

The Bulletin

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Welcome to The Bulletin, our quarterly newsletter covering U Bank's innovation and research work.

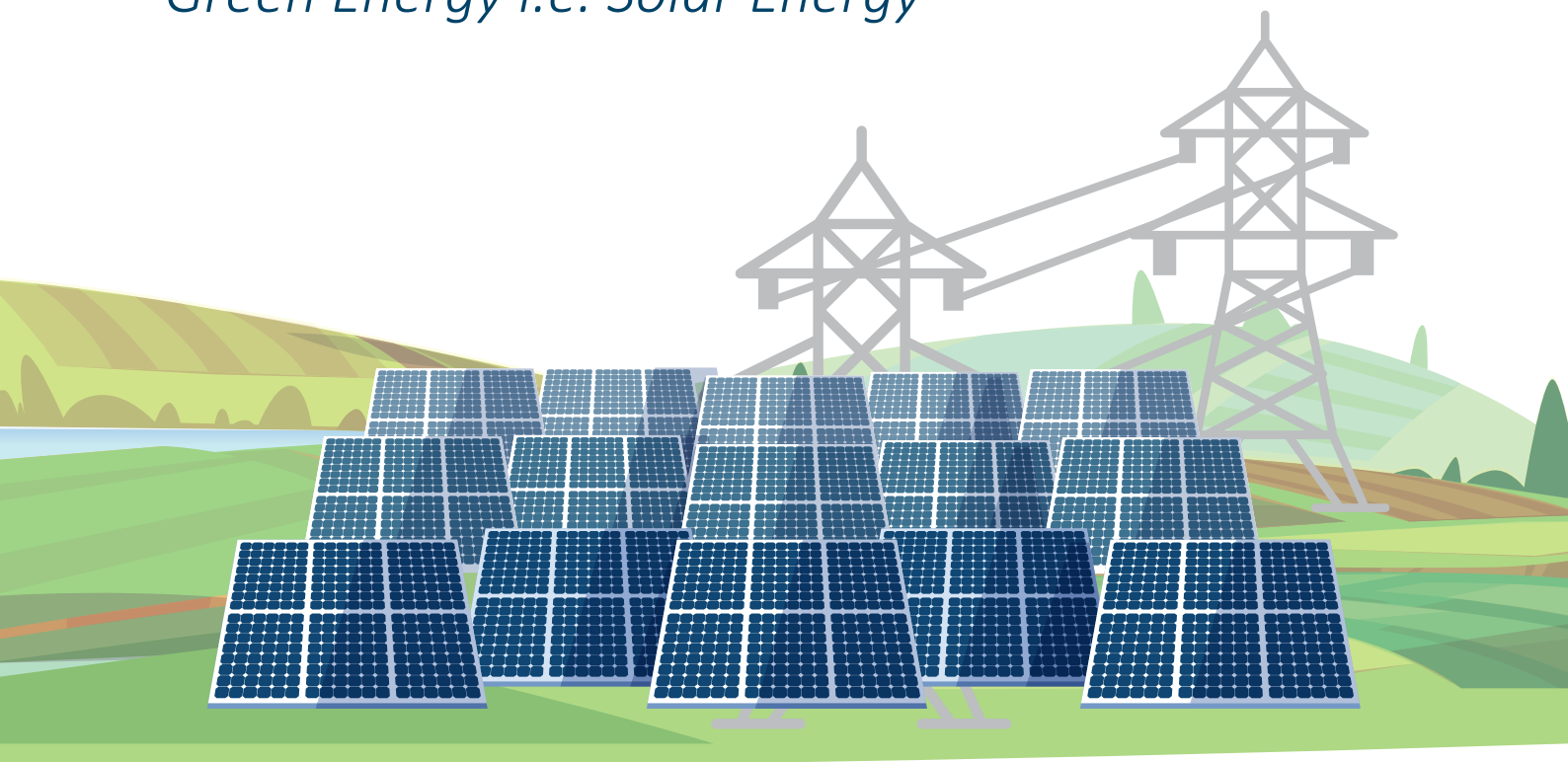
In our quarterly newsletter, we not only highlight our achievements but highlight the global and local issues that need attention. We highlight the importance of the financial sector and how it can help the society in overcoming the challenges.

