TECHNOLOGY COLLABORATION PROGRAMME ON
ADVANCED MOTOR FUELS

Advanced Motor Fuels Technology Collaboration Programme

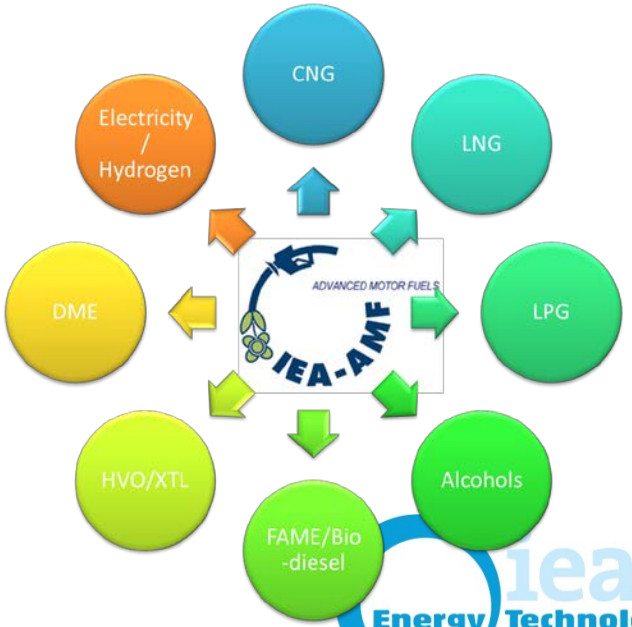
EUWP workshop

Gaps and Barriers for Energy Technology Development and Deployment - a view from the Technology Collaboration Programmes (TCPs) in the End-Use Sector

20 March 2017

Scope of AMF

- AMF works on the entire spectrum of fuels from feedstock, through fuel processing, distribution, and, finally, end use in vehicles.
- AMF (try to) work closely with other related TCPs either through the End Use Working Party or by way of direct interaction.
- "Advanced motor fuels" encompass alternative fuels as well as advanced petroleum-based fuels, fulfilling one or more of the following criteria:
  - Low local emissions
  - Improved life cycle efficiency
  - Reduced greenhouse gas emissions
  - Enabling high energy efficiency
  - Enabling fuels for new propulsion systems
  - Contribute to sustainability
  - Contribute to energy security



