The Chair of the EGCFE, Mr. Scott Smouse (USA), has provided a summary of administrative and project activities undertaken by the EGCFE since the EWG33 Meeting.

**ADMINISTRATIVE**

**Support Contractor**
Technical support to the EGCFE Chair is provided by Dr. Ian Torrens (USA), through a USDOE site-support contract, for proposal preparation, project implementation and reporting, and development of technical programs for EGCFE seminars and workshops. Also, The Meetings Manager (TMM, Australia) has been contracted for administrative support to the EGCFE Chair and Secretariat, principally support for EGCFE-organized seminars, workshops, and other events. TMM also manages the EGCFE Common Fund.

**Common Fund**
As of the end of July 2007, the EGCFE Common Fund balance was approximately US$41,000.

**Internet Web Site**
The EGCFE’s web site [http://www.apec-egcfe.org/](http://www.apec-egcfe.org/) was moved to a server at USDOE’s National Energy Technology Laboratory and is now maintained by DOE’s contractors. A reworking and refreshing of the website is underway, with several recent final reports and seminar/workshop proceedings to be uploaded.

**Planning Activities**
The EGCFE typically holds two administrative business/planning meetings annually. The first of these meetings this year was held following the APEC Clean Fossil Energy Technical and Policy Seminar in Hanoi, Vietnam, during 6-8 February 2007. Several economies are interested in convening an EGCFE strategic planning meeting but no commitments have been made yet.

**PROJECT STATUS**

**Completed Projects**

(1) **Carbon Dioxide Capture and Geological Sequestration – Phase III (EWG03/2005T)**
   – A team led by the Delhi Group (Canada) with support from the Alberta Research Council (Canada) prepared training materials on geologic carbon sequestration during Phase II of this multiphase project. To evaluate the training materials and to get feedback on how to improve the materials, a 2-day workshop was held in Seoul, Korea, during January 20-21, 2005, with support from the Australian CO2CRC. The Phase II training program was developed for use throughout the region to educate interested individuals and organizations on the potential to capture and store CO₂ from large fossil fuel-based energy facilities. Phase III of the project will refine the Phase II materials based on feedback from the Seoul workshop and deliver the training materials in at least two additional APEC economies. The project team suggested China and Mexico, and identified local hosts in both economies. The China workshop was held during 24-25
October 2006, with the China National Petroleum Corporation Research Institute of Petroleum Exploration and Development and the joint China National Petroleum Corporation-Alberta Petroleum Centre serving as local host and organizer. The Mexico event was held in Mexico City on November 2006, with PEMEX and the Mexican Energy Secretary serving as local hosts and organizers. Both events were very successful.

**Ongoing Projects**

1. **Potential for Growth of Gas as Clean Energy Source in APEC Developing Economies (EWG 02/2004) – Follow-up Work**

This is one of several natural gas projects implemented by the EWG and the EGCFE in support of the EWG’s Energy Security Initiative, which was endorsed by APEC Leaders at their Bangkok meeting in October 2003. The study examined expansion of natural gas in APEC developing economies where there is little to no present use of the fuel. APEC members account for over half of the world's natural gas production, consumption and exports, and the region's developing economies are additionally expected to contribute significantly to growth in natural gas demand in the coming years. The project pipeline for natural gas investments throughout the APEC region currently totals over $100 billion. An international consultancy team comprising Taylor DeJongh (TDJ, USA) and Resourceslaw International (Australia) conducted this APEC-funded $80,000-project to which an additional $10,000 was secured from a private sector U.S. firm. The final report has been submitted to the APEC Secretariat and posted to the EGCFE web site.

