

The 62nd APEC Expert Group on Energy Efficiency and Conservation (EGEEC 62)

Meeting Summary

21 to 23 May 2024

Nanjing, China

1. Introduction

The 62nd meeting of the APEC Expert Group on Energy Efficiency and Conservation (EGEEC 62) and the meeting of APEC Expert Group on Clean Fossil Energy 2024 (EGCFE 2024) were held in Nanjing, China on 21 & 23 May 2024. Joint meetings of EGEEC and EGCFE were held on 21 May 2024 and in the afternoon of 23 May 2024.

The meeting was accompanied by the APEC Workshop on Stocktaking Challenges and Opportunities for Energy Transition towards Decarbonization both in Energy Demand and Supply Sides on 20 May 2024, and a technical visit on 22 May 2024.

Delegates from eleven (11) APEC member economies (China; Hong Kong, China; Japan; Korea; Malaysia; Russia; Singapore; Chinese Taipei; Thailand; The United States; and Viet Nam), and representatives from six (6) APEC fora and sub-fora (APEC Secretariat; Asia Pacific Energy Research Centre (APEREC); APEC Sustainable Energy Center (APSEC); Expert Group on Energy Data and Analysis (EGEDA); Expert Group on Energy Efficiency and Conservation (EGEEC), Expert Group on Clean Fossil Energy (EGCFE), and EWG Secretariat (pre-recorded) attended. Moreover, representatives from four (4) international organisations (Collaborative Labelling and Appliance Standards Program (CLASP), Energy Foundation China (EFC), International Energy Agency (IEA)(pre-recorded) and Energy Efficiency Hub (EE Hub)(pre-recorded)) participated in the meeting as speakers and observers. The list of participants is attached in Appendix A of this meeting summary.

2. Joint Meeting of EGEEC and EGCFE (21 May 2024, 09:00 – 17:00)

The session was co-chaired by Dr. Meng Liu, Chair of EGEEC and Dr. Kazutomo Irie, Acting Chair of EGCFE.

2.1 Official Welcome

On behalf of the National Energy Administration, Mr. Xiang Li, Director of the Europe and America Department of the International Cooperation Department of the National Energy Administration, delivered an opening speech. Director Li welcomed the representatives and experts from various economies to attend the meeting, and

expressed gratitude to the China National Institute of Standardization (CNIS) for organizing the meeting. While sharing the latest progress in China's energy development, he also encouraged and underscored great importance to the active discussions and exchanges in the fields of energy efficiency and energy conservation in the APEC region, as well as the utilization of clean fossil fuel.

2.2 Opening Address and Adoption of Meeting Agenda

Dr. Kazutomo Irie, the Acting EGCFE Chair expressed his sincere gratitude to the host economy, the China, for the meeting arrangement. He wished the Joint Meeting to have fruitful discussions. The joint meeting agenda was adopted by participating member economies during the meeting.

2.3 Host Economy Presentation and Introduction of Meeting Theme

Dr. Meng Liu introduced the meeting theme “From the supply side to demand side, utilisation of clean energy and energy efficiency in realising energy transition” and shared the progress and experiences in clean energy utilization and energy efficiency in China.

2.4 Updates from APEC fora and sub-fora

Seven (7) presentations were conducted as follows:

2.4.1 “APEC Secretariat Update” by Mr Takayuki Niikura, Program Director of the APEC Secretariat

The APEC Secretariat presented updates for APEC projects. He introduced the project session dates for 2024 (Project Session 1 & 2). The submission deadline for project overseers submit project proposals to program director is 13 June. In project session 1, 2024, four concept notes were endorsed by EWG. He also introduced the APEC energy working group calendar of events.

2.4.2 “EWG update” by Ms. Ari BenAissa, EWG Lead Shepherd (pre-recorded)

Ms. Ari BenAissa shared EWG update. APEC leaders agreed “to pursue and encourage efforts to triple renewable energy capacity globally through existing targets and policies as well as demonstrate similar ambition with respect to other zero and low emissions technologies including abatement and removal technologies in line with domestic circumstances by 2030.” Energy Ministerial Meeting will be held on August 16, 2024 in Lima, Peru.

