Thailand Economy Presentation on Hydrogen Demonstrations Codes and Standards

By
Pipon Boonchanta

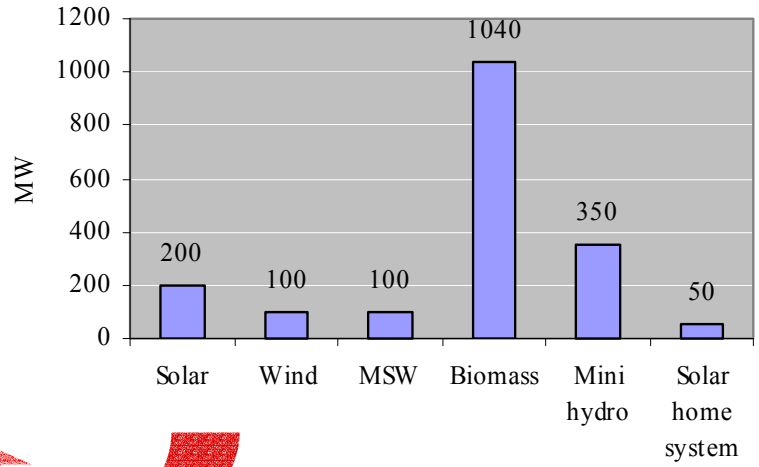
Hydrogen Workshop for APEC Economies

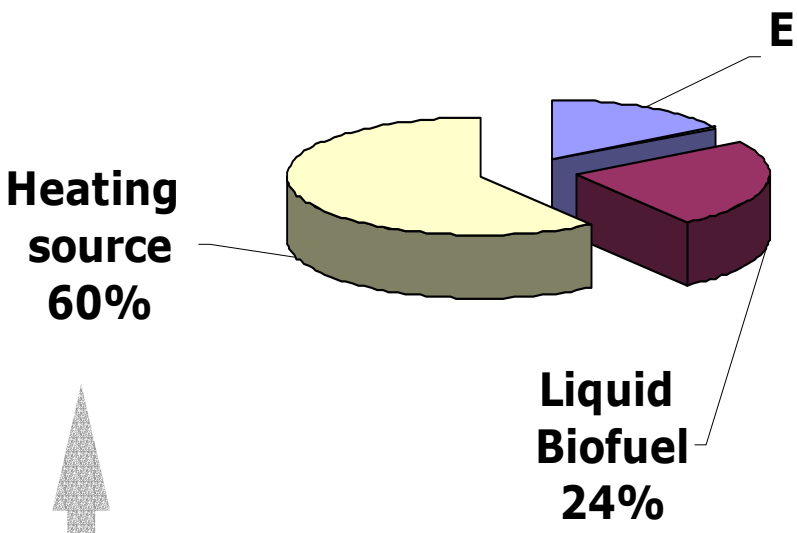
May 16, 2005

THAILAND

Target of new renewable energy in 2011

8% of total energy consumption or 6,540 ktoe





1,060 ktoe

1,570 ktoe

Transportation

Manufacturing/ Agriculture

3,910 ktoe

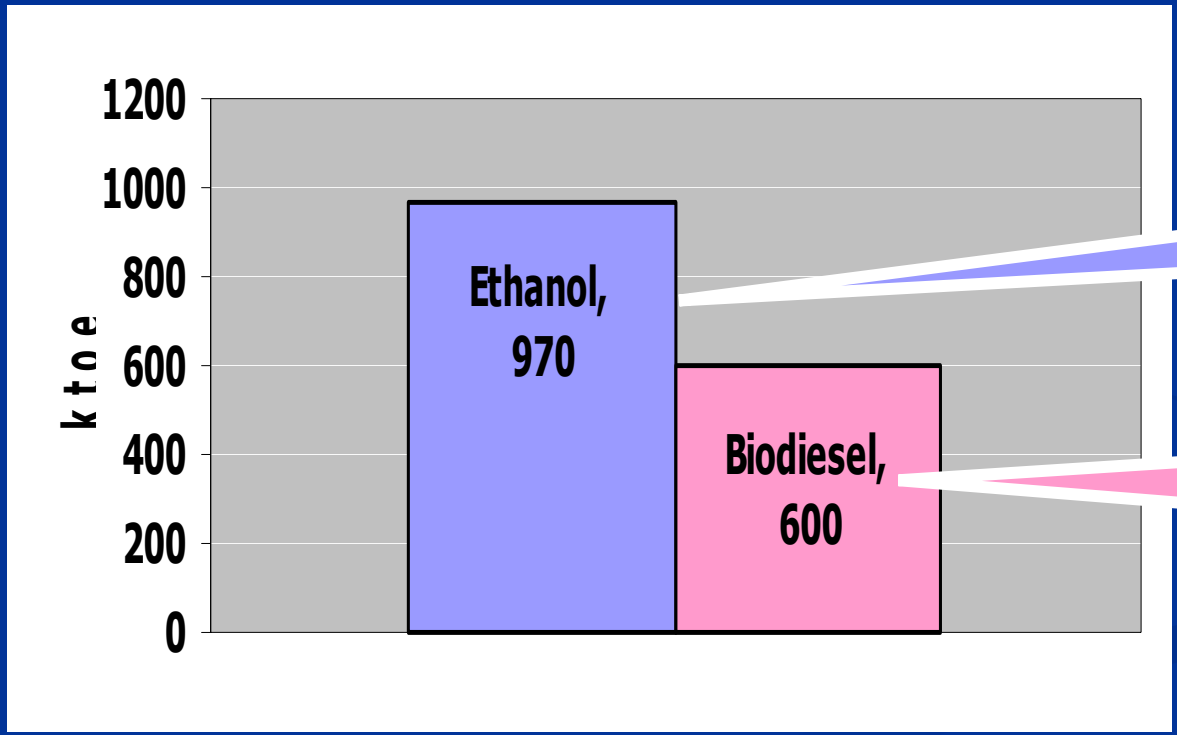
Biomass and biogas:

