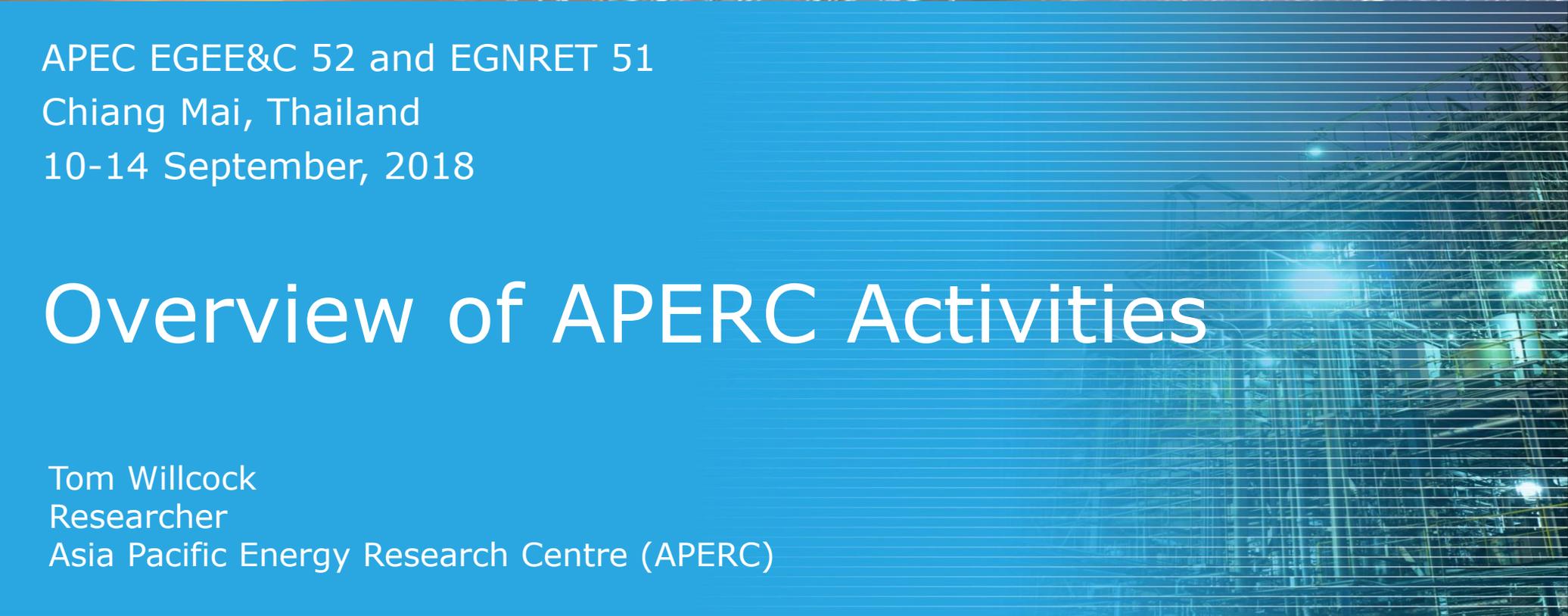




APEC EGEE&C 52 and EGNRET 51
Chiang Mai, Thailand
10-14 September, 2018

Overview of APERC Activities



Tom Willcock
Researcher
Asia Pacific Energy Research Centre (APERC)