2.4.3 “EGEEC Update” by Mr. Ren Liu, Secretary of EGEEC Secretariat

The EGEEC Secretariat reported the EGEEC engagement in recent EWG activities and meeting outcomes of the 61st EGEEC Meeting, the theme of which was “Reinforcing Relevant Laws for a Comprehensive Approach to Energy Efficiency and Conservation, Renewable Energy, Electric Vehicle, and Sustainability in the APEC Region”.

2.4.4 “EGCFE Update” by Dr. Kazutomo Irie, Acting EGCFE Chair

The EGCFE Acting Chair reported the EGCFE-related APEC Events. APERC Clean Hydrogen Workshop was held in association with EGNRET60 in Kaohsiung, Chinese Taipei, April 23, 2024 with the theme of Clean Hydrogen: Common Challenges and Different Pathways. EGCFE would like to see more project proposals coming through EGCFE.

2.4.5 “EGEDA Update” by Mr. Glen Sweetnam, EGEDA Chair

The EGEDA Chair shared the data collection and processing update, EGEDA training courses and workshops, international cooperation, and the 35th EGEDA meeting. He reported that the collection of 2021 annual energy supply and demand data has been completed by the secretariat and that the secretariat sent the request for 2022 annual energy supply and demand data from member economies in December 2023. The deadline for submissions is March 31, 2024.

He introduced the EGEDA training courses. Energy statistics course was held in Tokyo from 22 Jan. to 2 Feb. 2024. And the target date for the 22nd APEC workshop on energy statistics is 23-26 July 2024, with the theme: update on emerging energy products and technologies and associated data requirements.

2.4.6 “APERC Update” by Mr. Zhichao Li, Senior Researcher of APERC

Mr. Li reported the updated APEC Energy Demand and Supply Outlook. APERC researchers are modelling the 9th Edition Outlook to be published in 2025. Preliminary results are being shared with member economies, with projections now extending to 2060.

He also shared the recent policy cooperative activities including sectoral symposia for energy transition, peer review on low-carbon energy in Peru, oil and gas security network forum, and peer review on energy efficiency in Chile.

2.4.7 “APSEC Update” by Mr. Steivan Defilla, President Assistant, APSEC

Mr. Defilla presented APSEC work progress updates. He shared the activities on

policy dialogue and institution building, including APSEC contribution to APEC Peru Policy Dialogue on Green Hydrogen, APSEC Advisory Board and Experts Group, CNSC Network, and Information platforms. The 10-year Anniversary Forum of APSEC will be held in 18-20 September 2024, Tianjin, and official invitation and detailed program will follow later.

2.5 Invited Presentations

One (1) invited presentation was conducted as follows:

2.6.1 “Doubling global progress on energy efficiency” by Mr. Conor Gask, Energy Efficiency Policy Analyst of IEA

IEA introduced the Energy Efficiency Doubling goal and the roadmaps for achieving this goal. Key actions include fuel switching, electrification, improving efficiency of products and buildings, and reducing demand through behaviour change and materials efficiency. And more efforts are needed to reach efficiency levels for net zero globally.

IEA updated its energy efficiency policy package. IEA has developed the Energy Efficiency Policy Toolkit: A set of strategic principles and policies to support governments in rapidly implementing sound energy efficiency policies.

IEA shared its regional work on energy efficiency in different economies, including research and analysis, capacity building, etc. The report of “The Future of Heat Pumps in China” was released by IEA and Tsinghua University. IEA shared its training resources.

The IEA 9th Annual Global Conference on Energy Efficiency was held during May 21-22, 2023 in Nairobi, Kenya, where the focus was shifted to implementation and action on realizing the global energy efficiency doubling ambition.

EGEE&C Members are encouraged to participate in the IEA activities and explore APEC project collaboration.

