



Central Asia Regional Economic Cooperation Program

Reference Document
For Session 3 of the Senior Officials' Meeting
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Energy Sector Progress Report and Work Plan

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I. KEY DEVELOPMENTS

A. Sector Implementation

1. This progress report describes CAREC activities undertaken in the energy sector since the November 2014 Senior Officials' Meeting (SOM) and 13th Ministerial Conference (MC) held in Bishkek, Kyrgyz Republic. During the 19th Energy Sector Coordinating Committee (ESCC) Meeting, progress in the implementation of the 2013–2015 Energy Work Plan (EWP) was noted to include: (a) continuation of initiatives to enhance the Central Asia-South Asia energy corridor; (b) technical support activities assessing methodological and technical barriers facing regional power trade in Central Asia; (c) examination of climate change-induced energy sector vulnerabilities; (d) commencement of a Power Sector Financing Roadmap to mobilizing funds for investments in energy assets; and (e) capacity development activities in the areas of energy efficiency and regional energy trade. The ESCC has also initiated discussions on the formulation of the EWP for 2016–2020, which will be finalized in 2015.

2. Achievements in the energy sector are currently measured through five indicators, intended to capture the contribution of CAREC's physical infrastructure expansion and rehabilitation operations to energy security, energy efficiency, and the CAREC region's ability to enhance power trade as a result of completed projects. The indicators were first assessed in 2013, and they are expected to be evaluated annually in the CAREC Development Effectiveness Review (DEfR) process. The energy sector output indicators and the energy sector results framework are presented in the following tables:

Table 1: Energy Sector Output Indicators

Indicator	Unit	2013 (Baseline)	2014	2015	Projected by end of 2015	Progress
Installed or upgraded transmission lines	km	612				
Increased energy generation capacity	MW	300				
Rehabilitated generation capacity	MW	0				
New substations	MVA	250				
Upgraded substations	MVA	400				

* Following the 19th CAREC ESCC Meeting, member countries have been requested to provide their respective country data and project lists based on which the total target will be derived.

Table 2: Energy Sector Results Framework

Intervention	Sector Outputs	Sector Outcome
Develop programs to enhance regional energy trade and cooperation	<ul style="list-style-type: none"> • Targeted levels for domestic and cross-border energy projects reached by 2020 • Central Asia-South Asia energy corridor developed 	<ul style="list-style-type: none"> • Impact of uneven distribution of energy resources among CAREC countries overcome • Existing energy interrelationships optimized
Undertake analytical work on the linkages between energy and water resources Complete the financial road map and mobilize funds Strengthen institutional capacity of CAREC- member countries and share knowledge with them		

B. Addressing Actions Proposed in the 2013 CAREC Development Effectiveness Review and Ongoing Key Issues

Priority Actions in the CAREC Program for the Energy Sector (Implementation of the 2013–2015 Energy Work Plan)

3. The 2013–2015 EWP was formulated to ensure effective and timely achievement of the strategic objectives established in the 2020 CAREC Strategy for Regional Cooperation in the Energy Sector. The EWP consists of six actionable elements designed to target sector-specific operational priorities. Progress implementing the EWP is tracked and reported during the biannual ESCC meetings, and reviewed at the SOMs and MCs. The section below provides updates on the implementation status of the six elements and describes next steps agreed upon during the recent 19th ESCC Meeting.

Element 1: Developing the Central Asia – South Asia Energy Corridor

4. Action Initiated. Central Asia–South Asia Regional Electricity Market (CASAREM) has two complementary initiatives: (i) Central Asia–South Asia Electricity Transmission and Trade Project (CASA-1000) supported by the World Bank; and (ii) Turkmenistan-Uzbekistan-Tajikistan-Afghanistan-Pakistan Interconnection Project (TUTAP) supported by the ADB. Recent progress for each initiative is discussed below.

5. **CASA-1000.** As of late March 2015, the CASA-1000 financing agreements are as follows: The World Bank (\$526.5 million), Afghanistan Reconstruction Trust Fund (\$40 million), US Government (\$15 million) and European Investment Bank (EUR 140 million). There is a remaining financing gap of 25%, which is anticipated to be filled through financing from the Islamic Development Bank, the European Bank for Reconstruction and Development, other bilateral sources and additional World Bank funds.

