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DISCUSSION PAPER

Sustainable Energy Is 100% Renewable

Recommendations for the
Sustainable Energy for All Initiative

World Future Council

Brot für die Welt

Published by
Brot für die Welt
Evangelisches Werk für Diakonie
und Entwicklung e. V.

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Layout Büro Schroeder, Hanover, Germany
Printed by Poppen & Ortmann, Freiburg, Germany
Art. No. 129 502 540

Donations
Brot für die Welt
Bank für Kirche und Diakonie
IBAN: DE10 1006 1006 0500 5005 00
BIC: GENODED1KDB

Berlin, October 2018

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Executive summary

The Sustainable Energy for All (SEforALL) initiative was launched by the UN in 2011. It pledged to ensure universal access to modern energy services, double the rate of improvement in energy efficiency and double the share of renewable energy in the global energy mix by 2030. Yet, in 2015 the SEforALL initiative itself published a progress report stating that "overall progress over the tracking period falls substantially short of what is required to attain the SEforALL objectives by 2030". In 2016, again the initiative declared, "as a global community, we are simply not moving fast enough to meet the challenge". Considering that as of 2016, 1.2 billion people are without access to electricity, and the global climate crisis continues to unfold, supporting the goals and ambition of the initiative is imperative and, above all, urgent. This report thus provides an analysis of the initiative's limitations along with a description of possible ways to improve it.

First, this report presents a summary of the initiative's structural shortcomings as highlighted by previous studies. In particular, five issues have been consistently underlined. Namely, a lack of integration into other UN frameworks, an excessive focus on centralization and profitability, a disproportionate emphasis on private finance, a lack of inclusion of diverse business models and a lack of representation and civil society involvement.

This report then examines the SEforALL Action Agendas of eight African countries and the Investment Prospectuses of three of them (the only ones available when writing this report). Three main issues emerge. Firstly, renewables are not prioritized sufficiently and fossil fuel developments are too frequently included in the agendas. Secondly, a centralized, on-grid approach is often favoured over a decentralized, off-grid approach. Thirdly, alternative renewable energy-based solutions for cooking often remain unexplored.

Lastly, policy recommendations to improve the initiative are presented. These are essential to ensure that the SEforALL initiative can inspire and lead countries to embrace a sustainable future, one that can support also the most marginalized communities, boosts socio-economic development, alleviates poverty and prompts a fair distribution of wealth across society. Five key recommendations are identified. First, greater emphasis should be given to entirely moving away from fossil fuels and exclusively adopt renewable energy options. A shift towards 100% Renewable Energy (RE) for All is the only viable option. Only renewable energy can ensure rapid energy access for all at the necessary speed and scale, long-term prosperity and well-being of people and ecosystems. Second, the energy transition should be driven by a decentralized, participatory and inclusive process where everyone can engage and benefit in a fair manner. The needs of individuals and communities, including the most marginalized, should be at the core of the transition. Third, a paradigm shift in the cooking sector is needed to achieve its long-term sustainability. Efficient cook stoves should remain a bridge technology, as they can be extremely effective in mitigating the dangerous health impact of traditional cook stoves. Yet, they cannot be a long-term solution. Ultimately, sustainable cooking needs to go beyond the narrative of efficient cook stoves and prioritize the use of alternative renewable energy solutions for cooking, such as solar, biogas or power to gas technologies. These are the only viable solutions for the long-term prosperity of local communities and ecosystems. Fourth, for the UN initiative to be effective, it must be integrated into larger international processes and remain consistent with the targets set at the Paris Agreement and with the 17 Sustainable Development Goals (SDGs) of the Agenda 2030. Lastly, greater efforts will be needed to ensure that civil society organizations (CSOs) are involved both at the international level in determining the initiative priorities and strategy as well as the national level to ensure inclusive local representation and engagement.

Chapter 1
Introduction

SEforALL is a global initiative launched by the former UN Secretary-General Ban Ki-moon in November 2011 (UN 2012). Its aim is to attract global attention and public and private commitments to meeting three objectives by 2030:

- ensuring universal access to modern energy services,
- doubling the rate of improvement in energy efficiency from 1.2 percent to 2.4 percent, and
- doubling the share of renewable energy in the global energy mix from 15 percent to 30 percent.

As the World Energy Outlook 2016 (IEA n.d.) shows, approximately 1.2 billion people are without access to electricity and more than 2.7 billion people rely on the traditional use of biomass for cooking, which is associated with approximately 3.5 million deaths annually from indoor air pollution (IEA n.d.). Supporting the goals and ambition of the SEforALL initiative is therefore imperative and urgent. With the aim of empowering "leaders to broker partnerships and unlock finance to achieve universal access to sustainable energy as a contribution to a cleaner, just and prosperous world for all", the promoters of this initiative aimed to "mobilize action from all sectors of society" and bring "multiple stakeholders together — governments, development banks, the private sector, investors, civil society, and international institutions — under a single umbrella" (UN 2012). As stated in their mission statement, the initiative "connects stakeholders, marshals evidence, benchmarks progress, amplifies the voices of its partners, tells stories of success", "makes connections and investments happen" and "produces measureable results" (UN 2012, Sustainable Energy for All 2016).

In 2016, following the publication of its new Strategic Framework for Results 2016-21, titled 'Going Further, Faster – Together' (Sustainable Energy for All 2016), the SEforALL initiative entered a new phase targeted at "helping partners to take rapid, tangible action on SDG7 and the Paris Agreement." To achieve this, the initiative plans to "engage leaders strategically", "empower them to accelerate action" by providing them "with the tools for action" and supporting them in developing "action-oriented partnerships", measuring success and adopting an "inclusive and people-centred approach" (Sustainable Energy for All 2016).

As this initiative gains momentum and worldwide support, many more actors are becoming interested in this initiative and confident that it can deliver remarkable results. For example, at the climate conference in Paris in 2015, the We Commit Campaign was launched to stimulate private sector engagement in line with the SEforALL energy efficiency goal. It saw more than 775 commitments, of which 100 came from large corporations and about 675 contributions from small- and medium-sized enterprises. Together their pledged energy savings for 2016-2020 add up to 62,000 GWh, which represent the city of Paris' current energy usage for nine months (SEforALL/Accenture 2015). The SEforALL Africa Hub was also established to coordinate and facilitate implementation of the SEforAll initiative following a resolution of the Conference of Energy Ministers of Africa (CEMA) and was joined by 44 African countries. In 2015, the Africa Hub started implementing the Green Mini-Grid Market Development Program in cooperation with the Sustainable Energy Fund for Africa (SEFA) to scale-up the adoption of mini-grids as an integral solution to enhancing energy access in rural areas (SEforALL 2016).

Besides, the SEforALL initiative does not stand in isolation. Undeniably, the SEforALL objectives come about at a time of extensive global commitment to tackle climate change and transform the way energy is produced, distributed and consumed. The Paris Agreement, the ratification of the SDGs, the more recent approval of the Climate Vulnerable Forum Vision at the COP22 in Marrakech coupled with the ever-increasing cost-advantage of renewable energy are all contributing to create the optimal conditions for the accomplishment of the SEforALL goals. In truth, the time is ripe to go beyond the unambitious and insufficient 30 percent Renewable Energy by 2030 objective and aim for much higher objectives. While highlighting the relevance of such an initiative is important, a careful analysis of its implementation and operationalisation is equally relevant. A thorough examination of the initiative unveils several shortcomings and limitations that need to be tackled. In 2015, the SEforALL initiative itself published a progress report stating that "Overall progress over the tracking period falls substantially short of what is required to attain the SEforALL objectives by 2030" (SEforALL 2015). As highlighted in a SEforALL report published in 2016 (Sustainable Energy for All 2016), "ensuring access to affordable, reliable, sustainable and modern energy for all is critical in delivering not only SDG 7 — but for all of the other SDG goals, as well". Yet, "as a global community, we are simply not moving fast enough to meet the challenge" (Sustainable Energy for All 2016). At the beginning of

With small-scale biogas systems, household air quality can be improved and the use of firewood and charcoal can be reduced.

2017, prior to the SEforALL Forum, the draft results for the third edition of the Global Tracking Framework were published. These show that energy access, particularly in rural areas such as in Sub-Saharan Africa has actually slowed down. In order to meet universal energy access, progress would need to be three times faster.

The World Future Council and Bread for the World conducted a literature review and analysed the Action Agendas of eight African countries (namely Nigeria, Liberia, Uganda, Rwanda, Tanzania, Kenya, The Gambia and Cape Verde) in order to identify some of the issues related to the SEforALL initiative and possible ways to improve it. This policy paper presents the outcome of this exercise, highlighting firstly shortcomings regarding the initiative's structure, secondly limitations of the Action Agendas, and thirdly key policy recommendations to improve the SEforALL initiative ensuring its effectiveness for the prosperity of today's as well as of future generations.

Chapter 2
Shortcomings related to SEforALL's structure

Several voices have highlighted major concerns in relation to the SEforALL initiative that are showing the factors hindering the achievement of the initiative's goals. Among them, Friends of the Earth has highlighted some of the key issues from the very start. A report published in 2012 titled "Reclaiming the UN from Corporate Capture" provides detailed explanations of the issues in relation to the SEforALL initiative (Friends of the Earth International 2012a). In this report, the authors are concerned that "SEforALL's agenda will not deliver the dramatic expansion of energy access through community-controlled small-scale sustainable energy sources that is needed". Instead, "SEforALL has set weak objectives and vague definitions, which allow projects using dirty fossil fuels and other unsustainable energy sources to be greenwashed under the guise of sustainable development and poverty alleviation", "which also risk locking developing country economies into expensive, destructive, unsustainable dirty energy systems". Undeniably, only aiming for a 30 percent RE objective by 2030 without having a long-term vision compatible with the Paris Commitment can in fact be dangerous as it allows for the construction for new fossil fuel capacities, which has unescapable lock-in effects. Many of issues raised in the 2012 Friends of the Earth report resonate in other articles including a study published in 2016 by the Danish Institute for International Studies (DIIS) (Lundsgaarde 2016) and two short reports from the International Institute for Environment and Development (IIED) (Bellanca/Wilson 2012, Wilson 2012).

