Reference Document
For Session 3 of the Senior Officials' Meeting
31 October 2010

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

9th Ministerial Conference on
Central Asia Regional Economic Cooperation
31 October – 2 November 2010
Cebu, Philippines

SUMMARY HIGHLIGHTS

- The CAREC Energy Action Plan Framework focuses on the three pillars: **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 undertaken, as a basis for a shared understanding of opportunities for cooperation and action.

  (i) Energy Demand and Supply Balance and Infrastructure Constraints

  - ADB Board approved a $2 million TA in June 2010 to help Central Asian countries prepare a **regional power sector master plan**. To initiate this work, ADB completed a **diagnostics study** outlining ongoing investment and technical assistance activities. Its draft final report was discussed at the ESCC meeting in Bishkek (22 – 24 September 2010). The final report has been distributed to the members.

  - Upon the request of the Government of Afghanistan, ADB initiated $1.5 million TA to prepare a 20 year power sector development master plan. The consultants will work in close cooperation with regional master plan consultants and will focus on load flow analysis, opportunities for indigenous generation and import alternatives, transmission network development and future load centers.

  (ii) Regional Dispatch and Regulatory Development

  - The World Bank conducted a **diagnostics study** to identify opportunities and challenges in the combined Central Asia power transmission grid operations. The results were discussed in the September ESCC meeting. The study recommendations will be considered by the subcommittee in coordination with a planned USAID program and will specify short, medium and long term action plans to promote regional trade.

  - The **CAREC Members Electricity Regulators Forum** established in 2005 has been integrated into the Pillar 2 and will resume with the support of the CAREC Institute. This, together with other capacity building activities selected by the ESCC participants, will help strengthen energy regulation and sector reforms.

  (iii) Energy Water Linkages

  - The ESCC began a two-phase process to enhance independent, shared and robust analytical tools on regional energy-water linkages. The first phase, to be completed in Spring 2011, consists of consultations with each country and regional institutions to design an appropriate analytical foundation. ESCC members emphasized the need to build on past efforts and existing models.

(iv) New Investment Projects

- A number of new projects are under development in the CAREC countries.

- The ESCC meetings will be convened at least two times a year. The next meeting will be held in April 2011.

- The deliverables for the 9th MC are:

  - Energy Sector Progress Report and Work Plan
  - Diagnostic study on energy demand and supply balance and infrastructure constraints
  - Diagnostic study on regional dispatch
  - Diagnostic study and update on Phase 1 of the integrated energy-water analysis

I. OVERVIEW OF 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 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 October 2010. The report will be updated after each ESCC meeting.[3]

2. Following the Action Plan, a number of new investment projects were identified and are under development. Diagnostic works in each of the three areas have been completed, and will help establish a shared understanding of opportunities for cooperation and follow up actions. As part of the CAREC results framework,[4] the ESCC agreed on 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. Pillar 1: 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) approved a $2 million technical assistance (TA) to help these countries prepare a **regional power sector master plan**. In parallel, ADB initiated $1.5 million TA to prepare a 20 year power sector development master plan for the Government of Afghanistan. The consultants will work in close cooperation with regional master plan consultants and will focus on load flow analysis, opportunities for indigenous generation and import alternatives, transmission network development and future load centers.

4. To initiate these works, ADB completed a diagnostics study outlining ongoing investment and technical assistance activities. The supply-demand analysis demonstrated opportunities for economically beneficial regional power trade and emphasized that the design of new transmission lines and substations should take these into account.

5. ESCC agreed to establish a subcommittee comprising of the representatives of the energy ministries and power utilities of the five countries to support and coordinate the preparation of the regional power sector master plan. The terms of reference of the subcommittee were agreed.

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[1] CAREC. *Energy Action Plan Framework.* 8th Ministerial Conference on CAREC. Ulaanbaatar, Mongolia.
[2] CAREC. *Energy Sector Progress Report and Work Plan (2009-2010)*. Senior Officials' Meeting on CAREC. October 2009. Ulaanbaatar, Mongolia.
[3] An ESCC Meeting was held on 22-24 September 2010 in Bishkek, Kyrgyz Republic. The meeting summary is at Appendix 1.
[4] CAREC. *Results Framework.* 8th Ministerial Conference on CAREC. Ulaanbaatar, Mongolia.

