

# Innovative Financing & Business Models

## Introduction

*The Global Forum on Sustainable Energy (GFSE) is a neutral multi-stakeholder platform which is facilitating international dialogue on energy for sustainable development by taking into account the special interests and challenges of developing countries. GFSE aims at the establishment of a sustainable world energy system from a social, economic and environmental perspective.*

*GFSE contributes to both international discourse and information dissemination on sustainable energy. The multi-stakeholder platform plays a crucial role in facilitating sustainable energy projects by bringing together donors, investors and project developers. Their interaction creates new opportunities and enhances existing initiatives in the field of sustainable energy.*

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Poverty eradication is one of the greatest global challenges. The Sustainable Development Goal (SDG) 1 calls for an end to poverty in all its manifestations by 2030. It also aims to ensure social protection for the poor and vulnerable, increase access to basic services and support people harmed by climate-related extreme events and other economic, social and environmental shocks. Poverty needs to be addressed from a multi-sectorial perspective. This involves creating jobs, supporting inclusive and sustainable business, and improving policy frameworks, among others. The responsibility lies not only with governments but also with the private sector, civil society and other actors. Only with improved cooperation between these actors can cross-cutting issues be addressed.

Energy, especially access to clean, affordable energy (SDG 7), is considered to be an enabler to tackle poverty. Energy poverty is keeping people poor by having a detrimental impact on their health and safety and denying them the possibility to pursue education or business opportunities, among others. Poor segments of the population experience severe liquidity constraints and often spend a substantial proportion of their income on energy services, negatively impacting their capacity to pay for health, food, education and other pressing needs. Poor people are also very sensitive to changes in the price of energy and require flexibility in the arrangements and timing for payment to fit their income patterns, which can be unstable and/or seasonal.

Energy efficiency and renewable energy sources have substantial potential to ameliorate the living conditions of the poor. They can stimulate growth, create new jobs and improve health conditions, while also paving the way for new educational opportunities for low-income population. Energy efficiency helps reducing the energy expenditures of the poor and their vulnerability to price changes, freeing resources to satisfy other pressing needs. Through innovation, the costs of the technologies have been reduced substantially in the past years. However, liquidity constraints and expensive access to credit limit the ability of the poor to undertake large up-front investments, notably on energy efficient equipment and/or renewable energy solutions. At the same time, climate change will have a disproportionate impact on the poorest and most vulnerable communities. Additional barriers that discourage low-income people from using RES/EE solutions are lack of affordable technologies that meet their specific needs, low-quality products lacking robustness and durability and lack of awareness about suitable products and services. Thus, there is a need for innovative credit schemes and business models that enable low-income consumers to spread the high initial cost over the life of the equipment.

New business models, innovative financing schemes and appropriate technologies enable the provision of clean energy services to low-income populations in a more flexible and equitable manner. Innovative business models are necessary that adequately address the customer interface in the areas of sales, payments, service and disposal of energy efficiency and renewable energy products in a cost-effective manner. The combination of business models, appropriate technology, affordable financing schemes and sound policy frameworks also enables entrepreneurial opportunities in energy efficiency and renewable energy and provides opportunities for the development of local value chains. This implies, among others, that access to affordable finance needs to be made available not just to consumers, but along the local value chain to organisations that manufacture, assemble, install and maintain energy efficiency and renewable energy technologies. Pro-poor public-private partnerships (PPPs) can combine public and private financing to serve low-income markets, overcoming government budgetary constraints and allocating project risks between the public and private sector.

