



Technical Assistance Report

Project Number: 41001
March 2007

Central Asia Regional Economic Cooperation Members Electricity Regulators Forum (Financed by the Government of the People's Republic of China)

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
CAREC	–	Central Asia Regional Economic Cooperation
CMERF	–	CAREC Members Electricity Regulators Forum
CWRD	–	Central and West Asia Department
ESCC	–	Energy Sector Coordinating Committee
PRC	–	People's Republic of China
TA	–	technical assistance

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Energy
Subsector	–	Energy sector development
Themes	–	Sustainable economic growth, capacity development, regional cooperation
Subthemes	–	Promoting economic efficiency, and enabling markets, institutional development, trade and investment

NOTE

In this report, "\$" refers to US dollars.

Vice President	L. Jin, Operations Group 1
Director General	J. Miranda, Central and West Asia Department (CWRD)
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I. INTRODUCTION

1. The Central Asia Regional Economic Cooperation (CAREC) Members Electricity Regulators Forum (CMERF) was established in 2005 at the request of the countries participating in CAREC.¹ CMERF supports regional cooperation and integration in the energy sector under CAREC and aims to develop the capacity of participants to provide improved regulation of and regulatory support for energy sector reforms. CMERF promotes more efficient production and use of energy domestically, and is crucial for supporting the development of electricity trade in the CAREC region. Improved regulation will also attract more private sector participation in the regions' energy sector projects.

2. At the second CMERF Annual Meeting, held in September 2006, the participating countries² reaffirmed the practical value that CMERF adds to the process of harmonizing energy regulations, encouraging and facilitating regional trade, and developing the capacity of both regulators and regulatory bodies. The countries requested that the Asian Development Bank (ADB) further support the CMERF program in 2007–2008, and advised that CMERF focus on providing training to participants on specific regulatory topics.

3. The technical assistance (TA)³ will be a continuation of ADB's efforts in support of CMERF and the capacity of its participants to provide sound regulation of and regulatory support for energy sector developments. It will build on the outcomes of regional TA 6267⁴ activities and provide direct hands-on support for regulatory bodies, by designing and implementing tailor-made training programs for regulatory staff.

II. ISSUES

4. The priority of the CAREC program in the energy sector is to promote efficient and rational energy use within the region. CMERF was established to identify the key challenges faced by governments and regulators and to systematically assist them in moving forward with reforms. Energy sector challenges common to CAREC countries include: (i) excessive technical and commercial losses; (ii) poor billing and collection; (iii) heavily subsidized tariffs and unsound tariff structures; (iv) unreliable services, particularly in rural and poor urban areas; and (v) affordability problems facing consumers.⁵

5. The energy sector in almost every CAREC country was until recently a vertically-integrated, publicly-owned monopoly. This arrangement has proven inefficient and imposed serious regulatory challenges. CAREC countries are consequently considering a variety of approaches to structural reform. Sector reforms in the People's Republic of China (PRC) are evidence of gathering regional momentum to tackle the inefficiencies associated with the existing sector structure.

6. Institutional weaknesses in most CAREC countries distort the price of domestically-produced energy, so that market prices do not reflect true economic and financial costs, thereby obscuring the benefits of energy trade and conservation. Cross-subsidies are also common.

¹ CMERF was established in November 2005 at the Fourth CAREC Ministerial Conference with the support of Azerbaijan, PRC, Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan, and Uzbekistan.

² In addition to the above seven countries, Afghanistan became a participant of CMERF in September 2006.

³ The TA first appeared in *ADB Business Opportunities* (Internet edition) on 23 January 2007.

⁴ ADB. 2005. *Technical Assistance for Establishment of the CAREC Members Electricity Regulators Forum*. Manila. This regional TA was financed by ADB and the Public–Private Infrastructure Advisory Facility.

⁵ ADB. 2005. *Diagnostic Review of Regulatory Approaches and Challenges Report*. Manila.

While regulators in the region are committed to tariff rationalization, this will require a clear and open debate on the quality of service that the government is willing to support through explicit, non-distortionary subsidies to vulnerable or remote consumers. This debate will require robust participation by well-informed and articulate regulators, committed to realistically balancing the needs of consumers, developers, and government policies.

7. CAREC countries also possess significant complementary energy resource endowments. Kazakhstan, Kyrgyz Republic, Tajikistan, and Uzbekistan possess the common gas and electricity transmission infrastructure necessary to exploit these complementarities, but the poor condition of the infrastructure remains an impediment to trade. Currently, most energy trade in the region is on an exchange basis, and external power sources are used only when domestic producers are constrained. Deeper and more economically rational trade will considerably reduce the economic cost (including environmental factors) of meeting countries' energy needs. This trade is vital, given the cold winters experienced in all CAREC countries, the high energy intensity of most CAREC economies, and the increased industrialization and economic growth envisioned by their governments. Establishment of transparent electricity trading among CAREC countries will reduce the perceived political risk associated with investments in large projects that could be implemented for export of energy to neighboring countries.

