



AMF

IMPLEMENTING AGREEMENT FOR ADVANCED MOTOR FUELS

กิจกรรมความร่วมมือวิจัยภายใต้โครงการพลังงานระหว่างประเทศ IEA-Advanced Motor Fuels Implementing Agreement

NAC2016 IMTECI

Dr. Somnuek Jaroonjitsathian
Thailand Alternate Delegate
March 31st, 2016

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- Who is IEA-Advanced Motor Fuels Implementing Agreement (IEA/AMF IA) ?
- R&D Activities under the IEA/AMF IA
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International Energy Agency

Secure
Sustainable
Together

The International Energy Agency (IEA) is an autonomous agency established in 1974. The IEA carries out a comprehensive program of energy co-operation among 29 advanced economies – OECD.

WHO IS IEA-ADVANCED MOTOR FUELS IMPLEMENTING AGREEMENT (IEA/AMF IA) ?

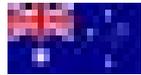
The International Energy Agency



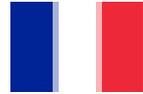
- Established in November 1974 in response to the 1973 oil crisis
- Based in Paris as autonomous body within the Organization for Economic Co-operation and Development (OECD)
- Originally focused on responding to oil supply disruptions and providing petroleum data, statistics, and analysis
 - member countries are required to maintain total oil stock levels equivalent to at least 90 days of the previous year's net imports.
 - now recognized as one of the world's most authoritative sources of energy statistics
- Provides policy advice to members, but also works with non-member states
- Focus includes the "4Es"
 - energy security
 - environmental protection, especially climate change
 - economic development
 - engagement worldwide
- Promotes alternate energy sources (including renewable energy), rational energy policies, and multinational energy technology co-operation

Only OECD members can be members of the IEA

Yet, non OECD members can be members of IEA/AMF



[Australia](#)



[France](#)



[Republic of Korea](#)



[Slovak Republic](#)



[Austria](#)



[Germany](#)



[Luxembourg](#)



[Spain](#)



[Belgium](#)



[Greece](#)



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[Norway](#)



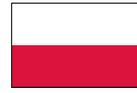
[Turkey](#)



[Denmark](#)



[Italy](#)



[Poland](#)



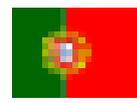
[United Kingdom](#)



[Estonia](#)



[Japan](#)



[Portugal](#)



[United States](#)



[Finland](#)

29 of the 34 OECD countries are IEA members . Chile, Iceland, Israel, Mexico, and Slovenia are the only OECD countries that are not members

IEA Technology

Collaboration Programmes: IEA-TCP



There are no quick fixes to long-term energy challenges. To find solutions, governments and industry benefit from sharing resources and accelerating results. For this reason the IEA enables independent groups of experts - the IEA Technology Collaboration Programmes, or IEA TCPs¹.

- Cross-cutting programmes

- End-use technologies:

- Buildings
- Electricity
- Industry
- Transport

- Fossil fuels

- Fusion power

- Renewable energies and hydrogen

- Advanced Fuel Cells

- Advanced Materials for Transportation

- Advanced Motor Fuels

- Emissions Reduction in Combustion

- Hybrid and Electric Vehicles

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IEA Technology Collaboration Programmes: IEA-TCP



HOW TO BECOME A PARTICIPANT OF AN IMPLEMENTING AGREEMENT¹

Can my organisation participate?

Participate as a Contracting Party

Contracting Parties are participants that are:

- Governments of both OECD member countries or partner countries²;
- The European Union;
- Inter-governmental organisations.

This includes any national agency, public organisation, private corporation or other entity designated by the government of the country wishing to become a CP.

Participate as a Sponsor

Sponsors are participants that are:

- Entities of an OECD member country or partner country that are not designated by its government to participate in the Implementing Agreement;
- Non-governmental international entities.

Sponsors are not eligible to be elected as Chair or Vice-Chair.

A government-owned or controlled entity can become a Sponsor, provided the government does not object to the entity participating as a Sponsor rather than a Contracting Party.

PTT Public Company Limited has joined IEA/AMF as Thailand country delegates since 2013 designated by Ministry of Energy.

Need for Advanced Motor Fuels



ICEs will be prime movers for many years to come

Fuels should deliver:

- Lower greenhouse gas emissions,
- Lower local pollution,
- Enhanced efficiency, and
- A wider supply base for transportation fuels.
- well-to-wheel perspective required

Advanced Motor Fuels IA



= strong international network
fosters collaborative (RD&D)
provides unbiased information
aims for sustainable mobility

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framework was established by the IEA

Benefits of Member



- pool and leverage their knowledge and research capabilities from different countries
- exchange of best practices
- take regional and local conditions into consideration when facilitating the deployment of new fuel and vehicle technologies

Technology neutral



- ❖ AMF does not pursue individual interests
- ❖ AMF is the only internationally recognized, technology-neutral clearinghouse for fuels-related information



AMF through the years

- Long-standing agreement
 - 1984-1989 Alcohols as Motor Fuels
 - 1990-1998 Alternative Motor Fuels
 - 1999- today Advanced Motor Fuels
- Current term 2015 - 2019
- The Advanced Motor Fuels IA (AMF) is a very active and successful program
 - The number of participating countries has grown from 4 countries in 1984 to 18 countries in 2016
 - 55 annexes (projects) have been initiated by the program since its beginning

Scope of the IEA AMF Implementing Agreement



- AMF IA works on the entire spectrum of fuels from feedstock, through fuel processing, distribution, and, finally, end use in vehicles.
- AMF IA works closely with other related Implementing Agreements either through the End Use Working Party or by way of direct interaction.
- Advanced motor fuels are fuels that fulfill one or more of the following criteria:
 - Reduces GHG emissions
 - Improves life-cycle efficiency
 - Has high energy efficiency
 - Has low toxic emissions
 - Enables fuels for new propulsion systems
 - Contributes to security of supply