A recent study published in 2014 by the non-governmental organization (NGO) Practical Action titled "Civil Society Participation in the Sustainable Energy for All Initiative: A Survey of Six Countries" investigate the actual implementation of the SEforALL initiative in six countries and the involvement of civil society and communities within this process (Gallagher/Wykes, p. 2014). The SEforALL initiative has been criticized for "offering little systematic institutional support for an inclusive multi-stakeholder process through its implementing agencies" (Gallagher/Wykes, p. 2014). The survey of this report showed that the majority of local civil society organizations (in Africa, Asia, and Central America) "felt that they had not been adequately included, or were unable to engage meaningfully", in the SEforALL initiative. Overall, the study showed that "without increased and ongoing support for meaningful civil society participation in SEforALL, the initiative will have limited impact — particularly in terms of reaching the goal of universal energy access."

To summarize, five key issues have been highlighted by all the studies mentioned above:

- **Lack of integration into other UN frameworks.** The SEforALL process has no formal connection to any multilateral process or convention and other international agreements (e.g. Agenda 2030, Paris Agreement). This poses questions on accountability, political mandate and effectiveness of such an initiative (Friends of the Earth International 2012a, Wilson 2012, SciDev.Net 2012).

- **Excessive focus on profitability and centralization.** Several sources indicate that the SEforALL initiative tends to focus on large infrastructure development rather than small-scale, community-based interventions (Friends of the Earth International 2012b). This is often because large-scale, centralized projects tend to be based on larger investments and higher profits, monopolized by a few corporate groups often indifferent of environmental and social integrity. In so doing, the SEforALL initiative misses opportunities to stimulate enterprise more locally and to benefit the poorest (Bellanca/Wilson 2012, Wilson 2012).

- **Disproportionate emphasis on private finance.** Another point often mentioned is the initiative´s excessive focus on private finance. This does not only mean that profitability becomes the main driver, but also that the role of the public sector becomes minor compared to the one of private actors. Yet experience has shown that renewable energy development and energy access is driven by government commitments and not by mere private interest (Friends of the Earth International 2012b).

- **Lack of inclusion of diverse business models.** Many, often large companies tend to be favoured as opposed to other enterprises such as cooperatives, social enterprises or community-based initiatives. As highlighted by the IIED (Bellanca/Wilson 2012) , "SEforALL needs to incentivise not only fully commercial activities, but also financially viable although less profitable models including social enterprises, co-operatives, corporate social investment programmes, as well as private sector partnerships with government and NGOs."

- **Lack of representation and of civil society involvement.** It has been highlighted that the members of the High Level Group, which is in charge of driving forward the initiative, come mostly from the multinational corporate and private sector. Even more, many of them are directly or indirectly linked to the fossil fuel industry (Friends of the Earth International 2012a). The majority of the governments represented in the initiative come from developed countries and there is an underrepresentation of countries from the Global South (Friends of the Earth International 2012a). Furthermore, civil society is underrepresented and not appropriately involved in the initiative's projects (Friends of the Earth International 2012a, Gallagher/Wykes, p. 2014). Communities and local groups are also underrepresented and not included in the initiative decision-making body "in contrast to the strong representation of corporate voices" (Friends of the Earth International 2012a). According to Friends of the Earth, "what constitutes 'Sustainable Energy for All' and how it is to be achieved is being decided by an unaccountable, handpicked group, dominated by representatives of multinational corporations and fossil fuel interests, virtually without any involvement from or consultation with global civil society". (Friends of the Earth International 2012a)

Solar home systems (SHS) offer a cost-effective mode of supplying amenity power for lighting and appliances to remote off-grid households.

Chapter 3
Limitations related to the Action Agendas

From the launch of the SEforALL initiative in 2012 until 2016, eight African countries finalized their SEforALL Action Agendas: Nigeria, Liberia, Uganda, Rwanda, Tanzania, Kenya, The Gambia and Cape Verde. Further African countries are currently developing or have since then developed and finalised their SEforALL Action Agendas (SEforAll n.d.). Therefore, it is important to analyze these finalized first eight agendas in order to draw conclusions for the agendas yet to come. In doing so, a number of issues have been identified in relation to the content of the Action Agendas. Some of the recommendations and proposals of the Action Agendas appear to be in contrast with the SEforALL ambition to promote a transition towards a truly sustainable future, one that can benefit all today and in the future. Similar issues have been identified in the SEforALL Investment Prospectuses, only available for The Gambia, Kenya and Tanzania (as of January 2017) (SEforALL/Ministry of Energy and Minerals United Republic of Tanzania 2015, SEforALL/Ministry of Energy and Petroleum Republic of Kenya 2016, SEforALL /Republic of the Gambia 2014).

In particular, three key issues emerge. Firstly, renewables are not prioritized sufficiently and fossil fuel developments are frequently included in the agendas. On the contrary, greater emphasis should be given to the need to move away from fossil fuels entirely and to prioritize renewable energy options above all others. A shift towards a "100% RE for all future" is the only viable and affordable option. Only the combination of renewable energy technologies can ensure the long-term prosperity and well-being of people and ecosystems. While the Paris Agreement urges countries to transform energy systems to 100% RE to limit global warming to 1.5 degrees Celsius, the rapid deployment of renewable energy has been driven mainly by a wide range of other objectives, including advancing economic development, reducing trade deficits, improving energy security as well as enhancing energy access.

Secondly, a centralized, on-grid approach is often favoured over a decentralized, off-grid approach. Quite the reverse, the energy transition should be driven by a decentralized, participatory and inclusive process where everyone can engage and benefit. The needs of individuals and communities, including the most marginalized, should be at the core of the transition, rather than profit maximisation of corporations or large-scale government plans that are often oblivious to the local context.

Thirdly, alternative renewable energy-based solutions for cooking remain often unexplored as priority is given to cook stoves that are more efficient yet still fuelled by firewood and charcoal. In contrast, it is urgent that government action goes beyond the narrative of more efficient cook stoves, which can only be a bridge technology. Governments need to promote the use of alternative renewable energy solutions for cooking, such as solar, biogas or power to gas technologies. This can generate considerable benefits both to the local ecosystem but also to the health of communities and to the lives of millions of women and children regularly exposed to dangerous levels of polluting smokes from cook stoves.

All these aspects are essential to ensure that the SEforALL initiative can inspire and lead countries to embrace a sustainable future, one that benefits all, boosts socio-economic development, eradicates poverty and prompts a fair distribution of wealth across society.

The following sections provide evidence from the Action Agendas of the three main issues just mentioned. Further evidence can be found in the Appendix (p. 26 et seqq.).

3.1 Insufficient prioritization of renewables

Sustainable energy can only be renewable energy. This is the only type of energy that by definition is inexhaustible. However, sustainable does not simply mean renewable. Sustainable Energy goes beyond technology. It is renewable energy, which safeguards human rights, respects planetary boundaries, supports local communities and marginalized groups, and ensures a just distribution of benefits today and in the future. Several African SEforALL Action Agendas appear to be drifting away from this purpose as most of them include fossil fuel developments in their plans. In fact, they are falling behind in terms of RE objectives. Yet, many of the Action Agendas are falling behind them. While across the world the 100% RE movement rises, the SEforALL Action Agendas remain very far from proposing such a target. Quite the opposite, several action agendas include considerable plans to develop fossil fuel options that cannot find any reasonable justification as part of an initiative that claims to promote Sustainable Energy for All. Existing fossil fuel options should remain only a temporary, transition technology and all new energy capacity development should only include renewable energy infrastructure.

Among many SEforALL Action Agendas, only Cape Verde envisions a 100% RE future. This should serve as inspiration for many other African countries to follow such a pioneering example. Yet, while Cape Verde stands alone among the Action Agendas, it is not alone around the world. A rising global movement is demonstrating how going towards a 100% RE future is not only an inevitable option, but also the only one able to benefit communities and boost inclusive and equitable socio-economic development. As of late 2016, more than 300 cities, municipalities and regions including Frankfurt, Vancouver, Sydney, San Francisco, Copenhagen, Oslo, Scotland, Kasese in Uganda, Indonesia's Sumba island and the Spanish Island of El Hierro have demonstrated that transitioning to 100% RE is a viable political decision (Go 100% RE n.d.). Many of these municipalities and regions are setting the 100% RE target as they consider it not only a technically and economically beneficial option but also an ethical imperative in the face of global climate change. During COP 21 in Paris in December 2015, nearly 1000 mayors and councillors have pledged to reach the 100% RE target within their municipalities (Scruggs n.d.). However, this movement goes far beyond the local level. Sixteen countries with small-island states in the lead are planning to achieve 100% renewable electricity within the next decades (Aruba, Cape Verde, Cook Island, Costa Rica, Denmark, Fiji, Tokelau, Niue, Saint Lucia, Papua New Guinea, Samoa, Solomon Islands, Tuvalu, Vanuatu) (Go 100% RE n.d.). At the COP22 in Marrakesh, 48 developing countries pledged to "strive to meet 100% domestic renewable energy production as rapidly as possible while working to end energy poverty, protect water and food security" (World Future Council 2016). In fact, some of them such as Tanzania have SEforALL Action Agendas that contradict this declaration.

