



**Asia-Pacific  
Economic Cooperation**

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**2011/EWG41/006**

Agenda Item: 2e

## **EWG Work Plan 2011**

Purpose: Information  
Submitted by: EWG Secretariat



**41<sup>st</sup> Energy Group Working Meeting  
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## Proposed Work Plan for 2011: APEC Energy Working Group

### Proposed Work Plan in Response to Priorities and Decisions of Leaders, Ministers, Senior Officials and Steering Committee on ECOTECH and to Recommendations of the APEC Business Advisory Council

The Energy Working Group (EWG) Work Plan recognizes the directions of APEC Economic Leaders, Ministers and Energy Ministers as a solid foundation for the EWG work program. The themes of energy security, clean energy trade and sustainable growth raised by Energy Ministers and Leaders are prominent in the Energy Working Group's activity.

In 2006, APEC Ministers and Economic Leaders reinforced their support and commitment to addressing energy security issues. In their 2007 Declaration on *Climate Change, Energy Security and Clean Development*, Leaders set forth an APEC-wide target of reducing energy intensity by at least 25 percent by 2030. In 2008, Ministers and Leaders noted that "access to adequate, reliable, clean and affordable energy resources is vital to sustaining economic prosperity in the region." In 2009, Ministers and Leaders reiterated the need to promote sustainable growth with the theme of "Sustaining Growth, Connecting the Region".

In 2010, Leaders adopted an APEC Growth Strategy to achieve growth that is balanced, inclusive, sustainable, innovative and secure. For sustainable growth, they agreed to "enhance energy security and promote energy-efficiency and low-carbon policies" and to "assess the potential for reducing the energy intensity of economic output...beyond the 25 percent aspirational goal already agreed" while also working to "develop a low-carbon energy sector", "improve access for environmental goods and services", "promote green jobs, education and training," and "promote private investment in green industries and production processes."

In 2005, APEC Energy Ministers met at the 7<sup>th</sup> Energy Ministerial Meeting (EMM) in Gyeongju, Korea, to discuss the theme of "Securing APEC's Energy Future: Responding to Today's Challenges for Energy Supply and Demand". They concluded that rising oil prices and import dependency should be addressed through a balanced approach including increased exploration and development, more fuel-efficient transport, and greater use of alternative transport fuels. In 2007, at EMM-8 in Darwin, Australia, Energy Ministers focused on "Achieving Energy Security and Sustainable Development through Efficiency, Conservation and Diversity". They noted the importance of a diversified mix of power supply sources and more efficient buildings, industry and transport for achieving the region's security and sustainability goals.

In 2010, meeting at EMM-9 in Fukui, Japan, Energy Ministers noted that "energy-efficient buildings and appliances are key to a sustainable future because the building sector accounts for two-fifths of energy use in the region." They also asked the EWG to focus on "the potential fuel and carbon savings from electrification of the transport sector, energy efficient freight, transit-oriented development and other energy-efficient transport strategies." They further noted that "smart grid technologies...can help to integrate intermittent renewable power sources and building control systems that let businesses and consumers use energy more efficiently." And pointing out that "introduction of low-carbon technologies...is vital to manage rapidly growing energy consumption in urban areas," they asked EWG to establish a Low-Carbon Model Town Task Force "to encourage creation of low-carbon communities."

### ESCI – Energy Smart Communities Initiative for the Asia-Pacific

In view of APEC Leaders' focus on sustainable growth with steady employment growth and economic expansion combined with reduced energy intensity, as well as the interest of Energy Ministers in more efficient transport, buildings and smart grids, Japan and the United States launched – the Energy Smart Communities Initiative for the Asia-Pacific (ESCI) that will be implemented through the APEC Energy Working Group. The ESCI effort has four key components – Smart Transport, Smart Buildings, Smart Grids and Smart Jobs – which echo and implement the priorities of Leaders and Energy Ministers.

#### Smart Transport

Smart transport embodies a variety of practices to reduce the energy use, costs, and carbon emissions from the transport of people and goods. ESCI will develop a network of APEC towns and cities to document and spread best practices for energy-efficient urban transport, including transit-oriented development, bus rapid transit, and congestion management. ESCI will also develop a network of APEC businesses to spread best practices for energy-efficient freight transport, including intermodal strategies to substitute fuel-efficient ships, barges and rail for trucks and logistical strategies to ensure that vehicles travel fuller. Finally, ESCI will examine best practices for the development of infrastructure for alternative fuels, including biofuel and electric vehicles, which can reduce carbon emissions and oil use.

