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# Central Asia Regional Electricity Market (CAREM)

## Accelerating Electricity Security and Economic Growth

# USAID POWER THE FUTURE PROGRAM

- Regional focus on 5 Central Asian Countries:
  - Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan
- Project duration:
  - August 2017- August 2021
- Project offices in Astana and Almaty, with coordinators in each country capital



# AREAS OF TECHNICAL ASSISTANCE

- Power Sector Reform and Enabling Environment
- Renewable Energy
  - Planning
  - Grid Integration
  - Competitive Auctions
- Improving Energy Efficiency
- Demonstrations and Pilots
- Transparency (Monitoring & Evaluation)
- Knowledge Management, Coordination and Learning



## Objective 1. Support for Clean Energy in Kazakhstan

- Improved Power Sector Planning and Operation for High Renewable Energy Scenarios
  - Power sector planning for High RE and EE scenarios
  - RE forecasting for improving RE grid integration
- Increased Deployment of Grid-Connected Renewable Energy
  - Grid integration
  - RE auction support





# System Impact Study for Interconnection of RE Projects

- Power systems modeling and analysis
  - Study behavior of existing power network (steady state and stability)
  - Predict behavior of power network with RE projects (steady state and dynamic)
  - Design and plan changes to the existing power network with the goal of:
    - ✓ Improving reliability of the network for current and future growth conditions
    - ✓ Ensure the system is safe and cost-effective

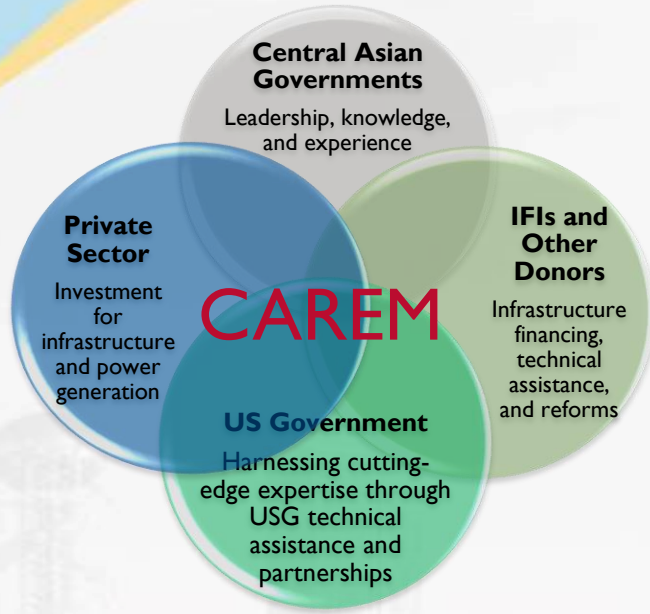


## OBJECTIVE 2. Regional Support to all Central Asian Countries

- Improve the enabling environment for Renewable Energy and Energy Efficiency
  - Assess current policies & laws
  - Improved power system planning
  - Grid interconnection and trade potential
- Country specific action plans
- Build capacity throughout the region to increase use of RE
  - Workshops, regional exchanges
  - Knowledge management portal



# Central Asia Regional Electricity Market (CAREM) - Accelerating Electricity Security and Economic Growth



## Goals

- Reliable electricity market with a modernized infrastructure
- Lower costs for the consumer
- Financially secure and sustainable power sector
- Regional system coordinator established and operational
- Transparent trading platform established and fully functioning
- Legal and regulatory standards for governing an integrated regional power market
- Improved regulations, governance, and transparency

## Results

- Energy Security
- Greater Economic Growth
- Open markets
- Diversified power generation
- Increased electricity trading
- Significant jobs created
- Improved regional connectivity between CA and SA countries