2.6 Member Economy Presentation

The theme of the joint meeting is "From the supply side to demand side, utilisation of clean energy and energy efficiency in realizing energy transition". Eleven (11) member economies presented and were summarized below:

2.6.1 China

China presented China's climate policy framework for reaching its carbon reduction targets, and measures to achieve the goals. It is reported that wind power and solar PV have become the main body of newly installed capacity in 2022, and non-fossil energy is now nearly 50% of the total installed capacity. The electricity consumption of the new energy vehicle (NEV) manufacturing industry has increased by 71.1% year-on-year. NEA proposed a timetable for the construction of the new-type electric power system, which will accelerate the clean and low-carbon transition. To promote energy transition, China has also revised standards in transformer, motor for renewable energy, updated ESG, energy management standards, and improved green financial standard system.

2.6.2 Hong Kong, China

Hong Kong, China presented its targets to reduce total carbon emission by 50% by 2035 (as compared with 2005) and achieve carbon neutrality by 2050. Hong Kong, China reported the supply and notable development on clean fossil energy, such as apart from importation, several landfill sites and biogas production plant in operation to supplement clean energy supply in Hong Kong, China. Energy efficiency initiatives such as Development of the Mandatory Energy Efficiency Labelling Scheme (MEELS) was reported.

2.6.3 Japan

Japan presented the utilization of clean energy and energy efficiency in realizing energy transition in Japan. Japan presented its 2050 carbon-neutral declaration, which aims to reduce its GHG emissions by 46% in 2030 from the level of 2013 and continue efforts to meet the goal of cutting its emissions by 50% in 2030. In the 6th Strategic Energy Plan formulated in 2021, Japan expect energy demand in FY2030 to be 280 million kl-oe with 62 million kl-oe reduction in final energy consumption by thorough energy efficiency, promoting energy efficiency improvement with regulation and supportive measures.

2.6.4 Korea

Korea presented its energy transition goal and strategy, to reduce the absolute level of energy demand by improving energy efficiency, and transforming the fossil energy structure to low-carbon and carbon-free energy sources. Korea introduced the energy efficiency enhancement measures including major measures for energy efficiency by sector, energy efficiency in industry, etc. Opportunities for the energy transition also is being presented as build-up carbon free power system, economical clean hydrogen supply system.

2.6.5 Malaysia

Malaysia presented its climate pledge of “Economy-wide carbon intensity (against GDP) reduction of 45% in 2030 compared to 2005 level”. The economy introduced its national energy transition roadmap that focuses on optimizing EE, increasing usage of renewables, and abating industrial emissions with carbon capture, utilization and storage (CCUS) to drive the energy transition and socio-economic advancement. Malaysia also reviewed the renewable energy policies with increasing the target for installed RE capacity from 40% in 2040 to 70% by 2050. Malaysia will continue to focus on improving energy efficiency, enhancing RE and reducing GHG emissions through various strategies as well as strengthening our energy infrastructure.

2.6.6 Chinese Taipei

Under the framework of 2050 Net-Zero Emission pathway, the Actions Towards Net-Zero Transition is proposed in the end of 2022. The primary objective is to maximize energy efficiency. To attain the target, Chinese Taipei has recently updated the energy efficiency standards for various residential appliances (Ductless Air Conditioners with Interconnection Agreement, Dehumidifiers, air cleaner, LED tube, Downlight and Axial Fan) to phase out inefficient products. Chinese Taipei has been diligently devising and executing energy saving strategies to achieve Net-Zero Emission in 2050. Chinese Taipei is eager to strengthen collaboration with APEC member economies and working together towards net-zero carbon emissions.

2.6.7 Thailand

Thailand shared the Thailand National Energy Plan 2024, Alternate Energy Development Plan and Energy Efficiency Plan. The National Energy Plan will provide the development policy direction in the energy sector for both government agencies and private companies, which is expected to increase renewable energy generating capacity from the current approximately 12 percent to over 50 percent to achieve Thailand’ s carbon neutral and net-zero greenhouse gas emissions by 2050 and 2065, respectively.

