

The 56th Meeting of APEC Expert Group on Energy Efficiency & Conservation (EGEEC 56)

Meeting Summary

12 – 14 May 2021

Virtual Meeting hosted by Chinese Taipei

1. Introduction

The Joint Meeting of 56th Meeting of the APEC Expert Group on Energy Efficiency & Conservation (EGEEC 56) and 55th APEC Expert Group on New and Renewable Energy Technologies (EGNRET 55) was hosted by Chinese Taipei from 12 to 14 May 2021.

The pre-meeting of the EGEEC 56 was held from 09:00 am to 11:00 am on 12 May 2021. The Joint Meeting of EGEEC 56 and EGNRET 55 was held from 09:00 am – 12:00 noon on 13 May 2021 and from 11:30 am to 12:15 pm on 14 May 2021. The EGEEC 56 meeting was held from 09:00 am to 11:30 pm on 14 May 2021.

Delegates from eight (8) APEC member economies, namely Australia; China; Hong Kong, China; Indonesia; Japan; Chinese Taipei; Thailand; and the United States, and representatives from six (6) APEC fora / sub-fora, including APEC Secretariat; Energy Working Group (EWG); Expert Group on Energy Data and Analysis (EGEDA); Expert Group on New and Renewable Energy Technologies (EGNRET); Asia Pacific Energy Research Centre (APEREC); and APEC Sustainable Energy Center (APSEC) attended the meeting. Moreover, representatives from two (2) international organisations, namely the International Energy Agency (IEA) and the International Copper Association (ICA), participated in the meeting as observers and delivered presentations.

The list of EGEEC 56 participants was attached in Appendix A of the meeting summary.

2. Pre-meeting of EGEEC 56 (12 May 2021 09:00 – 11:00)

2.1 Adoption of Pre-meeting Agenda

The pre-meeting was chaired by Mr Vy Ek-chin, Chair of EGEE&C, and the pre-meeting meeting agenda was adopted by attending member economies.

2.2 Project Updates Presentation

The status of thirteen (13) nos. of the APEC project and the project status were summarised below.

APEC Project Title		Proposing Economy	Project No.	Status
1	APEC Best Practice Guidelines for Establishing and Enhancing Energy Efficiency Incentive (EEI) Schemes	Australia	EWG 09 2018A	On-going
2	Research on Effective Strategies for Overcoming the APEC Sustainable Urbanization Gaps	China	EWG 11 2018S	Completed
3	Energy Intensity Reduction in the APEC Region's Urbanised Cities	Hong Kong, China	EWG 08 2019A	On-going
4	APEC Workshop on District Cooling and/or Heating Systems (DCHS)	Hong Kong, China	EWG 08 2019S	On-going
5	Capacity Building Workshop on Retro-commissioning (RCx)	Hong Kong, China	EWG 09 2020A	QA process
6	APEC Peer Review on Energy Efficiency (PREE) Phase 9	Japan / APEREC	EWG 08 2018A	Completed
7	APEC Peer Review on Energy Efficiency (PREE) Phase 10	Japan / APEREC	EWG 07 2019A	On-going
8	Exploring Co-Benefit Opportunities for Renewable and Energy Efficiency Projects in the APEC Region	Thailand	EWG 04 2019A	On-going
9	Accommodating Disruptive Technology into RE&EE Policy for Energy Security	Thailand	EWG 11 2019A	On-going
10	Integrating Electrical Vehicles and Solar Rooftop PV in Electricity Distribution Systems with Continued Performance of Distribution Transformers	Thailand	EWG 03 2020A	On-going
11	APEC Workshop on University Collaboration to Support Data Gathering and Analysis in Energy Efficiency and Renewable Energy	The US	EWG 06 2019A	On-going

APEC Project Title		Proposing Economy	Project No.	Status
12	Sustainable Mobility: Routes for integrating the Energy and Transport Sectors for Urban Cities	The US	EWG 05 2019A	On-going
13	Evaluation of Energy Technologies, Programs and Policies	The US	EWG 12 2019A	On-going

2.2.1 APEC Best Practice Guidelines for Establishing and Enhancing Energy Efficiency Incentive (EEI) Schemes (EWG 09 2018A / Australia) - Status: On-going

The objective of the project was to identify and document best practice guides for the design and review of energy efficiency incentive schemes. In addition, the project would develop two guidelines with supporting case studies for (i) establishing a new energy efficiency incentive scheme; and (ii) enhancing an existing energy efficiency incentive scheme. Two (2) online workshops were completed on 7 April 2021 and 29 April 2021. APEC economies who attended the workshop would consider EEI schemes and explore or implement reforms to expand beyond energy efficiency to smoothing electricity demand and/or decarbonizing through fuel switching. Workshop recordings were available from project overseer Mr Keith Tarlo. A Handbook on EEI Schemes was being drafted for completion by 30 July 2021.

