



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

REPORT ON APERC ACTIVITIES

**THE 52ND MEETING OF
THE APEC ENERGY WORKING GROUP (EWG-52)
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I. ON-GOING WORK PROGRESS

1. Activities Supporting Energy Efficiency Achievements and Other Policy Objectives

A. APEC ENERGY DEMAND AND SUPPLY OUTLOOK

BACKGROUND

APERC has previously produced six editions of the APEC Energy Demand and Supply Outlook, publishing the sixth Edition in May 2016.

OBJECTIVE

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

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

PROGRESS

Since the release of the sixth Edition of the APEC Energy Demand and Supply Outlook at EWG 51 in Canberra, APERC has been conducting roadshows to present the Outlook findings so far in Australia; the US; Canada; PNG; Indonesia; Malaysia; the Philippines; China; Viet Nam; Chinese Taipei; Peru; and Chile. During the roadshows, APERC has been gathering feedback and recommendations from economies to help guide the development of the seventh edition of the Outlook. In addition APERC has been identifying experts within each economy to work together with on the improvements to the Outlook models to ensure closer alignment with economy level analysis.

Modelling work has begun on the 7th edition of the Outlook with plans for numerous improvements to the various outlook models including the development of bottom-up, end-use driven buildings and industry models, development of a supply model and improvements to the power and transport models. Three scenarios are currently being considered for the next edition of the Outlook, with the Business as Usual (BAU) Scenario remaining the Reference scenario and two Alternative Scenarios, the APEC Goal Scenario which combines the impact of Improved Efficiency and Doubling Renewables and a Low Carbon Scenario consistent with limiting global temperature increases to 2 degrees Celsius.

As with past editions, the Outlook seventh edition will be comprised of two volumes: Volume I evaluating the APEC-wide results and Volume II covering the outlook for each APEC economy.

MILESTONE

APERC will complete roadshows of the Outlook sixth edition by the end of 2016.

APERC is currently at the data collection and model development phase of the Outlook seventh edition.

B. TOPICAL STUDIES

BACKGROUND

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

OBJECTIVE

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

PROGRESS

Topical studies on Effect of the Crude Oil Price Drop, Evaluation Methods for Smart Communities, LNG in Asia-Pacific and Policies to Lower Oil Demand in the Transport Sector in the APEC Region were completed and published.

As APEC energy ministers instructed at their 11th meeting in September 2014 in Beijing, China, APERC began a research project on the energy and economic competitiveness of the APEC region. For this project, the first Workshop was held on 11 June 2015 and the second workshop was held on 9 May 2016. The draft Final Report for energy and economic competitiveness was completed and circulated to EWG members for their endorsement in September 2016.

Additionally the APEC energy ministers instructed APERC, at their 12th meeting in October 2015 in Cebu, the Philippines, to formulate a document of best practices to enhance the quality of electric power infrastructure in the Asia-Pacific region. APERC surveyed best practices. APERC held a workshop on enhancing the quality of electric power infrastructure in the Asia-Pacific region on 30-31 August 2016. The draft of APEC Guideline for High Quality Electric Power Infrastructure was completed and circulated to EWG members for their endorsement in September 2016.

Natural gas is increasing its importance in the energy mix due to the availability of unconventional gas resources and its lower environmental impact compared to other fossil fuels. Production and trade of natural gas will be one of the major research themes pursued. In order to gather first-hand information on natural gas, APERC has co-hosted the LNG Producer-Consumer Conference in Tokyo with the Japanese Ministry of Economy, Trade and Industry annually, beginning with the first conference in September 2012. The second, third and fourth conferences were held in September 2013, November 2014, and September 2015. In parallel with the completion of the above-mentioned research projects, APERC has started new research projects on various topics including Perspective on Renewable Heat in the APEC Region, Natural Gas Utilisation in APEC and Development of Nuclear Energy in APEC.

MILESTONE

The fifth LNG Producer-Consumer Conference will be held on 24 November 2016.

APERC will continue research projects on new topics throughout 2016.

C. APEC ENERGY OVERVIEW 2015

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 in 2001, fourteen editions have been issued up to 2014.

OBJECTIVE

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

PROGRESS

APERC released the APEC Energy Overview 2015 in May 2016.