### **Smart Buildings**

Smart buildings incorporate a variety of innovative technologies in energy management, energy-efficient walls, roofs, and windows; improved heating, cooling and ventilation systems; and solar hot water heating and solar cells for electricity generation. ESCI will develop a registry of low-energy buildings, including new buildings that reduce energy use by at least half compared with buildings of similar types in similar climates and retrofitted buildings that reduce energy use by at least one quarter, in order to document and disseminate best practices for improving building energy performance APEC-wide. ESCI will also establish a building materials testing and rating center to provide accurate, consistent performance data on the energy efficiency of roofs, windows and insulation so that consumers and businesses can confidently purchase energy-efficient building components throughout the APEC region. Further, ESCI will conduct demonstration projects for cool roofs that reflect sunlight and possibly for other energy-efficient building components.

### **Smart Grids**

Smart grids utilize a wide range of technologies and practices to make the operation of electric power systems more efficient, facilitate more efficient energy use in buildings and industry, and enable the greater penetration of intermittent renewable power sources. ESCI will develop a network of smart grid test beds that are open to firms in all APEC economies, in order to accumulate performance data that will allow smart grid technology to be widely marketed and traded across the APEC region. In addition, ESCI will help to develop smart grid best practices, including road maps for smart grid technology development and common standards for smart grid interoperability – promoting trade in both the technologies themselves and the electricity that is transported and distributed across borders.

### **Smart Jobs**

Smart jobs revolve around the skills needed to put smart transport, buildings and grids in place – and the consumer awareness and education that will create the demand for them. ESCI will assemble examples of energy efficiency and possibly clean fuel curricula for elementary and secondary schools, which will serve as an information base to develop best practices that economies can use to educate their children and adults to be responsible energy consumers. ESCI will also collect training materials for smart jobs, supporting the development of skills and qualifications for operating smart grid technologies, conducting energy audits, and installing energy-efficient appliances, equipment, insulation and energy management systems.

## **Implementation of the EWG Energy Security Initiative**

The Energy Security Initiative (ESI) is the principal mechanism through which the EWG addresses the short and long term energy security challenges in a sustainable manner in APEC. The ESI comprises a series of short-term measures to respond to temporary energy supply disruptions and longer-term policy responses that are practical and achievable to address the broader challenges facing the region's energy supply. Short term measures include the Joint Oil Data Initiative (JODI), maritime security, real-time emergency information sharing system, and energy emergency responses (including oil stocks). Long term measures include natural gas trade, energy investment, energy efficiency, renewable energy, clean fossil energy, alternative transportation fuels, nuclear energy, hydrogen and fuel cells, methane hydrates, and petroleum infrastructure and crude and refined products. The various ESI measures are implemented through expert groups on energy data and analysis, clean fossil energy, energy efficiency and conservation, and new and renewable energy technologies, as well as task forces on biofuels and energy trade and investment. A major role is also played by the Asia-Pacific Energy Research Centre (APEREC) in Tokyo.

## **SHORT-TERM MEASURES**

### **Joint Oil Data Initiative (JODI)**

APEC's contribution to JODI is managed by the Expert Group on Energy Data and Analysis (EGEDA). APEC member economies submit data to JODI in eleven product categories. There has been a continuing improvement in the timeliness and completeness of data reported under JODI. JODI has recently been extended to include natural gas data.

### **Maritime Security**

The EWG and the Transportation Working Group have agreed to share information on maritime security issues associated with LNG and oil tankers in port.

### **Real-time Emergency Information Sharing System (RTEIS)**

The Real Time Emergency Information Sharing System (RTEIS), developed by Japan, is a secure web-based tool for sharing information in the event of energy emergencies and disruptions that may have a flow-on effect to other APEC Economies. A newsletter about the RETIS activities is issued bimonthly; it is available at [www.ieej.or.jp/egeda/real-time/](http://www.ieej.or.jp/egeda/real-time/).

### **Energy Emergency Responses, including Oil Stocks**

Host economies to EWG meetings report their energy emergency response arrangements on a voluntary basis. Economy reports are available on the EWG website. At EMM-9, Energy Ministers instructed the EWG “to develop joint programs with the International Energy Agency (IEA) to improve response to oil and gas emergency situations in the APEC region, such as energy response workshops and exercises.” An Emergency Response Training (ERT) exercise was hosted by IEA in Paris on September 13-17, 2010, with training for officials from non-IEA APEC economies on IEA oil and gas security policies and practices, emergency preparedness policy, legislation and response structures, emergency planning and preparation, bilateral emergency preparedness programs between IEA and partner economies, data gathering for oil and gas markets, and data analysis to assess the impact of supply disruptions. A follow-up joint emergency response exercise with IEA, APEC and the Association of South East Asian Nations (ASEAN) is under development.