2.2.2 Research on Effective Strategies for Overcoming the APEC Sustainable Urbanisation Gaps (EWG 11 2018S / China) - Status: Completed

This project aimed to identify sustainability gaps of APEC cities and derive elements of a strategy for overcoming the gaps. The first draft of “APEC Integrated Urban Planning Report – Combining Disaster Resilience with Sustainability” was presented at the Asia-pacific Energy Sustainable Development Forum in September 2019. The final draft was presented at the Forum in September 2020 and endorsed by EWG on 2 February 2021.

2.2.3 APEC Workshop on Energy Intensity Reduction in the APEC Region’s Urbanised Cities (EWG 08 2019A / Hong Kong, China) – Status: On-going

The objectives of this project were (i) to analyse the energy intensity reduction performance in developed APEC member economies’ urbanised cities; (ii) to

identify key drivers for accelerating aggregated energy intensity reduction for new and existing buildings, in addition to regulations; and (iii) to develop guidance for policy makers, particularly developing economies, to urbanise their city and to lower their energy intensity. The conceptual report was submitted in August 2020 and a virtual workshop was hosted by Hong Kong, China on 23 March 2021 with over 100 participants from twelve (12) APEC member economies and seven (7) international organisations. The final report would be submitted to APEC in July 2021 tentatively.

2.2.4 APEC Workshop on District Cooling and/or Heating Systems (DCHS) (EWG 08 2019S / Hong Kong, China) – Status: On-going

The objectives of this project were to encourage the deployment of DCHS to reduce energy consumption and peak load cooling demand and share the experience and best practices with the workshop participants from various economies. The virtual workshop was successfully held on 17 November 2020 alongside EGEDA 31 and EGEEC 55, with over 110 participants from fifteen (15) APEC member economies and sixteen (16) organisations. The final report was submitted to APEC in January 2021.

2.2.5 Capacity Building Workshop on Retro-commissioning (RCx) (EWG 09 2020A / Hong Kong, China) - Status: QA Process

This project aimed to promote RCx in the APEC region by providing a platform for fostering the growing importance of RCx from the perspective of improving energy efficiency in driving progress toward APEC's energy intensity reduction goal and increasing employment opportunities and economic activities post COVID-19. The project proposal was submitted to APEC and pending BMC's approval. Once approved, a half-day capacity workshop and one-day training to share RCx guidelines and developments would be organised.

2.2.6 APEC Peer Review on Energy Efficiency (PREE) Phase 9 (EWG 08 2018A/Japan) – Status: Completed

APEC Peer Review on Energy Efficiency (PREE) responded to the declaration at the 9th APEC Energy Ministers Meeting (EMM9) in Fukui, Japan to promote the energy efficiency of the APEC member economies and meet the APEC's aggregate energy intensity reduction goal. A peer review was conducted to provide recommendations for the host economy, PERU, on how to improve the

implementation of their energy efficiency action plans in achieving energy efficiency goals. The summary report was published in 2020, and the completion report was endorsed by APEC in December 2020.

2.2.7 APEC Peer Review on Energy Efficiency (PREE) Phase 10 (EWG 07 2019A/Japan) – Status: On-going

The PREE Phase 10 was a follow-up from the last PREE Indonesia in 2011. It was originally scheduled to be held in 2020. Due to COVID-19, it had been postponed to until October or November 2021 using an online format. This peer review would be an opportunity to do a stock-take on the progress made over the past decade. An Energy Efficiency Policy Workshop themed “Economic Recovery through Energy Efficiency” was held on 18 November 2020 hosted by Hong Kong, China in virtual format. 86 participants from 13 APEC member economies registered for the workshop. Workshop report was published on the APEC website in January 2020.

