APERC
Asia Pacific Energy Research Centre

APERC

ASIA PACIFIC ENERGY RESEARCH CENTRE

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1 MESSAGE FROM THE PRESIDENT

Kazutomo IRIE
President

Asia-Pacific Economic Cooperation (APEC) is a framework for economic cooperation involving 21 Asia-Pacific countries and regions (called "economies"). APEC comprises forums such as the Leaders' Meeting, the Ministerial Meeting and Sectoral Ministerial Meetings. The Energy Working Group (EWG), under the direction of the Energy Ministerial Meeting (EMM), is active in the energy sector.

To support these activities, the Asia Pacific Energy Research Centre (APERC) was established in 1996 in Tokyo following the directive of APEC Leaders in the Osaka Action Agenda.

The primary objective of APERC is to help foster a common understanding of, and solutions to, the energy challenges facing APEC member economies. This is accomplished through the study and analysis of each APEC member economy's energy demand and supply trends, the future energy demand and supply outlook, the development of the energy market, and responses to policy challenges. APERC is also developing a database of statistics necessary for energy research in the APEC region and is providing training designed to improve research capabilities.

The APEC region, and particularly Asia, has achieved significant economic growth in recent years, which has been accompanied by rapid growth in energy consumption. The APEC region now accounts for more than 50% of total global energy consumption. Meanwhile, the environment surrounding energy has been changing rapidly in recent years, reflecting fluctuations in the supply and price of oil, the shale gas revolution, and the accelerated introduction of renewable energy.

APERC will continue to do its utmost to meet expectations in addressing energy and environmental challenges in the APEC region. Specifically, it will seek to step up cooperation within the region for the efficient use of energy, the realisation of low carbon energy supply and the achievement of energy security.

I would like to take this opportunity to express my sincere appreciation for the extensive assistance that APERC receives from Japan and other APEC member economies. This assistance in funding for visiting researchers and support for research and study activities allows APERC to fulfill its mission.

Since its founding, APERC has been an affiliate of the Institute of Energy Economics, Japan (IEEJ). On 1 July, 2019 a new APERC was created as an independent general incorporated foundation and on 1 April, 2020 APERC took over APEC-related activities from IEEJ. We hope to renew our efforts to further enrich our activities, and we look forward to your continued support.

2 SUMMARY OF ACTIVITIES

1. Activities to Foster Common Understanding of Energy Issues

【1】APEC Energy Demand and Supply Outlook

Every three years, APERC prepares an Energy Demand and Supply Outlook for the APEC region, looking ahead 30 years or more. The Outlook presents the energy and sectoral and energy source projections for the APEC region and for each of the 21 APEC member economies.

In addition to a Business-as-Usual Scenario that assumes no change in energy policies and trends in the APEC member economies, the 7th edition (published in 2019) contains a Target Scenario meeting the APEC-wide energy goals and a 2°C Scenario, aligned with the goals of the COP21 Paris agreement.

To help formulate the Outlook, APERC undertakes extensive research and modelling on various energy issues and individual topics and also summarises the findings in other reports.

【2】APEC Energy Overview

Each year, APERC also prepares and publishes the APEC Energy Overview, which introduces the current energy status and key energy policies in the 21 APEC member economies.

2. Activities to Support the Achievement of Energy Efficiency and Low-carbon Policy

【1】Support for Energy Efficiency Policy Development

At the 8th APEC Energy Ministerial Meeting held in May 2007 in Darwin, Australia, Ministers agreed to a review of progress on efforts to achieve the voluntary energy efficiency policies of each APEC economy (the APEC Peer Review on Energy Efficiency).

At the 15th APEC Leaders' Meeting held in September 2007 in Sydney, Australia, the non-binding goal of reducing the energy intensity (energy per unit of GDP) of the APEC region by at least 25% by 2030, using 2005 as a base year, was agreed. This goal was further increased at the Ministerial Meeting held in November 2011 in Honolulu, the United States, to a goal of reducing the energy intensity in the APEC region by at least 45% by 2035, using 2005 as a base year.