AMF Vision



Sustainable transportation system that

- uses advanced, alternative, and renewable fuels
- has reduced emissions of GHGs and air contaminants
- and meets needs for personal mobility and the movement of goods on a local and global scale

AMF contributes by

- providing a solid basis for decision making (information and recommendations)
- providing a forum for sharing best practices and pooling resources, internationally

AMF Activities



- Pooling resources and information on an international level;
- Identifying and addressing technology gaps and barriers to deployment;
- **Performing cooperative research on advanced motor fuels;**
- Demonstrating advanced motor fuels and related vehicle and after-treatment technologies; and
- Aggregating data and deriving key recommendations for decision makers within governments, municipalities, and industry

The primary focus of the IEA TCP on Advanced Motor Fuels (AMF) is to facilitate the market introduction of advanced motor fuels and related vehicle technologies. The AMF provides a neutral platform for fuel analyses and reporting, drawing on the multifaceted expertise of its participants, industrial partners and networks. There are 16 Contracting Parties, including China and Thailand

R&D ACTIVITIES UNDER THE IEA/AMF IA

Performing cooperative R&D



- Annexes
- Average budget USD 200,000 per Annex
 - Annex 37 largest annex to date: 1.2 M€
- Average 6 participants per Annex
- Historically mostly cost-shared work
 - Cost sharing means that the ExCo actively directs the work
 - Money does not leave the participating country
- Recent focus on collaboration with other IAs
 - Annex 34: Biomass Derived Diesel Fuels
 - Annex 37: Fuel and Technology Alternatives for Buses

Co-operative R&D 1/2



41 Annexes (projects) completed, 12 Annexes currently active

Annex 28: Information Service & AMF Website (AMFI)

Annex 43: Performance Evaluation of Passenger Car Fuel and Powerplants Options

Annex 44: Research on Unregulated Pollutants Emissions of Vehicles Fuelled with **Alcohol Alternative Fuels**

Annex 47: Reconsideration of **DME Fuel** Specifications for Vehicles

Annex 48: Value Proposition Study on **Natural Gas** Pathways for Road Vehicles

Co-operative R&D 2/2



41 Annexes (projects) completed, 12 Annexes currently active

Annex 49: COMVEC - Fuel and Technology Alternatives for Commercial Vehicles (Thailand as a member)

Annex 50: Fuel and Technology Alternatives in **Non-Road Engines**

Annex 51: **Methane** Emission Control

Annex 52: Fuels for Efficiency (Thailand as an operating agent)

Annex 53: Sustainable **Bus** Systems

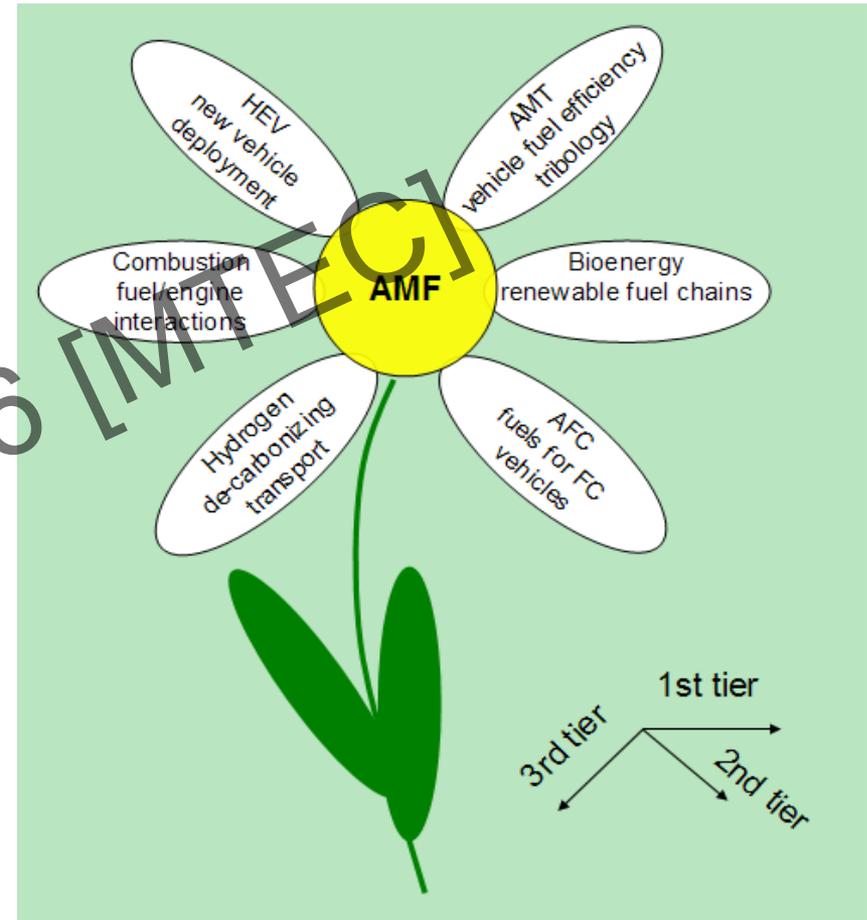
Annex 54: **GDI** Engines and **Alcohol Fuels**

Annex 55: **Real Driving Emissions** and Fuel Consumption

Cooperative R&D: Links to Other Implementing Agreements



- Collaboration allows better communication of scientific advice to policy-makers
- This will help in creating policies that allow potential solutions to be brought to market
- Need to define proper reporting mechanisms to ensure IA's are properly heard and understood
 - CERT
 - EUWP
 - TCG



Information dissemination



AMF web site: www.iea-amf.org
All countries participate – paid for through the common fund



About AMF

- Mission and Objectives
- Overview of Activities
- Contracting Parties
- IEA Background

Publications

- Annual Reports
- Project Reports
- Newsletters
- Brochures

Links

- Government Agencies
- IEA-related
- Industry Associations
- Emissions & Fuel Quality



Home

Welcome to the Advanced Motor Fuels Implementing Agreement

Advanced Motor Fuels (AMF) is one of the International Energy Agency's (IEA) transportation related Implementing Agreements. Implementing Agreements are multilateral technology initiatives that encourage technology-related activities that support energy security, economic growth and environmental protection.