## Business Models for Sustainable Energy Development

According to the 2017 SE4All Global Tracking Framework Report<sup>1</sup>, about 1.06 billion people lack access to electricity and about 73% of people without access to modern energy live in rural areas. Developing and emerging countries need to tap into decentralised energy solutions in order to bring energy access to their citizens. Renewable energy technology-based solutions, which are not yet affordable, should be supported by access to financing. Through innovative business models, major unexploited market potentials for renewable-based solutions can be further exploited. However, in order to do so, actors must address the related existing challenges, including the economic viability of projects in developing countries, financing and up-scaling beyond pilot projects, the lack of available infrastructure for renewable energy technologies and appropriate incentives to step up investments in off-grid electricity solutions. In developing and emerging countries, business models need to be adapted to the local circumstances, which include adaptation to the financial and regulatory environment and to the existing institutional mechanisms. One main challenge in developing strong new business models is the significant investment of time and resources needed. Local banks and other institutions in developing and emerging countries often lack the necessary capacity and resources to develop new business models that will be self-sustaining over a longer period of time. A bottleneck to long-term sustainability of business models is their ability to be scaled up and replicated.

Poor information flows or the general lack of data can hamper the development of business models. Collaboration among partners can help tackle this barrier by increasing information-sharing and the exchange of experiences. Through the involvement of local actors (ex. communities, NGOs, government agencies and banks) as partners in the creation of new business models, the models can help enhance trust and local buy-in. Effective business models are characterised by their ability to involve a wide range of stakeholders<sup>2</sup> - for example through collaboration with government institutions or through the creation of opportunities for local business to take part in the value chains - in their design and implementation. Business models aiming to contribute to sustainable development need to deliver environmental, social and economic benefits, but they may have to decide between trade-offs among different elements. For instance, a business may have to decide whether it should be driven primarily by the consumer's ability to pay for the service/product, rather than on meeting the needs of the poorest. In many cases, businesses tend to favour financial returns over social or environmental benefits. A supportive regulatory environment in developing and emerging countries will help the development of new innovative business models.

When choosing appropriate business models, the different regulatory and policy frameworks, the different market structures and social and economic conditions must be taken into consideration. Broadly speaking, business models can be divided into two main categories<sup>3</sup>: (a) ownership models, which focus on financing and risk mitigation, and (b) service models, which focus on providing specified services and highlight the different methods of operation and maintenance:

### Ownership Business Models

In this policy brief, only two selected types of ownership business models are presented; other types such as multi-party ownership, and lease or hire purchase models are not presented.

#### Public-Private-Partnerships (PPPs)

The most common ownership business model is a public-private partnership, in which a public sector authority and a private party form a contract, such that the private party provides a public service and assumes a significant amount of the financial, technical and operating needs. There are three most common PPP models, namely build-own-operate-transfer (BOOT) model, build-own-operate (BOO) model, and build-own-transfer (BOT) model. PPP arrangements often involve the creation of a special-purpose vehicle (SPV) or special-purpose company (SPC) to develop, maintain and operate the project-related assets for the contracted time period. PPP-BOOT models are usually suitable for large, normal grid-connected power plants due to the complexity and high overhead costs of such arrangements.

#### Dealer Credit Business Models

In this model, the equipment supplier provides the initial credit for the system. The micro-finance institution, responsible for collection of payments and capital recovery in case of bankruptcy, and the energy or technology company, responsible for installation, customer training, and maintenance, promote standardized energy products in a one-stop-shop. This model can have two forms: (i) "one-hand model", a single company provides the technology and financing, or (ii) "two-hand model", the technology provider and the micro-finance institution are separate entities, but work closely during the course of the partnership. In summary, this model combines standardized energy products with microloans, thereby targeting low-income households. The main risk in this model is that in the case that a technology company fails to deliver the product services, the dealer must take over the value chain to prevent investment loss.

#### *Example: Microcredits and Microloans*

Microcredits help mitigate poverty and allow low-income households to have access to capital and to be able to invest in their business. Small loans offer opportunities to earn regular income through small enterprises, to pay expenses (ex. school fees) or to invest. The Grameen Bank<sup>4</sup> in Bangladesh is playing an important role by spreading this development tool to more people, who do not have access to clean, affordable and reliable energy on a day-to-day basis in the villages. The credit delivery system of the bank focuses exclusively on the poorest of the poor and uses a set of measures to guarantee that each loan is in line with the bank's goal. Grameen Bank has established eligibility criteria to select customers, to prioritise delivering credit to women, while meeting diverse socio-economic development needs of the poor. Furthermore, the bank also offers unique loan conditions, including granting loans without collateral and the possibility to repay loans in weekly instalments spread over a year. The bank makes sure that the loans help individuals in expanding on their individually chosen, quick income generating activities, which utilise the skills that the clients already possess.

