

# Successful Biofuel Program in Thailand to Achieve Low Carbon Transportation

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**ASIAN DEVELOPMENT BANK ROUNDTABLE**

Singapore International Energy Week 2016

27 October 2016

Marina Bay Sands Convention Centre, Singapore

# Climate Action Plan of Thailand



Intended Nationally Determined Contribution (INDC), (submitted on 1 October 2015)

## COP21 in numbers

2°C global temperature rise that should not be breached

12 days for government leaders to seal a climate deal

40% target reduction in GHG emissions by 2030 below 1990 levels

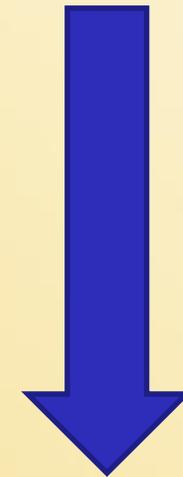
178 countries which submitted INDCs

100 billion USD was promised each year to finance climate action

400 parts per million of CO<sub>2</sub> concentration has reached the atmosphere

2015 is the hottest year on record

2020 the Paris agreement comes into effect



**CO<sub>2</sub>**  
**(by 2030)**

**20 - 25 %** (approx. 555 MtCO<sub>2</sub>e)  
**(BAU)**

Source: Manibo, Medilyn, 5 things to know about COP21 in Paris (Dec 2015)

URL: <http://www.eco-business.com/news/5-things-to-know-about-cop21-paris/>

URL: [http://www4.unfccc.int/Submissions/INDC/Published%20Documents/Thailand/1/Thailand\\_INDC.pdf](http://www4.unfccc.int/Submissions/INDC/Published%20Documents/Thailand/1/Thailand_INDC.pdf)

# Climate Action Plan of Thailand

Intended Nationally Determined Contribution (INDC), (submitted on 1 October 2015)

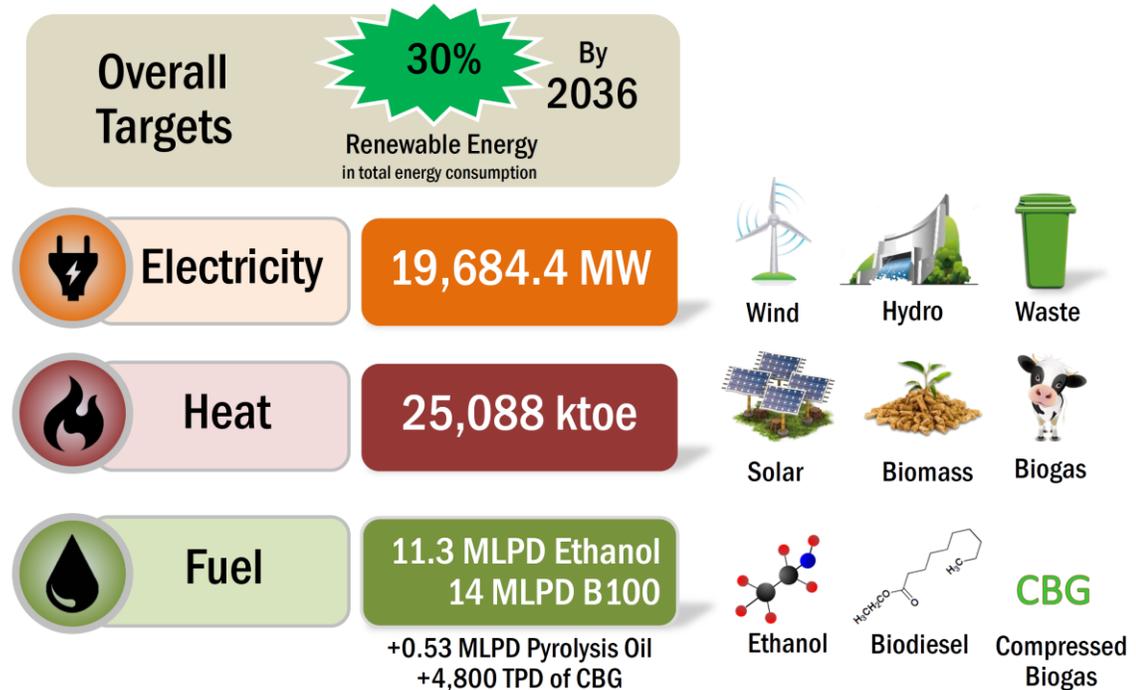
- National Economic and Social Development Plans
- Climate Change Master Plan B.E. 2558 – 2593 (2015 -2050)
- Power Development Plan B.E. 2558 -2579 (2015-2036)
- Thailand Smart Grid Development Master Plan B.E. 2558 – 2579 (2015 -2036)
- Energy Efficiency Plan B.E. 2558 -2579 (2015 -2036)
- **Alternative Energy Development Plan B.E. 2558 -2579 (2015 -2036)**
- Environmentally Sustainable Transport System Plan B.E. 2556 -2573 (2013 -2030)
- National Industrial Development Master Plan B.E. 2556 -2574 (2012 -2031)
- Waste Management Roadmap