2.2.8 Exploring Co-Benefit Opportunities for Renewable and Energy Efficiency Projects in the APEC Region (EWG 04 2019A/Thailand) – Status: On-going

The objectives of this project were:

- i. To share best practices of successful joint projects for RE&EE implementation with co-benefit in power generation and distribution, transport, and buildings sector.
- ii. To develop guideline with criteria and framework for collaborative RE&EE projects with co-benefit technically and economically.
- iii. To share an example of cost benefit analysis (CBA) on successful projects, such as RE&EE in the transport sector - EV & biofuel.
- iv. To build capacity and network for co-benefitting project developers in designing, planning and assessing potential RE&EE joint projects.

A workshop was organised on 18-19 March 2021 in virtual-hybrid format with 82 participants from 13 APEC member economies attended the workshop. Key success factors were extracted from successful RE & EE projects & policy criteria in APEC. Technical criteria for RE & EE co-benefit was proposed through Eligibility-Priority-Scoring APEC proposal evaluation. A second workshop was planned in July 2021 for capacity building in RE & EE project developers.

2.2.9 Accommodating Disruptive Technology into RE&EE Policy for Energy Security (EWG 11 2019A/Thailand) – Status: On-going

The objectives of this project were:

- i. To review the impact of disruptive technologies on the power generation and distribution, transport, and buildings sector.
- ii. To share best practices on RE&EE policy to accommodate the disruptive technologies.
- iii. To build capacity on the integration of disruptive technologies for energy security.

A workshop was organised on 29-30 April 2021 in a virtual format with 98 participants from 13 APEC member economies. Best practices on disruptive technology supporting RE & EE policies were shared at the workshop. In addition, participants brainstormed on RE & EE policies for the smooth integration of disruptive technologies. The final report was being drafted for submission before October 2021.

2.2.10 Integrating Electrical Vehicles and Solar Rooftop PV in Electricity Distribution Systems with Continued Performance of Distribution Transformers (EWG 03 2020A/Thailand) – Status: On-going

The objectives of this project were to support the sustainable modernization of electric distribution systems in the APEC region as required by the growing need to increase deployment of electric vehicles and rooftop solar PV in the target economies, and build the capacity of APEC economies' utilities and policy-makers to address the technical, environmental, and economic impacts on distribution transformers of connecting rooftop solar PV installations and electrical vehicles charging stations to electricity distribution systems. The consultant for this project was being selected and study would start afterwards.

2.2.11 APEC Workshop on University Collaboration to Support Data Gathering and Analysis in Energy Efficiency and Renewable Energy (EWG 06 2019A/US) – Status: On-going

The key project objective was to promote information sharing and capacity building across APEC universities. Other objectives of this project were:

- i. Organise a two-day workshop to bring together APEC members, faculty from APEC Universities, and members of APERC to talk about potential EWG/University collaboration.
- ii. Discuss potential research projects for University students to work in classes that would be most beneficial to the EWG, and determine how to identify potential projects in the future.
- iii. Identify best practices for project communication both between the EWG and University faculty as well as between faculty participants.
- iv. Discuss best methods for sharing project results with University students.
- v. Facilitate networking between APEC members, University faculty in APEC economies, and APERC to develop a consortium of Universities to provide support for the work of the EWG.

A virtual workshop was planned for 8-9 June 2021.

2.2.12 Sustainable Mobility: Routes for integrating the Energy and Transport Sectors for Urban Cities (EWG 05 2019A/US) – Status: On-going

The key objectives were to promote sustainable mobility across the APEC region.

Other objectives were:

- i. To deliver a Sustainable Mobility - City Solutions Case study that addresses policy and technical guidelines for implementing of sustainable, high-capacity public and shared transport systems, with existing infrastructure, or with examples of successful improvements. This case study will address clean transport solutions, stakeholder engagement processes, joint policies and pilot programs with the energy sector that would further consolidate the energy-efficiency aspects.
- ii. To build capacity and increase knowledge in APEC member economies with technical training, policy advice and sharing of regional and international good practices. This will be achieved via a workshop, which will be open to all APEC and non-APEC economies.
- iii. To provide a long-term platform for continued dialogue, knowledge sharing and learning within the APEC economies by incorporating interested APEC members into Asia's Clean Mobility Community of Practice, which will enable cities to be a regional leader in providing City-level solutions.

The project would apply findings from an existing APEC project (EWG 10 2018A) focused on pathways to integrate the energy and transport sectors in APEC island

communities, in APEC cities. A case study webinar was held in Mexico City on 24 February 2021 on the pilot phase planning motorbus learnings. In addition, two virtual workshops were planned for 27-28 July 2021 and 3-4 August 2021 on APEC Workshop on Integrated Sustainability Mobility for Urban Cities.

