

Minutes of
APEC Expert Group on Energy Efficiency and Conservation Meeting 23
November 20 – 21, 2003, Kaohsiung, Chinese Taipei

Opening and Welcome Address

Mr Cheng-Chung Huang, Director of the Fourth Division, Energy Commission, Ministry of Economic Affairs, Chinese Taipei welcomed participants to the meeting. He noted that the meeting was held in conjunction with the seminar on Cooperation on Energy Labelling and that the APEC seminar was a success, demonstrating APEC co-operation on, and highlighting the importance of, energy performance labelling.

Mr Huang went on to congratulate the Expert group on their foresight in planning their co-operative activities. He mentioned that the inclusion of energy efficiency in the APLAC-based MRAs of testing laboratories was an important milestone in APEC cooperation of energy standards. He also highlighted that the APEC Energy Standards & Information System (APEC ESIS) is another important milestone to foster co-ordination of energy standards and labelling programs and will help the region provide input to international standards. Positive energy and economic benefits are expected of the cooperation and Chinese Taipei is proud to support the continuation of APEC ESIS. He went on to remind representatives that energy standards and labelling is only a part of the overall challenge facing us in energy and encouraged the Expert Group to look into issues related to the ultimate transformation of the energy infrastructure and examine alternative ways we could respond to our future energy needs. Mr Huang finished by wishing success of the meeting and pleasant a stay for all representatives.

Adoption of the Agenda

The Agenda as proposed by the Chair was adopted.

Introductions

The meeting was attended by representatives from Australia; Chile; China; Hong Kong, China; Japan; Korea; Mexico; Russia; Singapore; Chinese Taipei; and USA, plus observers from Malaysia; New Zealand and Thailand. A full list is appended.

Report on Completed Projects

❖ EWG 6/2001T — Development of Algorithm Criteria

The project overseer gave a verbal report on the status of the project. The project consisted of two studies, on refrigerating appliances and air-conditioners. In essence, the conclusions were that there is no realistic possibility of translation algorithms for refrigerating appliances. However in the case of air-conditioners, it is possible to use simple linear adjustment algorithms to adjust for small differences in test conditions. For larger air-conditioners, it is also possible to produce satisfactory mathematical models of air-

conditioner performance. The project overview is due to be completed, and the project reports will be made publicly available by the end of the year.

Dr Choi of Korea pointed out that such adjustments would be applicable to constant-speed types, but may not be applicable to variable speed units. The question was also raised how to have the adjustment algorithms accepted. Shane Holt of Australia pointed out that the air-conditioner workshop being held in March 2004 a project for 2004, could be used as a vehicle to have further discussion on the acceptance issue. The Chair noted that the EGEE&C can undertake to examine the robustness of translation algorithms via comparison of round robin test results and test results against results from translation algorithms. It was also proposed to report the success of the project to Energy Ministers.

❖ Co-operation on Energy Labelling

The seminar on Cooperation on Energy Labelling had been held prior to the meeting, and many of those at the meeting had also attended the seminar. A report was presented and attached at the end of the minutes. General points that emerged from the seminar included the following:

- It is important to test proposed label designs on consumers. The engineers and officials who commonly make up project teams tend to have a different outlook than the typical types of shopper and so cannot necessarily design a label that will appeal in practice.
- Once consumers have become accustomed to a design of energy label, there is a preference for all related labels in that Economy to have similar features.
- Exchange of information among APEC Member Economies is increasingly important. The APEC ESIS is a useful service that needs to be fostered and supported in this regard.

Suggestions that may be considered by future meetings of the APEC Expert Group on Energy Efficiency and Conservation were made as follows:

- As energy labelling practitioners can always learn from each other, it would be very useful to have similar events periodically, perhaps every 2 to 3 years.
- There is a need for technology transfer and capacity building between Economies with developed programmes and those that are contemplating energy labelling programmes or are in the early stage of developing such programmes. It was suggested that this could take the form of a number of guides or “model specifications” on individual product classes, containing:
 - a study listing and comparing the existing programmes around the world and the technical documents that support the programmes;
 - a recommendation from a specially convened working group on the selection of a testing protocol;
 - a recommendation from the same working group on efficiency grading;
 - information, or a template, pertinent to a cost/benefit analysis;
 - information relating to promotional campaigns.

