



# **ASIA PACIFIC ENERGY RESEARCH CENTRE (APERC)**

## **REPORT ON APERC ACTIVITIES**

**THE 69<sup>TH</sup> MEETING OF  
THE APEC ENERGY WORKING GROUP (EWG-69)**

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## CONTENTS

I.	PROGRESS IN ONGOING WORK.....	3
II.	FUTURE WORK PLAN .....	17
III.	RESEARCH MANAGEMENT .....	18
IV.	APERC RESEARCH STAFF.....	20
V.	REVENUE AND EXPENSES .....	21

# **I. PROGRESS IN ONGOING WORK**

## **1. Research Activities**

### **A. APEC ENERGY DEMAND AND SUPPLY OUTLOOK**

#### **BACKGROUND**

APERC had previously produced eight editions of the APEC Energy Demand and Supply Outlook.

#### **OBJECTIVE**

The key objectives of the APEC Energy Demand and Supply Outlook are to facilitate APEC cooperation by providing policymakers with:

- a useful reference on energy in the APEC region
- a statistically supported review of the challenges and opportunities facing the APEC economies individually and as a region
- a source of ideas and approaches for evaluating these energy challenges and identifying potential solutions and opportunities.

#### **PROGRESS**

Work on the Outlook 9th edition is underway.

Same as the Outlook 8th edition, the 9th edition uses APEC energy data instead of IEA to underpin its analysis. In the analysis, a more transparent and open-source approach than previous editions will be applied. The modelling tools developed for Outlook are being used for training activities in APEC economies.

APERC researchers are now finalizing the results for the 9th Edition Outlook to be published in October 2025. Two scenarios (Reference Scenario and Target Scenario) are modeled, with projections now extending to 2060.

Modelling for all economies (including revisions/amendments) is anticipated to be complete by February 2025.

#### **MILESTONES**

The Outlook 9th edition is scheduled to be published in October 2025.

### **B. APEC ENERGY OVERVIEW**

#### **BACKGROUND**

At the EGEDA 11th meeting held in March 2000, the APEC Energy Overview was proposed by Australia and approved at the EWG19 meeting in April 2000.

The APEC Energy Overview is an annual publication, which contains updated energy demand/supply data as well as a description of energy policies and notable energy developments in energy efficiency,

infrastructure development, upstream development, energy source diversification, regulatory reform and environmental protection.

Energy demand/supply data are drawn from the APEC Energy Database. APERC is responsible for coordinating information gathered from member economies and preparing a draft Overview for EGEDA review. The Overview is published on both the APEC and APERC websites.

Since the inaugural issue of the 2001 edition, 23 editions have been issued up to 2024.

## OBJECTIVE

The objective of the APEC Energy Overview is to share information on the energy policies of member economies and provide useful information and insights to policymakers in the region.

## PROGRESS

The APEC Energy Overview 2024 was endorsed by EWG in July 2024 and published on the APEC and APERC websites in August 2024.

## MILESTONE

Started the compilation of the APEC Energy Overview 2025.

# C. TOPICAL STUDIES

## BACKGROUND

Along with the Outlook and the Overview, APERC has been conducting research on topics relevant to energy issues and policies in the APEC region.

## OBJECTIVE

The objective of the topical studies is to share information on member economies' energy policies and provide useful information and insights to policymakers in the region.

## PROGRESS

Since 2017, three separate studies focusing on coal, oil, and natural gas have been designed to support the Expert Group on Clean Fossil Energy (EGCFE) in broadening its perspective. In 2023, a fourth report focusing on hydrogen was added to the series to support both EGCFE and the Expert Group on New and Renewable Energy Technologies (EGNRET). The reports review supply, demand, trade, and price developments over the past 10-20 years and projected developments over the next 5-7 years.

APERC has begun preparation of the four APERC Fossil Fuel Reports 2024.

## MILESTONE

The draft of the four APERC Fossil Fuel Reports 2024 will be presented at the EGCFE 2025 meeting in Hong Kong, China, in April 2025, which will be held in conjunction with the Joint Meeting of the four Expert Groups of the APEC Energy Working Group.

## **2. Accepting Trainees and Dispatching Experts**

### **BACKGROUND**

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

APERC also sends experts to APEC economies to help develop energy data and prepare energy demand and supply outlooks, including experts on modelling techniques such as data management, energy balance preparation, macroeconomic modelling, and energy supply planning.

### **OBJECTIVE**

The objective is to build the capacity of APEC economies in energy data management and project energy demand and supply.

### **PROGRESS**

APERC dispatched experts to Thailand for a training course on end-use energy modelling and the LEAP software in January 2025.

The cooperation course on “Energy Future of the Asia-Pacific Region” at Kyoto University Graduate School of Energy Science for the school year 2024-2025, was completed in January 2025.

### **MILESTONE**

APERC will organize the 31st Seminar on Energy Modelling in March 2025.

## **3. Building Energy Data Management Networks**

### **BACKGROUND**

APERC has built an online communication network with energy organizations in APEC member economies. The network allows uniform management of energy data submitted by APEC economies and the preparation of energy balance tables based on the data.

APERC is also the Secretariat of the APEC Expert Group on Energy Data and Analysis (EGEDA), which meets once a year.

APERC supplies data provided by APEC member economies to the Joint Organisations Data Initiative's (JODI) database and works jointly with member economies to improve data quality.

In addition, in order to upgrade Energy Data Management Networks, APERC started to accept energy statistics trainees from developing APEC economies under the EGEDA Training Program on Energy Statistics. APERC also started to send experts to APEC economies to help improve the quality of their energy statistics.

