SE4All Energy Access Committee Report

Executive Summary

The Access Committee has focused on the decentralized, off-grid, mini-grid and clean cooking elements of the access challenge. The role that national power utilities can play in enabling off grid and decentralized solutions was also examined but there was not in depth discussion of the essential role that power utilities and on grid electricity extension play in supporting the energy access agenda. This was a design decision of the Committee at this time in order to focus the discussion. The Committee's deliberations focused on policies, business models and financing of mini-grid and off-grid approaches, as well as enterprises based solutions for energy services provision. Three background papers were prepared: 1) Demand Profile of Poor Consumers, 2) Decentralised Energy Products and Services- Off Grid Enterprises 3) The Mini-Grid Option - Lessons learned and factors of success.

The Committee's core recommendations summarized here are focused on interventions that will support the goal of achieving the universal energy access through decentralized, off-grid and cooking solutions based on local service delivery, enterprise development, and business financing models, that can be used by governments, entrepreneurs, social enterprises, NGOs or other local organizations.

1. ***Change the message***. Begin the narrative with key development arguments outside the energy sector. Use SE4All to speak more to the development outcomes that result from access to energy for water, health, education, income generation, empowerment of women, good governance and sustainable development.

2. ***Involve organizations from other sectors in the discussions of the Advisory Board*** in order to gain a better understanding of the potential of energy as the enabler of development.

3. ***Stimulate the research and application on information on poor peoples' energy needs*** (demand profile) and the changing energy needs of people as they move up the welfare or development ladder. It is essential to disaggregate the so called "bottom of the pyramid".

4. ***Promote policy and investment efforts for the universal adoption of clean cooking systems*** including clean cookstoves and switching to liquid fuels for heating and cooking purposes as a core element of the energy access agenda.

5. ***Focus greater attention on the specific energy service needs of women*** in policy and programme design giving particular attention to labour saving mechanical power solutions and energy using appliances that can help women, especially poor women, earn incomes to improve their own conditions and the welfare of their families.

6. ***Promote utility to utility support*** and involve more electricity utility representatives in the discussions of the Advisory Board. Both north-south and south-south cooperation between utilities are needed.

7. ***Promote national "energy councils" and SE4All Country Action Agendas***. Transparent and cross-sectoral planning must be enabled through inter-ministerial consultations to engage in long-term and holistic energy planning, embodied by a SE4All Country Action Agenda involving diverse sectors, not just energy.

8. ***Catalogue business models/success stories in off grid approaches***. These approaches should include the range of conventional energy (diesel, gas etc), hybrid systems, and fully renewable based systems (wind, mini hydro, solar, biogas etc) that have successfully provided off grid energy services, including both electricity and liquid and gaseous fuels as energy carriers.

9. ***Innovate a new range of public-private business models for mini-grids*** implementation that include different options for ownership structures including the combination of public and private support for mixed financing models.

10. ***Establish a new financing facility(ies)*** in support of off-grid and enterprise-based solutions for accelerating energy access. Such facility(ies) should fill the gaps and ensure the availability of capital for capacity building, technical assistance and investment along the energy access development and finance continuum.

11. ***Convene foundations as partners*** to discuss potential contributions to the achievement of Sustainable Energy for All objectives, especially regarding the development impacts achieved through energy access and the necessity of patient and high-risk capital.

12. ***Extend the mandate of the Access Committee*** is the unanimous request of this group to the Advisory Board. Due to the complex nature and breadth of the subject matter, more detailed work is needed on the financing, policy and business models to support off grid and decentralized energy access options, cleaner cooking systems and the interface with power utilities.

Outcome Document: Sustainable Energy Access Committee Report

I. Foreword

I.1. On 19 April 2013, UN Secretary General Ban Ki-moon and World Bank President Jim Yong Kim convened the inaugural meeting of the Sustainable Energy for All Advisory Board. At its second meeting on 27 November 2013 the SE4All Advisory Board endorsed a proposal for creation of four Sub-Committees of the Advisory Board to seek their strategic advice and guidance on four core challenges of SE4All: (i) achieving universal energy access, (ii) doubling renewable energy, (iii) increasing energy efficiency, and (iv) scaling up financing.

