42nd Meeting of the APEC Expert Group on Energy Efficiency & Conservation (EGEE&C 42)

Draft meeting summary

11-12 November 2013Queen Sirikit National Convention Centre, Bangkok, Thailand

### Day 1

### Session 1:

The meeting started with a welcome address from Mr. Twarath Sutabutr, Deputy Director General of the Department of Alternative Energy, Development and Efficiency Thailand, the host of our meeting.

After welcoming everyone to Bangkok and wishing a fruitful meeting, Mr Twarath thanked the EGEEC secretariat for the organization and coordination efforts. Our host highlighted that the topics of discussion are not only interesting but also timely as economies struggle to improve their energy supply and reduce the cost of energy. Further, as recently seen by the ravaging of the Philippines by super typhoon Haiyan, climate change has to be a primary driver for the work done by this group.

Another reason for hosting EGEEC 42 at this time and place is to co-locate with the ECO-Lighting expo which is of relevance to the group and to economies in APEC.

Finally Mr. Twarath wished a productive week and to enjoy Thailand.

### **Opening Remarks, progress from last meeting, and adoption of agenda (Mr Terry Collins Chair)**

The Chair thanked the meeting hosts and remarked about the great event facilities provided. The Chair briefly expressed his agreement with Mr Twarath about the importance of the work carried out by the EGEE&C.

Before adopting the agenda, the Chair added an extra item reporting back on the Net Zero Energy Buildings workshop recently hosted in China.

Mr. Collins indicated on work of the meeting is important as a formal reporting opportunity, but also the relationship building that happens around the event is key to advancing APEC economies objectives and achieving the EGEE&C’s outcomes.

### Session 2: Host Economy Presentation

The first session was a presentation by our hosts on Thailand’s energy supply, consumption, and key government energy efficiency policies. The following are some of the key highlights of the presentation, for more details refer to the power point:

Outline of Thailand energy supply:

* Total consumption is 73,316 ktoe or 3,070 PJ and is increasing rapidly. Of this 54% is imported to a cost of US$48 billion.
* Petroleum accounts for 48% of demand, only 17% of energy demand is renewable
* Industry and transport are the largest energy consuming sectors with 37% and 36% respectively. Household represent 15% of energy demand.

Thailand has 5 key energy policies to improve their energy future:

1. Secure energy resources
2. Set renewable energy and national agenda
3. Encouraging energy conservation
4. Ensure fair prices of energy
5. Preserve the environment coupled with energy development and consumption

Under the energy conservation policy, Thailand is implementing the Energy Efficiency Development Plan which aims to reduce energy intensity by 25% compared to 2010 and cut 38,200 ktoe (1,599PJ) of energy demand by 203 compared to BAU. The plan will also deliver 130 million tons of CO2 emissions reduction.

The initiatives implemented under this plan have already started to provide saving with the energy intensity decreasing by 10% from 2005.

To support energy efficiency the Thai government has developed the necessary tools to carry out action: a mandate and power to act embodied in law, funding sourced from a levy on petroleum products, and a long term plan to direct the efforts to achieve the targets.

**Questions:**

Mr. Cary Bloyd from the US highlighted the importance of sharing experiences and believes that Thailand’s policies and policies are an excellent example for others to follow. *What are the key barriers faced for this policy and how does the Thai government ensures that the funds collected through the levy are targeted to EE and not appropriated for other purposes?*

Answer – During the development work the key has been to convince people to become interested in EE, to convince people to change behavior. For example tourists come to

Thai and pay for goods and services but they feel entitled to more rather than think efficiently.

Another barrier is to convince consumers (companies, CEO, CFO) to invest in EE. Often, when companies make a profit, they splash out on luxury items rather than investing. Finally, it is also a challenge to convince companies to be innovative in technology.

A key success mentioned was to float the prices of energy so that facing its full cost will also work as an incentive to be more energy efficient.

### Session 3:

***Energy Smart Communities Initiative (ESCI) and APEC Smart Grid Initiative (ASGI) Updates (Dr. Cary Bloyd).***

***ESCI***

ESCI supports APEC Leaders’ goal to reduce energy intensity by 45% (on average across APEC economies) by 2030. It comprises four main pillars (Smart Transport, Smart Buildings, Smart Grid, and Smart Jobs & Consumers) and two cross-cutting initiatives (Knowledge Sharing Platform (KSP) and Low Carbon Model Town (LCMT)).

Each of the main pillars groups a range of activities and participating economies

Smart Transportation:

* Energy-Efficient Urban Transport Network
	+ CEEDS: Phase 3: Energy Efficient Transport for Smart Communities
* Energy-Efficient Freight Transport Network
* Electro-mobility Survey and Road Map

Smart Buildings

* Low Energy Buildings Network
	+ EWG 14/2011T Energy Performance Evaluation Methodology Development and Promotion in APEC Economies (China)
	+ EWG 12 2012A – APEC-ASEAN Harmonization of Energy Efficiency Standards for Air Conditioners: Phase 1 (Japan)
	+ EWG 14 2012A – Workshop to support the development of national lighting design centers in the APEC (US)
* Materials Testing and Rating Centers
	+ APEC Efficient Building Envelope Stakeholders Meeting and Workshop (US, Thailand)
* Cool Roof Demonstrations
* Low Energy Window Demonstrations
	+ Energy Saving Window Thermal Performance Simulation Training (Thailand)

Smart Grids

* Interoperability Survey and Road Map
	+ See ASGI Interoperability activities
* Smart Grid Test Bed Network
	+ U.S. sponsored APEC-ISGAN Smart Grid Test Bed Network Workshop January 24-25, 2012 in Washington, DC
	+ See additional ASGI smart grid test bed activities

Smart Jobs and Consumers

* Energy Efficiency Training Curricula
* Energy Efficiency School Curricula
* Sister Schools Program

The KSP shares information on activities occurring under each of the four key pillars. A website is now operational at <http://esci-ksp.org/>.