**Asia-Pacific
Economic Cooperation**

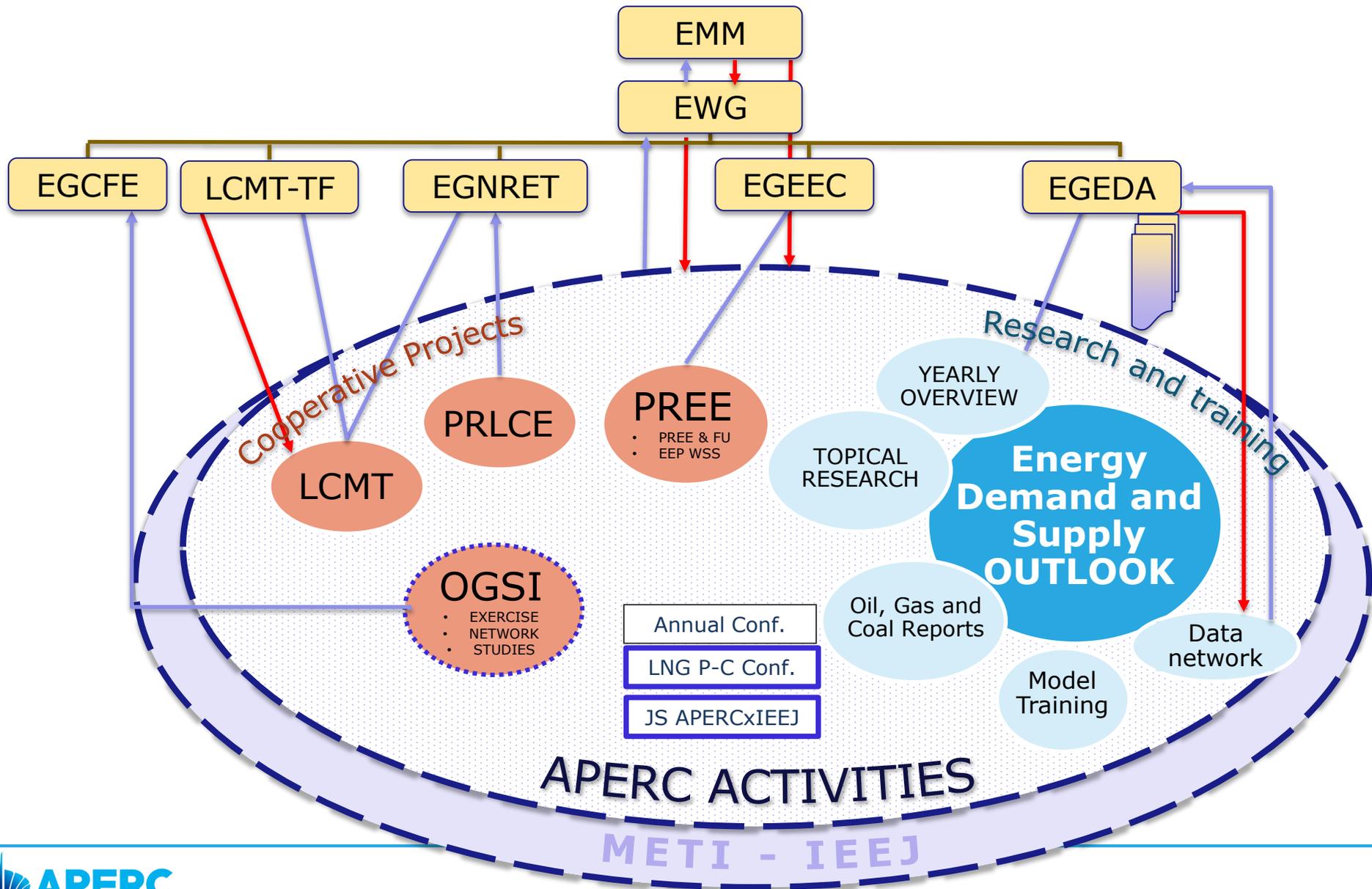
APERC was established in Tokyo in 1996 after the Osaka APEC leaders meeting in 1995.

Primary objective is to foster a common understanding of energy challenges facing APEC member economies.

- Through analysis of the supply and demand outlook.
- The development of energy markets.
- Discussion of policy responses.



APERC overview



1. Research activities

- a. APEC Energy Demand and Supply Outlook (EDSO)
- b. Yearly APEC Energy Overview
- c. APERC Oil/Gas/Coal Reports
- d. Topical studies

2. Cooperative Projects

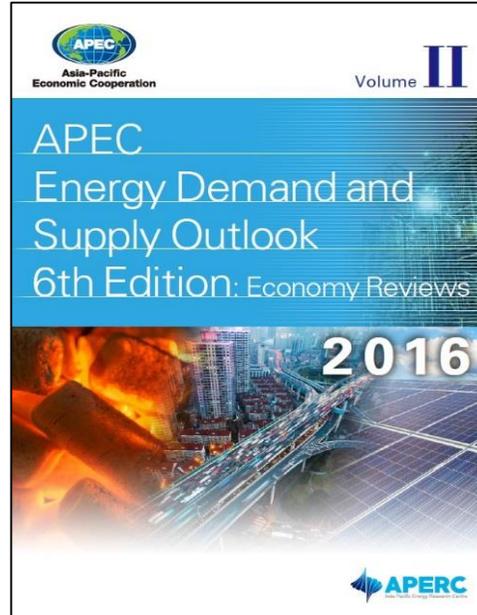
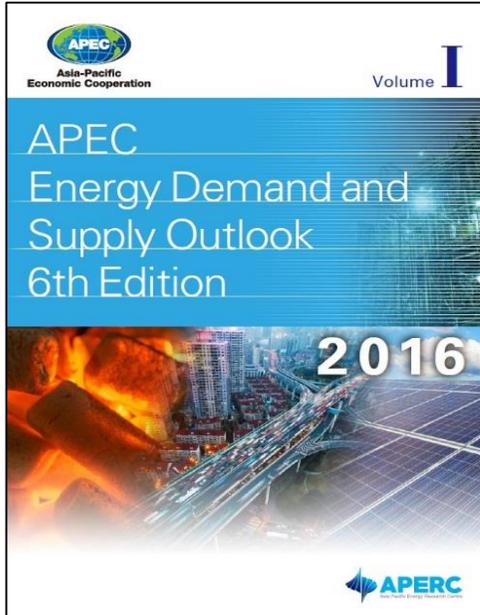
- a. Peer Review on Energy Efficiency (PREE)
- b. Renewable Energy Projects (PRLCE, LCMT)
- c. Energy Security Projects (OGSI)