Low RE targets

In Nigeria, RE is planned to contribute only 30 percent to the electricity mix by 2030. In Liberia, renewable energy

Low RE targets

1 Nigeria
- In 2030, 30 percent of total electricity mix is RE (20 percent in 2015)
- Until 2030, 46 percent of additionally installed capacity is RE

2 Liberia
- In 2030, 25 percent of total electricity mix is RE (93 percent in 2020)
- Until 2030, 24 percent of additionally installed capacity is RE

3 Uganda
- In 2030, > 96 percent of total electricity mix is RE (90 percent in 2012)

4 Rwanda
- In 2030, 60 percent of total grid connected capacity is RE (62 percent in 2015)

5 Tanzania
- In 2030, 36 percent of total energy mix is RE (38 percent in 2012)
- Until 2030, 36 percent of additionally installed capacity is RE

6 Kenya
- In 2030, 80 percent of total power generation capacity is RE (68 percent in 2014)
- Until 2030, 82 percent of additionally installed capacity is RE

7 The Gambia
- In 2030, 48 percent of total grid connected capacity is RE (2 percent in 2012)

8 Cape Verde
- In 2020, 100 percent of total generated electricity is RE (20 percent in 2013)
- Until 2030, 100 percent of additionally installed capacity is RE

share of the total installed grid connected capacity (including medium and large hydro) is planned to increase from 9 percent in 2015 to only 23 percent in 2030. Actually, in Liberia the overall RE contribution to electricity capacity is projected to first increase to 43 percent by 2020 and then decrease again to 23 percent of the total electricity capacity by 2030. In Uganda, the total share of RE in the country's electricity mix is projected to be 96 percent by 2030. The remaining will involve use of firewood, charcoal, biogas and the exploitation of existing reserves of oil and gas in Uganda. In Rwanda, realistic energy scenarios range from a base case of 44 percent renewables to a 60 percent renewables by 2030 for electricity. In Tanzania, by 2030, renewable energy is expected to contribute about 50 percent of total energy share for power (this includes large hydro) and only 10 percent for thermal purposes (e.g. cooking). Most importantly, fossil fuel capacity for electricity generation is expected to be greater than RE capacity by 2030. In Kenya, the additional RE capacity to be added by 2030 is relatively low. The contribution of renewable energy in power generation was 62.2 percent in 2013 of the total installed capacity of 1,765 MW and this is projected to rise only to 80 percent by 2030. Furthermore, it is important to point out that these targets are often set in terms of installed capacity not final electricity consumption. This is important considering that for example in Kenya as of November 2014, fossil fuel produced electricity was still larger than any other. This means that setting targets in terms of capacity has little significance and can be misleading. Renewable energy targets should also include actual production and consumption targets, not only installed capacity targets.

Lastly, it is important to note that most renewable energy plans presented in the Action Agendas (for example for Uganda, Rwanda and Tanzania) are characterized by a strong contribution of hydropower (especially large hydro). A considerably minor role is given to other renewable energy sources, such as solar power, with huge potential in Africa.

Fossil fuel/nuclear infrastructure development

1 Nigeria
- Coal power capacity is planned to increase by 3.2 GW by 2030
- Nuclear power capacity is planned to increase by 2 GW by 2030
- Gas power capacity is planned to increase from 2.8 GW in 2014 to 13 GW in 2030

2 Liberia
- Firewood and charcoal are included in the country's renewable energy share

3 Uganda
- For thermal purposes (mostly cooking), 64 percent of the energy will come from the use of firewood, charcoal, biogas and the exploitation of existing reserves of oil and gas in Uganda

4 Rwanda
- The share of renewables for on-grid electricity generation is set to decrease from 62 percent currently to 38 percent by 2021 as new peat and methane generation is added to the system
- The share of renewables then rises to around 44 percent by 2025 as further regional hydropower plants are completed

5 Tanzania
- By 2030, an additional 2,200 MW of coal, 2,584 MW installed natural gas capacity, 220 MW diesel and 2,954 MW of large hydro generation are expected to contribute to the country's electricity mix

6 Kenya
- By 2030, the installed generation capacity from non-renewable sources will increase to 2.9 GW (0.69 GW in 2014)

7 The Gambia
- There is a clear preference for RE and EE sources of energy – also to reduce the dependency on imported fuels. Nevertheless "least cost"-generation options including coal-based generation have not been excluded from the energy expansion plans

8 Cape Verde
- Cape Verde is a positive example with a clear 100 percent RE strategy: the Cape Verde energy system is based on renewable or regenerative capabilities and universal accessibility

Even the smallest communities, here in the Indian federal state Karnataka, can have solar home systems installed and gain control over their own energy supply without the need to abide by large corporations.

Fossil fuel/nuclear infrastructure development

In Nigeria, coal power capacity is planned to increase by 3.2 GW by 2030. Similarly, nuclear power capacity is planned to increase by 2 GW by 2030 and gas power capacity to increase from 2.8 GW in 2014 to 13 GW in 2030. Overall, on-grid power capacity growth for fossil fuels is planned to be much greater than for RE. In Liberia, there is plan to have 362 MW fossil-fuel-based electricity generation capacity in 2030 compared to only 148 MW RE-based generation capacity projected for the same year. In Rwanda, the share of renewables for on-grid electricity generation is set to decrease from 62 percent currently to 38 percent by 2021 as new peat and methane generation is added to the system. The share of renewables then rises to around 44 percent by 2025 as further regional hydropower plants are completed. In Tanzania, by 2030, an additional 2,200 MW of coal, 2,584 MW natural gas, 676 MW diesel and 2,954 MW of large hydro generation are expected to contribute to the country electricity mix. The Tanzanian Power Systems Master Plan (PSMP) foresees that on-grid power coal generation will outpace hydropower generation growth by 2035, limiting the ability to expand RE power generation to only 40 percent of the mix (including large hydro). "Although the potential for RE is significant, only 3 percent is considered by the PSMP 2012 to be included in the generation mix by 2035, when large hydro is excluded, due to unavailability of information that can support RE investment decisions (Tanzania Action Agenda, p. 44). Therefore, there are no long-term specific goals for its development other than a mid-term target for non-hydro RE to be increased from 4 percent in 2012 to 10 percent in 2016, which is included on the MEM Strategic Plan 2011/12-2015/16". In addtion, "the potential impact of the gas reserves may delay further the increase of RE in the mix of power generation" (Tanzania Action Agenda, p. 90). The installed power capacity is expected to increase from the 1,550 MW in 2012 to 8,990 MW by 2035 for a projected population of about 70 million. This is to be achieved through the diversification of energy sources with a focus on the most abundant energy resources in Tanzania, i.e. gas, hydro and coal (Tanzania Action Agenda, p. 29, table 10). In Kenya, fossil fuel is still planned to contribute to the power generation in 2030. More specifically, electric power generation capacity from fossil sources is planned to increase from 0.69 GW in 2014 to 2.91 GW in 2030 (Kenya Action Agenda, p. 25, Table 12).

The example of Kenya also unveils that in some cases, the categorisation of fossil fuel vs. renewable energy technology is either false or misinterpreted: While the government states that the renewable energy mix is expected to be about 80 percent in 2030, it also gives the exact division with geothermal 5,450.00 MW (37.13 percent), hydro 3,000 MW (20.44 percent), diesel 500 MW (3.40 percent), natural gas 1,500 MW (10.22 percent), co-generation/gasification 600 MW (4.08 percent) solar PV 1,200.00 MW (08.17 percent), biogas 10 MW (0.07), wind 1,500.00 MW (10.22 percent). coal 2,420 MW (16.49 percent), and gas 496 MW (3.38 percent). To arrive at 80 percent renewables, one must categorise some of the gas and natural gas capacity as renewable and only leave coal and diesel as completely non-renewable (Kenya Action Agenda, p. 12, table 12). The Liberian government includes firewood and charcoal, which is widely used for residential cooking and commercial heating purposes and usually does not meet the sustainability criteria, in their renewable energy share (Liberia Action Agenda, p.34).

3.2 Excessive emphasis on centralized/on-grid solutions

Several Action Agendas favour a centralized approach, prioritizing investments in grid extension and large power plants. Meanwhile, jurisdictions across the world prove that capitalizing on the decentralised character of particularly solar and wind technology and hereby pursuing off-grid and mini-grid strategies allow electrification at speed and scale as well as unleash new business opportunities for entrepreneurs. Off-grid solutions have demonstrated to be considerably more effective in providing inclusive and affordable energy access also to the most marginalized communities (Practical Action 2016).

Unlike fossil fuel energy which is concentrated and available only in some regions and often monopolized by large corporations and private interests, RE is a resource that communities, even the most isolated rural ones, can seize and benefit from. The modular and decentralized nature of RE allows for great flexibility. Even the smallest communities can have a small solar system or a mini-grid installed and gain control over their own energy supply, without the need to abide to large corporations in charge of large, centralized energy distribution (Flavin/Hull Aeck 2005). Besides, RE today is the most affordable option for electricity production in many regions across the world (Randall 2016, Hill n.d.), and it is definitely the cheapest option for off-grid rural electrification (go100%re.net

On-grid prioritized over off-grid solutions

1 Nigeria
- On-grid supply will increase from current level of 26 percent (2016) to respectively 48 percent by 2020 and 70 percent by 2030
- By 2030, Nigeria is expected to have 30 GW total on-grid capacity compared to only 8 GW total off-grid capacity

2 Liberia
- The government's Vision 2030 targets 70 percent of the capital city Monrovia to be connected to the grid and only 35 percent of the rural areas of Liberia connected to decentralised units by 2030

3 Uganda
- 67 percent of the population is projected to have access to on-grid electricity compared to 33 percent having access to off-grid electricity by 2030

4 Rwanda
- Grid connection rates projected to be 100 percent for urban areas and 48 percent for rural areas

5 Tanzania
- Tanzania aims at increasing the overall electrification rate to 75 percent by 2033, reaching 85 percent of the people with access to electricity through on-grid solutions and only 15 percent through off-grid solutions
- There are plans to expand the grid by more than 8,700 km of transmission lines by 2035

6 Kenya
- In Kenya's Investment Prospectus most investment projects target grid and transmission lines expansion with 43 projects, large-scale power projects and hydro with three large projects. On the contrary, only one on-grid solar project and three off-grid projects are listed among the investment opportunities

7 The Gambia
- The Gambia has a more balanced approach aiming to diversify the electricity mix and to develop a policy framework that attracts investment into a mix of on- and off-grid electricity generation.

8 Cape Verde
- Cape Verde has a balanced approach for the electrification of the last communities: either by grid connection where it is technically and economically feasible, or by the creation of isolated systems or by the distribution of individual equipment. All based on renewable sources

n.d.). RE can support several productive activities and as such become an effective tool for generating income for rural households and enterprises. RE demonstrated to be one of the most effective instruments to enable enterprise development in rural communities, and in so doing to be highly effective in leveraging people out of poverty (Lecoque/Wiemann 2015). Therefore, action agendas must promote a new type of approach to energy planning that acknowledges and fully supports decentralized, off-grid RE solutions.