### **OBJECTIVE**

The key objectives are:

1. To improve the availability and consistency of energy data and to develop, manage and review the operation of an up-to-date and consistent APEC Energy Database, principally covering energy demand and supply data.
2. To continue to develop an APEC energy data collection and dissemination network.
3. To participate in international cooperation/collaboration activities on energy statistics with the United Nations Statistics Division (UNSD), International Energy Agency (IEA), The International Renewable Energy Agency (IRENA), the Joint Organisations Data Initiative (JODI) and other international organizations.
4. To implement energy statistics training courses for APEC member economies.
5. To track the APEC aspirational goals on reducing energy intensity by 45% in 2035 from 2005 levels and doubling the 2010 share of renewable energy in the APEC energy mix by 2030 and other similar measurable goals that may be set by the energy ministers.
6. To report to and advise the APEC EWG on each of the above activities.

## PROGRESS

In April 2015, APERC established the internal Energy Statistics & Training Office (ESTO) to ensure efficient progress with activities described under points 3 and 4 above.

APERC collected and processed the 2021 annual energy supply and demand data from the 21 member economies. The APEC Energy Statistics 2021 and APEC Energy Handbook 2021 were published in April 2024. APERC decided to print only the latter, while the former was made available online.

The 22nd APEC Workshop on Energy Statistics, focusing on tracking the progress of capacity built from the last workshops was held on 23-26 July 2024 in Tokyo, Japan. The workshop aimed to follow up on improvements in data collection made by member economies after the previous workshops that EGEDA conducted in 2020, 2021, 2022, and 2023. Experts from IEA, IRENA, and the US EIA were invited as guest speakers.

As for the EGEDA Training Program on Energy Statistics for the fiscal year 2024/2025, the short-term course was held from 10-21 February 2025. There were 11 participants from 8 economies namely: Indonesia, Malaysia, Papua New Guinea, the Philippines, Singapore, Chinese Taipei, Thailand, and Viet Nam.

## MILESTONE

The APEC Energy Statistics 2022 and APEC Energy Handbook 2022 will be published in the first quarter of 2025. While the APEC Energy Handbook will continue to be printed, the APEC Energy Statistics 2022 will be made available only online.

The 23rd APEC Workshop on Energy Statistics, focusing on end-use energy consumption surveys will be held in September 2025 in Tokyo, Japan. The workshop aimed to provide a venue for sharing experiences and methodologies in conducting end-use energy consumption surveys. Experts from the IEA, the US EIA and national statisticians in member economies will be invited as guest speakers.

## 4. Policy Cooperative Activities

### A. PEER REVIEW ON ENERGY EFFICIENCY (PREE)

## BACKGROUND

Improving energy efficiency offers many cost-effective opportunities to achieve energy security, improve business productivity and mitigate greenhouse gas emissions. In the Sydney Declaration of September 2007, APEC Leaders agreed to start a peer review of energy efficiency policies through the voluntary APEC Energy Peer Review Mechanism.

At the EWG35 meeting (Iquitos, March 2008), the APEC Peer Review on Energy Efficiency (PREE) was proposed by Japan and endorsed by EWG members.

These activities are undertaken as part of the PREE, namely:

1. Peer Review of volunteer member economies on the progress towards their goals in energy efficiency improvement ('Peer Review of volunteer member economies') including following up of implementation of recommendations at former hosting economies of Peer Review (Follow-up PREE) since 2012; and
2. Energy Efficiency Policy Workshop which provides a capacity building opportunity for robust policymaking development in APEC, succeeding the Cooperative Energy Efficiency Design for Sustainability (CEEDS) workshops for the same purpose.

## **1. PEER REVIEW**

### **OBJECTIVE**

The objectives of the APEC Peer Review of Energy Efficiency (PREE) are:

1. To share information on energy efficiency performance as well as policies and measures for improving energy efficiency among member economies;
2. To provide opportunities for learning from other member economies' experiences and for broadening communication among energy efficiency policy experts;
3. To explore how energy efficiency overall/sectorial goals and action plans could be effectively formulated in each APEC economy under review, taking into account the diversity of possible strategies to be used;
4. To monitor progress toward attaining energy efficiency goals on an overall and/or sectoral basis and toward implementing action plans; and
5. To provide recommendations on how the implementation of action plans could be improved to achieve energy efficiency goals.

### **PROGRESS**

Guidelines for the Peer Review were endorsed by EWG in late 2008.

The inaugural Peer Review for New Zealand was carried out from 23 to 27 February 2009. This was followed by a Peer Review for Chile from 16 to 20 March 2009. The draft Review Reports of PREE for New Zealand and Chile were discussed and endorsed by EWG members at the EWG37 meeting in Santiago in April 2009.

The 3rd Peer Review on Viet Nam was conducted from 8 to 12 June 2009. The draft Review Report of PREE for Viet Nam was discussed and endorsed by EWG members at the EWG38 meeting in Bali in November 2009.

The 4th Peer Review on Thailand was carried out from 9 to 13 November 2009. The draft Review Report of PREE for Thailand was discussed and endorsed by EWG members at the EWG39 meeting in Tokyo in March 2010.

The 5th Peer Review on Chinese Taipei was carried out from 23 to 27 August 2010. The draft Review Report of PREE for Chinese Taipei was discussed and endorsed by EWG members at the EWG40 meeting in Brunei-Darussalam in November 2010.

The 6th Peer Review on Peru was carried out from 8 to 12 November 2010, and the 7th Peer Review for Malaysia was carried out from 26 November to 3 December 2010. The draft Review Reports of PREE for Peru and Malaysia were discussed and endorsed by EWG members at EWG41.

