

The 59th Meeting of APEC Expert Group on Energy Efficiency & Conservation (EGEEC 59)

Meeting Summary

5 to 7 October 2022

Virtual Meeting hosted by Thailand

1. Introduction

The 59th Meeting of the APEC Expert Group on Energy Efficiency & Conservation (EGEEC 59) and 57th Meeting of APEC Expert Group on New and Renewable Energy Technologies (EGNRET 57) Joint Meeting was hosted by Thailand from 5 to 7 October 2022. Joint meetings of EGEEC and EGNRET were held in the morning of 5 and 7 October 2022.

Delegates from twelve (12) APEC member economies, namely Australia; China; Hong Kong, China; Indonesia; Japan; Malaysia; The Philippines; Singapore; Chinese Taipei; Thailand; The United States; Viet Nam, and representatives from six (6) APEC fora and sub-fora, including APEC Secretariat; Asia Pacific Energy Research Center (APEREC); APEC Sustainable Energy Center (APSEC); Expert Group on Energy Data and Analysis (EGEDA); Expert Group on New and Renewable Energy Technologies (EGNRET) and APEC Automotive Dialogue (AD) attended the meeting. Moreover, representatives from three (3) international organisations, namely the World Green Building Council (WGBC), Collaborative Labelling and Appliance Standards Program (CLASP) and Energy Efficiency Hub (EE Hub), participated in the meeting as speakers and observers.

Seventy-three (73) participants attended the EGEEC 59. The list of EGEEC 59 participants is attached in Appendix A of the meeting summary.

2. The EGEEC 59 (5 – 7 October 2022, 08:00 – 11:00, GMT+7)

The EGEEC 59 & EGNRET 57 Joint Meeting on 5 October 2022 was co-chaired by Mr Vy Ek-chin, Chair of EGEE&C, and Dr. Prasert Sinsukprasert, Director-General of Department of Alternative Energy Development and Efficiency (DEDE).

The EGEEC 59 Meeting on 6 October 2022 was chaired by Mr Vy Ek-chin, Chair of EGEE&C.

The EGEEC 59 & EGNRET 57 Joint meeting on 7 October 2022 was chaired by Dr. Tom

H.T. Lee, Chair of EGNRET.

2.1 Opening Remarks and Adoption of Meeting Agenda

Dr. Prasert Sinsukprasert, on behalf of the host economy Thailand, gave the opening remarks. He highlighted the incentives of moving towards energy efficiency and renewable energy given the current price fluctuations. In addition, Dr. Sinsukprasert raised that the increasing extreme weather events caused massive damage to some economies. Thus, the need to speed up the transition to renewables and increase energy efficiency would be one of the ways to slow down the effect of climate change.

The EGEEC 58 Summary was confirmed, and the EGEEC 59 & EGNRET 57 Joint Meeting Agenda was adopted by attending member economies.

2.2 “Energy Development in Thailand” by Ms. Sutthasini Glawgitigul, Policy and Plan Analyst, Senior Professional Level, Department of Alternative Energy Development and Efficiency, Ministry of Energy

Thailand presented an overview of their current energy situation, final energy consumption by fuel, final energy consumption by sector, electricity generation by energy source and the energy plan of Thailand. To address the environmental concerns and global warming issues, Thailand shared its ambition of reaching carbon neutrality by 2050 and net-zero GHG emission by 2065, and the policy direction of the Thailand National Energy Plan 2022 to achieve the goals of carbon neutrality and zero emission.

2.3 Updates from APEC Secretariat / APERC / APSEC

Three (3) presentations were conducted as follows:

2.3.1 “APEC Secretariat Update” by Mr Takuo Miyazaki, Program Director, APEC Secretariat

APEC Secretariat announced the outcome of project session 2, 2022. Sixty-five (65) concept notes were submitted, with fifty-six (56) concept notes (86%) being approved in principle by the BMC. APEC Secretariat introduced the schedule and available project funds for Project Session 2, 2022. APEC Secretariat shared tips for producing quality APEC projects and points to note in project implementation.

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

APERC presented the historical energy intensity results for the APEC region.

Similar to the financial crisis in 2009, the final energy intensity declined significantly in 2020 due to the pandemic and fell 26.4% between 2005 and 2020. In terms of energy supply intensity, YoY changes were similar to changes in final energy demand intensity.