On-grid prioritized over off-grid solutions

In Nigeria, on-grid supply will increase from current level of 26 percent (2016) to 48 percent and 70 percent in 2020 and 2030 respectively, while the use of self-generated power shall decline from the present level of 74 percent to about 49 percent and 18 percent in 2020 and 2030 respectively. Overall supply from off-grid systems (mini-grid and solar home systems) is expected to be 3 percent and 12 percent in 2020 and 2030 respectively. By 2030, Nigeria is expected to have 30 GW total on-grid capacity compared to only 8.1 GW of total off-grid capacity. In terms of electricity delivered, 171 GWH of electricity will be delivered on-grid compared to 96 GWH of electricity delivered off-grid by 2030. In Liberia, the Government Vision 2030 proposes the targets of 70 percent of the capital city Monrovia to be connected to the grid and only 35 percent of the rural areas of Liberia connected to mini-grids or isolated, stand-alone units by 2030. In Uganda, 67 percent of the population is projected to have access to on-grid electricity compared to the 33 percent having access to off-grid electricity by 2030. In Rwanda, grid connection rates projected to be 100 percent for urban areas, and 48 percent for rural areas, making the average for the country as a whole 63 percent and the remainder 37 percent with off-grid and mini-grid solutions. In Tanzania, the agenda plans for the development of the electricity supply sector, focusing on providing access to electricity supply through grid extension, connections expansions and increased generation. The plans aim at increasing the overall electrification rate to 75 percent by 2033, reaching 85 percent of the people with access to electricity through on grid solutions and only 15 percent through off-grid solutions. As stated on page 15 of Tanzania's Action Agenda, the plan also aims to "supply to 2,780 MW by 2016 and more than 7,400 MW by 2035 (mainly through the implementation of hydropower, natural gas-fired generation and coal projects and with smaller contributions of solar, wind and

Excessive reliance on large hydro

1 Nigeria
- In 2030, still more than one third of all renewable capacity will come from large hydro

2 Liberia
- 91.25 MW of additional large and medium size hydropower are to be installed until 2030, adding up to 14 percent of the total capacity installed

3 Uganda
- The RE target for total electricity generation mix is 96 percent, however 95 percent of this renewable electricity provided to the grid will come from large hydropower

4 Rwanda
- The 60 percent renewables for on-grid electricity generation target is expected to be reached mostly with hydropower (337 MW)

5 Tanzania
- In the Investment Prospectus for Tanzania 40 out of 42 project investment opportunities are large-scale hydro power plants or transmission and distribution lines

6 Kenya
- The generation capacity of hydropower is projected to grow from 900 MW (2017) to 3,000 MW (2030)

7 The Gambia
- There are no hydro potentials in the Gambian territory and thus no plans for the construction of large hydro plants

8 Cape Verde
- There are no hydro potentials in the Cape Verde territory and thus no plans for the construction of large hydro plants

Mini-grids can support local development efforts by enabling income-generating activities and promoting agriculture, health and education.

biomass cogeneration projects)". The Tanzanian Big Results Now (BRN) plan includes the development of "14 prioritised electricity distribution projects (seven generation projects to add more than 1,300 MW of newly installed capacity and seven transmission projects to emit the generated power) and the establishment of 590,000 new connections (corresponding to providing access to approximately five million more Tanzanians)". The expansion of the grid expects that by 2035 more than 8,700 km of transmission lines will be added. Further, Tanzania plans to reinforce grid connections with Kenya and Zambia and to establish new connections with Uganda, Mozambique, Rwanda, Burundi and Malawi. Lastly, according to Tanzania's Investment Prospectus, the BRN planned to expand the grid by more than 8,700 km of transmission lines by 2035 (SEforALL/Ministry of Energy and Minerals United Republic of Tanzania 2015). Most of the investment proposals presented in the Prospectus focus on expansion of the transmission and distribution lines and of hydropower projects. Out of the forty project investment opportunities (three associated to the Rural Energy Agency Prospectus and 37 associated to access to modern electricity services) that the Government of Tanzania would like to develop to achieve its SEforALL objectives, only one considers off-grid electrification. All the other 39 projects concern large hydropower projects but above all the expansion of the grid through construction of transmissions lines, distribution lines, substations and through urban electrification (SEforALL/Ministry of Energy and Minerals United Republic of Tanzania 2015). Further, in Kenya's Investment Prospectus, most investment projects target grid and transmission lines expansion with 43 projects, large-scale power projects especially geothermal with four large projects) and hydro with three large projects. On the contrary, only one on-grid solar project and two off-grid projects (one hybrid wind-solar and one geothermal) are listed among the investment opportunities in Kenya's Investment Prospectus (SEforALL/Ministry of Energy and Petroleum Republic of Kenya 2016).

Excessive reliance on large hydro

In Uganda, the RE target for electricity production is 90 percent by 2030. However, 95 percent of this renewable electricity provided to the grid will come from hydropower. Off-grid contribution to electricity production (mostly solar and small hydro) is still minor compared to on-grid, which will come mostly from large hydro. In Rwanda, the 60 percent renewables for on-grid electricity generation target is expected to be reached mostly with hydropower (337 MW), then methane (132 MW), peat (72 MW), thermal (24 MW), imports (22 MW) and solar (17 MW). In the Investment Prospectus for Tanzania, project investment opportunities concerning the development of installed power capacity consider only hydropower projects except for one wind and one geothermal power project out of 42 project investment opportunities.

While large hydro dams are a low carbon source of energy, their construction is often contentious and reason of concern (Union of Concerned Scientists n.d.). In fact, their construction often has a huge impact on local ecosystems (especially in rainforests) and can negatively affect local water resources and communities whose life depend on the availability of water in rivers and aquifers often irremediably altered by dams and large reservoirs. Indigenous population are actually often required to relocate and leave their original habitats due to the impact of large hydro dams. Aquatic ecosystems and wildlife are also considerably affected by large hydro. In fact, when a dam is built the regular flow patterns are changed, sediments and nutrients are trapped, the river temperature and chemistry are upset as well as the geological processes of erosion and deposition through which all

Excessive focus on more efficient firewood, charcoal and LPG cook stoves

1 Nigeria
- The target is to replace 50 percent of traditional firewood consumption for cooking by improved cook stove technology by 2020 and 80 percent by 2030
- Nigeria also aims to be the lead country on LPG

2 Liberia
- The share of population using improved cook stoves is projected to increase to 48 percent by 2030 compared to 15 percent in 2015
- The share of households using LPG is projected to be 43 percent by 2030
- The share of households using alternative technologies (solar, biogas and other renewable sources) is projected to be only 5 percent by 2030

3 Uganda
- Uganda aims to produce 1.35 million clean cook stoves annually running on wood, charcoal and LPG

4 Rwanda
- In all scenarios for 2030, cooking is mostly based on charcoal, firewood, pellets and LPG with very marginal contribution of biogas only for rural areas
- Solar and other renewable technologies are not included in any of the scenarios

5 Tanzania
- The clean cook stoves strategy is based on a more efficient and sustainable use of biomass resources such as firewood and charcoal and greater use of LPG

6 Kenya
- 35.3 percent of Kenyan's households will be using LPG by 2030
- The use of electricity, bioethanol and biogas for cooking is projected to reach only 7.6 percent by 2030
- 57 percent of households will be using improved cook stoves run on solid biomass (charcoal and firewood) by 2030

7 The Gambia
- Improved cook stoves are prioritized in the recommendations for the cooking sector, specifically the expansion of access to LPG for cooking in the urban and peri-urban areas, the promotion of improved charcoal stoves in the urban and peri-urban areas, and improved fuel wood stoves in rural areas

8 Cape Verde
- Promoting Butane Gas penetration rate exceeding 90 percent by 2030

the surrounding land is sculpted (McCully 1996). Furthermore, after the area is flooded by the construction of large reservoirs, the vegetation and soil in these areas decomposes and releases both carbon dioxide and methane. Additionally, a recent research undertaken at Oxford University, which investigated 245 large dams built since 1934, demonstrated that large dams in developing countries are often also not economically viable. They have an average cost overrun of over 90 percent, before accounting for negative impacts on human society and environment, and without including the effects of inflation and debt servicing (Flyvbjerg/Ansar 2014).

Therefore, new large hydro-dam construction is unadvisable, especially if it ignores the environmental and social costs involved with its erection. On the contrary, localized, small-hydro projects can be a much more adequate and sustainable option and should therefore be prioritized by action agendas as opposed to a centralized, monopolized and often destructive large hydro approach (Laskow 2011).

3.3 Inadequate examination of RE options for cooking

According to the World Health Organization (WHO) around three billion people cook and heat their homes using solid fuels (i.e. wood, charcoal, coal, dung, crop wastes) on open fires or traditional stoves. Most are poor, and live in low- and middle-income countries. These inefficient cooking and heating practices produce high levels of indoor air pollution which includes a range of health damaging pollutants such as fine particles and carbon monoxide (WHO n.d.). The WHO estimates that 1.5 million premature deaths per year are directly attributable to indoor air pollution from the use of solid fuels. That is more than 4,000 deaths per day, more than half of them children under five years of age (WHO 2016).

Several Action Agendas focus on sustainable cooking only in terms of substituting very inefficient cook stoves with new, more modern and more efficient ones. While being a step in the right direction, the more efficient stoves would still be fuelled by solid biomass such as firewood and charcoal, which are not sustainable options in the long term especially considering the expected growth in population. Alternative options based on renewable energy such as solar, biogas and power to gas are left unexplored in many action agendas. Several studies including a recent WFC report examine various options for RE-based cooking and demonstrate the viability of solutions such as biogas for cooking (Couture/Jacobs 2016). In fact, in low-income countries most of the waste is organic (about 65 percent) (Hoornweg/Bhada-Tata 2012). This means that there is a lot of potential for developing countries to actually create biogas from this organic component of waste, and often at low cost. For example, domestic biogas production systems are widely available and have demonstrated a wide range of positive impacts, such as less greenhouse gas and pollutant emissions which benefits health especially of women and children most exposed to indoor smokes from cooking (Rakotojaona 2013). They also offer a cost-effective solution, especially for rural areas which have large quantities for organic waste that would otherwise be left unused. Women and children also have more time available as they would not have to spend time collecting firewood and charcoal for cooking. Plus, the digestate, i.e. the solid component remaining from

Inefficient cooking practices produce high levels of indoor air pollution which includes a range of health damaging pollutants such as fine particles and carbon monoxide.

the process, can be used as a fertilizer for agricultural purposes (Eawag 2014).

