

# The 49<sup>th</sup> Meeting of APEC Expert Group on Energy Efficiency & Conservation (EGEEC 49)

## Minutes (Draft v1.0)

27<sup>th</sup> March to 31<sup>st</sup> March 2017

Lotte hotel, Jeju, Korea

The 49<sup>th</sup> Meeting of the APEC Expert Group on Energy Efficiency & Conservation (EGEE&C 49) and the 48<sup>th</sup> Meeting of the APEC Expert Group on New and Renewable Energy Technology (EGNRET 48) and Associated Meetings were held in Jeju, Republic of Korea on 27<sup>th</sup> to 31<sup>st</sup> March, 2017. A joint meeting of EGEE&C (Expert Group on Energy Efficiency and Conservation) and EGNRET (Expert Group on New and Renewable Energy Technology) were held on 28<sup>th</sup> March and 30<sup>th</sup> March, EGEEC meeting last 1.5 days in 29<sup>th</sup> and 30<sup>th</sup> March 2017. A site visit of renewable facilities was planned on the last day of the event, 31<sup>st</sup> March, 2017. In addition, three APEC project-related workshops will be held on 27<sup>th</sup> and 28<sup>th</sup> March, 2017 alongside the meeting, namely: (1) (EGNRET) APEC Workshop on Filling the Gap to Reach the Goal of Doubling Renewable Energy, (2) (EGEE&C) APERC Workshop for energy efficiency policy evaluation, (3) (EGEE&C) Workshop for energy efficiency standard of transformer.

In this minutes, I just briefly introduction of EGEEC 49<sup>th</sup> meeting, the contents of APEC workshops are not conclude. The presentation slides (EGEEC meeting and workshops) are available on the EGEEC public drop box, the website link is <https://box.lenovo.com/l/NJhjnJ>, the agenda and the name list of delegates who participate this meeting are attached as annex in the end this minutes.

### [Day One: EGEEC 49<sup>th</sup> and EGNERT 48<sup>th</sup> joint Meeting](#)

[28<sup>th</sup> March, 2017](#)

#### [Welcoming Remarks from KEA leader](#)

Kang Nam Hoon, the president of Korea energy agency, gave a warm welcome to the participants. He gave a shortly introduction of situation and policies of energy efficiency program in Republic of

Korea. Meantime, he gave examples to illustrate the importance of energy efficiency and renewable energy. At last, he expressed his good hope for the meeting and wished the meeting to get the successful in the field of energy efficiency and renewable energy in APEC region.

### **APEC update from APEC secretariat**

Ms. Penelope Howarth, Program Director at the APEC Secretariat, presented that the key APEC development through teleconference. She gave some good examples which directly related with EWG, such as APEC strategy for green and sustainable MSMEs, and framework for multiyear APEC program on food security and climate change. She stated that it is necessary to collaborate with other groups / projects or organizations to promote environmental sustainability and climate change. She mentioned the Concept Note in SCSC as well as the collaboration with EGEE&C. Next, she listed some key observations from completion reports, and some longer term project evaluation results. She explained the project approval process and what does the future will be hold about the approval process and implementation. Penelope Howarth claimed that the network should be establish before the appearance of project and build an APEC knowledge network program in the end.

### **APEC EGEE&C update**

The chair of EGEE&C, Dr. Li Pengcheng, gave a speech about update of APEC EGEE&C from last meeting. First, he briefly introduce the EGEE&C 48<sup>th</sup> meeting, then, the slide outlined the strategies of EGEE&C, that is progress and scenario analysis combine with gap assessment of APEC EEC work, which will lead to fulfill energy intensity reduction of APEC in 2035. APERC, CLASP, ICA are list in his presentation as EGEE&C partners, the chair explained the important of collaboration with those partners. Ongoing project of EWG and other fora were listed in the presentation and the relationship of all projects were explained with a diagram. He gave introduce about approved projects in 2016 session 2, and concept notes which will be submitted in session 2, 2017. Then, Chair show main issues of EGEE&C 49<sup>th</sup> meeting, and upcoming events after this meeting.