APERC also shared progress towards the APEC renewable energy goal. From 2010 to 2020, renewable energy share in the final energy consumption market and primary energy supply market increased by 3.5 percentage points and 2.53 percentage points, representing 58% and 52.7% of the way to the goal respectively, which showed that they were on track to meet the doubling goal.

APERC then shared the projections from the 8th Edition of APEC Energy Demand and Supply Outlook. The publication were largely completed by March 2022 and therefore did not include the effects of the energy crisis as a result of the crisis in Ukraine. Based on the analysis, APEC would achieve its 45% energy intensity reduction goal by 2034 and 2031 in the Reference and Carbon Neutrality (CN) scenarios respectively. Modern renewable energy share would doubled by 2026 in REF and by 2025 in CN. APEC-wide CO₂ emissions would decline by 14% in REF and by 67% in CN by 2050.

2.3.3 “APSEC Update” by Mr. Jinlong, Ma, Vice President, APEC Sustainable Energy Centre, Professor, Tianjin University

APSEC reported a list of recent APEC event and activities, progress on the APEC projects, effort in institution building and proposed research program for 2023-2025.

The APEC activities includes:

- (i) the 63th APEC Energy Working Group (EWG) Meeting, online, 13-16 June 2022;
- (ii) The 8th Asia-Pacific Energy Sustainable Development Forum, hybrid, 21-23 September 2022;
- (iii) Workshop on the APEC Cooperative Network of Sustainable Cities, online, 22 September 2022;
- (iv) Energy Transition Solutions (ETS) Sub-forum “Enable Energy Transition and Facilitate Carbon Neutrality”, online, 23 September 2022.
- (v) Thought sharing: Discussion of potential new energy-related goals

They also reported on the progress of the APEC projects, which included:

- (i) “Demonstration and Promotion of Energy Resilience tool based on Solar-Powered Emergency Shelter Solutions (SPESS) for Natural Disaster in APEC” (EWG 01 2022S);

On-going Projects within CNSC pillar:

- (i) “Research on means to overcome the shortage of basic urban energy-climate data” (EWG 04 2021S);
- (ii) “Research on means to diminish the financing gap for sustainable urban energy” (EWG 09 2021S) and
- (iii) “Data driven carbon neutral disaster resilient cities” (APEC EWG 04 2022A).

Projects within the ETS pillar:

- (i) Innovative Approaches for Scaling-Up Renewable Energy Deployment in APEC Region (EWG 04 2020S)
- (ii) Support Offshore Wind Deployment and Grid Connection in APEC Region (EWG 06 2021A)
- (iii) Impacts of COVID-19 on Renewable Energy Development in APEC Economies (EWG 07 2021A)

APSEC also shared their institutional building effort, such as “Defining a Local Vision for CNSC Members”, the upgrade of APEC Clean Coal Technology Transfer (CCT) Program to Future Clean Energy Technology (CET) Pillar Program and information platforms. The framework of the recently proposed research program 2023-25, APEC Urban Energy Report, was also presented.

2.4 Invited Presentations

Five (5) invited presentations were conducted as follows:

2.4.1 “APEC Automotive Dialogue (AD) Presentation” by Mr Dusit Anantarak, Co-chair of the AD

APEC AD shared their plans for the next four years 2022-2025; deliverables on the Putrajaya Vision 2040 and the Aotearoa Plan of Action and the AD-35 & AD-36 key outcomes and policy recommendations for policymakers to prepare for the transition to EVs and decarbonisation of transportation.

2.4.2 “World Green Building Council Presentation” by Ms Joy Gai, Programmes Head of the World Green Building Council (WGBC) Asia Pacific Region

WGBC shared the WorldGBC’s “Advancing net-zero” status report and progress of World’s GBC’s advancing net zero campaign through its three strategy areas: Climate Action, Health & Wellbeing and Resources & Circularity.

2.4.3 “Energy Efficiency Hub (EE Hub) Digitalisation Working Group (DWG) Presentation” by Ms Alison Delgado, Pacific Northwest National Laboratory

DWG introduced the work of the group, the launch of the recent report on Digitalisation for Energy Efficiency of Buildings Operations, lessons learnt in case studies, their near-term to long-term strategies and roadmap to accelerating improvement in building energy efficiency.