3. Training and Data Collection

4. Annual Conference and Advisory Board meeting

5. Other activities/missions

The APEC Energy Demand and Supply Outlook



- The 'APEC Energy Demand and Supply Outlook' project is a priority task, published every 3-4 years.
- Two volumes: APEC as a region and individual economy reviews.
- The 6th edition was released in May 2016.

The 7th edition is well underway. Similar in structure to the 6th, but with expanded modelling and new scenarios. Drafts have been sent for expert review (some have already been returned). Publication release at EWG 57 (April/May 2019).

Energy Overview focuses on supply, demand and policy

- Introduction
- Energy Supply and Demand
 - Primary Energy Supply
 - Final Energy Consumption
- Energy Intensity Analysis
- Policy Overview
 - Energy Policy Framework
 - Energy Markets
 - Energy Efficiency
 - Renewable Energy
 - Climate Change
- Notable Energy Developments
- References
- Useful Links

APEC ENERGY OVERVIEW 2015 AUSTRALIA

AUSTRALIA

INTRODUCTION

Australia is the world's largest island economy and the world's sixth largest economy in land area. It lies in the southern hemisphere between the Indian and Pacific oceans. Its total land area of nearly 7.7 million square kilometres (km²) comprises six states and two territories. The population of just over 23 million lives mostly in major cities or regional centres along the eastern and south-eastern seaboard. The economy has maintained robust economic growth for the last 24 years and has had average annual growth rate (AAGR) of 3.4% from 1960 to 2015 (ABS, 2015). In 2013, gross domestic product (GDP) reached USD 936.9 billion (USD 2010 purchasing power parity [PPP]), a 2.5% increase from 2012 (EGEDA, 2015). Australia has the only developed economy in APEC to have recorded no annual recessions during the last 24 years (ATC, 2014).

Australia has abundant, high-quality energy resources that are likely to last for many decades at current rates of production. The Australian energy industry contributed to 4% (AUD 66.8 billion) of the economy in 2014–15 (OCE, 2016a).

In 2013–14, Australia's primary energy production fell by 4% to 18 715 petajoules (PJ) or 446 979 kilotonnes of oil equivalent (ktoe), compared with a 10% increase in 2012–13 (OCE, 2015a), due to lower uranium oxide and oil production. Australia produces energy for both domestic consumption and export. Energy exports grew by 2% compared with 14% in the previous year and accounted for 84% of domestic energy production in 2013–14 (OCE, 2015a).

Australia produces uranium for export only, while all other energy production supplies both domestic and international markets. Australia's energy production increased at an average annual rate of 2.3% from 2002–03 to 2012–13; however, it fell by 4% in 2013–14 (OCE, 2015a).

In 2013–14, coal accounted for 66% of Australia's primary energy production, in energy content terms, followed by uranium (14%) and gas (13%) (OCE, 2016a). Crude oil and liquefied petroleum gas (LPG) represented a further 4.5% of total energy production in energy content terms, and renewables represented 1.8% (OCE, 2015a). Relative to 2013–14, Australian export earnings from energy and mineral commodities decreased by 12% in 2014–15 to AUD 172 billion (OCE, 2015b).

As of 2013 Australia was the world's eighth largest energy producer, accounting for around 2.4% of world energy production. It is the second largest exporter of coal (27% of total global coal exports in 2014) and a major exporter of uranium and liquefied natural gas (LNG) (10% of total global LNG exports) (OCE, 2016a). Given Australia's large energy resources and geographical proximity to burgeoning markets in the Asia-Pacific region, it is capable of meeting a significant proportion of the world's growing energy demand as well as its own domestic needs.

Table 1: Key data and economic profile, 2013

| Key data ^a | | Energy reserves ^b | |
|---------------------------------|---------|------------------------------|---------|
| Area (million km ²) | 7.7 | Oil (billion barrels) | 3.8 |
| Population (million) | 23.1 | Gas (billion cubic metres) | 3 738 |
| GDP (2010 USD billion PPP) | 937 | Coal (million tonnes) | 105 246 |
| GDP (2010 USD PPP per capita) | 405 154 | Uranium (kilotonnes U) | 3 472 |

Note: Coal reserves are defined as recoverable economically demonstrated resources of black and brown coal. Sources: a. EGEDA (2015); b. GA (2014).

