



Energy Sector Progress Report and Work Plan (2010-2011)

**Senior Officials' Meeting on
Central Asia Regional Economic Cooperation
16 – 17 April 2010
Manila, Philippines**

SUMMARY HIGHLIGHTS

- The CAREC Energy Action Plan Framework focuses on the three areas: **energy demand-supply balance and infrastructure constraints; regional dispatch and regulatory development; and analysis of energy-water linkages**. Under the Action Plan, new investment projects have been identified and are under development. In addition, diagnostic works in each of the three areas have been initiated, and will help establish a shared understanding of opportunities for cooperation and action.
 - (i) Energy Demand and Supply Balance and Infrastructure Constraints
 - ADB is planning a \$2 million TA to help Central Asian countries prepare a **regional power sector master plan**. To initiate this work, ADB is providing technical expertise to help ESCC prepare a **diagnostics note** outlining ongoing investment and technical assistance activities. This note will help ESCC improve information sharing, and project planning and coordination amongst countries.
 - (ii) Regional Dispatch and Regulatory Development
 - The World Bank will help ESCC conduct a **diagnostics study** to identify opportunities and challenges in the power transmission network operations across Central Asia. The results will form the basis for a longer term effort in enhancing regional trade through effective national and regional dispatch.
 - The capacity building activities for the **CAREC Electricity Regulators Forum** will resume with the support of the CAREC Institute. This will help strengthen energy regulation and further sector reforms.
 - (iii) Energy Water Linkages
 - The ESCC will begin a two-phase process to enhance independent, shared and robust analytical tools on regional energy-water linkages. This will establish a consensus regional water-energy model structure, data requirements and supporting institutional platforms for regionally integrated water-energy resource management.
 - (iv) New Investment Projects
 - A number of new projects are under development in the CAREC countries.
- The ESCC meetings will be convened at least three times a year. The next meeting will be held in July 2010.
- Expected deliverables for the 9th MC are:
 - Investment projects identified
 - Energy Sector Progress Report and Work Plan
 - Diagnostic note on energy demand and supply balance and infrastructure constraints
 - Update on Phase 1 of the energy-water linkages modeling

I. OVERVIEW OF THE PROGRESS

1. The Central Asia Regional Economic Cooperation (CAREC) participating countries and multilateral institutions (MIs) began the implementation of the activities defined in the CAREC Energy Action Plan Framework (the Action Plan).¹ The activities primarily focus on the Central Asia energy corridor and will deliver investments, knowledge and capacity building, and policy advice in three areas: energy demand-supply balance and infrastructure constraints; regional dispatch and regulatory development; and analysis of energy-water linkages. The results would strengthen energy security and increase energy trade. This progress report focuses on the key developments in the energy sector since the 8th CAREC Ministerial Conference in October 2009.² The report is prepared by the Energy Sector Coordinating Committee (ESCC), and is submitted to the Senior Officials for consideration in April 2010. The report will be updated after each ESCC meeting.³

2. Following the Action Plan, number of new investments projects have been identified and are under development. Diagnostic works in each of the three areas have been initiated, and will help establish a shared understanding of opportunities for cooperation and action. As part of the CAREC results framework,⁴ the ESCC began to prepare specific indicators to monitor and measure progress of the Energy Strategy. These indicators will provide annual data to the CAREC results framework and development effectiveness review (DEFr).

II. KEY DEVELOPMENTS

A. Energy Demand and Supply Balance and Infrastructure Constraints

3. Following the Action Plan, Afghanistan, Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan agreed to study the power sector deficiencies at the national levels to help develop a technical framework for optimized regional power trade. The Asian Development Bank (ADB) is considering a \$2 million technical assistance (TA) to help these countries prepare a **regional power sector master plan**. To initiate this work, ADB is providing technical expertise to help ESCC prepare a diagnostics note outlining ongoing investment and technical assistance activities. This note will help ESCC improve information sharing, and project planning and coordination amongst countries. During the TA implementation, a technical subcommittee comprising of the representatives of the power utilities of the five countries will be established to support and coordinate the study work.

B. Regional Dispatch and Regulatory Development

4. The World Bank will help ESCC conduct a **diagnostics study** to identify opportunities and challenges in the power transmission network operations across Central Asia. This study will include a SWOT analysis, and identify immediate opportunities for capacity building and investment. The results will form the basis for a longer term effort in enhancing regional trade through effective national and regional dispatch, considering varying circumstances in each country. The ESCC will be supported by representatives of the Coordinating Dispatch Center and national dispatchers. It will continue to serve as a platform for discussion and priority actions based on the diagnostic.

¹ CAREC. *Energy Action Plan Framework*. 8th Ministerial Conference on CAREC. Ulaanbaatar, Mongolia.

