

Synergy Potential of Financial and Energy Inclusion –An Interdisciplinary Approach

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EDITORIAL BOARD EXCERPT

At the initial Time of submission paper had 14% plagiarism which is an accepted level for publication. The editorial viewpoint is of an observation that article had a successive close watch by the blind reviewer's which at later stages had rectified and amended by author in various phases as and when requisite to do consequently. The reviewers had in a beginning stages mention with minor revision with a following stamen which at a small duration streamlined by authors (Vandana, Asif, Gireesh). The comments related to this manuscript are tremendously perceptible related to Financial and Energy Inclusion both subject wise and research wise by the reviewers during evaluation and further at blind review process too. The authors be commendable of appreciation for writing this paper as Financial Inclusion is one of the major economy transformation tool and aims at revolutionizing the Indian Financial System. With Government of India focussing high on renewable energy, it becomes mandatory to analyse the synergy potential of Financial Inclusion and Energy Inclusion. The paper discusses about the upcoming Technology PAYG SOLAR and how this technology is fulfilling the objectives of both the inclusions. . All the comments had been shared as a mixtures of dates by the authors in due course of time and same had been incorporated by the author in computation. By and large all the editorial and reviewer's comments had been incorporated in a paper at the end and further the manuscript had been earmarked and decided under 'Research Thought' category as its highlights and emphasize the work in relation to use of PAYG SOLAR as a tool to create a synergy between Financial and Energy Inclusion.

ABSTRACT

Purpose: Natural resources are depleting at a faster pace and there is a need to search for other alternatives. Solar energy is one such alternative which is gaining momentum nowadays. Providing easy access to this energy with the support of financial services can create a synergy effect and hence contributes towards the interdisciplinary approach of financial and energy inclusion. This paper aims at exploring the synergy potential of financial and energy inclusion with special reference to PAYG SOLAR.

Design Methodology: Review Based Approach.

Findings: The study concludes that Financial inclusion and energy inclusion are interdependent and if tapped to the fullest then then create high synergy. Provision of access to finance facilities for the population living under bottom of Pyramid (BoP) will contribute towards Energy inclusion and access towards basis neds of electricity can create a demand for finance.

Originality/Value: The study endeavours to study the scope of financial inclusion and energy inclusion interdependently .

KEYWORDS Financial Inclusion | Energy Inclusion | PAYG Solar | Synergy | Easy Access

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Introduction

India is emerging as a global start up hub with many companies creating a demand for venture capital funding. An economy and its industrial sector get a boost when major investments are aligned with technology and global trends.

Lack of finance options is one of the major barrier of solar energy Industry i.e the consumer is deprived of any finance facility for the usage of energy and industries are also having a thirst for creating an innovative product which aligns with their business model and government model of sustainable energy for all.

The Global financial sector currently aims at continuous supply of innovative methods to provide financial services to people. Despite of the fact that technology adoption in financial industry is bridging the gap between accessibility and inaccessibility to financial services at reasonable cost, still there lies an untapped part of population that remains under banked.

In Energy sector the increasing global energy demand due to ascending greenhouse gas emissions, environmental issues at the local level , energy security concerns, rising oil prices, and international competition has become one of the serious concern of today. With the passage of time non renewable sources are depleting faster and therefore more focus is being put on sustainability. An urgent need for the environmentally sound resources under the nations own control has been arisen owing to national and international events. Renewable sources are posing as a boon for the world economy as fulfilling the growing energy need through conventional sources or non renewable sources is becoming quiet difficult and complex with the changing scenario.

This paper will focus on the interdisciplinary approach of how financial inclusion and energy inclusion are complementary to each other and

this relationship creates a synergy by opening new ventures, ideas and business for the energy industries with special reference to PAY AS YOU GO SOLAR.

Financial Inclusion to Energy Inclusion

According to Asian Development Bank , About 90% of poor households lack access to institutional financial services. Financial institutions do not provide them services due to their perceived high risk, high transaction cost as these transactions are small in nature and these households cannot provide any security as collateral against their loans. Easy access to credit helps them in managing the risk, increase their income and have a balanced economic life.