Following completion of this project, TDJ secured about $250,000 from the U.S. Trade and Development Agency to convene a regional natural gas conference to share the study results and to engage APEC member economies in a dialogue on natural gas. This workshop supports the APEC Energy Security Initiative. The “APEC Natural Gas Utilization Workshop” was held 27-29 August 2007 in Guangzhou, China. The 2½-day workshop focused on the institutional, technology, and financing issues related to accelerating natural gas development in the region, from upstream exploration and gathering to downstream distribution, with an emphasis on smaller, less marketable (yet viable) projects. The workshop also provided an opportunity for direct contacts and meaningful dialogue with key energy officials from APEC economies and the Guangdong Oil and Gas Association who are providing their support. Other workshop sponsors included ARGUS Media, CRA International, Guangdong Oil and Gas Association (OGA) Hill International, International Power Producers Forum (IPPF), and TDJ.

A site visit to China’s first LNG receiving terminal was organized after the formal sessions to Guangdong Dapeng LNG Company’s terminal. This company is a joint venture between BP, China National Offshore Oil Co., and several Guangdong Province- and Hong Kong-based companies. The first shipment of 125,000 cubic meters of natural gas officially marks the start of a 25-year trade relationship between the North West Shelf Venture and Guangdong Dapeng LNG Company Ltd. The Australian firm is expected to ship over 3 million tons of LNG annually after the project becomes operational, according to the contract signed in late 2004 between Guangdong Dapeng and North West Shelf Australia. The Dapeng complex, which cost more than US$3.6 billion to construct, is now transmitting natural gas via a 385-kilometre pipeline system, which it also built and operates, to customers in Guangdong province and Hong Kong, providing a low-carbon fuel option for the generation of electricity.
(2) APEC Workshop on LNG Public Education (EWG06-2006T) - The APEC Energy Ministers, at their Sixth Meeting in Manila in June 2004, instructed the EWG to continue its broad-based approach to energy security, which includes initiatives for expanding energy choices in the longer term. In this context, Ministers supported creation of a competitive and transparent marketplace for gas trade and encourage member economies to move towards best practice as identified in the report ‘Facilitating the Development of LNG Trade in the APEC Region.’ They also directed the EWG to continue its work to improve the security of natural gas supply by identifying vulnerabilities, supporting trade promotion, and establishing convenient information links to gas market data available in existing data systems.

In the context of sharing LNG best practices, Chinese Taipei proposed, and the Energy Ministers endorsed at their meeting in Gyeongju, Korea in October 2005, an APEC Public Education and Information Sharing Initiative. In support of this initiative, the EGCFE proposed to hold an APEC Workshop on LNG Public Education, which was approved and funded by APEC at US$100,000. Private sector and government officials involved with educating the general public and other government officials prior to the development and during the life of an LNG facility (either a liquefaction shipping or regasification receiving terminal) will be invited to the workshop to share their experiences. The workshop will consist of 1 ½-2 days of presentations and panel discussions followed by a possible site visit to an LNG facility. The Public Education and Training Center at Sun Yat Sen University (SYSU) in Guangzhou, China, has been contacted about possibly serving as the local host for this workshop. The workshop has been rescheduled for 5-7 November 2007.

(3) How Can Environmental Regulations Promote Clean Coal Technology Adoption in APEC Developing Economies? (EWG 05/2006)

Coal is expected to account for more than a quarter of new generating capacity in the APEC region during the next two decades. Consequently, to minimize coal’s environmental impacts it is important to employ technologies that increase the efficiency of generation from coal to the maximum extent that is consistent with cost and reliability/operability goals. A number of clean coal technologies (CCTs) have been developed and demonstrated that offer significantly higher efficiencies and lower emissions than conventional technologies that are widely used throughout the region. Others are under development.

