

# **Energy Action Plan (2009 - 2012) Completion Report**

# Strategy for Regional Cooperation in the Energy Sector of CAREC Countries, *Strategy*

- Endorsed in November 2008
- Key *Strategy* elements
  - Investment
  - Capacity Building and Knowledge Sharing
  - Policy Environment
- Identified main “energy corridors”
  - Intra-Central Asia
  - Central Asia-China
  - Central Asia-South Asia
  - Central Asia-Russia
  - Central Asia-EU

# Energy Action Plan Framework, *EAP*

- Endorsed in October 2009
- Three strategic issues
  - Energy Demand and Supply Balance and Infrastructure (Pillar 1)
  - Regional Dispatch and Regulatory Development (Pillar 2)
  - Energy - Water Linkages (Pillar 3)
- Objectives of each Pillar
  - Pillar 1 : to promote energy security and regional trade by optimizing integrated generation and transmission expansion
  - Pillar 2 : to maximize the benefits of the unified Central Asian Power System (CAPS)
  - Pillar 3 : to strengthen cooperation by integrating energy and water analysis
- Priority to Intra-Central and Central Asia-South Asia corridors
  - Greater need and greater potential for energy sector integration

# Strategic Framework for the Central Asia Regional Economic Cooperation Program 2011-2020, CAREC 2020

- Endorsed in November 2011
- Implementation of actions under Pillars 1, 2, and 3 of the *EAP*
- Outputs from each Pillar
  - Pillar 1 :
    - *Diagnostic Study* (Oct. 2010)
    - *Regional Power Sector Master Plan (RPMP)*, Feb. 2012, Draft Final Report
    - *Afghanistan Power Sector Master Plan (APMP)*, Jun. 2012, Interim Report
  - Pillar 2 :
    - *Load Dispatch and System Operation Study for CAPS (LDSOS)*, Oct. 2010
    - *Regional Energy Security Efficiency and Trade (RESET) Capacity Building Program*
  - Pillar 3 :
    - *Consultations and capacity building; National workshops on modeling needs*
    - *Aral Sea Basin Dynamic Information Framework demonstration model*
    - *Roadmap for strengthening energy-water analysis*

# The Diagnostic Study (Pillar 1)

- Identifies technical, commercial, and political barriers which resulted in a sharp decline in power trade among four countries, Kazakhstan, Kyrgyz Republic, Tajikistan, and Uzbekistan
- Identifies “critical path” issues to enhance power trade between the four countries
- Recommends the preparation of power master plans for the region and for Afghanistan (RPMP and APMP)

# Regional Power Sector Master Plan, *RPMP* (Pillar 1)

- Estimates investment needs for the generation and transmission assets in Kazakhstan, Kyrgyz Republic, Tajikistan, and Uzbekistan : \$35 billion over 12-year period (2011-2022)
- Rank-orders the priorities for projects in each country
- Recommends institutional measures for the implementation of these projects

# Afghanistan Power Sector Master Plan, *APMP* (Pillar 1)

- Reviews the present status of the country's power system
- Prepares power demand projections
- Identifies generation and transmission capacity expansion options
- Develops and optimizes the model for power system expansion
- Reviews Afghanistan's existing power purchase agreements with neighboring countries
- Examines options for wheeling power from the Central Asian countries to Pakistan through Afghanistan



# Load Dispatch and System Operation Study for CAPS, LDSOS (Pillar 2)

- Identifies short-term and low-cost measures to partially solve CAPS problems
  - Improving the area control scheme to reduce unscheduled flows
  - Coordinating a scheme to share regulating and security reserves
  - Developing approaches for regional coordination in case of power system failures
- Identifies medium-term projects and intermediate cost measures
  - improving supervision and control hardware
  - installing commercial metering
  - installing software for daily dispatch
- Identifies longer-term targets and higher-cost measures for the reinforcement of the generation and transmission systems
- Estimates that, over a 3-year period, more than \$2 billion could be saved by allowing cross-border flows in the region, without any additional investments



# Activities under RESET Program (Pillar 2)

- Capacity building and training to enhance cooperation and to take steps for better regional power system integration
- Implemented programs:
  - Decision software for power system planning and operation
  - Development and implementation of international commercial agreements
  - Design and operation of power markets
  - Economics of energy efficiency and renewable energy
  - Regulation of the energy sector
  - Cross-border metering protocol

# Modeling and Decision Support Activities (Pillar 3)

- Independent first generation demonstration model of water flows
- Regional Workshop: Strengthening Analysis for Integrated and Adaptive Water Resources Management in Central Asia
- Roadmap proposes 2-year regional work program to be integrated with national programs with emphasis on data modeling, institutional strengthening and capacity building

# Barriers Identified in the Implementation of the *EAP*

- Political barriers
  - Lack of willingness and commitment
- Technical barriers
  - Limited regional interconnections
- Commercial barriers
  - Deficient market mechanisms and legal framework
- Funding barriers
  - Shortage and/or lack of timely availability