6. The procurement of converter stations and operator for the CASA-1000 project; High Voltage DC line for Afghanistan and Owners' engineers are progressing. The CASA-1000

project is scheduled to be completed in the winter of 2017–2018. It has been noted that Uzbekistan is not participating and is opposing the CASA-1000 project.

7. **TUTAP.** The Tajikistan-Afghanistan and Uzbekistan-Afghanistan 220kV interconnections are operational and are currently supplying the Afghanistan network with 650 GWh from Tajikistan and 1500 GWh Uzbekistan. Implementation of the Turkmenistan-Afghanistan 500 kV interconnection, which will initially operate at 220 kV, has begun.

8. 900 GWh and 1600 GWh are expected to be supplied to Afghanistan by 2019 and 2025, respectively. The Turkmenistan component of the line is under construction and is estimated to be completed in 2019. Bids for the Afghanistan component of the line are under evaluation, and contracts are expected to be awarded within 2015.

9. Within Afghanistan, ADB is preparing a 500-kV transmission line project from Sheberghan to Pule Khumri (200 km) including a 300 MW back to back HVDC converter station at Pule Khumri. The project will bridge the missing 500-kV link in northern Afghanistan to extend the ADB-assisted 500-kV power interconnection from Turkmenistan to Kabul and provide 1,000 MW additional transmission capacity. The project is expected to be considered by the ADB Board in Q4 2015.

10. An addendum to the Afghan Power Sector Master Plan was conducted to address concerns about the impact of CASA-1000 and TUTAP on the Afghanistan power system configuration. The addendum considered the impact of CASA-1000 on future development needs of Afghanistan. It also considered the impact of interconnection with Turkmenistan, a correction to the capacity rating of Tajikistan-Afghanistan line, and the options for Afghanistan to synchronize with neighboring countries. The findings of the addendum concluded that TUTAP and CASA-1000 complement each other, resulting in higher financial returns.

11. **Next Steps.** The World Bank will work to develop open access arrangements for CASA-1000. ADB will continue rehabilitating infrastructure in Tajikistan and Kyrgyzstan. The projects will enable the two countries to maintain the availability of power for export, which is critical for the CASA-1000 and TUTAP projects. Both the World Bank and ADB will continue to report on project updates in subsequent meetings of the ESCC.

Element 2: Resolving Regional Energy Dispatch and Trade Issues

12. **Action Initiated.** A study on “Regional Power Trade Development in Central Asia” was proposed by the Kazakhstan representative during the 19th ESCC Meeting. The study, supported financially by the World Bank, will help promote power trade in Central Asia (CA) by evaluating the current condition of the power market models, pricing rules, and tariff regulation mechanisms in the power sector. The study will also analyze existing power sector agreements among the CA countries, including international infrastructure projects and trans-boundary trade mechanisms, and examine international best practice for establishing power markets. The study will build on the results of the 2010 study on regional trade completed by Mercados and the 2012 Regional Power Sector Master Plan completed by Fichtner.

13. **Next Steps.** During the March 2015 ESCC Meeting, it was agreed to establish a working group on regional market arrangements to support the study. It will be comprised of the head of the Central Dispatch Center (CDC) in Tashkent and three representatives from each country (the head of dispatch and two others). The World Bank will finance the group’s first meeting in

May 2015 in Almaty. In addition, The World Bank will procure consultants to begin work on the study.

Element 3: Managing Energy-Water Linkages

14. **Action Initiated.** The World Bank has initiated several activities, including a study on energy sector vulnerability to climate change, energy-water modeling training and establishment of a Central Asia energy-water knowledge data portal and network.

15. The Energy Vulnerability to Climate Change Study aims to support Central Asian countries in understanding climate change-induced energy sector vulnerabilities and building resilience to these vulnerabilities through the development of coordinated adaptation policies. The study will run hydrologic and economic models, which are specific to Central Asia and are thus well suited to articulate changes in the components of water flow (glacier melt, snow, and precipitation) and provide insight into energy sector adaptation policies. Using the models and other resources, the study will consolidate a vulnerability assessment of the impacts, risks and adaptive capacity of the energy sector. The results of assessment will provide guidance for decision-makers on options for investments in and management of power generation, transmission, and distribution assets, with a focus on challenges and opportunities for effective regional coordination of climate change adaptation.

16. During the March 2015 ESCC Meeting, the World Bank informed the ESCC that they, along with the consultants engaged to carry out the study, had conducted a regional workshop and held meetings with the five beneficiary countries of the study.