In accordance with these agreements, since 2009, APERC has been implementing the following activities to support the achievement of energy efficiency goals.

● APEC Peer Review on Energy Efficiency (PREE)

To date, experts have reviewed the energy efficiency policies of 11 APEC economies: New Zealand, Chile, Vietnam, Thailand, Chinese Taipei, Peru, Malaysia, Indonesia, the Philippines, Brunei Darussalam, and Mexico. Follow-Up Peer Reviews have been conducted in Vietnam, the Philippines, Thailand, Malaysia, and Peru, focusing on specific sectors and themes.

● APEC Energy Efficiency Policy Workshop

The Energy Efficiency Policy Workshop has been performed in conjunction with APEC Expert Group on Energy Efficiency and Conservation meetings every year since 2016. Another Workshop on the theme of fuel efficiency regulations was held in 2019.

【2】Support for the Introduction of Low Carbon Energy

To promote the deployment of low carbon energy sources, APERC conducts the following activities in accordance with the Declaration at the 9th APEC Energy Ministerial Meeting held in June 2010 in Fukui, Japan.

●APEC Low Carbon Model Town (LCMT) Project

Case studies have already been completed for Tianjin, China; Koh Samui, Thailand; Da Nang, Vietnam; San Borja, Peru; Bitung, Indonesia; Mandaue, the Philippines; and Krasnoyarsk, Russia.

Guidelines and evaluations for establishing low-carbon towns have also been published as: "the Concept of Low-Carbon Model Town in the APEC Region," and "Low-Carbon Town Indicator". As a next stage, Low-Carbon Model Town (LCMT) Symposiums have been organised since 2017 to disseminate the results, and the Symposium for 2019 was held in Peru.

●APEC Peer Review on Low-Carbon Energy Policies (PRLCE)

Policies for facilitating renewable energy have been reviewed by experts for the six APEC economies: Thailand, the Philippines, Indonesia, Malaysia, Vietnam, and Papua New Guinea.

3. Support for Energy Security

●APEC Oil & Gas Security Initiative (OGSI)

The declaration of the 10th APEC Energy Ministerial Meeting held in June 2012 in St. Petersburg, Russia, calls for the implementation of a project to improve responses to oil and natural-gas emergencies, thereby ensuring the security of supply. Exercises took place in 2013 in Indonesia and Thailand (the latter was a joint exercise involving all Southeast Asian APEC member economies.)

Based on the results of the above exercises, the 11th APEC Energy Ministerial Meeting held in September 2014 in Beijing, China, called for the expansion of such initiatives. Activities are getting underway in three areas: 1) continuation of the Oil & Gas Security Exercises (OGSE); 2) establishing an Oil & Gas Security Network (OGSN); and 3) implementing Oil & Gas Security Studies (OGSS).

●LNG Producer-Consumer Conference

Since 2012, APERC has co-hosted with the Ministry of Economy, Trade and Industry an annual conference in Japan for policy makers and related businesses in LNG consuming and producing countries. The conference seeks to enhance the LNG demand and supply structure by sharing long-term LNG outlooks and by improving the transparency of natural gas markets.

4. Acceptance of Trainees and Dispatch of Experts

APERC accepts energy modeling trainees, chiefly from developing economies in the APEC region. These trainees learn about preparing energy statistics and energy demand and supply outlooks, and related matters.

APERC also sends experts on modeling techniques to APEC economies and provide instruction in data management, energy balance preparation, macroeconomic modeling, and energy supply planning to help improve energy data and develop energy demand and supply outlook capability.