2.4.4 “Promoting Net Zero or Carbon Neutral Commitments in APEC” (EWG 07 2021S) by Dr. Adam Borison, Senior Technical Advisor, United States Agency for International Development (USAID)

Against the background of the net zero or carbon neutral goals to reduce greenhouse gas (GHG) emissions and the strong public and private sector collaboration required to promote clean energy transition, the US had commenced the subject project to promote information sharing and capacity building to increase members understanding of different pathways to reach net zero GHG emissions or carbon neutrality and to align with the directions of the APEC Putrajaya Vision 2040 to support efforts and policies to address all environmental challenges for a sustainable planet. Project deliverables include 1) Compendium of Best Practice Examples that contribute to APEC economies’ efforts towards achieving low carbon goals; 2) Voluntary Peer Reviews (VPR) that support APEC Leaders’ instructions to guide implementation to achieve net zero or carbon neutrality commitments and 3) Workshops to share best practices and lessons learned.

2.4.5 “Thailand’s BCG Model for Green Energy towards Carbon Neutrality”, by Mr. Watcharin Boonyarit, Director of Strategy and Planning Division, Department of Alternative Energy Development (DEDE), Ministry of Energy, Thailand

Thailand shared an overview of the energy situation, renewable energy status, CO₂ emission from energy consumption, and measures to achieve carbon

neutrality and net zero GHG emission. Thailand's National Energy Plan 2022 and its strategic direction, its energy infrastructure for the future, 4D and 1E Policy and the driven mechanisms of the Bio-Circular-Green (BCG) Model on Energy were presented.

3 Project Updates Presentation

The status of five (5) nos. of the APEC projects was reported during the meeting and summarised below.

3.1.1 Sustainable Mobility: Routes for integrating the Energy and Transport Sectors for Urban Cities (EWG 05 2019A – the US) – Status: Completed, awaiting publication

The project objective was to apply the findings from an existing APEC project proposal and a recent key report, that focused on pathways to integrate the energy and transport sectors in APEC islands, in APEC cities. A case study on “Planning a transition to electrification of public transit systems – Learnings from the bus rapid system of Metrobus in Mexico City” was submitted to APEC and approved in December 2021. A webinar and panel discussion to disseminate the case study findings was held in February 2021, and a capacity building virtual workshop was held in August 2021. This project was completed six months ago and the final publication of the case study was expected to be finished by Oct 2022.

3.1.2 APEC Capacity Building Workshop on Retro-commissioning (RCx) (EWG 09 2020A - Hong Kong, China) – Status: On-going

The project objectives were to share the experience and best knowledge-based practices of Retro-commissioning and to build capacity by collaborating with policy-makers, experts, academia, international organisations, practitioners and related stakeholders to develop Retro-commissioning implementation frameworks, guidelines, and training programmes to pursue facilitative measures that would expedite economic rebound. An online workshop and training were organised on the 20th and 21st January 2022. The Workshop Summary was submitted to APEC. The Final Report is under preparation and is to be submitted to APEC tentatively by December 2022.

3.1.3 Promoting Energy Efficient and Resilient Data Centres in the APEC Region (EWG 05 2021A – Hong Kong, China) - Status: On-going

The project objective was to analyse the energy efficiency and resilience policies, international guidelines and standards, practices and the deployment of I&T technologies for the data centre to enable the “Digital Economy and Technology”. A capacity building workshop was organised on 28th and 29th June 2022, to share policies, standards, guidelines, best practices and advanced technologies for the deployment of green data centres. The Workshop Summary was under preparation and would be submitted to APEC Secretary by October 2022. The Final Report is expected to be submitted to APEC tentatively by December 2022.

3.1.4 APEC Workshop Furthering University Collaboration to Support Data Gathering and Analysis in Energy Efficiency, Renewable Energy, and Energy Resiliency (EWG 12 2021A – US) - Status: On-going

The project objective was to build the capacity of workshop participants by developing collaborations between the EWG, APERC, and University faculty in APEC economies. An in-person workshop was expected to be held in Thailand in January 2023 for discussion of data gaps and needs in energy efficiency, renewable energy and energy resiliency and developing policy recommendations for the EWG in these areas. The project was expected to be extended till June 2023.