2.6.8 Viet Nam

Viet Nam presented its energy master plan, energy transition orientation, development plan for Clean energy and Measures and solutions for implementation, with the objectives of the share of renewable energy in total final

energy consumption (TFEC) to be 15%-20% by 2030, oriented towards around 80%-85% by 2050. Viet Nam shared the energy security and energy transition measures including energy efficiency, electrification in economic sectors, RE development, development of new energy sources, and carbon capture, use and storage.

2.6.9 Russia, Singapore and the United States gave oral speeches and shared the progress in promoting energy transition

3 EGEEC 62 Meeting (23 May 2024, 09:00 – 12:00)

The EGEEC 62 meeting were chaired by Dr. Meng Liu, Chair of EGEEC.

3.1 Invited Presentations

Three (3) invited presentations were conducted as follows:

3.1.1 “Energy Efficiency Hub (EE Hub) Updates” by Dr Jonathan Sinton, Head of Secretariat, EE Hub (pre-recorded)

Dr Tudor Constantinescu was selected as the new chair of EE Hub.

EE Hub shared the latest work of the five Task Groups: Digitalisation Working Group (DWG), Energy Management Action (EMAK), Super-Efficiency Equipment & Appliance Deployment Initiative (SEAD), Top Ten Energy Efficiency Best Available Technologies and Practices (TOP-TENS), and Energy Efficiency in Buildings (EEB).

The EE Hub special event at the IEA 9th Annual Global Conference on Energy Efficiency was held on May 22, 2024 in Nairobi, Kenya, with the meeting theme of “Renovating Buildings to Raise Energy Performance: Case from around the world”.

EGEE&C Members are encouraged to cooperate with the EE Hub and its Task Groups through APEC project collaboration and sharing knowledge and experience in accelerating energy efficiency enhancement.

3.1.2 “NET ZERO HEROES: Scaling Efficient Appliances for Climate Change Mitigation, Adaptation & Resilience” by Dr Lei Zeng, Steven, China Program Lead, Collaborative Labeling and Appliance Standards Program (CLASP)

CLASP shared its report on “Net Zero Heroes” and related research which identified appliances at the core of achieving Net Zero Emissions by 2050 and set the “Net Zero Hero Targets” for emission mitigation.

Appliances are responsible for 39.3% of energy-related CO₂ emissions. These emissions are equal to roughly the total CO₂ emissions from China, Europe, and Brazil. It is reported that, meeting CLASP'S Net Zero Heroes targets would avoid 9.2 Gt of CO₂ in 2025 relative to BAU, enabling appliances to do their part in meeting IEA’ s Net Zero goal; reduce exposure to climate risks and improve quality of life through enhanced food security and economic opportunity for over 100 million people; improve health outcomes for nearly 100 million people.

EGEEC Members are encouraged to explore cooperation opportunities with CLASP on improving energy efficiency of appliances and equipment and reduce emissions through knowledge sharing and APEC Project collaboration.

3.1.3 “China’ s MEPS for Cooling Sector: RAC as A Case Study” by Dr Tan Zheng, Program officer, The Energy Foundation (EFC)

EFC introduced the progress on China’ s MEPS for cooling sector by conducting case study to RAC, research was done from different perspectives of policy development, stakeholder engagement, cost-effect analysis, and experiences were shared as well.

The issue of improving refrigeration energy efficiency and energy-saving and carbon reducing technology paths for end use energy products mentioned in the report has attracted the attention of the attending representatives. The meeting held in-depth discussions and believed that the next step should be to carry out in-depth and extensive discussions and research on comprehensive energy and product energy efficiency standard labeling in relevant regions.

EGEEC Members are encouraged to explore cooperation opportunities with EFC on MEPS for cooling efficiency through knowledge sharing and APEC Project collaboration.