A further example is the Renewable Energy and Adaptation to Climate Challenge Technologies (REACT), which is working to expand energy product lines offered by micro-finance institutions that are focusing on micro-loans. The REACT grantee, MicroEnergy Credits (MEC), has built partnerships with micro-finance institutions to build up their energy product line. MicroEnergy Credits<sup>5</sup> connects people to clean energy by working with financial institutions to lend money for clean energy solutions, such as solar lighting, improved stoves and water purifiers. They have identified three challenging fields - distribution (clean energy companies mostly offer distribution to major cities), financing (loan size often too small) and risk (perceived risk) – that they aim to tackle with their unique solutions. MEC also uses mobile technology to increase transparency and facilitate transactions, while also creating awareness around clean energy products.



**Service Business Models**

Service-based business models focus on providing a product and/or service to the end user, where this service is generally provided by an energy service company (ESCO). An ESCO can either be a private or public utility, a non-governmental organisation, a cooperative or a private company. ESCOs fall into two categories, namely an energy supply contracting company or an energy performance contracting company. ESCO models are complex and require sound policy, regulatory, legal and financial frameworks to function properly. There is a lack of awareness and knowledge about ESCO models among potential customers. Thus, new ESCOs have to gain the trust of their customers regarding issues such as monitoring and verification of energy savings to guarantee performance, contractual allocation of energy and money savings, financial soundness of the business model, risk-sharing arrangements etc. This can be a lengthy process. Moreover, new ESCOs, which do not have a track record yet, and operate in nascent markets have difficulties in accessing commercial financing. Banks and other credit institutions may consider ESCO projects a risky business and may not have the technical capacity to assess ESCO projects and the risks associated to them properly. In these markets, there is a need to facilitate financing for ESCO projects, to provide technical assistance to banks and other credit institutions to assess technology and project risks and to create a policy and regulatory framework to mitigate risks<sup>6</sup>.

User Cooperative Business Model

In a user cooperative business model, a non-profit community organisation is established, owned and managed by its members. Renewable energy and energy efficiency projects are funded either fully or partly (with additional financing from private or public sources) by member contributions. This model is especially useful for RES and EE projects on the local level and allows the possibility for an NGO to take an active role in the management. The cooperative not only manages all financial details between the users and various parties, but also the administrative and operational tasks. This model has been used in projects related to the expansion of infrastructure services, for example rural electrification or community solar projects, in developing and emerging countries. Business plans should make sure to engage community members from the early phase and should clearly lay out the ownership and maintenance responsibilities. Furthermore, business plans should make sure to plan for long-term sustainability; thus, durable technologies should be given preference over low-cost and low-quality products.

In solar cooperatives, for example, customers may purchase solar systems or lease them with an option to purchase them later on. Also, agribusiness cooperatives can lease solar irrigation systems to farmers in rural areas, helping them to increase crop yields and their income. The solar irrigation system itself acts as a form of collateral for the farmers, addressing the lack of conventional collateral. The customer pays a fixed monthly or quarterly fee and, after the balance is paid, he/she owns the equipment<sup>7</sup>.

Cooperatives can also partner with other institutions to facilitate training of local technicians, conduct train-the-trainer programmes and hold educational workshops for decision makers. Cooperatives can also address training specifically to women, creating a supportive learning environment for them and also training women to become trainers.

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## Innovative Financing Mechanisms for Sustainable Development

Technology is a key driver of integration and innovation in financial services by enabling groups in the society, which have traditionally been excluded from formal financial services, to gain access to these services. The costs of renewable energy technologies have decreased significantly over the past years (e.g. solar home systems) and information and communication technologies have disseminated quickly. These changes gave rise to innovative payment systems, for instance, through the use of mobile phone services. Such services particularly address customers at the bottom of the pyramid and lower the risk for suppliers through greater payment security.

