SEMI-STRUCTURED INTERVIEW QUESTIONS

A. Background and General Awareness

1. **Can you please tell us about your role in your organization and how it relates to energy, environment, employment or social issues?**

I am a Project Manager at USAID/Uzbekistan. One of the projects I managed was a regional energy project – Power Central Asia (PCA).

2. **How familiar are you with the concept of a "Just Energy Transition" (moving from fossil fuels to clean energy in a way that is fair and protects people's jobs and communities)?**

I am somewhat familiar with the concept but am not an expert.

3. **Have you or your organization been involved in any projects or discussions on renewable energy, green economy, climate change, or labour issues related to the energy transition?**

Yes, the PCA dealt with integration of renewable energy into the existing grid. It also developed a new green hydrogen hub concept for Uzbekistan. Besides we measured wind with Lidar devices.

B. Regulations, Policies, and Institutions

4. **Can you name specific laws, regulations, official national strategies, or government decisions in Uzbekistan that either help or make it difficult to move towards clean energy and a green economy?**

For each one you mention, please explain briefly how it supports or creates challenges for the transition.

Uzbekistan has implemented a comprehensive framework of laws, regulations, and national strategies to facilitate its transition toward clean energy and a green economy. These initiatives are designed to promote renewable energy development, enhance energy efficiency, and reduce greenhouse gas emissions. However, certain challenges persist that may impede progress.
Supportive Laws, Strategies, and Government Decisions include:
1. Law on the Use of Renewable Energy Sources (2019)
This foundational legislation offers various incentives to encourage renewable energy adoption:
Exemption from property and land taxes for renewable energy installations for ten years.
Tax and customs privileges for importing renewable energy equipment.
Authorization for renewable energy producers to establish local networks and sell electricity directly to consumers.
2. Strategy for the Transition to a Green Economy (2019–2030)
This strategy outlines ambitious targets:
Increase renewable energy capacity to 15 GW and achieve over 30% renewable share in electricity production by 2030.
Reduce greenhouse gas emissions per unit of GDP by 35% from 2010 levels.
Enhance energy efficiency in industry by at least 20%.

Implement a "green certificate" system and establish a national greenhouse gas emissions registry.
3. Presidential Decree No. PP-4422 (2019)
This decree sets a goal for renewable energy to constitute at least 25% of total electricity generation by 2030.
4. Waste-to-Energy Initiatives
In 2024, Uzbekistan announced a $1.3 billion investment in waste-to-energy plants, aiming to process 4.7 million metric tons of solid waste annually into 2.1 billion kilowatt-hours of electricity by 2027.
5. Low-Carbon Energy Strategy Development
Collaborating with the European Bank for Reconstruction and Development, Uzbekistan is formulating a Low-Carbon Energy Strategy to modernize its energy sector and align with international climate commitments.
6. Energy Subsidy Reforms
With support from the World Bank, Uzbekistan is undertaking reforms to phase out fossil fuel subsidies, aiming to reduce emissions and promote energy efficiency.
Challenges and Barriers
Despite these progressive measures, several obstacles hinder the full realization of Uzbekistan's clean energy and green economy objectives:
Policy and Regulatory Framework: Inconsistencies and retroactive changes in policies can undermine investor confidence.
Land and Infrastructure Issues: Statutory restrictions and lack of clarity regarding land use rights for renewable energy installations can delay project implementation.
Market Design: Non-cost-reflective energy pricing and fossil fuel subsidies discourage investment in renewable energy and energy efficiency measures.
Electricity Market Structure: The current market design may not adequately support the integration of variable renewable energy sources like solar and wind, leading to potential curtailment issues.
Overall, Uzbekistan has established a robust legal and strategic foundation to support its transition to clean energy and a green economy. While significant progress has been made, addressing existing challenges related to policy consistency, land use, market design, and infrastructure is crucial to achieving the country's renewable energy and sustainability goals.

5. **Are there any government institutions or programs that you think are effectively supporting clean energy development and fair labour practices during the energy transition? Which ones? Why?**

Uzbekistan has established several government institutions and programs that support clean energy development. However, it's difficult to assess how effective they are.

6. **What kinds of skills, expertise, and/or resources are in your opinion missing in Uzbekistan (or in your sector) to enable and facilitate a steady progress of the energy transition in the country?**

Several skills, expertise, and resources are currently missing or insufficient in Uzbekistan to ensure steady progress in its energy transition. These gaps affect both technical implementation and strategic planning.