8. Recent ADB-financed regional power projects connecting Afghanistan to Tajikistan⁶ and Uzbekistan⁷ are clear examples of how cross-border trade offers a win-win solution, enabling a surplus of power in one country to satisfy a neighbors' excess demand. Recent studies recommend that the CAREC region should pursue and encourage interconnections to neighboring regions.⁸ ADB is studying the regional electricity trading potential, which would help optimize utilization of power resources in both Central and South Asia.⁹

9. Ensuring properly utilization of these opportunities will require further improvements in the structure and regulation of individual countries' domestic energy sectors, as well as harmonized regulations for cross-border energy trade, transmission, and investment. The economic returns associated with cross-border infrastructure improvements will depend on the resolution of regulatory and structural issues. As reforms improve the sectors' financial position and economic signals, regional trade will emerge as a least-cost solution to meeting energy demand, and returns on infrastructure investments will rise. Regulators will be required to facilitate such trade by harmonizing regulations, particularly regulations regarding the use of regional power grids.

10. At the second CMERF Annual Meeting, participating countries stressed the importance of coordination and facilitation of activities and the need for greater ownership of CMERF. The country delegations reiterated that CMERF was not simply an annual gathering, but an effective and functional forum, and that activities under regional TA 6267 provided direct and practical support to their work. The exchange of ideas during annual meetings was indeed something that the regulators need, and it should be continued, as it fosters active cooperation among experts and regulators, and builds professional relationships between the CAREC region's regulatory bodies.

⁶ ADB. 2006. *Report and Recommendation of the President on the Proposed Regional Power Transmission Interconnection Project*. Manila.

⁷ ADB. 2003. *Report and Recommendation of the President on the Proposed Loan to the Transitional Islamic State of Afghanistan for Emergency Infrastructure Rehabilitation and Reconstruction Project*. Manila.

⁸ World Bank. 2004. *Regional Electricity Export Potential Study*. Washington DC.

⁹ ADB. 2007. *Technical Assistance for Preparing the Central Asia–South Asia Regional Electricity Market Project*. Manila.

11. The participants requested that CMERF train the regulatory agency staff on specific energy regulation topics. In addition to the annual meeting, these training programs will add direct value to the capacity of the regulatory bodies themselves. The customized training programs will also strengthen the individual capacity of the regulatory staff to make professional judgments and objective decisions. The participants also debated whether CMERF meetings could adopt a working group format, in which specific case studies (i.e., regional power regulation benchmarking and wheeling charge methodologies) would be presented and discussed.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

12. The TA will enable energy regulators to make professional and objective regulatory decisions. Improved regulation will enhance energy trade and support sound energy sector reforms in the CAREC region. The key outputs will be strengthened capacity of regulatory bodies and improved professional skills and knowledge of regulators. This will be achieved through customized training programs for regulators on selected focus areas, which enhance understanding of the economic incentives created by regulatory decisions. The design and monitoring framework is provided in Appendix 1.

B. Methodology and Key Activities

13. The participating countries agreed that the CMERF program should focus on strengthening the professional capacity of regulatory experts.¹⁰ The TA directly responds to this need and will undertake the following hands-on activities: (i) designing and delivering tailored training programs on specific regulatory topics, and (ii) organization of annual meetings. These activities are consistent with CMERF objectives and will further facilitate close coordination among the region's regulators, ADB, and other multilateral institutions.

14. Energy regulatory frameworks in each of the CAREC countries differ significantly, and regulatory skills vary from one agency to another. These differences in context and skills have been evident during past CMERF meetings and activities. The participating countries fully recognize these differences, and are eager to learn from their neighbors in the region as they develop approaches that match their own economic and technical conditions and objectives. The issues and responsibilities associated with each approach must be carefully considered by regulators, in light of international and regional experience.

15. Effective and ongoing interaction among CMERF participants will be required. The annual meeting remains a good platform for exchange of knowledge and experience, and facilitates access to prominent world experts in energy regulation; the meetings also benefit the regulators by enabling discussions of successes and failures in addressing common problems. Electronic communications will be an efficient and useful way to develop initiatives and disseminate information between annual meetings.