AMF provides an international platform for co-operation to promote cleaner and more energy efficient fuels and vehicle technologies. On this website you will find information on advanced motor fuels, details about AMF projects, publications and more.

AMF welcomes interested parties to make contact and to become members of the AMF family.

Search



NEWS

- AMFI Newsletters
- EU Parliament supports advanced biofuels
- US: Renewable Fuel Standard volumes released
- Methanol and DME plant for Trinidad Tobago
- Gevo sells renewable jet fuel to NASA



EVENTS

- Future Events
- Past Events



PROJECTS

- Active Projects (Annexes)
- Completed Projects (Annexes)



FUEL INFORMATION

- Fuel Info Home
- Diesel and gasoline
- Fatty Acid Esters (biodiesel)
- Bio/synthetic gasoline

Dissemination: Newsletters



Produced quarterly and cover Europe, Asia, North America and several fuels

March 2012, Issue no. 1/2012

The AMFI Newsletter is prepared for the members of the Implementing Agreement on Advanced Motor Fuels of the International Energy Agency (IEA/AMF). The AMFI releases four etc.

Infrastructure for Alternative Fuels
Report of the European Expert Group on Future Transport Fuels
October 2011

Biofuels and the Environment:
First Triennial Report to Congress

How to bring alternative fuels on the road, and what environmental impact biofuels have. New publications to guide transport fuel policies.

CONTENTS

- GENERAL INTEREST
- GASEOUS FUELS
- ALCOHOLS AND (BIO)GASOLINE
- BIODIESEL ESTERS
- SYNTHETIC AND RENEWABLE DIESEL
- MISCELLANEOUS
- INSTITUTION PROFILE
- IEA & IEA/AMF News
- PUBLICATIONS
- EVENTS

AMFI Newsletter, March 2012 - Page 1(12)

June 2012, issue no. 2/2012

The AMFI Newsletter is prepared for the members of the Implementing Agreement on Advanced Motor Fuels of the International Energy Agency (IEA/AMF). The AMFI releases four electronic newsletters each year.

Increased interest in natural gas as a motor fuel (Gaseous Fuels)

DuPont opens commercial-scale cellulosic ethanol plant in Iowa

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AMFI Newsletter, June 2012 - Page 1(14)

Dec 2015/Jan 2016, issue no. 4/2015

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A group of authors prepares contributions to this newsletter:

- Ralph MCGILL, FEEC
- Werner TOBER and Robert ROSENITSCH, TU Vienna
- Shinichi GOTO, AIST
- Manfred WÖRGETTER, BIOENERGY 2020+

Editing by Dina Bacovsky and Christa Kristofel, BIOENERGY 2020+.
Checking by Ralph McGill, FEEC and Päivi Aakko-Saksa, VTT.
The AMFI Newsletter is available online at: www.iea-amf.org

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AMFI Newsletter, January 2016 - Page 1(20)

October 2015, issue no. 3/2015

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First DME Truck Registered in Japan

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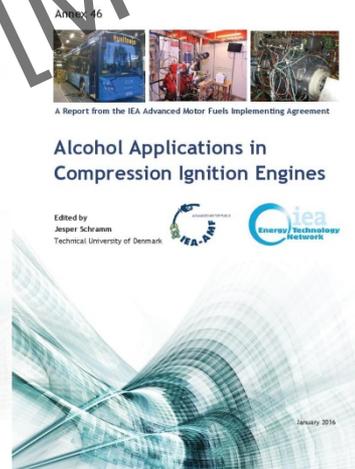
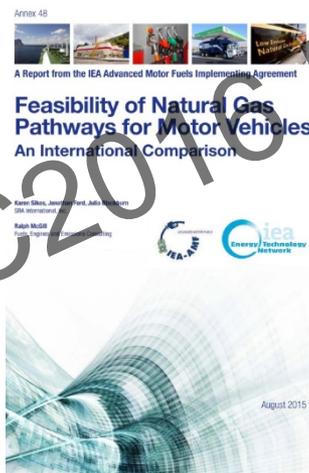
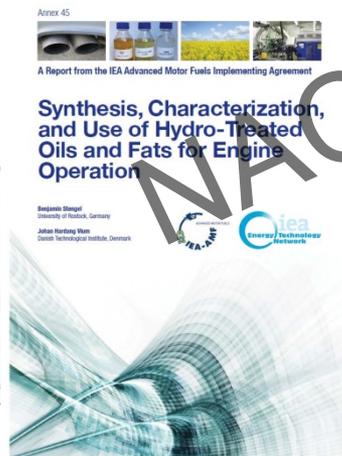
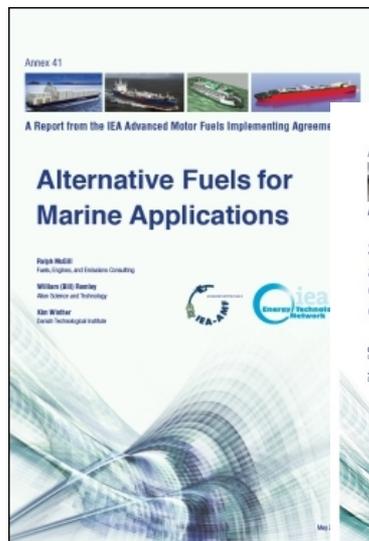
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Dissemination: Research reports