Product classes for initial guides could be ballasts for fluorescent lamps and air-conditioners, as material is available from previous EGEE&C and SGES projects. Motors (specifically three-phase cage induction motors) could also be studied as the situation is relatively uncomplicated. Compact fluorescent lamps would also be a potentially rewarding product class to work on, as there is increasing interest in such programmes but supporting technical standards have not yet started to proliferate, thus presenting an opportunity for early alignment of programmes.

- It was noted that there seem to be few examples of labelling programme reviews that evaluate programme effectiveness and cost without repeating some of the assumptions used in pre-programme analysis. This deficiency could perhaps be addressed by requesting economies to provide short write-ups on their programmes, providing as far as possible the answers to a set series of questions. It may be prudent to trial this in the near future, and it is hoped that such a series of write-ups could support proposals for energy labelling programmes that are being contemplated in Member Economies.

Report on Current Projects

❖ Energy Standards & Labelling Information Network

Dr Hu of Chinese Taipei gave a presentation on the progress of this self-funded project. During the year, the subscriber service and Standards Notification Procedure had been developed. Data tables had been sent for review to 18 contacts in 15 member economies. Twenty-three key documents on technical aspects of standards had been added to the library page. There was regular updating and collection of data, including information from conferences, namely EEDAL'03 and the seminar on Co-operation on Energy Labelling. Programming improvements had been made to tailor the web site to be user-friendly for Economy Contacts and subscribers. One issue of a newsletter, intended to be issued on a bi-monthly basis henceforward, had been sent out. It was planned to have technical data review undertaken by the Economy and Key contacts at the end of the year.

On the continuation of the APEC ESIS, funding has been promised for 2004 from Chinese Taipei (US \$ 27,000), Australia (US \$10,000), and New Zealand (US \$ 3,000), plus US \$ 10,000 from USA, contingent on confirmation of the fiscal year 2004 budget. There was also an offer from CLASP to provide sponsorship comprising in-kind support valued at US \$ 40,000 for expansion of APEC ESIS to cover 23 more Economies outside of APEC and US \$ 3,500 direct support. The consultant of the project also intends to develop a proposal for funding to expand the website to include six South Asia Economies. The IEA task on energy standards information is likely to include a proposal to contribute but the task is still arranging funding. Any sponsorship proposal will be considered in consultation with EWG and APEC Secretariats, in light of APEC Sponsorship Policy Guidelines.

Shane Holt from Australia noted that in 1998 APEC Energy Ministers required each economy to inform others of activity in the energy performance labelling and MEPS area, and that the APEC ESIS is an important tool for this. The EWG Secretariat pointed out that the proposal to include economies outside APEC may require approval from the EWG and even from SOM, depending on the level of involvement by economies outside APEC.

❖ Sustainable Financing System for Energy Efficiency Projects

This project is funded from the TILF with the USA as the project overseer. The Request for Proposals was issued in May, with a tender deadline of 26th June. A contractor was selected in early August and work has just got under way. The project involves Mexico and the Philippines and is for developing means for obtaining funds from the private sector for energy efficiency programmes. An example is municipalities obtaining loans using projected energy savings as collateral.

Australia noted that a workshop on energy efficiency financing is being proposed for February 2004 in Australia and that this project and the workshop being proposed are complimentary with each other. Members will be kept informed of developments of the workshop in February 2004.

Funded projects for 2004

Formal notification has yet to be received of which 2004 project proposals will receive funding. However, the BMC approved for funding in July the “Symposium on the Implementation of Government Energy Efficiency Programs” from the operational fund proposed by China, and the “Alignment of Testing Procedures for Air-Conditioners and Heat Pumps” from the TILF proposed by Australia, pending final approval from APEC Ministers. There is also the “Workshop on Improving Energy Efficiency in APEC Mining Industry”, which was jointly proposed by the Expert Group on Minerals and Energy Exploration and Development and EGEE&C.

Open Forum

❖ Australia

Australia has recently signed a memorandum of understanding with the USA on energy co-operation. It is also looking at strategic climate change partnerships with New Zealand, China and the European Union. A 20 to 30 year forward strategy for climate change is in preparation and is to include energy efficiency.

In respect of end-use energy efficiency, a national framework is being developed to improve coordination between jurisdictions.

In the national appliance and equipment energy efficiency programme, new labels will be launched and MEPS programmes are being accelerated.

Arising out of the seminar on “Co-operation on Energy Labelling”, Australia will host a delegation from South-East Asia Economies interested in lighting ballasts, to introduce them to the APEC-commissioned ballast test protocol. Australia will also host a delegation from Japan to discuss a co-ordinated input to the ISO refrigerator standard by Australia, Japan and New Zealand.