# Thailand Integrated Energy Blueprint

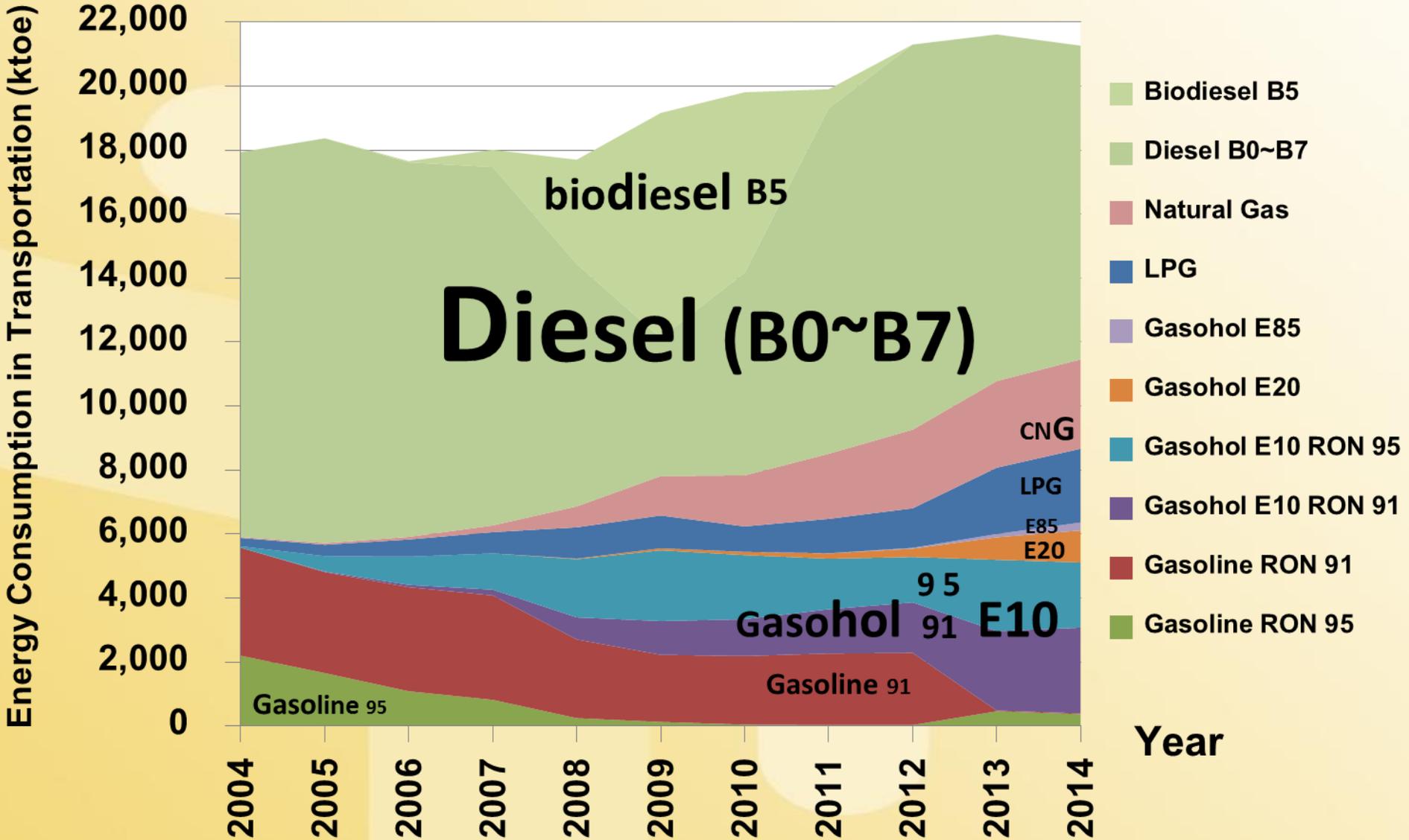


- PDP** Power Development Plan  
(Cabinet approve in Jun. 30, 2015)
- EEP** Energy efficient Plan  
(Cabinet approve in Oct. 6, 2015)
- AEDP** Alternative Energy Development plan  
(Cabinet approve in Oct. 27, 2015)
- GAS** Gas plan  
(Cabinet approve in Oct. 27, 2015)
- OIL** Oil plan  
(Cabinet approve in Oct. 27, 2015)