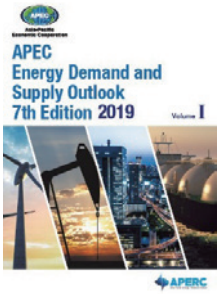
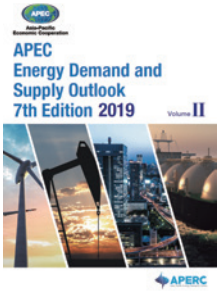
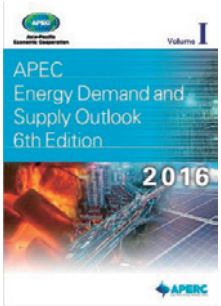
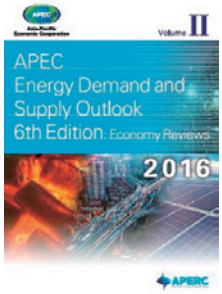
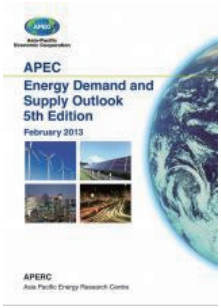
5. Activities to Build Energy Data Management Networks

APERC has built a communication network with energy organisations in the APEC economies. The network allows uniform management of energy data submitted by APEC economies and the preparation of energy balance tables based on this data.

APERC also serves as the secretariat responsible for organising the APEC Expert Group on Energy Data and Analysis (EGEDA) that meets once each year. APERC supplies the oil and gas data provided by APEC economies to the Joint Organisations Data Initiative (JODI) database and works to improve data quality.

3 RESEARCH REPORTS

1. APEC Energy Demand and Supply Outlook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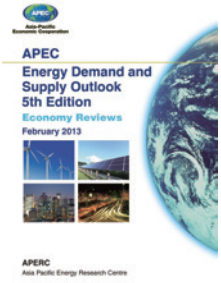	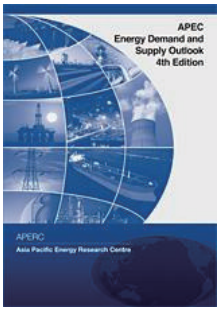	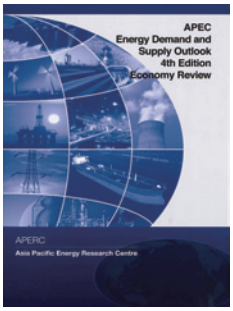	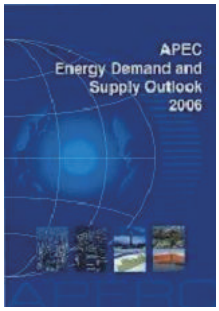	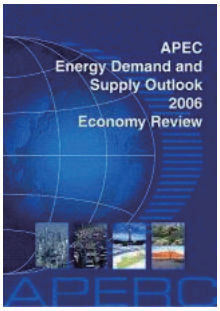
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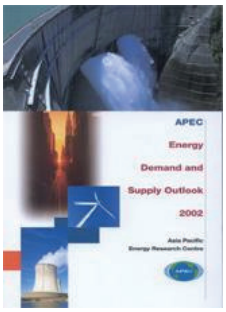
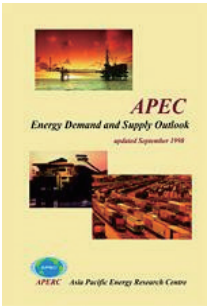
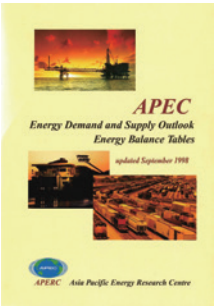
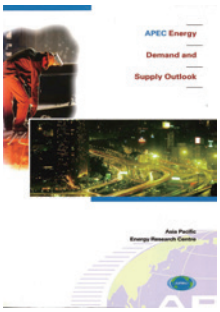
				
APEC Energy Demand and Supply Outlook 2002	APEC Energy Demand and Supply Outlook Updated September 1998	APEC Energy Demand and Supply Outlook & Energy Balance Tables Updated September 1998	APEC Energy Demand and Supply Outlook April 1998	

2. APEC Energy Overview

- APEC Energy Overview 2019
  (Issued annually since 1996)