MILESTONE

APERC will prepare for the APEC Energy Overview 2016 to be published in early 2017.

D. 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.

Three 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;
2. Compendium of energy efficiency policies/measures and action plans of APEC member economies under a common format (Compendium); and
3. Energy Efficiency Policy Workshop provides a capacity building opportunity for robust policy making development in APEC, succeeding 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 implementation of action plans could be improved with a view to achieving 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 during the period of 23-27 February 2009. This was followed by Peer Review for Chile during the period of 16-20 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 third Peer Review on Viet Nam was conducted on 8-12 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 fourth Peer Review on Thailand was carried out on 9-13 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 fifth Peer Review on Chinese Taipei was carried out on 23-27 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 sixth Peer Review on Peru was carried out on 8-12 November 2010. The seventh Peer Review for Malaysia was carried out on 26 November-3 December 2010. The draft Review Reports of PREE for Peru and Malaysia were discussed and endorsed by EWG members at EWG41.

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

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

The first 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 on 27 February-2 March in 2012. The Summary Report was submitted to the EWG44 meeting.

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

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

The third Follow-up PREE on Thailand focused on the transport sector. During 3-7 August 2015 six experts from Australia; Indonesia; Japan; the United States (two); and UNEP participated for the Follow-up Peer Review. In Thailand they heard from various transport and energy related government agencies and associated bodies, as well as visiting an inland container depot, a truck terminal and the Thailand Automotive Institute. During the visit the experts provided preliminary

findings and recommendations which have been incorporated in the draft Follow-up PREE report. The draft Review Report was discussed and endorsed by EWG members before the EWG50 meeting.

MILESTONE

The 11th PREE for Mexico (PREE Phase 6) is planned to be implemented in February 2017 (TBC).

2. COMPENDIUM

OBJECTIVE

The objective of the Compendium is to serve as a basis for information sharing on energy efficiency policies and measures, reflecting the diversity of approaches that could be adopted by member economies.

PROGRESS

APERC presented the draft common format for the Compendium at the APERC workshop and at EWG36 in Manila in December 2008 where it was discussed and endorsed.

APERC published the first Compendium of Energy Efficiency Policies of APEC economies on its website in April 2010 covering the year 2009.

Since its inauguration, APERC has published the 2010, 2011 and 2012 Compendia of Energy Efficiency Policies of APEC economies on the APERC website.

As PREE Phase 5 budget was not approved in 2014 APEC funding process, the 2013 Compendium could not be compiled.

APERC published Singapore's Compendium in May 2014 as a supplement to the 2012 Compendium.

With the approval of PREE Phase 5 budget, APERC started the work on the 2015 Compendium and it was published in April 2016 on the APERC website.

MILESTONE

After the discussion with member economies, APERC has decided to overhaul the process for the compendium. The 2016 Compendium will represent the last full update requiring input from all economies. From this point, it will be updated through other data collection carried out by APERC, such as the APEC Energy Overview, and feedback will only be sought in an ad-hoc manner when significant change in efficiency policy takes place in a member economy.

3. ENERGY EFFICIENCY POLICY (EEP) WORKSHOP

OBJECTIVE

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

PROGRESS

A trial 'EEP Workshop' in conjunction with EGEE&C45 in Singapore was held on 23 March 2015 as a Self-Funded project. The focus was on the fundamentals of energy efficiency policy making and the development of stable funding mechanisms for agencies and programmes.

The first 'EEP Workshop' was held in conjunction with EGEE&C47 as part of PREE Phase 5, focusing on energy efficiency policy and program evaluation.

MILESTONE

The second 'EEP Workshop' is planned to be held in conjunction with EGEE&C49 as part of PREE Phase 6.

E. 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 to develop 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 first PRLCE focused on renewable energy was held in Thailand on 21-25 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 second PRLCE focused on the National Renewable Energy Program (including the Feed-in Tariff (FIT) system for renewable energy) was held in the Philippines on 19-23 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 third PRLCE focused on renewable energy was held in Indonesia on 13-17 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 fourth PRLCE for Malaysia focused on renewable energy was held on 9-13 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 fifth PRLCE for Viet Nam focused on renewable energy was held on 18-22 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 in APEC website as well as APERC website.