17. **Next Steps.** Based on the findings of the regional workshops and meetings, the consultants engaged by the World Bank are now preparing a draft report of the study. It is expected that the findings of the study will be presented during the next ESCC meeting in September 2015. In addition, the World Bank plans to develop institutional models for managing hydropower resources and to create a working group on managing energy-water linkages.

Element 4: Mobilizing Funds for Building Energy Assets

18. **Action Initiated.** The October 2013 CAREC SOM endorsed ADB's proposed technical assistance (TA) to develop the CAREC Power Sector Financing Roadmap for CAREC member countries. The TA aims to assess the capacity and willingness of CAREC countries to finance power infrastructure from their own resources, and from other potential sources of financing, for both national and cross-border projects. The project concept was approved and funding of US\$1.5 million was sourced from ADB and the People's Republic of China. The TA was approved in September 2014, and CAREC members have now been informed of the required inputs from countries for TA implementation.

19. **Next Steps.** The consultants, engaged to develop the CAREC Power Sector Financing Roadmap will assess, inter alia, regional power sector investment and development plans, legal and institutional frameworks, and financing sources for power projects and potential power sector PPP projects, and complete the study in early 2016. The CAREC countries will provide counterpart support for the Power Sector Financing Roadmap such as quick access to data, office accommodations and counterpart staff, including a designated focal point for the Study from each CAREC country. ADB will provide regular updates on the TA in subsequent ESCC meetings.

Element 5: Implementation of Energy Sector Priority Projects

20. **Action Initiated.** During the 17th ESCC meeting, it was agreed that the ESCC Secretariat will consolidate inputs from CAREC member countries to come up with a priority project list that will be compiled and regularly updated, based on the national investment plans of the member countries. This document will be an ESCC working document, and will not be discussed at the higher levels of the Overall Institutional Framework (OIF) of the CAREC program. Aggregate figures will be derived from the list to capture the contribution of CAREC's physical infrastructure expansion and rehabilitation operations to energy security, energy efficiency, and the CAREC region's ability to enhance power trade as a result of completed projects. The updating exercise shall be an annual ESCC activity for monitoring purposes.

21. The list of priority projects needs to be updated to cover a period up to 2020, in order to support monitoring of energy sector output indicators (refer to Table 1) for the DEfR, activities that will be conducted under the Financing Roadmap, and the development of the new Energy Work Plan (2016–2020).

22. ADB proposed to hold an investors' forum coinciding with the next ESCC meeting in September 2015. ADB also proposed to develop a one-page summary of various energy data from each country that will be available on the CAREC website as information to potential investors. Clearance of the content will be requested from each country.

23. **Next Steps.** The CAREC Secretariat will continue updating the list of energy projects with data/information from CAREC member countries who will submit their inputs for both the Energy Sector Priority Projects and Project list for the investors' forum by 30 April 2015. Inputs required from the CAREC member countries include basic project description, project objectives, sources of project financing and energy output indicators such as transmission lines installed or upgraded, increased generation capacity, etc. The priority project list will be confirmed at the next ESCC meeting in September 2015.

Element 6: Capacity Building and Knowledge Management

24. **Action Initiated.** The October 2013 CAREC SOM endorsed the proposed energy sector capacity building and knowledge framework program for 2013–2015 under the umbrella of the CAREC Institute, wherein one substantial event is envisioned per year for 2014–2015. The CAREC Secretariat also committed to implement improvements on the CAREC website energy page and transform the page into a platform for maintaining and disseminating available information on the energy sector.

25. During the March 2015 ESCC Meeting, USAID emphasized its commitment to support ESCC capacity building and knowledge management activities and presented its objective of enhanced regional cooperation on shared energy and water resources, and activities like supporting energy trade, providing additional funding for CASA 1000, sector reforms and institutional change, etc. USAID pointed out how its interests overlap considerably with other donor partners and how it stands ready to assist.

26. The Energy Charter Secretariat briefed the ESCC meeting on regional cooperation in the framework of the Energy Charter. Several regional cooperation meetings have been organized in Central and South Asia in connection with the Energy Charter's regional initiatives of (a) promoting political dialogue for the development of sustainable energy resources and energy trade (b) facilitating construction of cross-border energy infrastructure and

(c) enhancing cooperation through systematic knowledge and information sharing. To date, there have been 10 Regional Cooperation in Central and South Asia (RECA) meetings organized. The next RECA meeting is scheduled for September 2015 in Bishkek, Kyrgyzstan.