Excessive focus on more efficient firewood, charcoal and LPG cook stoves

In Nigeria, the target is to "replace 50 percent of traditional firewood consumption for cooking by improved cook stove technology by 2020 and 80 percent by 2030". It is worth pointing out that this 80 percent target of modern cooking fuels differs from the 34 percent target stated in the National Renewable Energy Action Plan (NREAP) (Ministry of Power, Works and Housing Federal Republic of Nigeria 2016) in Table 3 on page 9, which is stated as being the reference source in the SEforAll Action Agenda. The NREAP actually reports a 59 percent target for improved cook stoves (which are simply more efficient and less polluting charcoal and firewood stoves) (NREAP 2016 report, p. 65, Ministry of Power, Works and Housing Federal Republic of Nigeria 2016). Considerable focus is given to the role of LPG in becoming the major energy source for clean cooking (improved cook stoves). "LPG is acknowledged to be an underutilized fuel" (Nigeria Action Agenda, p. 65). Again, "Its development is predicted to create jobs for the millions of unemployed Nigerians and used as a means to alleviate poverty" (ibid.). Lastly, "Nigeria should be the lead country on LPG thus a clear regional and national demonstration of Government commitment to the recovery of the LPG sector" (Nigeria Action Agenda, p. 13).

In Liberia, the share of population using improved cook stoves is projected to increase to 48 percent by 2030 compared to 15 percent in 2015. Yet the share of household using alternative technologies (solar, biogas and other renewable sources) is projected to be only 5 percent by 2030. The share of household using LPG is projected to be 48 percent by 2030. It is important to note that modern cooking devices include a variety of technologies and fuels, including charcoal and other solid fuels. Improved and efficient cook-stoves (charcoal or LPG driven) are prioritized as opposed to other more sustainable options such as solar or biogas options.

In Uganda, "the binary approach of the global framework, which suggests that modern cooking solutions should be premised on the use of non-solid fuel, is not a realistic goal at least not for the near future" (Uganda Action Agenda, p. 36). The plan is again based on clean cook stoves run on solid fuel such as wood (achieving 64 percent of the projected households by 2020 using clean stoves). In fact, Uganda aims to produce 1.35 million clean cook stoves annually. These cook stoves would be mostly run on wood, charcoal and LPG. Further, the Uganda LPG association (ULPGAS) is working towards reaching 20 percent of households using LPG for cooking by 2020.

In Rwanda, in all scenarios for 2030, cooking is mostly based on charcoal, firewood, pellets and LPG with very marginal contribution of biogas only for rural areas. Solar and other renewable technologies are not included in any of the scenarios. In Tanzania, there is a clean cook stoves strategy in place. The plan is to add approximately ten million clean cook stoves by 2030. This clean cook stoves strategy is based on more efficient and sustainable use of biomass resources such as of firewood and charcoal and greater use of LPG. The strategy is focused on regulating the production and consumption of firewood and charcoal and ensuring that cook stoves are modern, more efficient and meet the standards for efficiency, health and safety and emission reduction. The only proposed alternative to limit use of charcoal and firewood is to use other biomass sources: "Commercially mainstreaming biomass alternatives (in particular biomass briquettes and biogas) with the objective of reducing current demand (2012) for charcoal and commercial fuel wood by 5 percent by 2030" (Rwanda Action Agenda, p. 46).

In Kenya, 35.3 percent of Kenyan's households will be using LPG by 2030. The use of electricity, bioethanol and biogas for cooking is projected to reach only 7.6 percent by 2030 (0.8 percent biogas, 4.5 percent bioethanol, 2.3 percent electricity). By 2030, 57 percent of households will be using improved cook stoves run on solid biomass (charcoal and firewood). Further, in Kenya's Investment Prospectus, seven investment projects are dedicated to clean cooking strategies based on improved cooking (including LPG) and only three projects consider alternative fuels such as biogas (one project) and bioethanol (two projects) for cooking (SEforALL/Ministry of Energy and Petroleum Republic of Kenya 2016). In The Gambia, again improved cook stoves are prioritized in the recommendations for the cooking sector. In particular, the major improved cooking systems recommended for The Gambia are the expansion of access to LPG for cooking in the urban and peri-urban areas, the promotion of improved charcoal stoves in the urban and peri-urban areas, and improved fuel wood stoves in rural areas and the promotion of the production and use of briquettes from groundnut residue.

Chapter 4
Conclusions and policy recommendations

In light of the issues highlighted so far and considering the lack of consistent progress in reaching the initiative's objectives as acknowledged by SEforALL itself in recent reports (SEforALL 2015, Sustainable Energy for All 2016), it is important to provide constructive feedback on how the initiative could be improved. Five key policy recommendations derive from this analysis.

Push for more RE: Sustainable Energy is 100% RE

Being serious about staying below the 1.5 degrees threshold means reducing emissions by at least 95 percent by 2050. This implies that SEforAll must aim higher and work towards reaching 100% RE for all by 2050. Clearly enough, 30 percent by 2030 is insufficient. A WWF research points to a minimum of 42 percent RE by 2030 (WWF 2011) and the 2015 Energy Revolution Scenario of Greenpeace points at 100% RE by 2050 to stay below the 1.5 degrees Celsius target (Greenpeace International 2015). Moreover, it is important that not all renewable energy sources are equally considered and that the initiative does not remain "technology neutral" (Friends of the Earth International 2012) but that it understands that some technologies and approaches to RE are indeed better than others. While cleaner options such as solar and wind should be prioritized, biomass and large hydro need to be carefully assessed in relation to how they interfere with food security and water resources respectively. Similarly, grid expansion should be assessed in comparison to off-grid and mini-grid solutions. Robust safeguards are needed to ensure that neither technology applied causes e.g. human rights violations or environmental degradation.

Fossil fuels and nuclear energy should not be included in the Action Agendas. New development of fossil fuel power plants should not be considered at all. The highest priority should be given to renewable energy and higher targets should be set. Given the great momentum around 100% RE (e.g. at COP22 in Marrakesh, 48 developing countries pledged to set a 100% RE target (World Future Council 2016)), countries engaged in the SEforALL initiative should consider engaging in this global movement and raise their RE targets within their Action Agendas. If the SEforALL initiative genuinely intends to bring forwards a rapid and effective transition towards a future of sustainable energy for all, it needs to embrace a more determined and leading role. It needs to join its forces with a global movement that seeks to move away from fossil fuel entirely and give renewable energy a new uncompromising leading role.

Prioritize a decentralized, community-based approach to RE development

Several Action Agendas tend to favour centralization, meaning grid extension to provide on-grid solutions are preferred to off-grid solutions and a more decentralized, community based, participatory approach to renewable energy development. The role and importance of the latter should be further highlighted. The energy transition is not only about the way we produce energy. It is about much more. It is about creating energy systems that provide energy access for all, that provide economic benefits for a large number of people, that are governed and controlled by communities and that respect the boundaries of the planet.

Therefore, priority should be given to decentralised solutions, which are much more beneficial to local communities and many times much more effective and affordable than on-grid solutions. Currently, only a small share of international climate funds goes toward decentralised energy. It is estimated that of the USD 14.1 billion total, just over three per cent (USD 475 million) was allocated to decentralised energy specifically (Rai et al. 2016). In contrast, the International Energy Agency itself has been highlighting the importance of decentralized RE solutions and found that 70 percent of rural areas are best electrified "either with mini-grids (65 percent of this share) or with small, stand-alone off-grid solutions (the remaining 35 percent)." The agency estimated that globally, USD 32 billion per year would need to be invested from 2010-2030 to achieve universal access to electricity, and the majority of this amount, about two-thirds, would need to be invested in mini-grid and off-grid solutions (OECD 2012).

This lack of prioritization for decentralised, off-grid, renewable-based solutions can be blamed for the slow rate of progress in energy access and for the fact that many communities, especially the most marginalized rural ones, are still left without access to electricity also as reported by recent SEforALL Global Tracking Framework reports (SEforALL 2015). It is therefore essential that the SEforALL initiative contrast this trend by promoting a new policy approach to energy planning, one that prioritizes decentralized, community-based solutions such as off-grid solar home systems, mini-grids, micro hydropower, small wind farms, and biogas from waste systems. It is very important that off-grid solutions do not remain only a secondary option but that they become a priority of the Action Agendas. Policies must be in place to support

off-grid development and inclusive energy access. Policies and governments should prevent that large-scale, centralized infrastructure development suffocates small-scale, off-grid projects. People and communities must be at the centre of energy policies and Action Agendas should prioritize RE access that can benefit them the most and based on a careful analysis of the entire range of co-benefits of RE such as local economic development, employment opportunities, gender equality, effects on food security and overall local ecosystem resilience.

Promote cooking based on RE

While all Action Agendas deal explicitly with the issue regarding clean cooking, more emphasis should be placed on the need to electrify the cooking sector, expand biogas solutions based on organic waste and hereby move beyond simply clean or more efficient cooking stoves. This means promoting RE-based solutions for cooking and support innovation in this sector. Policies should promote programmes to expand RE-use in the cooking sector and stimulate research and development to enhance existing technologies and explore new viable RE options for cooking. In addition, given the major impact that cooking has on women in terms of exposure to domestic air pollution and time dedicated to fuel collection, the Action Agendas need to reflect this aspect more consistently. It is important that the cooking issue is also framed in terms of gender equality and not only in terms of its impact on the environment and local ecosystems.

While the promotion of more efficient cook stoves remains an important interim solution and has delivered impressive results in certain countries, focusing on improved cook stoves is neither a truly long-term nor a truly sustainable solution to the challenge of cooking. Much of the biomass for use in cook stoves (whether efficient or not) is not sustainably harvested; moreover, it is often

Biogas systems have proved to be very effective at reducing reliance on firewood, charcoal and other fuels.

People and communities must be at the centre of energy policies. Local economic development, employment opportunities, gender equality, effects on food security and overall local ecosystem resilience must be analysed carefully when programmes are implemented.

not "renewable" in the traditional sense due to unsustainable rates of deforestation, soil loss, and desertification. Further, while efficient cook stoves may significantly mitigate many of the critical environmental issues related to cooking, they continue to contribute to a host of other social and economic problems, including gender inequality, low child literacy rates, as well as low labour market participation rates, all of which hinder economic diversification, entrench social injustices, and undermine long-term economic prosperity. Furthermore, and perhaps most critically, continued reliance on wood-based fuels as the primary cooking fuel is unsustainable in the medium to long-term simply due to demographics: the population of Sub-Saharan Africa (SSA) alone is projected to almost triple by 2060, reaching as high as 2.7 billion, up from 1 billion in 2015 (World Bank 2015). At such a high rate of population growth, continuing to rely primarily on wood-based products (whether firewood, pellets, charcoal, or others) will become less and less sustainable, regardless of how efficiently the biomass is harvested, produced, or consumed (Couture/Jacobs 2016).