² CAREC. *Energy Sector Progress Report November 2008 – October 2009*. 8th Ministerial Conference on CAREC. Ulaanbaatar, Mongolia. This report contains a list of relevant ongoing investment and technical assistance projects.

³ An ESCC Meeting was held on 25-26 March 2010 in Almaty, Kazakhstan. The meeting summary is at Appendix 1.

⁴ CAREC. *Results Framework*. 8th Ministerial Conference on CAREC. Ulaanbaatar, Mongolia.

5. Improved energy sector regulation is vital for improving performance of utilities, and facilitating more trade. The CAREC Electricity Regulators Forum (the Forum) was established in 2005. ADB supported the Forum activities during 2005-2008, including analytical studies and training. The Forum participants found the activities highly relevant. However, no activities took place in 2009, due to unavailability of resources. The ESCC will engage the energy regulatory bodies in each country to broaden its scope of activities as stated in the Action Plan. The ESCC requests the CAREC Institute to support the capacity building program started under the Forum.

C. Energy Water Linkages

6. The Action Plan articulated a need to improve the analysis of energy-water linkages. A workshop in September 2009 (linked to the ESCC meeting) explored existing regional water and energy modeling, brought experiences from other basins and started to identify needs and a plan of action for the analytic and modeling effort. This workshop, followed by additional discussion in the region (including with International Fund for Saving Aral Sea (IFAs)) identified a range of analytical and modeling priorities. As a result, the ESCC will begin a two-phase process to enhance independent, shared and robust analytical tools on regional energy-water linkages. The first phase is to be completed by December 2010 and will, through a consultative process involving both technical experts and users, establish a consensus regional water-energy model structure, data requirements and supporting institutional platforms. Phase 1 will also prepare a "first generation" basin model from existing free and publicly accessible information, including remote sensing and satellite imagery. This model will inform the consultations, building awareness on regional resources and interactions among water-using sectors. The second phase of this effort, to be started in 2011, will implement the findings of Phase I to adapt and/or formulate an agreed upon model and analytical base for regionally integrated water-energy resource management. It is proposed that a dedicated subcommittee, consisting of both ESCC and IFAS, be established to undertake the necessary work.

D. New Investment Projects

7. Energy efficiency in energy demand and supply, clean energy, and power trade are strategic priorities for CAREC countries. They represent the least-cost and low-carbon solutions to achieve and sustain energy security. They aim to cut the high energy intensity and increase energy productivity. The countries are committed to invest in advanced and clean energy technology and practices to take advantage of the numerous savings and economic benefits. The Action Plan calls for investments in system rehabilitation and expansion, and in associated systems, such as supervisory control and data acquisition (SCADA), metering, and communication. Below are examples of major projects in these areas that have been initiated since October 2009.

8. Kyrgyz power sector suffers from significant electricity losses due to theft, metering data manipulation, metering and billing errors, and dilapidated infrastructure. In addition, the inaccurate wholesale metering at the national and international level makes commercial operations difficult. Kyrgyz Republic requested ADB to help bring transparency to the power sector, reduce losses, and enhance regional power trade through (i) installing wholesale meters, (ii) installing a modern communication system which will enable automated metering data acquisition, (iii) developing basic components of a SCADA system, and (iv) studying the establishment of a wholesale electricity transaction settlement center (including import/export transactions) and reviewing the functions and status of the regulator. The project is expected to cost about \$56 million and will be implemented during 2010-2013.

9. Uzbekistan is one of the most energy intensive economies in Europe and Central Asia. Uzbekistan, recognizing the need to improve energy efficiency of industries has requested the World Bank for setting up of an Energy Efficiency Fund for Industrial Enterprises for increasing investments for energy efficiency in industrial sector. The funding in the first phase is planned to be US\$25 million IDA credit line and based on its success the funding would be scaled up.

10. Meeting winter heat and power shortfall have been key priorities for Tajikistan and Kyrgyz Republic. At the request of Kyrgyz Republic, an emergency support of \$4 million was sanctioned by the World Bank to provide for urgent repairs of the Bishkek combined heat and power plant. Similarly, at Tajikistan's request, the World Bank is helping set up facility to meet the peak winter shortages of heat and power for the years 2010-2011. IDA contribution would be \$15 million.

11. Rehabilitation and expansion of the transmission system is a priority for Tajikistan. This will strengthen cross border interconnections and improve quality electricity supply on regional and national level. Tajikistan requested ADB to support a project that will (i) replace equipment in 500 kV and 220 kV substations; (ii) expand the 220 kV network to improve reliability of connections with Afghanistan and the Kyrgyz Republic; (iii) install SCADA and Optimization Module to increase the operation efficiency of the Vakhsh cascade power plants; and (iv) address the issues of governance and operational efficiency improvements of the power sector. This project will cost \$138 million and be implemented during 2010-2013.