2.2.13 Evaluation of Energy Technologies, Programs and Policies (EWG 12 2019A/US) – Status: On-going

The objectives of this projects were:

- i. To build capacity in evaluation and raise awareness in policy makers.
- ii. To strengthen an enabling environment for evaluation through bringing policy makers and evaluation practitioners together.
- iii. To strengthen institutional capacities of public and private organisations through their participation and discussion.
- iv. To provide additional evaluation material and contacts to the Energy Evaluation Asia Pacific (EEAP) organisation, one of the successful outcomes of the first APEC evaluation workshop.

A virtual workshop was planned for September – October 2021.

2.3 Concept Notes Presentation

Two (2) nos. of concept notes were presented in the meeting as follows:

APEC Concept Notes		Proposing Economy
1	Promoting Energy Efficient and Resilient Data Centre in the APEC Region	Hong Kong, China
2	APEC Peer Review on Energy Efficiency (PREE) Phase 11	Japan / APERC

2.4 Economy Update (Part 1)

A meeting theme “Energy Efficiency to Tackle Climate Change” was proposed by Chinese Taipei. Member economies were encouraged to share the plans and works that may benefit APEC member economies to accelerate progress in tackling climate change. In the pre-meeting, five (5) APEC member economies presented the updates on key developments in energy efficiency policies and programmes, as well as on the meeting theme. The other three (3) APEC member economies presented the updates during the EGEEC 56 on 14 May 2021.

- 2.4.1 Chinese Taipei** introduced the mobile app “BeCool” which combined mobile devices and modern technologies to provide citizens with immediate, personalized and systematic information services on energy-efficiency appliances.
- 2.4.2 Australia** reported their carbon emission status and introduced the Technology Investment Roadmap which set the path for Australia to meet the international commitment to help tackle climate change while ensuring technology can work to create jobs and lower energy prices. The Australia Clean Energy Finance Cooperation investment in clean energy project was also shared.
- 2.4.3 China** reported its long term objectives for 2035 on energy revolution and its 14th five-year plan (FYP 2021 – 2025) outlook in building an energy sector which is clean, low-carbon, safe and efficient. Financial support for new energy companies was also introduced.
- 2.4.4 Hong Kong, China** reported its latest carbon neutrality target and the energy intensity reduction progress. In addition, the updates on energy efficiency initiatives, including mandatory energy efficiency labelling scheme, building energy efficiency ordinance, retro-commissioning, green energy target, green school 2.0 programme, Green Tech Fund and E&M InnoPortal were also reported.
- 2.4.5 Indonesia** reported its national commitment to climate change, including its national determined contribution (NDC) and greenhouse gas emission target. The government’s actions to support energy efficiency, including energy management implementation program, appliances standardization and energy saving awareness, subroto award on energy conservation and Government Regulation on Energy Conservation, were also introduced.

3. Joint Meeting of EGEEC 56 and EGNRET 55 (13 May 2021 09:00 – 12:00)

The Joint Meeting was co-chaired by Mr Vy Ek-chin, Chair of EGEE&C, Dr Tom Lee, Chair of EGNRET, and Mr LEE Chun-li, Deputy Director-General, Bureau of Energy, Ministry of Economic Affairs of Chinese Taipei.

3.1 Official Welcome

The Joint Meeting was officially welcomed by Mr LEE Chun-li, Deputy Director-General, Bureau of Energy, Ministry of Economic Affairs of Chinese Taipei. The Official Welcome

highlighted Chinese Taipei's energy transition, including developing renewable energy, enhancing energy conservation and improving energy efficiency.

3.2 Opening Remarks and Adoption of Joint Meeting Agenda

The opening remarks from Dr Tom Lee, Chair of EGNRET, reiterated the need for collaborative works in achieving the APEC energy intensity reduction goal and renewable energy doubling goal. EGNRET and EGEE&C organised this joint meeting to facilitate active participation and to discuss key areas of collaboration. He welcomed delegates from APEC member economies to attend the joint meeting and thanked the two international organisations – International Energy Agency (IEA) and International Copper Association for joining the meeting. He appreciated Chinese Taipei for the hospitality in hosting the meeting. The joint meeting agenda was adopted by attending member economies.