### **APEC EGNERT update**

Dr. Chung Hisen Chen, the chair from APEC EGNERT review the EGNERT 46<sup>th</sup> meeting and 47<sup>th</sup> meeting, he listed the major topics were discussed in this EGNERT 47<sup>th</sup> meeting, which include how to reach the goal of Doubling Renewable Energy in the APEC Region and the collaboration between EGNERT and FFFP. He update the APEC and EGNERT activities since the last meeting of EGNERT. At last, he summarized the requests of project management of EWG 52.

### **EGEDA update**

Edito Barcelona introduce the EGEDA briefly. The main content include background, current situation of APEC data, and its future. EGEDA is expert group on energy data and analysis, like other EG, it mainly support the energy activities of APEC, such as cooperate program to promote energy efficiency and low carbon energy and some research, especially analysis of energy supply and demand in APEC region. Dr. Edito stated current situation of EGEDA, and the next step work of EGEDA. He mentioned that EGEDA will review current data, and estimation of data for economy with incomplete data. At last, he indicated that EGEDA will continue to hold training course and encourage non-OECD member to collect end-use energy consumption data.

### **APERC update**

Mr. Martin Brown-Santirso presented that the APERC overall activates first, which include research activities, cooperative projects, training, and so on. He made a detailed illustration on cooperative projects. He showed that APEC recent achievements. APERC public APEC energy demand and supply outlook 6<sup>th</sup> edition, topical research in 2016. Next, Dr. Martin talked about ongoing activities and others. From his presentation, it show that 7<sup>th</sup> edition APEC energy demand and supply outlook is the main work of APERC, in the next edition of this book, the model will be change to revise and analysis current data. Some other activities of APERC were listed in his presentation.

### **ICA update**

Pierre Cazalles, come from International Cooper Association (ICA), gave a presentation. First, he introduced ICA background he gave a picture show how ICA to promote renewable energy and energy efficiency as a means to support the use of cooper. He stated that ICA was actively cooperate with APEC, at least 6 ongoing projects were co-sponsored by ICA. Next, Pierre introduce detailed the APEC-SHINE facility, which focus on this project objective, approach and technical scope, he also showed the submission and evaluation process.

## **Day Two: EGEEC 49<sup>th</sup> Meeting**

**29<sup>th</sup> March, 2017**

### **Session 1 APEC update**

## CLASP update on progress of QPL

Mr. Li Jiayang firstly introduced CLASP is an organization focused on improving the environmental and energy performance of appliances and equipment through providing free resources and tools for policy makers. And he gave a report on QPL program status. In the workshop which focus on the development of QPL, then he stated some facts of QPL. He said that QPL made easier trade and test, and almost similar but complementary to certification program, like DLC and ES, buyers looking for qualified products and sellers wishing to prove the quality of products would like to this certification. Dr. Li talked detailed plan for the QPL workshop. The workshop will be hold in September, 2017 in Santiago, Chile alongside ECPA ministerial, Government officials that oversee S&L and certification programs; S&L program managers; certification program managers; industry and industry association; technical experts will be participate this meeting, ECPA will be invited to participate. Serval speakers will be invited to give the presentation, the speaker mainly from APEC region, UL, DLC, ES which are existing QPL and related programs, will give speech on QPL implementation and related things. He imaged some positive outcomes from this workshop, the detailed as follow:

- Ensure that all APEC economies' representatives are aware of the latest developments in QPL programs and are able to decide on the best path forward;
- Provide enough information so that interested economies will be able to begin the process of either developing their own QPLs or begin to explore collaboration opportunities;
- The ultimate outcome of the workshop is to provide the APEC economies with enough information to decide first if a lighting QPL would be beneficial to their economy, and, if deemed beneficial, how to begin to implement a QPL program specific to their economy.

## Session 2 Project updates

### **EWG-15-2016A - APEC Nearly (Net) Zero Energy Building Roadmap Study Responding to COP21 (China)**

Mr. Zhang Shicong presented the main objective of the project is to exchange each economy's latest policy and national goals on NZEB; compare different but similar definition of NZEB; promote key findings and outcomes of the national research programs in each economy; push the future revision plan of building energy code towards NZEB; set up related associations and alliances with NZEB; share valuable experiences from the demonstration projects. This project based on two similar project before, this project made a great progress, the check date is 27th,

Mar. 2017, it had submitted final report to EWG and this report focus on net zero energy building definition and policy, and tried to find a technology roadmap to pilot projects among APEC economies. In this project, they collected comprehensive and systematic information on existing NZEB demonstration projects, and hold large scale investigation on existing and under build NZEB best practice. 9 APEC economies responded to survey and collected data. There are more than 100 best practices were investigated.