I.2. The Advisory Board Committee dedicated to universal energy access is entitled: SE4All - *Energy Access Committee.* Members of the Advisory Board and Executive Committee communicated their preferences for Committee participation to the Global Facilitation Team (GFT). *(A list of Members is attached in Annex 1).*

I.3. In consultation with the co-chairs of the Advisory Board the following three Advisory Board members have agreed to take on co-leadership in the Energy Access Committee:

1) H.R.H. Prince Abdulaziz bin Salman Al-Saud, Assistant Minister, Ministry of Petroleum and Mineral Resources, Chairman of the National Committee on the Clean Development Mechanism, Kingdom of Saudi Arabia;

2) Reema Nanavaty, Secretary General of the Self Employed Women's Association, India;

3) Andris Piebalgs, European Comissioner for Development and Cooperation, Brussels.

I.4. The Energy Access Committee's objectives are to provide advice and recommendations to the Advisory Board and the Chief Executive Officer (CEO) to support the SE4All Initiative to bring about breakthroughs in approaches in achieving the universal energy access objective. It shall identify, consider and make recommendations on high priority, action oriented approaches to enhance access to modern energy services. In order to realize these objectives and turn the suggested approaches into reality, the Energy Access Committee should provide specific recommendations on what other Advisory Board members and their organizations can do to support the SE4All goal achievement in relation to energy access. Moreover, it should suggest game changing initiatives to the Advisory Board and seek ways that their own organizations can also help turn them into reality. To support alternative approaches to decentralized energy solutions, the Energy Access Committee will propose energy enterprise and business financing models that can be used by governments, entrepreneurs, social enterprises, NGOs or other local organizations to increase access to energy services by consumers. Looking at the interface with power sector utilities, it will consider the enabling

and disabling factors in the finance and policy models affecting the compatibility, growth and sustainability of on grid and off grid electricity supply efforts to compliment utility based grid extension models.

I.5. Since February 2014, the Energy Access Committee members held four conference calls under the leadership of the three Co-chairs and their Sherpas. The first face-to-face meeting of the Energy Access Committee took place in Vienna on 28 April 2014; it was hosted by the OPEC Fund for International Development. There were 45 participants attending the meeting which was co-hosted by the SRSG and CEO Dr. Kandeh K. Yumkella and OFID Director General Al-Herbish. In addition, the co-chairs of the Committee represented at the meeting, Klaus Rudischhauser (Deputy Director General- European Commission), Reema Nanavaty (Secretary General, SEWA) and Abdullah Al Sarhan (Executive Director of the KSA-DNA), led the discussion of their respective session. Susan McDade and Dominika Zahrer of the GFT supported the work of this committee.

I.6. In preparation for the meeting three back ground papers were prepared: 1) Demand Profile of Poor Consumers, 2) Decentralised Energy Products and Services – Off-Grid Enterprises 3) The Mini-Grid Option- Lessons learned and factors of success. The main focus of the discussion was: policies, business models and financing of decentralized, mini-grid and off-grid approaches as well as enterprise based solutions for energy services provision. The role that national power utilities can play in enabling off grid and decentralized solutions was also examined but there was not an in depth discussion of the essential role that power utilities and on grid electricity extension play in supporting the energy access agenda. This was a design decision of this Committee at this time in order to focus the discussion. This document reflects the discussions in the meeting and presents a set of recommendations resulting from the discussions.

II. Introduction

II.1. Definition of Access to Energy

1. There is no universally-agreed and universally-adopted definition of access to modern energy services. Although the Committee decided to refrain from discussing a formulation of the definition of modern energy access, drawing instead on the detailed analysis presented in the Technical Report of Task Force 1 of the Secretary General's High Level Group on Sustainable Energy for All on Energy Access of April 2012 in "Support of the Objective to Achieve Universal Access to Modern Energy Services by 2030". There is a common understanding among the Members on the following elements of the energy access definition:

   i. Energy access means reliable and affordable access to both electricity and the services it provides for domestic use (hooked up to a house) and access to clean cooking and heating systems.

ii. Energy access includes access to productive energy such as mechanical power which supports value adding activities and/or income generation.

iii. It is widely recognized that households of different income levels may aspire to different thresholds of both electricity and fuel access from an equity point of view.

iv. It is widely held that all households should enjoy a minimum threshold of access to the services provided by both electricity and fuels as a basic need.

v. Energy services can be generated from conventional and renewable energy sources. Diverse energy sources must be considered in looking for solutions and affordability, accessibility, reliability and sustainability all must be taken into account when developing energy systems.

vi. There is a body of ongoing work on the measurement and definition of energy access using a multi-tiered indicator approach, anchored in the SE4All Knowledge Hub in the World Bank which together with the IEA co-leads the Global Tracking Framework. Underlying this work is the challenge of the quality of data available for calculating energy access and the level of energy services available.

vii. By negation, access to energy is not a synonym for having a wire connected to your home though this is often the indicator that is measured and reported. The wire may or may not provide electricity, may or may not support cooking activities, and may or may not provide affordable and reliable service.