## **LONG-TERM MEASURES**

### **Energy Investment**

In response to Leaders' directives to promote open trade and investment, as well as EMM-8 instructions to facilitate investment and trade in oil markets, to attract energy investment, and facilitate cross-border trade, an APEC Energy Trade and Investment Task Force (ETITF) has been organized, and projects related to energy investment have been undertaken. An Australian-funded APEC Energy Trade & Investment Roundtable (Cairns, 30 September–2 October 2008), developed a Plan of Action for removing barriers to energy trade and investment and contributing to greater regional economic integration which was refined and presented to EWG members at EWG36 (Philippines, December 2008). The ETITF met at EWG37 (Chile, April 2009, EWG38 (Indonesia, November 2009) and EWG39 (Japan, March 2010).

Australia chairs the ETITF and has funded a ‘Survey on Climate Change Policies and Other Approaches to Reducing Greenhouse Gas Emissions in APEC Economies’ in response to the observation at the ETI Roundtable that the lack of a predictable carbon value in the market place may serve as a significant barrier to clean energy investment. Projects to promote trade in clean energy goods and services through improved information on standards and testing methods for appliances and building components are also anticipated. Details on these projects are offered in the description of energy efficiency activities below.

### **Natural Gas Trade**

The LNG Public Education and Communication Information Sharing Initiative, endorsed by EMM-8 and implemented by Chinese Taipei, provides a mechanism for APEC member economies to disseminate information to the public on the benefits of LNG and gas as a safe, reliable and cleaner fuel source. The Expert Group on Clean Fossil Energy has a project in progress on 'Case Studies of Public Education and Information Campaigns in APEC Economies, and Development of Best Practice Guidelines'.

Pursuant to trial collections in 2006 and 2007 by the Institute of Energy Economics Japan (IEEJ) of monthly natural gas production, trade and stocks statistics from non-OECD members (OECD member economies already submit monthly gas statistics to the International Energy Agency), the Expert Group on Energy Data and Analysis (EGEDA) reported at EWG36 that gas data collection will be a regular data collection activity. Currently, 15 of the 21 APEC economies join in this data collection activity which was recently added to JODI.

Energy Ministers noted at EMM-9 that "enhanced natural gas production and trade, drawing upon new discoveries, can ease the transition to a low-carbon economy since gas has a far lower carbon footprint than other fossil fuels for power production and enables greater use of intermittent renewable energy sources." Unconventional gas resources can also boost the region's energy security by making it more self-sufficient. EMM-9 asked EWG "to conduct an Unconventional Gas Census to evaluate the potential of unconventional resources and to recommend cooperative actions which could increase natural gas output, boost natural gas trade and use, and moderate natural gas prices to the extent appropriate both for producers and consumers in the APEC region." A concept note for the Unconventional Gas Census was considered at EWG-40 in November 2010, and a project has been proposed to scope the extent of planned and existing unconventional gas surveys in the APEC region.

### **Energy Efficiency**

APEC Leaders have recognized that improving energy efficiency is a "cost-effective way to enhance energy security and address greenhouse gas emissions while promoting economic growth and development." They have agreed to work towards achieving an APEC-wide regional aspirational goal of a reduction in energy intensity of at least 25 percent by 2030 (with 2005 as the base year); encouraged all APEC economies to set individual goals and action plans for improving energy efficiency; and agreed to facilitate and review progress through the voluntary APEC Peer Review of Energy Efficiency (PREE). Energy efficiency efforts are therefore high on the EWG's agenda. The Expert Group on Energy Efficiency and Conservation (EGEEC) has a wide variety of projects on policies and best practices for promoting energy efficiency and on energy efficiency standards and testing methods. The APEC Support Fund (ASF) Sub-fund for Energy Efficiency helps to provide resources for this work.

#### **Projects Related to Energy Efficiency Policies and Best Practices**

APEC Peer Review on Energy Efficiency (PREE)

APEC Cooperative Energy Efficiency Design for Sustainability (CEEDS)

Cool Roofs in APEC Economies: Review of Experience, Best Practices and Potential Benefits

Energy-Saving Windows: Survey of Policies and Programs to Promote Advanced Window and Glazing Technologies in APEC Economies

Street and Outdoor LED Lighting Initiative (SOLLIA) – Asia

Energy, Transport and Environmental Benefits of Intermodal Freight Transport

Energy, Transport and Environmental Benefits of Transit-oriented Development

Energy, Transport and Environmental Benefits of Bus Rapid Transit

#### **Projects Related to Energy Efficiency Standards and Testing Methods**

Reducing Trade Barriers for Environmental Goods and Services - Mapping Exercise of Energy Efficient Products

Survey of Market Compliance Mechanisms for Energy Efficiency Programs

Development and Harmonization of Standards for Indoor Light-Emitting Diodes

Engagement by APEC Economies in International “Smart Appliance” Standards for Air Conditioners and Other Appliances

