



Capacity Building on Renewable Energy in Thailand

Sutharee Kiatman

Engineer

Bureau of Biofuel Development

(sutharee_k@dede.go.th)

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Outline



**Thailand Integrated Energy Blueprint
Alternative Energy Development Plan (AEDP2015)**



Performance of Alternative Energy



Capacity Building on Renewable Energy in Thailand

Thailand Integrated Energy Blueprint

Security

Economy

Ecology

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)

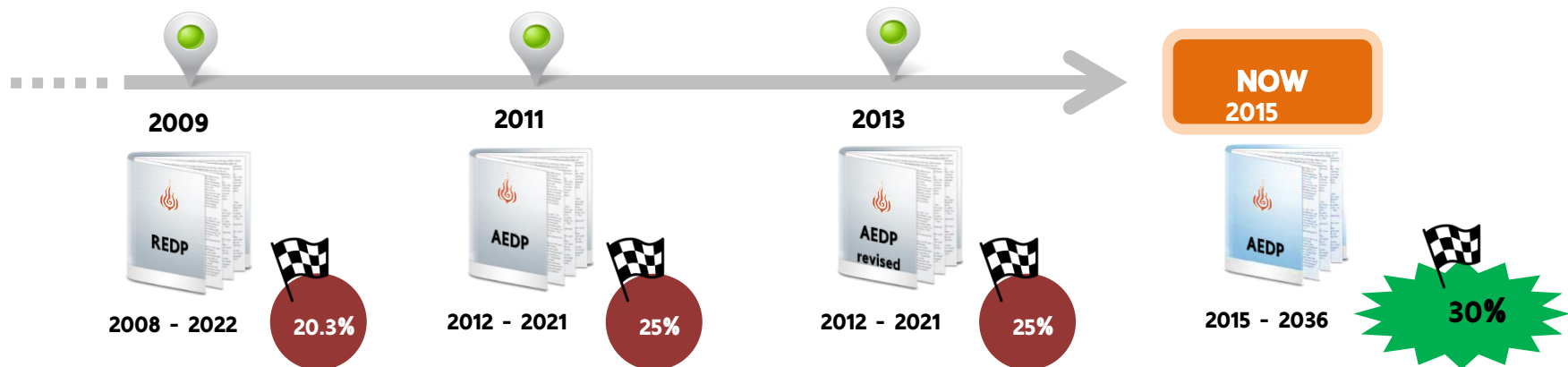


TIEB

THAILAND INTEGRATED ENERGY BLUEPRINT



Alternative Energy Development Plan



Economy

- To develop alternative energy production with suitable technology

Energy Security

- To fully utilize county's alternative energy potentials


Ecology

- To increase social and community benefits from alternative energy production and usage