2. The SE4All universal access goal will be achieved only if every person on the planet has access to modern energy services provided through electricity, clean cooking fuels, clean heating systems, and energy for productive use and community services.

II.2. Energy: The Enabler of Development

1. As the Secretary-General of the United Nations, Ban Ki-Moon, stated "*energy is the golden thread that connects economic growth, increased social equity, and an environment that allows the world to thrive*." Access to energy is a necessary precondition to achieving many development goals that extend far beyond the energy sector—eradicating poverty, increasing food production, providing clean water, improving public health, enhancing education, creating economic opportunity, and empowering women. Energy services are a means therefore to support the attainment of development outcomes across sectors. The food-water-energy nexus approach, for example, should form an integral part in achieving universal access to energy, with an emphasis on rural and remote areas. Any strategy that focuses on one part of the water-food-energy nexus without considering its interconnections risks serious unintended consequences. The transition to sustainable energy systems also presents one of the greatest investment opportunities of the 21st century. In short, development is not possible without energy, and sustainable development is not possible without sustainable energy.

2. *Access to energy must not be taken merely as a goal in itself, but as an enabler of sustainable development overall*; it is fundamental for the self-empowerment of the poor. Energy services are not only essential for education, health services and to promote inclusion and social equality, but also are the necessary ingredient for the promotion of economic improvement. Lack of modern energy is associated with, and leads to, low productivity. At the same time the high proportion of the poor's meagre incomes spent on meeting basic necessities, including energy services, encase them in a vicious cycle of low income, low productivity and consequent perpetual poverty. With increasing unpredictability of weather, during natural disasters, the poor often do not have a safety net and are disproportionately adversely affected. Hence, in order to obtain sustainable economic improvement, access to energy must also be associated with or lead to productive uses in local communities, generating livelihoods and income. Energy and machines/devices that use energy, provide value adding opportunities for income generation and local production. Only with such productive uses will it be possible to break this vicious cycle of energy poverty. The way in which energy is produced, distributed and used will affect its environmental sustainability, one of the three aspects of sustainable development. *This committee agreed that the social, economic and environmental aspects of access to energy service were all important and that sustainable energy is not a synonym for renewable energy*. Access to the services themselves however is an indispensable condition for the self-empowerment of the poor.

3. Global evidence shows that the poorest people often pay the highest price for energy services per unit of heat or electricity when they depend on low quality cooking systems, kerosene and dry cell batteries for their energy services. In the absence of cleaner, safer, and more affordable options, this expenditure however continues due to the essential need for energy services at the household level (inelastic demand), often representing a high proportion of total household expenditure. The economic reality of the poor, is the tendency to ration their meagre incomes for meeting their essential needs, often determined on a daily basis, with the first priority often being given to food, clothing, shelter and fuel. If any money is left over, other products and services compete for the surplus. For the poor to access modern energy, targeted policies and investments must be directed towards their specific energy needs (cooking, basic lighting, income earning devices). *Hence, to be successful, it is imperative that the consumer's expectations (energy demand profile) of different income groups are understood (viz. by professional consumer research, partnering with reputed NGO's) and form part of the energy product / service proposition and national planning strategies*. The suppliers of the modern, clean energy products and services have to offer options that are within the means of what the poor are now spending on traditional/fossil fuel energy. It is imperative to demonstrate how modern energy will improve their productivity, not least by freeing up time otherwise spent on the collection of fuelwood, and change their lives for the better i.e. show the poor that there is value in energy.