B. Pillar 2: Regional Dispatch and Regulatory Development

6. The World Bank conducted a **diagnostics study** to identify opportunities and challenges in the combined Central Asia power transmission grid operations. This study included a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis and identified immediate opportunities, and was shared with ESCC in its September meeting. Preliminary model simulations indicated a potential saving of $1.5 billion over three years, based on simplified assumptions. It pointed out that the main issue is to elevate the confidence of countries to benefit from regional integration through cooperation. The follow on work will be discussed by a sub-committee for the Pillar 2 and closely coordinated with USAID's pending Regional Electricity Market Assistance Program Phase II (REMAP).

7. The CAREC Members Electricity Regulators Forum was established in 2005, however, activities were ceased in 2008 due to resource constraints. The ESCC members requested to revitalize the activities of the forum as a part of the ESCC's capacity building program.

C. Pillar 3: Energy Water Linkages

8. 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.

9. 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 early 2011 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.

10. 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. A dedicated subcommittee, consisting of specialists from energy and water-related sectors will guide this work.

D. New Investment Projects

11. 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.

12. Kyrgyz power sector suffers from significant electricity losses due to theft, metering data manipulation, metering and billing errors, and dilapidated infrastructure. Kyrgyz Republic requested ADB to help bring transparency to the power sector, reduce losses, and enhance regional power trade through (i) developing automated metering and data acquisition system at the wholesale level, (ii) rehabilitating selected substations, (iii) developing basic components of a SCADA system including a modern communication system in priority sections of the grid, (iv) studying the wholesale electricity transaction settlement mechanism (including import/export transactions), and (v) building the corporate and financial capacity of the national grid company. The project is expected to cost about $56 million and will be implemented during 2010-2013. ADB is expected to provide a loan and grant totaling $44.8 million equivalent.

13. Meeting winter heat and power shortfall has been a key priority for Tajikistan and Kyrgyz Republic. At the request of Kyrgyz Republic, an emergency support of $4 million (grant and credit) 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 has helped in setting up facility to meet the peak winter shortages of heat and power for the years 2010-2011. IDA grant contribution approved for this amounts to $15 million.

14. The World Bank is also finalizing Emergency recovery operation for Kyrgyz Republic, which will cover rehabilitation of the damaged electricity, heat and gas networks in Osh and Jalalabad; provide fuel for heating in these areas; and some urgent rehabilitation support for the electricity and gas networks. The total funding would be around $35 million through a combination of IDA credit and grant.

15. 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 Central Asian Power System; (iii) install optimization module for cascade power plants and SCADA in national dispatch center and more than 30 key substations; and (iv) address the issues of governance and operational efficiency improvements of the utility and power sector in general. This project will cost $141 million of which $122 is to be financed through ADB grant. The project will be implemented during 2010-2014.

16. 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 to set up an Energy Efficiency Fund for Industrial Enterprises for increasing investments for improving energy efficiency and competitiveness of the industrial sector. The funding for the first phase through $25 million IDA credit line has been approved and based on its success, the funding would be scaled up.

17. 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 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. The financiers of the project are: ADB, Japan International Cooperation Agency (JICA), Government of Uzbekistan and Uzbekistan Fund for Reconstruction and Development. The transmission component is financed by World Bank. The project will be implemented during 2010-2014.

18. 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 is planned to be implemented during 2010-2015.

19. 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 for Uzbekistan-Afghanistan-Pakistan electricity supply and trade project (UAP- EST). Terms of reference for UAP-EST study has been prepared and under finalization with the Government of Uzbekistan.

20. The World Bank is supporting the additional work needed to complete the techno-economic feasibility study of the CASA 1000 project, proposed for about 1,300 MW summer power trade among Kyrgyz Republic, Tajikistan, Afghanistan and Pakistan. The feasibility study update would be available in October 2010. The US State Government is funding the work related to environment and social assessment for this project. Besides the World Bank and Islamic Development Bank, other bilateral agencies have indicated their interest in supporting this project.

21. Turkmenistan and Afghanistan are exploring the possibility of building 500 kV electricity interconnection. The governments have requested ADB to conduct a preliminary assessment of technical, financial, economic and safeguards issues. The project is at early stage of development.

E. Others

1. Energy indicators

22. 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 agreed energy indicators are as follows: (i) transmission lines $\geqslant$110kV (some countries may report only $\geqslant$ 220kV, which was accepted by the committee because it will underreport performance) constructed or upgraded (km), and (ii) increased energy generation capacity (MW). The ESCC also discussed the proposed ESCC Results Framework that will enable the ESCC to monitor the performance in implementing the work program under the ESCC Energy Action Plan. The four agreed indicators are: (i) agreements reached on the energy transit, (ii) agreements reached on the energy trade, (iii) agreements reached on riparian; and (iv) volume of exports and imports of electricity.