The LCMT initiative integrates best practices in energy efficiency and renewable energy in communities. The latest entrant to LCMT is San Borja in Peru. Current LCMT projects:

* The Comprehensive Analysis and Research of Key Technologies and Commercial Model of Low Carbon Model Town Applied in **Yujiapu** CBD EWG (EWG 11/2012A) (China) EGNRET
* Research on the Application of Physical Energy Storage Technology to Enhance the Deployment of Renewable Energy in an APEC Low Carbon Town (EWG 16 2012A) (China) EGNRET

More information on ESCI is available at: <http://www.ewg.apec.org/esci.html>.

***ASGI***

The Fukui Declaration from the Ninth Energy Ministers Meeting (EMM-9), June 2010, states that “**smart grid technologies**, including advanced battery technologies for highly-efficient and cost-effective energy storage, can help to integrate intermittent renewable power sources and building control systems that let businesses and consumers use energy more efficiently, and they can also help to enhance the reliability of electricity supply, extend the useful life of power system components, and reduce system operating costs.”

EMM-9 instructed the Energy Working Group (EWG) “to start an **APEC Smart Grid Initiative (ASGI)** to evaluate the potential of smart grids to support the integration of intermittent renewable energies and energy management approaches in buildings and industry.”

ASGI has four key elements and there are activities under each of these:

Survey of Smart Grid Status and Potential:

* A recently completed report “Using Smart Grids to Enhance Use of Energy-Efficiency and Renewable- Energy Technologies” (EWG 01/2009S), evaluated the potential of smart grid technologies in APEC economies to enhance the use of renewable energy and energy efficient buildings, appliances and equipment
* A related project, “Addressing Grid-interconnection Issues to Maximize the Utilization of New and Renewable Energy Resources” (EWG 02/2009) was led by Japan and completed in late 2010
* Two new projects have been approved for 2012 and 2013:
	+ Piloting smart/micro grid projects for insular and remote localities in APEC economies implemented by Russia
	+ Small Hydro and Renewables Grid Integration Workshop implemented by Vietnam

Smart Grid Roadmap

* Organize workshops to elaborate a roadmap for advancing smart grid technologies in APEC
* Due to the wide range of electric grids in place, APEC members can work together to learn from others and develop suggested procedures that will be useful in developing economy specific road maps
* The roadmap process would be developed in coordination with the International Smart Grid Action Network (ISGAN)
* The roadmap process also supports the APEC Leaders endorsed Energy Smart Communities Initiative
* Projects implemented in 2011:
	+ “Addressing Challenges of Advanced Metering Infrastructure (AMI) Deployment in APEC” was implemented August 24-25, 2011 by Chinese Taipei alongside the Expert Group on New and Renewable Energy Technologies meeting (EGNRET-37)
	+ “APEC Workshop on Energy and Green Transport Benefits of Electric Vehicles” was implemented jointly China and Hong Kong, China on October 24-25, 2011
	+ Workshop on “Smart Appliance’ Standards for Air Conditioners and other Appliances” implemented November 10-11, 2011 by Australia alongside the Expert Group on Energy Efficiency & Conservation meeting (EGEE&C-38)
* Seven project approved for 2012 and 2013
	+ “Stock-take of electric vehicle interface with electricity and smart grids across APEC economies and the potential for harmonization” implemented by New Zealand. Workshop was held alongside EGNRET 38 in June 2012
	+ “Promotion of Energy Efficiency and Renewable Energy in Low Carbon Model Town of APEC through Distributed Energy Source – Identification of Potential, Challenges and Solutions” implemented by China
	+ Study of Demand Response’s Effect in Accommodating Renewable Energy Penetration in the Smart Grid implemented by China
	+ Combined heat and power (CHP) technologies for distributed energy systems implemented by Russia
	+ Urban Development Smart Grid Roadmap: Christchurch Recovery Project (EWG 08 2012) (Cooperated with EGEE&C) (New Zealand)
	+ Operation Technology of Solar Photovoltaic Power Station Roof and Policy Framework (China)
	+ Promoting Stable and Consistent Renewable Energy Supply by Utilizing Suitable Energy Storage Systems (China)
* Two new projects have been approve for implementation in 2013 and 2014
	+ APEC Photovoltaic Application Roadmap and Model Study (PVARM) (China)
	+ APEC Photovoltaic Communication and Cooperation Platform (PVCCP) (China)

Smart Grid Test Beds

* Jeju Island, Korea
	+ Begin in 2009 with the goal of becoming the world’s largest smart grid community that allows the testing of advanced technologies
	+ Expected investment of US$ 50 million public funds matched by US$150 million private investment from 2009-2013
* Smart Grid Test Beds Activities: Distributed Energies Technology Laboratory (DETL) at Sandia National Laboratories
* One new project approved for implementation in 2013:
	+ APEC Smart DC Community Power Opportunity Assessment, proposed by Thailand

Development of Smart Grid Interoperability Standards:

* Discuss interoperability standards for Smart Grid technologies under the APEC Regulatory Cooperation Advancement Mechanism on Trade-Related Standards and Technical Regulations (ARCAM) in 2011
* Based on the discussions, consider follow-up steps to develop interoperability standards across the APEC region and globally through ISGAN

***APEC Subcommittee on Standards and Conformance (SCSC)* [[1]](#footnote-1) (Dr. Cary Bloyd)**

Due to the nature of the SCSC group there is activity in a number of areas. Of key relevance to this meeting is their contribution to the ESCI work program on interoperability and a multi-year project on standards and conformity assessment to enhance commercial building performance. The project will consist of a study on the use of building codes and green codes in the APEC region and a number of workshops, and an assessment of metrics in 2015.