Among the factors that can promote the development and early deployment of commercial clean coal technologies are government incentives and effective regulations that protect the environment at acceptable costs to consumers. The objectives of this project are to:

- gather, synthesize, and assess experience to date in developed economies with regard to the interaction of environmental regulations and clean coal technology development
- indicate features of the regulatory environment that can inhibit the development and deployment of CCTs in APEC developing economies where energy needs are expanding rapidly and coal is the fuel of choice
- make recommendations on features of the regulatory environment needed to favor and promote investment in projects using CCTs.
This US$100,000-project will assess and make recommendations on regulations that will promote the use of new clean and efficient coal-fired power generation technologies (i.e., clean coal technologies) resulting in lower emissions of air pollutants. These include nitrogen oxides (NOx), sulphur dioxide (SO2), and particulates, that are currently regulated in many economies; those under consideration for regulation (e.g., fine particulate and mercury); carbon dioxide (CO2), which is of increasing concern owing to its greenhouse gas potential; and production of wastes (e.g., fly ash and slag). In addition, environmental regulations related to water use for power generation in the APEC region will be included. The attributes of CCTs in regard to these pollutants will be summarized, and suggestions will be made on regulations that will promote the uptake of CCTs. The analysis will include the cost implications for these APEC economies, as well as the environmental benefits of implementing the recommended regulations.

A team of Science Applications International Corporation (SAIC) and Atkins China, Ltd. has been selected to conduct this project. The lead consult has visited several APEC developing economies (Thailand, Indonesia, and Vietnam) to collect information for the project. The draft report has been received and being reviewed by the United States and Australia with an aim of completing the project by the end of October 2007. To conclude the project, SAIC will present the project findings at the next EGCFE Clean Fossil Energy Seminar, which is scheduled to be held in Xi’an, China, during 15-17 October 2007.

**New Projects**
Awards for the following three new EGCFE projects were recently made as indicated.

(1) **Lessons Learned in Upgrading and Refurbishing Older Coal-Fired Power Plants - A Best Practice Guide for Developing APEC Economies (EWG 05/2007, $80,000)**
There is an urgent need to optimize the performance of older coal-fired power plants in the Asia Pacific region through cost-effective upgrading, refurbishment, and operations & maintenance (O&M) improvements. Developing APEC economies often lack the knowledge or experience to determine which plants should be improved and to what extent, including life cycle considerations. Decisions of this type are important for the continued reliable, cost-effective operation of the electricity infrastructure of many APEC economies. Moreover, refurbished power plants usually produce less carbon dioxide (CO2) emissions through efficiency improvement, which adds to the economic reasons to upgrade and refurbish existing plants.

The objectives of this project are to:

a) Illustrate the methodology and its usefulness as a decision-making tool using actual case studies,

b) Draw lessons from plant upgrading project experience that may serve to improve the prioritization and economic assessment methods proposed, and

c) Make usable information, tools, and best practice guidelines more widely available to APEC developing economies faced with decisions on how to obtain the best value for the limited funds they have available for upgrading.

This project was awarded to WorleyParsons of the United States.
(2) Technology Status and Project Development Risks of Advanced Coal Power Generation Technologies in APEC Developing Economies (EWG 06/2007A, $80,000)

The early deployment of commercial clean coal technologies (CCTs) for power generation in economies where a large growth of coal use is anticipated can substantially reduce emissions of criteria pollutants (sulfur dioxide, nitrogen oxides, and particulates), other pollutants (such as mercury), and carbon dioxide (CO2) emissions over plant lifetimes. Adoption of CCTs can be promoted through effective dissemination and exchange of information on experience to date of actual projects using these cleaner, higher efficiency technologies in different economies. The objectives of this proposed project are to:

- Gather, synthesize, and assess information on experience to date in APEC economies with regard to the status, performance, relative costs, and project development/financing risks for integrated gasification combined cycle (IGCC) coal-based generating plants versus supercritical and ultra supercritical pulverized-coal plants operating in different economies.
- Make recommendations on policy measures and financial incentives needed to favor projects using CCTs in APEC economies where energy needs are expanding rapidly and coal is the fuel of choice, and on further international collaboration that would assist in achieving this objective.

This project was awarded to Science Applications International Corporation of United States.