In our latest issue we are highlighting the importance of renewable energy (Solar Energy) for sustainable development. In 2022, U Bank embarked upon providing green finance to farmers and businesses. Needless to say this has worked out with exceptional results. In the similar context, U Bank conducted a research study to understand the impact of Solar system financing on the life of farmers who opted for solar based tube well solutions. This newsletter will highlight the impact.

We welcome your feedback. Our hope with this newsletter is to build a community of engaged readers interested in sincere discourse about the challenges and opportunities we face as a sector, the disruptions (technological or otherwise) required to serve our customers better and build an inclusive Pakistan.

Yours sincerely,
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Energy Crisis and U Bank's Role in Overcoming the Challenge Via Financing Green Energy i.e. Solar Energy



Background

With the increase in the population of Pakistan, the need for basic needs such as sustainable energy at affordable prices has become pivotal. Pakistan is experiencing devastating environmental issues such as air pollution, deforestation, water scarcity and climate change. In the technologically advanced era, almost everyone is aware of the issues, but how many are actually doing something to overcome the issues or to conserve the depleting resources?

Changing climate is amongst the biggest threats to all. It is not only impacting the human life, but also the economy of the country as floods, famines, droughts and cyclones have increased. In countries like Pakistan, the impact is usually manifold as it reduces the agricultural productivity, water availability and variability of climatic events. The sixth most populous country in the world, with a population growth rate of approximately 2% per year, Pakistan is ranked fifth among the most vulnerable countries in the world on the Global Climate Risk Index for 2020.

Pakistan's energy demand is expected to increase eightfold by 2030 and twentyfold by 2050 in tandem with population growth and GDP dynamics. Pakistan is geographically located in the sun belt and receives abundant sunlight

throughout the year. Considering the climate change and need of the hour, green energy is important as it is an environment-friendly alternative and does not have a negative effect.

As the production of energy is via nature, like solar, and wind etc., the dependence on other alternate will be less and cost effective. Even the infrastructure from green energy is also flexible. To produce energy at small scale; residential, and at industrial scale (SMEs and agriculture), solar and wind power are the best solutions. It is critical to use existing solar energy resources to address current energy issues. Meanwhile, public and private sector investment is critical to realizing its full potential. Turning green has always been high capex and low opex model which requires proactive participation from banks.

Why do we need Solar Based Energy Systems?

Pakistan's energy mix since inception has been dependent of hydropower and thermal power. Hydropower essentially has been a by product of irrigation water storage and thermal power has been dependent on fossil fuel. This not only has high capex for the country but also the input (coal, diesel and furnace oil) put perpetual pressures on the national exchequer. The current rate of population growth and economy dynamics has time and again underscored the importance of cheap, renewable and sustainable energy sources such as clean solar energy, bio gas and wind power.

The world has been seeing the effects of green house emissions during the last two centuries by way of change in weather patterns. Hence, the use of clean energy has become paramount. Due to development in global energy market, a completely new situation has evolved for Pakistan. Imported coal and gas prices have doubled, major increase in electricity price, increase in load shedding, severe economic and social problems.

How will Solar Based Energy reduce the cost of doing business?

SMEs

Electricity bill is one of the major expenses for SMEs. The industrial sector of Pakistan can rely on the usage of the solar panels for generating heat for several industrial purposes such as production, and processing of chemicals, minerals and foods etc. Owing to the problem of shortfall of electricity especially during the summers, the solar system can aid in improving the energy access for the industries.

Investing in solar based energy for the business is a smart and quite exciting move. Long term benefits associated with it, and the positive impact of it will be much bigger than anything.