12. Another example is the Talimarjan power generation and transmission project in Uzbekistan. This will be one of the first power generation projects in Central Asia that will use advanced combined cycle gas turbine technology (about 850 MW). The project will improve generation efficiency and reduce harmful greenhouse gas emissions. People, business and industry in the region will benefit directly and receive reliable and quality service. The project also enhances regional connectivity and expands the power transmission network, and will deliver more electricity to neighboring countries. The investment requirement is about \$1.3 billion. Uzbekistan is anchoring the finance through its Fund for Reconstruction and Development and seeking cofinancing from ADB, Japan International Cooperation Agency (JICA) and World Bank. The project will be implemented during 2010-2014.

13. Kazakhstan is planning to build the region's first supercritical coal-powered thermal power plant in Balkhash region. This will improve power generation efficiency, and provide the much needed base-load generation capacity (about 1,300 MW). This will be an independent power producer (IPP) project. Project finance structure will be based on public-private partnership (PPP). Financiers including ADB, EBRD, IFC and Korea EXIM Bank have been approached by the project sponsors. The Project will be implemented during 2010-2015.

14. Afghanistan and Uzbekistan have agreed to increase power trade from 150 MW to 300 MW starting 2010. As demand in Afghanistan increases, the power trade is expected to increase. Uzbekistan has also initiated a dialogue with Pakistan on power trade. At Uzbekistan's request ADB and World Bank will help assess the potential, develop a project concept and conduct economic, financial and technical assessment during 2010-2011. Terms of reference for this study is under preparation. The World Bank is supporting the additional work needed to complete the feasibility study of the CASA 1000 project, proposed for power trade between Kyrgyz Republic, Tajikistan, Afghanistan and Pakistan.

E. Others

1. Energy indicators

15. The CAREC results framework is designed as an annual performance monitoring mechanism that presents clearly to all CAREC stakeholders the results and benefits of project-based regional economic cooperation. It will also contribute to CAREC strategic decision-making processes. The results framework operates at three levels: (i) countries' development outcomes, (ii) CAREC Program priority sector outputs and their contribution to development outcomes, and (iii) operational and organizational effectiveness of CAREC partners. ESCC will collect quantifiable data based on the Action Plan, and analyze, aggregate, and feed into the results framework. The results framework will be used as the basis of a CAREC development effectiveness review. The CAREC Secretariat will coordinate the results framework process, working closely with the ESCC. The draft energy indicators will be prepared by ESCC with support of the CAREC Secretariat and presented at the ESCC meeting in July 2010.

III. WORK PLAN IN 2010-2011

A. Deliverables for the 9th Ministerial Conference (MC) in 2010

1. Energy Demand and Supply Balance and Infrastructure Constraints

16. The ESCC will complete the diagnostics study in September 2010 and the report will be delivered to the 9th MC. ADB's financing for the regional power sector master plan study is expected to be approved in April 2010, and the consultant will be on board by August 2010. Preliminary findings of the study will be discussed at the ESCC in September 2010 and presented to the 9th MC.

2. Regional Dispatch and Regulatory Development

17. The ESCC will complete the diagnostics study in September 2010 and prepare the terms of reference. The report will be presented to the 9th MC.

3. Energy Water Linkages

18. The ESCC will complete the diagnostics study in October 2010 and prepare the terms of reference. The report will be presented to the MC.

B. ESCC Work Plan in 2010-2011

1. ESCC Meetings

19. The ESCC will comprise of energy sector focal points and relevant energy sector representatives from each country, and will meet as needed but at least three times a year. The ESCC requests the CAREC Secretariat to continue the support with the organization and arrangements. ADB and World Bank will provide necessary technical support to the ESCC activities. Tentative schedule and location of meetings is as follows:

25-26 March 2010	- Almaty, Kazakhstan
5-6 July 2010	- Ulaanbaatar, Mongolia
10-11 September 2010	- Issyk Kyl, Kyrgyz Republic
February 2011	- To be determined

June 2011 - To be determined
September 2011 - To be determined

2. Capacity Building

20. The ESCC requests the CAREC Institute to design and deliver training activities on pressing energy related topics, including training for CAREC energy regulators. The ESCC will define specific topics and coordinate with the CAREC Secretariat on the organization. The first activity of the training program will be delivered in conjunction with the July 2010 ESCC meeting.

21. ADB will support the ESCC through arranging participation in regional energy related learning programs, such as the annual Asia Clean Energy Forum. The ESCC encourages the MIs to support the ESCC capacity building program.

IV. KEY ISSUES

22. The ESCC will further develop the energy indicators of the CAREC Program Results Framework for consideration in July 2010. The ESCC endorsed (i) the CAREC energy sector work plan for 2010-2011 and (ii) the concept for creating three subcommittees (for each Action Plan pillar) for the Senior Officials' consideration during the April 2010 meeting.