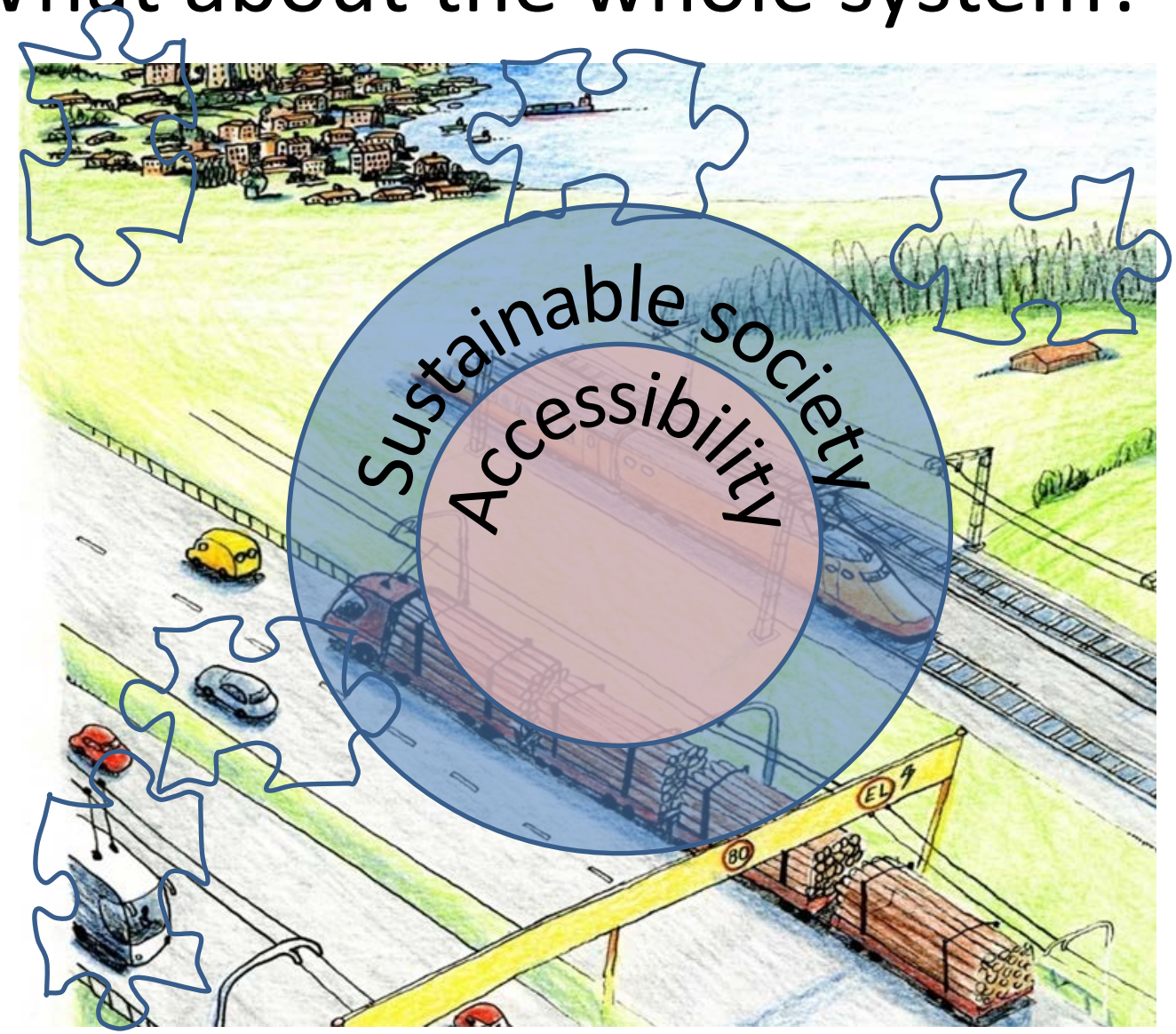
Local, Regional or Global

- Within AMF new projects can be initiated by any three contracting parties that want to contribute
  - The scope of the project is defined by the participants
  - Addresses areas of interest of the participants
    - Often local or regional reasons behind participation
  - Clearly defined projects that is closed when the final report has been published
- Difficult to address
  - Global issues
  - Local and regional issues beyond the participants
- Additional members needed
  - Point of contact (EUWP/IEA)
  - Funding of participations (EUWP/IEA)
  - Dissemination of results (EUWP/IEA)

AMF offer an arena for cooperation

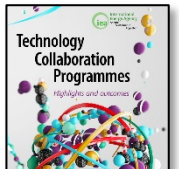
- Independent, un-biased platform, complementary to other TCPs
  - focus on end use aspects of fuels
- Gap
  - Inform potential new members of this possibility
    - EUWP/IEA network
  - Identify advanced motor fuels of global interest
    - Complementary to the analysis made by current contracting parties of AMF TCP

What about the whole system?



Decarbonisation of transport

- Ambitious decarbonising targets globally:
  - 135 of 197 Parties to the Convention have ratified the Paris Agreement (2017-03-19)
- National examples on decarbonising of transport from AMF TCP contracting parties
  - Sweden: 70% reduction of transport sector related GHG emissions by 2030 (proposal)
  - Finland: 50% reduction of transport sector related GHG emissions by 2030
  - Germany: 40% reduction of non-ETS sector by 2030
- Gap
  - Analysis of the national targets and activities of the Parties that have ratified the Paris Agreement (EUWP/IEA)
  - Guidance on gaps, barriers and needs on global level (EUWP/IEA)
  - Transpose the result from AMF TCP to other countries (EUWP/IEA)



Clear messages

TIPS FOR COMMUNICATING

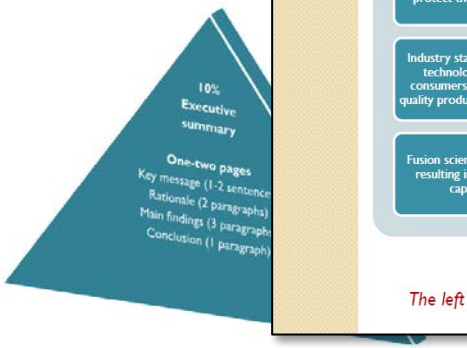
- **Here's the current situation**
  - 'Information overload' and 'news bytes'
    - Less time to read, less patience
    - Prioritising is a necessity
- **What is the solution?**
  - Communicate ***effectively*** and ***quickly***
    - Provide information tha
- **How can I do that**
  - Synthesise key messa
  - Prioritise the informa
  - Keep your target aud