Energy Performance Evaluation Methodology Development and Promotion (proposed)

Conference on Implementation of Energy Management Standardization (with the Subcommittee on Standards and Conformance of the Committee on Trade and Investment)

Sustainability in Building Construction (Commercial Buildings) – Efficiency and Conservation (with Subcommittee on Standards and Conformance, Committee on Trade and Investment)

### **Energy Efficiency Project Activity Highlights**

APEC Energy Peer Review Mechanism on Energy Efficiency (PREE)

EWG members at EWG35 (Peru, March 2008) endorsed Japan's proposal for the PREE, incorporating the following objectives:

- sharing information on energy efficiency performances as well as on policies and measures for improving energy efficiency;
- providing opportunities for learning from other APEC economies' experiences and for broadening the network among energy efficiency policy experts;
- exploring how energy efficiency goals on an overall and/or sectoral basis and action plans could be effectively formulated in the APEC economies under review, taking into account the diversity of possible strategies that could be used, according to the circumstances of individual member economies;
- monitoring progress toward attaining the energy efficiency goals on an overall and/or sectoral basis and action plans, if such goals and action plans have already been formulated at the time of the review; and
- providing recommendations (for voluntary implementation) on how the implementation of the above action plans could be improved with a view to achieving energy efficiency goals.

The first four voluntary Peer Reviews of Energy Efficiency, conducted by visiting teams at the request of interested economies, were held in 2009: Chile, New Zealand, Thailand and Viet Nam. Three more Peer Reviews were conducted in 2010: Malaysia, Peru and Chinese Taipei. Another three are anticipated in 2011, including one for Indonesia and the first-ever follow-up PREE for Viet Nam in 2011 to review its success in implementing the recommendations that were made by the PREE review team in 2009. APERC conducted a survey of energy efficiency policies which was published as a compendium in early 2010. A revised compendium of energy efficiency policies in APEC will be published by APERC in 2011.

### **APEC Cooperative Energy Efficiency Design for Sustainability (CEEDS)**

The CEEDS projects aim to provide a series of intensive looks at energy efficiency opportunities in key energy-consuming sectors. In each project, a group of experts from APEC economies first conducts a workshop to discuss key issues, then conducts follow-up analysis of these issues, and finally conducts a concluding workshop to endorse key findings. The first CEEDS exercise, conducted in 2009-10, was focused on energy efficient appliances. It has identified lighting, refrigerator-freezers, air conditioners, motors, electronic standby as the five most important energy-intensive appliance types on which attention should be focused – for example in terms of developing efficiency standards and harmonized testing methods to promote trade. The second CEEDS exercise, conducted in 2010-11, was focused on energy-efficient building components. The third CEEDS exercise, taking place in 2011-12, will focus on energy-efficient urban passenger transport.

### **APEC Energy Standards Information System (APEC ESIS)**

APEC ESIS facilitates the exchange of information, knowledge and experience through the comprehensive APEC ESIS website, providing government and industry stakeholders with information on testing standards, minimum energy performance standards and labelling requirements for a range of equipment traded in the APEC region and provides links to other international data (website is [www.apec-esis.org](http://www.apec-esis.org)). Energy Ministers at EMM-9 instructed EWG to strengthen APEC ESIS in cooperation with the Major Economies Forum (MEF), and discussions are underway on the modalities of support anticipated from the Super-efficient Equipment and Appliances Deployment (SEAD) initiative of the Clean Energy Ministerial that is implementing the Major Economics Forum (MEF) technology plans for doing so.

#### Collaborative Assessments of Standards and Testing (CAST)

Energy Ministers at EMM-9 instructed EWG “to conduct a series of Collaborative Assessments of Standards and Testing (CAST)” for energy-intensive appliances identified by CEEDS. The Super-efficient Equipment and Appliances Deployment (SEAD) initiative of the Clean Energy Ministerial has agreed to provide support for the CAST exercise. The first CAST exercises will likely focus on light emitting diodes (LEDs), room air conditioners and refrigerators.

#### Energy Intensity Reduction Assessment

Energy Ministers at EMM-9 instructed EWG “to assess the potential for reducing the energy intensity of economic output in APEC economies between 2005 and 2030, beyond the 25 percent aspirational goal” that Leaders agreed in 2007. Pursuant to this directive, APERC has undertaken extensive analysis to consider the possibility of doubling the aspirational goal to cut energy intensity by half. APERC has found that the goal is achievable as a “stretch goal” since a business-as-usual scenario is projected to reduce intensity by 38 percent, so that a 50 percent reduction would represent an increased effort of one-third. APERC also has found that the 50 percent goal is consistent with a global objective of stabilizing greenhouse gas concentrations in the atmosphere at 450 parts per million, which most APEC economies have agreed to through the United Nations Framework Convention on Climate Change. Thus, the EWG may recommend an increase in this goal to Leaders in 2011.