- Available through the website
- Distributed at major conferences in Europe, Asia, North America



ESPCO 2008 VTT RESEARCH NOTES 2426



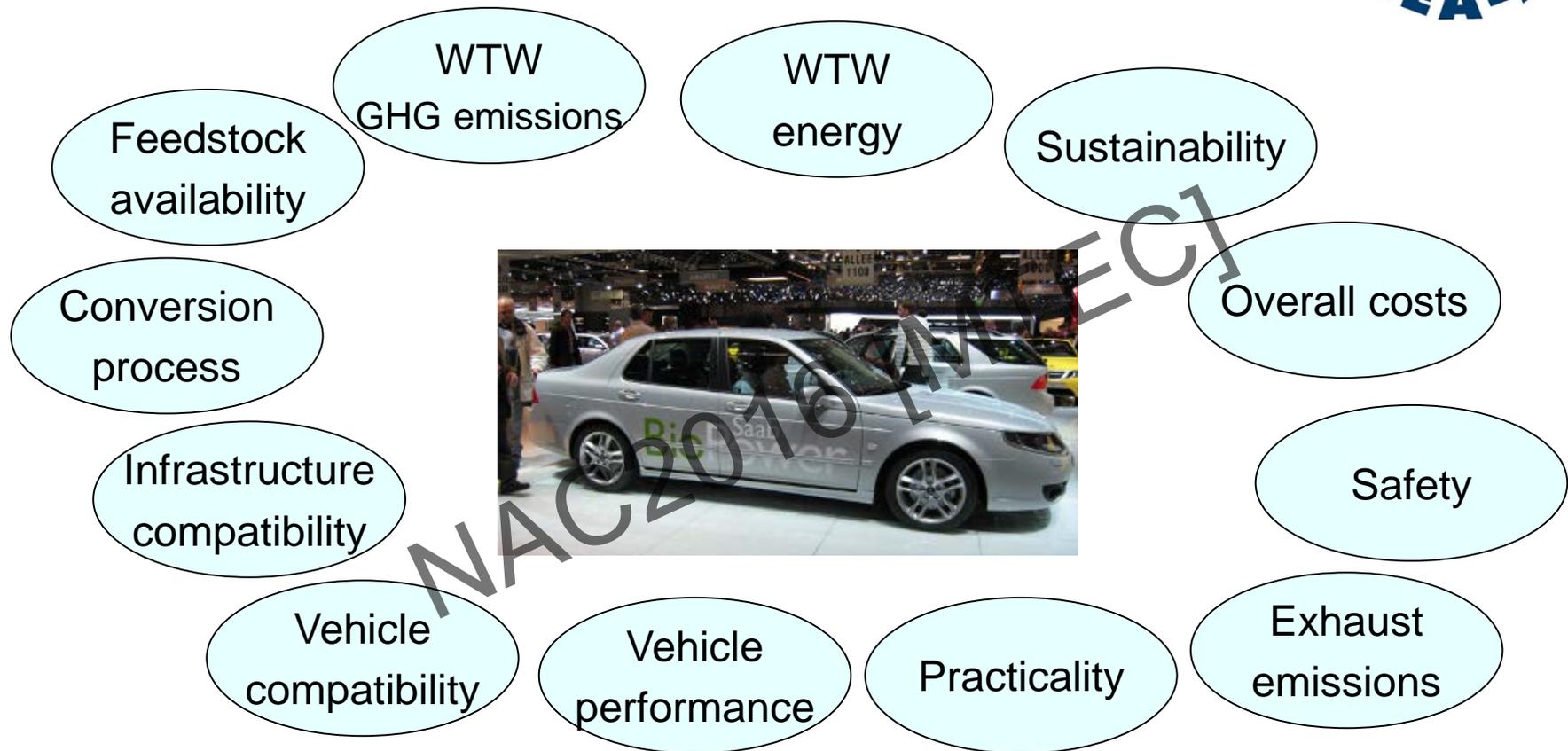
Nils-Olof Nylund, Päivi Aakko-Saksa & Kai Sipilä

Status and outlook for biofuels, other alternative fuels and new vehicles



released in 2008
> 50 000 downloads!

Markets and Deployment

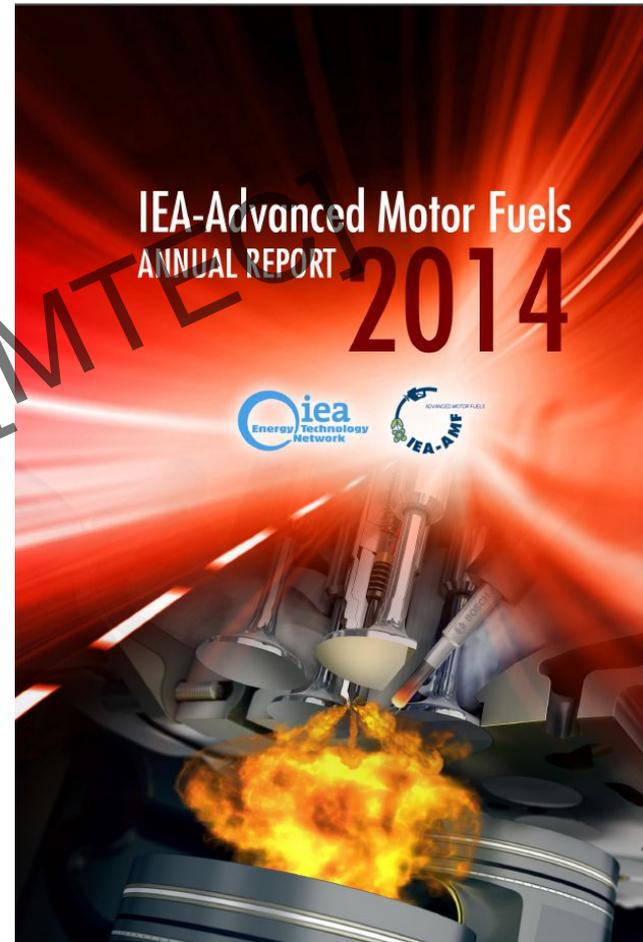


Barriers to the adoption of advanced motor fuels can be extensive and require careful analysis

Markets and Deployment



- The AMF Annual Report addresses:
 - technical and economic barriers to wide-scale deployment of advanced motor fuels
 - legislative and regulatory environment in the participating countries



WHO CAN PARTICIPATE?