3.1.4 Discussion

Q&A and discussion was conducted between the speakers and audience, During the discussion, importance of integrated district energy system (IDES) was mentioned, Dr. Meng Liu, Chair of APEC EGEEC, briefly introduced the IDES related activities within and beyond APEC including UNEP (Champion Cities on

district energy), G20 (The task group of G20 EELP/DES), ISO (ISO/TC301/AHG13 on IDES international standards), etc., and this topic could be seen as an emerging important topic for the following EGEEC activities, also it is encouraged to explore more collaboration on IDES within and beyond APEC.

3.2 Project Updates / Concept Notes Presentations

Two Projects updates from APERC and Hong Kong, China, as well as one Concept note presentations from Chinese Taipei were presented.

3.2.1 PREE Project Update (Phase 13) by APERC

APERC reported that the project contributes towards achieving the shared APEC energy intensity reduction goal of 45% from 2005 levels by 2035. Follow-up PREE in Chile was held on 6-10 May, 2024 in Santiago, Chile. APERC introduced the outcome of Follow-up PREE in Chile including 8 priority fields have been identified, including energy efficiency policy development, institutional and legal framework, data collection and monitoring, industry, building, transport, district energy, and energy systems. The possible 8th EEP workshop theme and content were reported which will be held in conjunction with the EGEEC 63 meeting, and with the theme “Integrating International Standards and Policy Instruments for Advancing Energy Management”. APERC is seeking representatives as participants from various economies to attend the 8th EEP workshop; participants will share the current status of energy audits and energy management systems in their respective regions and engage in discussions on these topics. In addition, APEC secretariat will cover the travel expenses for one participant from “travel-eligible economy”.

3.2.2 APEC Project Update by Hong Kong, China

HKC reported the progress of 2 projects including “APEC Retro-Commissioning (RCx) Hub: Training and Registration Scheme (EWG 07 2022A)” and “Promoting Energy Efficiency Enhancement in Electricity Generation (EWG 211 2023) – EGEEC and EGCFE”.

3.2.3 Concept note “Electric Fans Energy Efficiency Improvement in APEC Region: Review of Experience and Best Practices” by Chinese Taipei

Chinese Taipei reported a new concept note “Electric Fans Energy Efficiency Improvement in APEC Region: Review of Experience and Best Practices” . It is

reported that, the ceiling fan market was valued at \$11.1 billion in 2023, and is estimated to reach \$16.8 billion by 2033, growing at a CAGR of 4.3% from 2024 to 2033. The government's growing emphasis on sustainability and energy efficiency is one of the main factors propelling the expansion of the ceiling fan market.

3.3 EGEEC Governance Issues

3.3.1 EGEEC Contact List

EGEEC Secretariat reported that the EGEEC Contact List was updated and circulated to members on 22 April 2024. Members were encouraged to nominate experts from APEC economic members to join the EGEEC and regularly review and update the EGEEC contact list to build capacity and share knowledge in energy efficiency and conservation-related policy.

3.3.2 EGEEC Website

The EGEEC Secretariat reported that the EGEEC website is available to promote the sharing of energy efficiency and conservation information. EGEEC 61 meeting documents and meeting summary were uploaded on the EGEEC website. Members were encouraged to send the EGEEC62 meeting documents to the EGEEC Secretariat for uploading on the EGEEC website. Members are encouraged to share information on the EGEEC website.

3.3.3 Review of EGEEC Terms of Reference

The EGEEC ToR was endorsed on 26 November 2021. The EGEEC ToR has a four-year term starting 1 January 2022 to 31 December 2025. EGEEC Secretariat encouraged members to review and deliberate issues for endorsement by the “consensus” of the member economies.

3.3.4 EGEEC Logo Selection

In the last meeting (EGEEC61), members proposed and agreed to create a logo to improve visibility and communication. Members were invited to submit their design from 31 Jan 2024 to 30 April 2024.

By the submission deadline, one (1) submission was received. The logo and its description was circulated to members via email. Given that there is only one submission, there was no selection. Participating members have reach

consensus to adopt the logo. Considering not all members attended the meeting, the submission will be circulated with all members via email for endorsement.