Dr. Bloyd’s presentation concentrated on the Multiyear Green Building Project. So far this project has had two workshops:

* Workshop 1: Sharing Experiences in the Design and Implementation of Green Building Codes (March 2013, Peru):
	+ A joint APEC – ASEAN workshop , developed and implemented in collaborative partnership with Peru
	+ Informed by:
		- **Peru survey** - “Sharing Experiences in the Design and Implementation of Green Building Codes in the APEC Economies” ***Status: complete***
		- **U.S. study** – “Building Codes and Green Codes in the APEC Economies” ***Status: complete, published August 2013***
	+ Sharing of information, experiences, and best practices among APEC and ASEAN economies
* Workshop 2: How Building Information Modeling (BIM) Standards Can Improve Building Performance June 2013 in Indonesia:
	+ Joint APEC-ASEAN event
	+ Current status of BIM standards development
	+ Benefits of BIM to policymakers, architects and designers, construction industry actors, building owners, and others
	+ Case study success stories showing the practical implementation of BIM projects
	+ Concrete steps that can be taken by economies to increase BIM usage toward improving building performance

For more details on the project please refer to the presentation from the meeting.

Additional SCSC Project Activity:

* Ongoing Projects
	+ Energy Efficiency of ICT Products (Seoul, July 2012)
	+ Lab Capacity (various, July 2012)
	+ Product Safety Incidents Information Sharing System (Malaysia, various 2012)
	+ Wine Regulators Forum (Auckland, November 2012)
	+ Equivalency of Technical Regulations (Moscow, December 2012)
	+ Supply Chain Visibility Survey
* Upcoming Projects
	+ MYP Green Buildings (Workshops, Survey)
	+ MYP Food Safety (FSCF, PTIN, Workshops)
	+ 7th Good Regulatory Practices (GRP) Conference (to be held in Indonesia in 2013)
	+ GRP Conformity Assessment Study
	+ Standards Infrastructure (Korea)
	+ Mutual Laboratory Accreditation (MLA) 17065
	+ Standards Education

Question and comments:

Dr.Prasert from Thailand was interested in SCSC update. Dr Prasert enquired if there was an official communication process between EGEE&C (or EWG) and SCSC, or if there is not, he suggested establishing one.

Answer: Some of the members are linked into some SCSC activities, but there is potential to improve this communication by linking EGEEC into the mailing lists of SCSC and then to forward communications to group.

**ACTION POINT for secretariat is to establish a link with SCSC and forward to EGEE&C list relevant SCSC communications**.

A question from Thailand requested more information about the building simulation work in one of the project mentioned by Dr Bloyd. Specifically the type of information and standards fed into the simulations.

**SECRETARIAT to follow up offline and provide information at a later date.**

China suggested that there should be a formal relationship with the SCSC because there is a significant overlap with EGEE&C work. A joint meeting of SCSC and EGEEC has been suggested. Dr. Bloyd indicated that there has been joint work in the past and SCSC.

The secretariat will identify opportunities to interact with SCSC when possible.

**APERC Update on the future of the Cooperative Energy Efficiency Design for Sustainability (CEEDS) and Peer Review on Energy Efficiency (PREE) (Mr. Kazumoto Irie)**

Mr. Irie provided an overview of APERC’s cooperative activities. These activities mainly involve expert peer reviews and capacity building workshops. The Peer Review on Energy Efficiency (PREE) initiative and the Cooperative Energy Efficiency Design for Sustainability (CEEDS) program are the key examples of cooperative activities.

The CEEDS initiative aims to promote high performance energy efficiency policy measures by assisting developing economies with the design of policy and measures in specified sectors. Some of the key activities include the analysis of energy saving potential and the provision of workshops to provide expertise on implementation of EE policy measures.

The PREE gathers experts (largely from the APEC region) to visit a host economy to review its energy situation and policies, and develop a set of recommendations along a number of categories to improve energy efficiency.

However, Mr Irie indicated that APERC is increasingly asked to carry out more activities increasing the works load but with a limited amount of resources. As such APERC has suggested rationalizing these two programs and change in the format to reduce the overall load.

The suggestion is that starting from 2014 APERC decrease from two PREE events (one PREE and one follow up PREE) to a single PREE per year. Similarly CEEDS currently has two yearly events which are complex to organize due to the number of experts and topics being discussed. Furthermore not many economies are able to attend two yearly workshops on top of the other international commitments. The proposal for CEEDS is for the initiative to be folded into PREE and organize a single workshop called “PREE Policy Workshop” that is open to all economies and the topic is to be chosen from issues highlighted in previous PREEs.

APERC has also suggested aligning the hosting of the PREE policy workshop with meetings of the EGEE&C group to derive mutual benefits.

Chair comment – Indicated that he is of the opinion that PREE and CEEDS were always good candidates for integration.

And EGEEC supports the presented notion in principle though further discussion is needed around the details.

### Session 4: Updates on EGEE&C projects

***Projects under consideration (Session 3, 2013)***

Nil

***Projects in Progress / Recently Completed***

***EWG12 2012A*** *– APEC-ASEAN Harmonization of Energy Efficiency Standards for Air Conditioners: Phase 1 (Japan)(Updated by Mr. Naoko Doi from IEEJ))*

Mr. Cazelles from the International Copper Association provided an overview of the program that involves several phases and will last for 4 years. The project in now working to establish technical and policy working groups to lead the work and provide recommendations to harmonize standards at ASEAN level.

The objectives of the project are:

1. Form the technical working group who will lead the work on harmonization of standards for testing methods.
2. Make recommendations to the ASEAN EE&C SSN on harmonization of standards for testing methods.
3. Make recommendations to APEC EGEEC on ways forward for the harmonization of standards for testing methods across APEC economies.