4. *SE4All must promote efforts for the universal adoption of clean cooking systems including clean cookstoves and switching to liquid or gaseous fuels for heating and cooking purposes.* This includes enhancing demand, strengthening supply, and fostering an enabling environment. Open fires and rudimentary cookstoves are inefficient, unhealthy, and unsafe, and inhaling the acrid smoke consisting of fine particulates they emit leads to over four million deaths a year worldwide, with women and children at greater risk. While some may say that the poor cannot afford to adopt clean cooking solutions the opposite is in fact the case. The poor pay heavily for their lack of access to clean cookstoves and fuels, and the high cost of poverty in many developing countries means that clean cookstoves can quickly pay for themselves in health, economic, and environmental benefits. With further innovation in advanced biomass cookstoves, further deployment could save millions of lives over the coming decades, while improving countless others, empowering women, creating opportunities for the poor, and reducing environmental impacts. Cleaner burning fuels like liquefied petroleum gas (LPG), biogas, and ethanol, offer healthier and more efficient options when available, reliable and affordable. The same is true of electricity as an energy carrier when it is affordable, reliable and accessible. Energy policy and energy sector planning have not prioritized cooking and other household energy issues. *To address energy access and sustainability much greater attention must be given to this topic and improved, affordable cooking solutions.*

5. *While access to energy is treated as gender neutral, in fact energy debate on policies and service delivery systems have often been gender blind.* Both men and women need access to affordable and reliable energy services to have improved living conditions, however men and women tend to use different energy services and assign different levels of priority to different categories of energy services. Women in particular are largely not consulted in energy policy debate, or else are assumed to have a relevant role only in relation to cooking issues. While cleaner cooking systems are very important for women due to the negative health and time use issues related to contamination from smoky stoves and the collection of traditional fuels, *women are important energy users and energy service producers* in other essential aspects as well. The work of women in carrying water, providing agriculture labour, harvesting and processing basic food staples and transporting other agricultural products makes the topic of access to mechanical power particularly important for improving the living and economic conditions of women. Global evidence shows that there is a high concentration of female headed households in the poorest income segments which also makes the link between access to energy services and income generation to improve family welfare of particular importance to poor women. Therefore to engender the energy policy debate and to look for practical solutions to womens' energy needs, *much greater attention in policy and programme design should be given to labour saving mechanical power solutions and energy using appliances that can help women, especially poor women, earn incomes to improve their own conditions and the welfare of their families*. This is also a very sound approach from an instrumental point of view as worldwide poor women tend to invest more of any additional disposable income into the health, education, nutrition and welfare of the children and families rather than invest in other "non-productive" activities (sports, leisure, etc) when compared to men.

6. The SE4All initiative needs to promote people-centred approaches which make a concerted effort to *target the very poorest, those who will not be reached by business as usual as they lack the disposable income to meet the up-front costs of energy access*. Innovative access strategies, developed in consultation with civil society, local governments and the private sector actors, especially in off grid or hard to reach areas, should be adopted to ensure that the poorest households are enabled to access a minimum threshold energy consumption without assuming unmanageable financial risk. This approach should avail itself of social protection and social safety nets, in such a way that the potential for unintended and unforeseen negative outcomes are minimised. In on-grid areas, urban and peri-urban poor neighbourhoods in particular, programmes to ensure access to a minimum level of electricity to promote domestic wellbeing, safety and social inclusion should be supported by government programmes as part of public policies to ensure minimum living standards. Not all solutions for reaching the poor will be economically viable, especially when attempting to reach the poorest of the poor. *For this reason it is essential to disaggregate the so called "bottom of the pyramid" of those who do not have access to modern energy services and to correctly distinguish between income groups* (distinct levels of income poverty), productive and non-productive uses of energy (those that generate income or not) and the ability to pay for distinct energy service segments (i.e. lighting, cooking, mechanical power, communication etc). A much more refined or nuanced profiling of poor people as consumers and as citizens with basic needs is recommended so that appropriately targeted and differentiated energy and social policy can be designed. *It is recommended to avoid a homogenized preconception of "the poor" or their needs. Energy service needs will vary greatly by location, income group and type of household*.

7. *Capacity development is needed along the full spectrum of the on-grid to off grid continuum to meet the energy access challenge*. Capacity-building at all levels of the public and private sector is indispensable for the effective and efficient establishment of access to energy. For example, to foster appropriate energy access delivery channels, whether projects, government programmes or enterprises, policy-makers need to be aware of frameworks, regulations and incentive approaches that facilitate investment. Business and technical capacity development are needed for entrepreneurs and mini-grid developers. The design and implementation of technical training programs for distributed energy product installation and maintenance, should be incorporated into vocational programs. For sustainable energy approaches to grow, there are new generations of engineers, accountants, lawyers, construction managers, utility executives, social entrepreneurs, civil society leaders and policy makers required to support the massive capital investments in universal energy access.