❖ Japan

Japan presented their “Idling-Stop” campaign that demonstrates the significant energy savings potential from road vehicles fitted with additional controls that enable the engine to be stopped when the vehicle is stationary in traffic. Such vehicles are commercially

available on the market, and are subsidised by the government to encourage up-take of “Idling-Stop” vehicles.

❖ USA

The new Energy Policy Act is not yet passed, although it is imminent, so the update on this new policy act was postponed to the next meeting.

❖ China

China presented the history of China MEPS, which has gone through three phases. In the first phase, from 1989 to 1994, MEPS covered only domestic appliances and were set according to statistics on the distribution of product energy efficiency. The second phase, from 1995 to 2001, used engineering and economic analysis as the basis for setting MEPS. During the third, present, phase the programme is being expanded to include industrial equipment and some lighting products. Energy efficiency classifications are now included in the new standards for on-going information label program. A new approach for developing “reach standards” is being considered. China thanks the international experts for their efforts involved in China’s MEPS development.

❖ Russia

Russia forecasts that more than 100 GW of new installed capacity will be needed to meet growing power demand by 2020. A decentralised electricity supply is considered as a worthwhile option to be developed to cover the essential share of the future demand. Gas engines up to 2 MW installed capacity for heat and power cogeneration in one unit are recognised as a cost effective technology for power supply, while aviation derivative gas turbines are more likely to be competitive in the range of 2 to 25 MW. It is a vital challenge for Russia to saturate its domestic market with highly efficient and environmentally clean advanced heat and power cogeneration technology through both local production and imports.

❖ Chinese Taipei

A presentation was made on the PEM fuel cell stationary power system development program in ITRI. A fuel cell power system is a complex combination of four sub-systems, being the fuel cell stack, a power electronics unit, a heat and water management system, and a fuel system using either hydrogen or reformat gas from a reformer, which converts methane, methanol or even gasoline to a hydrogen-rich gas stream. Prototypes have gone from 300 W on pure hydrogen to 3 kW on reformat gas, with future units up to 5 kW – all with heat recovery. There has been a dramatic increase in world-wide fuel cell patents since 1995 and the work in ITRI has a strong collaboration with industrial partners and universities as well. As fuel cells feature an electrochemical process for power generation, their theoretical overall efficiency is nearly 90%.

❖ New Zealand

The first round of the “Projects Mechanism” by the New Zealand Climate Change Office has been completed and over-subscribed. This rewards up to 4 Million tonnes of CO₂ equivalent climate change reducing activities with internationally tradable CO₂ emission

promissory notes for the Kyoto first commitment period. Such projects will therefore be implemented earlier than would otherwise be the case. This could be a useful mechanism for supporting future energy efficiency programs and projects.

A new electricity commission has been formed which is now responsible for electricity energy efficiency. The commission's constitution is such that in the future it may become an energy commission also covering natural gas.

EWG Sponsorship Guidelines

The EWG Secretariat introduced the EWG Sponsorship documents consisting of 1) APEC Sponsorship Policy Guidelines as issued by the APEC Secretariat; 2) a 'How-to' Guide on obtaining sponsorship, and 3) draft sponsorship agreement template, both produced by the EWG Secretariat for easy reference. The purpose of the documents is to ensure that APEC guidelines are followed and to provide tools to assist with developing sponsorship arrangements.

APEC Project Processes

The EWG Secretariat advised Representatives of the outcomes of the BMC meeting in July and the process for selecting EWG projects for funding. In essence, projects are ranked by EWG delegates and then forwarded to BMC. The BMC allocates funding between the working groups, usually in fairly equal shares. For 2004, the EWG received slightly more than other working groups. Also, the BMC adjusted some project amounts on the basis of limiting publication costs to US \$ 5,000 per project and also capping the consultants' rates.

Representatives were advised that the EWG will in the future restrict the number of projects submitted to the BMC to a value approximate to available funds. The EGEE&C may assist the process with more efforts in developing quality project proposals.

EGEE&C Administration

Pursuant to the EGEE&C 22 Minutes, the Expert Group inquired, and Chinese Taipei agreed to continue as Chair of the EGEE&C for a further 2-year term. The USA was requested, and agreed, to continue as Vice-Chair. The Expert Group also agreed to have the host Economies of its meetings as Co-Chair of those meetings.