# AEDP 2015 -Targets

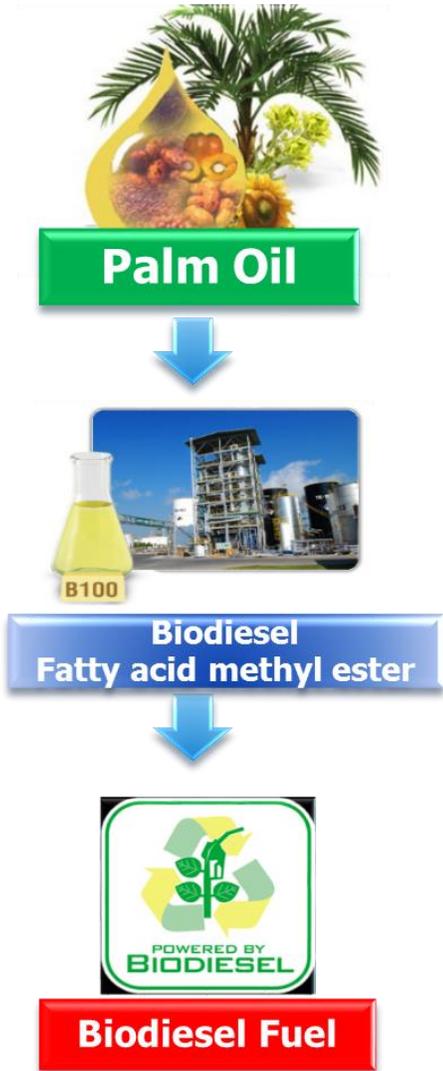


# Options for Automotive Fuels in Thailand

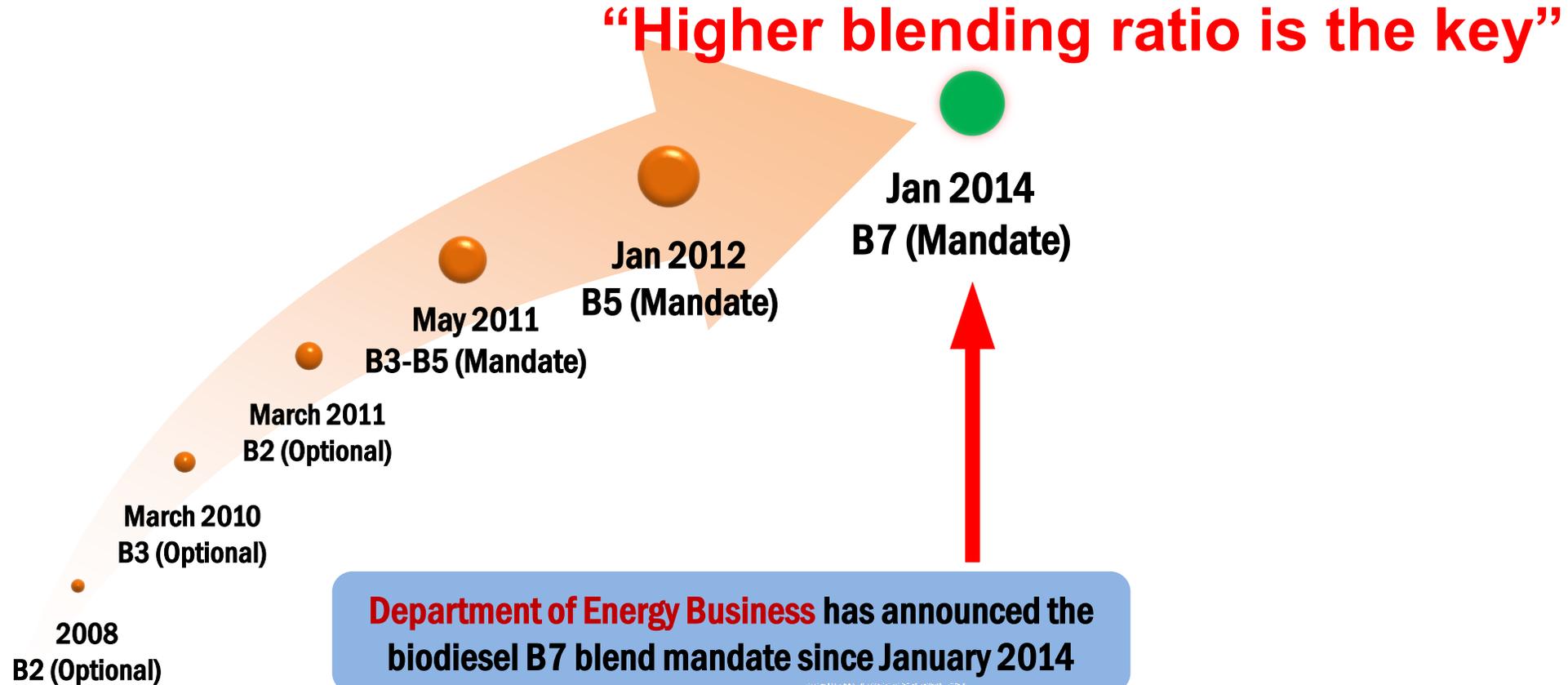