The 8th PREE on Indonesia was carried out from 10 to 14 October 2011. The draft Review Report of PREE for Indonesia was discussed and endorsed by EWG members at the EWG43 meeting.

The 9th PREE on the Philippines was carried out from 6 to 10 February 2012. The draft Review Report of PREE for the Philippines was discussed and endorsed by EWG members at the EWG44 meeting.

The 1st Follow-up PREE activity, a training workshop on analytical methods to monitor the effectiveness of implementing energy efficiency measures, was carried out in Viet Nam from 27 February to 2 March 2012. The Summary Report was submitted to the EWG44 meeting.

The 10th PREE on Brunei Darussalam was carried out from 11 to 15 June 2013. The draft Review Report of PREE on Brunei Darussalam was discussed and endorsed by EWG members at the EWG46 meeting.

The 2nd Follow-up PREE in the Philippines, focusing on industrial sectors and commercial buildings, was carried out from 15 to 19 September 2014. The draft Review Report was discussed and endorsed by EWG members at the EWG48 meeting.

The 3rd Follow-up PREE in Thailand was focused on the transport sector. From 3 to 7 August 2015, six experts from Australia; Indonesia; Japan; the United States (two); and UNEP participated in the Follow-up Peer Review. The draft Review Report was discussed and endorsed by EWG members before the EWG50 meeting.

The 11th PREE in Mexico was carried out from 6 to 10 March 2017. The review team completed the workshops in Mexico with the relevant agencies and Ministries. In October 2017, the final report, with 46 recommendations across eight fields of energy efficiency, was completed and circulated to the EWG members for their endorsement.

The Follow-up PREE in Malaysia (PREE Phase 7) was carried out from 26 to 30 March 2018. The focus sector for the peer review was the transportation and industry sectors. Six experts from Australia; Indonesia; Malaysia; Thailand; the USA, and International Energy Agency (IEA) joined the Follow-Up PREE Malaysia. The final report was published in November 2018.

The 12th PREE, planned to take place in Russia (PREE Phase 8), was initially scheduled for October 2018. However, due to the restructuring of the Russian federal government, it was cancelled.

The Follow-up PREE in Peru (PREE Phase 9) was conducted from 18 to 22 March 2019 in Lima, Peru. The Review Expert Team was composed of six experts from five APEC economies (Hong Kong, China; Mexico; New Zealand; Thailand and the USA) and an expert from the German Corporation for International Development (GIZ). Unlike previous Follow-up PREEs, this one was not focused on a specific sector and was an overall assessment of energy efficiency, as per the request of the Peruvian government. The Expert Team gave 47 preliminary recommendations on six subsectors. Around 40 participants attended the peer review meeting, and 26 presentations from 12 different



relevant organizations were made. The Follow-Up PREE report was drafted by APERC and was endorsed by EWG in February 2020. The final report is available on the APEC and APERC websites.

The Follow-up PREE for Indonesia (PREE Phase 10) was held online on 9-11 November 2021. The focus sectors for the review were the transport, industry, buildings, home appliances, and energy supply sectors. The final report of the Follow-up PREE in Indonesia (PREE Phase 10) was published in June 2022 and is available both on APEC and APERC websites.

The 7th Follow-up PREE in Chile (PREE Phase 13) was conducted from 6 to 10 May 2024. The review team visited Santiago de Chile and held a 5-day workshop with comprehensive discussions on energy efficiency with representatives and experts from the government, energy regulator, and the Sustainable Energy Agency. The Summary Report of the Follow-up PREE in Chile was endorsed by the EWG and published in January 2025.

## MILESTONE

To succeed PREE activities, APERC plans to hold Capacity-Building Workshops for Energy Efficiency and Conservation Policy (CBWS/EECP) in conjunction with the EGEEC biannual meetings from 2025 onward.

## 2. ENERGY EFFICIENCY POLICY (EEP) WORKSHOP

### OBJECTIVE

In order to streamline and prioritize its activities, APERC decided to integrate the Cooperative Energy Efficiency Design for Sustainability (CEEDS) project into PREE as a forum to discuss key issues in the previous PREEs further and to hold an 'Energy Efficiency Policy (EEP) Workshop' once a year in cooperation with EGEEC instead of CEEDS workshops.

### PROGRESS

A trial EEP Workshop in conjunction with EGEEC45 in Singapore was held on 23 March 2015 as a Self-Funded project. The focus was on the fundamentals of energy efficiency policymaking and the development of stable funding mechanisms for agencies and programmes.

The 1st EEP Workshop was held in conjunction with EGEEC47 as part of PREE Phase 5, focusing on energy efficiency policy and program evaluation.

The 2nd EEP Workshop was carried out in Jeju Island, Korea, alongside the EGEEC 49 meeting. Based on feedback from economies, the topic of energy efficiency policy evaluation was selected again, but in greater depth and with more specific practical applications. This workshop was attended by 30 participants from 15 APEC member economies. The feedback was very positive, including verbal encouragement to continue with this from several attendees. The EEP Workshop Summary Report: Policy and Program Evaluation II was published in June 2017.

The 3rd EEP Workshop was held in Washington, D.C., USA, on 10 April 2018, alongside the EGEEC51 meeting. The workshop focused on conformity assessment – the process of ensuring a product or service meets the standards or regulations it is designed or advertised for – and was delivered mainly by the CLASP consultancy with additional presentations by several invited experts. There were 29 participants from 11 economies. A summary report was published on the APEC and APERC websites in early September 2018.