APEC-ESIS

The ESIS project consultant outlined the current status of the 2003 self-funded project and the future prospects for APEC ESIS. Chinese Taipei tabled a 2004 APEC self-funded project proposal, with funding from Australia, New Zealand, Chinese Taipei and potentially the USA. It is proposed that any future contractor will have a separate agreement with each provider of funds. The proposal also requests a waiver on the usual APEC process to allow the project steering group to negotiate a contract and not go out to tender. The proposal was endorsed by the Expert Group and will be presented in EWG 26 for EWG endorsement.

Standards and Labelling Programs: A Strategic Vision and Road Map for the Future

Shane Holt of Australia advised the meeting of the work that Australia had commissioned that had come out of the Melbourne, Turin, and Kaohsiung workshops in 2003. A fourth workshop in this series is expected to be held in North America in 2004, possibly at ACEEE in August 2004. At EGEE&C 25, Australia will table a full report on the series of workshops. Hong Kong, China; Russia; Chinese Taipei and the USA agreed to review the summary report of the meetings being prepared by Australia.

Australia also advised that an APEC funded workshop on the alignment of test procedures for air-conditioners will be held in the last week of March 2004 in Sydney. Expert Group members were asked to consider identifying appropriate participants within their Member Economies from public officials responsible for energy efficiency regulation, testing organisations and the HVAC industry.

2005 Project Proposals

Those draft project proposals for 2005 funding that were available were circulated, presented and discussed. Further project proposals will also be welcome for circulation before being discussed at EGEE&C 24.

❖ Russia — Disaggregated Indicators

Russia presented a proposal and highlighted the rationale behind the proposed workshop to follow on from the March 2002 Manila indicators workshop, and noted that a key recommendation from the Manila workshop was that a follow on workshop should be held in two to three years focussing on techniques and practical worked examples of more detailed analyses. It is proposed that the workshop for this project be held in September 2005 in Moscow and be held back-to-back with an expert group meeting.

❖ Russia — Improving Heating System Performance

Russia presented the proposal to look beyond electricity to the use of heat as a major energy end-use and the need for such wider heating system energy efficiency improvement issues. Korea suggested that it might be useful to sharpen the focus of the proposal.

❖ USA — Household Energy Consumption Data

The USA presented an initial draft proposal to gather household energy use data in a number of APEC economies through a generalised household survey methodology and co-operation. The meeting was informed that New Zealand had undertaken considerable work in this area that might be relevant. Australia advised that it would be interested in a project in this area. Korea also expressed interest in principle.

❖ Australia — Alignment of Testing Procedures for Fluorescent Lamp Ballasts

Australia presented the proposed project to build on the results of the 1999 Seoul Colloquium on MEPS, and to develop the skills and resources for testing of lighting products. It highlighted the strong interest in this area shown at the energy labelling symposium. Australia advised that it would work with other economies not present at the

meeting with the expectation that Thailand or another economy from South East Asia might take leadership of this project in the future.

❖ Australia — Reducing Standby Power Losses

Australia presented the proposal and noted that standby power loss reduction was now a common element in standards and labelling programs. The project will feature a symposium held, possibly, in Korea. Australia advised that it had led the development of an IEC standard for measurement of standby losses that would soon be completed. Japan noted that the IEA held three workshops on standby losses and that this work could usefully be fully reflected in the proposal.

❖ Australia — Reducing Energy Losses in Universal Power Supplies

Australia presented the proposal to convene a regional workshop to share information on the development of lower loss universal power supplies. The Chair advised that there could be synergy between this project proposal and the previous one, and Australia will consider combining the two projects.

Australia — Integrated Design Processes: Design Charettes for Major Developments

Australia presented a proposal to improve the integration of the design process for large buildings. This project would build upon the City of Melbourne's zero net emission strategy and would involve a facilitative charette with case studies and best practice guidelines for integrated design.

❖ China — Symposium on Enhanced Energy Efficiency of Common Industry Equipment

China presented the proposal to evaluate the current situation and then hold a symposium in China in this area of improving the energy efficiency of common industrial equipment, such as motors, fans, air compressors, boilers etc.. Korea offered to make pertinent information available and Japan pointed out promoting the energy efficiency of air compressors is a significant task.

❖ China — Capacity Building on Industrial Voluntary Agreements

China advised that they intended to develop a proposal in this area for the first meeting on 2004.

Next Meetings

The Chair reported that there were two definite offers for hosting the 2004 EGEE&C meetings.