27. ADB presented information on the recent global decrease in the price of oil and the causes for the decrease. Factors leading to the decrease in the price of oil include higher supply and lower demand than anticipated and OPEC's decision to maintain its current production level of 30mb/d. The price decrease had macroeconomic and financial impacts on growth, inflation and the balance of payments, mainly reducing oil import bills and energy subsidy bills, among others. However, the slump presents an opportunity to implement reforms including reform of fuel and non-fuel subsidies and energy taxes.

28. ADB led the discussion on planning capacity building and knowledge sharing activities for the future. A number of common capacity building activities have been proposed by the countries, such as smart metering, solar power, energy efficiency technologies, demand forecasting, tariff and regulatory reforms etc. Four general themes were discussed:

- (i) Knowledge Sharing (smart meters, project management, independent regulation, tariff policy, forecasting, planning and energy efficiency)
- (ii) Technology Adoption (smart metering, solar power, battery storage, electric vehicles, energy efficiency)
- (iii) Regulatory Issues (framework for independent regulation, tariff setting for time-of-use tariffs, pre-paid meters, IPPs tariffs, and benchmarking)
- (iv) Training (demand management, forecasting, solar power, battery storage, energy efficiency, managing large transmission and distribution projects)

29. Two knowledge-sharing events were presented in the March 2015 ESCC Meeting in line with the ESCC's commitment to encourage information dissemination and sharing of best practices by incorporating capacity building and knowledge sharing activities in its meetings. One knowledge-sharing event showed the achievements of the Air Pollution Reduction Measures Project in Ulaanbaatar. The project promoted the use of clean and efficient stoves, developed technical documents and standards and improved coordination on the implementation of activities to reduce air pollution in Ulaanbaatar. Delegates from Afghanistan, the Kyrgyz Republic, and Tajikistan expressed interest in the possible replication of the project in their respective countries.

30. The Mongolian Ministry of Energy presented on the energy resources of Mongolia and the potential for regional energy sector cooperation. Mongolia is among the top ten most mineral-rich countries in the world, despite having explored only 17% of its vast territory. Mongolia engages in regional power trade using its coal, uranium, oil, solar, wind, and hydro resources. Mongolia also has an advantageous geographical location, with the Russia-China infrastructure connection, which goes through Mongolia and could be developed as a gas and oil pipeline, HVDC line, etc. Mongolia can also consider Central Asia for these opportunities for regional energy trade.

31. **Next Steps.** Several suggestions have been made to ensure better coordination among donor partners for their capacity building activities and knowledge sharing activities. The countries agreed to invite authorities in charge of regulatory functions from each country to the next ESCC meeting to share their experience and knowledge. Sharing of information through the CAREC newsletter is also considered. Azerbaijan agreed to share its experience on smart metering in the next ESCC meeting.

II. KEY ISSUES FOR GUIDANCE BY THE SOM

32. **Preparation of the Energy Work Plan (EWP) 2016–2020.** In view of the challenges faced by the region –infrastructure rehabilitation, funding gap and government’s inability to utilize resources– the strategies for the CAREC energy sector will include:

- (i) Develop and invest in priority projects;
- (ii) Develop capability and knowledge;
- (iii) Demonstrate technology credibility for leap-frogging; and
- (iv) Establish credible Regulatory Framework and transparent decision making to attract private investments

The Energy Work Plan for 2016–2020 will include a new element, “Promoting clean energy and energy efficiency technologies”, to support technology leapfrogging in the region.

33. The countries agreed that ADB would produce a draft of the EWP 2016–2020, which will be considered for endorsement at the September 2015 ESCC meeting.

34. **Formulation of the Energy Strategy 2020.** In parallel with the preparation of the EWP 2016–2020, the Energy Strategy 2020 will be formulated with the following focus areas:

- (i) Formulate renewable energy and energy efficiency policies;
- (ii) Invest in cross-border energy transmission;
- (iii) Facilitate access/transit to third country energy markets;
- (iv) Develop sustainable energy resources where possible; and
- (v) Build capacity for energy trade, energy efficiency, new technology and tackling climate change

III. CHANGES TO SECTOR ACTION PLAN

35. No changes are proposed.