- There will be **less reliance on the national grid** which means that the fear of power cut, and other outages will not be a challenge anymore.
- Additional units that will be produced from the solar energy, can be sold back to the grid and in this way **solar income** will be generated.
- Solar energy will help in **reducing the company's carbon footprint** significantly.
- **Electricity bills will be reduced** as the cost of commercial site electricity is already too high. Solar energy will help the businesses in saving thousands and millions of rupees per year.

Agriculture

- To get electricity in remote areas, farmers often need to pay a hefty sum of money for a dedicated power meter, grid, connection fee, wiring and installation. This is why switching to off-grid solar power installation is a smarter choice to power water pumps, irrigation, farming equipment and machinery as they have higher power loads.
- After harvesting, farmers need warehouses to procure the crops. However, due to unavailability of the facilities, they have to sell it to the aarti at whatever price they ask. With the help of solar energy, farmers will be able to save the money from diesel, and instead of selling the crop at low price, they will be able to store it in their warehouses and sell at their preferred price.
- With the solar based energy, cost of diesel will be reduced to zero. Farmers will no longer have to purchase the diesel in order to run the tube wells.
- Where there is no water availability, farmers will be able to apply water whenever needed without the fear of extra cost.
- Farmers will be self-sufficient in case of no rain water. This will be a long term benefit for their future generation.
- With the solar system installation, it will be an asset for the farmers as it requires less maintenance.

Residential

With the increase in inflation, people do not have finances to meet the basic necessities. With the significant increase in the electricity per unit rate, it has become extremely difficult for people to pay the bills and live a healthy, peaceful, and stressful life.

- It will help in reducing the energy bill by generating own electricity and the reliance on national grid will be no longer a challenge. In case of surplus unit production, people will be able to sell the units back to the grid.
- Solar system is considered as an upgrade, and it increases the home value as it is an asset.
- Solar energy is the best form that does not release any noxious emissions. It lowers the carbon emission.
- It helps in reducing the air pollution especially where smog density is high one of the biggest challenge can be overcome via solar energy i.e. fluctuation of the electricity which causes damage to the appliances at home. Energy produced from solar increases the security and does not fluctuate.

Green Financing: Solar (U Bank Experience)

In early 2022, U Bank launched solar financing products in agriculture, business and home use variants. Since then the bank has proactively provided financing mainly to farmers to regiment solar based tube wells, flour mills, rice mills and home solutions. Almost 94% of the portfolio is in agriculture sector, and remaining 6% is SMEs and residential. It is important to note that it's been a year only that U Bank have started financing solar systems and in early 2023, the portfolio stands close to Rs. 1 Billion.