Adapted from: Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy

# Thailand Biodiesel History



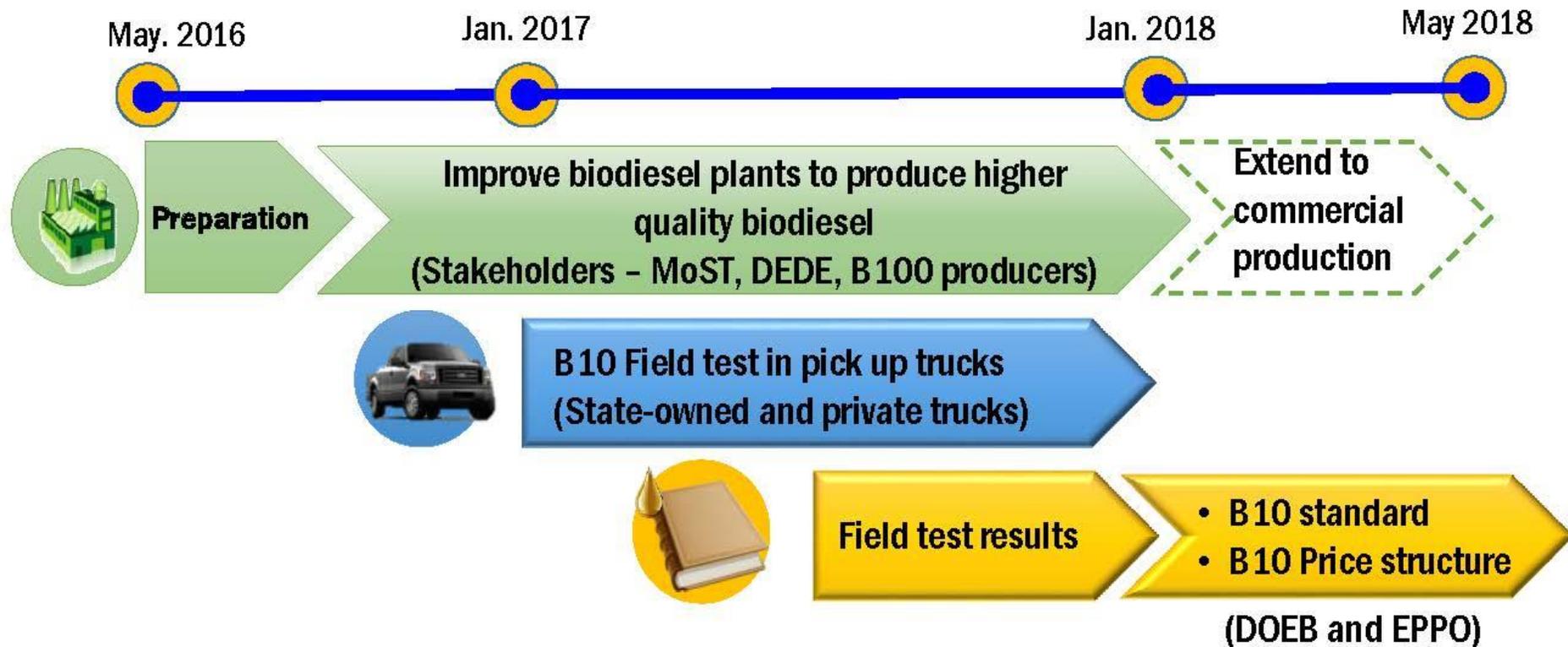
## History of biodiesel blend in Thailand