MILESTONE

The concept note of the sixth PRLCE for Papua New Guinea (PRLCE Phase 4) was submitted to the project session 1, 2017 for the implementation of the on-site review in May 2017 (TBC).

F. LOW-CARBON MODEL TOWN (LCMT) PROJECT

BACKGROUND

This project directly responds to the declaration at the ninth APEC Energy Ministers Meeting, held in Fukui, Japan on 19 June 2010.

Ministers discussed low-carbon paths to energy security, which provide cooperative energy solutions for a sustainable APEC as well as economic growth. They noted that the introduction of low-carbon technologies in city planning to boost energy efficiency and reduce fossil energy use is vital to manage rapidly growing energy consumption in the urban areas of APEC.

APEC Energy Ministers therefore agreed to launch an 'APEC Low-Carbon Model Town (LCMT) Project' to present successful models for coordinated usage of advanced low-carbon technologies. This project is considered a priority project for APEC.

OBJECTIVE

The key objectives of LCMT are:

1. To develop the 'Concept of the Low-Carbon Town in the APEC Region (Concept)', which is intended a guidebook on the principles and implementation of low-carbon urban design;
2. To assist in the implementation of the 'Concept' in selected case towns by providing feasibility studies and policy reviews of these urban development projects; and
3. To share the best practices and real-world experiences with low-carbon urban design with planners and policymakers throughout the APEC region.

PROGRESS

LCMT Phase 1: Tianjin, China

Tianjin, China was selected as the case study for the LCMT Phase 1 Project. The feasibility study was conducted and completed by a private consulting company in November 2011.

The 'Concept' was completed by the Low-Carbon Model Town Task Force in October 2011.

The policy review for Tianjin, China was carried out on 30 August-1 September 2011.

LCMT Phase 2: Samui Island, Thailand

Samui Island, Thailand, was selected as the case for the LCMT Phase 2 Project.

The refinement of the 'Concept' was completed by Study Group-A and assisted by APERC.

The feasibility study was carried out by qualified urban design consultants and a progress report was made at the LCMT Task Force meeting held in conjunction with the EWG44 meeting.

The policy review for Samui Island, Thailand was conducted by Study Group-B assisted by APERC on 24-28 September 2012.

LCMT Phase 3: Da Nang, Viet Nam

Da Nang, Viet Nam, was selected as the case for the LCMT Phase 3 Project.

The refinement of the 'Concept' was considered by Study Group-A and assisted by APERC, and its third Edition was completed in January 2014.

The feasibility study was carried out by qualified urban design consultants.

A policy review was conducted by Study Group-B and assisted by APERC on 4-6 December 2013. The policy review report was presented at the seventh LCMT Task Force meeting held in conjunction with the EWG47 meeting.

LCMT Phase 4: San Borja, Peru

San Borja, Peru, was selected as the case for the LCMT Phase 4 Project at the EWG46 meeting.

The refinement of the 'Concept' was considered by Study Group-A assisted by APERC, and its fourth Edition was presented at the LCMT Task Force meeting held in conjunction with the EWG48 meeting. APEC Low-Carbon Town Indicator (LCT-I) System was drafted and presented at the said meeting too.

The feasibility study for the case of San Borja was carried out by qualified urban design consultants and the results was reported to the ninth LCMT Task Force meeting held in conjunction with the EWG49 meeting.

A policy review for San Borja was conducted by Study Group-B assisted by APERC on 19-21 January 2015. The policy review report was endorsed and published in January 2016 on the APERC website.

LCMT Phase5: Bitung City, Indonesia

Bitung, Indonesia was selected as the case for the LCMT Phase 5 Project at the EWG48 meeting.

The 'Concept' refinement was considered with a focus on Low-Carbon Measures. In order to finalise and create the guidelines for the LCT-I System, several trials including the previous LCMT case towns were conducted. The project also sought to incorporate the elements of the LCT-I System in the Indicators for City Services and Quality of Life discussed in the Working Group 2 of the Technical Committee 268 for Sustainable Development in Communities in International Organization for Standardization (ISO). The 5th Edition of the 'Concept' was presented at the 10th LCMT Task Force meeting held in conjunction with the EWG50 meeting.