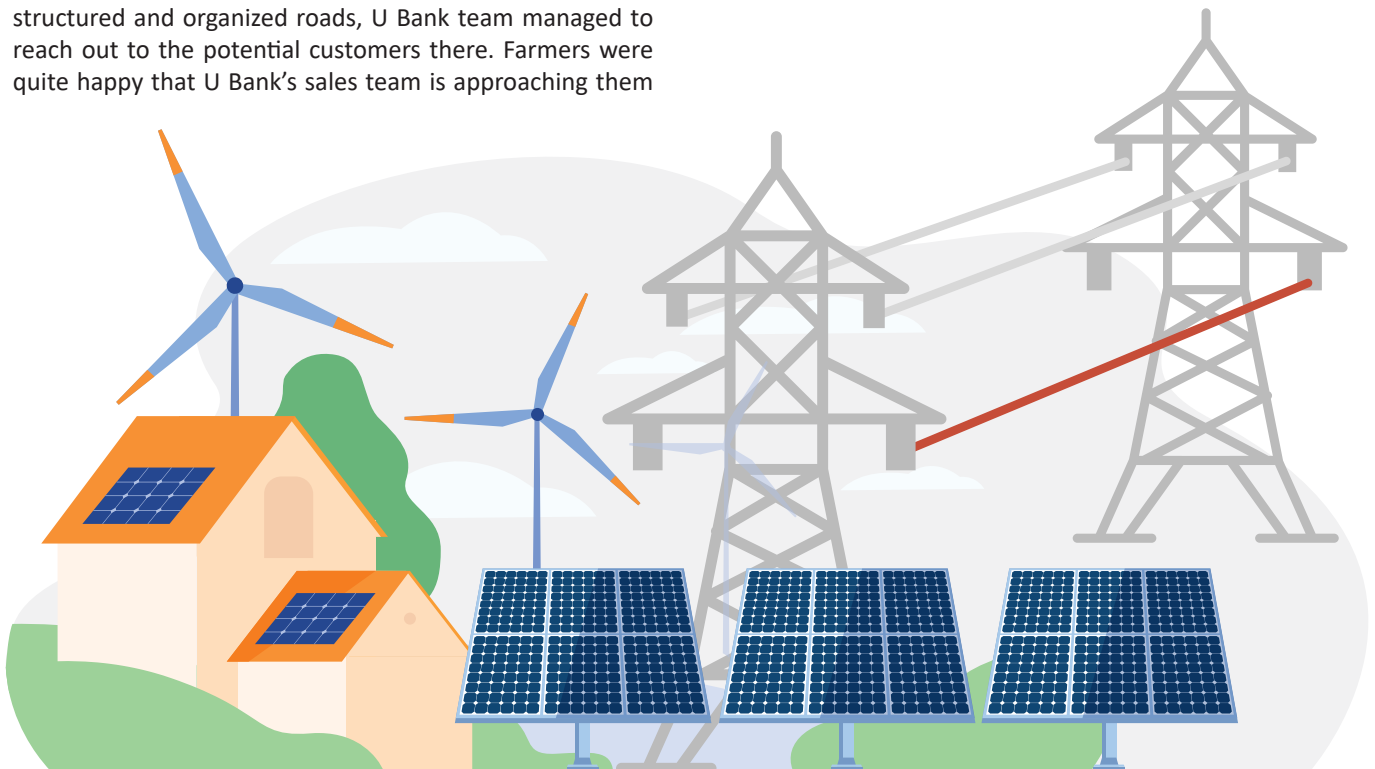
U Bank research team conducted a research study to understand the impact of Solar system that is created in the life of farmers. Sample selection was done carefully so that impact can be seen across regions.

It was very interesting to find out that in villages with no structured and organized roads, U Bank team managed to reach out to the potential customers there. Farmers were quite happy that U Bank's sales team is approaching them

via physical visits, branch presence, marketing material like banners, pamphlets etc.

When the customers were asked about not considering other banks, almost half of them claimed that no other bank approached them. Whereas, the remaining customers mentioned that a few banks approached them but due to their installment plan, they didn't go with it. Instead chose U Bank as it is aligned with their plan.

They also mentioned that other banks are taking a long time to install solar. Whereas, U Bank is the only bank that is getting the solar installed on immediate basis.





Practices before Solar System

There are few villages where the residents claimed that they have never seen electricity in their village. They used tube wells to get the water. In a few villages there is no *nehri* water. They used to use petrol diesel engines. Whenever the farmers were out of diesel, there was no availability of water.

Where there was electricity, they were not able to use it even just to water the land due to electricity price. In case of using electricity, a separate setup (transformer) is required which costs around PKR 8 Lac and per unit price is double the price of what is in urban areas.

Challenges they had to face

Before getting solar system installed, farmers had to face a lot of challenges. Following are some of them:

- Price of the diesel is the major concern. Farmers had to pay premium price.
- Availability of diesel was another major issue. Farmers had to wait in line to get diesel. There are very few pumps in those areas hence they have to travel far off from their land to get it and that too at a higher price.
- Due to high price of diesel and unavailability of diesel, farmers were applying water to the land in extreme need cases. Due to this reason, the quality of crop was not up to the mark.
- Due to unavailability of funds, farmers had to sell their crop at whatever price the middle person (aarti) asked. Farmers had no option than to sell and get whatever amount they are getting to buy diesel for their next crop.
- Areas where electricity was available, farmers had to pay high amount in the form of electricity bill. Earlier the unit price was low however now in some areas it has reached to Rs. 30. On average, farmers had to pay Rs. 60,000 to 70,000 only for electricity. In summers, the bill amount was approx. Rs. 90,000.