16. The TA will adopt a flexible approach to the design and delivery of training programs in order to effectively target and reach the regulators with relevant issues. Participants have been proactive in their willingness to address differences in their mandates and skills. By adopting a

¹⁰ Memorandum of Understanding for the Establishment of CMERF, CAREC Ministerial Conference, Bishkek, Kyrgyz Republic, 6 November 2005.

participant-driven approach, CMERF will be able to ensure that the participating regulators retain ownership of the activities. Initial training programs will focus on the following areas: (i) the roles, functions and skills required for effective energy regulation in the CAREC region; and (ii) the costs and benefits of incentive energy regulation in the CAREC region. Each of the participating regulators will then nominate up to two priority topics for consideration for subsequent trainings; two topics will be defined following consultation among participating regulators. Training activities will then be designed that focus on the specific needs of the target audience and are delivered in one of the participating agency locations.

17. The participating countries also requested that CMERF coordinate efforts with other regional energy regulatory associations and training institutions, so as to benefit from existing programs and activities. This will allow CMERF to respond to individual training needs, avoid duplication of effort, and save time and resources. Upon receiving specific individual training requests from participating countries the TA will examine the justifications and accordingly provide required support to trainees on a case-by-case basis.

C. Cost and Financing

18. The total cost of the TA is estimated at \$500,000 equivalent. The TA will be financed on a grant basis from the Government of the PRC through the PRC Poverty Reduction and Regional Cooperation Fund. The detailed cost estimates are shown in Appendix 2.

D. Implementation Arrangements

19. ADB will be the executing agency, and its Central and West Asia Department (CWRD) will administer the TA. Each participating country's regulatory agency (the implementing agencies) will take part in (i) defining relevant training topics, (ii) assisting trainers with design and preparation, (iii) training delivery, and (iv) organizing annual meetings and leading the exchange of experience and information. The TA will be implemented over 20 months beginning in April 2007. CWRD will organize and facilitate the annual meetings in 2007 and 2008. As agreed during the second Annual Meeting in 2006, the Energy Regulatory Authority of Mongolia will co-host the third CMERF Annual Meeting in Mongolia, when the co-host of the 2008 annual meeting will be selected. An international training institution, with qualified practical and instructional expertise in energy regulation, will be recruited to design and administer the training programs on selected energy regulation topics. The training institution will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time) using the quality- and cost-based selection method (simplified technical proposal). The outline terms of reference are in Appendix 3.

20. Training materials will also be disseminated via the CMERF website, and shared directly with relevant government personnel and development partners. Quality will be assessed primarily through participant and peer review. The outcome will be observed through (i) interactions with regulators during and after training and annual meetings, and (ii) the quality of subsequent regulatory decisions.

IV. THE PRESIDENT'S DECISION

21. The President, acting under the authority delegated by the Board, has approved ADB administering technical assistance not exceeding the equivalent of \$500,000 to be financed on a grant basis by the Government of the People's Republic of China for the Central Asia Regional Economic Cooperation Members Electricity Regulators Forum, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
Impact Increased energy trade between CAREC countries and enhanced energy sector reforms	Increased investment in interconnection projects: by 2010, energy trade in the CAREC region increased by 25% from 2007 levels Long-term power purchase agreements established Financial viability and sustainability of services achieved: by 2010, collection and billing rates increased by 50%	Regional energy sector reports (CAREC ESCC) Annual country trade and investment statistics Energy sector performance reports	Assumptions CAREC countries agree to and avail of the benefits of regional cooperation Political awareness and commitment towards creating sustainable energy trade conditions Risk Utilities involved perform on and deliver contractual agreements
Outcome Improved energy regulation in the CAREC countries	Regulatory independence achieved in CMERF participating countries with policy and legal frameworks in place Tariffs adjusted toward economically and/or financially justifiable levels Distortionary subsidies reduced gradually Social safety net programs designed and implemented where appropriate	Government resolutions on establishment of regulatory agencies Regulatory agency annual reports Energy sector performance reports	Assumption Governments commit to and progress with energy sector reform measures Risks Regulators have the professional and institutional capacity to make required decisions Utilities understand and fully adhere to regulatory standards and decisions
Outputs Strengthened capacity of regulatory bodies and improved professional skills and knowledge of regulators	Four training programs designed and delivered by December 2008 Annual meetings organized in September 2007 and 2008 Training materials and case study reports published by December 2008	Participant evaluation of training programs CMERF participating countries report to the CAREC ESCC	Assumptions Regulators commit to developing further capacity and actively participate in CMERF programs Training programs meet the requirements of the regulators ADB continues to support CMERF activities
Activities with Milestones 1. 2007 Annual Meeting (September 2007) 2. Training Program on Effective Energy Regulation (September 2007) 3. Training Program on Costs and Benefits of Incentive Regulation (September 2007) 4. Training Program (February 2008) 5. Training Program (July 2008) 6. 2008 Annual Meeting (September 2008)			Inputs ADB \$500,000 (financed by the Government of the People's Republic of China)

