



In the framework of the G7 Energy and Environment Ministerial Meetings and under the auspices of the Italian G7 Presidency, RES4MED-RES4Africa cooperates to host side events dedicated to Africa, with the main purpose to analyse the status of the power market and facilitate the dialogue on how to accelerate universal energy access in the continent, contributing to the achievement of the Sustainable Development Goal #7.

The events will rely on an interactive exchange between relevant stakeholders from both African and G7 countries belonging to national governments, multilateral development organizations, businesses, academia, civil society and the Italian Agency for Development Cooperation (AICS). Participants will have the opportunity to discuss ideas, policies, regulatory improvements and share experiences on how to **improve access to energy, strengthen energy supply, improve energy efficiency, create job opportunities** and **consolidate** the growth of local economies in the African rural and urban contexts.

With this White Paper, RES4Africa aims to provide input for one event focused on **“innovative solutions for a secure and sustainable energy access”** and, in particular, on the **productive use of energy** as a driver to achieve social and economic development in Africa.



OUR FINDINGS IN BRIEF



RES4Africa - Renewable Energy Solutions for Africa

is the leading platform for public-private dialogue in the sub-Saharan African renewable energy context. A network of key international energy stakeholders – utilities, industries, agencies, technical service providers and top academia – engaged in promoting clean tech solutions in the sub-Saharan continent. RES4Africa is a spinoff project of RES4Med association. The mission is to support the deployment of renewable energy – both large scale and distributed energy – and energy efficiency solutions as well as their integration in the local and regional markets to satisfy local energy needs. RES4Africa builds sustainable energy partnerships with a “bottom-up” approach to propose solutions customized to local contexts. RES4Africa encourages the set-up of partnership formulas that provide decision makers with private sector perspectives to stimulate investment opportunities along the entire supply chain through networking activities for market operators, industry associations and other key stakeholders.

EGP - Enel Green Power

is the Enel Group Company that develops and manages energy generation from renewable sources at a global level, with a presence in Europe, Americas, Asia and Africa. EGP is a major global operator in the field of renewable energy generation, with an installed capacity of 36 GW, with a generation mix that includes wind, solar, hydro, geothermal and biomass and a footprint in 16 countries.

Named in the top five of Fortune magazine’s “Change the World” list in 2015 for leading a renewable energy revolution, the Enel Group owes its high placing to both its well-balanced generation mix and its policy of making zero carbon emissions a priority.

In an effort to ensure a renewable energy supply that is available to all and sustainable over the long term, EGP has explored business models and technologies to improve access to energy and foster social and economic development for isolated rural areas in sub-Saharan Africa and Asia.



Addressing rural electrification in sub-Saharan Africa

Over the past 12 months, RES4Africa and EGP have extensively researched off-grid renewable energy solutions for increasing access to energy in rural communities with unreliable or no access to the grid. Technology scouting, field explorations and experiments with private and NGO partners allowed gaining an in-depth understanding of available technologies, local contexts and unmet needs of the communities to serve.

Are we solving the right problem?

The insights of this research effort reveal a more complex challenge to tackle rather than focusing solely on the electrification issue. The reality is that easing rural communities’ access to electricity without addressing and fostering their social and economic development is a dead end. For too long, the off-grid energy industry has worked in isolation by providing “just the technology”. Time is ripe for changing the approach, thereby linking together energy access and local development in a more holistic and cross-sectoral way.



Partnering for mutual success

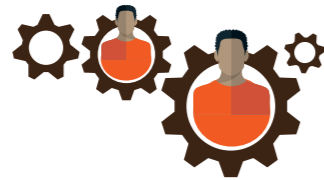
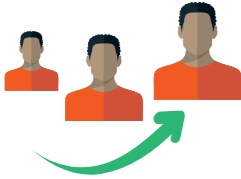
RES4Africa and EGP strongly believe in this comprehensive approach, and have generated preliminary ideas on how to embed off-grid renewable solutions into larger systems. But, to be implemented successfully, the ideas and recommendations outlined in this paper call for new collaborations and partnerships with interested private companies, NGOs, the public sector and local communities.