- The IEA technology collaboration program is open to IEA member and non-member countries. Typically, participants are:
 - Governmental or energy technology entities representing governments
 - Research institutes and universities
 - Energy technology companies
- Each signatory designates a representative to the Executive Committee that governs and administrates the work.

AMF Contracting Parties



1. Austrian Agency for Alternative Propulsion Systems (A3PS) (Austria)
2. CanmetENERGY (Canada)
3. Ministry of Energy (Chile)
4. China Automotive Technology and Research Center (CATARC) (China)
5. Technical University of Denmark (DTU) (Denmark)
6. The Technical Research Centre of Finland (VTT) (Finland)
7. ADEME (France)
8. Fachagentur Nachwachsende Rohstoffe (FNR) (Germany)
9. Ministry of Energy and Water Resources (Israel)
10. National Institute of Advanced Industrial Science and Technology (AIST) (Japan)
11. Organization for the Promotion of Low Emission Vehicles (LEVO) (Japan)
12. Korea Institute of Energy Technology Evaluation and Planning (KETEP)
13. IDAE (Spain)
14. Swedish Transport Administration (STA) (Sweden)
15. Swiss Federal Office of Energy (SFOE) (Switzerland)
16. PTT Research and Technology Institute (Thailand)
17. United States Department of Energy (DOE) (USA)

Benefits of participation in IA

reference IEA



- Shared (reduced) cost and pooled technical resources
- Avoided duplication of effort
- Information sharing with a network of researchers
- Facilitates technical consensus
- Harmonized technical standards
- Accelerated technology development and deployment
- Linking IEA member and non-member countries
- Linking research with industry and policy development
- Strengthened national RD&D capabilities

Benefits of participation

according to new AMF members



- AMF addresses the issues that are important in our country
- The sponsored research projects (annexes) are relevant to our countries needs
- Because several countries sponsor the annexes, they are cost-effective for our country to participate
- The dues are reasonable
- Interaction with the other delegates (networking) provides insights into other approaches in developing advanced motor fuels

AMF survey: Australia, Austria, and China responses

Role of the ExCo Delegate



- Delegate represents the country
 - Need to assess potential interest of all country stakeholders
 - Requires active networking and discussions
 - Work outside of specific areas of interest/knowledge
 - Link with country delegates to other related IEA Implementing Agreements.
- Foster collaboration between all country experts and AMF members
 - Maximise involvement and synergies
- Help shape AMF according to country interests and priorities
 - Ensure relevance and value added



AMF Contacts

Chairman

Mr. Magnus Lindgren, STA, Sweden

Vice Chairman

Mr. Yutaka Takada, LEVO, Japan

Mr. Nils-Olof Nylund, VTT, Finland

Secretary

Ms. Dina Bacovsky, Bioenergy 2020+, Austria

dina.bacovsky@bioenergy2020.eu

www.iea-amf.org

including the quarterly
newsletter "AMFI"



PTT Public Company Limited has applied for the IEA/AMF member endorsed by Ministry of Energy next to NSTDA (MTEC) since 2013, according to the more R&D related work on advance motor fuels.

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ROLE OF THAILAND DELEGATES CONTRIBUTING TO IEA/AMF IA

Thailand Country Delegates

Thailand	Ms. Arunratt Wuttimongkolchai	Delegate
	<p>PTT Research and Technology Institute Petroleum Products and Alternative Fuels Research Department 71 Moo2, Phahonyothin Rd., Sanabtub, Wangnoi, Ayutthaya 13170 Thailand</p> <p>phone: +66 2537 3000 8182 fax: +66 2537 3000 8199 email: arunratt.w@pttplc.com</p>	
Thailand	Mr. Somnuek Jaroonjitsarnian	Alternate
	<p>PTT Research and Technology Institute Energy Application Technique and Engine Lab Department 71 Moo2 Phahonyothin Rd., Sanabtub, Wangnoi, Ayutthaya 13170 Thailand</p> <p>fax: +66 2537 3000 8324 email: somnuek.j@pttplc.com web: www.pttplc.com</p>	