3.1.5 Capacity Building Workshop on APEC’s Goals of Doubling the Renewable Energy Share in the Energy Mix and Reducing Energy Intensity (EWG 08 2021S)

This project aimed at building the capacity of APEC members in policies and initiatives in energy efficiency and renewables development and knowledge capacity of APEC members in some emerging low-carbon technologies and economic instruments and to strengthen regional cooperation to attain carbon neutrality. Hong Kong, China will organise a capacity building workshop on 29-30 November 2022.

3.2 Concept Notes Presentation

Three (3) nos. of concept notes were presented at the meeting and summarised below:

3.2.1 Sustainable Mobility: Routes for integrating the Energy and Transport Sectors for Sustainable Urban Mobility (EWG 02 2022A - The US) – Status:

Awaiting BMC approval

This project would apply the findings from the US recently finished APEC project, which focused on building capacities to better support goals to achieve sustainable mobility solutions in urban cities via the integration of the transport and energy sectors. Two to three APEC LAC Economies' cities would receive technical support in improving their planning and implementation of policies and strategies for transport decarbonisation and its integration with the energy sector. An additional contribution to building knowledge and capacities of decision makers, technical thought leaders and engaging regional leaders in advancing transport decarbonisation strategies and its integration with the energy sector.

3.2.2 Promoting Energy Modelling in APEC Region (EWG 05 2022A – Hong Kong, China) – Status: Approved / Implementation

Energy modelling would be indispensable for forecasting energy consumption and tracking low carbon transition progress. This project, which commenced in Oct 2022, would organise a one-day capacity building workshop to share the pre-workshop study findings, such as the strengths of various energy forecast models and the experiences and practices of APEC member economies on their use of energy models. An online workshop is to be organised by HKC in August 2023.

3.2.3 Retro-Commissioning (RCx) Hub: Training and Registration Scheme – Hong Kong, China – Status: Proposal Endorsed by EWG

Following the APEC Project EWG 09 2020A, it was recognised that Retro-commissioning (RCx) was a systematic and cost-effective process periodically examining the building services system and energy performance. The project objectives were to build the capacity of retro-commissioning of APEC member economies and drive energy-efficient buildings. It would support meeting growth needs for urbanisation while limiting the growth in energy-related demand and carbon emissions. A website, “APEC RCx Hub”, was proposed to be developed for capacity building among APEC member economies, best practices, guidelines, and effective policies, and would be available on this online platform for sharing among APEC members. This project would organise a series of training sessions to build the capacity for retro-commissioning of APEC member economies.

4 Economy Updates

The theme of the EGEEC 59 meeting was “BCG Model for Green Energy towards Carbon Neutrality”. Eight (8) economies presented the economy updates and were summarized below:

4.1 Australia provided updates on its energy transition landscape and energy policy. They raised their emission reduction target to 43% by 2030 (vs 2005 levels) and targeted to achieve net zero by 2050 by boosting renewable energy. They also shared their intention to develop National Energy Performance Strategy and its vision to become a renewable energy superpower. In addition, Australia would be developing an industry and government partnership forum for greater industrial energy management to deliver energy efficiency outcomes and expanding the use of large-scale heat pumps in industry to support their uptake of renewable energy. Apart from investigating digitalisation opportunities in buildings, Australia also updated their energy efficiency requirements which require all new Australian homes to meet more stringent energy efficiency requirements from Oct 2023 onwards.

4.2 China shared its carbon peaking and carbon neutrality policies and outcomes, energy efficiency status, the newly proposed 1+N-policy system for carbon peaking and carbon neutrality, energy policies and targets under the 14th Five-Year Plan (2021 – 2025) and 15th Five-Year Plan (2026 – 2030).

4.3 Hong Kong, China shared its commitment to achieve carbon neutrality with more aggressive decarbonisation and renewable share targets. It also shared its investment in infrastructures; its efforts to enhance the buildings; engage the community; provide funding for research & development projects; promote I&T and its works related to “Bio-Circular-Green Economy Model towards carbon neutrality”.