2. Participation in ESCC

23. ADB and the World Bank recognize the active participation of all the members in ESCC meetings. To ensure continuity in participation and discussions, the ESCC agreed that each member country will identify an alternate energy sector focal point. In addition the countries are requested to ensure active involvement in subcommittees of Pillars 1, 2 and 3.

III. WORK PLAN FOR LATE 2010-2011

1. Energy Demand and Supply Balance and Infrastructure Constraints

24. The ESCC completed the diagnostics study in September 2010 and the final report was delivered in October 2010. ADB's financing for the regional power sector master plan study was approved by ADB Board in June 2010, and the consultant will be fielded by the end of 2010 in coordination with first subcommittee meeting. The study is expected to be completed by the end of 2011. ADB Board approval for the Afghanistan power sector development master plan is expected in October 2010. The total assignment is for 12 months and the consultants are expected to be fielded in December 2010. Preliminary findings of both studies will be discussed at the ESCC in April 2011.

2. Regional Dispatch and Regulatory Development

25. The ESCC completed the diagnostics study in September 2010 and the final report was delivered in October 2010. The subcommittee will meet in 2010 to prioritize follow up activities. It is expected that consultants will be fielded by December 2010 and will participate in subcommittee discussions.

3. Energy Water Linkages

26. The ESCC completed the preliminary diagnostics study in October 2009, which was expanded in country discussions in September 2010 and presented to the ESCC. National workshops to define additional analytical needs will take place in January 2011 followed by meeting of Pillar 3 subcommittee. Draft terms of reference for ongoing work will be presented at the next ESCC meeting in April 2011.

4. ESCC Meetings

27. The ESCC will consist of energy sector focal points and relevant energy sector representatives from each country, and will meet as needed but at least twice 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. The next ESCC meetings are scheduled for April and September 2011 (location tbd).

5. Capacity Building

28. The ESCC and the CAREC Institute agreed to design and deliver training activities and research programs on pressing energy related topics, including training for CAREC energy regulators. The September ESCC defined specific topics and the CAREC Secretariat will

produce a capacity building program for implementation starting with the April 2011 ESCC meeting.

6. Investment Plan

29. Based on the results of the regional power sector master plan, a draft investment plan will be produced by the 10th MC.

IV. ITEMS FOR SOM CONSIDERATION

30. Diagnostic studies identified three main challenges affecting regional power trade. These are:

- Technical – limited regional interconnections;
- Commercial – deficient market mechanisms and legal framework;
- Political willingness and commitment

The CAREC ESCC provides support in resolving these challenges. Technical barriers are addressed through development of the regional power sector master plan and prioritization and implementation of investment projects. ESCC Capacity Building Program in coordination with USAID REMAP II will assist in filling the commercial and legal gaps for efficient intra-regional power trade. CAREC and, subsequently, ESCC provide a holistic platform to engage the countries into mutually beneficial dialogue.

The SOM is requested to suggest any additional actions, mechanisms or information sharing tools that CAREC should undertake to efficiently address challenges affecting regional power trade.

CENTRAL ASIA REGIONAL ECONOMIC COOPERATION
Energy Sector Coordinating Committee Meeting
22-24 September 2010, Bishkek, Kyrgyz Republic

MEETING SUMMARY

I. Introduction

1. The ESCC Meeting was convened in Bishkek, Kyrgyz Republic on 22-24 September 2010. Delegations from seven of the eight CAREC countries[5], representatives from CAREC partner multilateral institutions and other development partners, and international energy and water experts participated in the meeting. In addition, representatives from the International Fund for Saving the Aral Sea (Executive Committee and SIC-ICWC) attended as observers. The meeting was opened by Honorable Osmonbek Artykbaev, Ministry of Energy Kyrgyz Republic and the opening session chaired by Mr. Avtandil Kalmambetov, Deputy Minister, Ministry of Energy of Kyrgyz Republic. Plenary sessions were moderated by the Asian Development Bank and the World Bank. The objectives of the ESCC meeting were to update on implementation of the CAREC Energy Action Plan, to seek agreement on the subcommittee work program, to share experiences on the subject of energy and water and to discuss deliverables for the 9th Ministerial Conference that will take place November 2nd 2010.

