

## PROTOTYPE - FACT SHEET

**NAME:** TUUL GALZAGD  
**WORKING GROUP:** 2 – RENEWABLE ENERGY  
**ORGANIZATION:** XACBANK, MONGOLIA

### TITLE:

**Developing a Financial Model for Off- and Mini-grid Renewable Energy Solutions to Provide Heating and Electricity**

#### Mission statement

To develop a financial model to finance renewable solutions for heating and electricity in Ger areas, or traditional tent communities of Ulaanbaatar (the capital city of Mongolia) and other secondary cities.

XacBank is aiming to develop a financial model that can help to improve lives of people living in the country's Ger areas and decrease air and soil pollution. It will also assist the Ger area community to improve land use planning, upgrading water and waste water systems and heating systems. By launching this financial model XacBank would have mitigation project finance and adaptation project finance as well.

#### Briefly describe your prototype idea

To reach the solution we are aiming for, we need to figure out what kind of financial product would be suitable to introduce off- and mini-grid renewable energy solutions to the Ger district residents, and find the right stakeholders to work with in order to successfully implement the financial model. The majority of Ger district residents have access to electricity, but lack access to supply and waste water systems. As the resident's burn coal for an 8 month period during the heating season, they are the main source of air pollution. Furthermore, they are also the greatest source of soil contamination, so it is becoming an urgent matter which needs to be addressed.

The bank cannot solve the problem alone, therefore working together with UB municipality's Ulaanbaatar city's Restructure of Ger district program could pave the way to improving the livelihood of Ger districts residents.

Reasonable funding could possibly be accessed through XacBank's accreditation as a Green Climate Fund National Implementing Entity; however, the matter cannot be addressed with only a fund of discounted financing for the off- and mini--grid renewable energy solution. These matters should include creating an integrated management system for the Ger district area, finding the appropriate off- and mini--grid renewable energy solution that functions in the cold Mongolian weather, which is affordable for the Ger district residents, and provides support from the local administration. Therefore, the fundamentals for successfully implementing the financial model depend on reaching a solution with participants from various parties.

In addition, the financial model we are planning to implement will not only finance off- and mini-grid renewable energy solutions, but also help finance upgraded water and waste water systems and heating systems.

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### Target group

There are currently two markets that require off- and mini- grid renewable energy solutions. The off grid solution market is aimed for the herders living in remote rural areas. There are in total 240,000 herder families living in remote rural areas away from urban areas, and one of the problems concerning them is to increase the scope of accessibility for financial services. Compared with the families living in Ger district, herder families have higher income, and purchase renewable energy products such as solar energy panel while they visit the city. Loans are typically not used for these purchases.

The main focus of our targeting market is the families residing in the Ger district in Ulaanbaatar city and families living in Ger districts in other cities. Mongolia's Aimag (provincial) centers and Soum (county) centers are medium and micro-sized population centers with inefficient soviet era infrastructure that could be viable for both heating and electrical micro-grids. Developing a prototype solution towards reaching these primitive markets could unlock a new, high-impact market for renewable energy

The residents living in Ger districts are the main source of air pollution and soil contamination in the city. Currently, there are over 185,000 family's living in Ulaanbaatar city alone and 80 percent of the air pollution is caused by the coal usage during heating season.

Based on a study in 2011 by World Health Organization, Ulaanbaatar ranked the second most polluted city in the world. The annual average for PM 2.5 in Ulaanbaatar is 12 times the World Health Organization guidelines, and highs in the winter months can reach 75 times that level. As the main off- and mini- grid renewable energy market is Ger district residents who have low income and cannot afford the solution, the bank cannot achieve meaningful results alone.

Therefore, XacBank believes it would better to provide financial service in line with project initiated by Ulaanbaatar cities municipal “Restructure of Ger district area” to address the issue in the “Ger” district area, which produces the majority of air pollution and soil contamination in Ulaanbaatar and provide the financial services to households who participating to the restructure plan of Ger area and solution providers who providing energy efficient and renewable energy solutions under the restructure plan of Ger area.