(3) Environmental Monitoring for Coal-Fired Power Plants in Developing Asian APEC Economies (EWG 06/2007, US$50,000)

An important aspect of furthering environmental goals in regard to power generation is adequate monitoring. This is needed both to ensure that power plants are performing as expected, and to confirm that they are in compliance with the applicable environmental regulations. For new power plants, this is a question of ensuring that the design includes state-of-the-art control and monitoring technologies, and in many APEC economies, this is required by regulations. However, existing coal-fired power plants, especially older ones in developing APEC economies, often have limited environmental monitoring capabilities, and their contribution to local and regional environmental impacts is difficult to measure. For economies that have instituted national, regional or local environmental quality standards, or targets for emissions of specific pollutants, it became necessary to formulate specific monitoring requirements and require individual plants, both new and existing, to implement these. Examples are requirements for coal quality and continuous emissions monitoring of air pollutants. Water pollutant monitoring and solid waste management are also significant.

The objectives of this project are to:
- Gather, synthesize, and assess experience in developing Asian APEC economies with regard to environmental monitoring and reporting by individual coal-fired power generating plants, both existing and new, and
- Make recommendations regarding how monitoring should be applied and how it should interact with regulations to promote adoption of clean coal technologies.

This project was awarded to WorleyParsons of the United States.
The EGCFE submitted the following seven proposals for funding consideration at the EWG33 Meeting, which were subsequently reviewed by the APEC Project Management Unit and Budget & Management Committee.

1. Reducing Trade, Regulatory, and Financing Barriers to Accelerate the Uptake of Clean Coal Technologies by Developing Economies in the Asia Pacific Region (United States)
   Total cost of Proposed Project: US$350,000
   Amount sought from APEC TILF Fund: US$100,000

2. Planning and Cost Assessment Guidelines for Making New Coal-Fired Power Generation Plants in APEC Developing Economies CO2 Capture-Ready (United States)
   Total Cost of Proposed Project: US$120,000
   Amount Sought from APEC Support Fund: US$80,000

3. Case Studies of Public Education and Information Campaigns in APEC Economies, and Development of Best Practice Guidelines (United States)
   Total Cost of Proposed Project: US$120,000
   Amount Sought from APEC Operational Fund or APEC Support Fund: US$80,000

4. Status and Prospects For Coal-to-Liquids Technologies (United States)
   Total Cost of Proposed Project: US$120,000
   Amount Sought from APEC Operational Fund: US$80,000

5. Assessment of the Capture and Storage Potential of CO2 Co-Produced with Natural Gas in South-East Asia (Canada)
   Total Cost of the Proposed Project: US$185,000
   Amount Sought from APEC Operational Fund: US$85,000

6. Increasing the Knowledge and Awareness of Carbon Capture and Storage: Capacity Building in the APEC Region (Canada)
   Total Cost of Proposed Project: US$138,000
   Amount Sought from APEC Support Fund: US$88,000

7. Actions by Government and Industry to Promote LNG Trade and Investment in the APEC Region (United States)
   Total Cost of Proposed Project: US$200,000
   Amount sought from APEC Support Fund Fund: US$100,000

The BMC approved funding for projects # 1 and #6 at slightly reduced levels. Planning for these two projects will be initiated at the next EGCFE Business Meeting. Several of these project proposals will be resubmitted to the BMC later this year or for their next meeting.
NEXT EGCFE SEMINAR
Planning is underway to hold the next EGCFE Clean Fossil Energy Technical and Policy Seminar in Xi’an, China, during October 2007, in conjunction with the Thermal Power Chapter of the Chinese Society of Electrical Engineers. The Thermal Power Research Institute will serve as the local host for joint event. The cojoined conference, which is held every 4 years, is one of the premier Chinese-organized power conferences and attracts several hundred power sector technology experts. An EGCFE Business Meeting will be held during the Seminar. Following the Seminar, a tour to a local coal-fired power plant will be provided.