III. Creating Universal Access to Energy

III.1. Utilities: Establishing Access

1. In the push toward achieving the objectives of Sustainable Energy for All, utilities have the opportunity to provide energy access through increased electricity generation, both large scale and distributed energy systems. Utilities can contribute their experience and knowledge to national energy plans and informed policy decisions. Combined with the construction, operations and maintenance experience, utilities are in a strong position to advise on project development. Through financial support and choosing the best business models, utilities can make the difference in creating access to energy. Undoubtedly, utilities have been the cornerstone for the establishment of base load access to electricity. Looking forward, the IEA in the 2013 World Energy Outlook has estimated that to achieve universal access to electricity, future energy investments will be 30% for grid-connected electricity, 45% on mini-grids and 25% on stand-alone systems.

2. The potential utility leadership, however, can only be fully unleashed if the industry makes a concerted effort at positioning itself at the forefront of the movement for energy access. To achieve this, utilities must expand their capacities in a sustainable fashion, they must work towards increased transparency in planning, and they must insert themselves in the global debate on access. Government policies which regulate utilities must send the signal that increased access to affordable and reliable electricity is a development priority and govern the electricity sector in line with this objective. The role of regulatory authorities in maintaining the access agenda on the list of priorities is key and must be reflected in tariff structures, licensing and concession granting, and other legal instruments.

3. Healthy and efficient utilities will enable and accelerate sustainable national development. Hence operations need to be goal-oriented, economically viable, and based on best-practices. This is also a matter of capacity building, an area in which increased utility to utility support could have a crucial impact. Both north-south and south-south cooperation between utilities promises to boost mutual learning and assistance, be it in terms of management, of business models, of technology adaptation, or of implementation strategies. The Electrification Roadmap promoted by ESKOM and Duke Energy is an excellent example of such cooperation, which should inspire further such efforts.

4. Transparent planning is essential both for the economic health of utilities as well as for the coherent overall development of a country. It creates and enhances the trust of both investors and clients, thereby contributing to the financial attractiveness and stability of the utility. Off grid developers must know where the grid will be extended, and by when based on electricity sector plans that are time bound, funded and accessible. It enables coherent development both by allowing the synchronization of centralized and de-centralized efforts at creating access to energy, and by supporting informed decision-making by the country's policy-makers. The latter is a two-way process in which the utilities also depend on the government having a clear vision of the overall process of national development.

5. Government's decisions need to be informed by cross-sectoral and inter-ministerial consultations. It is recommended that such a process of consultations be established – if not already existing – via a national "energy council" or equivalent which would allow for long-term and holistic energy planning, embodied by a SE4All Country Action Agenda. This process is different, broader and more integrated than traditional "energy sector" planning. Equipped with these agendas, utilities will find themselves in a better position to optimize their performance and contribution to national development by enabling food and water security, public health, education, women's empowerment, as well as the creation of productive uses – simply by establishing access to energy at the right place, at the right time and the right pricing levels.

6. At the same time, utilities should recognize their full potential in proactively shaping policies and programmes. They are essential also to the creation of off-grid access and should insert themselves in the discussions and debates that inform and promote these activities. This includes incentives for independent power producers (IPP), feed in tariffs, concessions and independent supplier contracts. Regulators must make it legal for non-utilities to sell electricity, a barrier that today undermines many off grid or mini grid efforts. At the global level as well, both utilities as well as policy-makers stand to benefit from an enhanced dialogue. In this regard, it would be highly recommendable to involve utilities in the discussions of the SE4All Advisory Board. Utility associations may be an appropriate vehicle for this purpose (for example, the World Energy Council WEC).

III.2. Mini-Grids: Reaching Universality

1. In locations that are too remote for grid-connection to be a technically or economically feasible option, mini-grids may constitute the economically superior solution for the provision of electricity. Properly designed mini-grid solutions have a clear advantage, in terms of service quality and the ability to supply productive uses, over individual stand-alone home energy systems powering a small number of lamp lights. Mini-grids are indispensable to the achievement of universal access to energy and should be supported as one key approach in a continuum of options. This will require supportive policy frameworks and new financing models.

