**Asia Pacific Economic Cooperation - Energy Working Group**

**Draft Strategic Plan for 2014 - 2018**

**Energy Challenges and Opportunities in the APEC Region[[1]](#footnote-1)**

A variety of trends and recent events have converged in ways that present unprecedented energy challenges and opportunities for APEC economies over the next five years. Volatility in world oil markets, climate change, newfound unconventional gas reserves, the growth of developing economies and rapid changes in technology have all contributed to a landscape that involves significant threats to regional energy security, but also present new enormous opportunities and pathways.

Major concerns in the APEC region involve sufficient oil production, rising GHG emissions and questions surrounding future nuclear power generation. Since 1990, overall oil production in the APEC region has increased only slightly, while oil demand has risen significantly. As a result, oil imports into the APEC region have grown faster than production. Despite some significant increases in APEC’s own oil production, the APEC region is expected to become more dependent upon oil imported from outside the region, exposing the region to possible additional supply shocks.

Meanwhile, should APEC continue along its current trajectory of GHG emissions, the consequences for the climate could potentially have a devastating impact. APEC region carbon dioxide (CO2) emissions from fuel combustion are expected to rise by about 32 percent between 2010 and 2035. The threat these emissions pose to humanity, to the environment, and to the economies of the APEC region and the world certainly make it one of the greatest challenges facing the region.

Finally, the Fukushima Nuclear Accident has caused the APEC economies that use nuclear power, or are considering using nuclear power, to reassess their policies. Nuclear safety regulation is being reviewed and upgraded in all APEC economies with nuclear power. These safety reviews will necessarily cause some delays and slow-downs in nuclear power development. While all evidence suggests that the long term development of nuclear power will not be impacted by the accident at Fukushima, the uncertainty surrounding nuclear development in the short-to-medium term will remain.

The region has also seen several encouraging trends, including progress on reducing energy intensity, greater access to large natural gas reserves and the acceleration of renewable energy technology deployment. By 2035, the Asia Pacific Energy Research Center (APERC) expects the APEC region primary energy supply to increase by about 53 percent compared to 2005, while gross national product (GDP) will increase by about 225 percent. The net impact will be a decrease in primary energy intensity of about 53 percent. This decline primarily reflects improvements in technology driven by market forces (including rising energy prices) and the impacts of existing government policies promoting energy efficiency.

Meanwhile, the growing production of unconventional gas, initially in the United States and Canada but with significant potential in other APEC economies, has far exceeded expectations of only a few years ago. This is primarily the result of new technology for producing shale gas, including horizontal drilling and hydraulic fracturing. The conventional and unconventional gas resources of the Asia–Pacific region are immense. With LNG prices in Asia several times higher than those in North America, the economics of gas development outside of North America, as well as further gas development in North America, are compelling.

Finally, many APEC economies also are responding to climate change challenges with policies to promote renewable energy development. Technological improvement also continues to reduce the cost and improve the performance of renewable energy. While APERC expects renewable electricity generation to grow faster than any other form of electricity generation in the region, the overall role of renewables in energy supply will remain modest absent policies and investment that accelerate growth even further.

**Vision Statement**

To support APEC’s mission of promoting sustainable economic growth and prosperity, free and open trade and investment, regional economic integration and economic and technical cooperation in the Asia-Pacific region, we the Energy Working Group envision an Asia-Pacific that:

1. Achieves greater energy security through the use of a wide variety of energy sources that are developed in a safe, efficient and environmentally sustainable manner;
2. Uses fossil energy in a sustainable manner without inefficient fossil fuel subsidies that cause wasteful consumption;
3. Contains an ever increasing number of cities and communities that take a systems-based approach to clean energy deployment and energy efficiency;
4. Continues to be an innovation hub for cutting edge renewable and energy efficiency technologies and supportive policies in areas of power generation and distribution, industry, transport, buildings and appliances;
5. Leads the world as a region where energy goods, services and investment flow freely; and
6. Transitions to a lower carbon economy through the continued development of cleaner energy sources and technologies and improved energy efficiency through commercially viable technologies, and effective policies and practices.

**Mission Statement**

The EWG’s mission is to build the capacity of APEC members to strengthen domestic and regional energy security while lowering the carbon intensity of energy supply and use across the region.