The project's output during the first phase was a publication on APEC-Net Zero Building Best Practices. And its output during the phase II was EWG-02-2015A-Best Practices Study. It aims at showcasing how tremendous energy savings could be achieved by integrated design, advanced technology utilization and NZE oriented management and commissioning in buildings; carried out in-depth comparative research with the detail information collected of best practices of NZEB pilot buildings among APEC economies.

Lastly, he introduced the 5th APEC NZEB program meeting, it will be hold in September, 2017. Dr. Li cordially invited everyone to participate this meeting.

#### **EWG-04-2014A – Technical Reference on Harmonization of Energy Efficiency Test Methods of Refrigerators toward the New IEC 62552 among APEC Region (China)**

Ms. An Min updated that this project launched on September 2014 and sponsored by China aims to identify commonalities and differences between the new IEC 62552 standard and energy efficiency testing standards for refrigerators currently used in APEC economies; determine pathways for the harmonization of energy efficiency testing methods of APEC economies and the new IEC 62552-3 for refrigerators; build capacities and awareness of APEC region's stakeholders and synergize their efforts related to the harmonization of testing standards for refrigerators. The project has completed establishing the technical working group and its target existing situation investigation; besides, laboratory testing on different energy efficient test methods using the new IEC 62552 has been conducted, the desktop research report had been published to be output. In addition, laboratory testing report on upright refrigerator, and freezer, upright frost free refrigerator freezer, chest freezer. This project pay more attention on test condition, measuring instruments to determine the method of energy test. The project hold dissemination workshop alongside the EGEEEC 47<sup>th</sup> meeting, positive feedback have been received from this workshop. Now the desktop research and laboratory test report had been published, all members can be download from the website of CSC.

### **CTI-17-2016A - Best Practices Sharing and Technical Capacity Building for Measurement and Verification Standards of Energy Savings (China)**

Proposed by China and co-sponsored by Indonesia, Viet Nam, Hong Kong. Mr. Li Pengcheng updated the project started from Oct. 1, 2016 to Sep. 30<sup>th</sup>, 2017. It aims to share best practices regarding the M&V standards based activities to increase the reliability of M&V of energy saving and improve the capacity to use international M&V standards to guide the M&V activities through exchange expertise between developed economies and developing economies, further, this project hope to enhance an understanding of importance of M&V for ensuring credible performance improvement through the public-private dialogue. This project collect best practices which based on the participating APEC economies' review of M&V market. workshop on best practices sharing and technical capacity building for measurement and verification standards of energy saving. From Oct. 2016, the project sought the final support for the project from APEC support fund account, co-sponsors and other interested participants, it has completed a questionnaire to investigate the M&V market, methodologies, standards, stakeholders etc. in APEC region. The questionnaire has been circulated to APEC among APEC EGEE&C. Besides, a draft agenda for the workshop had been determined after consulting with co-sponsor. The project will hold the workshop, and prepare the final report in the next year.

### **EWG-01-2016A - Gaps Assessment on APEC Energy Efficiency and Conservation Work toward Fulfilling the Leaders' Energy Intensity Reduction Goal (US)**

APEC leaders identified promotion of energy efficiency as a priority action in addressing energy security and reducing greenhouse gas emission. Energy smart communities initiative announced to support energy intensity goal from 2010, 19<sup>th</sup> APEC economic leaders meeting in Honolulu, United States in 2011, APEC leaders increase aspirational goal of energy intensity reduction of 45 percent by 2035. In 2016, leaders declaration that APEC objectives and goals must remain focus on improving the lives of our people. This project is the three-phase program to determine gaps in the program support by APEC EWG in energy efficiency and conservation. In phase I period, APEC sponsored projects 1993-2016 will be systematic analysis, the project reviewed existing best practices in ESCI and other sources and so on. In phase II and phase III, the project will hold individual survey and individual interviews. Project began by answering three basic questions, such as what are the desired program impacts, who is to produce those impacts, are conditions in place to allow the target actors to produce impacts. The logic model of program is shown in presentation. Currently, initial analysis were carried out.

