

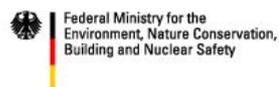
# Creating dynamic habitat for RE business

Concept idea by the NDC Support Cluster

facilitated by:



On behalf of:



of the Federal Republic of Germany

# Background

Key to the Paris Agreement (PA) on climate change are the Nationally Determined Contributions (NDCs). The NDC provides a set of actions that a country plans to conduct in order to achieve the PA's objectives, necessary to keep the average global temperatures below 2°C, or even better to 1.5 °C. Renewable energy (RE) has been highlighted by several governments in their NDCs (IRENA, 2017). The International Energy Agency (IEA) projects that renewable energies will be the largest provider for energy globally, thereby surpassing coal by year 2035. With the falling cost of renewable energy technology, cost is no longer the main barrier to higher RE uptake; it is rather the lack of finance as well as the absence of innovative business and service delivery models that are holding back its deployment (New Energy Nexus, 2018).

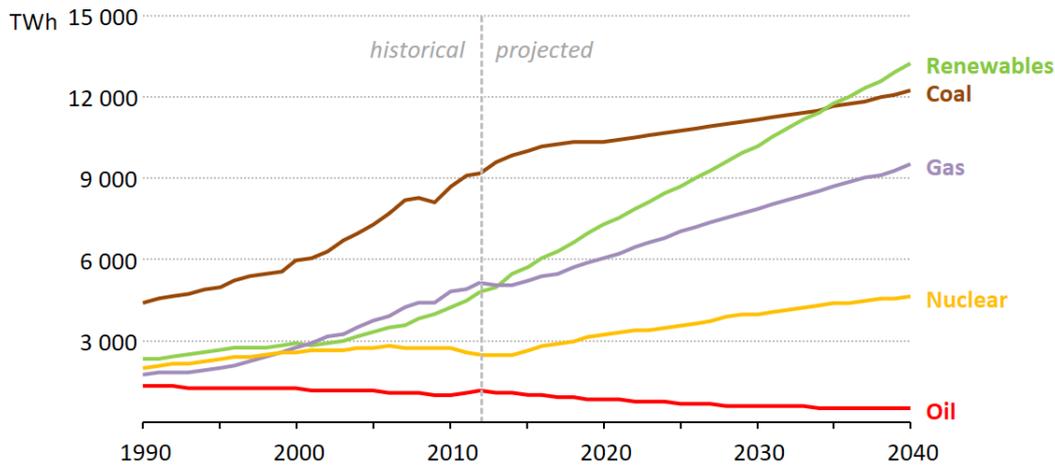


Figure 1. World electricity generation by source showing RE will surpass fossil fuel (Source: IEA, 2014)

New investments in renewable energies globally have consistently remained above \$320 billion (USD) since 2014 with the year 2015 registering the highest investment amount of \$360.3 billion (BNEF, 2018). China leads in global renewable energy investments accounting for \$133.4 billion (40%), followed by United States with \$56.9 investments (17%). Solar/PV technology remains the highest, in terms of new investments, overtaking wind and bioenergy (figure 2), with utility-scale photovoltaic systems being 25% cheaper per megawatt in 2017 compared to previous years (BNEF, 2018).

## Global New Investment in Clean Energy by Sector

2004 – 2017

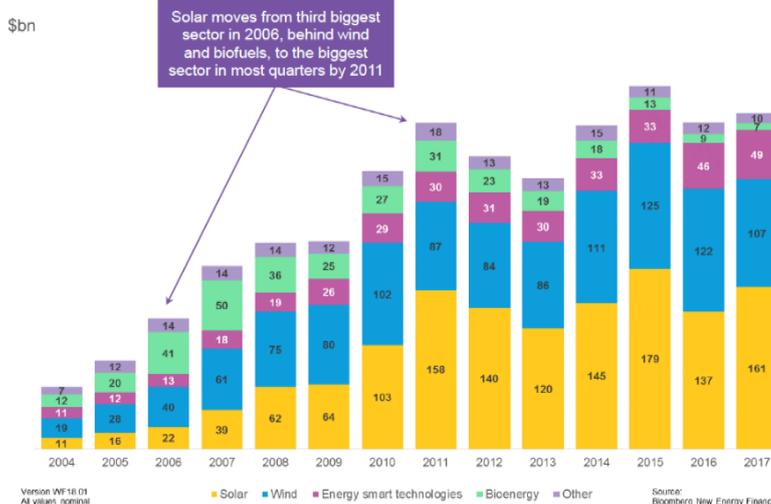


Figure 2. New investment in renewable energies globally by sector (BNEF, 2018)

Among the interesting development in RE investments is the evolving trend and the shift of largest global investing regions from Europe to Asia, led by China as global leader (Figure 2).

