SHELL'S RENEWABLES ENERGY PROJECTS IN KAZAKHSTAN

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Growth of renewables can have far-reaching benefits for an economy

GROWTH IN EMPLOYMENT:

Renewables are expected to create >10 MLN jobs globally by 2030*

These include jobs in : Construction & Installation; Manufacturing and O&M

GROWTH IN OVERALL WELFARE:

Improvements in citizen welfare can be achieved through Reducing GHG Emissions; Reducing Health Costs; Improving Access to Energy; Providing Additional Employment Opportunities

COST EFFECTIVE DEVELOPMENT OF POWER INFRASTRUCTURE:

With declining cost of renewables, new capacity additions to the existing power infrastructure can be done cost effectively through renewables , especially for Non-grid/ limited grid connectivity areas

GROWTH IN GDP:

With the growth in employment, improvement in overall citizen welfare and electrification of urban and rural areas strong growth in overall GDP can be achieved

* IRENA: Renewable Energy Benefits, Measuring The Economics report, 2016

Shell is keen to focus on both small and large scale renewables in Kazakhstan

LARGE SCALE RENEWABLES

- Shell participated in the October 2018 renewables auctions
- Through these auctions Shell secured the right to develop a 50 MW project in South of Kazakhstan
- Shell is currently completing pre-construction technical studies
- Notice to Proceed ~Q4 2019 and contingent on PPA bankability improvements & commerciality of project
- Shell is actively working with the MOE and DFI community to provide feedback from a developer's perspective on how the bankability conditions can be improved
- Further growth activity is extremely dependent on these improvements

SMALL SCALE RENEWABLES

- Shell is currently delivering a small scale renewables project in co-operation with the Nazarbayev Intellectual Schools (NIS)
- As part of this programme, Shell will deploy 100KW grid connected solar PV installations at NI schools in Aktau, Uralsk, Atyrau and Almaty (Note: 100 KW installation at NIS –Nur Sultan was completed in 2018)
- We hope to utilise this programme to demonstrate the role renewables can play in developing Kazakhstan's green economy by reducing GHG emissions, creating employment opportunities and benefits for both the host (NIS) and the participating DISCOMs
- Shell is delivering this project through Kazakh SMEs, to help create a critical mass of in-country expertise which can then be utilised for larger project
- In addition, Shell is simultaneously running the Shell NXplorers programme at participating schools to teach children about renewables and increase their interest in Science, Technology, Engineering and Mathematics
- Shell is also participating in the Small Scale Renewables policy roundtables to provide input into policy frameworks that can be developed to grow small scale renewables in Kazakhstan

Solar For Schools – 1st Installation

- First installation at Nazarbayev Intellectual School of Physics and Mathematics in Nur-Sultan was completed in 2018
- The installation is designed in a carport style using polycrystalline Solar PV modules
- The project is designed to provide for up to 30% of the annual power consumption. Surplus power exported to municipal grid
- The project has been built and designed by a local EPC
- Also, the substructure has been manufactured in Kazakhstan

Regulatory Environment and PPA Bankability

- Kazakhstan is making progress towards a green economy
- However – so are other countries
- Potential for investment, economic activity and job creating
- Key challenge: Develop sustainable and competitive framework
- PPA bankability
- Land and grid access
- Priority Project status

Bankability

- Improved bankability:
  - Reduces risk
  - Increases competition
  - Allows lower cost financing
- Improvements have already been introduced
- Top Improvement Areas
  - FSC credit worthiness
  - Curtailment & Force Majeure risk (take or pay)
  - Inclusion of RES in Investment Priority Project's list
  - Simplification of pre and post construction permits process

Conclusion

- Regulatory/PPA Improvements: There is a lot of dialogue and discussion – but we need to increase the pace
- Status, outlook will play a major role in future decision making
- Shell is ready to work with the renewables community (Republic of Kazakhstan, developers, lenders, stakeholders) in order to improve the framework