Development of consistent and reliable energy efficiency indicators is key to gauging progress towards Leaders’ goal of reducing energy intensity of APEC economies by at least 25 percent from 2005 by 2030. Following workshops on energy indicators in 2006 and 2007 (Japan, 26–27 October 2006; Australia, 7–8 November 2006; Singapore, 17–21 September 2007), the EGEE&C will continue to share information with the IEA on development of energy indicators. EGEE&C and EGEDA will also collaborate in the development of energy indicators, and met jointly in New Zealand on 3 February 2010 to explore the possibilities. Both groups will follow through on development of energy efficiency indicators in 2011.

#### High Level Meeting on Energy and Transport

Energy Ministers at EMM-9 took note of plans for “the first-ever joint meeting of energy and transport high level officials in the United States in 2011” and instructed EWG “to conduct a series of workshops on the potential fuel and carbon savings from electrification of the transport sector, energy efficient freight, transit-oriented development and other energy efficient transport strategies” in cooperation with the Transportation Working Group. The Transportation and Energy Ministerial Conference will take place during the Senior Officials Meetings in San Francisco in September. It will be structured as a public-private dialogue reporting recommended actions to Transportation and Energy Ministers. Discussion will focus on transportation’s role in a clean energy future, energy and transport systems for liveable low-carbon communities, the future of biofuels and electricity as low-carbon transport fuels, and the greening of the supply chain through energy-efficient freight transportation. Results of projects on transit-oriented development, bus rapid transit and intermodal freight will be considered. Recommendations for action will be followed up by the CEEDS Phase 3 exercise on energy-efficient transport. Activities identified will also be folded into the Smart Transport component of ESCI.

#### Renewable Energy

Leaders have welcomed international partnerships on renewable energies, and EMM-8 encouraged the development of clean renewable technologies for power generation. The EWG's Expert Group on New and Renewable Energy Technologies (EGNRET) has a variety of projects underway to facilitate use of renewable energy technologies in the APEC region.

Energy Ministers at EMM-9 noted 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 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 will be a high priority for EGNRET in 2011, and a concept paper was considered at EWG-40.

### **Renewable Energy Projects**

Using Smart Grids to Enhance the Use of Energy Efficiency and Renewable Energy Technologies

Addressing Challenges of Advanced Metering Infrastructure (AMI) Deployment in Order to Enable Smart Grid Applications

APEC Small and Medium Enterprise (SME) Renewable Energy Infrastructure Blueprint: Report on Economic Benefits (proposed in cooperation with SME Working Group)

Best Practices in Energy Efficiency and Renewable Energy Technologies in the Industrial Sector in the APEC Region (proposed jointly with EGEEC)

The Status, Potential, Barriers and Opportunities of Electric Vehicles (Cars and Buses) in APEC (proposed)

APEC Workshop on Energy and Green Transport Benefits of Electric Vehicles

Renewable Energy Sources in Electricity Markets: Goals and Conditions for Providing Sustainable Development

2011 APEC Conference on PV Policy and System Development (funded by Chinese Taipei)

Solar Photovoltaic Standards and Conformance Measures – Survey and Workshop (with Subcommittee on Standards and Conformance, Committee on Trade and Investment)

### **Clean Fossil Energy**

The Expert Group on Clean Fossil Energy (EGCFE) undertakes research and shares timely information regarding technical, economic, and policy aspects of fossil energy production and the promotion of clean fossil energy options. Broadly speaking, the EGCFE projects relate to natural gas trade, cleaner use of coal for power, and carbon capture and storage.

Natural gas projects focus especially on the benefits of liquefied natural gas (LNG) as an option for reducing carbon emissions in the power sector by displacing coal, as gas has roughly half the carbon emissions of coal per kilowatt-hour of electricity production.

Clean coal projects focus on efficiency and design options for reducing emissions of conventional pollutants such as sulfur dioxide, nitrogen oxide and particulates, which can have major consequences for public health. Energy Ministers at EMM-9 instructed EWG “to develop an initiative for deploying advanced clean coal technologies ... to make coal-fired power plants more efficient.” EGCFE is drafting such an initiative for EWG consideration.