Action Agendas should shift their focus beyond simply improved cook stoves and the LPG (liquefied petroleum gas) and should start to recognize the tremendous potential of alternative cooking solutions such as renewable electricity (e.g. solar home systems), biogas, and Power-to-Gas (P2G). In particular, biogas can offer a notable advantage also over the electric cooking pathways since in contrast to solar systems, which have a displacement rate of between 10 percent and 40 percent, the displacement rate for households equipped with biogas is higher, ranging between 66 percent and 80 percent. This means that in practical terms, biogas systems have proved to be more effective at actually reducing reliance on firewood, charcoal and other fuels than electric pathways. Several examples exist. Nepal has installed approximately 250,000 domestic biogas plants installed between 1993 and 2013. A national program in Kenya has targeted the installation of 8,000 domestic plants in a period of 4.5 years, and a similar programme in Tanzania targeted the construction of 12, 000 new domestic biogas plants have been targeted for the 2008-2013 period (200/month) (Rakotojaona 2013). Another example is a project run by the International Fund for Agricultural Development that has been changing farmer's lives in rural China. Farmers in Fada, a village in China's Guangxi province, each built their own plants to channel waste from household toilets and nearby shelters for animals into a sealed tank. As the waste ferments, gas is captured and used in cooking. Forests are being protected because pressure for firewood has been reduced, saving 56,000 tons of firewood per year. Over five years, area farmers increased tea production from 400 to 2,500 kilograms a day and average income in the village quadrupled to more than $1 per day (Hopkins/Beth Dyess 2012).

Another technology that deserves further investigation in all SEforALL Action Agendas is P2G. While P2G may not be competitive with conventional natural gas delivered by pipeline, the preliminary results of a recent WFC report (Couture/Jacobs 2016) found that it is broadly cost-competitive with current LPG prices and that it could provide a more cost-effective option to meet cooking needs than either mini-grid based electricity supply or SHS.

Integrate SEforALL into Agenda 2030 and UNFCCC frameworks

For the SEforAll initiative to be effective, it needs to be integrated into the Agenda 2030 and the UNFCCC processes to remain consistent with the targets set in the Paris Agreement and with the 17 SDGs. The SEforALL initiative should actually become a further connector between the climate targets and the SDGs. As also recognized in the new initiative's strategic framework 'Going Further, Faster – Together', the question concerning energy access and renewable energy inevitably links the issue of climate change and environmental sustainability (Paris Agreement) with the key requirements of sustainable development, poverty eradication and long-term human prosperity as envisaged by the Agenda 2030. While the strategic framework aims at empowerment and provision of tools, especially the development of national action agendas and investment prospectuses must go beyond that. For the initiative to be effective and relevant, stronger efforts should be directed to formalizing ways to incorporate the SEforALL commitments and efforts into the larger frameworks of the UNFCCC and Agenda 2030. As both are based on a bottom-up process, in which national governments – and in the case of the Agenda 2030 multi-stakeholder partnerships as well – are required to table national commitments and action, SEforAll Action Agendas must be coherent and in fact part of these political documents. It is vital to integrate the SEforALL objectives into the UNFCCC in a cohesive and complementary way. Currently, not only those SEforAll objectives are not enough to meet the Paris Agreement but also many Intended Nationally Determined Contributions (INDCs) of the UNFCCC fail to address key issues such as energy access. Therefore, it is essential that SEforAll objectives and strategies are coordinated and aligned at the national level with INDC.

The year 2018 already offers unique opportunities for this. With regards to the UNFCCC, in the first stock-taking exercise, referred to as a "Facilitative Dialogue," countries are encouraged to enhance their NDCs in order to close the emissions gap. These commitments must seize opportunities to meet the SEforALL targets. In the same year, the High-Level Political Forum (HLPF), which is the central platform for follow-up and review of the Agenda 2030, focused on SDG7. As countries conduct the required regular and inclusive reviews of progress at the national and sub-national levels, national SEforAll action must be formally incorporated.

Increase the involvement of civil society and local actors

Greater efforts will be needed to ensure that civil society organizations are involved both at the international level in determining the initiative priorities and strategy as well as the national level to ensure inclusive local representation and engagement. As highlighted in Section 2 of this report, the High Level Group, which is in charge of driving forward the SEforALL initiative, tend to be dominated by the multinational corporate sector (with many members directly or indirectly linked to the fossil fuel industry) (Friends of the Earth International 2012a). Secondly, the majority of the governments represented in the initiative come from developed countries. There is an underrepresentation of countries from the Global South (Friends of the Earth International 2012a). The governance of the SEforALL initiative at the international level will need to include greater representation of developing countries as well as a consistently larger participation of civil society and community groups, whose voices must be heard and included within the international consultations of the initiative.

Secondly, at the national level, large mobilization and engagement of local actors, especially civil society organisations, is needed. The Action Agenda cannot remain a plan imposed by national governments. They need to be tailored to the specific local conditions and gain legitimacy from the buy-in and commitments of all local communities. Therefore, governments need to commit to support an inclusive multi-stakeholder process both when drafting the Action Agenda and when implementing its commitments. Stakeholders should come to agreement on the design and delivery of the SEforALL process and civil society must be informed and cohesively included in the entire process. Specific taskforces and formalized channels to involve all local actors and civil societies should be established to ensure an inclusive and fair process of engagement.

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Appendix

Table reporting evidence from Action Agendas (SEforALL/Ministry of Power, Works and Housing Federal Republic of Nigeria, 2016; SEforALL/Ministry of Lands, Mines and Energy Republic of Liberia, 2015; SEforALL/Ministry of Energy and Mineral Development Republic of Uganda, 2015; SEforALL/Ministry of Infrastructure Republic of Rwanda, 2016; SEforALL/Ministry of Energy and Minerals United Republic of Tanzania , 2015; SEforALL/Ministry of Energy and Petroleum Republic of Kenya, 2016; SEforALL/Ministry of Energy Republic of The Gambia, 2015; SEforALL/General Directorate for Energy at Ministry of Tourism Republic of Cape Verde, 2015) supporting the three main arguments of this report.

Nigeria

Insufficient prioritization of renewables

- "By 2030, renewable energy is expected to contribute about 30 percent share in the available electricity mix" (p. 12). Note: it is assumed that this refers to installed capacity
- "To achieve a 2.5 percent contribution of wind energy to the nation's electricity generation mix by 2030" (p. 12)
- "To achieve a 27 percent and 20 percent contribution of hydroelectricity (both large and small hydro) to the nation's electricity generation mix by 2020 and 2030 respectively" (p. 12)
- "To achieve a 20 percent and 19 percent contribution of solar energy (PV and Solar thermal) to the nation's electricity generation mix by 2020 and 2030 respectively" (p. 12)
- 30 GW additional power capacity by 2030 with only 30 percent of it from RE (p. 36)
- "By 2025 and 2030, nuclear energy is expected to contribute about 2.5 percent and four percent to available electricity mix" (p. 11)
- Coal power capacity in 2014 is zero but planned to increase to 3.2 GW by 2030 (p. 36, table 7)

Excessive emphasis on centralized/ on-grid solutions

- "On-grid supply will increase from current level of 26 percent (2016) to 48 percent and 70 percent in 2020 and 2030 respectively, while the use of self-generated power shall decline from the present level of 74 percent to about 49 percent and 18 percent in 2020 and 2030 respectively" (p. 31)
- "Overall supply from off-grid systems (mini-grid and solar home systems) to reach three percent and 12 percent in 2020 and 2030 respectively" (p. 31)
- 32GW total on-grid capacity vs 8.1 GW total off-grid capacity by 2030 (p. 36, table 7)
- 171 GWH of electricity delivered on-grid vs 96 GWH of electricity delivered off-grid by 2030 (p. 37, table 8)

Inadequate examination of RE options for cooking

- Current situation: "About 80 percent of the population still uses traditional biomass for cooking. This is mostly done in an inefficient manner, making children and women vulnerable to health problems which sometimes result into death" (p. 38)
- Target: "The overall aim is to provide safe, sustainable and affordable cooking" by 2030 and ensure that the "entire population" has access to "efficient, sustainable and modern cooking fuels and devices" (p. 39)
- Percentage of population using modern cooking fuel expected to raise to 80 percent by 2030. Yet with modern cooking fuels they include various technology (not only renewables) including: electricity (not specified from which source), LPG, kerosene, biogas and solar cookers (p. 39)
- It is worth pointing out that this 80 percent target of modern cooking fuels differs from the 34 percent target stated in the National Renewable Energy Action Plan (NREAP) (Ministry of Power, Works and Housing Federal Republic of Nigeria, 2016 on table 3 page 9), which is stated as being the reference source in the SEforAll Action Agenda. The NREAP actually reports a 59 percent target for improved cook stoves (which are simply more efficient and less polluting charcoal and firewood stoves) (Ministry of Power, Works and Housing Federal Republic of Nigeria, 2016), (p. 65)
- By 2030, "Improved wood cooks stove as well as efficient charcoal production will provide the balance of 20 percent population with cooking fuels in households" (p. 39)
- Emphasis on improved cook stoves: the target is to "replace 50 percent of traditional firewood consumption for cooking by improved cook stove technology by 2020 and 80 percent by 2030" (p. 11)
- Considerable focus is given to the role of LPG in becoming the major energy source for clean cooking (improved cook stoves): "LPG is acknowledged to be an underutilized fuel". Its development is predicted to create jobs for the millions of unemployed Nigerians and used as a means to alleviate poverty" (p. 65). Again "Nigeria should be the lead country on LPG thus a clear regional and national demonstration of Government commitment to the recovery of the LPG sector" (p. 13)