1. Technical Skills and Expertise

Power system modeling and simulation:
Uzbekistan lacks widespread local expertise in advanced grid modeling, including dynamic stability analysis, stochastic simulations, and hourly power balance studies, which are essential for managing high shares of renewables.

Grid protection and automation:
There is a need for specialists trained in modern protection systems, such as numerical relays, digital substation design, and IEC 61850 implementation standards.

Renewable energy integration:
Local engineers often lack hands-on experience with intermittent generation sources, particularly in dispatch, forecasting, and load balancing.

2. Analytical and Planning Capabilities
Market and economic modeling for energy:
Skills in market design, tariff modeling, and economic dispatch are limited, hindering the creation of efficient, renewable-friendly market structures.

Asset management and grid analytics:
Utilities lack expertise in data-driven asset maintenance, which is crucial as renewable installations grow in number and complexity.

3. Institutional Capacity and Human Resources
In-house capacity at system operators (like NEGU):
While the report recommends building internal capacity, NEGU and related institutions are still dependent on external consultants for complex studies and technology strategies.

Technical vocational education and training (TVET):
Uzbekistan lacks a robust pipeline of technicians, electricians, and operators with practical training in solar, wind, energy storage, and smart grid technologies.

4. Infrastructure and Technological Resources
Real-time monitoring and control systems:
Many parts of the grid lack modern SCADA, wide-area monitoring systems (WAMS), and automated controls, which are essential for stability in renewable-heavy systems.

Energy storage infrastructure:
Deployment of Battery Energy Storage Systems (BESS) and knowledge of how to optimize their use is still nascent.

Conclusion
To successfully advance the energy transition, Uzbekistan must invest in:

Workforce development (engineers, analysts, technicians).
Institutional training programs (within NEGU and ministries).
Modern tools and software for grid planning.
Strategic partnerships with universities, donors, and international TSOs for knowledge transfer.

7. **What actions has the Government already taken to create a supportive environment for a just energy transition for all key stakeholders?**

I am not aware

8. **What else should the Government do to improve the environment for a just energy transition for everyone, especially through new or improved regulations, policies, or programs?**

C. Economic, Social, and Employment Impacts

9. In your view, are national employment, labor market, skills development, social protection strategies and policies aligned with an inclusive green growth agenda/ just transition interventions?

n/a

10. How do you think the shift to clean energy/ just transition will affect workers, businesses, and communities in Uzbekistan? (Positive or negative effects?)

The shift to clean energy and a just transition in Uzbekistan will bring both positive opportunities and significant challenges for workers, businesses, and communities. Whether the overall impact is beneficial will largely depend on how well the transition is planned and supported by inclusive policies, capacity building, and investment in human capital.

Positive Effects
Workers
New job creation in renewable energy sectors (solar, wind, energy efficiency, grid modernization).

Opportunities for re-skilling and up-skilling in high-demand fields like electrical engineering, data analytics, and energy system design.

Improved working conditions compared to many fossil fuel-related jobs, especially in coal and gas extraction.

Businesses
Expansion opportunities for local firms in construction, equipment supply, and energy services related to renewables.

Access to international finance and green investment, particularly for businesses that align with ESG and climate goals.

Lower long-term energy costs through more efficient and diversified energy sources.

Communities
Improved air quality and public health from reduced fossil fuel use.

Energy access expansion in rural areas through decentralized renewables like solar mini-grids.

Local economic development through renewable projects that hire local labor and use regional suppliers.

Negative or Disruptive Effects
Workers
Job displacement in fossil fuel sectors (e.g., natural gas production, thermal power plants), which still dominate Uzbekistan's energy landscape.

Skills mismatch, as many current workers may not be equipped for emerging clean energy roles without support.

Businesses
High initial costs for transitioning, especially for small and medium enterprises (SMEs) needing to upgrade energy systems or comply with new environmental standards.

Market uncertainty if policy and regulation are not consistent, deterring private sector investment.

Communities
Social strain in fossil fuel-dependent regions, where job losses may hit hardest and alternatives are not immediately available.

Equity concerns, if clean energy development does not equally benefit all regions and demographics.

11. **In your view, what should be done to protect or support workers and communities who might lose jobs or income because of the energy transition?**

Actions to be Taken -- Reskilling and Upskilling Programs
Develop vocational training centers focused on renewable energy, energy efficiency, and digital grid technologies.