3. Other Reports

<Independent Research>

- Challenges and Perspectives of Deployment of BEVs and FCEVs, February 2020
- Perspectives on Hydrogen in the APEC Region, June 2018
- Nuclear Power Generation in Asia-Pacific, August 2017
- Geopolitical Implication of Iran Nuclear Agreement, May 2017
- Natural Gas Utilization in APEC: Is the Golden Age of Gas Still Probable?, April 2017
- Geopolitical Risks in the Middle East after the Emergence of Islamic State and the Impact on the Energy Supply in Asia, November 2016
- Energy and Economic Competitiveness, October 2016
- LNG in Asia-Pacific - Favoring trade and rational market development, October 2016
- The Effect of the Crude Oil Price Drop on the Global Energy Market, September 2016
- A Study on the Development of Evaluation Methods for Smart Communities, September 2016
- Study on Policies to Lower Oil Demand in the Transport Sector in the APEC Region, September 2016
- Policy Success Factors for Geothermal Electricity Development in the APEC Region, 2015
- Initiatives to Expand the Introduction of Renewable Energy in Various APEC Economies: Examples of RPS in Japan, Korea and California in the US, November 2015
- A Study on Smart Communities in the APEC Region, November 2015
- Electric Power Grid Interconnections in Northeast Asia: a Quantitative Analysis of Economic and Environmental Benefits, November 2015
- Revised Version: Pathways to Shale Gas Development in Asia-Pacific, November 2015

<APEC Oil and Gas Security Studies (OGSS)>

- Emerging energy security risks in changing global energy landscape, September 2019
- Small-scale LNG in Asia Pacific, July 2019
- Oil and Gas Security Indexation, September 2018
- Energy Security of APEC Economies and Changing Downstream Oil Environment, August 2018
- Investments in Natural Gas Supply Chain under the Low Price Environment, June 2018
- Natural Gas Security in APEC, June 2017
- Impact of Low Oil Price on Energy Security, June 2017
- Superiority of LPG: A Disaster-Resistant Energy Source, May 2017
- Oil and Gas Security Indexation, March 2017
- Plans for Fuel Supplies during Disasters in Expectation of Nankai Megathrust Earthquakes, October 2016
- Exercise Model Procedure, November 2015
- Melting of the Arctic Sea Ice-Significance for the APEC Economies' Energy Security, November 2015
- Petroleum Product Trading and Security, November 2015
- Prospects and Compromise Points of the Arab Spring Impact on Energy Security in the Asia-Pacific Region, November 2015
- The Energy Reform in Mexico: Implications for the Asia-Pacific Region, November 2015
- The Impact on Oil Distribution by the Great East Japan Earthquake, and Future Issues and Countermeasures, November 2015
- Oil Supply Security and Emergency Policy in the APEC Region, November 2015

APERC research reports are able to be downloaded from the APERC Website: http://aperc.or.jp/