Carbon capture and storage projects focus on technical options for separating carbon from emissions streams of coal-fired power plants on which many APEC economies rely for a large proportion of their electricity production, as well as on safe, reliable means of storing carbon dioxide for long periods of time. Energy Ministers at EMM-9 instructed the EWG “to extend and reinforce its analysis of technology options for CCS and its dissemination of best practices for applying these technologies to

new and existing power plants.” A project on planning and cost assessment guidelines for making new coal-fired power plants carbon-capture ready was completed in 2010. Capacity building on CCS technology has been undertaken in China, Mexico, and Indonesia based on training materials developed by EGCFE, and will continue in 2011 with workshops in Malaysia, Thailand, and Viet Nam.

Leaders declared in 2009 a commitment “to rationalize and phase out over the medium term fossil fuel subsidies that encourage wasteful consumption, while recognizing the importance of providing those in need with essential energy services. Energy Ministers reiterated this commitment in the Fukui Declaration issued at EMM-9 and instructed EWG to work with IEA “to analyse remaining inefficient fossil fuel subsidies that encourage wasteful consumption with a view to their rationalization and phase out.” This will be a top priority for 2011.

### **Projects on Fossil Fuel Subsidy Reduction**

Phasing Out Fossil Fuel Subsidies to Reduce Waste and Limit CO<sub>2</sub> Emissions While Protecting the Poor

Cooperative Project with the International Energy Agency (IEA) to Assess the Economic Burden of Fossil Fuel Subsidies in APEC Economies

### **Projects on Natural Gas Trade**

Case Studies of Public Education and Information Campaigns in APEC Economies and Development of Best Practice Guidelines

Actions by Governments and Industry to Promote LNG Trade and Investment in APEC

Developing a Census of Unconventional Gas in APEC economies

### **Projects on Carbon Capture and Storage**

Increasing the Knowledge and Awareness of Carbon Capture and Storage Capacity Building in the APEC Region (Phase V)

Implementation of CO<sub>2</sub> Emission Reduction Technologies and Methods for Fossil Fuel Installations

Permitting Issues Related to New Coal-Based Power Plants, including Carbon Capture and Storage, in Developing APEC Economies

### **Alternative Transportation Fuels**

The APEC Biofuels Task Force was established at EWG31 (Singapore, May 2005) with a remit to focus on biofuel resource potential, infrastructure, vehicles, economics and trade and instructions to report consensus findings to APEC Energy Ministers at EMM8. Seventeen Member economies participate in the Biofuels Task Force. At EMM8, the Task Force reported that biofuels from a wide variety of crops were cost-competitive at current oil prices; that biofuels can reduce greenhouse gas emissions and that biofuels can displace a substantial share of petroleum use over time. More detailed analyses sponsored by the Task Force have found that biofuels from farm and forest residues could potentially displace as much as one-fifth of the region's crude oil imports, while biofuels such as grasses that are grown on marginal lands that are poorly suited to food production might displace another fifth of crude oil imports if they could be economically developed. Potential biofuels production from conventional agricultural feedstocks has been found to be much more limited. A survey of sustainable biofuel development practices, completed in 2010, documented a wide variety of planning and research activities (such as mapping to assess sustainability of land use, life cycle assessments of greenhouse gas emissions, and R&D of more sustainable feedstocks), regulatory initiatives, and voluntary initiatives (such as greater use of underutilized land, measures to improve the productivity of cultivated land, and reducing fertilizer requirements).

### **Biofuel Task Force Projects**

Survey of Biofuel Resource Assessments and Assessment Capabilities (completed)

Assessment of Biomass Resources from Marginal Lands in APEC Economies (completed)

Employment Opportunities from Biofuel Production in APEC Economies (completed)  
Assessment of Biomass Resource Elasticity in APEC Economies (completed)  
Biofuel Feedstock Costs, Technology and Economics (completed)  
Resource Potential of Algae for Biodiesel Production in the APEC Region (in progress)  
Biofuel Transportation and Distribution Infrastructure Strategies (in progress)  
Sustainable Biofuels Development Practices (completed)

### **Nuclear Energy**

In the "Declaration on Climate Change, Energy Security and Clean Development", Leaders said: "for those economies which choose to do so, the use of nuclear energy, in a manner ensuring nuclear safety, security and non-proliferation in particular its safeguards, can also contribute." Energy Ministers noted at EMM-9 that "A growing number of interested economies are using nuclear power to diversify their energy mix and limit carbon emissions. These economies are reaffirming their international commitment to safety, security and non-proliferation as the fundamental elements for the peaceful use of nuclear energy." EMM-9 instructed EWG "to undertake a Nuclear Power Emissions Reduction Potential Study (NUPERPS) on the potential for existing and planned nuclear power plants in interested APEC economies to reduce carbon emissions." A concept note for NUPERPS was considered at EWG-40 in Brunei in November 2011. As a first step, interested economies are invited to share their internal analyses of the emissions reductions from nuclear power.