Key deliverables for phase 1:

* Preparation of recommendations for an ASEAN harmonized standard for testing methods
* Preparation of recommendations on the way forward for an APEC-wide harmonization of standards for testing methods for air conditioners

Key Findings:

* The results of the analysis show that about **80%** of the relevant clauses in the standard are common among the respondent countries’ national test standards.
* However, there are several differences among the standards which require closer scrutiny, i.e.:
1. Test condition T1 vs. T4
2. Test voltages specified in ISO5151:2010 standard vs. national power supply voltages
3. Duration of test data recording and interval of data recording
4. Allowable variation of entering indoor air temperature readings during steady-state cooling capacity tests
5. Location of test unit in the outdoor test room, and the percentage of piping length in the two room chambers
6. Acceptance of both calorimeter and indoor air-enthalpy test methods

Based on these findings, a gap analysis was carried and recommendations generated on ways forward for the harmonization of standards and testing in APEC. For more details on this, please see the presentation slides from the EGEEC website, and the workshop materials.

Phase 1 is now completed and the workshop was carried out on Thursday 14 November. Presentations and outputs are available from the EGEEC website:

The Chair indicated the efforts being made out of session in terms of testing facilities that would help the one of the issues highlighted.

***EWG 13 2012A*** *– Energy Saving Window Thermal Performance Simulation Training (Thailand)*

The objectives for this project are:

* Collaborate working on an APEC pilot test case that can be replicated throughout APEC by participating in the establishment of the first APEC regional energy efficient testing and rating center, where building envelope energy saving opportunities will be taught and implemented
* Revise APEC economy building energy saving strategies to include internationally recognized energy saving ratings methods
* Basic capacity building and sharing of APEC economy building envelope energy savings successes

Buildings use approximately 34% of final energy demand worldwide and up to half of this energy is used to power air conditioners. This is specially the case in hot or cold climates where these devices work a lot harder. Therefore, building materials have an important role in minimizing energy consumption from buildings.

The workshop has now been carried out with 58 participants from 16 APEC economies attending the policy workshop, and 37 participants from 12 economies attending the training workshop.

The workshops received good feedback from participants and relationships have been established to progress the objectives, for example Vietnam has approached Thailand to improve research, and a joint effort between Thailand and Singapore created momentum into setting up a testing center at the King Mongkut’s University of Technology Thornburi (KMUTT) in Thailand.

The chair highlighted the value on the knowledge sharing portion of work of this type. And how the New Zealand representative at the workshop was very impressed and found the experience valuable.

The chair also indicated that this is another area of overlap with the SCSC.

***EWG 14 2012 A*** *– Workshop to support the development of national design lighting centers in APEC. (Dr Cary Bloyd, US)*

This project objective is to support a workshop that would bring together representatives from successful lighting design centers and leading researchers and government representatives from APEC member economies. The workshop will be targeted at both the presentation of best practices and the definition of the next steps forward in the development of national lighting design centers in multiple APEC member economies.

This workshop clearly demonstrates the effectiveness of best practice design and technology in addressing lighting efficiency goals and how lighting centers can be an effective approach to accelerating the process of energy-efficient lighting

The workshop was carried out in early November 2013 bringing together 40 speakers from 12 APEC economies. This included representatives from successful lighting design centers.

Importance ensure that each economy has their design center to provide that link in each economy between the users of lighting and the people being trained to design lighting that will do the design in the future.

For more information please see the workshops presentations at the EGEE&C website.

***EWG 15 2012A*** *– APEC distribution transformer survey: Estimate of energy savings potential from mandatory efficiency standards (China )(updated by Mr. Li Pengcheng from CNIS)*

Objects of the project:

* Assessing the energy savings and GHG emission reduction potential related to the increase in energy performance of Distribution Transformers
* Sharing experiences and lessons among APEC economies about EES&L programs for DTs
* Providing recommendations on how to develop roadmaps for EES&L programs for DTs
* Initiating a discussion among APEC economies on the interest and potential for harmonization of testing methods for DTs

The project has now completed a worldwide review of distributions transformers, the APEC economy survey and specific analysis, and the analysis of potential savings through the implementation of MEPS.

For more details about the results of this project please the see the workshop presentations at the EGEE&C website.

***EWG 08 2012*** *Urban development smart grid roadmaps: Christchurch recovery project (New Zealand) (with EGNRET)*

The objective of the project is to develop a ‘Road’ Map’ for developing a ‘smart electricity grid’ in Christchurch that will deliver the maximum social, environmental and economic benefits to the city. Specifically looking at practical steps to be taken towards establishing smart electricity in a rebuild/recovery setting identifying:

* Technologies recommended to be installed in new buildings
* Requirements for systems to be put in place by the electricity distributor and retailing companies
* Regulatory needs and steps to be taken

The project has encountered difficulties in wading through complex relationships of the different sectors, especially when dealing with regulators. The project has requested for an extension until March 2013. This extension has now been granted.

***EWG 19 11A*** *Best Practices in Energy Efficiency and Renewable Energy Technologies in the Industrial Sector in APEC Region (Joint EGNRET/EGEE&C) (Thailand)*

The full proposal for this project (total cost US$ 75,000) was approved in Session 3, 2012 and the project is due for completion in mid-December 2012.

The projects key tasks are:

* 1. Assemble Examples of EE and RE in Industry,
	2. Identify Obstacles to the introduction of EE & RE in industry,
	3. Establish the Lessons Learned in APEC Economies
	4. Formulate Best Practices for the introduction of EE & RE in industry throughout APEC,
	5. Prepare a Roadmap for the introduction of EE and RE in Industry applicable to APEC economies.

The project has now been completes and the key conclusions are:

* Renewable energy and energy efficiency are the “twin pillars” of a sustainable energy future 🡪 their combined application can result in the outcome exceeding the sum of the parts
* Already many successful applications of renewable energy combined with energy efficiency throughout APEC and their numbers are increasing.
* Governments can create regulatory and business environments that promote development of renewable energy and energy efficiency in industry 🡪 industry will develop responding business models by extracting maximum value from the opportunity available.
* No universal business model that can be used to introduce and sustain all different forms of renewable energy and energy efficiency in industry.
* Successful introduction of renewable energy coupled with energy efficiency improvement in industry often depends upon the people involved and the partnerships established.