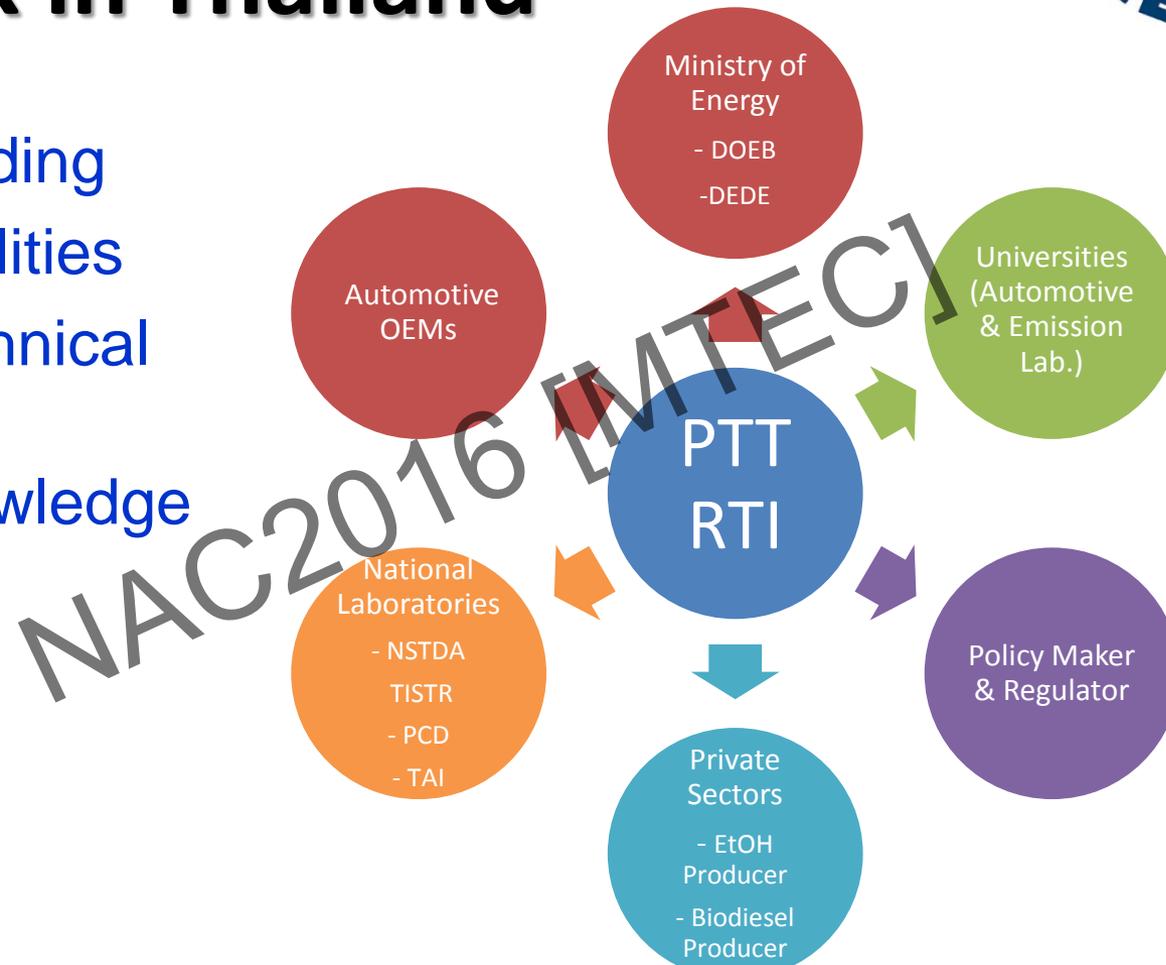
IEA/AMF Activities by PTT PLC.

- Annual fee € 9,500
- Participate in the ExCo Meeting twice a year
- Annex Task Sharing for ANNEX 49 & ANNEX 52
- Information Exchange with IEA/AMF Experts World-wide
- Regularly submit the Thailand country report and white paper in transportation for published in IEA/AMF website.
- Organize the collaborative R&D Program with experts in Thailand.