MSW, industrial waste water and manure

THAILAND: Target of new renewable energy in 2011

1,570 ktoe as Liquid Biofuel

for Transportation and Agriculture



- 1 M. Litres/D in 2006
- 3 M. Litres/D in 2011

- 172 M. Litres in 2006
- 720 M. Litres in 2011

National Agenda for Alternative Fuels

- Natural gas
- Bio-diesel
- Ethanol

Roadmap for Hydrogen and Fuel Cell Technology in Thailand

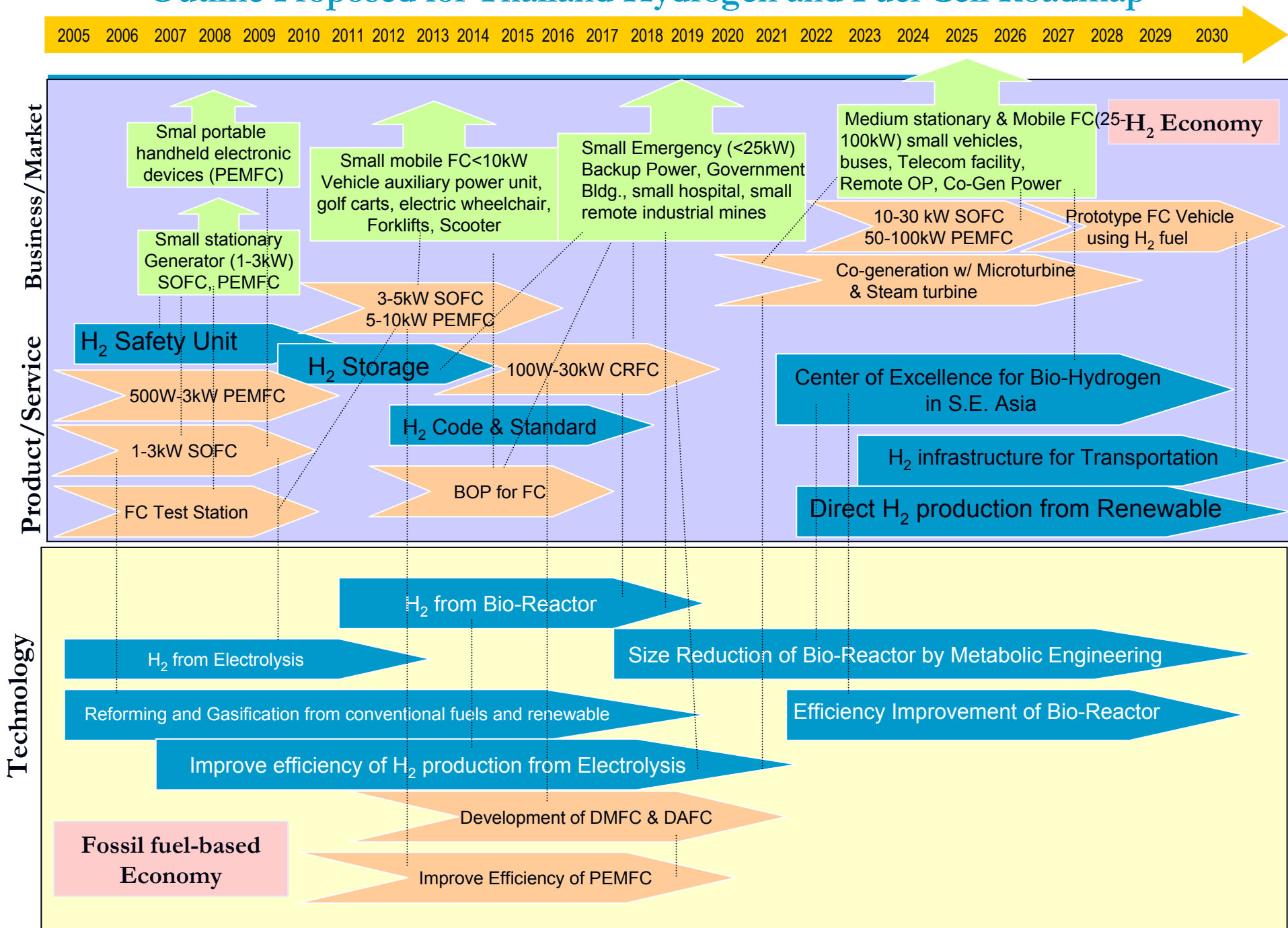
Proposed by Pavadee Aungkavattana
Researcher,
National Metal and Materials Technology center (MTEC)

Vision Goals

- Hydrogen, the fuel for fuel cells will offer Thailand opportunities for the independence on imported oil, improving air quality, and reducing greenhouse gas emissions.

- Hydrogen is clean and safe, and can be produced from Thai variety of fossil fuels, and renewable resources.

Outline Proposed for Thailand Hydrogen and Fuel Cell Roadmap



Code and Standards

- There are no national code and standards for Hydrogen at the presence
- Existing International Standards and Global Technical Regulations are normally used both in practice and in formulating the National Codes and Standards
- Thai Industrial Standard Institute (TISI), under the Ministry of Industries, is primarily the responsible organization for standard formulation, specially for industrial products
- Other related organizations are the Land Transport Department and the Department of Energy Business

Government Policies and Incentives

- No real policy toward utilization of Hydrogen as an alternative fuel in the near future
- "Wait and See" is the Government's attitude toward Hydrogen utilization
- Incentives are limited to general funding of research works in academic institutions

Research and Development

- Limited to academic interests
- Interest in Hydrogen utilization in internal combustion engines
- Interest in Hydrogen production
- Interest in Hydrogen storage technology for use with fuel cell

Ongoing Research Works and Demonstrations

- Reforming and Gasification from Ethanol and Methanol
- Hydrogen production from natural gas and biogas
- Study of Water-Gas Shift Reaction
- Study of CO Selective Oxidation
- Development work on Hydrogen storages for use with fuel cell

Intermediate Technology

- Technology of natural gas utilization in vehicles is well established in Thailand
- Gas storage by compression up to 200 bars is a normal practice
- Code of practice and regulation follow those of ECE, ANSI, NFPA and ISO
- Hydrogen utilization technology is visualized as the next phase following that of natural gas