For more details on the project please refer to the slides in the EGEE&C website.

The final report is APEC publication APEC#213-RE-01.7 available from:

<http://publications.apec.org/publication-detail.php?pub_id=1404>

**EWG 03/2013A** - *Green building code harmonization in Energy Smart Communities (Mr. Zhang Shicong from the China Academy of Building Research)*

The project aims to host 2 workshops, one on Net Zero Energy Buildings and the other still to be confirmed. The key areas of interest include:

* Net Zero Energy Definition, technology roadmap and pilot projects among APEC economies.
* Building Energy Codes upgrading Potential in the future.
* Technology Integration in Energy Smart Community.
* Building energy codes harmonization in energy smart community.

The first workshop on Net Zero Energy Buildings was held in October in Beijing, China. The workshop has attended by 52 attendees from 12 economies.

For more details please refer to the EGEE&C website. The presentations will be posted as they become available.

Questions

From Thailand - When there is a code mentioned for Net Zero Energy Building – is it a practice code calling for a mandatory code?

Answer - At the moment there no Net Zero Energy Building codes, there are codes on building energy efficiency and over time as standards are improved, and with the integration of the renewable energy into buildings, then NZEB codes can be a reality.

Follow up – this topic is of great interest and discussion. Is the vision to have a prescriptive code? Because it can be quite difficult so it would be very useful to see how this would be envisioned to happen.

Answer: At the moment this are initial discussions and there is no set vision. Documents on the workshop will be made available as the project and the perspective will be made clearer. The PO is very happy to discuss.

### Sessions 5: New Website Presentation (Mr Martin Brown-Santirso, APEC EGEE&C Secretariat)

The EGEE&C secretariat unveiled the new EGEE&C website in a brief presentation.

The key points of the presentation are:

* Old website design made difficult to find information
* The secretariat did not have the ability to update and maintain the website directly
* New Zealand funded the development of a site and migrated the information from the old site and into the new.
* Now the secretariat can easily update and maintain the website to add content after meeting and post documents of importance.
* To view the new website follow this link:

The website can be viewed in the following link:

<http://www.egeec.apec.org/>

Questions:

A comment from the floor suggested the inclusion of attendee lists in the website.

The secretariat will look into this while considering confidentiality issues.

### Session 6 and 7: Economy Presentations

Economy representatives gave some general updates on key developments in their economies and presented on the topic

*“*TOPIC PROPOSED: Transport is one of the most energy demanding activity and greenhouse gas emitter. It is also highly inefficient and heavily dominated by fossil fuels. It is proposed that economies provide an update on actions and policies to improve transport energy efficiency.”

During this session the attending economies were invited to present on the progress within their own economies. These notes only focus on some of the key points made during these presentations. For more detail please refer to the slides available from the EGEE&C’s updated website.

### Brunei Darussalam

Transport in Brunei accounts for 50% of all energy consumption in Brunei.

Fuel in Brunei is heavily subsidized as a gift from the head of the government to his people. This represents a strong barrier for investment in fuel efficiency as users do not face the full price on energy.

One of the policies being discussed is fuel economy regulation to ensure that a greater proportion of the incoming vehicles are more fuel efficient.

Currently barriers and opportunities are being analyzed and discussed to discover solutions and implementation plans.

In terms of Green building, Brunei does not currently have a policy but there is a project collecting information in world’s best practice to develop a policy.

### China

The presentation from china concentrated on green buildings development in China.

China has in place mandatory building codes, but they are designed to have different requirements based on the geo-climatic situations of the buildings and the type of buildings. There are 2 main types of building (residential for living quarters and public for office, commercial, and industrial buildings) and 5 climatic zones, so there are 10 building code variants, one for each variation.

The codes and requirements have evolved over time to meet the evolving and fast moving pace of development in China. Alongside the requirements, central and provincial governments have put in place alternative voluntary programs such as subsidy based incentives for high efficiency buildings

The current policy has a target of 40 to 45% energy intensity improvement by 2020 compared with 2005.

China’s has also implemented a rating scheme and incentive program to stimulate the development of green buildings. The programs have been very successful and applications for the rating program have increasing dramatically since its inception.

### Hong Kong, China

The presentation from Hong Kong, concentrated in the EE&C policies and programs of the government. The key objective of the policy is to combat climate change through emissions reductions. The key tools for this are to increase the proportion of clean energy sources and to enhance energy efficiency, specially products and buildings.

The government of Hong Kong focuses on buildings as they consume around 90% of electricity. For this a mandatory Building Energy Code and Energy Audit Code have been implemented since 2010. The code targets 4 key areas:

* Air conditioning
* Lighting
* Lifts and escalator
* Electrical fittings

Government will lead by example with a green performance framework for new and existing government buildings implemented. This includes compliance with codes, demonstration of cutting edge EE in building technologies, and energy audits at government venues.

To help with this development the government has also created a funding scheme that subsidizes up to 50% of expenditure on EE&C improvements to building. Over 1100 projects have been approved to an estimated saving of 180 GWh per year.

Other projects include mandatory and voluntary labeling schemes, district cooling systems, and promotion and education.

**Questions and Comments:**

A question from APERC enquired about the level of penalty/fine that is applied to non-compliant buildings?

Answer – Under the Building Energy Efficiency Ordinance, the owner of a building must ensure that at all times a Certificate of Compliance Registration is in force in respect of the building. A person who contravenes the requirement commits an offence and is liable on conviction for fines of up to HK $100,000.

From the floor – Are there mandatory requirements to declare information about imported products?

Answer – Importers are required to provide the necessary information for the regulation, and if there is need for testing or other requirements the importer needs to pay for them.