Mobile technologies usually do not require high upfront costs and transfers can be easily tracked. Mobile phone enabled pay-as-you-go (PAYG) models not only offer flexible payment terms (on a daily, weekly or monthly basis) for customers, but they also establish credit history. PAYG addresses larger markets and helps build consumer trust by offering payment methods that require minimal upfront costs. At the same time, this method guarantees service providers a secure payment collection, while also giving customers an incentive to regularly and consistently pay, since the service is suspended if they default. Unlike grid expansion projects, which require significant investments and may take several years to materialise, the PAYG model enables remote rural customers to get immediate access to basic electricity.

In many African countries, instead of just having customers pay for energy use, energy providers are offering their customers a lease-to-own model<sup>8</sup>. In this model, payments that customers make go towards paying off the system and customers can thus become the owners of a solar home system. In order to improve perception of solar products and other clean energy products, service providers can link a PAYG-enabled service and offer a low commitment trial. Such steps can help to build awareness that clean energy solutions are not only reliable, but also affordable.

Despite positive improvements in the development of innovative financing mechanisms, there are numerous barriers that hinder further growth. In many cases, actors are unwilling to test out new financing mechanisms, because they are unable to assess risks associated with these new instruments. In other cases, inconsistent language makes it difficult for financial managers and development practitioners to clearly communicate. Many smaller institutions often lack the capacity and experience with innovative financing mechanisms to create further such instruments. In the public sector, large donor agencies may lack the legal authority and incentives to develop innovative financing schemes. Since innovative financing mechanisms often target a specific group of stakeholders, financial returns are usually limited, which makes it unappealing to many funding agencies<sup>9</sup>. The lack of standards and performance indicators makes it difficult for investors to assess innovative financing opportunities. Furthermore, designing and introducing new financing mechanisms tends to be commercially unviable due to the high upfront costs associated with the introduction of new instruments. The regulatory framework, in many countries, also does not foster the expansion of financing mechanisms that do not fit into the otherwise established norms.

Private and public sector actors alike must work together to accelerate the growth of a commercially-viable innovative financing market. Actors that already have experience in designing and implementing innovative financing schemes should share their knowledge; knowledge dissemination can help to attract various new actors to the market.

## Examples from Developing & Emerging Countries

Though energy efficiency and renewable energy sources have substantial potential to ameliorate the living conditions of poor-income households by stimulating growth and creating new jobs, women are still more likely to suffer from poverty than men. Ensuring that women and girls have energy access is not just about women's rights — it is a fundamental human rights issue. A general awareness of gender implications of access to clean energy services and its role in aiding in women's economic empowerment is needed. By empowering women to become producers and suppliers of clean energy services, women can help lift their families and communities out of poverty. Business models and innovative financing models targeting women, a fact that is examined in more detail below, should be developed to help women achieve economic empowerment by becoming involved in renewable energy and energy efficiency value chains.

### *Nepal*

Empower Generation (EG) is an innovative social enterprise that works on combating poverty in Nepal by reducing gender inequality and increasing access to energy. Through its development of market-based approaches to increase the adoption of clean energy technology in remote areas and by targeting women already working as household energy managers, Empower Generation is working to foster female entrepreneurs, while providing solutions for green economic development. Among other activities, the organisation supports women-led clean energy enterprises, provides training to women to own a business and manage a sales force, thereby supporting local businesses to sell quality solar technologies. Mobile money solutions for renewable energy technologies allow low-income members of the population to have wider access to energy. Empower Generation has been working with Hello Paisa and ESewa to launch Pay-As-You-Go business models through their mobile money platforms. For more information, see <http://www.empowergeneration.org/>

