FIRST MEETING OF THE CENTRAL ASIA REGIONAL ELECTRICITY MARKET (CAREM) TECHNICAL WORKING GROUP

REGIONAL COORDINATION FOR SUPPORT OF CROSS-BORDER POWER EXCHANGES

Tashkent, Uzbekistan
March 3-4, 2020
INTRODUCTION AND TECHNICAL WORKING GROUP (TWG)’s OBJECTIVES
BACKGROUND

- 1960s - Central Asian United Power Systems (CAPS) created
- Objective:
  - Optimize regional water and fuel resources
  - Ensure secure and reliable interconnected operation
TIMELINE

1990s
- End of Soviet Union
- Joint coordination in CA declined

Early 2000s
- National objectives – diverging

2003
- Disconnection: Turkmenistan

2009
- Disconnection: Tajikistan

2016
- Water and energy related disputes – burden to CA IPS

Reduction of the electricity trade
REDUCTION OF THE ELECTRICITY TRADE…

To change this trend:

• Revived parallel operation & enhanced grid integration → increase in regional trade

• Consideration:
  1. State of the TS assets and infrastructure?
  2. Can it support regional trade increase?
INTRODUCTION

USAID’s Project in support of Central Asia Regional Electricity Market (CAREM)

Development objective:
“Enhanced regional cooperation on shared energy and water resources.”
GEOGRAPHIC COVERAGE
SUPPORT AND TECHNICAL ASSISTANCE TO CA COUNTRIES IN RELATION TO:

• Improvement of transmission system infrastructure technical conditions
• CA integrated power system operation
• Implementation of the electricity sector reforms
• Increase of the cross-border electricity trade (volume and transactions)
CAREM WORKING GROUPS

MARKET WORKING GROUP (MWG)

TECHNICAL WORKING GROUP (TWG)

LEGAL/REGULATORY WORKING GROUP (LWG)
TWG’s OBJECTIVES

TWG focuses on the issues related to the grid infrastructure verification and development to support regional trade.

• TWG major activities include:
  • initiation of the system data collection for improvement of regional system model
  • data sharing and communication protocol;
  • presentation of the process and methodology for conducting study and assessment of the transmission infrastructure;
TWG’s OBJECTIVES

• TWG major activities (continued):
  • discussion of existing transmission studies, technical standards, regulations and Information Technologies (IT);
  • developing principles of coordinated power system operation and strengthening the capacity of Coordination Dispatch Center Energy and the national Transmission System Operators (TSOs);
  • any other relevant technical topic as they may appear.
USAID’S ASSISTANCE TO THE CAREM TECHNICAL WORKING GROUP
PRELIMINARY ASSESSMENT OF TRANSMISSION INFRASTRUCTURE

1. Collection of system data and parameters
   – e.g., network configuration, transmission lines, substation equipment and generators parameters and characteristics, loads

2. Assessment of the topology and technical characteristics of each national transmission system and associated equipment
   – Objective – to uncover noticeable limitations and identify whether there is need for rehabilitation, reinforcement and modernization
ASSESSMENT OF THE TRANSMISSION TECHNICAL STANDARDS, REGULATIONS AND IT SUPPORT

1. Review of the technical standards, regulations and requirements used by each national TSO to plan and operate their transmission systems

2. Objective –
   - To evaluate the degree of preparedness of each system for parallel operation, and to what extent national regulations facilitate cross-border power trades
   - To evaluate existing agreements for the operation of the interconnections (including inadvertent power flows), as well as during system emergencies
   - To evaluate existing communication arrangements (including SCADAs) and metering schemes for cross-border energy accounting
DEVELOPMENT OF PRINCIPLES OF POWER SYSTEMS INTEGRATED OPERATION

In conjunction with MWG:

• Assessment of the expected technical and economic benefits of the integrated operation of all Central Asian national transmission systems

• Update technical rules and procedures and develop requirements to reflect modern practices for the operation of the transmission interconnections under normal and emergency conditions

• Procedures update for system planning to support efficient decision-making and long-term investment, planned maintenance, revenue metering, data sharing, and reporting

• Work with CDC to provide technical assistance to national system operators to firm up the parallel operation of their respective systems
REVIEW OF THE EXISTING TSO AGREEMENTS

In conjunction with LWG:

• Review existing agreements among TSOs
• Propose recommendations
• Promote the signing of new agreements for the coordinated operation of the regional power system, if needed
• Coordination with CDC and TWG: recommendations prepared, discussed with TWG and CDC
TWG MEETING AND WORKSHOP
WORK PLAN
ITEMS FOR TWG MEETING AND WORKSHOP

1. Introduction (this presentation)
2. Grid Studies
   – Objectives, Methodology, Input data, work plan
   – Coordination with TWG
3. Workshop
   1. Congestion management, transmission capacity allocation
   2. Balancing procedures and balancing responsibility
   3. Current roles of CDC Energy and its improvement
4. Discussion
USAID PROJECT IN SUPPORT OF CENTRAL ASIA REGIONAL ELECTRICITY MARKET

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