### **EWG 08 2016A – Workshop to Develop Qualified Product Lists for High-Quality and High-Efficiency Commercial, Industrial, and Outdoor Lighting Products and Control Systems in the APEC Region**

In this project, adjustments were made to the timing of the workshop. project had initially planned to deliver the workshop in Peru during the October 2016 EGEE&C meeting. We were unable to develop the agenda in time for this meeting and have decided to find another opportunity to host the workshop, either on the side of an upcoming EGEE&C or another meeting to take advantage of relevant APEC member participants.

U.S. DOE is utilizing funding allocated for implementation of the Super-efficient Equipment and Appliance Deployment initiative to scope this project through the SEAD operating agent – CLASP. We are also reaching out to UL laboratories for help in developing the agenda and the EGEE&C representatives to identify appropriate timing and venue.

### **EWG 05 2014A – Review of the Design and Effectiveness of Vehicle Fuel Efficiency Labelling and Consumer Information Schemes (New Zealand)**

Transport accounts for large share of energy use and GHG emissions in APEC economies, it has significant potential to reduce energy intensity and emissions. This project aims to improve fuel efficiency of vehicles to realize the potential. Desk research on VFEL literature and regulations is the basic research approach, the survey of VEFL experts in the different economies and expert workshop will be hold in this project. Project report and best practice guide to assist practitioners in the development and review of VFEL schemes and promote alignment with other schemes in the region as the key output. After the project started, the project identified 16 best practice components. It designed a program that covers all new and used light duty vehicles with all fuel types, and made information for alternative fuel vehicles comparable vehicles, established a user friendly VFEL website providing additional services beyond the fixed information on label. A review and evaluation of vehicle fuel efficiency labelling and consumer information program had been published, it had been available on the EWG website. At working group level, the project suggest that EWG should promote the establishment of a network of practitioners to enable ongoing information on VFEL program, the regional coordination should be promote, test procedures, methods to align results from different test cycles, test data should be share with member of APEC EGEEC.

### **EWG-19-2016A - APEC Workshop on Promoting the Development of an Evaluation Community (US)**

Two days' workshop in Oct. 30<sup>th</sup>-31<sup>st</sup> 2017 brings together policy makers and evaluation practitioners to highlight the value of program and policy evaluation, discuss and exchange experiences, current strategies, policies, protocols and regulations for designing and implementing program and policy evaluations and discuss the development of an evaluation community to expand the benefits of the initial workshop and sustain it over time. Expert presentations on best practices and case studies with workshop sessions and discussion groups. Currently, the project contract signed with IEPPEC to assist project and organize workshop and committee, this workshop will be hold in Oct. 30-31, 2017, Bangkok. The questionnaire of evaluation started in Feb. 2017. The survey had been sent to experts in APEC member economies, as well as EGEE&C and EWG members, all information will be used in preparing a white paper on evaluation in APEC region, focusing on developing countries in Asia. The workshop agenda of this project is presented in this meeting. In March, APERC will hold evaluation workshop, ACEF evaluation workshop will be hold in June, still have two workshops will be hold in Bangkok, which is APEC evaluation workshop and IEPPEC APEC workshop.

#### **EWG-04-2015A - Enhancing Regional Conformity Assessment to Ensure Successful ISO 50001 Standard Outcomes (US)**

The U.S. DOE is leading a project to develop a series of regional workshops in APEC member economies, particularly from developing economies. Those projects focus on building regional capacity to ensure successful implementation of the ISO 50001 standard through improved conformity assessment, and the projects hope to build on EMWG work on the energy professional international ISO50001 lead auditor, and UNIDO is a key partner through its ISO 50001 work in several APEC economy. This project aim to enhance regional conformity assessment to ensure successful ISO 50001 standard outcomes. Outline regional approaches to build consistent ISO 50001 auditor personnel certification programs, Create successful stakeholder consultations to design domestic actions plans based on the APEC regional approach will be carried out, all results will support implementation of those domestic action plans resulting in the establishment of personnel certification credentialing programs. Government reps leading domestic energy efficiency efforts, domestic standards authorities and private sector end users are the target audiences. Each audience make unique contributions to the success in both initiating a workforce program and sustaining long-term impact. This project will enable APEC economies to accomplish the following:

- Develop new, robust training and personnel certification programs that support ISO 50001 conformity assessments.