3.3 Energy Development in Chinese Taipei

Dr CHEN Chung-Hsien, Director, Energy Technology Division, Bureau of Energy, Ministry of Economic Affairs, Chinese Taipei, presented the Energy Development in Chinese Taipei. The energy situation, energy transition, renewable energy development, energy efficiency and conservation were reported

3.4 Updates from APEC Secretariat / EWG / EGNRET / EGEEC / EGEDA / APERC / APSEC

Seven (7) presentations were conducted as follows:

3.4.1 “APEC Secretariat Update” by Mr. Tetsuya Shimokawa, Program Director, APEC Secretariat

APEC Secretariat presented the overall outcomes of project session 2, 2020. In project session 2, 2020, the approval rate of APEC funded project was 66% where six (6) EWG projects were approved by BMC, four (4) EWG projects were under QA process and one (1) project were being withdrawn. The project cycle for project session 1, 2021 with key milestone dates was introduced with seven (7) concept notes being submitted and granted in-principle funding by BMC. APEC Secretariat also reported the project cycle for project session 2, 2021 and reminded members

about the important issues that should be considered when submitting concept notes.

3.4.2 “EWG Update” by Ms. Ariadne BenAissa, Acting EWG Lead Shepherd

Acting EWG Lead Shepherd reported the status of EWG Lead Shepherd selection to be held in EWG 61 on 21-25 June 2021 hosted by Brunei Darussalam. In addition, the Acting EWG Lead Shepherd introduced the workshop “Energy Transition Efforts in the Asia-Pacific Region” held alongside EWG 61 and the policy discussion on “Incentives and tools for accelerating the development of low emissions energy” proposed by New Zealand. The changes to the eligibility criteria for the Energy Efficiency and Low Carbon Measures Sub-fund was also being reported. The Acting EWG Lead Shepherd further reminded that the EWG Terms of Reference and the APEC Energy Security Initiative would be discussed in the EWG 61.

3.4.3 EGNRET Update by Dr. Tarcy Jhou, EGNRET Secretariat

EGNRET Secretariat presented the meeting summary of the 54th meeting of APEC EGNRET hosted by the Philippines on 10-11 November 2020. The EGNRET Secretariat also announced the results of the Chair and Vice-chair selection for the 2021-2022 term, and reported the EGNRET project update.

3.4.4 “EGEEC Update” by Ms. Jovian Cheung, EGEEC Secretariat

EGEEC secretariat presented the meeting summary of the 55th meeting of APEC EGEEC and the associated workshops held on 17-20 November 2021 in Hong Kong, China. The EGEEC secretariat also reported the EGEEC project update.

3.4.5 “EGEDA Update” by Mr. Edito Barcelona, EGEDA Secretariat

EGEDA secretariat reported updates on EGEDA activities, including energy data collection, training courses and workshops on energy statistics, past and upcoming EGEDA meeting. The tracking on the APEC energy intensity reduction goal and APEC renewable energy doubling goal up to 2018 data were also presented.

3.4.6 “APERC Update” by Mr. Glen Sweetnam, Senior Vice President, APERC

APERC presented the update on APEC Energy Demand and Supply Outlook, 8th Edition, including the two edition scenario – (i) Reference Scenario, and (ii) Net-zero Scenario. The target publication date of the 8th Outlook would be the 2nd quarter 2022. APERC further presented the preliminary results for energy intensity trend and breakdown for four (4) economies, namely China, US, Japan and Russia, as suggested by the EGEEEC members in EGEEEC 54.

3.4.7 “APSEC Update” by Dr. Jinlong Ma, Vice President, APSEC

APSEC presented its research works on (i) solar-powered emergency shelter solutions, (ii) ETS pillar program, and (iii) CNSC pillar program. APSEC also presented its pathway to update its clean coal technology pillar program to clean energy technology pillar program, and updated on the APEC Cooperative Network for Low Carbon Energy Efficiency Cities Program.

3.4.8 “International Energy Agency Presentation” by Ms. Mel Slade, Senior Programme Manager, IEA

IEA shared their Super-efficient Equipment & Appliance Development, appliance efficiency policy achievements, and savings potential from product efficiency worldwide.

3.4.9 “International Copper Association Presentation” by Mr. Pierre Cazelles, Director – Global Partnerships, ICA

ICA shared their programs to support the development of higher efficiency electricity-using products and decentralized renewable energy systems.