2. As the application of mini-grids pertains mostly to rural areas, opportunities to maximize local development and the food-water-energy nexus is of particular importance. Mini-grid schemes will realize their full potential when opportunities are created to supply power to productive uses in local communities. Opportunities for economic improvement arise when productive uses and income generation schemes are launched and when local jobs are created. Local companies can be started to supply to the community services such as providing energy products and spare parts. Micro finance institutions can offer micro loans to local businesses, and/or their customers, providing options for income diversification. Mini grid based solutions that link business models, productive

uses and consumer financing can be particularly important when attempting to promote, for example, food-water-energy linkages.

3. The major hurdles in the success of mini-grids are not primarily technology-related. There are no significant technology barriers that hinder mini-grids whether they are powered by diesel generators, renewable energy (wind, solar, mini hydro) or a combination of any of the above (hybrid systems). Rather, since supply to remote villages with low incomes is not economically viable using traditional models, financial sustainability of mini grid systems is the key challenging factor. Compounding the problem is the fact that there is no "one-size-fits-all" solution. Local characteristics (in socioeconomic, financial and nature terms) should determine the business and financial models, management practice, O&M routine and the technical solution that best fit a mini-grid project in a given site. There are diverse ownership and investment structures to support mini-grids that range from fully private, to mixed ownership, to fully public mini grids which may be owned by the utilities themselves.

4. For this reason it is necessary to identify the respective strengths and weaknesses of applied business and financial models and catalogue them in a manner that allows entrepreneurs, project developers and investors to select those that best match the specific context of their project. There are lessons to be learnt from both successful and unsuccessful applications of such models. Indeed, Energy Access Committee members could start this process by assembling their success stories in the SE4All Focus Countries and by identifying the respective success factors. A good example of a success factor is that often, contracts need to be secured with large "anchor" commercial clients who assure demand for power generated, thus helping to subsidize poorer customers and allowing for better planning and growth. Anchor demand may also be public infrastructure such as hospitals, schools or government buildings which can serve as the initial "guaranteed client" if government policies and budgets support such approaches and guarantee the payment for electricity services from local mini grids.

5. To supplement such a catalogue of past and current experiences, it is also important to develop and demonstrate new business models, including options with diverse ownership structures and financial engineering, which lend themselves to conditions in remote areas. The attraction of private sector investment to the operations of clean mini grids in remote areas is one means to facilitate their financial sustainability. But the provision of electricity is also a basic service for isolated communities and therefore justifies government investment to meet the needs of remote populations. Government and public sector support for market development, including assessment of local economic development opportunities, is a core requirement. The effective commitment of combined public- private sector finance is therefore key to the success of these new models to achieve sustainable results. The Committee concluded that demonstrating a range of business models based on this logic for sustainable energy mini grid implementation should be a key part of the energy access solution menu of options.

6. To foster replication of mini-grid business models, attention must be given to the policy and regulatory frameworks that support mini-grids. Frequently unclear government policy commitment to mini-grids, as well as possible changes in electrification plans, regulatory requirements or incentives, and the uncertainty of the actual delivery of promised incentives present insurmountable barriers to mini-grid development. The inability to charge cost reflective tariffs is a key barrier, as is uncertainty over if the grid will arrive, and what happens if it does. Governments, regulatory bodies and utilities have to engage to support the integration of clean energy mini-grids within national and international energy plans and regulations. Such clarity will facilitate the investment attractiveness and long term financial sustainability of mini-grids.

7. The SE4All High-Impact Opportunity on Clean Energy Mini-Grids will serve as an international framework to multiply the impact of existing and upcoming efforts in the area of clean energy mini-grids. It will focus on supporting the establishment of an enabling ecosystem for accelerated investment, deployment and replication of clean energy mini-grids. This HIO focuses on efforts towards achieving 40% of all installed capacity to achieve universal access to electricity. The International Energy Agency identified a significant portion of electricity supply will be most economically delivered through mini-grids. Supportive policy frameworks and new financing models are essential to achieve this. The EU confirms it will be hosting upcoming efforts and meetings in support this HIO and Clean Energy mini grids.

III.3. Enterprises: Applying Creativity

1. Urban consumers and upper sections of the rural income pyramid are profiled extensively by various consumer research firms, credit information bureaus, lenders, product manufacturers, etc. But the poor, especially women in rural areas, are usually not as well profiled. They are usually daily wage earners, and 'earn today to eat today'. Very few organizations target these segments to understand their needs, their ability to pay, and to tailor their product/service offerings to meet the price points at which the poor consumer will be interested. Yet, for enterprises and development organizations this is an opportunity to engage in a mutually reinforcing project: transforming the poor of today into the customers of tomorrow. The poorest people are market participants, and the right combination of needs assessments, products, credits, and capacity building can strengthen both markets and market participants. Indeed, the creativity of enterprise needs to be applied in order to achieve economic growth and social development.