ADB = Asian Development Bank, CAREC = Central Asia Regional Economic Cooperation, CMERF = CAREC Members Electricity Regulators Forum, ECSS = Energy Sector Coordinating Committee.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Total Cost
People's Republic of China Poverty Reduction and Regional Cooperation Fund^a	
1. Training, Seminars, and Conferences	
a. Training Programs	
i. Participant expenses	240.0
ii. Trainer fees	80.0
b. Annual Meetings	
i. Participant expenses	120.0
ii. Resource speakers	30.0
2. Miscellaneous Administration and Support Costs	10.0
3. Contingencies	20.0
Total	500.0

^a Administered by the Asian Development Bank.
Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. General

1. The Central Asia Regional Economic Cooperation (CAREC) Members Electricity Regulators Forum (CMERF) was established in 2005 to support regional cooperation and integration in the energy sector under CAREC. Its main purpose is to develop the capacity of its participants to provide improved regulation of and regulatory support for energy sector reforms. CMERF promotes more efficient production and use of energy domestically, and is crucial for supporting the development of electricity trade in the CAREC region. At the second CMERF Annual Meeting, held in September 2006, the participating countries¹ advised CMERF to focus on providing training to its members on specific regulatory topics.

2. This Asian Development Bank (ADB) regional technical assistance directly responds to these requests and will enable the region's energy regulators to make professional and objective regulatory decisions. It will specifically provide direct and hands-on support for regulatory bodies through the design and implementation of tailor-made training programs for regulatory staff. Improved regulation will enhance energy trade and support sound sector reforms in the CAREC region. Improved regulation will also attract more private sector participation in the region's energy projects.

3. Energy regulatory frameworks in each of the CAREC countries differ significantly, and regulatory skills vary from one agency to another. These differences in context and skills have been evident during past CMERF meetings and activities. The participating countries fully recognize these differences, and are eager to learn from their neighbors in the region as they develop approaches suitable for their own economic and technical conditions and objectives. There are issues and responsibilities associated with each approach that must be carefully considered by regulators, in light of international and regional experience.

4. The TA will adopt a flexible approach to the design and delivery of training programs in order to effectively target and reach the regulators with relevant issues. Participants have been proactive in their willingness to address differences in their mandates and skills. By adopting a participant-driven approach, CMERF will be able to ensure that the participating regulators retain ownership of the activities. Initial training programs will focus on the following areas: (i) the roles, functions and skills required for effective energy regulation in the CAREC region; and (ii) the costs and benefits of incentive energy regulation in the CAREC region. Each of the participating regulators will then nominate up to two priority topics for consideration for subsequent training. After consultation among participating regulators two topics will be defined. Training programs will then be designed that focus on the specific needs of the target audience and are delivered in one of the participating agency locations.

B. Inputs

5. An international training institution (the consultant) with qualified analytical, practical and instructional expertise in energy regulation will be recruited to design and administer the training programs. The consultant will have sufficient administrative and logistical experience in providing training activities for clients from varying countries. The consultant will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from

¹ CMERF participating countries are Afghanistan, Azerbaijan, the People's Republic of China, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, and Uzbekistan.

time to time) using the quality- and cost-based selection method (simplified technical proposal). The consultant will be responsible for the overall planning and implementation of the training component of the TA. This responsibility will be carried out under the guidance of the Central and West Asia Department of ADB, and in close collaboration with the regulatory agencies of CMERF participants. The consultant will ensure and facilitate close coordination among the region's regulators, ADB, and other multilateral institutions.

6. The consultant will be responsible for organizing a cohesive team of international and domestic trainers to design and deliver four training programs on select energy regulation topics. Initial training will focus on two general topics: (i) the roles, functions, and skills required for effective energy regulation in the CAREC region; and (ii) the costs and benefits of incentive energy regulation in the CAREC region. The consultant will also identify the two subsequent training topics, based on consultation with and input from the regulatory agencies of CMERF participants. These additional topics will be finalized at the third CMERF Annual Meeting.

7. Each training program will be delivered in one of the CMERF country locations. The first two training programs will be held in conjunction with the third CMERF Annual Meeting, which will be held in Ulaanbaatar, Mongolia and co-hosted by ADB and the Energy Regulatory Authority of Mongolia. The target date is 10–14 September 2007. The location for subsequent training programs will be selected based on the relevance to the country regulator, as well as logistical and cost considerations.

8. Each training program is expected to involve regulators from at least four countries, and will be provided for no more than 12–14 persons in order to ensure active involvement and buy-in by the participants.

C. Reports

9. The consultant will be responsible for submitting the following reports to ADB, based on a schedule that has been agreed upon before mobilization:

- (i) an inception report containing the training methodology and with complete administrative plans, including budget, travel logistics, and proposed training location;
- (ii) a report detailing the outcomes of each training program after completion, including assessments from the participants; and
- (iii) a final report that also includes the assessment of the training programs and its applicability and value to participants.