Japan offered to host EGEE&C 24 in Tokyo from the 12th to the 14th of February, with the 11th of February also available if an additional day is needed. These dates and venue coincide with the ENEX exhibition organised by ECCJ and supported by METI, Japan.

China offered to host EGEE&C 25 in Beijing in August or September, with the timing arranged to coincide with an APEC symposium. Representatives will be notified of the exact timing and venue in due course.

Both invitations were well received and accepted by the Expert Group.

Review and Acceptance of Minutes

The minutes were reviewed and accepted.

Adjourn

The session ended at approximately 5:30 PM and the Chair thanked the Representatives and observers for coming to Kaohsiung, Chinese Taipei for the EGEE&C 23 meeting and declared the meeting closed.

Appendix I — List of Participants at EGEE&C 23 Meeting

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Appendix II

Report to EGEE&C 23 on project EWG 3/2003 Seminar on “Co-operation on Energy Labelling”

The seminar on “Co-operation on Energy Labelling” was held in Kaohsiung, Chinese Taipei from 17th to 19th November 2003. The Seminar was attended by over 30 participants from 16 APEC member economies.

Presentations at the seminar gave a clear demonstration of the variety of labelling programmes within the APEC region. The types of programme range from voluntary to mandatory via mandatory with voluntary elements. Labels may be endorsement type, comparative, classification or information type, or combinations of these. Presentation of labels ranges from a single simple symbol placed on the item, or even in the relevant technical literature, to large, colourful stickers or tags displayed prominently on the unit. Programmes are at various stages of development, some having been revised several times and others being at the early concept stage. The product classes covered by labelling programmes also vary.

There is increasing realisation that there are benefits from co-operation on labelling programmes, and several such examples of co-operation within the APEC region and some involving economies outside of APEC were given.

Even those participants with the longest experience in the area said that they learnt much from the seminar. General points that emerged from the seminar included the following.

It is important to test proposed label designs on consumers. The engineers and officials who commonly make up project teams tend to have a different outlook than the typical types of shopper and so cannot necessarily design a label that will appeal in practice.

Once consumers have become accustomed to a design of energy label, there is a preference for all related labels to have similar features.

Exchange of information among APEC member economies is increasingly important. The ESIS is a useful service that needs to be fostered and supported.

The seminar included periods of open discussion which enabled particular points to be clarified and for suggestions to be made regarding future co-operative activity in the area. Suggestions that may be considered by the 23rd meeting of the APEC Expert Group on Energy Efficiency and Conservation were made as follows.

- As energy labelling practitioners can always learn from each other, it would be useful to have similar events periodically, perhaps every 2 to 3 years.
- There is a need for technology transfer and capacity building between economies with developed programmes and those that are contemplating an energy labelling programme or are in the early stages of developing one. It was suggested that this could take the form of a number of guides or “model specifications” on individual product classes. Each guide could contain:
 - a study listing and comparing the existing programmes around the world and the technical documents that support the programmes;

- a recommendation from a specially convened working group on the selection of a testing protocol;
- a recommendation from the same working group on efficiency grading;
- information, or a template, pertinent to a cost/benefit analysis;
- information relating to promotional campaigns.

Product classes for initial guides could be ballasts for fluorescent lamps and air-conditioners, as material is available from previous EGEE&C and SGES projects. Motors (specifically three-phase cage induction motors) could also be studied as the situation is relatively uncomplicated. Compact fluorescent lamps would also be a potentially rewarding product class to work on, as there is increasing interest in such programmes but supporting technical standards have not yet started to proliferate, thus presenting an opportunity for early alignment of programmes.

- It was noted that there seem to be few examples of labelling programme reviews that evaluate programme effectiveness and cost without repeating some of the assumptions used in pre-programme analysis. There is anecdotal evidence that the cost to manufactures of producing higher efficiency models is very significantly less than is claimed at the initial analysis stage.

This deficiency could perhaps be addressed by requesting economies to provide short (up to four pages) write-ups on their programmes, providing as far as possible the answers to a set series of questions. It may be prudent to trial this in the near future, so that if it turns out that there are significant costs involved, there is time to prepare a project proposal for 2005 funding. The list of topics to be covered and questions to be answered could be drawn up by a working group comprising experts from EGEE&C 23.

It is hoped that such a series of write-ups could support proposals for energy labelling programmes that are being considered and whose scope and stringency needs justification.

Seminar evaluation by the participants showed a high degree of approval and that bit was considered very relevant and useful.

Dr Tsau Fanghei, Moderator

Ir David Cogan, Rapporteur