### **Hydrogen and Fuel Cells**

A number of APEC Economies, including Australia, Canada, the People's Republic of China, Japan, the Republic of Korea, Malaysia, New Zealand, Singapore, Chinese Taipei, Thailand and the United States, have programs or projects focused on developing and demonstrating hydrogen and/or fuel cell technologies. EWG delegates report on relevant developments.

APEC economy members of the International Partnership for the Hydrogen Economy (IPHE), whose goal is to "efficiently organize and coordinate multinational research, development and deployment programs that advance the transition to a global hydrogen economy, include Australia, Canada, China, Japan, the Republic of Korea, New Zealand, Russian Federation and the United States.

### **Methane Hydrate**

Currently, several APEC economies are actively developing techniques to detect and produce methane from hydrates. These include Canada, Chile, China, Japan, Korea, New Zealand and the United States. Significant research and development is still needed. No one in the world has produced commercial-scale volumes of methane from hydrate. Methods to locate and define potential methane hydrate volumes before drilling are needed. Concerns about methane release to the atmosphere also must be defined and mitigated.

### **Petroleum Infrastructure and Crude & Refined Products**

In their "Declaration on Strengthening our Community, Building a Sustainable Future", APEC Leaders "recognised the ongoing economic risks associated with high and volatile energy prices and affirmed that rising energy demand in the Asia-Pacific can best be met by expanded trade and investment to boost supply and greater efficiency in use". EMM-8 noted the importance of facilitating investment and trade in upstream and downstream oil markets, through transparent, credible, equitable, effective legal and regulatory frameworks.

### **Cross-Cutting Projects Relating to Long-Term Measures**

Energy Ministers noted at EMM-9 that "introduction of low-carbon technologies in city planning to boost energy efficiency and reduce fossil energy use is vital to manage rapidly growing energy consumption in urban areas." EMM-9 therefore instructed EWG "to establish a Low-Carbon Model Town Task Force to "develop the concept of a Low Carbon Town, conduct feasibility studies to

encourage creation of low-carbon communities in urban development plans, and share best practices for making such communities a reality.” An initial meeting of the Low-Carbon Model Town Task Force was held in Tokyo in July 2010, and further meetings are planned on the margins of upcoming EWG meetings.

Building upon the highly successful Peer Review of Energy Efficiency, which has already engaged voluntary reviews of energy efficiency policies in one third of all APEC economies, it was agreed at EWG-40 in November 2010 to commence a parallel APEC Peer Review on Low-Carbon Energy Policies (PRLCE). This responds to Energy Ministers’ instruction at EMM-9 to explore mechanisms to encourage APEC economies to set individual goals and action plans for introducing low-emissions power sources. It will complement PREE and have a focus on the supply side, e.g., renewables.

### ***Cross-Cutting Green Energy Projects***

APEC Peer Review on Low-Carbon Energy Policies (PRLCE) – Phase 1

APEC Low-Carbon Model Town Forum

Workshop on Low Emissions Development Strategies (LEDS) for APEC

Increasing Foreign Direct Investment through Human Capital Development in Green Townships and Eco-cities (proposed)

### **ASIA PACIFIC ENERGY RESEARCH CENTRE (APERC)**

APERC's primary objective is to foster understanding among APEC economies of global, regional and domestic energy demand and supply trends, energy infrastructure development, energy regulatory reform and related policy issues in view of regional prosperity. APERC advocates rational energy policy formulation and enhances capacity building in energy research in the region. In making draft project proposals, APERC consults with the Expert Group on Energy Data and Analysis (EGEDA). APERC reports to EWG regarding its activities, achievements and budget for EWG’s review and its guidance.

### **Expert Group on Energy Data and Analysis - Ongoing Project**

Operation of the APEC Energy Database

### **Recently Completed APERC Publications** [available from [www.iecej.or.jp/aperc/](http://www.iecej.or.jp/aperc/)]

Understanding Energy in China

Energy Efficiency in the APEC Region

Urban Transport Energy Use in the APEC Region

APEC Energy Overview 2009

APEC Energy Statistics 2008

Understanding International Energy Initiatives in the APEC Region

APEC Energy Demand and Supply Outlook 4<sup>th</sup> Edition

Understanding Energy in China (Geographies of Energy Efficiency)

APEC Peer Review on Energy Efficiency – 2009 (Chile, New Zealand, Thailand, Vietnam)

APEC Peer Review on Energy Efficiency – 2010 (Malaysia, Peru, Chinese Taipei)

Compendium on Energy Efficiency Policies in APEC Member Economies – 2009, 2010.