From Chinese Taipei – Are there accredited test labs in Hong Kong? And does the regulation require Hong Kong based lab results or do you accept foreign lab results.

Answer – There are accredited test labs in HK, but HK also accepts foreign test results.

### Japan

In Japan, transport is the third most energy consuming sector totaling 24% of all energy. This is more than double the consumption in 1971. And while transport demand has flattened out in the last few years, japan relies almost entirely on imports for energy. As such it is a priority to make transport a highly efficient activity.

The key transport energy efficiency initiatives include:

* Top runner program to improve efficiency of the light fleet
* Promotion of clean energy vehicles
* Energy conservation measured for freight transport operators which include tabling of conservation plans, and periodical reporting on consumption.

This presentation included a factor analysis of the composition of transport energy efficiency changes in the Japanese economy which is very interesting.

The estimated impacts of the Top runner program for the transport sector are around 126 PJ (3 Mtoe) in 2008 and up to 625PJ (15 Mtoe) by 2030.

**Questions and Comments**

**From Chinese Taipei** – The actual distribution of fuel efficiencies of vehicles does not follow a ‘normal’ distribution curve so when shown to the on a graphical form they would not match with theoretical explanation expressed in the presentation.

Answer – The presenter addresses the concern, but indicates that the effect of MEPS and Top Runner in Japan roughly follow the description provided. That is, the Top runner program will not restrict choice on the inefficient end of the spectrum, but will promote the introduction of more fuel efficient vehicles and expand the range efficient resulting on an improvement of overall fleet efficiency.

**From New Zealand** – As the fuel standards drive up fuel efficiency what has been the experience in the overall cost of vehicles? That is, have standards driven an increase in prices for cars?

Answer – Not really, there has been no observed increase in the overall cost of passenger vehicles.

### Malaysia

Approximately 21% of all energy in Malaysia is used for transport purposes and the great majority of this is on land transport (80%).

The key issues identified for transport are:

* Low share of public transport – Around 12% share at morning peak. A number of issues are explored.
* Increasing demand for personalised vehicles
* Heavy dependence on petroleum products

Key policies focus on:

* Modal shift to public transport – This work focuses on the capacity expansion of PT coupled with improvements in quality and reliability to improve share to 25%. Also integrated transport terminals and the provision of park and ride facilities.
* Light vehicle efficiency improvement with incentive for hybrid vehicles and moving away from single occupancy trips. Also other initiatives such as: Testing EVs in the fleet and introduction of palm-oil sourced biodiesel in 5% blends in certain regions.
* Green airports, ports, neighborhoods, and low carbon cities.

Future activities include the development of master plans and road maps for developing a nationwide set of integrated policies. A notional target is a reduction in carbon intensity of 40% by 2020.

### New Zealand

In New Zealand 38% of energy is used in transport and 89% of this is used for land transport. This energy is almost exclusively supplied by fossil fuels.

This raises a number of issues for New Zealand in terms of energy: oil price volatility, need to reduce CO2, dependency on foreign fossil fuels. There are also issues around transport in terms of congestion, safety, and air quality issues.

New Zealand is focusing its efforts on land transport only as this is where the largest efficiency potential lie. The key efforts lie in improving the efficiency of the fleet and the behavior of drivers through labelling schemes, information, and promotion efforts. Other policy options are being investigated.

New Zealand also has a successful heavy freight program that helps freight operators to put in place comprehensive efficiency measures that include driver training, route optimization, corporate initiatives, etc.

Some of the future options being considered include EV development policies, biofuels deployment, mode shifting, etc.

**Questions and Comments**

From US – Why EVs for the future and Not now?

Answer – Price. In NZ EVs are significantly more expensive than the US and while it is expected that they come down, at the moment they are not being considered.

From the Floor – are there MEPS for cars?

Answer – No. The New Zealand regulations focus on air quality emissions and this regulation has an effect on fuel efficiency but no MEPS for cars.

### Singapore

Singapore is a small economy with a large population. As such the share of transport is smaller than other APEC economies at 16%.

Some of the key areas of action in Singapore include:

* Increasing the already high patronage of PT up to 75% share during peak time by 2030 by expanding the networks, bus lanes, bus numbers, and preferential treatment for buses in traffic.
* Managing car population though vehicle taxation, electronic road pricing, and vehicle quota system. (taxes up to 150% of value of cars)
* Improvement of fleet efficiency by encouraging that the cars that are purchased be low carbon cars.
* Currently Singapore is also testing the effectiveness of EVs in Singapore

### Chinese Taipei

Chinese Taipei have a range of mandatory and voluntary energy efficiency programs, specially the Minimum Energy Performance Standards (MEPS). These were first introduced in the 1980s and currently include 44 product classes. Aside from MEPS there is also an efficiency ranking labelling to inform consumers at the point of purchase. This program has been very successful in increasing the share of high ranking products in the internal market.

In terms of Transport, light vehicles and motorcycles have to comply with MEPS and display the ranking label in the internal market. Vehicles that do not comply are excluded from the market.

A point to note is that MEPS in Chinese Taipei are based on the weight of the vehicles, and upon testing it was found that manufacturers were adding weight to the vehicles to ensure they would pass the tests. Currently, this is being changed to a displacement based method, which coincides with registration costs and fuel taxes fees.

In 2008 a policy was set with a target to improve energy efficiency of vehicles by 25% by 2015.

**Questions and Comments**

From the US – The US enquired about the policy to promote rapid mass transit as seen with the expansion of routes currently happening?

Answer - Yes, policies are in place to expand current Rapid Mass Transport Systems and to build more in cities where there is currently none in an effort to draw commuters away from cars and into trains.

Japan commented that the slide on international comparison displayed Japan as having a weight-class based corporate average and this is not the case. The japan system is displacement based.

From China – What is the level of market surveillance?