The 4th EEP Workshop was held in Hong Kong, China, on 18 March 2019, alongside the EGEEEC53 meeting. The workshop was titled “Energy Efficiency in the Transport Sector: Developing Policy for Fuel Economy Regulation” and was delivered mainly by the Retyna consultancy with additional presentations by invited experts and economy representatives. There were 41 participants from nine economies. A summary report was published on the APEC and APERC websites.

The 5th EEP Workshop was held on 18 November 2020 in conjunction with the 55th EGEEEC meeting online. The workshop was titled “Economic Recovery through Energy Efficiency,” and it covers some ways in which strengthening energy efficiency policy and making investments in energy efficiency can stimulate economic growth. More than 60 participants were present. A summary report of the workshop was published in January 2021.

The 6th EEP Workshop (PREE Phase 11) was held online on 29 March 2022 in conjunction with the EGEEEC58 meeting which was hosted by China. Its theme was energy efficiency project financing. 47 participants from 13 APEC economies attended the workshop and they discussed investment expansion tools and financing models for energy efficiency projects. A summary report was published in July 2022 and its main points were presented at EWG64 through the APERC workshop.

The 7th EEP Workshop (PREE Phase 12) was held in the Philippines on 16 October 2023 in conjunction with the EGEEEC61 and EGNRET59. The workshop was titled “Electrification and Energy Efficiency.” 28 participants from 10 economies attended the workshop discussing and exchanging the issues on energy efficiency and electrification toward a decarbonized power system. A summary report was endorsed by EWG members in February 2024 and published on the APEC and APERC websites in March 2024.

The 8th EEP Workshop (PREE Phase 13) was held in person in China on 5 November 2024 in conjunction with EGEEEC63 and the 10th-anniversary celebration of the APEC Sustainable Energy Center (APSEC). 36 attendees from 12 economies and 4 APEC fora attended the workshop under the theme of “Energy Management: Standards, Policies, and Best Practices.” The summary report is currently under review by METI before being submitted to the APEC Secretariat and EWG members for further review and endorsement.

## MILESTONE

The summary report is scheduled for publication on the APEC and APERC websites in Q2 2025.

## **B. PEER REVIEW ON LOW-CARBON ENERGY POLICIES (PRLCE)**

### BACKGROUND

In their Fukui Declaration in June 2010 on ‘Low-Carbon Paths to Energy Security: Cooperative Energy Solutions for a Sustainable APEC’, the APEC Energy Ministers instructed the EWG to ‘explore mechanisms to encourage economies to set individual goals and action plans for introducing low-emission power sources, building upon the success of the PREE, with assistance from APERC and relevant technology expert groups.’

Modelled on the successful Peer Review of Energy Efficiency (PREE), PRLCE assists volunteer economies in developing policies that support energy security and environmental protection through promoting low-carbon energy supply (e.g. renewable energies).

### OBJECTIVE

The objectives of the PRLCE are:

1. To share experiences and knowledge among APEC economies on the best practices to promote low-emission power sources by means of the elaboration of a Peer Review Report on Low-Carbon Energy Policies;
2. To elaborate a Peer Review Report on Low-Carbon Energy Policies for APEC economies, attending to their particular circumstances and conditions, so that the strategies and measures recommended are the most efficient for contributing to the design of effective public policies in this field; and
3. To provide peer-reviewed recommendations that might be voluntarily adopted to encourage APEC economies to introduce or accelerate their power supply from low-emission sources, monitoring their progress to assess their effectiveness.

## PROGRESS

Guidelines for PRLCE were endorsed by EWG members in August 2011.

The 1st PRLCE focused on renewable energy was held in Thailand from 21 to 25 May 2012. The peer review was conducted by a team of nine experts (from China; Japan; Malaysia; Chinese Taipei; the United States; Viet Nam; IRENA; and APERC). The draft Review Report of PRLCE in Thailand was discussed and endorsed by EWG members at the EWG44 meeting.

The 2nd PRLCE focused on the National Renewable Energy Program (including the Feed-in Tariff (FIT) system for renewable energy) was held in the Philippines from 19 to 23 November 2012. The peer review was conducted by a team of nine experts (from China; Japan; Malaysia; New Zealand; Thailand; IRENA; and APERC). The draft Review Report of PRLCE for the Philippines was discussed and endorsed by EWG members at the EWG46 meeting.

The 3rd PRLCE focused on renewable energy was held in Indonesia from 13 to 17 May 2013. The peer review was conducted by a team of eight experts (from China; Japan; Malaysia; Thailand; the United States; and APERC). The draft Review Report of PRLCE for Indonesia was discussed and endorsed by EWG members at the EWG46 meeting.

The 4th PRLCE for Malaysia focused on renewable energy was held from 9 to 13 December 2013. The peer review was conducted by a team of nine experts (from Australia; China; Japan; New Zealand; Chinese Taipei; Thailand; and APERC). The draft Review Report of PRLCE for Malaysia was discussed and endorsed by EWG members at the EWG47 meeting.

The 5th PRLCE for Viet Nam focused on renewable energy was held from 18 to 22 January 2016. The peer review was conducted by a team of 12 experts (from Australia; Japan; Korea; New Zealand; the Philippines; Chinese Taipei; Thailand; and APERC). The draft Review Report of PRLCE for Viet Nam was endorsed by EWG members through circulation and published on the APEC website as well as the APERC website.

The 6th PRLCE for Papua New Guinea focused on hydropower resources was held from 1 to 4 August 2017. The peer review was conducted by a team of 11 experts (Hong Kong, China; Indonesia; New Zealand; the Philippines; Chinese Taipei; Thailand, the US and APERC). The Review Report of PRLCE for PNG was endorsed and posted on the APEC and APERC websites.