### **ANTICIPATED ACTIVITIES WITH OUTSIDE ORGANISATIONS**

In their "Declaration on Climate Change, Energy Security and Clean Development", APEC Leaders welcomed work underway in international partnerships. At EMM-8, Energy Ministers noted that cooperation and partnership are essential to addressing energy security and environmental challenges that extend beyond the sphere of any single economy or the APEC economies as a group. Energy Ministers directed EWG to advance collaboration with the International Energy Agency (IEA)

and other international energy fora. The EWG has accorded guest status to the International Energy Agency (IEA) through 31 December 2011. EWG/IEA collaborative activities include emergency preparedness, energy indicators, clean coal technology, and renewable energy; work on fossil fuel reduction benefits is anticipated

The EWG is also cooperating with the Super-efficient Equipment and Appliances Deployment (SEAD) initiative of the Clean Energy Ministerial on the Cooperative Assessment of Standards and Testing (CAST) and strengthening of APEC-ESIS, as noted above.

### **CROSS-CUTTING ISSUES AND COORDINATION ACROSS FORA**

There are opportunities for the EWG and the Transportation Working Group (TPTWG) to investigate sharing information on maritime security issues, particularly in the area of port security. Three cooperative projects related to energy efficient transport are underway.

The EWG is progressing collaboration with both the APEC Transportation Working Group and the APEC Agricultural Technical Cooperation Working Group. It is also in initial discussions on collaboration with the APEC Industrial Science and Technology Working Group and the Human Resources Development Working Group. A project on strategies for development of transmission and distribution infrastructure for biofuels was developed in collaboration with the APEC Automotive Dialogue, and the project will be carried out in 2010.

The Small and Medium Enterprises Working Group invited the Chair of the EWG Expert Group on New and Renewable Energy to make a presentation at their Ministers' Meeting (Peru, 2008) on the potential of new and renewable energy technologies. The two working groups are actively discussing possibilities for collaborative activities. They have already agreed to cooperate on a proposed project on SME renewable energy infrastructure.

Cooperation with the Committee on Trade and Investment, Subcommittee on Standards and Conformance is taking place on various EGEEC-sponsored projects as well as SCSC-sponsored projects on energy managements systems, energy efficiency certification for green buildings, and standards and testing methods for photovoltaic power cells.

### **EXPECTED OUTCOMES//DELIVERABLES FOR 2011**

Inauguration of the Energy Smart Communities Initiative (ESCI) with activities on smart transport, smart buildings, smart grids and smart jobs, as described above.

Continued implementation of the Peer Review of Energy Efficiency (PREE), following four reviews performed in 2009 (Chile, New Zealand, Thailand and Viet Nam) and three performed in 2010 (Malaysia, Peru and Chinese Taipei) with reviews of two to three additional economies. Continued implementation of the Cooperative Energy Efficiency Design for Sustainability (CEEDS). Publication by Asia Pacific Energy Research Centre (APEREC) of the updated Compendium on Energy Efficiency Policies of APEC Economies.

Intensify work on standards and testing methods for key energy-intensive appliances and building components, through cooperation with the committee on Trade and Investment (CTI) and its sub-fora such as the Sub-Committee on Standards and conformance, so that all APEC economies can count on the energy efficiency of equipment they import, thereby boosting trade and helping economies to meet APEC's energy intensity reduction target.

Implement projects on policies and best practices to promote energy efficiency in APEC economies, as well as projects on efficiency standards and testing methods, as detailed above in discussion of activities by the Expert Group on Energy Efficiency and Conservation (EGEEC).

Undertake projects on renewable energy, as detailed in the discussion above of activities by the Expert Group on New and Renewable Energy Technologies (EGNRET) and Biofuels Task Force.

Undertake projects on natural gas trade, cleaner production of coal-fired power, and carbon capture and storage, as described for the Expert Group on Clean Fossil Technologies (EGCFE).

Continue projects to address energy investment and trade barriers in the APEC region, pursuant to the APEC Energy Trade and Investment Study and Roundtable (Australia, September 2008) and the Energy Trade and Investment Action Plan that was endorsed at EWG37.

Implementation of new initiatives requested by the Ninth Energy Ministers Meeting (EMM-9) including the Low Carbon Model Town Task Force, APEC Smart Grid Initiative, APEC Unconventional Gas Census, and Nuclear Power Emissions Reduction Potential Study.

Hosting of the first joint meeting of high level APEC officials on energy and transport, with a focus on clean and sustainable transport and themes to include the potential for efficiency improvement in transport, energy-efficient transit-oriented development for urban passenger transport, energy-efficient freight transport, and introduction of alternative transport fuels.

Implementation of new projects analysing remaining inefficient fossil fuel subsidies that encourage wasteful consumption with a view to their rationalization and phase out as well as exchanging best practices will be a priority in 2011.