The Feasibility Study for Bitung City, North Sulawesi Province, Indonesia was carried out by a qualified urban design consultant and reported to the 10th LCMT Task Force meeting.

A policy review was conducted by Study Group-B and assisted by APERC on 30 November -2 December 2015. The policy review report was endorsed and published in June 2016 on the APEC website as well as APERC website.

LCMT Phase 6: Mandaue City, the Philippines

Mandaue, the Philippines, was selected as the case for the LCMT Phase 6 at the EWG49 meeting.

The Feasibility Study for Mandaue City, the Philippines has been carried out by a qualified urban design consultant since February 2016.

MILESTONE

LCMT Phase 6: Mandaue City, the Philippines

The first Edition of the LCT-I System will be established as part of the sixth Edition of the Concept. The sixth Edition of the 'Concept' will be the final edition and it will be presented at the 12th LCMT Task Force meeting to be held in conjunction with the EWG52 meeting. The project will continue to share information with ISO.

A policy review will be conducted by Study Group-B and assisted by APERC after the completion of the Feasibility Study. The policy review is planned on 6-9 December 2016.

LCMT Phase 7: LCT Development Plan in Inland Region with High Demand for Heating and Cooling System

The LCMT project will gradually move on to the dissemination stage from Phase 7, so Phase 7 will be the last phase where the Feasibility Study and the Policy Review for a selected LCT project in a case town will be carried out same as the previous phases. The case town for Phase 7 will be chosen soon. Instead of refining the Concept, the 1st LCMT Symposium will be held in September 2017 in Jakarta, Indonesia for the dissemination of LCT through utilising the LCT-I System.

LCMT Dissemination Phase 1:

The concept note for LCMT Dissemination Phase 1 was submitted to project session 1, 2017 for the implementation of the project in 2017-2018.

G. OIL & GAS SECURITY INITIATIVE (OGSI)

BACKGROUND

APEC Energy Ministers met in St. Petersburg, Russia on 24-25 June 2012, and 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 on 8-9 September 2012.

As part of the APEC Oil & Gas Security Exercises (OGSE), APERC organised two fora and two exercises. The first Security Forum, a kick-off meeting, was held on 18-19 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 on 17-19 September 2013, held in Bangkok, Thailand. The second Exercise was carried out for Indonesia on 22-24 October 2013 in Jakarta. Results of the two Exercises were presented at the second Security Forum, a wrap-up meeting, held on 25 March 2014 in Tokyo. Likewise, the APERC's survey on the Development of APEC's Approach to Oil and Gas Security were 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 which succeeded OGSE. OGSI consists of three pillars: Oil & Gas Security Exercise (OGSE) on 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 third APEC Oil and Gas Security Exercise (OGSE) which focused on oil and gas supply emergency. The OGSE in the Philippines was held in Manila on 7-9 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 Expert Review Team was composed of 10 experts –five from international and regional energy organisations, one from academe in the Philippines, and four from APEC economies (Japan, Korea, and the United States). The report of OGSE in the Philippines was drafted with the contributions from Expert Review Team and the Government of Philippines. It was presented at the second Energy Resiliency Task Force meeting held in conjunction with the EWG51 meeting.

The OGS Newsletter for the OGSN is being produced and has been circulated on bi-monthly since December 2014. To date, 11 OGS Newsletters have been released.

The first OGSN Forum was held in Kitakyushu City, Japan, on 23-24 April 2015 and the initial results of the OGSS as well as EMP were presented.

The second OGSN Forum was held in Kagoshima City, Japan, on 10-11 March 2016 and the APERC reported the implementation of OGSE in the Philippines, the results and progress of OGSS. Representatives from 19 APEC economies and 5 international and regional energy organisations participated in the Forum. Australia held a session on the risk management principles for energy security.

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. Two OGSS draft reports on ISIS and Its Risk for APEC, and Plans for the Fuel Supply during Mega Disasters were completed and will be published after the endorsement of EWG members.

MILESTONE

Next OGSE is planned to be conducted in Australia in March 2017. It will focus on regional capacity building by inviting several APEC economies. Peru has shown interest in hosting OGSE in 2017.

The OGS Newsletter will continue to be published every other month and the 12th issue is scheduled to be published by the end of October 2016.