EXAMPLES OF KEY MESSAGES

Policy makers and lay persons	Analysts and informed readers	Engineers and scientists
Common language, simple messages that draw the reader to want to know more	*Some technical or scientific language, key facts and figures*	*Any/all technical or scien language and facts and f*
The new XYZ uses less petrol - and it helps to protect the environment	The new XYZ is energy efficient, reducing CO2 emissions by 5%	The new ICE XYZ is equipped ABC catalytic converter and i ignition firing which increas efficiency by 10% and reduc emissions by 5% under on-re conditions.
Industry standards for new technologies ensures consumers have access to quality products at lower cost	Pre-normative standards such as ISO 11.1 have facilitated market penetration and increased deployment	Following the EU legislat industries adopted the pa standard ISO 11.1, re production harmonis components (including BBB-2 and CO
Fusion science is advancing, resulting in ever greater capabilities	The device capabilities were extended, with higher ion temperatures, high-beta plasma and greater magnetic field strength	The device has further parameter regime: ion exceeded 90 million de beta plasma production field strength (3.7 T extended pulse length (MW heating power (injected ener

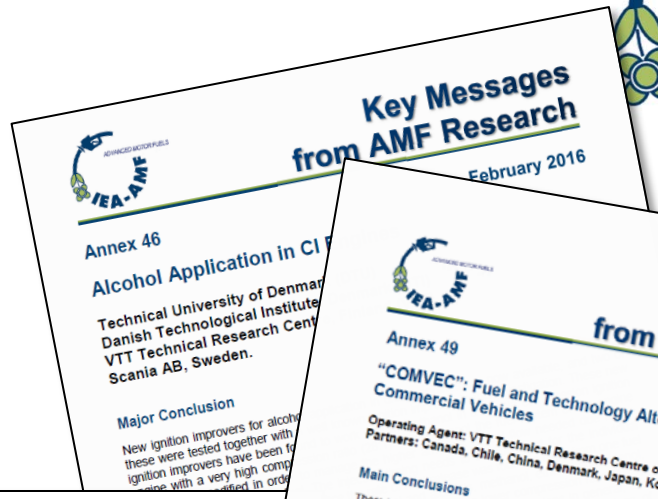
The left column could be the heading of an article, or reduced to a Twitter 'feed'

THE EXECUTIVE S



The Executive Summary is the 'calling card' for the publication and should draw the reader to want to know more.

Without a compelling key message the reader will move on.