4. EGEEC 56 Meeting (14 May 2021 09:00 – 11:30)

4.1 Opening Remarks & Adoption of EGEEC 56 Agenda

The EGEEC 56 meeting was chaired by Mr Vy Ek-chin, Chair of EGEEC. The opening remarks was delivered by Ms PENG Shu-mei, Senior Executive Officer, Bureau of Energy of Chinese Taipei. She welcomed delegates from APEC member economies to attend the EGEEC 56 in a virtual format and appreciated the sharing from member economies on energy efficiency & conservation policies. The EGEEC 56 meeting agenda was adopted by attending member economies.

4.2 Economy Update (Part 2)

Three (3) APEC member economies continued to present the updates on key developments in energy efficiency policies and programmes, as well as on the meeting theme.

4.2.1 Japan reported their Carbon Neutrality and Energy Efficiency target, the international comparison of total primary energy consumption per GDP, residential and commercial energy consumption and the energy intensity trends. Japan further introduced the progress on energy efficiency & conservation toward the 2030 target, and the measures and energy saving potential by sector.

4.2.2 Thailand reported their energy status 2019 and 2020, Thailand's integrated energy blueprint and the energy efficiency plan 2018. Thailand further introduced the implementation of energy efficiency & conservation programme, including the building energy code and the district cooling projects.

4.2.3 The United States reported its clean energy announcement made at Leader Summit on Climate in April 2021. In addition, the US private sector energy goals were also introduced.

4.3 Discussion

4.3.1 APEC Energy Intensity Reduction Goal

EGEE&C Chair reported that in response to discussions and requests made during the past EGEEC meetings, APERC Senior Vice President Mr Glen Sweetnam had presented at the joint meeting the energy intensity trends for four member

economies, namely China, Japan, Russia and the US. He encouraged member economies to provide support by sending the most updated information, data, policy measures, and impact of the pandemic to APERC to conduct a detailed analysis.

APERC presented the analysis of GDP projections used in APEC Energy Demand and Supply Outlook 8th edition. APERC pointed out that the uncertainty resulting from COVID-19 had posed a challenge in making GDP projections and comparisons. The energy intensity sensitivity analysis showed more rapid progress towards the APEC energy intensity goal with higher GDP growth rates. However, simple regression analysis did not correctly capture the underlying dynamics and further research would be required to apply GDP sensitivities into APERC's energy model. More, COVID-19 was different from past economic downturns and might have the opposite effect on energy intensity.

EGEE&C Chair reminded that the presentation material of short-term and long-term GDP projections and the underlying methodology were sent to members and encouraged members to review the data.

4.3.2 Cross Fora and Organisations Cooperation

EGEE&C Chair reported that EWG members supported EGEE&C to explore collaboration with International Energy Efficiency Hub (EE Hub). EGEE&C Co-chair, Dr LI Pengcheng, updated that the EE Hub currently had 16 members. However, the EE Hub secretariat had not yet been established due to COVID-19 situation. EGEE&C would keep in view the latest the development of EE Hub with a view to setting up the connection with her administration.

EGEE&C Chair mentioned that IEA had been invited to share their super energy efficiency equipment & appliance development and ICA had been invited to share their programs to support development of higher efficiency electricity-using products and decentralised renewable energy systems.

EGEE&C Chair introduced World Green Building Council (WGBC). The WGBC's mission was to transform the building and construction sectors across three strategic areas: climate action, health & well-being, and resources & circularity.

EGEE&C members reached a consensus to explore collaboration opportunities with WGBC.

4.3.3 Key Areas for Collaborative with APEC Expert Groups, Research Centers and Task Forces

EGEE&C Chair reported the key areas for collaborative actions / joint activities between Expert Groups as follows:

With EGEDA

- The first joint EGEDA and EGEE&C meeting was held virtually from 19 to 20 Nov 2020;
- An APEC District Cooling and/or Heating Systems (DCHS) workshop was held on 17 Nov 2020 alongside the joint meeting;
- EGEE&C and EGEDA would continue to work on DCHS applications and data collection, and
- EGEE&C and EGEDA would explore the energy efficiency applications and the energy data collection of green data center.

With EGNRET

- Explore joint meeting in 2022;
- Energy Efficiency & Renewable Energy projects and workshops; and
- Energy Efficiency & Renewable Energy policies for post Covid-19 green recovery.

4.4 EGEE&C Governance Issues

4.4.1 Review of Terms of Reference (ToR)

EGEE&C ToR was reviewed, and no amendment was suggested by members.