# Near term plan for biodiesel

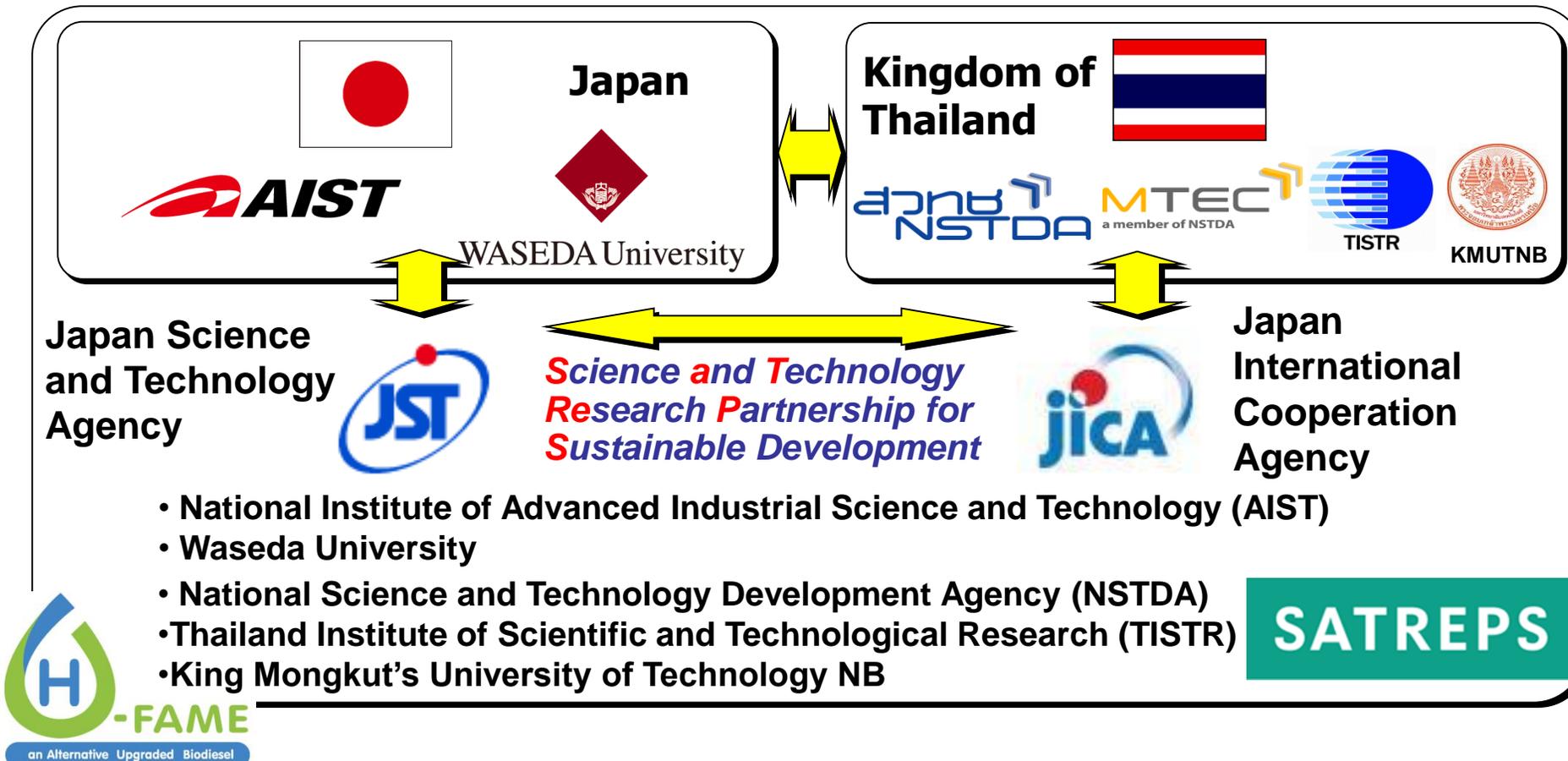
**Target – Increase blending ratio from B7 to B10**