4 OVERVIEW OF ASIA-PACIFIC ECONOMIC COOPERATION (APEC)

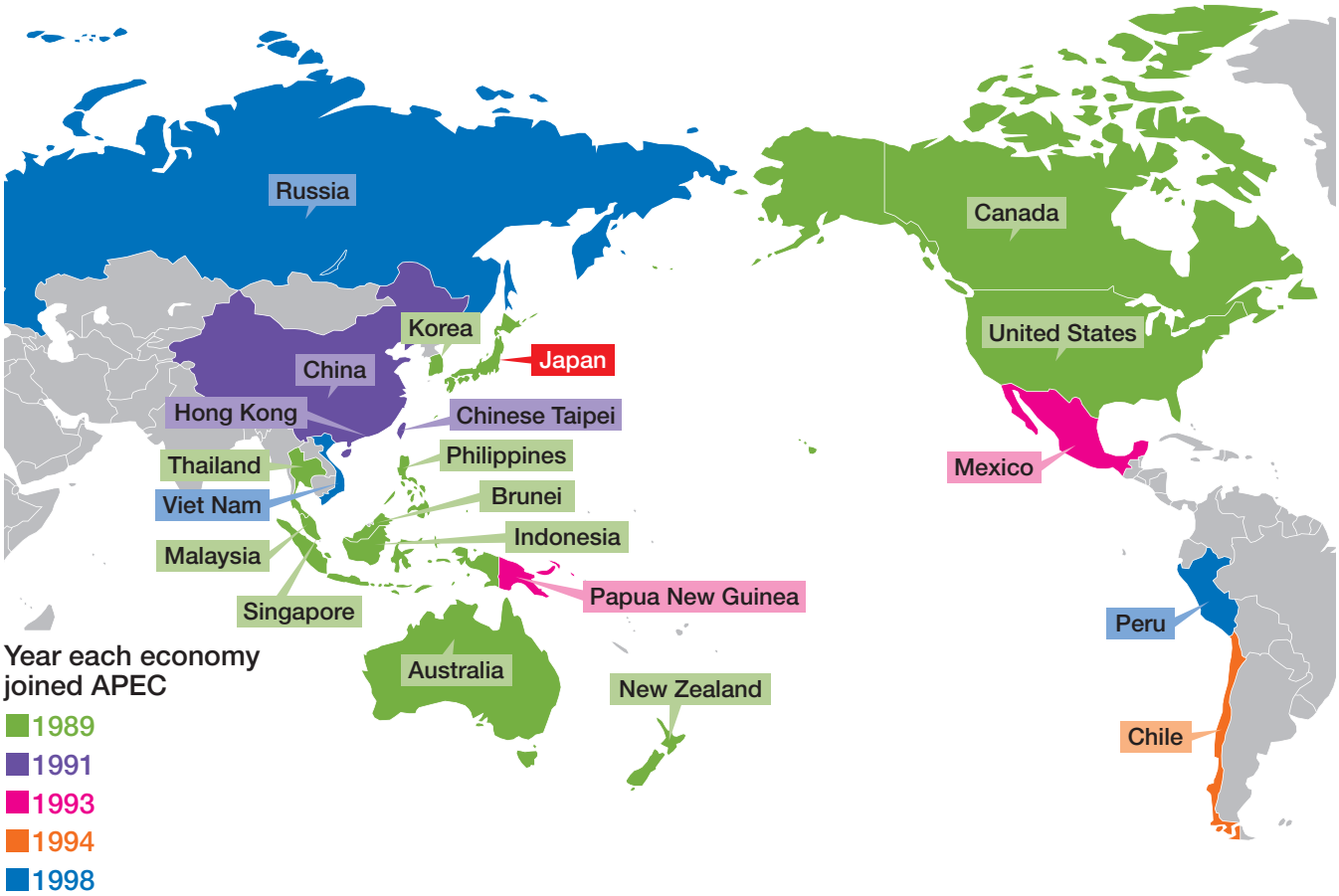
1. OVERVIEW

The Asia-Pacific Economic Cooperation (APEC) is a framework for economic cooperation, encompassing 21 economies in the Asia-Pacific region. In the late 1980s, there was remarkable economic growth, particularly in ASEAN, thanks to policies to attract foreign capital and progress in market integration in Europe and North America. With this growth, the need for new alliances and cooperation based on interdependent economic relationships was rising in the Asia-Pacific region as well.