- Stimulate greater interaction and collaboration among critical domestic actors (the workshop training audiences) to ensure long-term viability of the workforce programs.
- Broaden career opportunities by developing ISO 50001 auditors that have skills and expertise that is consistent with the latest international best practices.
- Increase the number of qualified ISO 50001 auditors in the market.
- Increase uptake of ISO 50001 certification, resulting in a continual reduction of energy intensity and improvement of energy performance in APEC economies

## Session 2 Economy updates

EGEEEC Chair, Dr. Li Pengcheng, listed three topics first. APEC economy members of EGEEEC clarified those topics in their economy update presentation. The topics as follow,

- Energy efficiency/energy intensity reduction goal in your economy before 2035
- Key policy/programs in your economy to achieve this goal
- Key areas for APEC collaboration to improve energy efficiency/reduce energy intensity

All delegators discussed in this session and got the clear target of their economies.

### China

China introduced the update of energy efficiency standard, showing that in 2015 there are 7 new EES and 7 revised EES. And new edition Administration Regulation of Energy Efficiency Label has been announced in Feb 29th, 2016 by National Development and Reform of Commission and General Administration of Quality Supervision, Inspection and Quarantine of the PRC. Until the end 2015, 33 categories products, more than 10,000 manufacturers, over 890,000 models are registered in China. China also introduced research project on energy efficiency, including “top runner” policy published at the end of 2014, water efficiency label regulation still in research and “China Green Product” standard and labeling in rapid development.

### HongKong, China

HongKong, China introduced energy efficiency and conservation related policies. That is energy saving plan 2015-2025+. To help Hong Kong achieve the new target to reduce energy intensity, government of Hong Kong conduct periodic reviews to expand and tighten energy related standards, at the same period, Hong Kong published climate action plan 2030+, this represents the foundation from which plan energy saving work. Dr. Sun gave the example of

implementation in building and products, he show the mapping chart to illustrate the technical guidance of buildings energy efficiency, and building energy code. The first batch of energy building programs started in Sep. 2014, and new building energy code gazette on 11 Dec. 2015. During this year, they draft BEC and technical taskforce. Besides, Hong Kong promote energy saving products actively, they encourage to use more energy efficiency products, the voluntary energy efficiency labelling scheme started from 1995, which aimed to promote energy saving by informing potential customers of products' energy performance level, and encourage product supplier to make available more energy efficiency products to meet customers' needs. Only this project implementation, Hongkong estimated annual energy saving to 150 million kWh and reduction in CO2 emissions to 105000 tonnes. In addition, Hong Kong government drives some programs on EE&C, such as education path and school outreach programme, youth energy saving award, and so on. those ongoing EE&C program will help saving more energy and reduction of CO2 emission.

### Indonesia

Indonesia updated the progress of energy efficiency policy measures including energy efficiency standards, labeling program, building energy saving program. Indonesia show the data and information of energy conservation program, which published in 2016. This book contained all information of Indonesia energy efficiency improvement and progress. From the energy management started, Indonesia government draw many mandatory, voluntary policies, regulations, standards, which all of them had promote energy efficiency and conservation of Indonesia. Based on that, government got great achievement in this area.

### Japan

Japan presented that Japan's Energy efficiency and conservation framework policy, before that, Dr. Naoko show the international comparison of total primary energy consumption per GDP, the graphic show that energy consumption per GDP of Japan is decreasing yearly. All of the good results owns to Japan energy efficiency and conservation policy framework, which contained regulation level and economic incentives and covered industry, commercial residential and transport areas. In addition, Japan illustrated the factors affecting the successful implementation of key EE policies, like energy management system, benchmark system, voluntary action plan, and top runner program. Japan also clarified challenges and changing market environment for Japan's energy efficiency. Currently, Japan faces challenges to continuously make progress on energy efficiency building on the conventional

approach. In April 2017, Japan will introduce GAS retail completion to change the patter of consumers' energy consumption. Based on that, Japan show the energy supply/demand structure toward CO2 emission reduction target in 2030.