Drafted IEA/AMF R&D Network in Thailand

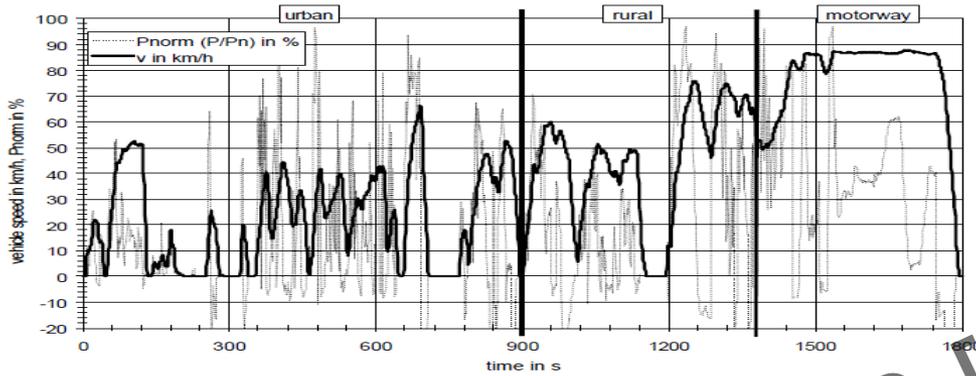


- Share Funding
- Share Facilities
- Share Technical Experts
- Share Knowledge



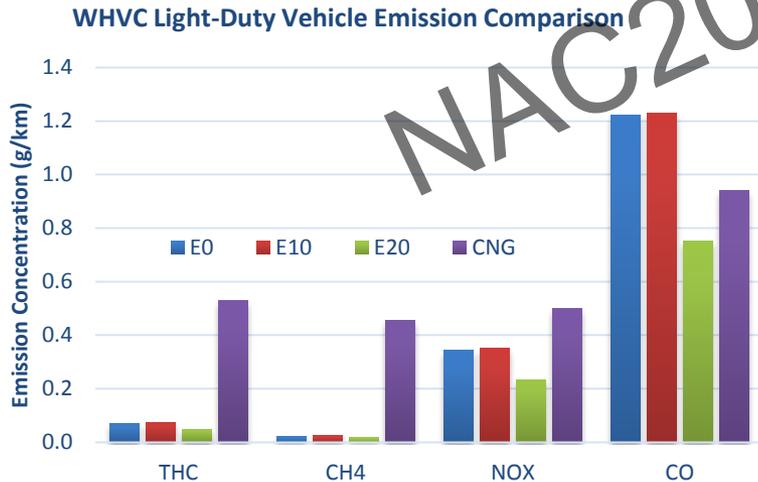
ANNEX 49: COMVEC

Fuels and Technology Alternatives for Commercial Vehicle

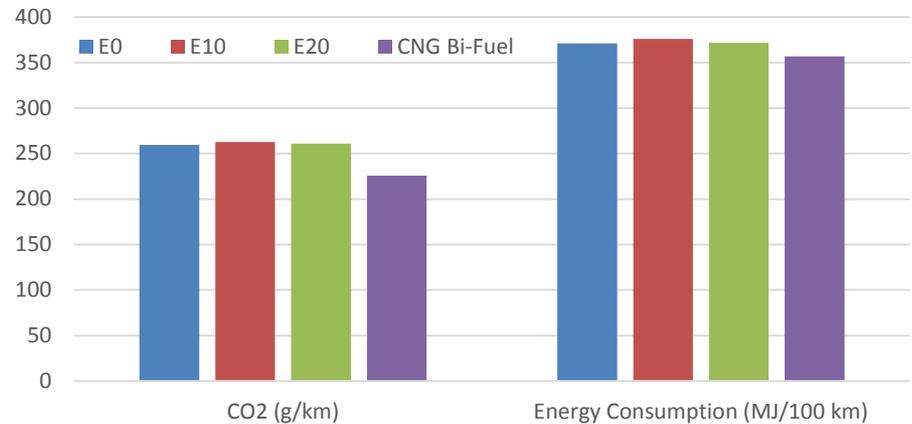


WHVC – World Harmonized Vehicle Test Cycle developed by UN-ECE to evaluate the use of alternative fuels for current commercial vehicles in area of fuel economy and emission.

Light-duty S.I. Vehicle running by WHVC



WHVC Light-Duty Vehicle CO2 & Energy Consumption

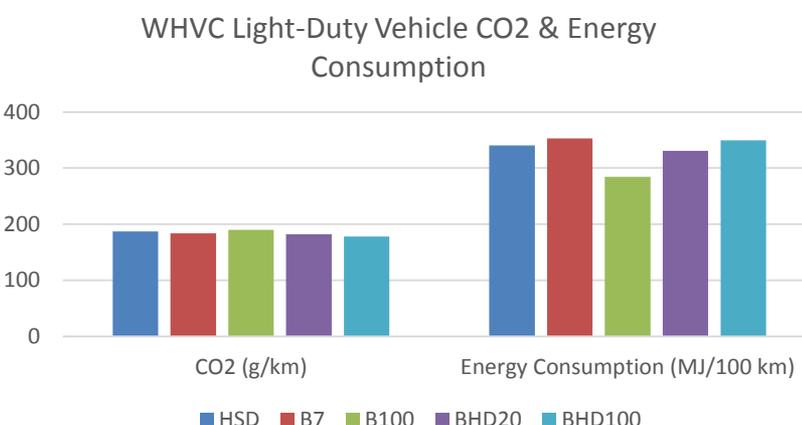
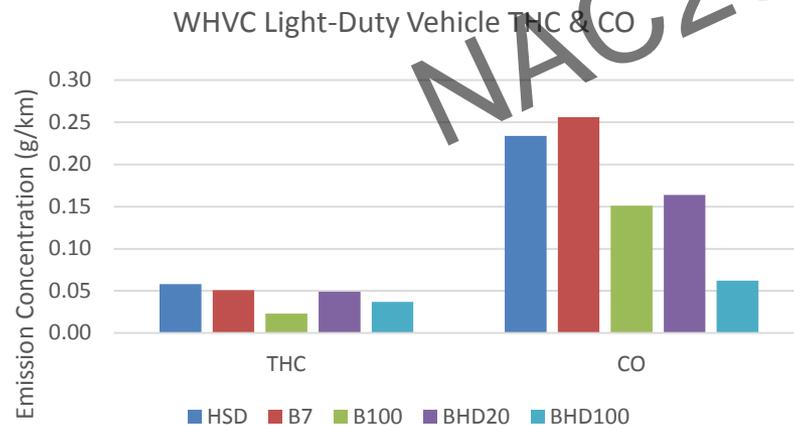
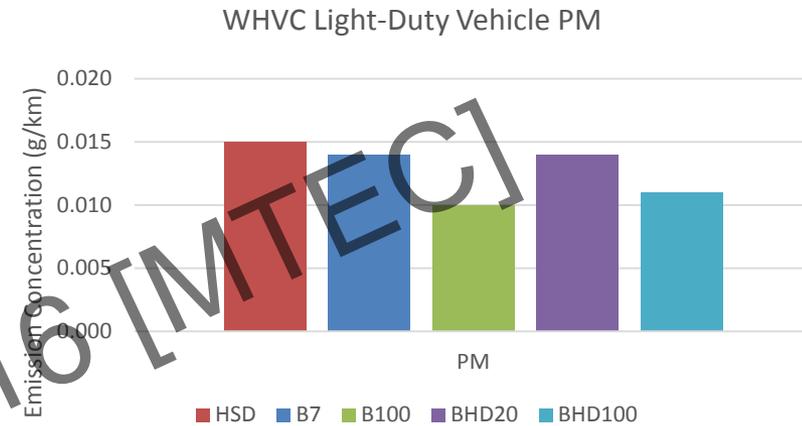
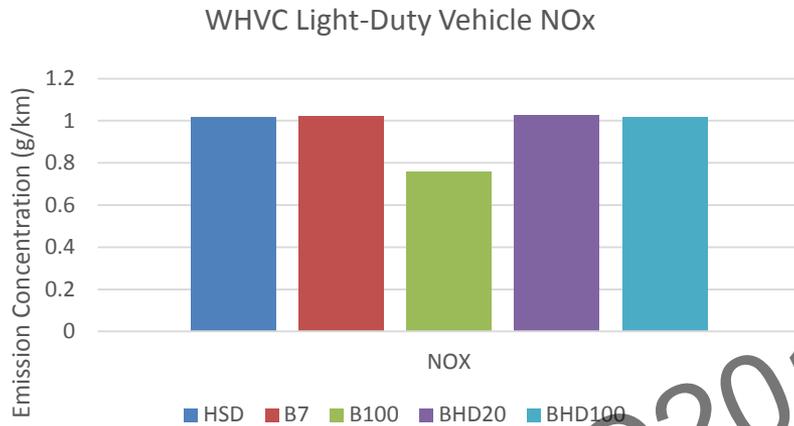