3.3.5 Upcoming EGEEC/EWG Meetings

The EGEEC Secretariat encouraged member economies to host the EGEEC 63 Meeting in second half of 2024. China expressed that they are interested in hosting the EGEEC 63 in Tianjin China in the second half of 2024, in conjunction with the APSEC 10th Anniversary Forum in September 2024.

[Post Meeting note: The EGEEC 63, the 8th APEC Energy Efficiency Policy (EEP) workshop, and APSEC 10th Anniversary Forum are to be held on 5-8 November 2024.]

Hong Kong, China will host EGEEC 64 and the Joint meeting for 4 expert groups in Spring 2025.

Member economies who are interested in hosting the EGEEC meeting in the second half of 2025 are encouraged to contact the EGEEC Secretariat. The secretariat will follow up with Host Economy on the arrangement of the meeting and circulate the detail to all EGEEC members soon.

Peru would host the 68th Meeting of APEC Energy Working Group (EWG 68) from 12 to 15 August 2024 and the APEC Energy Ministers' Meeting on 15 and 16 August 2024 in Lima.

4 Joint Meeting of EGEEC and EGCFE (23 May 2024 14:00 – 16:00)

The session was co-chaired by Dr. Meng Liu, Chair of EGEEC and Dr. Kazutomo Irie, Acting Chair of EGCFE.

4.1 Key Areas for Collaboration with APEC Expert Groups

Various economies discussed the cooperation between the expert groups under the APEC Energy Working Group (EWG) and unanimously agreed to continue deepening the cooperation and exchange between EGEEC and EGCFE.

4.2 EGEEC Report

The EGEEC Secretariat reported the outcomes of the 62nd EGEEC Meeting and the Joint Meeting of Joint Meeting of EGEEC and EGCFE, including key discussions and

conclusions. The EGEEC Secretariat is exploring opportunity to hold the EGEEC 63 in Tianjin China in the second half of 2024, in conjunction with the APSEC 10th Anniversary Forum in September. EGCFE Report

The EGCFE Secretariat reported the outcomes of the EGCFE 2024 Meeting. The EGCFE 2024 meeting was chaired by Dr. Kazutomo Irie, the Acting Chair of EGCFE. The sub field research reports on coal, oil, natural gas, and hydrogen energy from APERC were presented, as well as reports from economies such as Thailand on fossil energy security. The meeting also discussed EGCFE related management affairs.

4.3 Closing Remarks

Finally, Dr. Meng Liu, Chair of EGEEC and Dr. Kazutomo Irie, Acting Chair of EGCFE delivered the closing speech of the meeting. After completing all the agenda items, the meeting concluded successfully.

Appendix A – List of Participants

No	Title	First Name	Last Name	Economy / APEC Sub-fora	Organisation
1.	Mr.	Takayuki	Niikura	APEC Secretariat	APEC Secretariat
2.	Dr.	Kazutomo	Irie	APERC	APERC
3.	Mr.	Yoshiaki	Imaizumi	APERC	APERC
4.	Mrs.	Elvira	Gelindon	APERC	APERC
5.	Mr.	Thanan	Marukatat	APERC	APERC
6.	Dr.	Huy	Phung	APERC	APERC
7.	Dr.	Manuel Antonio	Heredia munoz	APERC	APERC
8.	Mr.	Zhichao	Li	APERC	APERC
9.	Mr.	Ting Jui	Sun	APERC	APERC
10.	Mr.	Muhammad Nabih	Matussin	APERC	APERC
11.	Mr.	Rodrigo	Martinez picazo	APERC	APERC
12.	Mrs.	Takako	Hannon	APERC	APERC
13.	Mr.	Finbar	Maunsell	APERC	APERC
14.	Mr.	Steivan	Defilla	APSEC	APSEC
15.	Dr.	Zhexing	Yan	APSEC	APSEC
16.	Dr.	Meng	Liu	EGEEC	CNIS
17.	Dr.	Ren	Liu	EGEEC	CNIS
18.	Ms.	Jie	Yang	EGEEC	CNIS
19.	Dr.	Yuan	He	EGEEC	CNIS
20.	Mr.	Glen	Sweetnam	EGEDA	EGEDA
21.	Dr.	Lei	Zeng	CLASP	CLASP
22.	Dr.	Jonathan	Sinton	EE Hub	EE Hub pre-recorded)
23.	Mr.	Tan	Zheng	EFC	EFC
24.	Mr.	Sheng	Cui	EFC	EFC
25.	Ms.	Ari	Benaissa	APEC EWG	APEC EWG (pre-recorded)
26.	Dr.	Conor	Gask,	IEA	IEA (pre-recorded)
27.	Mr.	Shumin	Liu	China	CPPEI
28.	Mr.	Yujin	Li	China	CPPEI
29.	Mr.	Xiang	Li	China	National Energy Administration of China