### Korea

Korea introduced long-term energy efficiency target, from the chart, it show that Koera has low potential of energy saving due to energy intensive industrial structure, Dr. Hwang thought it need stronger measures for transition into low energy economy. He stated that final energy consumption will be reduced 13% by 2035. Korea shared ESP, energy saving through partnership, this program established a network among energy-intensive companies (consumers of more than 20,000 toe/yr) in the same industry to share energy saving technologies & know-how and spread best practices, resulting in greater energy savings in the industry, ESP workshop was held annually for awards and exchange of information among different industries and learning about new technologies. Besides, Energy GHG Technology Information Platform Service was established by Korea government, which is a energy saving knowledge portal launched in Feb. 2015. This platform share ESP cases and more energy saving program to public on website.

### New Zealand

New Zealand introduced the Energy Efficiency and Conservation Authority (EECA) focuses on the industrial, transport, and residential sectors to advance energy efficiency and renewable energy, as these sectors account for the highest energy consumption rates. Initiatives to increase alternative fuel within the transport sector are also being implemented, alongside improving business productivity while decreasing carbon dioxide (CO2) emissions within the business sector.

### Philippines

Philippine updated the progress of energy efficiency policies. In Philippine, the policies had been divided to 3 terms based on their different energy efficiency target. In short term, which was ended in 2019, the target of energy efficiency was to developed business tool kit for the ESCOS, to collaborated with stakeholders for expanded financing models for EE&C projects, so Philippine government made cross sectoral policies, which like market demand scooping ,

advocate passage of EE&C bill and so on. In the medium term, the government will made different policies to strength the energy efficiency program and achievements of those programs. In the long term, which started at 2023, ended in 2040, sustain development of energy efficiency is more important for Philippine, they also made a corresponding policies.to fulfill the target of this time range. Then, Philippine illustrated the initiatives of policies.

## Russia

Russian delegate gave the presentation which topic is Russian state policy on energy efficiency, it focused on the policy goals, priorities and results of Russian energy efficiency. Firstly, Russia showed the energy intensity of Russia economy by graphic Russian energy intensity is twice higher than other largest world economies. Besides, examples of current target by countries were shown in the presentation, all of them urge Russian to promote energy efficiency and reduce the energy intensity of GDP, and reduce the energy consumption. Then, Ms. Yudina pointed out the key directions of Russian state policy on energy efficiency, management system, technological regulation, financial incentives and supporting mechanisms were considered to be the key directions to reduce Russia energy intensity of GDP. By those policies, compere to 2010, Russia had already got great promotion on reduction of energy intensity in key industries. To achieve the target, Russia will try their best on sectors with great potential of energy saving, such as implementing energy efficiency street lighting, hybrid power system using for remote location and so on. in 2016, Russia government had finished the first stage of energy audit reform, and reformed energy management at all levels continuously, sustainable cities development meeting of mayors was holding in 2016, renewable energy was introduced for underpopulated place.

In the presentation part II, Ms. Olga introduced the program, which name is “bridging gap in economic development and integration of remote areas for sustainable growth in APEC region”. This program launched by APEC, mainly sharing experience and best practice with APEC member, the initiative was supported by China, Indonesia, japan, Philippine and Thailand.