SUB-SAHARAN AFRICA: A GREAT POTENTIAL...

...STILL UNEXPRESSED

Young and growing population

2010/2015
+14,56%



2034 **1,1 BILLION**
working age population

Improvement of life expectancy

2000
50,30 YEARS
2014
58,60 YEARS
+8 YEARS

Education

80%
Universal **primary education**
almost achieved



Resources



Africa is home to the majority of the world's unutilized agricultural land

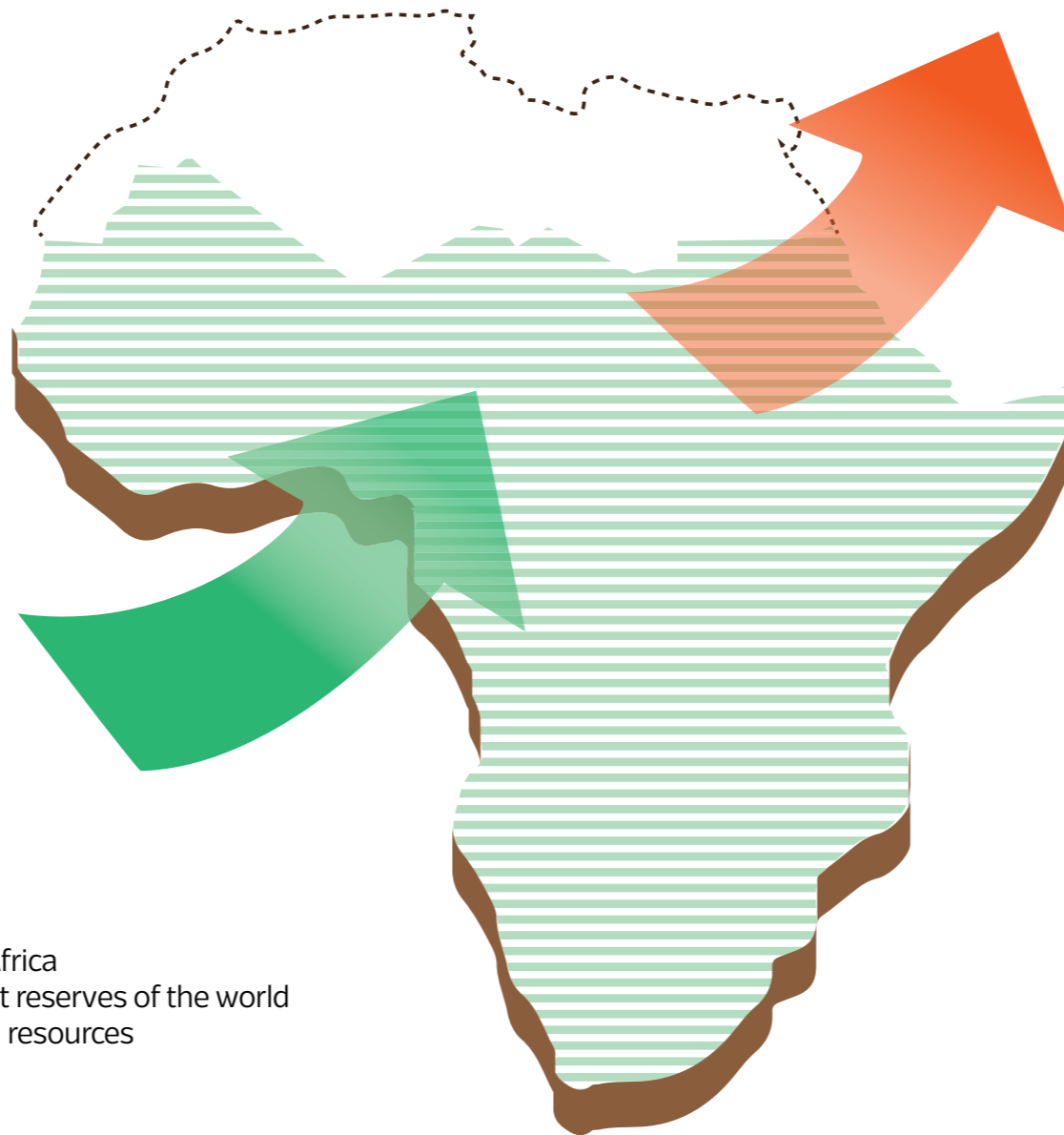


Sub-Saharan Africa hosts the largest reserves of the world of many natural resources

International Aids

A vast amount of international aids and development fundings have grown dramatically over the years

13,01 billion USD in 2000
46,55 billion USD in 2014

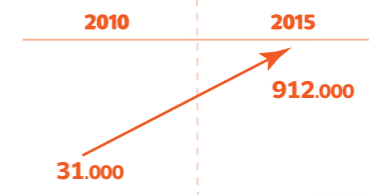


Oil exports



Since 2010, decelerating growth in oil exports

Sharp increase of emigration flows

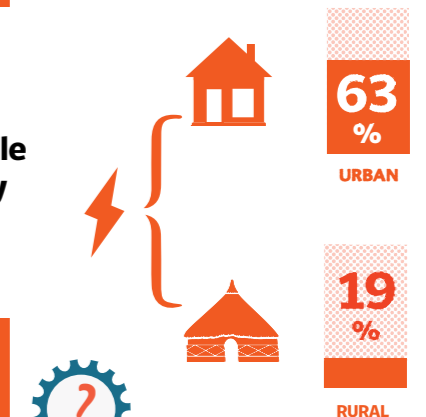


Power shortage

2-4% negative impact on GDP

More than **632 million people** without access to electricity

Access to electricity rates: urban vs rural population



Lack of skilled labor force

Gross enrollment ratio for tertiary education is still growing too slowly



7,9% in 2010
8,6% in 2015

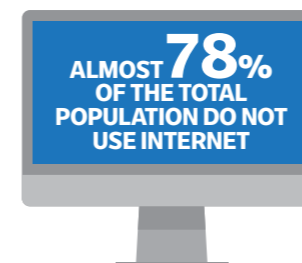
Procedures

27,3 days is the average time to complete the registration



Local entrepreneurship is held back by lengthy and costly procedures

54% of the average annual income per capita is the cost of registration



Communication Gap

Almost **78%** of the total population **do not use internet** yet, even if the rate has grown from **9,8** to **22,4%** between 2010 and 2015



Time to rethink the private sector approach

The next boom continent: a dream perpetually around the corner?

According to the International Monetary Fund, Africa is projected to be the world's second-fastest growing region by 2020. With a young population, abundant natural resources and one of the world's fastest urbanization rates, Africa seems to have all the necessary ingredients to prosper. Despite strong economic fundamentals, companies and local governments will need to work harder to realize Africa's full potential. The inherent difficulties and barriers the market still faces have discouraged many business enterprises. After initial tests and some failures, they have decided to leave the continent. However, successful innovative companies contribute to paint a more hopeful picture.

Who is succeeding in Africa?

Some notable successes of start-ups and local entrepreneurs have found a path where multinationals have repeatedly hit a wall. How? By adopting a holistic approach that does far more than providing products or services. Successful companies listen to the communities, explore their needs and join forces with other players to reduce risks and offer solutions that create sustainable development opportunities. Every profitable and sustainable business needs a strong community engagement, not only to create demand for its products, but also to provide critical assets and a supportive environment.