**Research targets :** 1. Improve biodiesel quality  
2. Field test with pick up trucks up to 50,000 KM



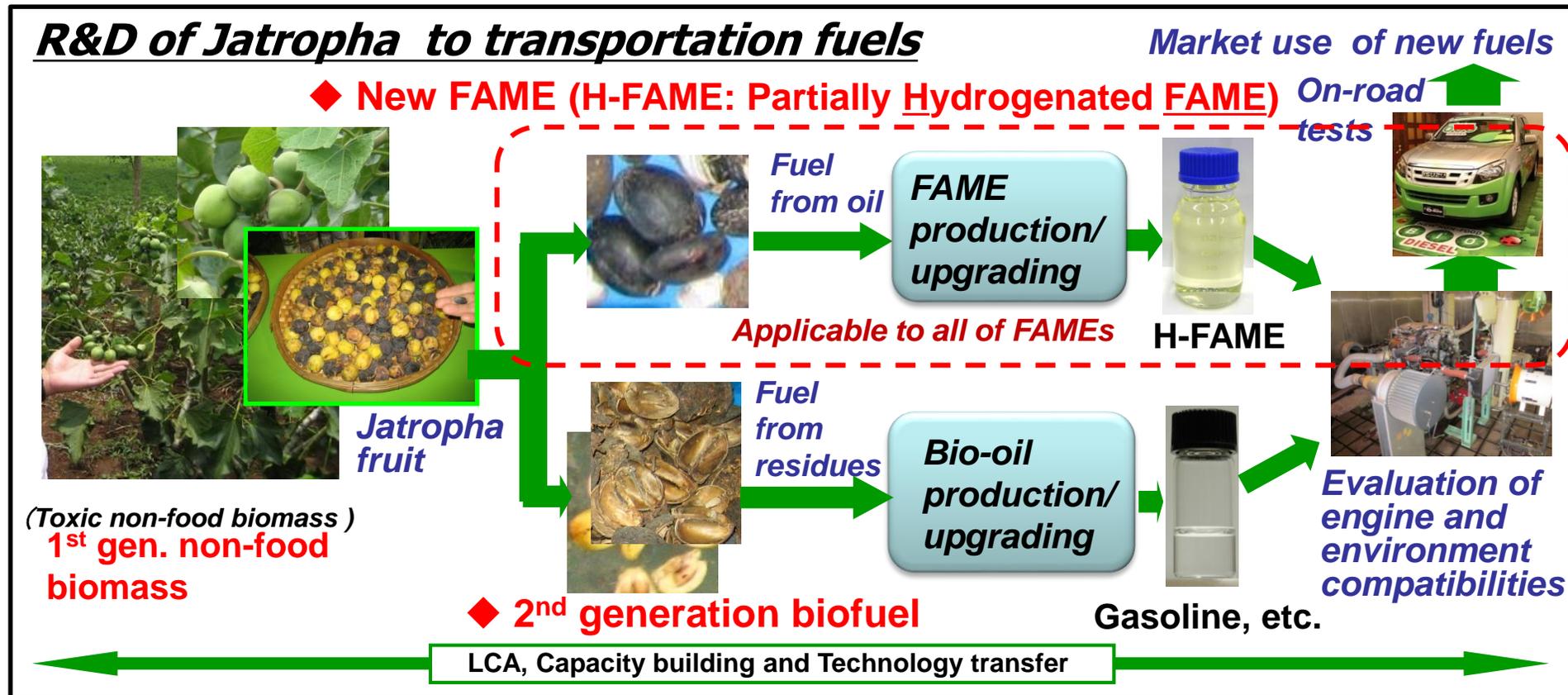
# H-FAME technology is developed through

## Thailand-Japan collaboration SATREPS PJ of “Innovation on production and automotive utilization of biofuels from non-food biomass” (FY2010-FY2015)



# Outline of JST-JICA SATREPS project

*Demands for biofuels from non-food biomass: Energy security; CO2 reduction; Growth of agricultural/forestry industries; Minimizing the conflict with food, etc.*



**◆ will develop the novel biofuels production technology from Jatropha oil and residues to enhance its over-all utilization efficiency.**

**◆ will contribute to the sustainable introduction of high-quality biofuels (H-FAME) into the transportation sector, in particular for the higher blending.**