## Singapore

Singapore updated the progress of energy efficiency programs. First, the background on energy efficiency programs in industrial, building, transport and household were introduced. Singapore targets to reduce its emission intensity by 36% from 2005 levels by 2030 and stabilize emissions to peak around 2030 in Singapore’s GHG emissions & mitigation plan, a

intuitive graphic clearly showed Singapore's approach to mitigation. Obviously, industrial energy efficiency was very important, so the presenter talked about industrial energy efficiency programs followed. First, barriers were listed the policies which solved those barriers were listed too, corresponding energy efficiency programs were shown in the presentation. From the presentation, Singapore got great achievement from 2012 which ECA implemented. Singapore still had design for efficiency scheme (DfE), energy efficiency improvement assistance scheme (EASe), grant for energy efficient technologies (GREET), investment allowance scheme (IA) and many programs to develop and promote energy efficiency of industry. Singapore had many programs in building energy efficiency, transport energy efficiency, household energy efficiency area. Even those programs were different in different areas, all the programs were promote the energy efficiency of Singapore. More detail information were available on the website:

<https://www.mypower.com.sg/Services/Interactive%20Bill.html>.

### Chinese Taipei

Chinese Taipei introduced policy tools of energy efficiency management in Chinese Taipei, which contained mandatory and voluntary programs. The minimum energy performance standards and ranking labeling, energy audit were mandatory programs, the energy conservation labeling is one of voluntary programs. Then, Chinese Taipei updated current status of mandatory and voluntary programs of energy efficiency management. Chinese Taipei shared some information about self-ballasted LED bulbs, like how mandatory management programs are applied in self-ballasted bulbs. Then, through analyzing performance testing, like efficacy, energy used, brightness, color temperature from 2012 to 2015, it is concluded that the effects of standards and labels are complementary and Energy Conservation Label needs to be revised. Chinese Taipei still presented more mandatory energy efficiency programs which had already implemented, such as non-conducted air conditioners, water dispensers, and introduced some MEPs which will be implemented.

### Thailand

Thailand introduced current energy situation and Energy Efficiency Plan (EEP) in Thailand, and focused on the programs of replacing equipment in government hospitals and housing development award. As for government hospital equipment replace program, Thailand introduced this program subsidy and fund sources. In the phase 1 of this program, there had 71 hospitals in Thailand got approval in 2016 from 138 applied hospitals, totally investment up

to 28.7 million dollar, saving the energy 97GWh. To promote energy efficient housing designs for housing developers and consumers, Thailand hold the housing development award, roof thermal transfer value and ratio of utilization of high-efficiency lighting are the mandatory criteria, in addition, the consideration criteria are considered by housing development award, that are environmental, architectural, engineering. At least 30% of all houses must pass the mandatory criteria dictated for houses, the consideration criteria totally is 100 points, the project management account for 50%, environment management account for 40%, and location just account for 10%, those criteria shown that Thailand government place high premium on environment and project itself.

## U.S.

US updated projects related carbon dioxide emission decline. US introduced the background of all carbon dioxide emission decline projects firstly by graph with the annual energy outlook cases data. By this graphic, it shown that amount of carbon dioxide emission will higher than almost 1 billion metric ton without clean power plan maximum. 7 cross-cutting clean energy projects over 2016-2017 were listed in the presentation, US briefly introduced their start time and funds information, target information and so on. At last, the renewable portfolio standard were introduced. Maryland increased the renewables generation target in its renewable portfolio standard (RPS) to 25% of retail electricity sales by 2020, replacing the earlier target of 20% by 2022. The change occurred as legislators in both houses of the state's General Assembly voted to override the governor's veto of legislation they had first passed in 2016. In the presentation, the graphic show the clear difference between new target and old target

### Day Two: EGEEC 49<sup>th</sup> Meeting

30<sup>th</sup> March, 2017

This part of meeting was mainly discussion among the member of economy of APEC EGEEC. The topics were list as follow,

- Energy efficiency/energy intensity reduction goal in your economy before 2035
- Important policy/program in your economy to achieve this goal

- Key areas for APEC collaboration to improve energy efficiency/reduce energy intensity
- Risks to achieve goals

Then all delegator discussed the concept note of 2017 session 2, reviewed term of reference (ToR).

