components for diesel		E85	Natural gas
		Biogas			

Stakeholders and the role of policy



- Concerns need to be adressed
- Benefits for all stakeholders need to be developed

Implementation barriers

Technical issues / Infrastructure

Politics / Authorities

Costs / Economics

Consumers / Public

Country Specific Barriers

Japan – example for politics

- Quality assurance law and Alternative Fuel Law (2010)
  - No obligatory introduction
  - Sets framework
- Missing incentives
- Top priority since nuclear accident 2011 securing electricity power, spread of biofuels low priority

→ Policy not strong enough to overcome various barriers

USA – another example for politics

- Changing priorities:
  - energy security from oil embargo in the 1970s and 1980s
  - air quality benefits in the 1990s
  - GHG benefits in the 2000s and 2010s
  - economic advantages most recently.
- Reduction of benefits of alternative fuels by:
  - technology improvements (cleaner and more efficient gasoline and diesel vehicles)
  - New competing technologies (e.g. battery EVs and PHEVs)

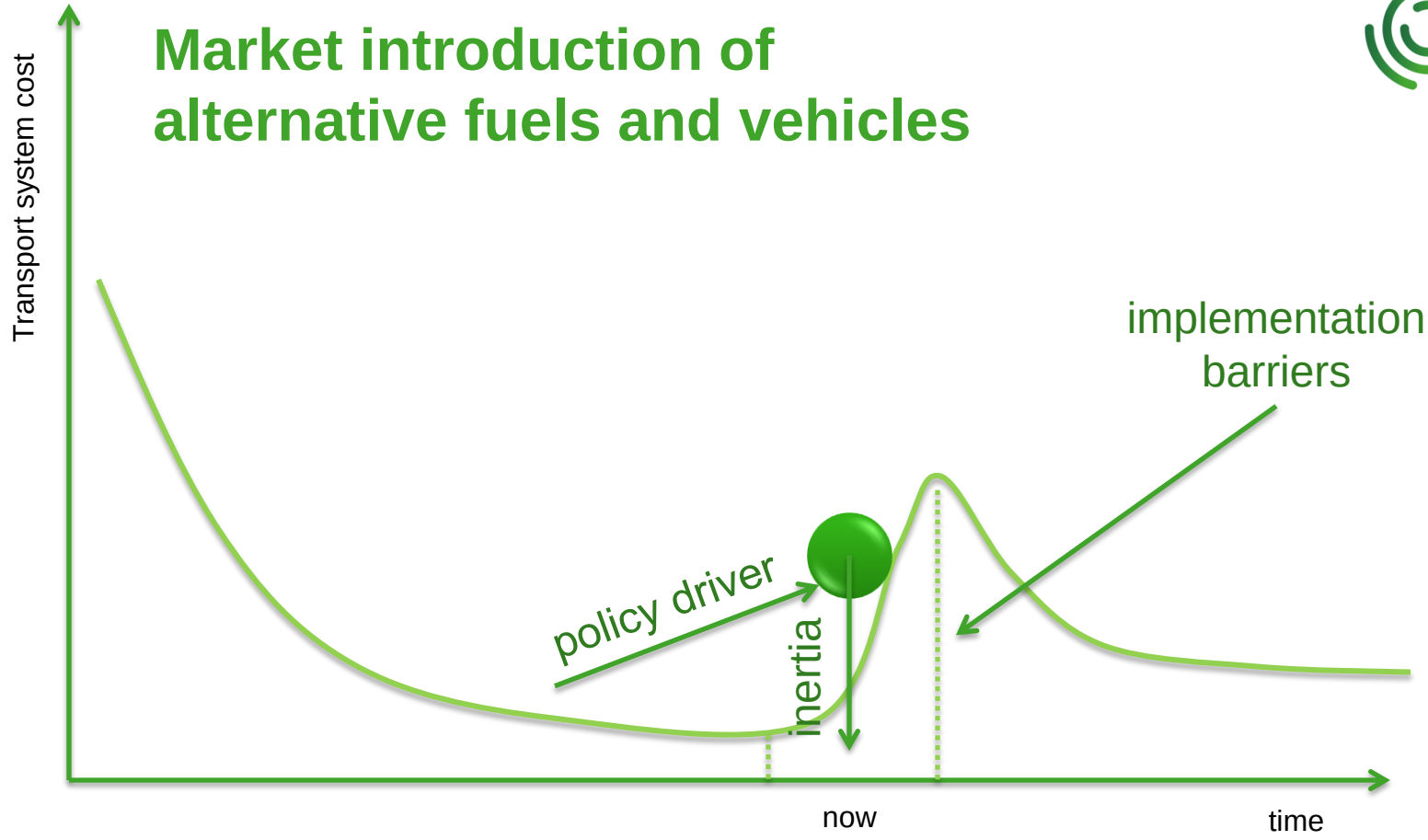
→ Low and fluctuating political driver for alternative fuels

Austria – example for consumers/public discussion

- Successful market introduction of low blend biofuels (E5, B7)
- E10 implementation stopped two weeks before market entry (2012)
- Main Implementation barriers:
  - public discussion on Food/Feed/Fuel
  - Public discussion on engine compatibility
  - influence of market introduction in Germany

- Public opinion is of importance - policy measures, raising awareness and information dissemination are necessary

Market introduction of alternative fuels and vehicles



Lessons Learned

- Implementation barriers have to be overcome
- Importance and priority should be visible
  - Long term perspective and policy
  - Incentives at a high level
- Benefit for all groups of stakeholders

Expert Workshop

- **May 2020 in Xian, China**
- AMF experts and experts outside the AMF TCP
- Presentation and discussion on results of the project Lessons Learned from Alternative Fuels Experience
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Thank you for your attention

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