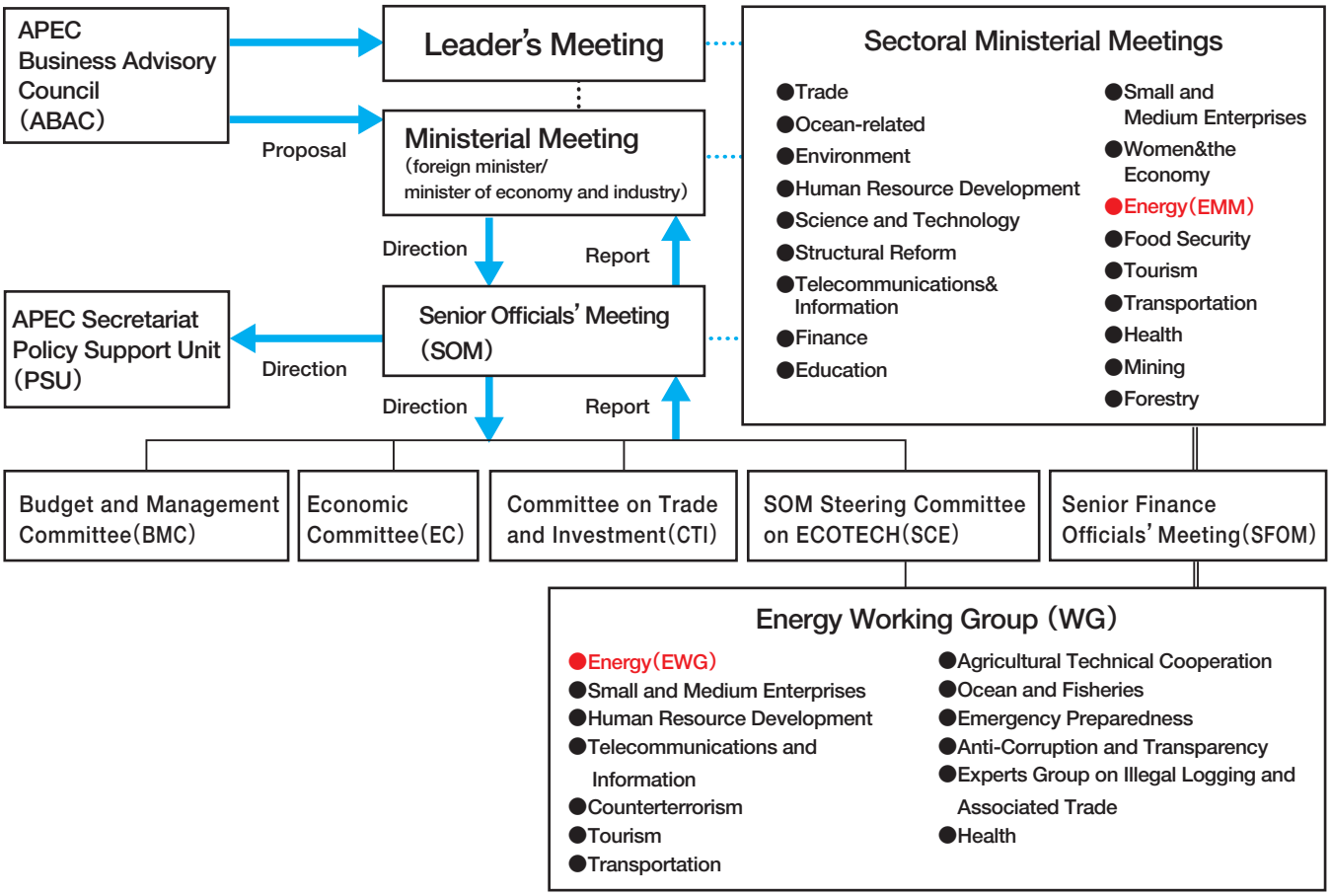
Against this backdrop, Bob Hawke, then prime minister of Australia, officially proposed the establishment of APEC in January 1989, partly in response to an approach from Japan. APEC was inaugurated with the first ministerial meeting held in Canberra later that year. The activities of APEC are characterised by cooperative and voluntary actions and an open framework for regional cooperation. Under these principles, APEC conducts activities for sustainable growth and prosperity in the Asia-Pacific region, including trade and investment liberalisation, business facilitation, and economic and technical cooperation.