**CAREM  
Assistance**

Technical Assistance

Institutional Strengthening

IFI Financing

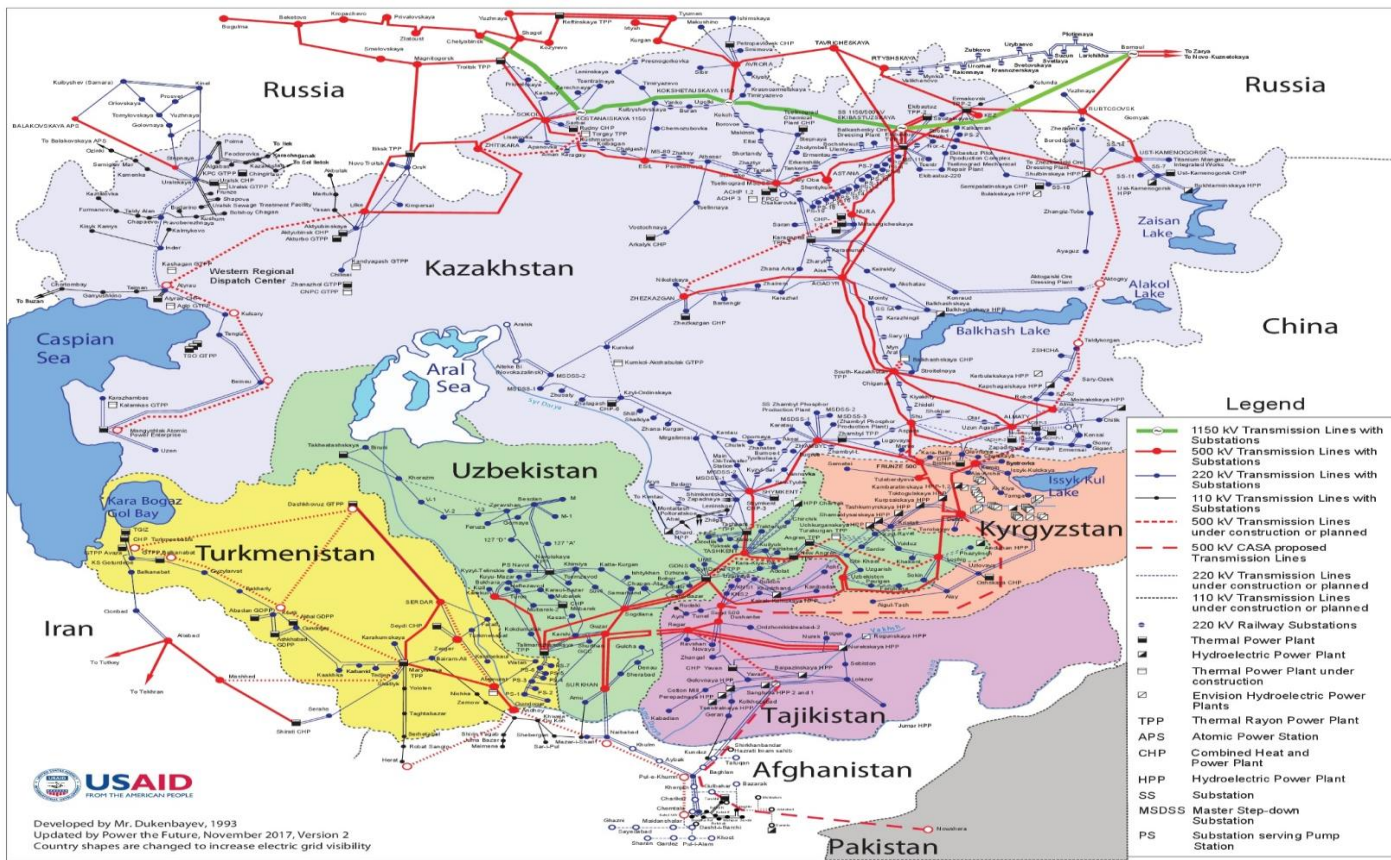
Infrastructure Development

Knowledge Management

Policy and Regulatory Reform

# Existing Central Asia Electric Grid

- Central Asia's integrated electric grid was developed in the 1970s under the Soviet Union
- Designed to optimize fossil fuels and water resources
- Balance between power generation and irrigation water needs
- Cross border trading is 10% of the Soviet Union era





## Why CAREM?

- Highly concentrated and diverse energy resources
- National power systems are aging (e.g. generation and transmission)
- Open market trading can allow for lower electricity prices
- Increased revenues by selling surplus electricity
- Export of electricity is a valuable source of foreign currency
- More efficient utilization of power generation and increased energy efficiency
- Increasing export opportunities will help increase renewable energy projects





# USAID Assistance towards a Regional Electricity Market

- Help implement sector reforms
- Support the adoption of regional policies, laws, regulations, rules and standards
- Support development of a regional trading platform
- Support IFIs who are funding rehabilitation and modernization of transmission infrastructure focusing on interconnections



## Framework for Action

### I<sup>st</sup> Stage: Expand Opportunities for Regional Electricity Trading

- Diplomatic discussions with Central Asian countries ministries and embassies
- Coordination with International Finance Institutions and other donors
- Agreements with Countries
- Establish Intergovernmental Council and Working Groups
- Develop Road Map for Implementation and Integration
- Agreements on Principles for Trading
- Strengthen CDC Energia
- Support the Establishment of a Regional Market Operator





# Framework for Action

## 2<sup>nd</sup> Stage: Develop Standards and Agreements

- Regulatory Structure
- Grid Codes and Market Rules
- Tariff Agreements for Trading, Wheeling, and Transit
- Emergency Supply Procedures
- More







## Next Steps

- Roadshows being planned for Sept. with CA energy ministries
- IFI and donor meeting in Almaty on Sept 24<sup>th</sup>
- CA country buy-in and political support





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