2. **Presentations by the Kyrgyz Republic**
The Kyrgyz Republic provided an overview of the energy sector and key directions of the state policy in energy. A second presentation by USAID-funded Kyrgyz Republic Energy Advisory Services program focused on efforts of Kyrgyz Government to promote transparency in the energy sector. The Presidential Decree of 10 July, 2010 focuses on the institutional reforms and introduction of incentives for accountability and performance based contracts. The work includes the set of planned actions to reduce losses through the installation of modern transmission and distribution metering and upgrading of the billing system to ensure revenues are retained within the energy sector.
Need for donor coordination and sharing information was encouraged for more optimal donor support in the sector. A third presentation on a study sponsored by EBRD, provided a brief overview of small hydropower (HPP) developments in the country. They have identified 20 out of 132 possible locations, of which 4 have feasibility studies currently under preparation. Implications of climate change has not been specifically examined, but hydrologic analysis shows that power generated in winter time by these 4 HPPs would be up to 50% less than summer generation. Small HPP development would be supported by a renewable energy law, amendments to which are ready to be submitted to the next Parliament for consideration.

II. Implementation of Action Plan

A. Pillar 1, Energy Supply/Demand and Infrastructure

3. The objective of the Energy Demand/Supply Balance Diagnostic Study is to contribute to the regional power sector master plan to identify optimal infrastructure investments. For the four countries (KAZ, KYG, TAJ, UZB) studied, the overall demand and supply characteristics, and national sector development priorities were given. The power sector development in

[5] Afghanistan, Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan, Uzbekistan. The People's Republic of China was not represented.

these countries for last decade was motivated by concerns for national energy security and self-sufficiency. In terms of gaps and overlaps in energy infrastructure, the study pointed out the need for more concentration of transmission assets for improving inter-connection abilities, and more attention to national/regional dispatch centers. The study illustrated the differences in peak hours across the four countries, as one of the opportunities for cooperation for energy security and cost savings. The diagnostic illustrates that the lack of energy inter-trade and coordination in seasonal energy generation and transmission has significant economic losses which can have important impacts on growth issues and energy security. The study pointed out the trade-off between individual national objectives and economic optimization. Political will to address some of these issues remains important.

4. The ESCC participants were presented with the findings of the diagnostic study and estimated revenue losses due to the lack of regional power trade. The delegates highlighted that among the three barriers, technical, commercial and political willingness, the last remains the most difficult and requires substantial joint effort for the resolution. It was agreed that overcoming commercial barriers will be assisted through the capacity building program provided by the CAREC Institute. Simultaneously, the technical bottlenecks for the regional trade of electricity and the proposals for their elimination will be prepared by the consultants of the regional power sector master plan, recruitment of which is at the final stage. The master plan will also provide technical solutions for the synchronized operation of Afghanistan with the power grid of Central Asian countries. The participants also discussed the need to identify Energy efficiency initiatives, which would result in quick realization of benefits in reduction of winter deficits and savings of energy.

B. Pillar 2, Regional Dispatch and Regulatory Development

5. The finding of diagnostic study for the Pillar 2 'Regional Dispatch and Regulatory Framework' was presented to the ESCC members. The Central Asia Power System (CAPS) study provided an overview of the current situation, strengths and weaknesses, opportunities and threats to integrated operations. It also offered short, medium and long-term recommendations. Historically, the CAPS planning and operation was designed on criteria where national borders were not taken into account. The situation has since changed after independence of the countries. The study findings were well received followed by involved discussions, indicating interest of members on this topic.

6. The diagnostic study simulated the integrated and isolated operation scenarios for all the five countries of the Central Asia Power System, noted the different time for occurrence of peak loads in each country, variability in minimum and maximum demand supplied on most of the days and concluded significant overall savings in the operation and system costs. The analysis illustrated the economic benefits of enhanced interconnections and trade in terms of cost-savings, fuel savings and infrastructure development, compared to countries operating in isolation. Model simulations indicated a potential saving of USD$1.5 billion over three years, based on simplified assumptions. It pointed out that the main issue is to elevate the confidence of countries to benefit from regional integration through cooperation. This will be assisted by increasing transparency, as the current (predominantly) vertically integrated structures make access to information more difficult for third parties.
7. The methodology and numbers of the study were discussed and debated. Though the diagnostic study did not carry out a rigorous economic and market analysis to accurately estimate the implications of current and future operations of the energy sector; however, the general message was recognized. ESCC members agreed that the follow on work required should be discussed and decided by the sub-committee for the Pillar 2. Afghanistan indicated its keen interest to participate in these subcommittee discussions as they perceive problems in trade with Central Asian countries due to lack of synchronization among their

power grids. The sub-committee will identify any perceived or actual issues in integrated operation and identify actions needed to realize the benefits from the immediate actions not requiring major changes and investments in the existing system.