Answer - there is a regular market surveillance program and in 2013 Chinese Taipei expanded this considerably. This has yielded a high failure rate that has produced a lot of activity on how to prosecute or deal with the problem.

### Closure of Day One

### Day 2,

### Session 1: Opening of day 2

Chair opened the day indicating that we are somewhat ahead of time but a new item has emerged regarding a potential project on monitoring and verification testing.

### Session 2: Economy presentations continued

### Thailand

In Thailand transport consumes 36% of total energy, on par with industrial energy consumption.

Thailand has a 20-year energy efficiency development plan that aims to reduce the energy intensity of the economy by 25%.

Some of the tools developed under this plan include MEPS and High Energy Performance Standards (HEPS) to stimulate the uptake of efficient vehicles.

Thailand is a large car manufacturer, and one of the key tools to affect the vehicles is the emission standards. The current standard for emissions in Thailand is Euro 4, something that the rest of South-East Asia is looking to do in the next few years.

This presentation highlighted on the fuels consumption standards development, calculation, and the testing facilities in Thailand to test vehicles. The presentations also highlighted the monitoring process including the sampling and test results and how they are reconciled to standards.

**Questions**

From New Zealand – Indicated that New Zealand has large dataset on both European driving cycle and JC08 which can be made available if it could be of assistant in further understanding.

From China – What are the tools available for the implementation of the HEPS and MEPS?

Answer – indicated that they are trying to get a mandatory labeling scheme in place. But the manufacturers are refusing to support this and the work is ongoing.

From Japan – What are the initiatives in Thailand to reduce congestion?

Answer – included the expansion of MRT lines and the construction of a HSR throughout the country. However it is difficult to encourage moving people from private cars as apparently public transport is not enough. Also after economic crisis consumption encouraging policies resulted in an increased consumption of cars.

### United States

Transport is the second highest source of energy demand in the United States, around 28%. Of this, 93% of this is supplied by petroleum products. The remainder is 3% supplied by natural gas and 4% of renewables.

Key policies on transport energy efficiency include

* Renewable Fuel standards – requires a minimum amount of biofuels supplied into the market. Mostly corn based ethanol. One issue with this is called the ‘ethanol’ wall, after 10% concentration it creates a hazard so there is a barrier.
* CAFÉ Standards - Started in 1978 in response to oil embargo, the standards requires corporate emissions average across the vehicles sold by each company. These were not improved until recent times 2009 from central government policy.The current level requires a 35MPG average by 2016. Savings in 2025 estimated to reach up to 1.7 trillion.

There are also voluntary approaches concentrating on:

* Transition to domestic-based fuels including project such as clean city coalitions, smart cities, etc.
* Research and development into new technologies such a hydrogen fuel cells and EVs.

**Questions**

From Thailand – Is there an end of life policy?

Answer – Not really though there are projects and requirements that may result in end of life vehicles, example includes cash for clunkers, or emissions testing.

From Thailand – What incentives are available for EVs or HFC?

Answer – There are state and federal incentives for EVs totaling up to US$12,500. Not for HFC.

From New Zealand – How is the gap between reported vs. experienced efficiency gap kept in check?

Answer – The EPA continuously monitors this and while it is accepted that there will always be a gap, there is check to prevent excessive dishonesty.

APERC – Is there hydrogen fueling infrastructure?

Answer – this is where the crux of the issue lies for hydrogen. There are competing options and the feasibility of these is being researched and a lot of funds going into this research.

### Session 3: PREE results for Brunei (APERC)

Dr Aishah Mohd Isa from APERC presented this year’s PREE results for Brunei:

The PREE process involves two key steps:

* Provide a *broad review* of EE policies and measures for more effective EE policies.
* Provide *recommendations* on how implementation of action plans could be improved to achieve EE goals.

For this two key activities are organised:

* Peer review: Visits by experts from member economies to the volunteer economy in order to interview people and meet with stakeholders. A report of the findings and recommendations is provided.
* Compendium: Compiles energy efficiency policies of all the APEC member economies under a common format which reflects the diversity of approaches that could be adopted by member economies.

**Overview of Brunei**

Brunei has a total area of 5,875km2 and their population is just under 400,000. They have a high per capita income and one of the highest energy consumption and CO2 emissions per capita.

Key Findings:

* Brunei Darussalam enjoys a high GDP per capita that is among the highest in the region due to the abundant oil and natural gas resources.
* Prioritizing energy efficiency initiatives will free up more oil and gas for exports to increase or prolong export revenues.
* Energy efficiency initiatives face substantial barriers due to the current energy pricing mechanism, which in the long-run may not be sustainable.
* Brunei Darussalam has already identified key policy options that should be implemented in order to achieve the goal of 45% reduction in energy intensity by 2035 (using 2005 as the base line)

As the final report has not been endorsed at the time of the meeting the final details cannot be reported.

The PREE team made 47 recommendations in a number of areas. The final report contains 7 chapters and will be available from the APERC website from December 2014.

Comments – APERC Representative thanked very much for the excellent arrangements provided to the PREE team.

Questions

From Thailand – Which sectors consume largest amount of energy?

Answer – Transport and industry.

From the US - How can renewable energy be encouraged when energy has high subsidies?

Answer – Given that the subsidy is long standing and provided by the Sultan of Brunei as a gift to his people, then it is untouchable. Options being considered include measures such as providing incentives to users. Policy developers are aware of the issues, but there they face this barrier of subsidies and a high bar set by the Ministry of Finance for EEC measures. That being said there is recognition that EEC has an important role in Brunei’s future.

Taipei Question – How to promote energy efficient equipment when energy so cheap?

Answer – MEPS and MEPL are being implemented and other initiatives such as tax incentives and education are being explored.

### Extra Item – Monitoring and Evaluation data sharing

The Chair used this time available to discuss an initiative to put together a project that proposes the creation of a shared resource of monitoring, verification, and enforcement data and experiences across APEC. This project is currently supported by New Zealand, Australia, The US, and CLASP.