Key outcomes to support this mission we hope to achieve by 2019 include:

* Staying on target to achieve a reduction in aggregate energy intensity of APEC economies by 45 percent from 2005 levels by 2035, as directed by APEC Energy Ministers and Leaders in 2011;
* Endeavoring to double the share of renewables in the APEC primary energy mix by 2030, and increasing the number and type of renewable energy projects;
* Increasing economic growth by reducing inefficient fossil fuel subsidies, including through the completion of ten APEC economy peer reviews and by continuing peer reviews and follow-up reviews on energy efficiency and new and renewable energy;
* Launching a new Energy Smart Community Initiative (ESCI) pillar on sustainable manufacturing and undertaking a second tranche of energy efficiency projects in ESCI’s existing four pillars;
* Undertaking new analysis, research and demonstration on the water-energy nexus; and
* Contributing to the spread of low carbon, low energy cities and communities through completion of five Low Carbon Model Town (LCMT) reviews, and capacity building and demonstrations.

**Critical Success Factors**

In order to ensure the realization of the EWG’s vision and mission, members commit to the following work principles:

* All EWG work will be made available or linked to the EWG website so that it may be shared widely with the public. To achieve this goal, expert group and task force chairs commit to updating their respective sites every [three] months with outputs from projects or events carried out under their group.
* All proposed projects will have the potential to benefit each APEC member and address needs that are shared among economies.
* EWG expert groups and task forces will stay apprised of each other’s current and proposed work to leverage the expertise of each for specific projects and to avoid duplication of efforts.
* Members will initiate strategic collaboration, where appropriate, with other international and regional organizations and associations where work overlaps with that of the EWG.
* Members will relay the information and outcomes of EWG workshops and work products to their relevant domestic stakeholders and exchange best practices on effective techniques in this regard.
* Members will stay apprised of energy-related work in other APEC forums and design synergistic projects with other APEC groups where appropriate.

**EWG Deliverables for 2014-2018**

The work of the EWG can be encompassed via four pillars: strengthening energy security, promoting energy efficiency and sustainable communities, developing cleaner energy sources and enhancing energy and low carbon trade and investment. These pillars stand upon the foundation of over 420 EWG projects undertaken from 1993 to 2013. The sections below highlight the guiding objectives under each of these pillars and the pre-2019 outcomes planned for each.

***I. Strengthen Energy Security****: APEC member economies are able to cooperatively weather short-term energy supply disruptions and to secure an affordable and cleaner energy supply for the region through longer-term measures.*

Key to meeting our energy security objectives are:

1. *Develop emergency response mechanisms and relevant data that can address both safety as well as short-term disruptions in energy supply.* To this end, the APEC EWG will: 1) reassess the “Sea-lane Disruption Simulation Exercise”, held April 2002 in Tokyo and organized by APERC, to reflect new geo-political realities in North Africa and the Middle East; and 2) update the 6th Energy Ministers Declaration on Energy Security in 2004 (Manila), to reflect the present day energy environment. The APEC EWG will revisit the “Best Practice Principles and Management of Strategic Oil Stocks,” and “Earthquake Response Cooperation Initiative” to encourage development of strategic stocks in interested economies, build resiliency into energy infrastructure to natural disasters and climate change, and increase the availability of timely, transparent and reliable energy data.
2. *Cooperate among interested members and relevant international organizations to promote the safe, secure and peaceful use of nuclear energy.* The Expert Group on New and Renewable Energy Technologies (EGNRET) will work with the International Atomic Energy Agency (IAEA) and other relevant organizations to conduct capacity building and training, and APEC economies will regularly share best practices and lessons learned.
3. *Encourage the removal of inefficient fossil fuel subsidies that promote wasteful consumption.* To this end, the EWG will endeavor to complete ten Inefficient Fossil Fuel Subsidy Reform Peer Reviews by 2019 in response to APEC Leaders’ commitment to rationalize and phase out inefficient fossil-fuel subsidies that encourage wasteful consumption. The EWG will regularly share the results and best practices from these peer reviews and undertake workshops with the next workshop in 2015.
4. *Continuously assess fossil fuel resources in the APEC region and assist economies in effectively bringing those resources sustainably to market.* To this end, and in response to APEC Energy Ministers’ Fukui Declaration, the Expert Group on Clean Fossil Energy (EGCFE) will complete an Unconventional Gas Resources Census for four APEC economies by 2015 to: 1) evaluate the potential of unconventional resources in these economies; and 2) to recommend cooperative actions that could increase natural gas output, boost natural gas trade and use, and moderate the volatility of natural gas prices to the extent appropriate both for producers and consumers. Two of these economies would have substantial experience in identifying and quantifying unconventional gas resources, and two would have significant discoveries and prospects but less experience in cataloguing the resources.
5. *Increase understanding of the relevant clean fossil energy technologies including carbon capture, use and storage (CCUS), promoting their efficient use, and facilitating access to these technologies by encouraging information exchange.* To this end, the EGCFE will aim to integrate the results of completed clean coal technology (CCT) development and deployment projects to date, as well as projects currently in progress and planned, into a CCT deployment manual aimed at deployment capacity building in developing APEC economies by 2015.
6. *Facilitate joint research and development on clean fossil energy technologies that are adapted to the needs of APEC members, as well as demonstrate and disseminate appropriate clean fossil energy technologies.* To this end, EGCFE will identify the priority R&D needs among APEC economies in the area of clean fossil energy technologies and lay out a program to respond to these needs, together with a timetable for delivering the results, by 2019.
7. *Promote analysis and information exchange related to the maintenance and enhancement of an open, efficient fossil energy market in the region.* To this end, the Expert Group on Energy Data and Analysis (EGEDA), in cooperation with other relevant international organizations like the International Energy Agency (IEA), will continue to enhance its collection, analysis and publication of oil, gas and other related energy data on a monthly and annual basis, including its data collection efforts for the Joint Organization Data Initiative (JODI).
8. *Enhance the security of energy networks in the APEC region*. To this end, the EWG will launch a cyber-security work stream that will develop a policy and standards roadmap for the APEC region to provide guidance to economies in building reliable, interoperable, efficient and secure electric grids. Work under this pillar will be initiated through a pilot project begun in 2014.