The purpose of financial Inclusion is to provide easy access to financial services at affordable costs to all individuals and businesses, irrespective of their net worth and size while Energy inclusion aims at providing reliable and affordable energy services to cover the basic energy needs of households and small to medium-sized enterprise's. MSMEs are the dominant stakeholders in the current economic scenario and there is high synergy potential between the financial service providers and energy consumers. Financial inclusion leads to energy inclusion. If consumers have an easy access to finance then they can pay for their minimum energy needs or grid-supplied electricity or they have also the option to purchase their own distributed energy generation system. Purchasing an electricity generation systems demands huge investment ,the burden of which cannot be laid upon on the consumers. Innovation in green credit enables clients to pay for their monthly installments according to their current expenditures on energy appliances, potential savings and income generation opportunities.

Energy inclusion leads to financial inclusion .Consumers of energy when Provided with an option

of small repayments to retailers or intermediaries for purchasing a distributed energy system will lead to financial inclusion through energy inclusion. Population living at Bottom of the pyramid can use the energy generated in increasing their productive capacities and repay the principal amount with a pay back period of two to three years. This will help them in increasing their credibility through showcasing their repayment ability and accumulate collateral which are required to join a formal institution.

People who have an easy access to solar systems can distribute their electricity to others in return of some fees. This shows that there is huge untapped potential for energy inclusion. Financial inclusion provides a profit reaping environment for distributed energy solutions, especially for those living at the BoP.

The interdisciplinary approach of energy and financial inclusion provides an opportunity to the peoples living at bottom of the pyramid (BoP) to have their own electrification system and have access to financial services to finance their expenses. Also it gives an opportunity to MSMEs to reach their target markets and creating more business through various revenue models like community based distributor network and hence creating a synergy between the two concepts.

According to World energy outlook , 2012 a Global Findex database, 2012 around 1.6 billion people don't have access to both financial and modern energy.

Pay as you go- A driver of financial inclusion

Businesses opting for Pay- as- you- go (PAYG) solar provide solar energy to the household sector with a payment scheme formed keeping in eye ,the budgets of bottom of the pyramid customers. When these customers are given a facility of payment in

instalments, they become the consumer of clean and safe energy which serves as a better option for them as these poor peoples don't have access to grid electricity. PAYG solar are integrated with mobile money i.e consumers in rural areas can pay for their electricity through mobile money. This creates a scope for PAYG solar to act as a driver of financial inclusion through mobile money adoption.

Mobile money helps PAYG solar providers in making digital collection of funds from customers . PAYG solar helps the customer in buying a small solar home system with a small down payment and pay the rest over upon an agreed period using their preferred mobile money service and use the electricity as and when needed. PAYG providers are driving mobile money penetration and usage, increasing brand loyalty, and contributing to revenues.

PAYG Process

PayG solar is an innovative technology in off-grid and decentralized solar power .It can deliver electricity to places where people can pay for their electricity in small increments using the mobile phone's short messaging service.

The technology comprises of a solar home system (SHS) and a prepaid meter. The components of an SHS are a module, a battery, a charge regulator, and small light-emitting diode lamps. The metering device or controller locks the energy flowing out of the battery connected to the SHS. The consumer can unlock the controller according to his needs by purchasing energy credits through a simple recharge process using short messaging service on a mobile phone. The controller is a small electronic device in which data can be feeded through a keypad and has a simple liquid crystal display which shows the energy credit balance available for use by the consumer



How Pay As you Go works

How Pay as you go lets understand with an example

Cost of Solar Home system = Rs.12000-14000

This system will comprise of a solar panel, a battery, a charge controller, lighting points, a mobile phone charging port, and power for charging.

Since people living in the rural areas cannot buy this SHS at one go so the company say XYZ ltd will allow the customer to purchase it on instalment basis

Down payment varies from 10%–30% of solar home systems

Once the payment made, installation is done on the customer's premises mainly on the roof of the house. Through short messaging service of mobile phone, the customer can choose how much energy credit he wants to purchase according to his requirement which can be as low as Rs50. Consumer can use a part of the payment received for repayment of the capital cost of the Solar home system, and the remaining goes to XYZ ltd as profit to cover operational costs. Greater the recharge amount greater will be the proportion of the amount, the consumer can allocate for repayment of the capital cost of the SHS. After the full payment is made by the consumer over a period of time, the system unlocks permanently and can be used to produce electricity for free, and the consumer becomes the owner of Solar home system.