# On-road test by using B20 (Palm H-FAME)

- ◆ Verification of automotive compatibility of H-FAME, with the collaboration of Isuzu Thailand group and petroleum company .
- ◆ Testing fuel of B20: 20 vol % of **Palm H-FAME** blended with 80 vol % of Thai petro-diesel.
- ◆ Testing periods: Jan.5, 2015 ~ Mar. 2015 (50.000 km).
- ◆ Testing vehicle: ISUZU pick up truck, D-MAX Super Daylight (EUROIV)



ASEAN's persons will be invited to Thailand for training in biodiesel productions and standardization. All of the fees for invitation will be supported by JICA and TICA.

JICA training Program (FY2016?~)



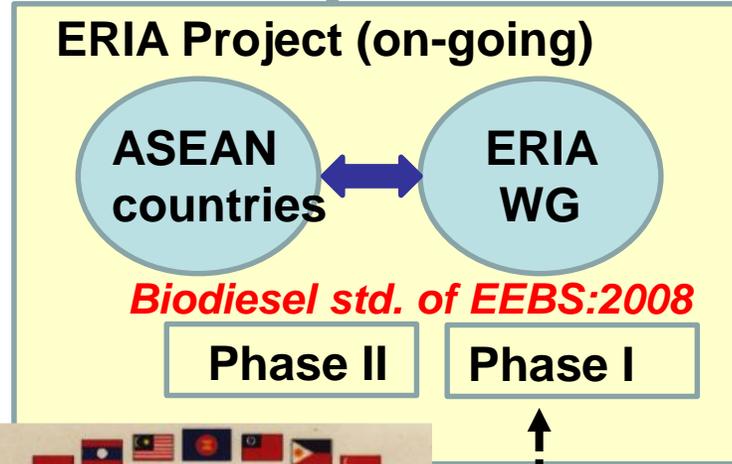
Utilization of facilities dispatched by JICA



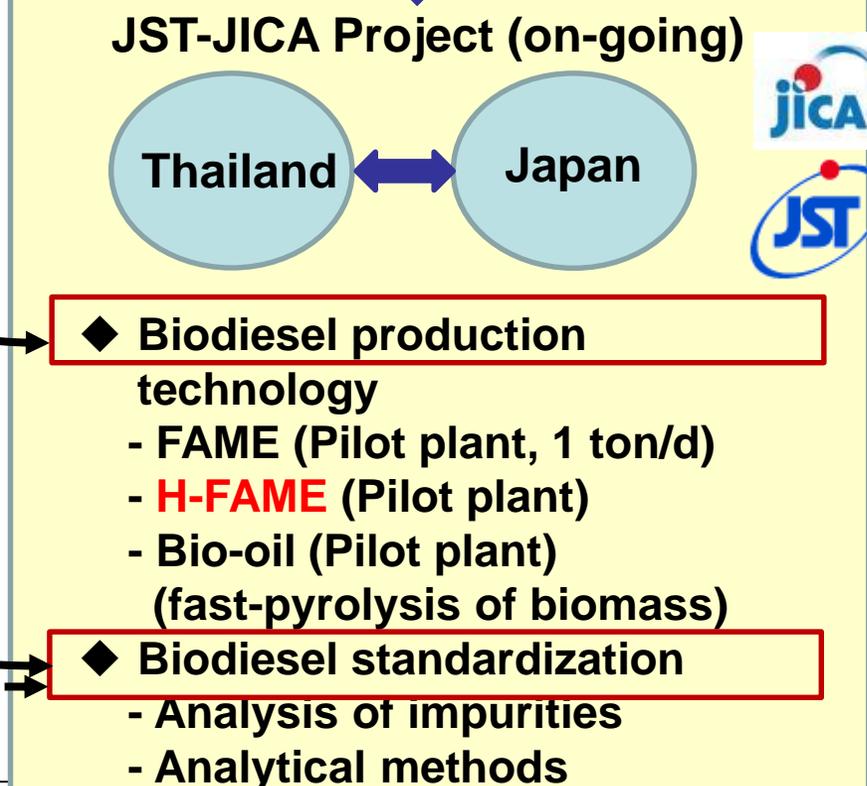
Training program for the 3<sup>rd</sup> countries (other than Thailand)

*H-FAME as a key technology to meet with EEBS:2008*

*Standardization*



*Production* (FY2010-2015)



# Thank you