### *East and West Africa*

Solar Sister, an award-winning social enterprise, works to eradicate energy poverty by empowering women through clean energy-driven economic opportunities. The management staff of Solar Sister train and recruit Business Development Associates (BDAs), who are locally hired field staff and the direct link to female entrepreneurs. In a next step, these BDAs recruit, train and support a group of self-employed women entrepreneurs. Not only does Solar Sister recruit, train and mentor African women in East and West Africa (Uganda, Tanzania, Nigeria) to build sustainable businesses selling mobile phone chargers, clean cookstoves and portable solar lamps, but it also helps the women use their social networks to improve the distribution of such products. Solar Sister works with local women's groups, while partnering with established manufacturers of solar lights and clean cookstoves to guarantee that the products meet the highest quality standards. Read more here: <http://www.solarsister.org/>

*ECOWAS Region*

The ECOWAS Centre for Renewable Energy and Energy Efficiency's (ECREEE) flagship initiative called ECOWAS Programme on Gender Mainstreaming in Energy Access (ECOW-GEN) aims to factor the differing energy needs of men and women into the planning and implementation of clean energy interventions. ECOW-GEN promotes knowledge management on gender and energy issues, strengthens capacities for gender mainstreaming in energy policies and projects and implements gender-responsive investment and business promotion in sustainable energy development in the ECOWAS (Economic Community of West African States) region. Another initiative, the ECOWAS Women's Business Fund specifically address challenges related to women's lack of access to finances and supports women to start and scale-up businesses in the ECOWAS region. Alongside the seed funding, the fund also ensures that women have the necessary trainings to build-up their skills in order to become competitive as suppliers and as producers of clean energy services. Within this framework, a revolving micro-credit fund targeting the fishery sector in Senegal was established to modernize the method of drying and processing fish through the use of improved cookstoves (22.1% higher efficiency compared to traditional ovens) in several communities. Further information on other projects can be found here: <http://ecowgen.ecreee.org/>

Another interesting project in the ECOWAS region, carried out by Energy 4 Impact and the Social and Ecological Management Fund (SEM), with partial support from ENERGIA (International Network on Gender and Sustainable Energy), is "Energy Opportunities for Women in Senegal", which helps to strengthen economic opportunities for women through the sale of energy products and through the productive uses of energy related to crop processing. After undergoing a rigorous selection process, women entrepreneurs are supported with training (and tailored ongoing mentoring) to build-up their business and technical skills. The project facilitates access to capital by linking with local financial institutions and supporting their lending to micro- and small enterprises (MSEs) by a partial risk guarantee fund and training. Such funding models help target existing financial gender biases in the local communities. Further information can be found here: <http://www.energy4impact.org/>

## The Way Forward

Through innovative policy frameworks, technologies, business models and financing schemes, renewable energy and energy efficiency can substantially contribute to tap synergies between economic development and poverty reduction, on the one hand, and climate protection on the other. The combination of innovative business models and technology advances is already enabling a market-based clean energy transition in developing countries. Innovative financing measures can further help to narrow the gap between the resources needed to implement a number of environmental and developmental goals, including the Sustainable Development Goals (SDGs).

The development of new financial instruments is frequently hindered by a lack of information and resources. Many smaller institutions often lack the capacity and experience with innovative financing mechanisms to create further such instruments.

Additionally, a lack of investment to design new business models and financing mechanisms limit innovation, thereby increasing upfront costs related to their introduction. Business models for new renewable energy technologies that are being used today will require a long time to establish a track record (i.e. build up trust) through trial and error processes. Establishing standards or key performance indicators for the use of innovative financing mechanisms can help to lower perceived risk of investment related to new instruments. Combining public and private actor expertise, when designing innovative financing or business models, would help to get more information about the performance of these instruments, thereby building up trust and credibility for the long-term.

Soft funding is required to support the development of innovative business models for the poorest and for remote areas and help demonstrating their business case. This soft funding should strengthen specific areas of the business that may be difficult for the entrepreneurs to address. For instance, it could target the establishment of the initial network of customers in new markets, the development of distribution networks in remote areas and the development and demonstration of innovations that help reducing the payment fees of the poorest customers and providing affordable after-sales services to them.

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