Liberia

Insufficient prioritization of renewables

- "Currently, renewable energy (for electricity generation) accounts for less than two percent of the electricity generation mix in 2014" (p. 31)
- "GOL reports that about ten percent of urban residents and less than two percent of rural residents had access to electricity largely from self-generation using expensive imported fuel" (p.31)
- Renewable energy share of the total installed grid connected capacity (including medium and large hydro) from nine percent in 2015 to 23 percent in 2030 (p. 36, table 12)
- Low solar and non-hydro RE contribution. Other renewable energy capacity (solar PV, wind, and others excluding hydro) share of total capacity: 8 percent (p. 36, table 12)
- RE contribution projected to decrease: "RE share is expected to constitute 43 percent, 39 percent and 23 percent of the total electricity capacity for the years 2020, 2025 and 2030 respectively" (p. 35)
- The share of population targeted for using modern cooking devices is projected to be 26 percent (p. 37, table 14)
- "The long-term strategy is to make Liberia a carbon neutral country by 2050" (p. 31)
- The government plans to "increase the use of modern renewable energy (non-solid fuels) from an estimated current rate of less than five percent to 60 - 73 percent of the population using modern renewable energy (non-solid fuels based primarily on cleaner cooking gas and electrical energy)" (p. 34)
- The share of population targeted for using modern cooking devices is projected to increase from 26 percent each in 2010 and in 2015 to move towards achieving universal access to modern cooking (cooking plan) and efficient cook stoves increase to 49 percent in 2020, 72 percent in 2025 and finally arriving to 95 percent in 2030 (p. 37, table 15)
- 362 MW Fossil Fuels based Electricity generation capacity vs 148 MW RE generation capacity projected for 2030 (p. 35)

Excessive emphasis on centralized/ on-grid solutions

- "Implementation of power sector liberalization reforms aimed at stimulating private sector participation through the ECOWAS Renewable Energy Policy and Energy Efficiency Policy initiatives in Liberia, will enable the country to mobilize significant private sector investments in the energy sector" (p. 7)
- "The SEforALL expresses the Government of Liberia (GoL) commitment to establish an independent and transparent regulatory process for the creation of an investment environment conducive to increased private sector involvement in the energy sector" (p. 25)
- "The GOL Vision 2030 proposes the targets of 70 percent of Monrovia to be connected to the grid and 35 percent of the rural areas of Liberia connected to mini-grids/ isolated, stand-alone units by 2030" (p. 30)
- "The National Energy Policy of Liberia provides for off-grid power operators to be given the opportunity to operate in Liberia at cost-reflective rates to enable all citizens including the poor to have sustainable access to clean electricity" (p. 25)
- "The GOL has resolved to accelerate the development of the electricity sector by facilitating and promoting a service-based rather than supply-based approach to energy definition and delivery. The GOL will finance decentralized solutions for power development as a priority. For this purpose the development of mini-grids and off-grid power schemes will be encouraged throughout the country" (p. 41)

Inadequate examination of RE options for cooking

- Current Situation: "In 2010 firewood represented approximately 84 percent of the total energy; charcoal came second with a little over 9 percent and petroleum products at about 5 percent; while the rest total slightly less than 2 percent. Firewood and charcoal consumption together constituted up to 93 percent of the energy mix." (p. 18)
- Target: the share of population using improved cook stoves is projected to increase to 48 percent by 2030 compared to 15 percent in 2015. Yet the share of household using alternative technologies (solar, biogas and other renewable sources) is projected to be only five percent by 2030. The share of household using LPG is projected to be 43 percent by 2030 (p. 37, table 15)
- Total share of families using modern cooking devices is projected to reach 95 percent (p. 37, table 15)
- It is important to note that modern cooking device include a variety of technologies and fuels, including charcoal and other solid fuels. Improved and efficient cook stoves (charcoal or LPG driven) are prioritized as opposed to other more sustainable options such as solar or biogas options (p. 36)

Uganda

Insufficient prioritization of renewables

- RE target for electricity: 90 percent but mostly hydro power (about 95 percent) (p. 10)
- Contribution of RE for thermal purposes (mostly cooking) projected only at 36 percent. The remaining will involve use of firewood, charcoal, biogas and the exploitation of existing reserves of oil and gas in Uganda (p. 28, table 3.8). It is not very clear where the remaining 64 percent of energy for thermal purposes will come from. Mostly firewood, charcoal, and LPG (see p. 40, 41 and 28)
- Liquefied Petroleum Gas (LPG): "The Uganda LPG association (ULPGAS) is working towards reaching 20 percent of households using LPG for cooking by 2020." (p. 28)

Excessive emphasis on centralized/ on-grid solutions

- 67 percent share of population having access to on-grid electricity by 2030 (p. 38, table 4.7)
- 33 percent share of population having access to off-grid electricity by 2030 (p. 38, table 4.7)
- Heavily reliance on large hydro: "Uganda's generation capacity in 2012 was 868.9 MW (862.5 MW on grid and 6.39 MW off-grid), consisting of 630 MW of large hydropower, 56.8 MW of small hydropower, 153.1 MW of thermal generation, and 29 MW of bagasse cogeneration" (p. 20)
- Off-grid contribution to electricity production (mostly solar and small hydro) still minor compared to on-grid which will come mostly from large hydro, about 95 percent of projected electricity sales by 2030 from on-grid hydro (p. 10, table i)
- Yet the agenda suggests a diversification of renewable technologies and that these should continue playing a good role in Uganda's electricity mix in combination of mini and micro-grids. "Mini- and micro-grids are an ideal alternative to grid electricity in remote villages." (p. 9)

Inadequate examination of RE options for cooking

- Current situation: "The 2012/2013 UNHS reveals that 75 percent of households in Uganda used firewood for cooking while 21 percent used charcoal. Combined, biomass fuels constitute the main fuel for cooking for 96 percent of the households" (p. 24)
- "For Uganda, the binary approach of the global framework, which suggests that modern cooking solutions should be premised on the use of non-solid fuel, is not a realistic goal at least not for the near future" (p. 36)
- Target 1: achieving 64 percent of the projected households by 2020 using clean stoves (p. 36)
- Target 2: universal access to clean cooking for households by 2030 (p. 41)
- "The Uganda LPG association is targeting to achieve 20 percent of households by 2020, about 1.72 million households" (p. 35)
- Plan based on clean cook stoves run on solid fuel such as wood (p. 41, table 4.9)
- Uganda aiming to produce on average 1.35 million clean cook stoves annually. These cook stoves would be mostly run on wood, charcoal and LPG (p. 41)

Rwanda

Insufficient prioritization of renewables

- Beyond 2025, there is again flexibility over what type of generation is built. "Realistic scenarios range from a base case of 44 percent renewables to the Government of Rwanda's target of 60 percent renewables by 2030. Cost-effective renewable energy sources are available to meet this target, and could help reduce the average cost of electricity generation. Meeting the 60 percent renewables target would require additional capital of around 290 million US-Dollar, but would save around 40 million US-Dollar per year in operating costs, making it a cost-effective investment" (p. ii)
- The target of 60 percent renewables for on-grid electricity generation is expected to be reached mostly with hydropower (337 MW), then methane (132 MW), peat (72 MW), thermal (24 MW), imports (22 MW) and solar (17 MW) (p. 14, table 6)
- "Based on the pipeline of projects with signed power purchase agreements, the share of renewables for on-grid electricity generation is set to decrease from 62 percent currently to 38 percent by 2021 as new peat and methane generation is added to the system The share of renewables then rises to around 44 percent by 2025 as further regional hydro plant are completed" (p. i-ii)
- "The percentage of electricity generated from renewables is expected to drop in the short-term due to a diversification of the energy mix to exploit domestic resources such as methane and peat. Further renewable sources can be developed after the mid-2020s to increase the share of renewable energy by 2030" (p. 13)

Excessive emphasis on centralized/ on-grid solutions

- Achieve 60 percent of on-grid electricity generation from renewable sources (p. 13)
- This Action Agenda estimates that grid connection rates would be 100 percent for urban areas, and 48 percent for rural areas, making the average for the country as a whole 63 percent, the remainder 37 percent with off-grid and mini-grid solutions (p. i)

Inadequate examination of RE options for cooking

- Current situation: "Traditional wood fuel is the energy used by the vast majority of rural households (i.e. over 90 percent) for cooking" (p. 18)
- Target: "To supply a growing and urbanising population with clean secure supplies of biomass for cooking, requiring:
- a. 100 percent access to much more efficient cook stoves
- b. reduction in losses from charcoal by improving charcoal production and promoting alternatives such as biomass pellets, biogas and LPG
- c. increasing production by improving forestry management and improved incentives for small producers" (p. ii)
- In all scenarios for 2030, cooking is mostly based on charcoal, firewood, pellets and LPG with very marginal contribution of biogas only for rural areas. Solar and other renewable technologies are not included in any of the scenarios. (p. 9)
- Biomass based strategy: "Universal Adoption of Clean Cooking Solutions. The goals outlined in this action agenda set out how Rwanda can provide universal adoption of clean cooking based on biomass solutions. This has the advantage of avoiding a major increase in use of LPG/kerosene (which in many developing countries has had to be subsidised). Biomass also retains a considerable share of the supply value chain within rural communities, and represents a major source of rural employment." (p. 25)

Tanzania

Insufficient prioritization of renewables

- By 2030, renewable energy is expected to contribute about 50 percent of total energy share for power (this includes large hydro) and only ten percent for thermal purposes (p. 2)
- Electricity supply to 2,780 MW by 2016 and more than 7,400 MW by 2035 (Note: mainly through the implementation of hydropower, natural gas-fed generation and coal projects and with smaller contributions of solar, wind and biomass cogeneration projects) (p. 15)
- Power Systems Master Plan (PSMP) foresees that for "on-grid power coal generation will outpace hydropower generation growth by 2035, limiting the ability to expand RE power generation to only 40 percent of the mix" (including large hydro) (p. 20)
- "Although the potential for RE is significant, only three percent is considered by the PSMP 2012 to be included in the generation mix by 2035, when large hydro is excluded, due to unavailability of information that can support RE investment decisions. Therefore, there are no long-term specific goals for its development other than a mid-term target for non-hydro RE to be increased from four percent in 2012 to ten percent in 2016, which is included on the MEM Strategic Plan 2011/12-2015/16." (p. 44)
- "The potential impact of the gas reserves, may delay further the increase of RE in the mix of power generation." (p. 90)
- By 2030, an additional 2200 MW of coal, 2,083 MW natural gas, 220 MW diesel and 2,400 MW of large hydro generation is expected to be brought online (p. 26, table 7)
- Fossil fuel capacity greater than RE capacity by 2030 for power generation (p. 26, table 7). Note in the Action Agenda by the Government: Table is expected to be updated in 2016 (p. 26)
- On the supply side, the installed power capacity is expected to increase from the 1,550 MW in 2012 to 8,990 MW by 2035 for a projected population of about 70 million. This is expected to be achieved through the diversification of energy sources with a main focus on the most abundant energy resources in Tanzania, i.e., gas, hydro and coal as presented in (p. 29, table 10)