The 7th PRLCE for Peru focused on energy efficiency policies development and deployment, buildings, electromobility, and district energy systems, among others, was held from 5 to 7 December 2023. The peer review was conducted by a team of nine experts (Australia; China; Chinese Taipei; the United States, UNEP-Copenhagen and APERC). The Summary Report was endorsed by the EWG and published in September 2024.

## MILESTONE

To succeed PRLCE activities, APERC is considering holding Capacity-Building Workshops for New and Renewable Energy Policy (CBWS/NREP) in conjunction with the EGNRET biannual meetings from 2025/2026 onward.

## C. OIL & GAS SECURITY INITIATIVE (OGSI)

### BACKGROUND

APEC Energy Ministers met in St. Petersburg, Russia, from 24 to 25 June 2012. They encouraged the EWG and APERC to work on activities to improve the response to oil and gas emergency situations, including emergency response workshops and exercises. EWG and APERC are expected to perform these activities in collaboration with the International Energy Agency (IEA) and the Association of Southeast Asian Nations (ASEAN).

This instruction by energy ministers was confirmed at the highest level: APEC leaders agreed to promote activities to improve the response to oil and gas emergency situations in the APEC region at Vladivostok, Russia, from 8 to 9 September 2012.

As part of the APEC Oil & Gas Security Exercises (OGSE), APERC organized two fora and two exercises. The first Security Forum, a kick-off meeting, was held from 18 to 19 April 2013 in Tokyo. Scenarios for the Security Case Study Exercises were developed by APERC with the cooperation of outside experts. The first exercise was a joint exercise by Southeast Asian APEC economies from 17 to 19 September 2013, held in Bangkok, Thailand. The second exercise was carried out for Indonesia from 22 to 24 October 2013 in Jakarta. The results of the two exercises were presented at the second Security Forum, a wrap-up meeting held on 25 March 2014 in Tokyo. Likewise, APERC's survey on the Development of APEC's Approach to Oil and Gas Security was drafted and discussed during the said Forum. Results of the Exercises and the survey were compiled into a Final Report, which was presented to the EWG47 meeting.

In reporting the result of OGSE to the EWG47 meeting, APERC proposed the APEC Oil & Gas Security Initiative (OGSI), a new project that succeeded OGSE. OGSI consists of three pillars: Oil & Gas Security Exercise (OGSE) on a voluntary basis and not on a scheduled basis, Oil & Gas Security Network (OGSN) by officials in charge of oil and gas security policy in each economy, and Oil & Gas Security Studies (OGSS) on research topics related to oil and gas security in the APEC region.

OGSI was endorsed as an APEC Self-Funded project at the EWG48 meeting.

### OBJECTIVE

The key objectives of OGSI's major pillars are:

1. To provide vital information on global developments and issues on oil and gas security;
2. To share experiences and insights on the challenges confronting the APEC economies relating to oil and gas security and supply emergency threats; and
3. To establish and apply APEC Oil and Gas Security Exercise Model Procedure as a guiding framework to address different emergency supply scenarios.

### PROGRESS

The Philippines volunteered to undertake the 1st APEC Oil and Gas Security Exercise (OGSE) under the Oil and Gas Security Initiative, focusing on oil and gas supply emergencies. The OGSE in the Philippines was held in Manila from 7 to 9 December 2015. This OGSE was also the first case to apply and test the implementation of the APEC Oil and Gas Security Exercise Model Procedure (EMP). The report of OGSE in the Philippines was presented at the second Energy Resiliency Task Force meeting held in conjunction with the EWG51 meeting.

The 2nd OGSE in Australia was held in Melbourne from 29 to 31 March 2017 with a focus on regional capacity building. Representatives from Indonesia, the Philippines, and Thailand also participated.

The 3rd OGSE in Peru was held in Lima from 6 to 8 November 2017. Its final report was published on the APEC and APERC's websites in July 2018.

The 4th OGSE in Chile was held in Santiago from 13 to 15 March 2019. It was a 'blind' exercise where participants were briefed about hypothetical oil and gas supply disruptions without prior notice, with seven experts from different institutions forming the Review Expert Team. The final report was endorsed by EWG and has been available on the APEC and APERC websites since December 2019.

The 5th OGSE, which was postponed in 2020 due to the COVID-19 pandemic took place in Bangkok from 6 to 8 September 2023 hosted by the Ministry of Energy of Thailand. The exercise covered the supply emergency scenarios in oil and gas. The summary report was approved and published on both APEC and APERC websites in February 2024 .

The 6th OGSE in Indonesia was held in Bali, Indonesia from 3 to 6 February 2025. The drafting of the summary report is ongoing.

The OGS Newsletter, part of the Oil and Gas Security Network (OGSN), has been produced and circulated bi-monthly since December 2014. To date, 61 OGS Newsletters have been released. In conjunction with APERC's independence in April 2020, all articles in the OGS Newsletter have been solely written by the APERC researchers starting from the 33rd issue released in the same month.