ADVANCED MOTOR FUELS

IEA-AMF

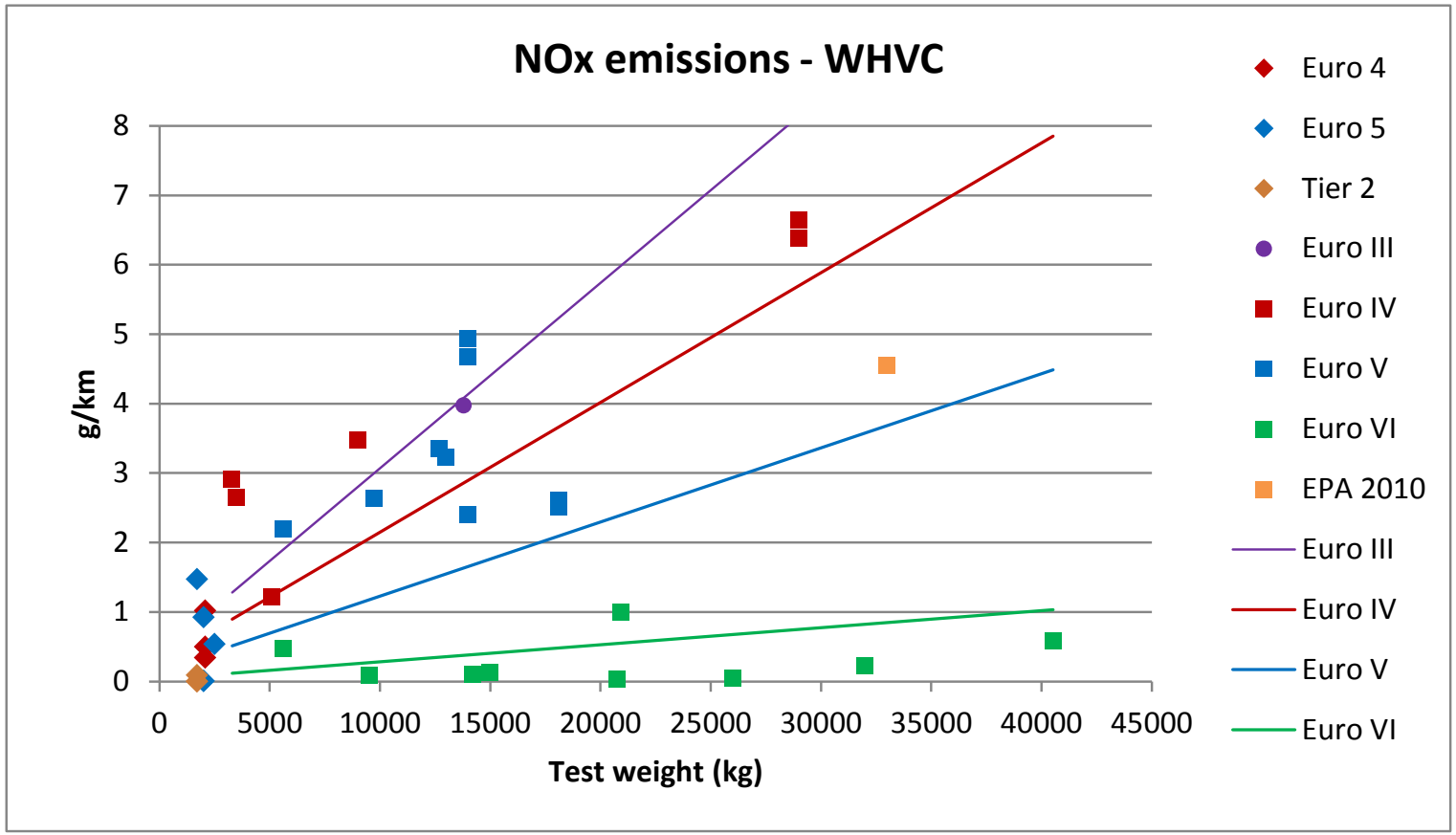
iea Energy Technology Network
Technology Collaboration Programmes

Key messages – Annex 49 "COMVEC"

- If you really want to reduce regulated emissions from commercial vehicles, don't go from Euro II or Euro III to Euro IV or Euro V, leapfrog directly to Euro VI or US 2010 to get real-life low emissions
  - Also think about transport service procurement
- The regulated emissions of a vehicle are first and foremost determined by the emission control technology, not the fuel
- The carbon intensity of the fuel or the energy carrier is decisive for well-to-wheel CO2 emissions, not vehicle technology
- CO2 assessment should be carried out on a well-to-wheel basis, not looking at tailpipe CO2 emissions only

- Electrification with low-carbon electricity is a good option for local emissions as well as WTW CO2 emissions
  - one should keep in mind that all applications are not suitable for electrification
- Euro VI (alternatively US 2010) in combination with a renewable fuel is a good option for the local environment as well as the climate

Key results – Annex 49 "COMVEC"



HD Euro VI vehicles are really clean!

Ideas for cooperation

- Advanced Biofuels – a bypass lane to mitigation of GHG emissions from the current vehicle fleet
  - Describe GHG and local emission reductions and energy efficiency improvements possible with modern (Euro 6/VI) engine technology and advanced biofuel combinations
  - Estimate production ramp-up of advanced biofuels and when to transition from biofuels for passenger cars to biofuels for heavy duty and aviation
  - Possible cooperation with Bioenergy Task 39 and HEV

Ideas for cooperation

- Energy efficiency, resource usage and environmental impact of passenger cars
  - The list of possible technology pathway for passenger cars are long
    - ICE with various fuels, Fuel cells with various fuels, Hybrids, Plug-in hybrids, Batter electric, etc
    - The all offers the same basic service – but with different inputs and external effects
  - Compare the various technology pathways
  - Possible cooperation with Bioenergy Task 39, HEV, Hydrogen and AFC

Barriers for cooperation

- All TCP's are unique
  - Different contracting parties
  - Funding of activities
  - Task – Annex – Projects are all managed differently
- Possible solution
  - Integrated Transport System TCP
  - Common sets of deliverable (to be discussed)
    - Potential of certain technology in different applications
    - Degree of penetration at different times
    - Energy efficiency and CO2 reduction potential
    - Total cost of ownership
    - Cost of CO2 reduction
    - Expected total impact (local environment, climate, energy conservation, cost for society)

AMF Contacts

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