Access to Energy: it is not just the technology, it is the surrounding system

Urgency for a change in the approach is more than ever relevant for our sector. An industry that barely existed a few years ago, the off-grid solar has tried to tap the opportunity of Africa's vast market of unconnected people. Yet, unsuccessfully. With a traditional "single-game player", off-grid solar companies have entered the Africa's market by pushing their own technology. However, inadequate levels of demand from the served communities posed serious challenges on the business profitability. As a result, most players had to rely substantially on financial aid or government subsidies.

VIRTUOUS CYCLE

PRIVATE SECTOR

The private sector provides more than just its products or services. Guided by an exploratory framework, it analyzes the community needs and growth potential in depth. By adopting a holistic approach, it creates solutions that are tailored to the needs of the local communities. This in turn creates jobs and local development opportunities.



LOCAL COMMUNITY

Empowered with new skills, technology and services, the local community can start new economic activities and improve the productivity of existing ones. This in turn creates increased demand for companies' products and services in a sustainable way.



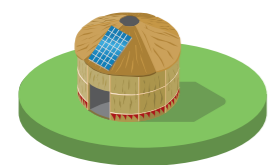
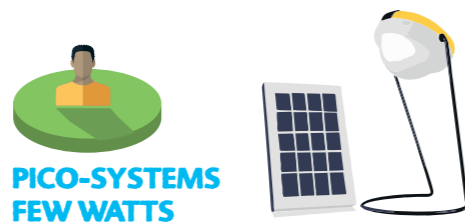
HARNESSING ENERGY TO TRIGGER ECONOMIC DEVELOPMENT

Energy: necessary but not sufficient

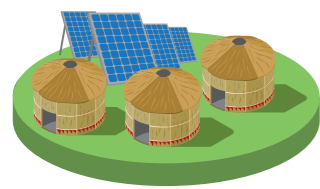
Current systems can already light up small shops and service businesses, such as hairdressers, in rural villages. Some companies are working on scaling them to provide power also to small farms. But even so, off-grid solar power alone will not start up the economic and social growth in the served communities.

Recent publications and our experience demonstrate that a successful business strategy should do more than providing clean, affordable off-grid renewable energy. Despite power is an important part of the positive equation to support and empower local communities, it needs to be coupled with energy and quality inputs (education and capacity building, access to market, machinery and equipment, information) to unleash the productive capacity that can transform communities.