**Central Asia Regional Economic Cooperation
Energy Sector Coordinating Committee (ESCC) meeting
25-26 March 2010, Almaty, Kazakhstan**

MEETING SUMMARY

I. INTRODUCTION

1. The ESCC meeting was convened in Almaty, Kazakhstan, on 25-26 March 2010. Delegations from all eight CAREC countries, as well as representatives from CAREC partner multilateral institutions and other development partners participated in the meeting. The meeting was chaired by Daryl Fields, Senior Energy-Water Specialist of the World Bank and Bayanjargal Byambasaikhan, Energy Specialist of the Asian Development Bank (ADB). The objectives of the ESCC meeting were to seek agreement on initial activities under the Energy Action Plan and on the ESCC work plan for 2010-11.

II. IMPLEMENTATION OF THE ACTION PLAN

2. The ESCC was briefed on the draft CAREC Energy Sector Progress Report and noted that tangible progress has been made in implementation of the Energy Strategy. The ESCC noted that the action plan only covers part of the Energy Strategy and agreed to consider additional activities in the subsequent work plan.

A. Energy Supply/Demand and Infrastructure Constraints

3. The ESCC endorsed the proposal to conduct a diagnostic study on the energy supply/demand and infrastructure constraints and a Regional Technical Assistance (RETA): Regional Power Sector Master Plan for Central Asian countries and Afghanistan to identify the investment needs in generation and transmission in the region. The ESCC provided the following suggestions:

- (i) To consider environmental and climate change impact of various options.
- (ii) Coordinate with updated, similar initiative in Afghanistan

B. Regional Dispatch and Regulatory Development

4. The ESCC was briefed on the recent international experience of the energy market integration. United States Agency for International Development (USAID) briefed the ESCC on the status of Regional Electric Market Assistance Program (REMAP) II, which will study the investment needs of both institutions and equipments related to communication and dispatch.

The ESCC was updated on the status of the regional power transmission system of Central Asia and endorsed the proposal of a diagnostic study on regional energy trade. The ESCC also requested the World Bank, USAID and ADB to bring lessons from other jurisdictions through seminars and site visits.

5. The ESCC agreed to strengthen the capacity development activities in energy regulation and further sector reforms with the support of the CAREC Institute.

C. Energy Water Linkages

6. The ESCC discussed and endorsed the proposed phase 1 initiative on Modeling and Decision Support Activities (M&DS) on Energy Water Linkages in the region. The objective of the two-phase M&DS activity is to strengthen regional cooperation through an analytical framework that integrates energy and water use in the region. The first phase will focus on consultation on the architecture of an agreed modeling framework and a rough “first generation” model based on publicly available data. The committee also had the following suggestions:

- (i) Foundation of the work - the proposed activities should be built upon existing studies and models and to help fill current information gaps.
- (ii) Scope of the work - in addition to analyzing the tradeoff between irrigation and power generation regimes, the proposed study should also consider the comprehensive usage of other resources and facilities, and to analyze the needs in water and energy resources related environmental and climate change impacts.
- (iii) Purpose of the work - training and capacity building should be built into the M&DS.

III. MONITORING AND MANAGEMENT

7. The ESCC discussed the draft energy sector indicators of the CAREC Results Framework, together with data collection mechanisms. The ESCC will further propose the draft indicators for consideration in July 2010.

8. To effectively coordinate the Action Plan activities, the ESCC proposed to establish subcommittees for each of the three key pillars. Upon endorsement by the CAREC Senior Officials, the subcommittees will be established, and specific work plans will be agreed.

IV. OTHER DISCUSSION

9. The ESCC was given a special presentation on Energy statistics and outlook for Asia and the Pacific, based on two publications prepared by ADB on *Energy statistics in Asia and the Pacific* (1990 – 2006), and *Energy Outlook for Asia and the Pacific*. The ESCC welcomed the study and agreed to provide country contact points as necessary for consultation and updated information to improve the ADB dataset and to identify potential training needs.

V. CONCLUSION AND NEXT STEPS

10. The ESCC agreed to submit the Energy Sector Progress Report and Work Plan, and the Meeting Summary on the ESCC meeting to the CAREC Senior Officials' Meeting (SOM) on 16-17 April 2010.

11. Key deliverables for the 9th CAREC Ministerial Conference will include the updated Energy Sector Progress Report and Work Plan, the Diagnostic Study for Energy Supply/Demand and Regional Dispatch/Regulatory Development, update on Phase 1 of the energy-water linkages modeling.

12. The next ESCC meeting will be hosted by Mongolia in July 2010. The ESCC will review the progress of the diagnostic study works. The 3rd ESCC meeting in 2010 will be hosted by Kyrgyz Republic in September 2010 to review and finalize the energy sector deliverables for the 9th CAREC MC.

The summary of the meeting has been approved by members of the ESCC.