Impact of Solar System

Financial Impact

Majority of farmers had harvested sugarcane crop. Due to the significant increase in the price of diesel, cost of water increased by almost 107% from 2018-19 to 2021-22. **Diesel price in 2018-19 was approx. Rs. 106 -112 per liter whereas in 2022 it was approx. Rs. 262 per liter.**

After getting solar system installed, each farmer is now able to save the amount of electricity / diesel that was used to water the crop by using tube well. For instance, **farmer with 10-acre land is now able to save approx. Rs. 180,000.** On average, with the land size of our current customers, and installment, **our customers are still able to save Rs 50,000 on average after paying the installment.** However, this is not the only source of income for them now as they have also setup other small scale businesses. Apart from that, the customers are now able to give their crops to the aarti at their own price, unlike in the past. Hence they are getting profit from it too.

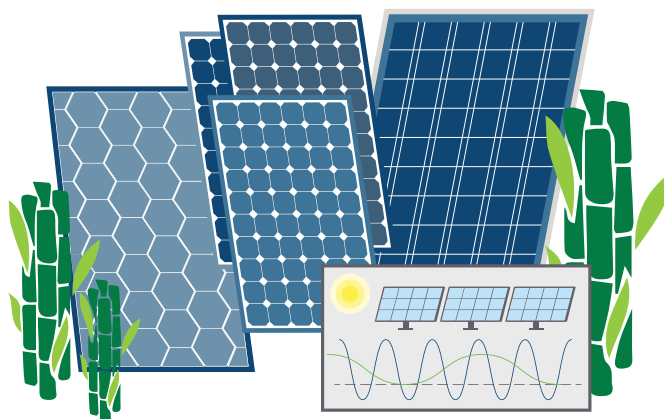
Sugarcane crop cost

Sr. No.	Input Item	Cost per acre (Rs.) 2021-2022	Cost per acre (Rs.) 2020-2021	Cost per acre (Rs.) 2018-2019
1	Cost of land prep	7,717	7,764	6,400
2	Cost of seed and sowing	17,895	17,700	14,689.5
3	Cost of water	17,751	17,302	8,547
4	Cost of fertilizer	12,650	10,733	10,321.7
5	Cost of dung	1,295	1,154	*
6	Cost of pesticides	1,983	1,935	1,400
7	Cost of weedicides	1,103	1,047	*
8	Cost of harvesting	15,977	13,370	14,753.02
9	Land rent per acre	40,000	40,000	30,000
10	Cost of other exp.	673	719	*
11	Cost of transport	19,300	17,285	2,007
Total		136,344	129,009	88,118

**data not available*

With the amount saved due to Solar System, majority of the farmers use 70% on their business / land, whereas 30% to make their lifestyle better.

One of the biggest benefits that these farmers have got is in the form of asset. The price at which they financed it versus the current price of solar system; there is a huge gap. This differential is the profit for farmers.



Impact on Productivity

With the use of Solar system, farmers could clearly see the difference in the production / yield per acre. Before solar tube wells, reliance of applying water was completely on diesel. Now they are applying water whenever it is required, like after 20 days, after one month, etc.

Quality of the crop has changed significantly. Below image shows the difference in the crop where water was applied whenever needed, and the other crop is where farmers are dependent on diesel.

Apart from the quality of the crop, yield has also increased significantly and it has increased the profit margins for the farmers. For instance, few farmers mentioned that they used to have 900 mound yield per acre and now they are expecting 1300 mound yield.



There are few farmers who have used the saved money to make equipment at home, like wooden trolleys / wheelbarrow, and carts. They sell these to the fellow farmers. In order to cut the wood in required shape, they have also installed an axe that operates via motor.