The third OGSN Forum is planned to be held in Irkutsk, Russia, on 29-30 June 2017.

. A study on Energy Security Indexation will be continued and four new studies are underway, namely: Influence of Low Oil Price on Energy Security; Gas Security in APEC; Geopolitical Implications of Iran Nuclear Agreement; and Advantages of LPG in Case of Disaster.

2. Accepting Trainees and Dispatching Experts

BACKGROUND

APERC accepts energy modelling trainees, chiefly from developing economies in the APEC region. These trainees learn about developing and applying energy data, 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 projecting energy demand and supply.

PROGRESS

Three seminars were conducted in Tokyo in 2015. One was the 22nd Seminar on Energy Supply and Demand Outlook, which was held on 17-21 August. In addition to this multi-economy seminar, small focused seminars were conducted twice. One was for a Thai official on 10-21 August and another was on 18-24 November for three researchers/officials from Mexico; Chinese Taipei; and Viet Nam in collaboration with the EGEDA Training Program on Energy Statistics.

In the expert dispatch program of FY2014, workshops of actual energy model building were held in Thailand in February and in Mexico in March 2015.

In the expert dispatch program of FY2015, workshops of actual energy model building were held in the Philippines in July, Peru in September, Chinese Taipei in October, Indonesia in December, Thailand in December in 2015, Mexico in February and Tonga in March in 2016. The workshop in Tonga was requested by the Secretariat for Pacific Community as Papua New Guinea is one of the members of the Pacific Community.

In FY2016, APERC dispatched experts to hold the short-term seminars on energy model building in Papua New Guinea on 20-24 June and Indonesia on 8-11 August using their own data in cooperation with the activities of the EGEDA Training Program on Energy Statistics.

The seminar on energy modelling in Tokyo was held on 1-5 August 2016. APERC established a cooperation course on 'Energy Issues in Asia-Pacific Region' at the Graduate School of Asia-Pacific Studies, Waseda University in 2016, in commemoration of the 20th anniversary of APERC.

MILESTONE

APERC will dispatch experts to hold the short-term seminars on energy model building in Chile on 17-21 October 2016, Mexico in February 2017 and Papua New Guinea in March 2017. Dispatching experts to other economies is under consideration. For the time being, the cooperation course at Waseda University will continue for three years from 2016 to 2018. As a part of APERC's training activities, we will enhance 'energy literacy' of future leaders of Asia-Pacific region in general and invite candidates of energy experts to further energy studies particular, through this cooperation course.

3. Building Energy Data Management Networks

BACKGROUND

APERC has built an online communication network with energy organisations 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 this energy data.

APERC is also the coordinating agency for the APEC Expert Group on Energy Data and Analysis (EGEDA) that meets each year.

APERC supplies data provided by APEC member economies to the JODI (Oil, Gas) database of the Joint Organisations Data Initiative (JODI) and works 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. 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 contribute toward improving the quality of energy policies and decision-making in APEC economies and to increase the efficiency of the regional energy market by improving the quality, availability and accessibility of energy data;
2. To improve the availability and consistency of energy data and to develop an up-to-date and consistent APEC Energy Database, principally covering energy demand and supply data;
3. To construct an APEC energy data collection and dissemination network and to develop an on-line system for this purpose;
4. To collect 'Monthly Oil, Gas and Annual Capacity and Reserve Data' from APEC economies in support of 'Joint Organisations Data Initiative', as a joint activity of APEC, EUROSTAT, GECF, IEA, IEFS, OLADE, OPEC and UNSD;
5. To collect Energy Efficiency Indicators in support of the 'Energy Security Initiatives' cooperating with the Expert Group on Energy Efficiency and Conservation; and
6. To increase the capacity of energy statisticians in APEC economies.

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 is now collecting and processing the 2014 annual energy supply and demand data from the 21 member economies.

Like in the 2013 energy balances, APERC has to estimate some of Papua New Guinea's and Singapore's data to be able to complete the 2014 energy balances. For Papua New Guinea, APERC conducted online research on the oil, gas and geothermal energy production of the economy. The JODI Oil and JODI Gas data that were submitted by the economy for the year 2014 will be very useful in estimating the energy balance. For Singapore, APERC estimated refinery intake and output as well as the demand for individual petroleum products as the economy is not able to provide disaggregated data.