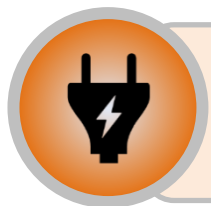
OBJECTIVE

AEDP 2015 Target

Overall Targets


30%
Renewable Energy
 in total energy consumption

By 2036



Electricity

19,684.4 MW



Wind



Hydro



Waste



Heat

25,088 ktoe



Solar



Biomass



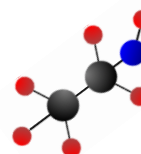
Biogas



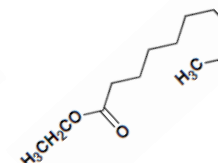
Fuel

11.3 MLPD Ethanol
14 MLPD Biodiesel

+0.53 MLPD Pyrolysis Oil
+4,800 TPD of CBG



Ethanol



Biodiesel

CBG

Compressed
Biogas

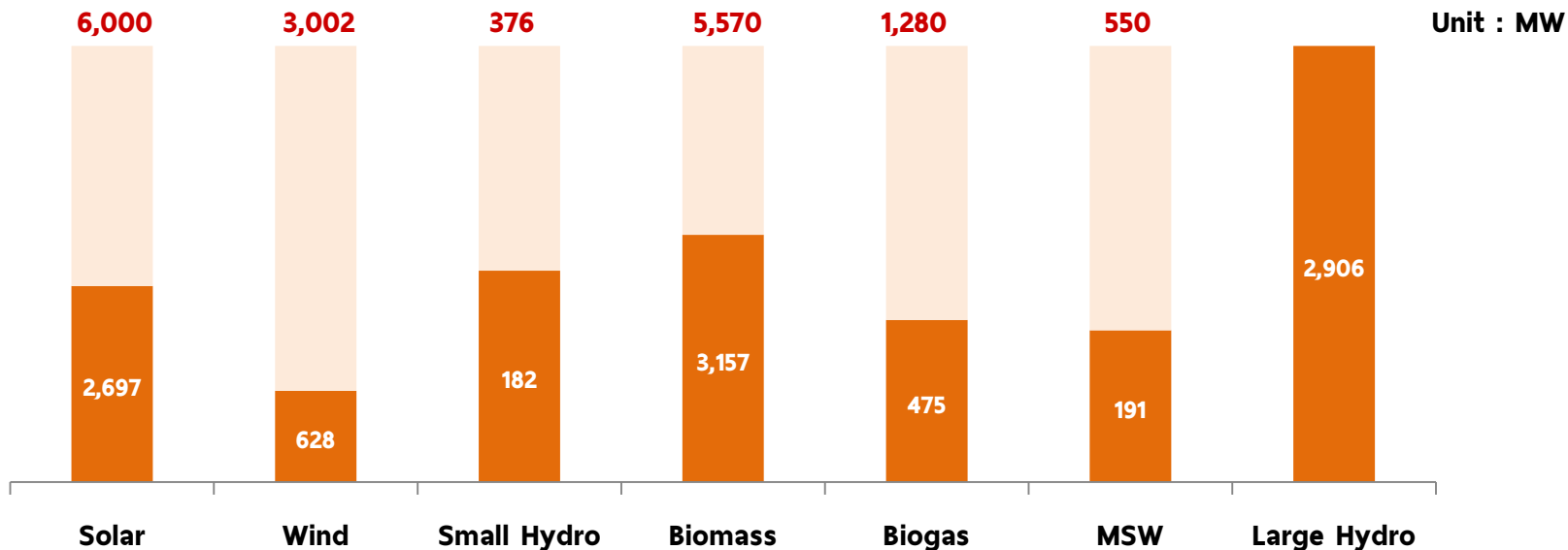
Performance of Alternative Energy 2017



Electricity

Target 2036: 19,684.4 MW or 5,588 ktoe

Target 2036



2017

10,238 MW

2,440 ktoe

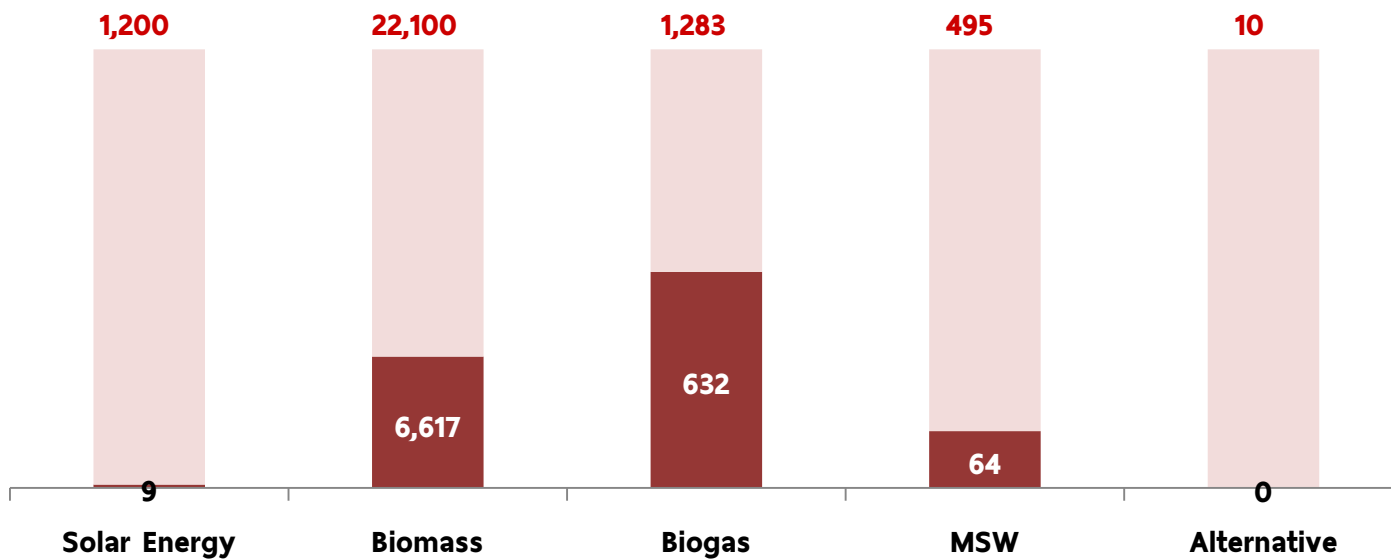
Performance of Alternative Energy 2017



Heat

Target 2036: 25,088 ktoe

Target 2036



2017

7,322 ktoe

Performance of Alternative Energy 2017



Fuel

11.3 MLPD Ethanol
14 MLPD B100

8,712 ktoe

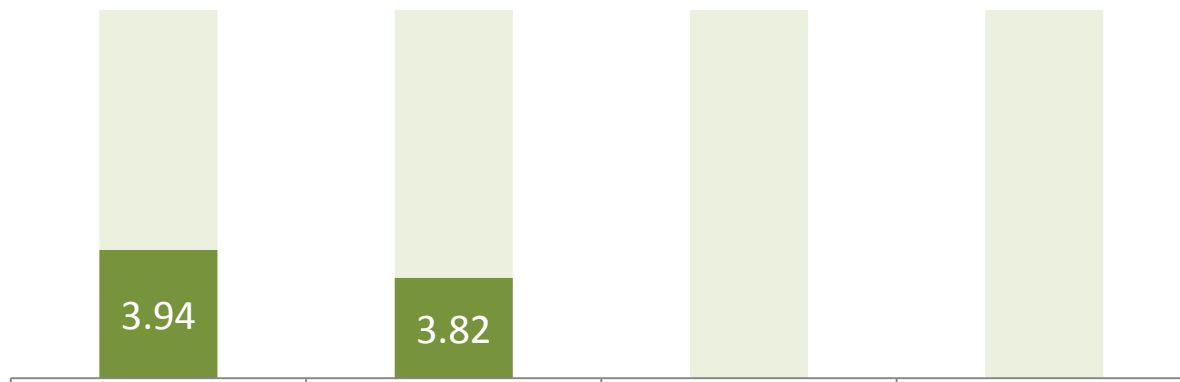
Target 2036

11.3

14

0.53

4,800



Ethanol

Biodiesel

Pyrolysis oil

CBG

Unit : ML/day

Unit : ton/day

2017

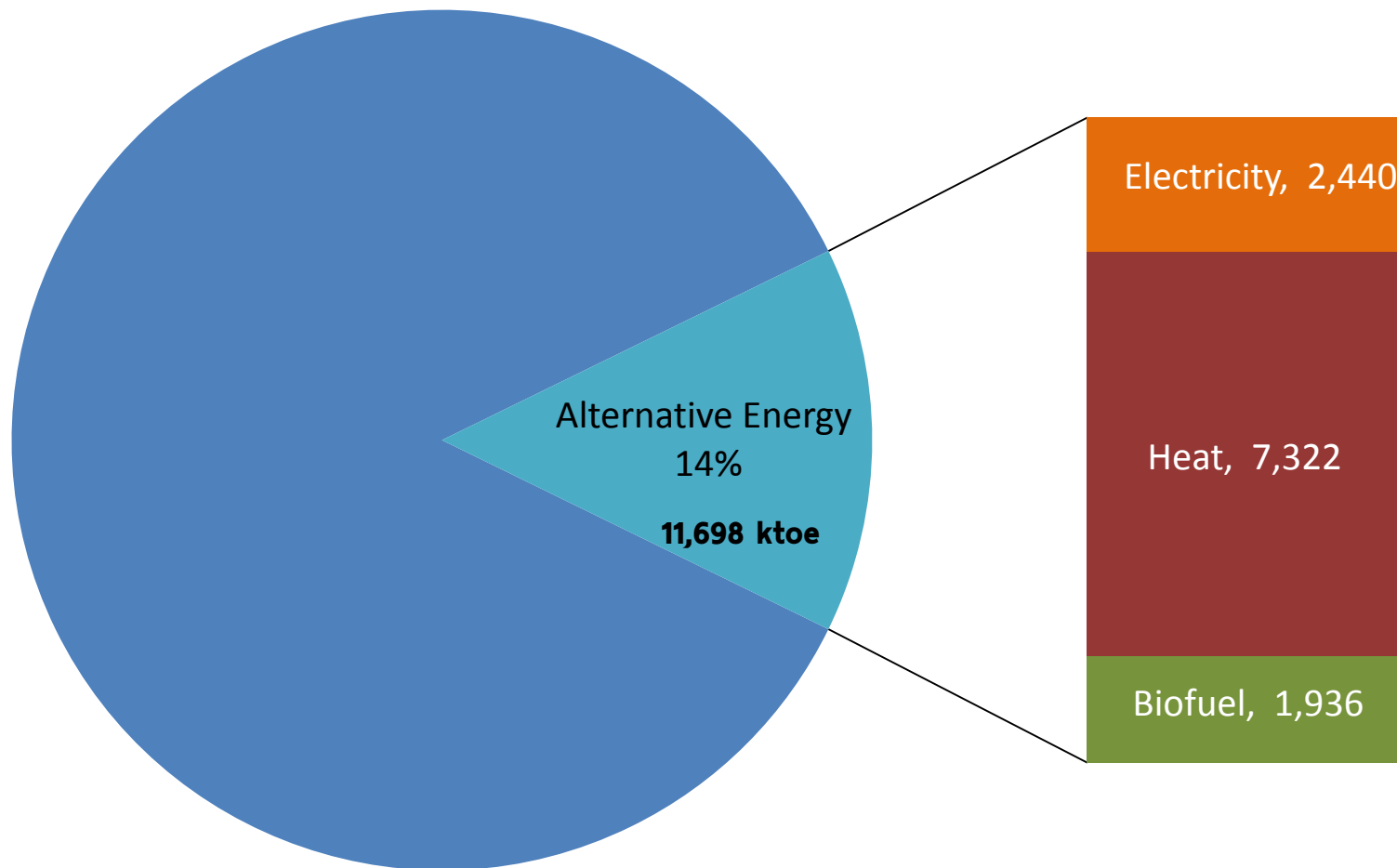
3.94 MLPD Ethanol
3.82 MLPD Biodiesel

1,936 ktoe



Performance of Alternative Energy 2017

Total Final Energy Consumption 80,752 ktoe



Alternative Energy is 14% of Total Final Energy Consumption

AEDP 2015 Strategies to promote the development of renewable energy