4.4 Japan shared its latest developments in energy conservation policies and the challenges for the future goal. It updated its 2030 final energy demand outlook and primary energy demand and its long-term energy efficiency target. It also shared the major energy conservation measures with a new target saving of energy consumption by 62 million kl in each sector. An overview, historical development

and amendment of the Energy Conservation Law, class evaluation system for large-scale energy users, the benchmark system with energy efficiency targets in each category, demand-side actions for carbon neutrality, changing electricity supply structure, and optimal use of electricity on demand response were presented by Japan.

- 4.5 The Philippines** introduced its Electric Vehicle Industry Development Act EVIDA, Renewable Energy Management Bureau (REMB), Energy Efficiency and Conservation (EE&C) Act, certification of energy efficiency practitioners which included Certified Energy Manager (CEM), Certified Energy Auditor (CEA) and Certified Energy Conservation Officer (CECO), Energy Service Company (ESCO), Inter-Agency Energy Efficiency and Conservation Committee (IAEECC) which provided strategic direction in the implementation of Government Energy Management Program (GEMP), Minimum Energy Performance (MEP) for sectors, Philippine Energy Labelling Program (PELP), the fiscal and non-fiscal incentives for Energy Efficiency Excellence (EEE) awards and Republic of Philippines Department of Energy information campaign activities.
- 4.6 Chinese Taipei** reported its 2021 energy supply structure. It also introduced its 4 transition strategies and 2 governance foundations, supplemented by 12 key strategies, as action pathway to achieve net-zero emissions in 2050. It then shared its energy conservation goals of average energy intensity and electricity intensity improvement from 2017 to 2025 and its energy conservation strategies for energy efficiency.
- 4.7 Thailand** presented its energy situation, the Bio-Circular-Green economy model, its National Energy Plan 2022, including the energy efficiency target and the 4D1E policy (Digitalisation, Decarbonisation, Decentralisation, De-regulation and Electrification). Thailand further introduced its energy efficiency initiatives, such as energy management system, standard labelling, energy codes, etc. that support the BCG model.

4.8 The United States reported the Inflation Reduction Act of 2022, which was signed by President Biden on 16 Aug 2022. With a total investment of US\$437 billion in various sectors, the Act invested US\$369 billion in energy security and climate change and was the largest climate investment in US history. This Act, which impacted both the energy supply and demand of the US, was estimated to reduce US carbon emissions by 40% below 2005 levels by 2030.

5 Discussion

5.1 APEC Energy Intensity Reduction Goal

APEC presented the APEC energy intensity trends from 2005 to 2020. The energy intensity fell 26.4% between 2005 and 2020.

The subsector comparison of total final energy consumption (TFEC) of four subsectors, including industry, transport, buildings and agriculture, was presented. The real final energy reduction in 2020 was in the transport sector, which fell 11.4% compared to 2019 as a result of COVID-19 mobility restrictions. Engine type showed the effect of switching to EVs in the CN caused the biggest drop in energy use in transport. The energy intensity (TFEC vs GDP) in 2019/18 and 2020/19 was presented. Due to COVID-19, TFEC and GDP declined in 2020 in most APEC economies whereas the short-term economic and energy effects were uncertain in 2021 and 2022.

In the APEC Energy Outlook 8th edition results, APEC's final energy intensity was expected to improve by 46.3% in the Reference Scenario (REF) and 52.5% in the Carbon Neutrality Scenario (CN) in 2035. It was expected to achieve its 2035 energy intensity goal (before the target year 2035) in 2034 and 2031 for the Reference and Carbon Neutrality Scenarios respectively. Final energy intensity was expected to improve by almost 60% in REF and 70% in CN in 2005 to 2050. While the long-term outlook indicated APEC was on track to meet the energy intensity goal, APEC would continue to track the energy intensity as well as the emissions intensity goals.

5.2 Potential New APEC Energy Goals

The EGEE&C Chair introduced the work of the small group led by Deputy Lead Shepherd to explore potential new energy-related goal(s) under the EWG63 meeting

Agenda item 14(b)(ii). Two small group meetings were held on 19 August and 16 September 2022. Members' views were gathered and grouped into 4 categories: (1) Timeframe; (2) Energy Efficiency-Related Goals; (3) Renewable Energy-Related Goals and (4) Energy-Related Emission Goals. The EGEE&C Chair reported the discussion from the small group on the first two categories.