ENERGY SUPPLY AND DEMAND

PRIMARY ENERGY SUPPLY

In 2013–14, Australia's total energy production was 18 715 PJ or 446 979 ktoe (OCE, 2015a). Approximately 66% of production came from coal, 4.5% from crude oil and LPG, 13% from gas, 14% from uranium and the remaining 1.8% from renewables (OCE, 2015a).

1

For more information visit: http://aperc.ieej.or.jp/publications/reports/energy_overview.php

APEC Peer Review on Energy Efficiency (PREE)



PEER REVIEW ON ENERGY EFFICIENCY IN MEXICO

Final Report

APEC Energy Working Group (EWG)

October 2017

1. Review on Energy Efficiency and follow up

- 7 phases, across 11 economies so far: New Zealand, Chile, Viet Nam, Thailand, Chinese Taipei, Peru, Malaysia, Indonesia, Brunei Darussalam, and Mexico.
- **Russia in November [TBC].**
- Peru in March next year.

2. Energy Efficiency Policy Workshop (EEP)

- Most recently held in Washington at EGEE&C 50.

3. Energy Efficiency Policy Compendium

- Latest and last publication: October 2017

For more information, visit <http://aperc.ieej.or.jp/publications/reports/compendium.php>

Topical research in 2017/8

APERC Coal Report 2017

February 2018



APEC Oil and Gas Security Studies

Investments in Natural Gas Supply Chain
under the Low Price Environment



1. APERC Coal Report 2017
2. Investments in Natural Gas Supply Chain under the Low Price Environment
3. APERC Oil Report 2018
4. APERC Gas Report 2018
5. Analysis of cost-optimal deployment of variable renewables and grid interconnection in northeast Asia.
6. APEC oil and gas security exercise.
7. Oil and Gas Security newsletters.

Cooperative activities

2007

2018

2019

| | | | | | | | | | | | | | |
|-------------------------------|------|------------------|----------------|------------------|-------------------|-----------------|-----------------|----------------------|--------------------|-----------------------|----------------|-------------------------|-----------------|
| PREE | 1.NZ | 2.CHL | 3.VN | 4.THA | 5.CT | 6.PE | 7.MAS | 8.INA | 9.RP | 10.BD | | 11.MEX | 12.RUS (TBC) |
| FU PREE | | | | | | | 1.VN | | 2.RP | 3.THA | | 4.MAS | 5.PE (TBC) |
| PRLCE | | | | 1.THA | 2.RP | | 3.INA | 4.MAS | 5.VN | 6.PNG | | | |
| LCMT | | 1.Yujiapu PRC | 2.Samui THA | 3.Da Nang, VN | 4.San Borja PE | 5.Bitung INA | 6.Mandaue RP | 7.Krasnoyarsk RUS | | | | | |
| LCMT Symposium | | | | | | | | | 1.Jakarta INA | 2.Da Nang VN | | 3.San Borja PE (TBC) | |
| LCMT Dissemination | | | | | | | | | 1.Band Aceh, INA | 1.Hang Tuah Jaya, MAS | | 1.Shah Alam, MAS | |
| OGSE | | | | | | SE Asia | INA | launched OGSI | 1.RP | 2.AUS | 3.PE | | 4.CHL (TBC) |
| OGSNF | | | | | | | | 1.Kitakyushu JPN | 2.Kagoshima JPN | 3.Irkutsk RUS | 4.Tokyo JPN | | 5.Sendai JPN |

EMM8

**APEC Leaders
Sydney Meeting**

Energy intensity
reduction goal of
APEC region by at
least **25% by 2030**
Introduction of **PREE**

EMM9

**APEC EMM
in Fukui**

Launch of
PRLCE & LCMT
Continuation of
PREE & CEEDS

**APEC Leaders
Honolulu meeting**

APEC's aggregate
energy intensity
reduction goal of
45% by 2035

EMM10

**APEC EMM in
St. Petersburg**

Instruction on
improving the
response to oil and
gas emergency
situations (**OGSE**)

EMM11

**APEC EMM
in Beijing**

- Approval of **OGSI**
- Goal of **doubling**
the share of
renewables by 2030

EMM12

**APEC EMM
in Cebu**

- Instruction on enhancing
the **quality of electric
power infrastructure**
- Move **LCMT** to the
dissemination stage

APERC accepts energy modelling trainees from developing economies.

- Seminar in Tokyo from 5-13 November 2018.

Also dispatch experts to develop energy data and modelling capacities around the region.

- Five workshops in FY 2017/18: Mexico, PNG, Peru and Indonesia (twice). Chinese Taipei in August.

A cooperation course on 'Energy Issues in the Asia-Pacific Region' at Waseda University (Tokyo) started April 2016.



Thomas.Willcock@aperc.ieej.or.jp

<http://aperc.ieej.or.jp/>