C. Pillar 3, Energy Water Linkages

8. The work program for Pillar 3 to enhance cooperation by integrating energy and water analysis was approved by the ESCC in March 2010. This session focused on the first activity in the work program, namely to establish a joint view on decision support and architecture (design) for energy-water modeling for Central Asian countries. Reconnaissance meetings with national and political counterparts held over the last month discussed the fundamentals of a decision-support system architecture (i.e., data information; available tools and models; and user-interface). The consultants presented on the issues that they heard on the scope of the effort, perceived needs, data sharing and transparency, effective resource management, understanding the range of tradeoffs and opportunities, understanding the economic and commercial aspects, and national aspirations and regional benefits[6].

Key issues emerging from the presentation were:

1. Given the current level of cooperation, the countries uniformly welcomed the proposed initiative; they agreed to a common goal to develop an independent, transparent and technically acceptable integrated energy-water model.
2. The countries stated that there have been a number of models and analysis done for Central Asia, but have not brought together the broad range of sectors nor clearly embedded national goals and priorities.
3. While integrating national aspirations, there needs to be a connecting regional model to understand current and future energy water issues.
4. A review of existing models which have been prepared in the basins over the years, will assess the extent to which existing individual country or basin models for Central Asia address the stated analytical needs of the countries and region.
5. The decision support system for energy and water will require an institutional platform based on collaboration and mutual respect for data sharing, transparency in the modeling platform and a robust interface to evaluate trade-offs and opportunities, and risks with economic and commercial underpinnings.

The issues raised during the Committee's discussion included:

- Agreement with the proposed next steps, with the modification requested by KYRZ to begin the model overview in November (rather than October), and offer by SIC-ICWC to provide additional information provided at national workshops for better understanding of the model architecture. Uzbekistan indicated they would provide written comments.
- Support for working at national levels as well as at the regional level. Indicators should reflect outputs for each individual country.
- A review of existing models is important to see how they fit together; in addition, it was recommended that the model be built from smaller sub-regional analysis.
- Basins of all trans-boundary rivers and their tributaries are included in the model.
- The institutional platform for modeling and analysis will require further discussion amongst all countries.
- The energy-water analysis should be linked to an understanding of the role and functioning of all energy resources (it was noted that Pillar 1 will provide such an analysis, to be coordinated with Pillar 3).

[6] Kazakhstan did not attend the session on Energy-Water Linkages.

III. Other issues

9. **CAREC Ministerial Conference:** The program for the upcoming CAREC Senior Officials Meeting and Ministerial Conference (October 30 – November 2, 2010) was explained, highlighting CAREC's 10th anniversary. ESCC will deliver the results of the diagnostics for each of the three pillars as well as the Progress Report.
10. **ESCC Progress Report:** The updated energy sector progress report and work plan (and schedule) were reviewed. It was proposed to convene the Committee twice annually, with sub-committee meetings as needed. The first sub-committee meetings (for Pillars 1 and 2) were proposed for December 2010; the sub-committee meeting for Pillar 3 was proposed for Spring 2011. The next ESCC was proposed for April 2011. Locations are to be confirmed by individual countries. Principally the dates, actions, activities and dates proposed were accepted, Uzbekistan indicated they will provide comments in written form.
11. **Capacity Building:** A presentation from the CAREC Institute explained its role as a virtual institute, focusing on capacity building and sector research activities in priority sectors at the regional level. The CAREC Institute Performance Assessment Review (CIPAR) undertaken in consultation with member countries highlighted the desire for greater interface with sector coordination committees. Appropriate participation and coordination for the sector committees was discussed as was improved interface with international and local institutions. Following the presentation, discussion focused on possible areas for capacity building events for the Energy Sector Coordinating Committee. Topics were suggested for Pillars 1, 2 and 3 for a variety of modalities (presentations, research and study tours). Participants were given a table of possible topics and asked to indicate their priority interests. These will be combined into a single list of priority events.
12. Invitation to CDC (Energy): the committee agreed to invite a representative from CDC to each ESCC meeting and relevant subcommittee meetings as an observer.
13. The next meeting of the ESCC will be in April 2011.

IV. Conclusions and Next Steps

14. The subcommittee meetings for Pillar 1 and Pillar 2 will take place in December 2010. The subcommittee meeting for Pillar 3 will take place in January 2011.
15. The summary of the meeting has been approved by the participating members of the ESCC meeting.