Now the fodder cutting / crushing machine is also working via motor. Earlier the farmers were not able to use it whenever required, as diesel was required to run all the motors.

Satisfaction with U Bank

All the customers are extremely satisfied with the services of U Bank. Timely response by the team of U Bank has created such a positive impact on the mind of customers that they have started spreading positive word of mouth.

A lot of people in current customer's neighborhood have also considered getting the solar system financed from U Bank. Few farmers also mentioned that there are other fellow farmers who have actually applied for the process.

Other Impact

Earlier it was difficult for the farmers to purchase grocery on cash. With the significant increase in the savings due to Solar system, they are now able to purchase grocery on cash instead of borrowing money from someone.

Few farmers have even renovated their *kaccha* house to *pakka* house. Those who are already living in *pakka* house, have planned to expand their house and bought construction material too.

Overall, the environment of their house has changed. Children have started living a better and peaceful life as now they do not have the pressure of less cash in hand. Now they save the money of diesel, and then use it to pay the installment and betterment of their household. Earlier, the farmers were always stressed out about the availability of diesel, it's price and how to manage the household in a limited and small amount of money.

Scope of Solar Energy in Future Across Industries

Agriculture

Agriculture sector is one of the major sectors that contribute highest in the GDP of the country. Majority of the population is directly or indirectly associated with the agriculture sector. Half of the employed labor force is associated with it, and it is the biggest source of foreign exchange. Approx. 17,165,000-hectare area is used for the production of important crops like wheat, maize, rice, sugarcane and cotton.

Tube well is the major source of irrigation in rural areas. Overall, around 52% areas have tube wells as source of irrigation. 49% with canal and 28% is arid land.

According to a research done by PBS, use of modern irrigation system in Pakistan is minimal or non-existent. Only 1.44% use drip irrigation. 0.26% use sprinkler while 98% use traditional tube wells. Availability of electricity in rural areas has improved from 2008 to 2020, however, still 16% rural areas do not have electricity. Across provinces, Punjab has highest number of rural areas where there is electricity with the least number in KPK.

In terms of fuel, overall the availability has increased from 4% in 2008 to 12% in 2020 for sui gas, LPG has increased from 8% to 17%. Major reliance is on diesel when there is a need to run the tube wells.

Considering the agricultural population and the usage and dependence on tube wells, it is clear that the market is huge for green energy.

Residential

According to a survey, approx. 610,000 households are consuming more than 700 units per month, whereas more than 17 million households are consuming on average 300-700 units per month. The cost of electricity, and the taxes on it has made it extremely difficult for the middle class to pay the bills. Majority of the population of Pakistan is from middle class i.e. who are spending their monthly income on fuel, electricity, essential items like food, rent, children's education. The only solution at the moment is to bring down these costs by solar energy.

Around 20,000 net metering licenses have been issued in Pakistan in 2021-22. With the success in lowering the cost, people are interested in exploring the option. However, the challenges lie in the cost of solar system installation. This is where the financial sectors play their role.

SMEs

As per the estimates of SMEDA, there are more than 5 million SMEs in Pakistan. SMEs contribute 40% in GDP of Pakistan and 25% in overall exports. After agriculture, SME sector provides employment to highest percentage of working population in the country. SME sector contributes to 78% of non-agricultural sector employment. SMEs are the main source to reduce poverty, expand national economy and job creation.

There is a huge potential of solar energy in SMEs. For example, there are quite a lot of health care units in areas where there is high load shedding. With the installation of solar, this challenge can be eliminated. However, there is a need from relevant departments and financial sectors to help customers in understanding the importance of it and creating awareness about the financing facility.

With the aim to add value to people's life, U Bank is striving hard to serve everyone. U Bank is also working on carbon quantification. This will help both the customers and Bank in getting monetary benefits. Once the criteria are met, U Bank is planning to get registered with different carbon trading mechanism.