The 1st OGSN Forum was held in Kitakyushu City, Japan, from 23 to 24 April 2015 and the initial results of the OGSS as well as EMP were presented. The 2nd OGSN Forum was held in Kagoshima City, Japan, from 10 to 11 March 2016, and APERC reported the implementation of OGSE in the Philippines, the results and the progress of OGSS. Representatives from 19 APEC economies and five international and regional energy organizations participated in the Forum. Australia held a session on the risk management principles for energy security. The 3rd OGSN Forum was held in Irkutsk City, Russia, from 29 to 30 June 2017. The 4th OGSN Forum was held in Tokyo, Japan, from 7 to 8 March 2018 in conjunction with the EGCFE Oil & Gas meeting on 9 March 2018. The 5th OGSN Forum was held in Sendai City, Japan, from 10 to 12 April 2019 in conjunction with the 2nd EGCFE Oil and Gas meeting. The 6th OGSN Forum was virtually held on 21 April 2023 after four years of postponement due to the COVID-19 pandemic in conjunction with EGCFE 2023 on 20 April 2023, which was the first meeting after the rescoping of the expert group. The 7th OGSN Forum was held in person in Osaka, Japan, from 20 to 21 March 2024.

Six OGSS reports on Oil Supply Security and Emergency Policy in the APEC region, the Impact on Oil Distribution, the Energy Reform in Mexico, Prospects and Compromise Points of the Arab Spring, Petroleum Product Trading and Security, and Melting of the Arctic Sea Ice were published on the APERC website in November 2015. One report on Plans for Fuel Supplies during Disasters in Expectation of Nankai Megathrust Earthquakes was published in October 2016. Four studies on Oil and Gas Security Indexation, Impact of Low Oil Price on Energy Security, Natural Gas Security in APEC, and Superiority of LPG: A Disaster-Resistant Energy Source were published in 2017. Three more reports were published in the summer of 2018: Energy Security of APEC Economies and

Changing Downstream Oil Environment, Investments in Natural Gas Supply Chain under the Low Price Environment, and APEC Oil and Gas Security Indexation 2017 Update. In 2019, two reports were completed and published in September: Small-scale LNG in Asia Pacific and Emerging Energy Security Risks in Changing Energy Landscape. The 17th OGSS report entitled “Changing LNG Market Dynamics – Impacts on Supply Security in the APEC Region” was published in September 2020. The 18th OGSS report entitled “Impact of COVID-19 on Oil and Gas Security” was published in April 2022. The 19th OGSS report entitled “Oil and Gas Security During the Energy Transition” was published in September 2023.

## MILESTONE

The OGS Newsletter will continue to be published every other month, and the next issue (Issue No. 62) is scheduled to be published by the end of February 2025.

The final report of the 20th OGSS was presented at EWG 68 in August 2024. The report was circulated for endorsement from EWG in September 2024, and comments from EWG have been incorporated. The 20th OGSS report is planned to be published on the APEC website towards Q1-2025 after final approval from EWG.

The work on the 21st OGSS study, with the theme “The Energy Security Implications of Declining LNG Investment,” is currently being carried out. The key issues and preliminary findings of the study will be presented during the upcoming the 8th Oil and Gas Security Forum in Hong Kong, China on 8 April 2025. Upon completion of the 21st OGSS, APERC will consider “The Implications of Underinvestment in Upstream Oil Sector Chain to Oil Supply Security of APEC” as the next theme for the 22nd OGSS.

The 8th OGSN Forum will be held in Hong Kong, China, in April 2025, in conjunction with the Joint Meeting of the four Expert Groups of the APEC Energy Working Group.

## **D. ENERGY RESILIENCY ENHANCEMENT PROJECT**

### BACKGROUND

In recent years, APEC member economies have been suffering from natural disasters such as earthquakes and typhoons, causing severe damage to the energy infrastructure. In this narrative, EWG established the APEC Energy Resiliency Principle (the Principle) with the great help of the Energy Resilience Task Force and APEC member economies. Under the Principle, three virtual workshops were held in Chile and Chinese Taipei in January 2022, and in the Philippines in February 2022 and the APEC Energy Resiliency Guidelines were approved by EWG in January 2023.

APERC supported Japan’s Ministry of Economy, Trade and Industry and Washington CORE, the project contractor, to prepare for holding three workshops smoothly, especially logistics matters.

### OBJECTIVE

As the follow-up actions based on the Principle, the Energy Resiliency Enhancement Project aims to enhance the ability to secure a stable energy supply by effectively dealing with disasters and implements the following key activities as the first phase project (the Project).

1) Develop an evaluation model by identifying, collecting, and assessing indicators to evaluate energy resiliency,



2) Create Energy Resiliency Sectoral Guidelines for energy infrastructure companies to promote initiatives in the public and private sectors, and

3) Hold a workshop to raise awareness and knowledge of energy resiliency in the region.

## PROGRESS

The Workshop on Energy Resiliency Enhancement was held in person in San Francisco, USA, in November 2023.

The Project was delayed because of the contracting process with the contractor and the unexpected change in the contractor's organization. The extension request for the Project period was submitted and approved to change the Project end date from December 2023 to May 2024.

The sectoral guidelines and the project summary report were endorsed in May 2024.

## **E. SYMPOSIA ON HOLISTIC APPROACH OF DECARBONIZATION FOR ENERGY TRANSITION**

### BACKGROUND

Regarding energy transitions, there is no “single best solution” for achieving carbon neutrality, as each economy has different economic and social structures and geographical situations. APERC considers that various, pragmatic, and sustainable energy transitions, that reflect the different circumstances of each economy, are essential. To achieve such energy transitions, sharing knowledge and experience among members is important.

APERC organized the APEC Symposium on the Holistic Approach of Decarbonization towards Carbon Neutrality as an APEC project under the auspices of Japan's METI. It was held online from 30 to 31 August 2021 and its summary report was endorsed in February 2023.