Strategy 3: Create awareness and access to knowledge and facts of renewable energy

Aims: To raise awareness and understanding on the efficient and sustain of production and consumption of renewable energy

“Tactic 3.3 Capacity building both in theory and practice to make more ability in utilization of renewable energy”

The driven of renewable energy development strategy

Bureau of Human Resource Development

- **Develop new RE course for enterprise and education in stitute**
- **Training, knowledge transfer on renewable energy application**

Bureau of Technology transfer and dissemination

- **Disseminating and transferring energy technologies**
- **Developing and applying appropriate energy technologies
gained from research and local wisdom**



Biofuel promotion

- Ethanol : Commercial scale (Regulations of Liquor Distillation**

Organization; control alcohol manufacturing)

- Biodiesel : Commercial scale**

Community scale

Biodiesel: Promote community to produce and consume biofuel for local

“Use waste cooking oil from household or the available local palm oil to produce biodiesel for agricultural machine”

Community Biodiesel Training

- **Start since 2005**

Introduce the biodiesel equipment and construction



50 – 100 L/day



Waste water treatment system

Community Biodiesel Training

Educate biodiesel production





Community Biodiesel Training

Educate biodiesel utilization and follow up



Background and Obstacles

2005 – 2012 : 472 communities in maximum

2013 – now : Low price of fossil fuel

Not competitive of community biodiesel

Cooking oil was not available.

Less interesting

Community Biodiesel running plants: 40 communities (2016)

Community Biodiesel production: 64,100 L (half of 2016)

Biodiesel Learning Center

**Aim: Knowledge management by local expert/
local wisdom**

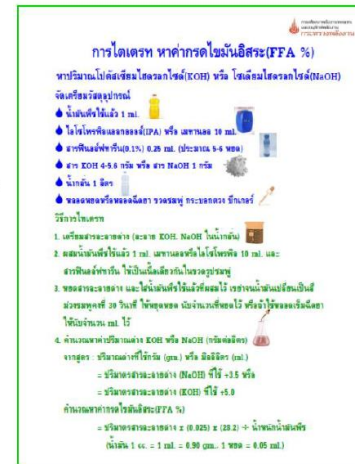
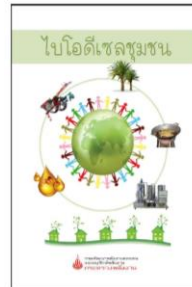
Establish: since 2016, 13 Centers



- **Improve/renovate the training place**
- **Improve biodiesel production machine**
- **Laboratory equipment and PPE**



- **Learning media**
(eq. manual, vinyl chart)



- **Coaching**



Follow up on site 1 – 2 time/yr

Conclusion

- **Alternative Energy Development Plan (AEDP2015)**
target renewable energy 30% of total final energy consumption
- **In 2017, renewable energy 11,698 ktoe or 14% of total final energy consumption**
- **DEDE intention: to create awareness and access to knowledge and facts of renewable energy.**
- **Course of community biodiesel training provided by Bureau of Biofuel Development**
Aim to promote community to produce and consume biofuel for local
- **Biodiesel Learning Center: Local experts transfer biodiesel knowledge to local people**



Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY

Thank you

sutharee_k@dede.go.th