APEC 21 Member Economies

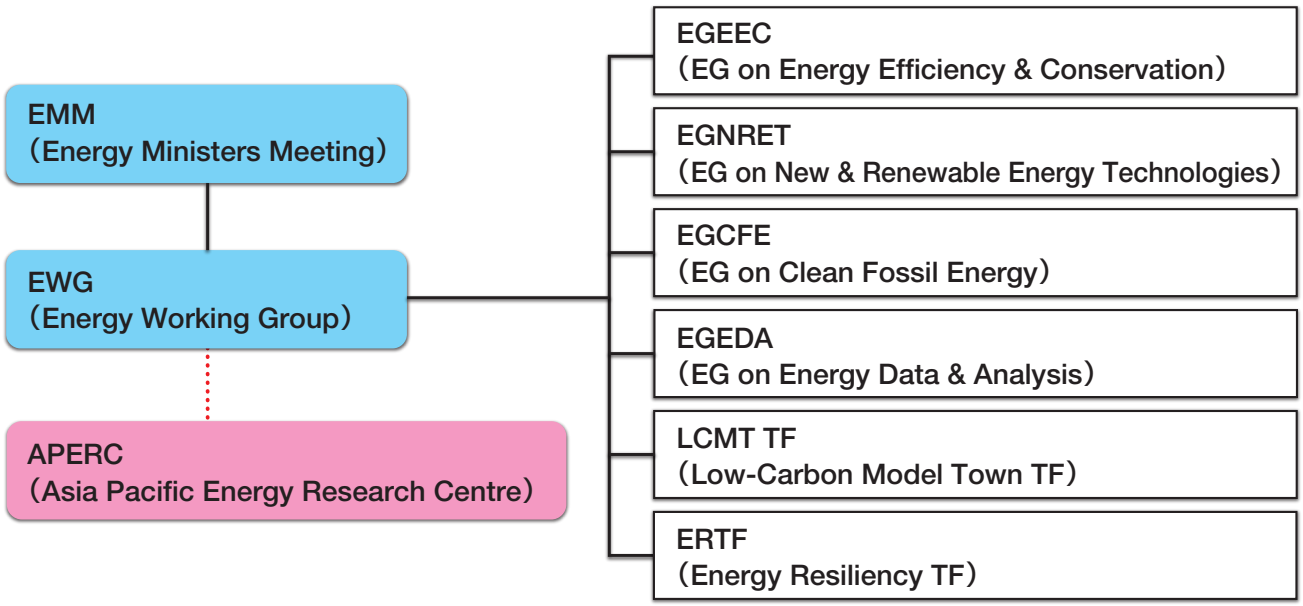
Australia; Brunei Darussalam; Canada; Chile; China; Hong Kong; Indonesia; Japan; Republic of Korea; Malaysia; Mexico; New Zealand; Papua New Guinea; Peru; the Philippines; Russia; Singapore; Chinese Taipei; Thailand; United States and Viet Nam.