### OBJECTIVE

The objective of this Project is to hold sectoral symposia to follow up the APEC Symposium on the Holistic Approach of Decarbonization towards Carbon Neutrality held in 2021 to further discuss two issues, which are important elements of that holistic approach. One is the decarbonization of fossil fuel use including hydrogen, ammonia and CCUS, and the other is energy efficiency and energy management system.

### PROGRESS

Two symposia were originally planned to be held in the third quarter of 2022 and/or the first half of 2023. However, due to the effects of Covid-19 and the Ukraine situation, both two symposia were delayed and postponed.

The 1st sectoral Symposium on Decarbonizing Fossil Fuels was held in person in Kobe, Japan in October 2023.

The 2nd sectoral Symposium on Promoting Energy Efficiency and Energy Management System was held in person in Tokyo, Japan, in January 2024.

The key highlights of the 2 symposia were presented at the APEC Energy Transition Workshop in Nanjing, China, in May 2024, in conjunction with the EGEE62 & EGCFE 2024 Joint Meeting.

The project summary report of the first and second Symposia was endorsed in May and published in June 2024.

The 3rd Symposium on Bioenergy was co-organized with the Ministry of Energy, Thailand, in Khon Kaen, Thailand, from 3 to 4 December 2024.

## MILESTONE

The summary report of the APEC Energy Transition Workshop in Nanjing, China, and the 3rd sectoral Symposium on Bioenergy in Khon Kaen, Thailand, is ongoing.

## **F. APEC WORKSHOP ON CLEANER AND MORE EFFICIENT OPERATION OF THE FOSSIL ENERGY INDUSTRY**

### BACKGROUND

While APEC member economies have been committed to increasing clean energy supply and promoting energy transitions, fossil energy is still an important part of their energy supply due to the circumstances of resource endowment and stage of development and expected to be so for some time. It is imperative for the fossil energy industry in the APEC region to be as sustainable as possible by reducing emissions and improving efficiency to reduce negative environmental effects while maintaining energy security.

### OBJECTIVE

The key objective of the project is building capacity on the following improvement opportunities in the fossil energy industry.

- Electrification opportunities in the fossil energy industry (Electrification of upstream operation, Electrification of midstream and downstream operation, Cogeneration systems in refineries, and Integration of low-carbon electricity in fossil energy industry operations)
- Advanced energy management systems and energy efficiency opportunities in the fossil energy industry (Energy information monitoring, Energy loss monitoring, waste heat recovery, and optimization, and Energy efficiency in upstream operations including opportunities for AI, machine learning, etc.)

This project consists of a capacity building workshop that will provide the fundamental technical knowledge needed to improve the fossil energy industry in terms of energy efficiency and the associated emissions savings for policymakers and other relevant officials. The project outputs include background research report, capacity building workshop, and workshop summary report.

### PROGRESS

The project proposal for the APEC Workshop on Cleaner and More Efficient Operation of the Fossil Energy Industry was endorsed in October 2024.

The capacity building workshop will provide fundamental technical knowledge to policymakers and relevant officials in APEC economies to identify feasible solutions and advice regarding electrification in the fossil energy industry, integration of zero and low-carbon energy in the fossil energy industry, energy and fuel efficiency measures, and the benefits of the associated emissions savings.



## MILESTONE

Contents of the Workshop will be discussed at the forthcoming EGCFE 2025 at Hong Kong, China, in April 2025. The Workshop is planned to be held in Japan in late 2025.

## II. FUTURE WORK PLAN

APERC's Future Work Plan is designed to assist EWG in responding to the instructions by APEC Energy Ministers for the coming years as described in Part I.

APERC conducts research activities, particularly producing the *APEC Energy Demand and Supply Outlook*. In addition, APERC, as the designated executant, assists project overseers by carrying out APEC projects on the condition that a budget from the APEC fund is approved for those projects by the APEC BMC.

As agreed in EWG47, APERC is now directly responsible to EWG. APERC will keep close cooperation with the Expert Group of Energy Data and Analysis (EGEDA) as well as other expert groups and taskforces under EWG in planning and implementing its activities.

### 1. Research Activities

#### A. APEC ENERGY DEMAND AND SUPPLY OUTLOOK

The Outlook 9th edition is scheduled to be published in October 2025.

#### B. APEC ENERGY OVERVIEW

The APEC Energy Overview 2025 is expected to be published in July 2025.

#### C. TOPICAL STUDIES

APERC will publish three Fossil Fuel Reports (Coal, Gas, and Oil) in 2025 in support of the EGCFE and a Hydrogen Report in 2025 in support of both the EGCFE and EGNRET. In addition, APERC will encourage its researchers to conduct research on energy affairs and policies in the APEC region for the interest of APEC economies.

### 2. Accepting Trainees and Dispatching Experts

APERC will organize the 31st Seminar on Energy Modelling from 3 to 7 March 2025.

### 3. Building Energy Data Management Networks

The following are the plans for FY2025/2026:

1. Collect, process and analyze the 2023 annual energy demand and supply data,
2. Publish the APEC Energy Statistics 2023 and APEC Energy Handbook 2023,
3. Hold the EGEDA short-term training course on energy statistics in January 2026,

4. Participate in international cooperation on energy statistics such as the Energy Statistics Development Group (ESDG) of IEA, JODI, International Energy Statistics (InterEnerStat) meetings, etc.

## **4. Policy Cooperative Activities**

### **A. PREE**

To succeed PREE activities, APERC plans to hold Capacity-Building Workshops for Energy Efficiency and Conservation Policy (CBWS/EECP) in conjunction with the EGEEC biannual meetings from 2025 onward.