4.4.2 EGEE&C Chair and Co-chair Selection

The EGEE&C Secretariat reported that on 29 March 2021, the EGEE&C Secretariat announced that the nomination of EGEE&C Chair and Co-Chair starts from 1 April 2021 to 30 April 2021. As of 30 April 2021, the EGEE&C Secretariat received one (1) nomination for the EGEE&C Chair position and one (1) nomination for the EGEE&C Co-chair position.

EGEE&C members reached consensus to select Mr VY Ek-chin from Hong Kong, China as the EGEE&C Chair for term 2021-2023 and Dr LI Pengcheng from China as the EGEE&C Co-chair for term 2021-2023.

4.4.3 EGEE&C Contact List

EGEE&C Chair reported that the latest EGEE&C contact list was circulated to members and reminded members to provide updated information to the EGEE&C Secretariat.

4.4.4 EGEE&C Website

EGEE&C Chair reported that the meeting documents of the EGEE&C 55 and associated workshops were uploaded to the EGEE&C Website and reminded members to send the EGEE&C 56 presentation material to EGEE&C Secretariat.

4.4.5 Date and Venue for Upcoming EGEE&C Meetings

EGEE&C Chair announced that the 57th EGEE&C meeting (EGEE&C 57) would be hosted by Australia in the second half of 2021. The EGEE&C Secretariat would liaise with Australia on the meeting arrangement.

EGEE&C Chair further announced that China had expressed interest to host the 58th EGEE&C meeting (EGEE&C 58) in the first half of 2022.

4.4.6 Date and Venue for Upcoming EWG Meeting

EGEE&C Chair announced that the upcoming virtual 61st Energy Working Group Meeting (EWG 61) would be hosted by Brunei Darussalam on 21-25 June 2021.

4.4.7 A.O.B.

EGEE&C chair added two remarks for member economies' reference:

- (i) IEA would release a Comprehensive Roadmap for the Global Energy Sector to reach Net-Zero Emissions by 2050 on 18 May 2021 and would be a reference to APEC member economies; and

- (ii) Member economies should stay vigilant as a recent report released by IEA in April 2021 indicated that increased global energy-related carbon dioxide emissions in 2021 was driven by a strong rebound in demand for coal in electricity generation.

4.5 EGEEC 56 Outcome

The EGEE&C Secretariat presented the key actions and items to be reported to EWG in the upcoming EWG 61.

5. Joint Meeting of EGEEC 56 and EGNRET 55 (14 May 2021 11:30 – 12:15)

The Joint Meeting was co-chaired by Mr Vy Ek-chin, Chair of EGEE&C, and Dr Tom Lee, Chair of EGNRET. The Joint Meeting agenda was adopted by attending member economies.

4.6 EGEEC Report and EGNRET Report

The EGEE&C Secretariat reported the outcome of EGEEC 56, and the EGNRET Secretariat reported the outcome of EGNRET 55.

4.7 Key Areas for Collaboration with APEC Working Groups and

EGEE&C Chair shared several collaboration opportunities as follows:

- Joint meeting in 2022;
- Energy Efficiency & Renewable Energy projects and workshops;
- Energy Efficiency & Renewable Energy policies for post Covid-19 green recovery;

EGEE&C Chair encouraged member economies to submit APEC projects on decarbonisation through energy efficiency and renewable energy. In addition, EGEE&C and EGNRET members affirmed the possibility of the collaboration areas.

4.8 Closing Remarks

Mr LEE Chun-li, Deputy Director-General, Bureau of Energy, Ministry of Economic Affairs of Chinese Taipei, gave the closing remarks. Mr LEE thanked all delegates for their participation and declared the three-day meeting a success. He mentioned that the actions to increase renewable energy and improve energy efficiency & conservation were the solutions to mitigate climate change.



Asia-Pacific
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APEC Expert Group on Energy Efficiency and Conservation (EGEE&C)
Under the APEC Energy Working Group