#### Potential partner(s) for implementation

Collaboration with UB Municipality and Ulaanbaatar cities government’s Department of Restructuring of Ger district; Candidate supplier companies will be selected by certified organizations working in the scope of the Restructure plan of Ger district, selected after doing trial projects that were tested, solutions that best fit the cold Mongolian winter and meets the Ger area households demand for affordable price; Asian Development Bank, currently ADB is working with Mongolia to improve the lives of people living the country’s Ger areas, or traditional tent communities. The program is providing improved infrastructure and services in a variety of ways. This includes improving access to banking, lending and other financial facilities; upgrading transport systems; improving land use planning; upgrading water supply and waste water systems; and improving heating systems. XacBank also has a facility from ADB which is partially dedicated to finance this program. XacBank is aiming to become Mongolia’s first accredited direct-access entity for the Green Climate Fund. GIZ, as an implementation partner for the GCF, would be a strong potential partner for the implementation of private sector mitigation and adaptation projects in Mongolia. Through participation in PDCI 2016, XacBank hopes to develop potential models and projects for collaboration with GIZ utilizing GCF resources.

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#### Key challenges and opportunities

Due to living in remote, distant geographical areas, one of the fundamental questions at hand for herder families is to increase the scope of accessibility for financial services.

Compared with the families living in Ger district, herder families have higher income, and purchase renewable energy products such as solar energy panel when they visit the city. The main source of income for herders is through selling wool for making cashmere and meat for consumption once they visit urban areas. The income is generally spent on purchasing energy efficient household electronics such as refrigerators, television and solar energy panels, which powers the energy efficient products. Loans are typically not used for these purchases.

XacBank believes it would help to provide financial services in line with the project initiated by Ulaanbaatar cities municipal “Restructure of Ger district area” to address the issue in the Ger district area, which produces the majority of air pollution and soil contamination in Ulaanbaatar.

The first required task is to find energy efficient and renewable energy solutions offered in the market segment that match the purchasing power for low income Ger district families. Family’s living in the Ger district area do not have access to energy efficient and renewable energy products due to high prices. In 2015, Ulaanbaatar city developed a Green development strategy plan, and when the plan is initiated, financial services will be highly sought after to facilitate energy efficient and renewable energy purchases.

In addition, not only we are seeking to finance businesses, product suppliers, or manufacturers that offer energy efficient and renewable energy products, but also the end-users looking to purchase the products. It is difficult for a financial institution to distinguish which company’s solution is better and more efficient than another company’s solution. Therefore we believe it would be more beneficial to financially support products that have been selected from other candidate products by certified organizations in the scope of UB Municipality’s restructure of Ger district area program, products that have been tested in the Ger district area, and products that are financially feasible for Ger area households.

Discounted terms, low interest rates, and long term financing play an important role to support products suppliers, businesses, and for purchasing the products. However, these solutions still don’t make the products viable to the residents in the Ger district area who are actually in need of the product. The solutions are still expensive for the low income residents, making the renewable energy solution uncompetitive in the market.

Therefore, the Government of Mongolia and UB municipality must realistically decide how they will support the renewable energy solution.

Another integral part that should be concerned in the financing of solution providers is whether the business that will be providing the solution have extensive experience in the field or meets the need of users over the long term, or at least during the loan period, and can they stay competitive. The main reason for the concern is that technology is always

developing and improving. Maybe after a certain period of time an improved, less expensive solution might come up and the solution covered by the banks loan stops sales, loses to the competition, and therefore there is a probability of not getting the repayment.

### Next steps

Developing a financial model for how to handle public collaboration with local governments and community groups for payment.

Finding technology with reasonable CAPEX costs that will have high, reliable impact in secondary cities to model the opportunity.

In addition, we are waiting for the government to approve the energy efficiency policy. Discounted conditions, low interest rate, and long term financing play an important role to support products suppliers, businesses, and for purchasing the products. However, these solutions still don't make the products viable to the residents in the Ger district area who are actually in need of the product. The solutions are still expensive for the low income residents, making the renewable energy solution uncompetitive in the market. Therefore, the Government of Mongolia and UB municipality must realistically specify and set how they will support the renewable energy solution.