2. One essential factor in this transformation is the availability of consumer-finance which encourages purchases on credit against income, collateral (usually the product) or personal guarantees (including collective mechanisms). Such consumer-finance can be offered by the company selling the product or in cooperation with a financial institution, particularly micro-finance institutions. In some markets, the end-user affordability and financing of energy products and services has been further enabled by the introduction of mobile payment and pay-as-you-go systems which increase the ability to pay and affordability of energy services to a broader customer base. The key variable in such consumer-

finance must be the improvement of the economic and social situation of the customer. Mechanisms to finance energy products and services that enable the customer to engage in productive uses are particularly desirable. Increased efforts are needed to facilitate affordable access to credit products and consumer finance schemes in order to promote access to energy services especially for poor people.

3. Strong markets also depend on steady and adequate supply so that consumers have access to energy products and services. Products need to be made available, successful local entrepreneurs need to be enabled to scale up-their business, and potential entrepreneurs need to be enabled to replicate that success. Numerous business models are being implemented across markets that provide evidence that market based approaches are viable. A key factor for success is access to capital, the absence of which is the main barrier to business development and replication in developing communities. In this regard, it is not the overall availability of capital within global, regional, local financial institutions and impact investors that is reported as the problem, nor is it the interest in supporting energy access. It is the matching of the capital needed (demand) to stimulate energy access solutions with the type of capital available (supply). Energy enterprises, manufacturers and consumers do not have access to predicable and affordable forms of capital along the different phases of energy access spectrum to support design, development and growth of their businesses.

4. This needs to be addressed by implementing a specialized and coordinated effort for the different types of funding needed to address market failures. There is a defined need for a flexible financing facility, with an associated technical assistance and capacity building facility, to deploy the necessary capital required to support enterprises providing distributed clean energy solutions. This would blend different forms of capital - grants, concessionary and market based commercial capital - to be delivered as seed capital, working capital, inventory finance, consumer finance and supportive technical assistance as well as business development services. Implementation of such specialized efforts at the country or regional level could proceed through the expansion of existing entities and programs, by creating new energy access windows with the Multilateral Development Banks and National Development Banks, by working with national and local commercial lending institutions and by partnering with credit providers in other sectors (e.g. agricultural development banks). A flexible facility is required so that working models can be replicated and innovative start-ups can be launched and grown in order to produce the scale of investment and energy service delivery needed to achieve universal energy access by 2030. It is likely that there is a not a single facility or one financing mechanism that will address the diversity of regional and national conditions. Therefore the elements of financing facilities are recommended to be designed on a regional level.

5. SE4All should reach out and engage with the full range of private foundations that support elements of the development agenda so as to introduce and strengthen the link with energy access. This requires a coordinated advocacy strategy and increased engagement in order to evidence the role of energy, specifically along the nexus issues of health, food, water and gender equality. Additionally, there are opportunities for foundation funding to play critical roles in the early stage of

market development of off-grid, decentralized energy solutions, both mini-grids and enterprise based. It is recommended, therefore, to convene the respective foundations to discuss potential engagement with the achievement of Sustainable Energy for All.

IV. Main Recommendations

1. **Change the message. Begin the narrative with key development arguments outside the energy sector.** Use SE4All to speak more to the development outcomes that result from access to energy for water, health, education, income generation, empowerment of women, good governance and sustainable development, illustrating which energy services are needed to support these results. Frame energy and access to services as a global good (engine for development) rather than merely a global bad (source of pollution). Work with allies outside the energy sector of the importance of energy to reach their goals so that they become the advocates of sustainable energy approaches.

2. **Involve organizations from other sectors in the discussions of the Advisory Board** in order to gain a better understanding of the potential of energy as the enabler of development. Given this role of energy it is important to take a holistic approach at the highest level of policy-making. It is essential to start the narrative outside the sectoral context. Access to energy is not a goal to help the energy sector. Initial focus should target water, health, food and women's empowerment linkages and advocacy organizations, businesses and fora.