Appendix A – EGEEC 56 List of Participants

No	Full Name	APEC Sub-fora / Economy / Organisation	Organization
1	Ek Chin Vy	EGEEC	Electrical and Mechanical Services Department
2	Jovian Cheung	EGEEC	Electrical and Mechanical Services Department
3	Willy YU	EGEEC	Electrical and Mechanical Services Department
4	Tom Lee	EGNRET	Industrial Technology Research Institute
5	Tarcy Sih-Ting Jhou	EGNRET	Industrial Technology Research Institute
6	Ariadne BenAissa	EWG	Energy Working Group
7	Tetsuya Shimokawa	APEC Secretariat	APEC Secretariat
8	Nobuhiro Sawamura	EGEDA	Asia Pacific Energy Research Center
9	Edito Barcelona	EGEDA	Asia Pacific Energy Research Center
10	Elvira Gelindon	APERC	Asia Pacific Energy Research Center
11	Hugh Marshall-Tate	APERC	Asia Pacific Energy Research Center
12	Glen Sweetnam	APERC	Asia Pacific Energy Research Center
13	Munehisa YAMASHIRO	APERC	Asia Pacific Energy Research Center
14	Christopher Doleman	APERC	Asia Pacific Energy Research Center
15	Zhexing YAN	APSEC	APEC Sustainable Energy Center
16	Steivan DEFILLA	APSEC	APEC Sustainable Energy Center
17	Jinlong MA	APSEC	APEC Sustainable Energy Center
18	Cathy McGowan	Australia	Department of Industry, Science, Energy and Resources
19	Samantha Griffin	Australia	Department of Industry, Science, Energy and Resources



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Appendix A – EGEEC 56 List of Participants (Cont'd)

No	Full Name	APEC Sub-fora / Economy / Organisation	Organization
20	Alberta McAteer	Australia	Department of Planning, Industry and Environment
21	Keith Tarlo	Australia	NSW Department of Planning, Industry and Environment
23	Pengcheng LI	EGEEC	CNIS
24	Ren LIU	China	CNIS
25	Meng LIU	China	CNIS
26	Kei Ming, Barry CHU	Hong Kong, China	Electrical and Mechanical Services Department
27	Wai Hung, Leo CHENG	Hong Kong, China	Electrical and Mechanical Services Department
28	Hendro Gunawan	Indonesia	Ministry of Energy and Mineral Resources
29	- Kunaefi	Indonesia	Ministry of Energy and Mineral Resources
30	Wahyu Lestari	Indonesia	Ministry of Energy and Mineral Resources
31	Naoko DOI	Japan	Institute of Energy Economics Japan
32	Shu-Mei Peng	Chinese Taipei	Bureau of Energy
33	Henry Lo	Chinese Taipei	Industrial Technology Research Institute
34	Yun-Tzu(Nicole) Guo	Chinese Taipei	Industrial Technology Research Institute
35	Ching-Yu Li	Chinese Taipei	Industrial Technology Research Institute
36	Kao Shao Hui	Chinese Taipei	Industrial Technology Research Institute
37	Zheng-Hong HSU	Chinese Taipei	Bureau of Energy
38	Chen-Chun Lin	Chinese Taipei	Industrial Technology Research Institute

Appendix A – EGEEC 55 List of Participants (Cont'd)

No	Full Name	APEC Sub-fora / Economy / Organisation	Organization
39	Billy Wen	Chinese Taipei	Industrial Technology Research Institute
40	Howard Chen	Chinese Taipei	Industrial Technology Research Institute
41	Yang-Guang Liu	Chinese Taipei	Industrial Technology Research Institute
42	Kuo-Hsiang Chien	Chinese Taipei	Industrial Technology Research Institute
43	Yu-Choung Chang	Chinese Taipei	Industrial Technology Research Institute
44	Shao-Hui Kao	Chinese Taipei	Industrial Technology Research Institute
45	Wisaruth MEATHASIT	Thailand	Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, Thailand
46	Munlika SOMPRANON	Thailand	Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, Thailand
47	Warote CHAINTARAWONG	Thailand	Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, Thailand
48	Sukanya NANTA	Thailand	Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, Thailand
49	Wisaruth Maethasith	Thailand	Department of Alternative Energy Development and Efficiency, Ministry of Energy
50	Kampanart Silva	Thailand	National Energy Technology Center, National Science and Technology Center



Asia-Pacific
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APEC Expert Group on Energy Efficiency and Conservation (EGEE&C)
Under the APEC Energy Working Group

Appendix A – EGEEEC 55 List of Participants (Cont'd)

No	Full Name		APEC Sub-fora Economy / Organisation	Organization
51	Nuwong	Chollacoop	Thailand	National Energy Technology Center (ENTEC)
52	Cary	Bloyd	The USA	Pacific Northwest National Laboratory
53	Derek	Greenauer	The USA	UL LLC
54	PIERRE	CAZELLES	ICA	INTERNATIONAL COPPER ASSOCIATION