***2. Promote Energy Efficiency and Sustainable Communities****: APEC Member Economies are more reliant on sustainable energy sources and energy efficient technologies and practices that reduce their overall energy consumption.*

Key to meeting our energy efficiency and sustainability objectives are:

1. *Collaborate on product and system standards that enhance energy efficiency and clean energy deployment, while exchanging information on the impact of such standards.* To this end, the EWG’s Expert Group on Energy Efficiency and Conservation (EGEEC) will continue to collaborate with the APEC Subcommittee on Standards and Codes as well as relevant international projects such as the Super-Efficient Equipment and Appliance Deployment (SEAD) initiative, and enhance work that can lead to the development of compatible and transparent standards for energy efficient products, including those for buildings and appliances. The EWG will also encourage the research cooperation needed to develop such standards and to reliably test products, including through the APEC Building Testing and Rating Center.
2. *Facilitate the exchange of best low carbon policies, practices and tools among APEC economies to promote the development of sustainable communities across the region*. To this end, the LCMT Task force will oversee the completion of five LCMT projects in five APEC region cities over the 2014-2018 timeframe. The People’s Republic of China will establish the APEC Sustainable Energy Centre in 2014 to strengthen pragmatic cooperation and information sharing among APEC economies. In addition, the EGEEC will oversee the launch of a new ESCI pillar on sustainable manufacturing. To initiate work under this new pillar, the United States will share lessons learned under its E3 (Economy, Energy, Environment) initiative, which has served as a leading model for multi-stakeholder collaboration in this area.
3. *Support the development and commercialization of energy efficient technologies in the areas of power generation and distribution, industry, transport, buildings and appliances.* The EWG will undertake a second tranche of efficiency projects under ESCI to be defined by the EGEEC during 2014 to take into account areas already undertaken in EWG projects that require additional work and areas not yet addressed but that can have a substantial impact on decreasing the energy intensity and overall energy use in the APEC region.
4. *Begin work on the energy-water nexus.* The EWG will undertake workthat will provide tools, including modeling capabilities, to APEC economies to assess the impact of energy production and climate change on water quality, use and supply, and disseminate information on best practices and policies. The EWG will look for synergies with other regional projects on sustainable and efficient hydropower.
5. *Strengthen the reliability, adaptability and interoperability of electric grids in the APEC region.* Building upon the 12 grid related projects completed and ongoing, the EWG will put onto the Knowledge Sharing Platform the results of its work and look for synergies with international projects such as the International Smart Grid Action Network (ISGAN) as well as activities in APEC economies such as the Sustainable Energy for Remote Indonesian Grids (SERIG) Initiative to exchange information and/or to sponsor component activities especially useful to APEC economies.
6. *Develop the human resource base within member economies to improve their analytical, technical, operational, and policy capacity in the area of energy efficiency.* The EWG through EGEEC will work with the APEC Human Resources Development Working Group (HRDWG) to first inventory and collect on the Knowledge Sharing Platform work completed by APEC forums relevant to creating the workforce needed in the coming years to create, develop and deploy energy efficiency technology and products. It will then determine and report to the EWG by 2015 what work needs to be undertaken and what information available from APEC or provided by APEC economies needs to be more widely disseminated in an easy to access format.