2. APEC ORGANISATIONAL STRUCTURE



3. APEC ENERGY ORGANISATIONS AND APERC

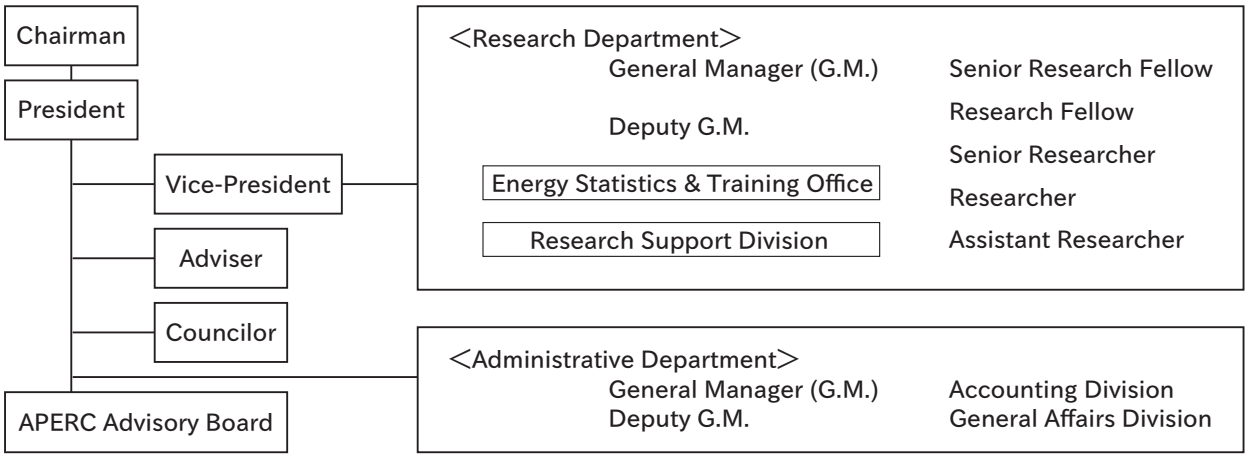


5 ORGANISATION AND OPERATION OF APERC

1. Establishment and History

APERC is an international organisation established in Tokyo on 1 July, 1996 as an affiliate of the Institute of Energy Economics, Japan (IEEJ), at the initiative of the Japanese Government in accordance with the APEC Osaka Action Agenda of November 1995. On 1 July, 2019 a new APERC was created as an independent general incorporated foundation and on 1 April, 2020 APERC took over APEC-related activities from IEEJ.

2. Organisation



3. Staffing

To accomplish the assigned tasks and to enhance the development of human resources for energy study in the APEC region, highly-qualified visiting researchers recruited from APEC member economies, in addition to Japanese researchers, conduct joint research and policy support activities.

Visiting researchers come from governments, research institutes and academic organisations in APEC member economies and are recruited through a competitive process. They are selected from qualified candidates in various fields, including economics, engineering, international relations and policy analysis, after receiving endorsement from their respective APEC member governments.

4.Budget for Activities

The government of Japan has provided most of APERC's budget since the Centre's inception. This financial contribution (subsidy until fiscal year 2011) has been used to facilitate research activities and policy support, including activities to support the achievement of energy efficiency objectives, the acceptance of trainees and the dispatch of experts, the construction of energy data management networks, and activities to enhance fuel supply stability.

The Australian government also provided a subsidy to support research activities from 2004 to 2006.

5. APERC Advisory Board

●Background

The establishment of the APERC Advisory Board was endorsed by the APEC Energy Working Group (EWG) at their 16th meeting in Cairns, Australia, in August 1998. The Terms of Reference were endorsed by the APEC EWG at their 17th meeting in Oakland, the United States, in April 1999.

●Terms of Reference

The Advisory Board is a group of representatives of major research institutions located in the APEC region, who guide and facilitate APERC's cooperative research. The primary role of the Board is to give professional advice on APERC's on-going and proposed research, including methodologies, approaches, databases, and information sources, as well as the consultation of relevant experts.

APERC carefully considers the advice provided by its Advisory Board members in proposing its research plan at the APEC Energy Working Group (EWG).

Members (as of July 2022) are as follows:

Mr. Wayne Calder	General Manager, Economic and Industry Analysis Branch, Analysis and Insights Division, Department of Industry, Science, Energy and Resources	Australia
Mr. Allan Fogwill	COO, Petroleum Technology Alliance Canada (PTAC) Former President and CEO, Canadian Energy Research Institute (CERI)	Canada
Prof. Zhou Dadi	Senior Researcher and Director General Emeritus, Energy Research Institute (ERI), National Development and Reform Commission of China (NDRC)	China
Dr. Nuki Agya Utama	Executive Director, ASEAN Centre for Energy (ACE)	Indonesia
Mr. Tatsuya Terazawa	Chairman and CEO, Institute of Energy Economics, Japan (IEEJ)	Japan
Dr. Chun-taek Rim	President, Korea Energy Economics Institute (KEEI)	Korea
Dr. Sanjayan Velautham	Principal Fellow, National Energy University (UNITEN), Former CEO, Sustainable Energy Development Authority Malaysia (SEDA), Former Executive Director, ASEAN Centre for Energy	Malaysia
Dr. Tatiana Mitrova	Research Fellow, Centre on Global Energy Policy, School of International and Public Affairs (SIPA), Columbia University	Russia
Prof. Kulyos Audomvongseree	Director, Energy Research Institute, Chulalongkorn University	Thailand
Dr. Cary Neal Bloyd	Senior Advisor, Electricity Infrastructure and Buildings Division, Pacific Northwest National Laboratory (PNNL)	USA
Dr. Nan Zhou	Senior Scientist, Technical Program Lead for the Net Zero World Action Centre, Lawrence Berkeley National Laboratory (LBNL)	USA

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