The key rationale behind the project is that if one economy carries out a series of tests on certain appliances, the results may be of value to other economies where the same appliances are sold.

The CN for this project will be added to the documentation in the website for review.

The discussion on offered general support for the project and produced some suggestion to add potential project classes to those currently offered: large chillers, lighting, construction materials.

US would like clarification on whether the project is about the testing capacity, testing standards, or data sharing.

The chair introduces that idea the data sharing should include the capacity of the labs that standards that they test and this knowledge will present opportunities:

* Improve understanding if test differences
* Understand the strengths and weaknesses of different standards
* Develop common knowledge that can strengthen the compliance efforts across all APEC economies.

The requested participants to look at concept note and the list of product classes initially suggested and provide comments.

The US noted that the greatest value (in term of energy) of this project can be achieved by targeting product classes where the largest change is possible or that have largest sales.

ACTION ARISING: set up a link to the Concept note for each economy to share within their own experts and enable discussion to enable the development of a project that can provide maximum benefit.

### Session 4: ESIS and CAST Update

Ms Nicole Kearney from the Collaborative Labeling and Appliance Standards Program (CLASP) updated the group on key developments relating to ESIS and CAST. CLASP manages the ESIS database and CAST initiative on EGEE&C’s behalf and is a SEAD[[2]](#footnote-2) operating agent.

APEC ESIS is an energy efficiency standards and labeling database for APEC economies which is integrated into CLASP’s global standards and labeling database is available from the following link (<http://www.apec-esis.org/>).

It was noted that CLASP has now completed the APEC economy updates. CLASP has also added non-APEC economies with new S&L programs to the database including Bangladesh, Kenya, Iran, Israel, Jordan, Nigeria, Pakistan, and Turkey. The database now covers 48 economies, which collectively account for 91% of world energy consumption.

CLASP reminded the group of the ESIS funding, which is currently covered through the Super-efficient Equipment and Appliance Deployment (SEAD) initiative of the clean energy ministerial. This funding covers the hosting and maintenance of the webpage, economy updates to the database, and CLASP’s role as ESIS secretariat and attendance to APEC meetings.

The presentation included some basic statistics of ESIS usage in term number of visits and economies using the resource.

The CAST primary objectives are:

* Promote harmonized test procedures
* Support development of aligned energy efficiency standards and labels (S&L) in APEC economies
* Fund one or more projects each year over a 5 year period.

There are two APEC – CAST projects currently in progress:

1. Evaluation and proposal for internationally aligned test methods and performance requirements for televisions. This project was proposed by Australia and the development process has just begun.
2. Study of repair best practices and energy efficiency improvement potential through repair of electric motors. Proposed by the China National Institute of Standardization. Task 1 has been completed and the task 2 is now in progress.

One APEC – CAST project has been recently completed:

* Evaluation and initial draft of harmonizes test methods and level definitions for heat pump water heaters. Proposed by the Australia Department of Climate Change and Energy Efficiency (DCCEE)

The final report has been published in the CLASP website:

<http://www.clasponline.org/RFPsPartnerships/RFPs/ClosedRFPs/2012/RFP12-12>

For further details on this project please refer to the slides from the presentation.

### Session 5: EGEE&C project submissions for 2014

This session is dedicated to discuss potential projects that economies propose. All economies are welcome to present ideas at different stages of development, from initial idea to a fully developed concept note.

**Self-funded AC workshop in China**

China proposed a project for Heat Pump Workshop project. This is a Self-funded project that aims to host a workshop aligned with an EGEE&C Meeting in 2014. The workshop looks at the AC industry to showcase the latest progress and discuss ways to progress the market.

The group endorsed the project and a concept note is needed to find co-sponsors and go through the APEC approval process.

**Cool-roof policy strategy workshop**

The US proposed a project that aims to host a policy strategy workshop to discuss how to promote the deployment of high-albedo construction materials (Cool roofs). Effectively the aim is to reduce radiation absorbed by buildings keeping cooler and reduced space conditioning energy demand.

The workshop is tentatively proposed to be hosted in Mexico. The project is looking for US$80,000 largely to cover travel and labor costs.

**Testing methods for refrigeration**

China also floated the idea of a project to look into testing methods for refrigerators. Refrigerators are one of the most common appliances in APEC households and they are responsible for a significant proportion of households’ energy consumption.

The project looks to develop recommendations to harmonize standards for refrigerators based on technical evaluation and laboratory test results.

A concept note will be submitted in the near future.

SECRETARIAT to follow up with standards committee that meets in Auckland towards the end of the year?

### Session 6: Upcoming events

In this session the group discussed the EGEE&C meetings for 2014. At the moment, one of the meetings has been tentatively agreed to be hosted in China, though time, place, and hosting has not been discussed. For the second meeting a couple of candidates have been suggested including the US and Vietnam.

The Secretariat will follow up and provide more information closer to this time.

Other items discussed were the potential alignment of a meeting with an SCSC meeting though this can pose certain difficulties relating to the fact that SCSC has meetings alongside SOM meetings and this may be difficult to coordinate.

Also the self-funded workshop that China proposed was mentioned and will be included in the consideration for the 2014 meeting in China.

### Session 7: Summary Session

After a brief summary of the meeting’s events and a heartfelt thanks to our hosts, the Chair brought the meeting to a swift close.

Dr. Siringthorn Vongsoasup thanked the group on behalf of DEDE and the acknowledged to contributions that this group can make.

### Close of EGEE&C 41

1. The SCSC is convened under the APEC Committee on Trade and Investment (CTI) [↑](#footnote-ref-1)
2. Super Efficient Appliance Deployment (SEAD) is a US-led initiative under the Clean Energy Ministerial. [↑](#footnote-ref-2)