3. **Stimulate the research and application of information on poor peoples' energy needs** (demand profile) and the changing energy needs of people as they move up the welfare or development ladder. This should serve to increase information about potential markets and the specific energy services and carriers that people need. This can serve to push enterprise solutions to address the actual needs rather than the assumed needs of poor people. For this reason it is essential to disaggregate the so called "bottom of the pyramid" of those who do not have access to modern energy services and to correctly distinguish between income groups (distinct levels of income poverty), productive and non-productive uses of energy (those that generate income or not) and the ability to pay for distinct energy service segments (i.e. lighting, cooking, mechanical power, communication etc).

4. **Promote policy and invesment efforts for the universal adoption of clean cooking systems including clean cookstoves and switching to liquid and gaseous fuels** for heating and cooking purposes. This includes enhancing demand, strengthening supply, and fostering an enabling environment. Energy policy and energy sector planning have not prioritized cooking issues. To address energy access and sustainability much greater attention must be given to this topic and affordable clean cooking systems and solutions.

5. **Focus greater attention on the specific energy service needs of women in policy and programme design** giving particular attention to labour saving mechanical power solutions and energy using appliances that can help women, especially poor women, earn incomes to improve their own conditions and the welfare of their families.

6. **Promote utility to utility support and involve more electricity utility representatives in the discussions of the Advisory Board.** Both north-south and south-south cooperation between utilities promises to boost mutual learning and assistance, be it in terms of management, of business models, of technology adaptation, or of implementation strategies. Since utilities play such a fundamental role in establishing access to electricity, and indeed also with regard to energy efficiency and renewables, they should be involved in the Advisory Board.

7. **Promote national "energy councils" and SE4All Country Action Agendas**. Transparent and cross-sectoral planning must be enabled through inter-ministerial consultations. It is recommended that such a process of consultations be established – if not already existing – via national councils or equivalent which would allow for long-term and holistic energy planning, embodied by a SE4All Country Action Agenda involving diverse sectors, not just energy.

8. **Catalogue business models/success stories in off grid approaches.** A one-size-fits-all approach is particularly unsuitable with regard to off-grid energy access. Instead, it is necessary to identify the respective strengths and weaknesses of applied business and financial models and processes and catalogue them in a manner that allows entrepreneurs and investors to select those that best match the specific context of their project. These approaches should include the range of conventional energy (diesel, gas etc), hybrid systems, and fully renewable based systems (wind, mini hydro, solar, biogas etc) that have successfully provided off grid energy services, including both electricity and liquid fuels as energy carriers. Indeed, Energy Access Committee members should start this process by assembling their success stories in the SE4All Focus Countries and by identifying the respective success factors.

9. **Innovate a new range of public-private business models for mini grids implementation** that include different options for ownership structures including the combination of public and private support for mixed financing models. The aim should be to attract private sector investment and provide examples of how the combination of public and private sector support can achieve sustainable energy access solutions via clean energy mini grids. Essential to this will be strengthened and transparent energy policies to support the range of off grid or non-utility based solutions. These are directly related to key governance challenges in the energy sector that SE4All and all partners should seek to address.

10. **Establish a new financing facility(ies)** in support of off-grid and enterprise-based solutions for accelerating energy access. Such facility(ies) should fill the gaps and ensure the availability of capital for capacity building, technical assistance and investment along the energy access development and finance continuum so that working models can be replicated and innovative start-ups can be launched and grown. Focus on regional energy access financing facilities that can address the off grid and mini grid options. This should include consumer financing considerations (demand support) as well as the enterprise finance element itself (supply support). A more detailed model(s) should be developed and coordinated with the efforts of the Finance Committee to ensure the challenge of scale and financial thresholds of these financing challenges are addressed.

11. **Convene foundations as partners to discuss potential contributions** to the achievement of Sustainable Energy for All objectives, especially regarding the development impacts achieved through energy access and the necessity of patient and high-risk capital. This could serve as one input into new financing models to support the capacity building, business financing, and consumer credit instruments recommended above. This could include charitable foundations, corporate foundations and private wealth associations.

12. **Extend the mandate of the Access Committee** is the unanimous request of this group to the Advisory Board. Due to the complex nature and breadth of the subject matter, more detailed work is needed on the financing, policy and business models to support off grid and decentralized energy access options, cleaner home energy systems and the interface with power utilities. It was also agreed that many of the recommendations of this committee need further work or refinement to take them to concrete, implementation oriented solutions that can be acted upon by Advisory Board members, SE4All partners and the Initiative at large.

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