Partner with international donors and technical institutions to provide certified, hands-on training.

12. **What kind of support should be provided to vulnerable groups (such as the disabled, violence survivors, poor households, women, youth, rural communities, or others) during Uzbekistan's energy transition?**

D. Stakeholder Participation and Dialogue

13. **How are the voices of workers, businesses, and communities currently being considered in the decision-making process on Uzbekistan's energy transition?**

Not much

14. **What are the best ways to engage more people and organizations (including women and vulnerable groups) in planning the clean energy transition?**

E. Regional-Specific Issues (Karakalpakstan and Khorezm)

15. What are the specific challenges that the Karakalpakstan and Khorezm regions (affected by the Aral Sea crisis and energy poverty) face during the energy transition?

The Khorezm and Karakalpakstan regions of Uzbekistan - already deeply affected by the Aral Sea crisis - face several challenges in the context of the country's energy transition. These include environmental, social, economic, and infrastructure-related barriers that make their path toward clean energy and just transition more complex than in other regions.

Specific Challenges in Khorezm and Karakalpakstan:
Environmental Degradation
Severe desertification, dust storms, and water scarcity due to the Aral Sea's collapse have devastated local agriculture and livestock.

Soil salinity and climate vulnerability make it difficult to attract sustainable economic activity, including green industries.

Poor Infrastructure
Just as in any other region of Uzbekistan these regions have outdated transmission infrastructure limits the reliability and scalability of energy delivery, complicating the integration of renewables.

Private sector investment is low due to perceived risk, remoteness, and a lack of skilled labor.

To address these challenges, Uzbekistan should prioritize decentralized clean energy solutions (solar microgrids, storage systems).

Q14. What could be done to support these regions better in the shift to clean energy?

These two regions have the same problems related to the clean energy as the rest of the country. I therefore think it is not correct to focus on those two regions. Moreover, Karakalpakstan gets disproportionally more attention compared to other regions with similar economic development.

16. How can just energy transition and the country's shift to clean energy help with revitalizing those regions and provide impetus for their development?

See above

F. Data, Documents, and Examples

17. Are there any reports, studies, project documents, or statistics that your organization has, which could be useful for our project and its deliverables (policy briefs, roadmap)?
Can you share links, contacts, or files? Even unpublished internal documents could help.

Will be shared

18. Can you share any examples of good practices from Uzbekistan or other countries in the region that could provide useful ideas for supporting a fair and inclusive energy transition?

G. Opportunities and Recommendations

19. What are the biggest opportunities you see for Uzbekistan to make the energy transition fair and successful?

The biggest opportunities for Uzbekistan to make the energy transition fair and successful include the following:

1. Modernizing the National Grid
The report stresses that grid modernization is essential for integrating renewable energy successfully and fairly. Opportunities include:

Upgrading transmission infrastructure to handle higher loads and avoid overloading due to renewable integration.

Investing in digital technologies like IEC 61850-based protection systems and Gas Insulated Switchgear to improve reliability and reduce short-circuit clearing times.

Expanding transfer capacity, especially between western Uzbekistan and the rest of Central Asia, to allow fair distribution of renewable energy benefits.

2. Building In-House Technical Capacity
The report emphasizes that the most crucial opportunity lies in developing in-house expertise within NEGU and other system operators:

Training local engineers in dynamic grid modeling, renewable forecasting, and system operation under variable conditions.

Reducing reliance on foreign consultants by equipping local teams to manage a modern, renewable-heavy grid.

3. Using Renewable Energy to Enhance Grid Resilience
Uzbekistan's plan to integrate 8,000 MW of renewables by 2026 -- and possibly more -- offers the chance to:

Increase energy independence and reduce dependence on natural gas (currently over 75% of electricity).

Deploy battery energy storage systems (BESS) and Flexible AC Transmission Systems (FACTS) to stabilize supply.

Technical studies can identify weak points in the grid in advance. Targeted upgrades needed to prevent blackouts or instability due to renewable integration.

20. If you could recommend three important actions to the Government to make sure the energy transition is fair and supports people, what would they be?

1. Invest in Grid Modernization for Reliability and Regional Equity
2. Build Local Technical Capacity for Long-Term Resilience
3. Create a National Just Transition Policy

H. Final Comments

21. Is there anything else you would like to share about how we can make the transition to clean energy better for everyone in Uzbekistan?

End of Interview