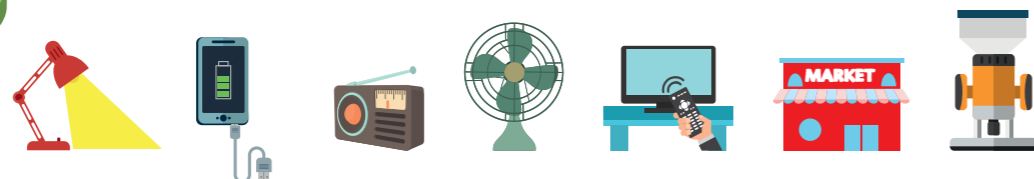
OFF-GRID SYSTEMS



**SOLAR HOME SYSTEMS
< 300 W**



**MINIGRIDS
< 500 kW**

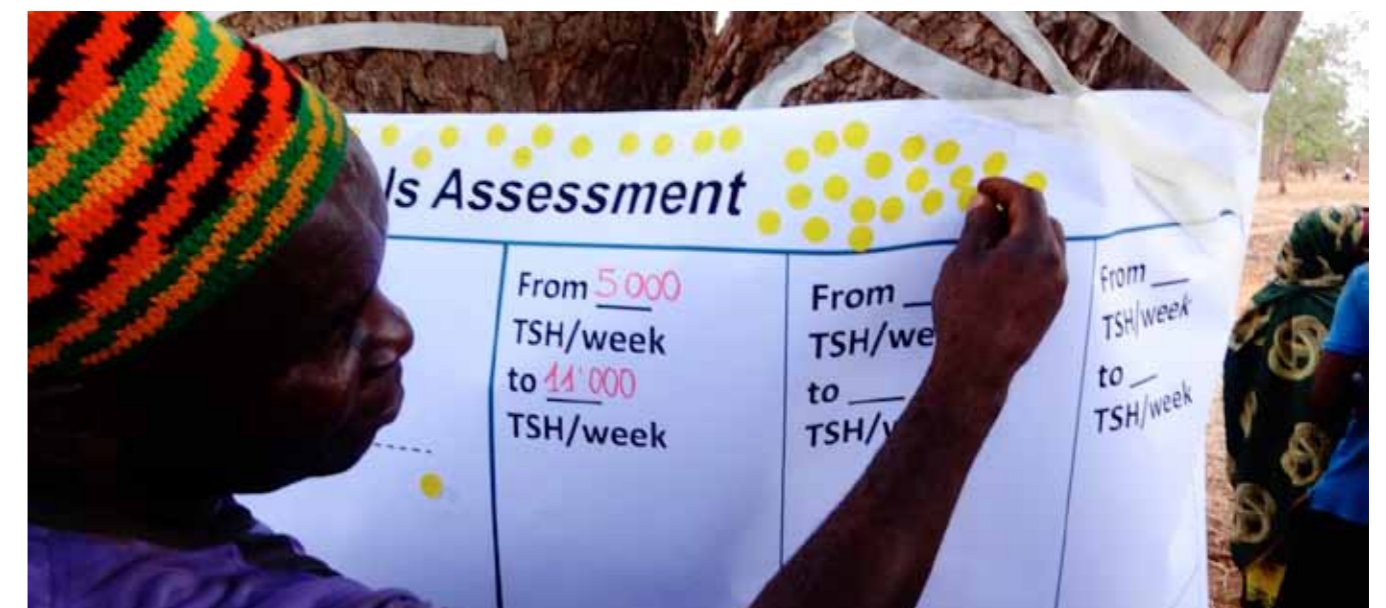


Three actions to overcome main barriers to put rural communities on a sustainable growth path

First, triggering economic development requires a wider definition of electricity access that includes basic services (e.g., lighting) as well as energy levels for productive use. In rural villages with low electricity demand, **energy access should be approached as a journey** and not as a quick fix for immediate needs. Renewable energy can put local communities on a rapid, cost-effective path, while adapting over time to their evolving needs. And eventually, it can integrate with more long-term solutions (i.e., grid).

Second, **off-grid renewable energy technologies must be embedded into holistic solutions** supporting primarily the economic development of rural areas. By increasing access to inputs, sharing technology, developing skills and providing financing, local productivity can be improved - substantially. To do that, joining forces with other players becomes a must.

Third, **local communities must be an integral part of the solution**. From listening to their voices and exploring their needs, to involving them in the customization and delivery of solutions. The industry's field of vision is still too narrow. Off-grid energy players should focus their attention on the broader socio-economic environment surrounding their operations and endorse a community engagement strategy.



Our idea for a "Renewable-energy-powered Community Business Hub"



Our Call for Collaboration

When something is told often enough, it becomes easier to believe. Few things have been repeated for so long as the axiom: the low-income customer segment in Africa is unprofitable and risky.

Our research and experience on the field show that this is not entirely true.

Africa has vast untapped potential, and best-practice examples - mainly start-ups and local entrepreneurs - demonstrate that it is possible to operate successfully in its markets.

To succeed, off-grid renewable energy companies will have to adopt a holistic approach.

Going beyond the provision of a technological solution means harnessing renewable energy sources not only to provide light, but also as a catalyst to create employment, to boost income for the rural poor and to provide sustainable solutions within local communities.

Such an unprecedented transformation will not happen all by itself. It can only be made possible by a concerted effort of private sector, Government, civil society and in equal measure of local communities. With this paper, we aim at promoting "action".

We are looking for partners interested to experiment new ways to trigger a cycle of business and community prosperity, which can lead to profits and benefits that endure.

**Time is ripe to make a meaningful impact.
Who wants to join us?**



WHITE PAPER CONTRIBUTORS

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