## **Session 1 Economy updates continued**

EGEEEC chair, Dr. Li Pengcheng, had conducted the meeting. All delegator reviewed the correspondent energy efficiency / energy intensity reduction goal at the country level before 2035. During the meeting, 14 economies review the goals of energy efficiency or energy intensity. Details information was recorded in the presentation. Important information which was listed as follow,

- China: 60%-65% GHG intensity reduction by 2035 [40%-45% reduction by 2020 (43% energy intensity reduction)]
- Japan: 35% reduction in by 2030
- Hongkong, China: energy intensity reduction by 40 % by 2025, using 2005 as the base; absolute carbon emission reduction 26% to 36% by 2030, using 2005 as base year
- Korea: final energy savings 13% reduction and energy intensity 30% by 2035 emission intensity reduction of GDP by 2030, compared to 2005
- Mexico: 1.9% per year before 2035.
- Malaysia: 40% by 2020 and 45% GHG 16-2030 (final energy intensity)
- New Zealand: emissions target to reduce emissions to 30% below 2005 levels by 2030
- Philippines: 40% Intensity reduction by 2035 in reference to 2005 base year
- Singapore: 36% reduction of emission intensity by 2030 compared to 2005 level
- Chinese Taipei: 20% renewable energy 2025, 2% energy efficiency improvement annually, 2025
- Thailand: Energy intensity reduction 2015 by 30% with in 2036 base year 2010
- USA: no economy-wide goal
- Indonesia: reduction of energy intensity 1% per year up to 2025, 17% reduction of energy consumption to 2025 [15%-20% energy saving potential by sectors]
- Russia: 40% energy intensity reduction by 2020 compare to 2007

To fulfill the goals of energy efficiency or energy intensity, delegator listed as many as 34 important policy / programs in corresponding economies. For example, benchmark system was mentioned by Russian, standard and label was mentioned by Japan.

The APEC collaboration on improve energy efficiency and reduce energy intensity

At last, all delegator summed up the key areas for APEC collaboration by discussion, it could be divided into 4 categories, such as capacity building, harmonization, knowledge/best practices sharing and initiative.

## **Session 2 New Project Proposals**

Before EGEEC 49<sup>th</sup> meeting, the EGEEC secretariat received 3 concept notes, which each from Chile, China, and Japan.

- Chile: Electromobility: Infrastructure and Workforce Development
- China: Policy implications of promoting networked and demand response-enabling household devices in the APEC region
- Japan: APEC Peer Review on Energy Efficiency (PREE) Phase 7 (Follow-up PREE)

Detail information enclosed into the concept note appendix, and these were available in the public drop box.

All delegator agree to endorse those three concept note to APEC EWG.

## **Session 3 term of reference discussion**

APEC expert group on energy efficiency and conservation (EGEE&C) terms of reference was revised by all delegator during the meeting. Two economies sent the comments on ToR before this meeting. In this discussion session, revised ToR had been discussion again, delegator gave more comments, the secretariat revised on the spot. Finally, the latest revised version of ToR were agreed by all delegator which participate EGEEC 49<sup>th</sup> meeting. This version of ToR was not the determined version, the secretary will circulate to member of EGEEC to collect comments and suggestions. It will be determined without any comments and suggestions after 30<sup>th</sup> April, and submitted to EWG.



## Session 4 joint meeting and governance issue

EGEEC and EGNERT hold the 2<sup>nd</sup> joint meeting, during the meeting, two expert group secretary gave the presentation on EGEEC 49<sup>th</sup> meeting outcomes and EGNERT 48<sup>th</sup> meeting outcomes briefly. Both of them pointed out that cooperation with each other was very important, only cooperate each other, the energy intensity reduction target and renewable energy promotion purpose will be fulfilled. The experts who participated meeting expressed their opinions about how to cooperate with two group, and imaged the brilliant future of energy efficiency and renewable energy in APEC region.

## Summary Session

The host expressed his gratitude to the APEC member economy delegates and affiliate organizations for their active participation during the meeting and hopes that each one learned a lot from the discussions. Most participants affirmed the EGEEC and APEC goals and hoped that they could significantly contribute to reducing the energy intensity in the APEC region with their Energy Efficiency Roadmap. Mr. Li Pengcheng emphasized that the initiatives that have been completed should be further studied and replicated among APEC member economies. He also acknowledged the hard work and cooperation of other government agencies and institutions that have contributed to the success of this meeting. Mr. Li, likewise, thanked the delegates and the hosts from the Korea and KEA for their hard work, hospitality treatment and making the EGEEC 49<sup>th</sup> a successful event.