ANNEX 49: COMVEC

Fuels and Technology Alternatives for Commercial Vehicle



Light-duty C.I. Vehicle running by WHVC



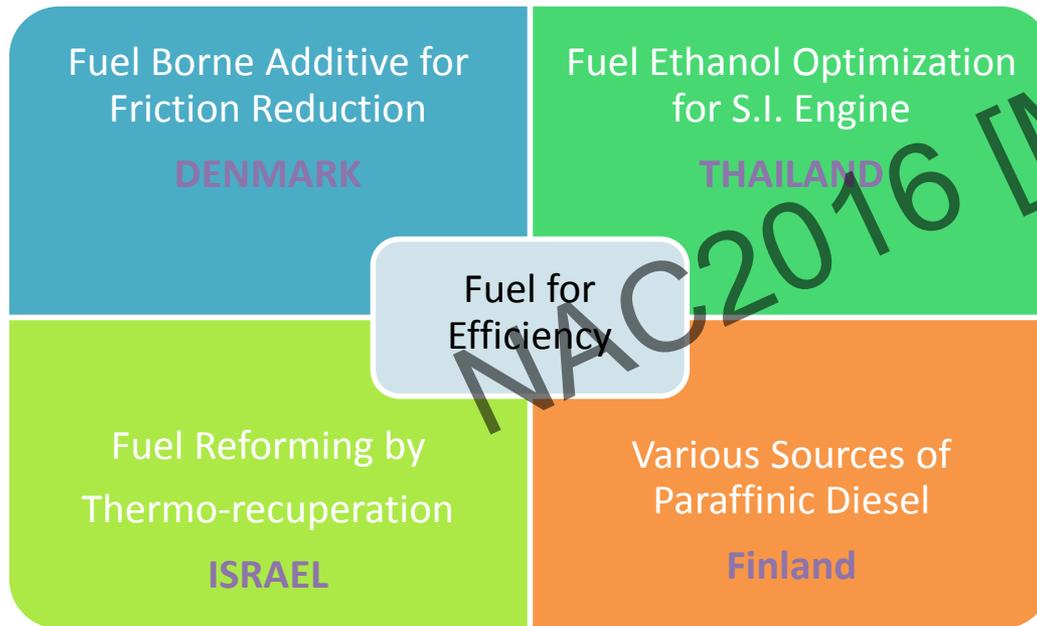
ANNEX 52: FUELS FOR EFFICIENCY



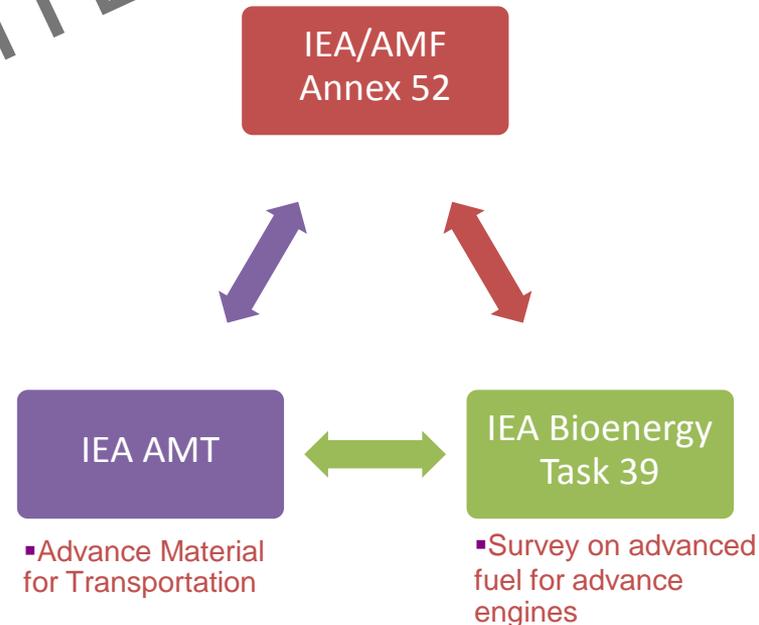
Organized by PTT PLC as an Operating Agent

- *R&D Structure (April 2015 – March 2017)*
- *Task sharing scheme totally 18 million baht fund.*

IEA/AMF Annex 52



Information Sharing across the IEA-TCP



Opportunities to join with IEA/AMF Global Experts



- Become a Thailand expert list in the area of Advance Motor Fuels research and policy mandate for disseminating the AMFI Newsletter.
- Funding the R&D through any testing laboratory as cost sharing scheme.
- Join the current or new annex by running the R&D as task sharing.
- Propose the new annex through the ExCo Meeting via Thailand country delegates.
- Sponsor the ExCo Meeting as a host in Thailand.

New technological paradigm need strong collaboration between organization to reduce costs, time and research redundancy.

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CONCLUSIONS

Conclusions



- IEA/AMF IA is an organization aim to promote the sustainable energy policies and secure the future energy supplies world-wide through global collaboration.
- Thailand is a member of IEA/AMF IA through PTT PLC.
- Expert list will receive the AMFI newsletter via email or visit the www.iea-amf.org for exploring the valuable data.
- PTT PLC on behalf of IEA/AMF IA country delegate is very welcome experts, professors, lecturers, policy makers, bioenergy producers, researchers and others to become an IEA/AMF network in Thailand.

■ THANK YOU FOR YOUR KIND ATTENTION!

For more information:

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