

Filed visit to the [Nurgisa solar power plant \(SPP\)](#) and [Kapshagay Hydroelectric Power Plant \(HPP\)](#)

Justification: Key aspects of the Nurgisa SPP, where CAWEP has helped facilitate investments for this large solar power plant, that are relevant to CACCC 2024:

- As one of CAWEP's key achievements, visiting this site would allow participants to witness first-hand the program's efforts in promoting renewable energy development and enhancing energy security in the region.¹
- With a capacity of 100 MW, the Nurgisa SPP is one of the largest solar power projects in Kazakhstan. Seeing a utility-scale renewable energy project of this magnitude can provide valuable insights into the technical aspects, challenges, and opportunities associated with large-scale solar power deployment.

Kapshagay HPP, as a major hydropower facility on the Ili River could demonstrate the role of renewable energy in climate change mitigation, the water-energy nexus in practice, and potential climate resilience considerations for hydropower infrastructure:

- The HPP has been operational for over 50 years, is one of the largest hydroelectric power plants in Kazakhstan, with an installed capacity of 364 MW from its four turbines. Visiting the plant can provide insights into the challenges of maintaining and upgrading older hydroelectric facilities in the face of climate change impacts.
- The Kapshagay plant is fed by the Kapchagay Reservoir on the Ili River, which is dependent on glacial melt and river flows that are vulnerable to climate change effects. Observing the reservoir levels and discussing water management strategies can facilitate dialogue on climate adaptation for hydropower generation.

Goal: The visit combines exposure to utility-scale solar and hydro facilities to provide a snapshot of Kazakhstan's clean energy transition. Seeing the plants in operation will stimulate dialogue on maximizing synergies between climate mitigation and adaptation in the energy sector. The interactive format aims to extract lessons that can inform future regional cooperation on sustainable energy development in Central Asia.

Day/time: 30th of May, Thursday, 8:30 AM-4:00 PM

Number of participants: Approximately 20-30 people².

Location: Almaty oblast

Draft Preliminary Program

8:00-8:30 AM - Depart from Royal Tulip Almaty Hotel

9:30 AM - Arrive at Nurgisa Solar Power Plant (100 MW) in Kapshagay

- Welcome and safety briefing by plant manager
- Guided tour of Nurgisa SPP to observe solar PV arrays, inverters, transformers and grid connection infrastructure
- Discuss technical specifications, performance data and operational challenges
- Learn about the role of CAWEP in facilitating investment for the project
- Q&A session with Nurgisa SPP staff on socio-economic impacts, local job creation, and scaling up solar power in Kazakhstan

¹ CAWEP report 2022-2023

² need to check with CAREC

11:30 AM - Depart Nurgisa SPP for Kapshagay HPP

11:45 AM - Arrive at Kapshagay Hydroelectric Power Plant (364 MW)

- Welcome and introduction to the facility by plant engineer
- Presentation on Kapshagay HPP history, technical specifications, role in Kazakhstan's energy mix and climate change mitigation efforts
- Tour of Kapshagay HPP to visit turbine hall, control room, switchyard and observe reservoir water management
- Assess infrastructure condition and upgrade needs

1:30 PM - Lunch and networking break

2:15 PM - Facilitated Q&A on renewable energy and climate resilience

- Compare solar and hydro technologies in the Kazakh context
- Discuss water-energy nexus challenges and solutions
- Identify best practices for climate adaptation and mitigation

3:30 PM - Wrap-up and closing remarks by hosts

- Reflect on key takeaways for renewable energy development
- Highlight insights for climate-resilient energy planning

4:00 PM - Depart for Royal Tulip Almaty Hotel