Japan raised that as some economies like Japan have had a head start with energy intensity reduction after the oil crisis, additional room for improvement may be limited. If the Energy Intensity Reduction Goal was to be intensified, supporting data of APEC member economies to assess the additional potential and projection would be needed for reference for consideration by the members.

5.3 Cross-Fora and Organisations Cooperation

EGEE&C Chair reported the work and cooperation with the APEC Automotive Dialogue (AD), the World Green Building Council (WGBC) and the Energy Efficiency Hub (EE Hub) at the EGEE&C 59. EGEE&C Chair suggested exploring collaboration opportunities with the three organisations and their working group/ regional network / task groups, to introduce their works and share their experiences and knowledge at the upcoming EGEE&C meetings.

5.4 Key Areas for Cross-For a and Organisations Cooperation

EGEE&C Chair reported the areas for collaborative actions / joint activities between Expert Groups and international Organisations follows:

5.4.1 APEC Automotive Dialogue (AD)

EGEE&C would explore collaboration opportunities with the Transportation Working Group (TPTWG) and AD on the energy efficiency of transportation, in particular electric vehicles.

5.4.2 World Green Building Council (WGBC)

EGEE&C would explore collaboration opportunities with WGBC and its members on the areas, for instance high energy efficiency buildings, net-zero buildings, and retro-commissioning (RCx) in the existing buildings, etc. Considering the close collaboration between EGEE&C and WGBC, EGEE&C would invite WGBC to be guest member of EGEE&C.

5.4.3 Energy Efficiency Hub (EE Hub) and the Task Groups

EGEE&C would further strengthen collaboration with EE Hub and its Task Groups in APEC projects and to share experience and knowledge in enhancing energy efficiency.

5.4.4 Strengthen Collaboration with EGNRET

EGEE&C and EGNRET would organise a joint workshop and the joint EGEEC 61 and EGNRET 59 meetings. The joint workshop would be a capacity building workshop on “APEC's Goals of Doubling the Renewable Energy Share in the Energy Mix and Reducing Energy Intensity” (EWG 08 2021S) scheduled to be held on 29 and 30 November 2022 whereas the joint EGEEC61 and EGNRET 59 meetings would be held in the second half of 2023 in Philippines.

5.4.5 Key Areas for Collaboration with APERC / EGEDA

EGEE&C Chair encouraged members to strengthen collaboration areas between EGEE&C and APERC / EGEDA on existing and potential new goal(s).

APERC will be invited to participate in the Capacity Building Workshop on “APEC's Goals of Doubling the Renewable Energy Share in the Energy Mix and Reducing Energy Intensity” co-organised by EGEE&C and EGNRET on 29 and 30 November 2022.

5.4.6 Strengthen Collaboration on APEC Projects

EGEE&C Chair elaborated with examples on the strengthening the collaboration on APEC projects. EGEE&C have been having joint meeting with EGNRET and EGEDA since 2014 which gave much collaboration opportunities between different expert groups. EGEE&C Chair further encouraged members to propose new APEC projects and explore opportunities to strengthen collaboration with APEC research centres, task forces, expert groups and external international organisations.

5.5 EGEE&C Governance Issues

5.5.1 EGEE&C Contact List

EGEE&C Chair reported that the EGEE&C Contact List was updated and circulated to members on 30 September 2022. EGEE&C Chair encouraged members to nominate experts from APEC economic members to join the EGEE&C and regularly review and update the EGEE&C contact list to build capacity and share knowledge in energy efficiency and conservation-related policy.

5.5.2 EGEE&C Website

EGEE&C Chair reported that the meeting documents of the EGEE&C 58 had been uploaded to the EGEE&C Website. He also encouraged member economies to send the presentation materials for EGEE&C 59 to the EGEE&C Secretariat for uploading on the EGEE&C website.

5.5.3 Coming EGEE&C Chair and Vice Chair Selection

The EGEE&C Chair and Vice-Chair Selection will be held at the EGEE&C 60 meeting as the EGEE&C Chairmanship and Vice-Chairmanship currently serving by Mr Vy and Dr Li respectively since the first half of 2019 will end in the first half of 2023.

Nomination period for EGEE&C Chair and Vice Chair Selection for tenure from 2023 to 2025 would be announced one month before the EGEE&C 60 meeting.