***3. Develop Cleaner Energy Sources:*** *APEC Member Economies meet their energy needs in a way that minimizes impact on the environment and is safer for future generations.*

Key to meeting our clean energy generation objectives are:

1. Develop the human resource base within member economies to improve their analytical, technical, operational and policy capacity in the area of clean energy development. The EWG through EGNRET will work with the APEC’s HRDWG to first inventory and collect work completed by APEC forums relevant to creating the workforce needed in the coming years to create, and to develop and deploy renewable energy technologies to support the United Nation’s goal of doubling the percent of renewables in the primary energy mix by 2030.
2. *Conduct renewable energy resource assessments to facilitate a thorough understanding of renewable energy resource availability in APEC-member economies.* To this end, all EWG member economies that are parties to IRENA will endeavor to become signatories to IRENA’s Global Atlas, an online tool that provides users with information on renewable energy potential in regions around the world.
3. *Support the development and commercialization of clean energy technologies so as to make them economically viable in a wide range of applications.* In 2014, EWG through EGNRETwill develop a set of sub target cost ranges for renewable energies including wind, water, solar and geothermal. We will track progress toward their achievement in conjunction with APEC efforts to support the United Nation’s goal of doubling the share of renewable energy in the world energy mix by 2030. APEC demonstrations and capacity building projects and workshops will occur annually and, when possible, will be coordinated with the East Asia Summit’s Renewable and Alternative Power Workstream and ASEAN’s Renewable Energy Sub-Section Workshop that have similar goals for the region.
4. *Facilitate the exchange of best policies, practices and tools in the area of clean energy financing.* Building upon prior work on financing, the EWG will conduct an APEC Public - Private Dialogue on Addressing Impediments in Financing Renewable Energy. Additional projects, studies and best practices will be developed as needed through 2019 in close concert with the Asian Development Bank and other entities financing clean energy projects in the region.
5. *Educate industry, financial institutions, governments, technical assistance providers and educational institutions on the benefits of clean energy and the issues associated therewith.* Many financial institutions and technical assistance providers do not prioritize lending for clean energy or climate related projects. The EWG in 2015 will explore the major constraints to such financing (e.g., risk mitigation, fossil fuel subsidies) with these entities and determine which education or policy actions might be useful to stimulate such lending.
6. *Engage in clean energy technology assessment and related activities to demonstrate the cost-effectiveness of clean energy applications.* The EWG will work with APEC economies to collect and disseminate results of regional or economy-specific demonstration projects on cost-effective clean energy applications and undertake in other such activities to assess the real-world performance of clean energy technologies in different climates and applications. The work will commence with a workshop on biodiesel application experiences in 2015.
7. *Facilitate improved reliability and stability in the provision of clean energy supply to meet demand.* The EWG has undertaken work on the integration of renewables into the grid and grid-related energy storage. On the Knowledge Sharing Platform’s smart grid site, EWG members will post results of work on this issue within their economy or from international and regional activities in which they are involved. The EWG will encourage APEC economies to open their demonstrations to visits by APEC officials and students.

***4. Enhance Energy Trade and Investment:*** *APEC members move towards a framework where energy goods, services and investment flow transparently.*

Key steps to meeting our trade and investment objectives are:

1. *Identify significant barriers to energy trade and investment in the APEC region by seeking the business community’s input on priority trade and investment barriers in the energy sector.* Working with the APEC Committee on Trade and Investment (CIT) and the APEC Business Advisory Council (ABAC), the EWG will seek to identify significant remaining barriers for consideration as appropriate by the CIT. Representatives from the EWG intend to attend an ABAC meeting in 2014 to kick off this process.

1. *Build APEC member capacity to address barriers to energy trade and investment.* The EWG will continue to work with other APEC groups on environmental goods and services (EGS) issues especially with the Market Access Group (MAG) through the EGEEC and the Energy Trade and Investment Task Force (ETITF). The EWG will also continue to provide assistance as requested to the Automotive Dialogue on issues related to advanced energy efficient vehicles.
2. *Promote accessibility and transparency in the formulation and administration of energy sector investment-related policies.* The EWG will invite the Investment Experts' Group (IEG) under the CTI to brief the ETITF on its activities; and to jointly develop a set of best practices for investment in energy, especially unconventional and renewable energy.
3. *Enhance consistency of policies affecting energy trade and investment across the APEC region.* The EWG will remain open to requests for assistance from other APEC trade and investment forums.

1. Adapted from APERC’s APEC Energy Demand and Supply Outlook – 5th Edition. [↑](#footnote-ref-1)