No	Title	First Name	Last Name	Economy / APEC Sub-fora	Organisation
30.	Ms.	Yanhong	Wang	China	National Energy Administration of China
31.	Mr.	Lei	Xie	China	National Energy Administration of China
32.	Mr.	Ziming	Xu	China	National Energy Administration of China
33.	Dr.	ZHANG	Jiutian	China	Green Development Institute, Beijing Normal University
34.	Mr.	You Cheng	Lin	Chinese Taipei	Industrial Technology Research Institute of Taiwan (ITRI)
35.	Dr.	Chi-Chun	Huang	Chinese Taipei	Industrial Technology Research Institute (ITRI) of Taiwan
36.	Mr.	Bun	Lam	Hong Kong, China	EMSD
37.	Mr.	Ngai Hang	Chu	Hong Kong, China	EMSD
38.	Mr.	Takao	Ikeda	Japan	The Institute of Energy Economics, Japan
39.	Ms.	Masami	Iwai	Japan	The Institute of Energy Economics, Japan
40.	Mr.	NOZAKI	Keisei	Japan	Ministry of Economy, Trade and Industry
41.	Mr.	Yoshikazu	Kobayashi	Japan	The Institute of Energy Economics, Japan
42.	Ms.	Sungyeon	Kang	Republic of Korea	Korea Energy Agency(KEA)
43.	Dr.	Minyoung	Seo	Republic of Korea	Korea Energy Economics Institute
44.	Mr.	Amirul Hazman	Hamzah	Malaysia	Ministry of Energy Transition and Water Transformation
45.	Ms.	Khalilulnisha	Abu bakar	Malaysia	Ministry of Energy Transition and Water Transformation
46.	Ms.	Noor Juita	Binti mashruddin	Malaysia	Ministry of Energy Transition and Water Transformation
47.	Mr	MUHAMMAD EFFI BIN ARPAN	Arpan	Malaysia	Ministry of Energy Transition and Water Transformation
48.	Mr	Usaid	Bin abdul jalal	Malaysia	Ministry of Energy Transition and Water Transformation
49.	Mr.	Vittorio Leif Ericson J.	Santos	Philippines	Department of Energy
50.	Mr.	King Anthony	Ting	Philippines	Department of Energy
51.	Ms.	Uliana	Rybachik	Russia	Federal State Budgetary Organization "Russian Energy Agency" (REA) by the Ministry of Energy
52.	Mr	Jonathan	Goh	Singapore	Energy Market Authority

No	Title	First Name	Last Name	Economy / APEC Sub-fora	Organisation
53.	Mr	Lucius	Tan	Singapore	Energy Market Authority
54.	Mr.	Ratchaphak	Tantisanghirun	Thailand	Department of Alternative Energy Development and Efficiency, Ministry of Energy
55.	Mr.	Wisaruth	Maethasith	Thailand	Department of Alternative Energy Development and Efficiency, Ministry of Energy
56.	Mr.	Chalit	Soonsathorn	Thailand	Department of Mineral Fuels, Thailand
57.	Ms.	Kaitlin	Oujo	United States	U.S. Department of Energy
58.	Mr.	Son	Dinh	Viet Nam	Ministry of Industry and Trade
59.	Ms.	Hieu	Nguyen	Viet Nam	Ministry of Industry and Trade