### **B. PRLCE**

To succeed PRLCE activities, APERC is considering holding Capacity-Building Workshops for New and Renewable Energy Policy in conjunction with the EGNRET biannual meetings from 2025 onward.

### **C. OIL & GAS SECURITY INITIATIVE (OGSI)**

APERC is encouraging an economy to host the seventh OGSE in 2026.

APERC will continue to issue OGS Newsletter every other month. The 8th OGSN Forum will be held on 8 April 2025 in Hong Kong, China.

The 20th OGSS report is planned to be published on the APEC and APERC websites in Q1 2025 after final approval from EWG.

The work on the 21st OGSS study, with the theme “The Energy Security Implications of Declining LNG Investment,” is currently being carried out. The key issues and preliminary findings of the study will be presented during the upcoming 8th OGSN Forum in Hong Kong, China, on 8 April 2025. Upon completion of the 21st OGSS, APERC will consider “The Implications of Underinvestment in Upstream Oil Sector Chain to Oil Supply Security of APEC” as the next theme for the 22nd OGSS.

## **III. RESEARCH MANAGEMENT**

### **1. APERC Annual Conference**

The APERC Annual Conference is held to gather experts from around the world to help APERC’s research activities.

The 2025 APERC Annual Conference will take place from 28 to 29 May 2025.

### **2. APERC Advisory Board**

Establishing the APERC Advisory Board was endorsed by the EWG16 meeting in Cairns, Australia, in August 1998. The Terms of Reference were endorsed by the EWG17 meeting in Oakland, the United States, in April 1999.

The Advisory Board is a group of representatives of major research institutions located in the APEC region who help facilitate APERC’s cooperative research. Its primary role is to give professional advice

on APERC's ongoing and proposed research, such as methodologies, approaches, databases, and information sources, as well as relevant experts to be involved. APERC carefully considers the advice provided by its Advisory Board members in proposing its research plan to the EWG.

The 2025 Advisory Board Meeting will be held on 28 May 2025 in conjunction with the APERC Annual Conference.

## IV. APERC RESEARCH STAFF

APERC visiting researchers are generally drawn from energy research organizations, both government and non-government, in APEC member economies. The minimum term of visiting researchers supported by APERC's budget is one year, which may be extended subject to consultations between APERC and the visiting researcher.

APERC would like to invite all economies to nominate candidates for visiting researchers to serve at APERC. In principle, APERC accepts one researcher from each APEC member economy.

APERC offers to the visiting researchers: 1) living allowance; 2) furnished housing in Tokyo; 3) family, education, commuting and moving allowances; and 4) health insurance.

As of 17 February 2025, APERC has a total of 27 research staff, of which 16 are visiting researchers from APEC economies.

**Table 1: APERC Research Staff**

Name
Kazutomo IRIE (President)
Glen SWEETNAM (Senior Vice President)*
Munehisa YAMASHIRO (Vice President/General Manager)
Yoshiaki IMAIZUMI (Deputy General Manager)
Edito BARCELONA
Thanan MARUKATAT*
Elvira Torres GELINDON
Alexander Konstantinovich IZHBULDIN*
Manuel Antonio Heredia HEREDIA MUNOZ*
PHUNG Quoc Huy*
Juniko Parlinggoman PARHUSIP*
Mohd Shah Hambali Bin ARIFIN*
Jungyoon KIM*
Nobuhiro SAWAMURA
Muhammad Nabih Fahkri MATUSSIN*
Rodrigo MARTINEZ PICAZO*
Leanne Nicole SARGENT*
Yasmin FOULADI*
Daniel Victor BURLUTSKY*
Yishan ZHENG*
Shi-Ting JHOU*
Risa PANCHO
Finbar Barton MAUNSELL*
Hyuga KASAI
Takako HANNON
Ikuno YAMAGUCHI
Tomomi OGURO

\* Visiting Researchers from APEC economies.

## V. REVENUE AND EXPENSES

Since its inception, APERC's budget has been provided by the Japanese government and, in fiscal 2004, 2005, and 2006, also by the Australian government.

This budget has been used to facilitate research activities, cooperative efforts, know-how transfer programmes to the member governments, and the energy data network service.

The table below is a summary of annual financial statements since APERC was established in July 1996.

**Table 2: APERC Revenues and Expenses**

*Unit: million yen*

Fiscal Year	1996 9mns	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Revenue from: Japanese Government Australian Government	374	626	681	729	619	634	594	547	525 8	528 8	498 8	446	447	418	409
Total of Revenue	374	626	681	729	619	634	594	547	533	536	506	446	447	418	409
Expenses:															
Energy Efficiency/APEC Energy Demand & Supply Outlook/ Related Research Programmes Oil & Gas Security	227	443	494	550	455	469	434	390	379	377	377	338	339	318	315
Energy Data Network & Know-How Transfer	147	183	187	179	164	165	160	157	154	159	129	108	107	100	94
Total of Expenses	374	626	681	729	619	634	594	547	533	536	506	446	447	418	409
Fiscal Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Revenue from: Japanese Government	425	494	580	657	653	689	672	672	672	672	672	672	672	556	
Total of Revenue	425	494	580	657	653	689	672	672	672	672	672	672	672	556	
Expenses:															
Energy Efficiency/APEC Energy Demand & Supply Outlook/ Related Research Programmes Oil & Gas Security	308	325	325	432	501	522	423	388	406	338	330	474	492	421	
			107	68	183	124	161	119	100	59	43	224	263	175	
Energy Data Network & Know-How Transfer	94	86	68	100	97	91	86	73	44	40	90	90	82	79	
Total of Expenses	402	411	500	600	781	737	670	580	550	437	463	788	837	675	