The EGEDA Training Program on Energy Statistics is now on its third year. APERC held the short-term course last 19-29 July 2016. while the middle-term course commenced on 3 October and will be finished on 25 November 2016. APERC sent the invitation for nomination to the training courses to all EGEDA focal points. APERC accepted eight trainees in the short-term course. The participants were from Chile; Malaysia; New Zealand; Papua New Guinea; the Philippines; Russia;

Thailand; and the United States. APERC provided classroom lectures and hands-on exercises in filling-out the APERC monthly and annual data reporting formats during the short-term training course.

APERC accepted two trainees in the middle-term course. The participants were from Singapore and Thailand. The training format of the middle-term course is an internship. The trainees are asked to review their own economies' data in the APEC Energy Database to identify errors and make revisions or give suggestions on how the data could be improved. After finishing with their own economies, the trainees will also be asked to review other economies data to identify inconsistencies. The trainees will help in the proofreading of the draft APEC Energy Statistics 2014 and APEC Energy Handbook 2014 publications. In addition to desk work, the trainees will attend classroom lectures in energy model building.

APERC held the APEC Workshop on Energy Statistics on 23-25 February 2016 in Tokyo. Delegates from 15 member economies, two ASEAN member states and four international organisations participated in the workshop. The following were the topics in the workshop:

- Improving the current situation of annual energy data of APEC member economies;
- Sharing of experiences in energy consumption surveys;
- International developments on energy statistics;
- Uses of energy statistics and additional data requirements by data users; and
- Monitoring APERC energy intensity reduction and renewable energy doubling goals.

MILESTONE

APERC will publish the APEC Energy Statistics 2014 and APEC Energy Handbook 2014 before the end of November 2016.

APERC is planning to hold the APEC Workshop on Energy Statistics on 4-6 April 2017.

II. FUTURE WORK PLAN

APERC's Future Work Plan is designed to assist EWG in responding to the instructions by APEC Energy Ministers for 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 executants, assists project overseers by carrying out APEC projects, on the condition that 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 Expert Group of Energy Data and Analysis (EGEDA) as well as other expert groups under EWG in planning and implementing its activities.

1. Activities to Support the Achievement of Energy Efficiency and Other Policy Objectives

A. APEC ENERGY DEMAND AND SUPPLY OUTLOOK 7TH EDITION

APERC has begun work on the Outlook 7th Edition and will follow up with interested APEC economies in early 2017 to review and seek input on model assumptions and drivers.

B. TOPICAL STUDIES

APERC will encourage its researchers to conduct research on energy affairs and policies in the APEC region for the interest of APEC economies as well as for the preparation of the Outlook seventh Edition.

The LNG Producer-Consumer Conference 2016 will be held on 24 November in Tokyo.

C. PREE

After the approval of PREE Phase 6 proposal, APERC will start working on the preparation of PREE in Mexico and the 2016 Compendium.

APERC will hold the second 'Energy Efficiency Policy (EEP) Workshop' in conjunction with EGEE&C49 as a part of PREE Phase 6.

D. PRLCE

After the approval of PRLCE Phase 4, APERC will start working on the preparation of PRLCE in Papua New Guinea

E. LOW-CARBON MODEL TOWN (LCMT) PROJECT

The focus of LCMT Phase 7 will be LCT development plan in inland region with high demand for heating and cooling system. The project will move on to the dissemination of Low-Carbon Towns utilising the LCT-I System from Phase 7. As a part of Phase 7, the first LCMT Symposium will be held in Jakarta, Indonesia in September 2017.

F. OIL & GAS SECURITY INITIATIVE (OGSI)

APERC will coordinate the second OGSE which will focus on regional capacity building in Australia in March 2017.

APERC will prepare for the third OGSN Forum in Irkutsk, Russia, on 29-30 June 2017.

APERC will continue activities for OGSN including issuing OGS Newsletter and publishing results of OGSS.

2. Accepting Trainees and Dispatching Experts

Dispatching experts in 2017 is under consideration.

APERC will continue the cooperation course at Waseda University.