Excessive emphasis on centralized/ on-grid solutions

- "Tanzania's installed electricity generation capacity is 1,550 MW of which 1,466 MW is available on the grid." This means, 104 MW of off-grid in baseline year of 2012 (p. 13)
- "300 MW of distributed generation capacity, mainly composed of diesel engines that are not connected to the grid." However, this number is mostly related to emergency power producers contracted during major droughts in early 2000s (p. 14)
- "It is estimated that by 2022 around 5,500 settlements would be electrified through the grid connection plan and 6,000 settlements through of-grid electrification and distributed technologies" (p. 15)
- "REA plans to connect about 5,500 settlements to the grid by the end of 2022 in four phases." (p. 28)
- The expansion of the grid expects that by 2016 more than 3,000 km of transmission lines (through the implementation of the BRN) will be added and by 2035 more than 8,700 km (p. 16 in the Investment Prospectus)

Inadequate examination of RE options for cooking

- Current situation: "Tanzania biomass utilisation represented 90 percent of the energy consumed in 2012 of which only four percent of the biomass used was sustainable. Most of the biomass demand is for household consumption for cooking and heating (90 percent)" (p.2). "A very small percentage of Tanzania's households use modern energy for cooking (2.6 percent)" (p.15). "94.2 percent of the households use wood-fuel (68.6 percent firewood and 25.6 percent charcoal) as their main source of energy for cooking." (p.19)
- Target: By 2030, percentage of population with access to modern cooking solutions: above 75 percent (p. 2)
- Clean cooking strategy mostly based on clean cook stoves strategy. The plan is to add approximately ten million clean cook stoves by 2030. (p. 23, table 4)
- Clean cook stoves strategy based on more efficient and sustainable use of biomass resources such as of firewood and charcoal and greater use of LPG. The strategy is focused on regulating the production and consumption of firewood and charcoal and ensuring that cook stoves are modern, more efficient and meet the standards for efficiency, health and safety and emission reduction(p. 37, 41, 43)
- Only proposed alternative to limit use of charcoal and firewood is to use other biomass sources: "Commercially mainstreaming biomass alternatives (in particular biomass briquettes and biogas) with the objective of reducing current demand (2012) for charcoal and commercial fuel wood by five percent by 2030." (p. 46)

Kenya

Insufficient prioritization of renewables

- Additional RE is not very ambitious: "The contribution of renewable energy in power generation was 62.2 percent in 2013 of the total installed capacity of 1,765 MW and this is projected to be 80 percent by 2030" (p. 17). Note that this is installed capacity not final consumption.
- As of November 2014, fossil fuel produced electricity combined was larger than any other single source. In fact, "the total installed electricity generation capacity in Kenya stood at 2,294.82 MW." "The generation mix includes hydropower (821 MW), geothermal (598 MW), cogeneration (26 MW), wind (25.5 MW) and fossil fuel based electricity (827 MW)" (p. 13)
- 80 percent renewable energy share in total final energy consumption including both electricity and thermal (e.g. cooking) (p. 1) (Note: inconsistency between final energy consumption stated on p. 1 and installed capacity stated on p. 15)
- "Access to modern cooking in 2012 was estimated at 18 percent and the target by 2030 is 100 percent" (p. 16)
- 100 percent modern cooking by 2030: "The aim is to increase the rate of adoption of improved cook stoves from 37.2 percent currently to 57.7 percent by 2030 while the target for clean cooking fuels in 2030 is 42.3" percent (p. 18)
- Demand for LPG is expected to grow to 18 percent of the population by 2022 (p. 21)
- Fossil fuel still planned for 2030 power generation: "The expected power supply from various sources will by 2030 be composed of 80.11 percent renewable energy: geothermal 5,450.00 MW (37.13) hydro 3,000 MW (20.44 percent), diesel 500 MW (3.40 percent), natural gas 1,500 MW (10.22 percent), co-generation/ gasification 600 MW (4.08 percent), solar PV 1,200.00 MW (08.17 percent), biogas 10 MW (0.07), wind, 1,500.00 MW (10.22 percent), coal 2,420 MW (16.49 percent), and gas 496 MW (3.38 percent)" (p. 24)

Excessive emphasis on centralized/ on-grid solutions

- "As one of the largest unsubsidized markets for solar PV systems in the world, Kenya represents a promising model for off-grid electrification based on private purchases of clean decentralized photovoltaic technologies" (p. 13)
- "By the year 2020, it is projected that the installed capacity of solar photovoltaic systems will reach 100MWe generating 220 GWh annually. The off-grid and decentralized electricity market in Kenya is estimated to comprise about 6.7 million households" (p. 13)

Inadequate examination of RE options for cooking

- "Current situation: over 80 percent of Kenyans rely on the traditional use of biomass as the primary source of energy for cooking and heating — with firewood contributing 68.7 percent and charcoal 13.3 percent" (p. 15)
- Target in percentage for population with access to modern cooking solutions: 100 percent by 2030 (p. 15)
- "The Kenya Country Action Plan target is five million Kenyan households and institutions using improved cook stoves for cooking and heating applications by 2020" (p. 20)
- 35.3 percent of Kenyan's households will be using LPG by 2030. Use of electricity, bioethanol and biogas for cooking is projected to reach only 7.6 percent by 2030 (0.8 percent biogas, 4.5 percent bioethanol, 2.3 percent electricity). By 2030, 57 percent of households will be using improved cook stoves run on solid biomass (charcoal and firewood) (p. 22, table 8)

The Gambia

Insufficient prioritization of renewables

- RE target for on-grid electricity is 48 percent by 2030 (p. 29)
- The approach is balanced and integrated, as it includes both conventional and RE&EE sources of energy, deals both with centralized and de-centralized approaches, covering both urban and rural areas and considers not only electricity, but also biomass (see across Action Agenda).
- There is a clear preference for RE and EE sources of energy – also to reduce the dependency on imported fuels with on average increasing price levels p. 19) – but least cost generation options including coal-based generation have not been excluded from the scenarios reviewed in the end of 2012 (p. 42)
- "Fuel imports cause major problems for the Gambian policy makers as it uses up the little foreign exchange the country generates. In 2009, the country spent in the order of 47 million US-Dollar in petroleum imports, which amounts to about 15.5 percent share of total imports" (p. 9)
- "The Gambia relies entirely on imported fossil fuel for electricity generation, mainly HFO for the main power plants and diesel for the provincial power stations" (p. 21)

Excessive emphasis on centralized/ on-grid solutions

- "Opening up the energy sector to the private sector with attractive incentives" to address existing concerns and barriers (p. 12)
- Opportunity to create a more cost-effective off-grid renewable energy supply system that can play a major role here in reducing the country dependency on imported fossil fuel, diversify the electricity mix and increase access to energy services in the country. The challenge is to develop a policy framework and functioning business models that attract investment into a mix of on- and off-grid electricity generation. To meet these requirements, the Government has formulated strategies whose objectives are to rapidly expand installed electricity capacity, expand and upgrade the transmission and distribution networks, and develop renewable sources of energy, mainly solar, wind, and biomass (p. 15)

Inadequate examination of RE options for cooking

- Current situation: "biomass, including fuelwood, accounts for about 80 percent of the country's energy supply, and for more than 90 percent of household energy consumption — reaching up to 97 percent in some rural areas" (p. 6)
- Target: "100 percent of the total populations have access to a modern cooking fuel" (p. 26); "This action area includes all options that enable households to shift to cleaner fuels and stoves, including cook stoves fuelled by cleaner fuels such as biogas, solar, ethanol, propane, LPG, and advanced biomass cook stoves" (p. 45)
- The major improved cooking systems recommended for The Gambia are (p. 23):
- "expansion of access to LPG for cooking in the urban and peri-urban areas;
- promotion of improved charcoal stoves in the urban and peri-urban areas, and improved fuel wood stoves in rural areas; a
- promotion of the production and use of briquettes from groundnut residue."
- Clean cooking energy is desirable but does not demand the same level of priority among the different stakeholders. For the urban centres, the argument for improved cook stoves is easier to appreciate and act upon, whilst for the rural communities (who use fuelwood they collect themselves from their farms or the forest) some aggressive sensitization will be necessary for attitudinal change (p. 12)
- Priority is given to solid biomass for cooking (p. 87)
- Again, improved cook stoves are prioritized in the recommendations for the cooking sector (p. 95)

Cape Verde

Insufficient prioritization of renewables

- "Cape Verde is preparing to achieve 100 percent access to electricity even before 2017" (p. 7)
- "100 percent produced by renewable energy sources in 2020" (p. 8), "In 2013, 20 percent of the electricity produced was renewable" (p. 23)
- "Penetration of renewable energy in the electric mix in Cape Verde has gone from 1.2 percent in 2010 to 20 percent in 2013, due to the installation of 26 MW of wind turbines and 7.5 MW of photovoltaic panels in 2010" (p. 12)
- "A sustainable energy system must be based on renewable or regenerative capabilities, universal accessibility" (p. 18)

Excessive emphasis on centralized/ on-grid solutions

- "Strategy for the energy sector is strategy based on the growing involvement of the private sector, whether companies or families, which will progressively replacing public investments in the sector" (p. 8)

Inadequate examination of RE options for cooking

- Current situation: "In 2013, 70 percent had access to modern and safe forms of energy to meet its energy needs in the kitchen" (p. 8)
- Target: 100 percent of population with access to modern option for booking (p .9)
- Strategy based on clean cook stoves and butane: promotion of butane: penetration rate higher than 90 percent (p. 9)
- "In 2030, the use of firewood in urban areas would be residual (less than two percent) and in rural areas, would remain still about ten percent of families with preference for firewood in cooking. It is assumed that this substitution will be made in favour of butane." (p. 29)

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