Member economies interested in volunteering or nominating were encouraged to provide the nomination statement, candidate for the position (Chair or Vice Chair) with CV, profile and any supporting materials. A letter/email indicating the willingness to run for the position of EGEE&C Chair or Vice-Chair should be sent to all EGEE&C members and copy to the EGEE&C Secretariat to enable all members to be aware of the nominee(s) to be considered and endorsed at the meeting.

5.5.4 Upcoming EGEE&C Meetings

EGEE&C Chair encouraged member economies to host the EGEE&C 60 Meeting in the first half of 2023. Expression of interests to host the EGEE&C Meeting will be closed by 14 Oct 2022. [\[PMN: The EGEE&C 60 and associated workshop would be hosted by Hong Kong, China on 14-17 March 2023.\]](#)

EGEE&C Chair announced that the Philippines would host the Joint EGEE&C 61 and EGNRET 59 in the second half of 2023.

Member economies who are interested in hosting the EGEE&C meeting in the first and second half of 2024 should contact the EGEE&C Secretariat, who will follow up with Host Economy on the arrangement of the meeting and circulate the details to all EGEE&C members.

5.5.5 Upcoming EWG Meeting

EGEE&C Chair announced that the 64th Meeting of APEC Energy Working Group (EWG 64) would be hosted by Malaysia from 31 October to 3 November 2022.

5.5.6 EGEE&C 59 Report

The EGEE&C Secretariat presented the EGEE&C 59 outcomes, key conclusions and actions to be reported to EWG at the EWG64.

5.5.7 EGNRET 57 Report

The EGNRET Secretariat presented the EGNRET 57 outcomes, Chair and Vice-Chair selection for the 2022-23 term and project updates. The EGNRET Chair and Vice Chair for the 2022-2023 term are Dr Chi-Wen Liao and Mrs. Munlika Sompranon respectively.

5.6 Discussion: Key Areas for Collaboration with APEC expert Groups and sub-fora

EGEE&C Chair and Vice-Chair led the discussion to summarise and supplement any new suggestions or comments on key areas for collaboration with APEC expert groups and sub-fora.

6 Closing Remarks

Dr. Prasert Sinsukprasert, the Director-General of The Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, Thailand, gave the closing remarks. Dr. Sinsukprasert thanked all the speakers and delegates for participation in the 59th EGEE&C and 57th EGNRET Joint Meeting. He acknowledged that, through the

sharing of the best practices and the progress from each economy, it would be helpful to improve the work of using more renewable energy and energy efficiency. It would also help us achieve the goals we have set and help in terms of the collaboration between the APEC Expert Groups, the Research Centres and Task Forces. He believed that the collaborative effort from each member economy could help achieve more challenging goals in the future. Lastly, he thanked the EGEE&C Chair and Co-chair, the secretaries of EGNRET and EGEE&C, all delegates and speakers and look forward to more future collaboration which would strengthen the work between APEC member economies.



Asia-Pacific
Economic Cooperation

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

Appendix A – EGEEC 59 List of Participants

No	Full Name		Economy / APEC	Organization
	First Name	Last Name	Sub-fora / Organisation	
1	Lauren	Mackaway	Australia	Department of Climate Change, Energy, The Environment and Water
2	George	Sagris	Australia	Department of Climate Change, Energy, The Environment and Water
3	Pengcheng	Li	China	China National Institution of Standardization
4	Meng	Liu	China	China National Institution of Standardization
5	Ren	Liu	China	China National Institution of Standardization
6	Leo	Cheng	Hong Kong, China	Electrical and Mechanical Services Department
7	Chun-Yin	Li	Hong Kong, China	Electrical and Mechanical Services Department
8	George	Liu	Hong Kong, China	Electrical and Mechanical Services Department
9	Virginia	Luk	Hong Kong, China	Electrical and Mechanical Services Department
10	Elaine	Yip	Hong Kong, China	Electrical and Mechanical Services Department
11	Hendro	Gunawan	Indonesia	Ministry of Energy and Mineral Resources
12	Arief	Santoso	Indonesia	Ministry of Energy and Mineral Resources
13	Naoko	Doi	Japan	The Institute of Energy Economics, Japan
14	Takao	Ikeda	Japan	The Institute of Energy Economics, Japan
15	Zulkiflee	Umar	Malaysia	Energy Commission Malaysia
16	Patrick	Aquino	Philippines	Department of Energy, Philippines
17	Cephas	Cabatit	Philippines	Department of Energy, Philippines
18	Ruby	Deguzman	Philippines	Department of Energy, Philippines
19	Daniel Collin	Jornales	Philippines	Energy Utilization Management Bureau
20	Peter	Sablay	Philippines	Energy Utilization Management Bureau
21	Mara Camille	Castillo	Philippines	Energy Utilization Management Bureau
22	Lucius	Tan	Singapore	Energy Market Authority
23	Yun-Tzu, Nicole	Guo	Chinese Taipei	Industrial Technology Research Institute (ITRI)
24	Shih-Hua	Hsu	Chinese Taipei	Bureau of Energy
25	Huei-Chi	Lo	Chinese Taipei	Bureau of Energy
26	Ching-Yu	Li	Chinese Taipei	Industrial Technology Research Institute (ITRI)
27	Henry	Lo	Chinese Taipei	Industrial Technology Research Institute (ITRI)
28	Prasert	Sinsukprasert	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
29	Ruangdet	Panduang	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy



Asia-Pacific
Economic Cooperation

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

No	Full Name		Economy / APEC Sub-fora / Organisation	Organization
	First Name	Last Name		
30	Adisak	Choosuk	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
31	Sarat	Prakobchat	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
32	Watcharin	Boonyarit	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
33	Munlika	Sompranon	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
34	Sutthasini	Glawgitigul	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
35	Yaowateera	Achawangkul	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
36	Pongpan	Vorasayan	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
37	Natthaphon	Roonprasang	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
38	Tantita	Jungpraasertchai	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
39	Atchariya	Jangchay	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
40	Lapatsatorn	Jiengwareewong	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
41	Sukanya	Nanta	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
42	Warote	Chaintarawong	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
43	Patcharee	Sattayarangsan	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
44	Siriphat	Khwunpetch	Thailand	Department of Alternative of Energy Development and Efficiency (DEDE), Ministry of Energy
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46	Dusit	Anatarka	Thailand	APEC Automotive Dialogue
47	Alison	Delgado	United States	Energy Efficiency Hub Digitalisation Working Group, Pacific Northwest National Laboratory (PNNL)



Asia-Pacific
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No	Full Name		Economy / APEC	Organization
	First Name	Last Name	Sub-fora / Organisation	
48	Adam	Borison	United States	The US Support for Economic Growth in Asia (US-SEGA)
49	Nadira	Mailewa	United States	The US Support for Economic Growth in Asia (US-SEGA)
50	Lina	Kelpsaite	United States	Collaborative Labeling and Appliance Standards Program (CLASP)
51	Cary	Bloyd	United States	Pacific Northwest National Laboratory (PNNL)
52	Tuan	Nguyen	Viet Nam	Ministry of Industry and Trade
53	Takuo	Miyazaki	APEC Secretariat	APEC Secretariat
54	Ek-chin	Vy	EGEE&C	Electrical and Mechanical Services Department
55	Jovian	Cheung	EGEE&C	Electrical and Mechanical Services Department
56	Tom H.T.	Lee	EGNRET	Industrial Technology Research Institute (ITRI)
57	Chi-wen	Liao	EGNRET	Industrial Technology Research Institute (ITRI)
58	Tarcy Sih-ting	Jhou	EGNRET	Industrial Technology Research Institute (ITRI)
59	Glen	Sweetnam	EGEDA	EGEDA
60	Edito	Barcelona	EGEDA	EGEDA
61	Elvira Torres	Gelindon	APERC	APERC
62	Jeongdu	Kim	APERC	APERC
63	Yu-Hsuan	Wu	APERC	APERC
64	Thanan	Marukatat	APERC	APERC
65	Alexander	Izhbuldin	APERC	APERC
66	Manuel Antonio	Heredia Munoz	APERC	APERC
67	Ario Panggi Pramono Jati		APERC	APERC
68	Phung	Quoc Huy	APERC	APERC
69	Finbar Barton	Maunsell	APERC	APERC
70	Steivan	Defilla	APSEC	APSEC
71	Jinlong	Ma	APSEC	APSEC
72	Yong	Sun	APSEC	APSEC
73	Zhexing	Yan	APSEC	APSEC