The Interdisciplinary Approach

In urban areas people use mobile wallet applications for the payment of utility services. However, this trend is not prevalent in rural areas. PayG solar providers push the usage of mobile services in these areas by providing customers a choice to use mobile money account of their interest.

Hence PAYGSOLAR while becoming a main driver of mobile wallet signup will contribute towards increased financial inclusion in rural areas. Also digitally finance energy provides liquidity to mobile agents as agents operating in rural areas receive liquidity from the solar energy consumers when they top up their prepaid energy accounts. Hence PAYG solar companies provide access to financial service.

The Synergy

Solar Home systems

Achieving the goal of energy inclusion goal depends on how private organisations respond to the demand for renewable energy systems. This creates a need for creating a collaboration between energy system suppliers and financial services providers. Due to this appropriate and affordable technology can be provided to population living at the Bottom of pyramid. The sustainable energy for all can be achieved only if financial inclusion aim at the population living at the BoP and provide them the opportunity of having the means and ability to take control of their own electrification which will increase their income-generating capacity and hence help them to get rid of the poverty trap.

Payg solar helps the companies in creating a direct link with their customers and allows up-selling and cross selling of various products to the same customer to help them climb the energy staircase.

PAYGO Provider and Microfinance Institution

The partnership if established between the provider of paygo services and Microfinance institutions who can easily provide credit facilities can potentially benefit millions of people. Microcredit has a positive impact on the lives of people. According to a study which covered eight countries including India, researchers found that in one country microcredit borrowers experienced a large increased in income. These studies support the fact that microcredit facilities does not contribute

much in increasing the aggregate income or long term consumption but it helps the borrowers in managing the risks by improving their ability towards smooth consumption and retaining assets. Hence Microfinance institutions through energy inclusion models like PAYGO SOLAR can benefit the poor people and provide them access to Energy services at affordable prices.

Globalised Economic activities

Globalisation has led towards integration of economic activities which has increased manifold the demand of energy across the world. Financial inclusions effect on energy inclusion can be explained in the context of two different opinions. Firstly, financial sector of our country is changing very rapidly and these changes are contributing towards increase in the purchasing power of the people. This increase in the purchasing power is utilised by them towards energy intensive products and services like PAYG SOLAR. Secondly, an escalating financial system helps in allowing more credits to the renewable energy sector and encourage people to invest more in high class energy efficient product and services due to high affordability.

Foreign Direct Investment

According to World bank ,Financial Inclusion is identified as one of the key enabler of Goal 7 (Affordable and clean energy) of the UN Sustainable Development goals 2015. Foreign Direct investment in the renewable energy sector can lead to higher market penetration of energy efficient production technologies .Due to increased penetration there will be increased competition between the domestic players to increase their investment and innovate more to fight with the competition at the global front. Increased FDI contribute also towards encouraging technologically backward classes to employ energy

efficient techniques of production and consumption through modernized financial machinery.

Conclusion

Access to Energy is the need of the hour as today we talk about creating new milestone in electricity generation but put very little efforts in

Making that energy accessible by everyone. Financial inclusion helps in fulfilling the objectives of Energy inclusion through various financial models. Need for increasing energy inclusion demands from the financial sector, creation of more innovation financial models which can help in easy access to credit facilities. Hence both are interdependent.

Payg Solar is a technology which is at its nascent stage in India but opted by other countries like south Africa, Nigeria, Uganda and have a very successful implication. India is also in the process of using this technology through simpa networks. The synergy potential of energy and finance is too high as both are complementary to each other.

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Blind Reviewers Comment

The manuscript is written nicely as it is focusing on upcoming technology PAYG Solar and how this technology help the peoples living at bottom of pyramid to pay for their electricity expenses. The manuscripts opens up new research ideas and tries to create a linkage between communication, Energy and finance. How these sectors together can create a synergy and contribute towards the lives of Underprivileged sections of the society and also towards the Indian economy. Overall the manuscript is focussing on new concept which can be used for further research.

**GJEIS Prevent Plagiarism in Publication**

The Editorial Board had used the turnitin plagiarism [http://www.turnitin.com] tool to check the originality and further affixed the similarity index which is 16% in this case (See Annexure-I). Thus the reviewers and editors are of view to find it suitable to publish in this Volume-11, Issue-1, Jan-Mar, 2019

Annexure 1

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