3. Building Energy Data Management Networks

The following are the plans for 2016:

- Process the 2014 annual energy demand and supply data immediately upon receipt from member economies;
- Publish APEC Energy Statistics 2014 and APEC Energy Handbook 2014;
- Organise the 28th EGEDA Meeting in Malaysia on 1-3 November 2016;
- Participate in international cooperation on energy statistics such as the Energy Statistics Development Group (ESDG) of IEA, JODI, International Energy Statistics (InterEnerStat) meetings, etc.;
- Run the third EGEDA Training Program on Energy Statistics.
 - The mid-term training course will be held from 3 October to 25 November 2016; and
- Hold the APEC Workshop on Energy Statistics on 4-6 April 2017.

III. RESEARCH MANAGEMENT

1. APERC Annual Conference

The APERC Annual Conference is held to gather expert input to help APERC's research activities. In 2016, it was held on 25 May in Tokyo and APERC invited experts from around the world to discuss:

- The long term outlook of the energy sector including climate change, technology, renewables, energy efficiency and conservation;
- The outlook for energy supply and the impacts of prolonged low energy prices on investment in the energy sector; and
- The energy security situation in the Asia-Pacific Region and prospects for an APEC energy security framework.

In addition to the APERC Annual Conference, the IEEJ 50th/APERC 20th Anniversary Joint Symposium was held on 26-27 May 2016 in Tokyo to commemorate the important milestone of IEEJ's 50th and APERC's 20th foundation anniversaries respectively. APERC held a session titled "Can APEC play a role as 'trump card' to address common energy challenges in the region?" to discuss the following key questions:

- What are the common energy challenges facing APEC and what are different regions doing to overcome these challenges?
- Can APEC cooperation provide a 'silver bullet' to overcome regional energy challenges?
- How will APEC's energy challenges impact energy policy in Japan and what role should Japan play in supporting APEC's energy transition?

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 to facilitate the conduct of APERC's cooperative research. Its primary role is to give professional advice on APERC's on-going 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 Advisory Board Meeting was held on 25 May 2016 in conjunction with the APERC Annual Conference.

IV. APERC RESEARCH STAFF

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

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

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

As of 6 October 2016, APERC had a total of 26 research staff, of which 15 are Visiting Researchers from APEC economies.

Table 1: APERC Research Staff

Name
Takato Ojimi (President)
James Michael Kendell (Vice President)*
Kazutomo Irie (General Manager)
Cecilia Tam (Special Adviser)*
Masazumi Hirono (Deputy General Manager, Head, Energy Statistics & Training Office)
Hooman Peimani*
Edito Barcelona
Cho Yee Ip*
Goichi Komori
Elvira Torres Gelindon
Michael Ochoada Sinacruz*
Luis Enrique Camacho Beas*
Choong Jong Oh*
Wanhar*
Yusuke Kimura
Tran Thi Lien Phuong*
Takashi Otsuki
Martin Miguel Brown-Santirso*
Muhamad Izham ABD. Shukor*
Alexey Kabalinskiy*
Atikah Ismail*
Fang-Chia Lee*
Kirsten Smith
Jia Hao*
Yuko Tanaka
Takako Hannon

* 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

it: million yen

Fiscal Year	1996 9mns	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 (plan)
Revenue from:																					
Japanese Government	374	626	681	729	619	634	594	547	525	528	498	446	447	418	409	425	494	580	657	653	678
Australian Government									8	8	8										
Total of Revenue	374	626	681	729	619	634	594	547	533	536	506	446	447	418	409	425	494	580	657	653	678
Expenses:																					
Energy Efficiency / APEC Energy Demand & Supply Outlook / Related Research Programmes	227	443	494	550	455	469	434	390	379	377	377	338	339	318	315	308	325	325	432	501	440
Oil & Gas Security																		107	68	183	108
Know-How Transfer Programmes	54	65	65	58	58	60	53	59	53	46	41	31	28	20	17	14	24	21	32	27	30
Energy Data Network Service	93	118	122	121	106	105	107	98	101	113	88	77	79	80	77	80	62	47	68	70	100
Total of Expenses	374	626	681	729	619	634	594	547	533	536	506	446	447	418	409	402	411	500	600	781	678