### Global New Investment in Clean Energy by Region

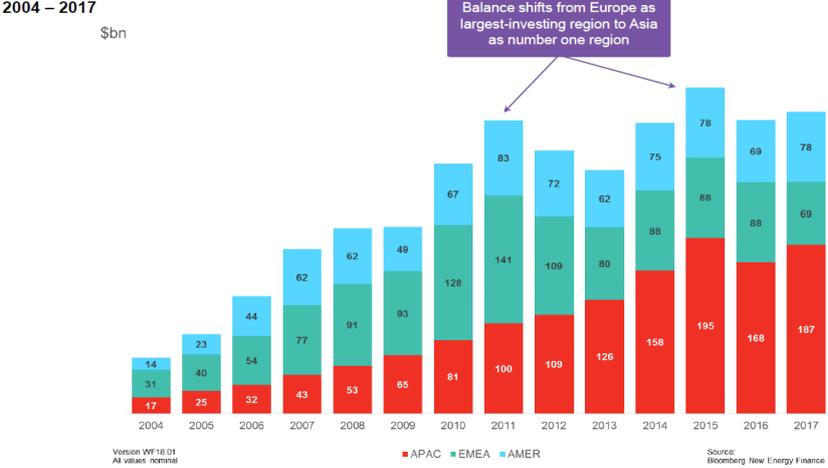


Figure 3. Shifts in leading investing regions in renewable energies (BNEF, 2018)

## What kind of problem are we trying to resolve with this project?

In spite of abundance of renewable energy resources in Africa and its promising economic outlook, Sub-Saharan Africa (SSA) is yet to experience significant deployment of renewable energy applications. One the one hand, 66% of the population in SSA does not have access to modern energy services, on the other hand, most investments in renewable energy in SSA (also 66%) aim at energy export, while the region remain among the least electrified region in the world (together with South-east Asia) (Figure 4). The IEA estimates that \$1 invested in energy supply leads to an incremental \$15 economic gain (IEA, 2014). The case for modern energy supporting socio-economic prosperity and livelihood improvement in SSA can therefore not be overemphasized. The question is, how can we help to reverse the current situation to the point where we will have more investments in modern energy preferably from renewable energy, for internal use in the continent (Figure 4). This approach focuses on supporting existing RE businesses in developing countries, including those represented during the NDC Cluster Thematic Working Group meetings in Berlin in April 2018. The selected countries are Ghana, Kenya, Mexico, and Uruguay.

This approach attempts to bring a solution for a supportive habitat for existing (but struggling) RE businesses. In other words, how can we create a rather stable habitat to respond to the dynamism in environment within which REs businesses operate in developing countries. Such dynamism includes uncertainties in human resource capacity, regulatory, financial, policy, investments, markets environment that RE operates in developing countries. This concept note focuses on small and medium-sized RE businesses (< 50 MW) in developing regions

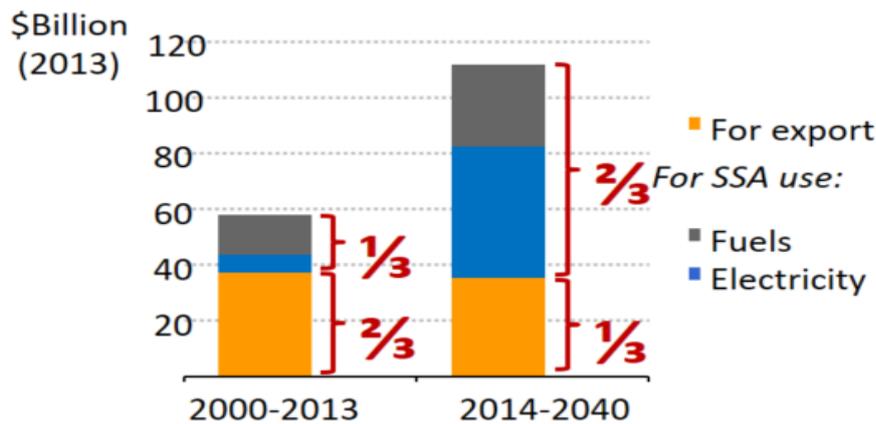


Figure 4. Average annual investment in SSA energy supply (IEA, 2014)

## Challenges and barriers

Considerable barriers persist regarding the slow uptake and deployment of renewables in the selected countries. Start-ups and SMEs are particularly challenged with such barriers. The barriers they encounter include (but are not limited to):

- finding competent and trustworthy business partners (locally and internationally) due to the absence of having such a network;
- absence of mentorship programs from credible organizations with proven track record in the renewable energy field;
- quality assurance of renewable energy technologies, solutions & systems;
- the intermittency or variability problem associated with REs and the integration of RE to the grid and existing systems;
- lack of proven experience or expertise as RE is a relatively new area;
- missing learning opportunities, as there are no existing RE companies with proven experience in some countries;
- absence of (or deficient or quickly changing) enabling framework;
- lack of infrastructural facilities;
- lack of entrepreneurial, business and management skills by small and medium sized RE businesses;
- defunct business models;
- inability to access funds;
- lack of access to talent pool;
- lack of access to entrepreneurship and venture acceleration support;
- lack of access to technology and product development support;
- lack of access to market growth information;
- lack of women and girl led RE businesses.

# Summary of the approach

The approach consists of two phases, namely:

1. Living innovation laboratories (labs) phase; and
2. Special Purpose Vehicle phase

## Living Innovation labs phase

The approach is to pilot Living Innovation laboratories (labs) in Ghana, Kenya, Mexico and Uruguay. The lab will build on the Climate Innovation Centre (CIC), which exists for example in Ghana and Kenya. The lab is to provide a platform for RE Entrepreneurs to develop their ideas into bankable projects that are ready for phase 2. Specifically, the living innovation laboratories provide opportunities with regard to the following topics:

- **Network:** Network support services for RE entrepreneurs. Linking the RE entrepreneurs with relevant support;
- **Acting as a central hub for RE entrepreneurs**, providing them with local information, facilitating the exchange among entrepreneurs, collecting information from the entrepreneurs and providing common recommendations.
- **Training/mentorship:** RE Entrepreneurs will be supported to develop their business ideas through targeted mentorship, workshops, peer-to-peer learning as well as learning from experienced mentors and organizations.
- **Developing a coalition:** The Living Innovation labs will facilitate partnership among RE entrepreneurs with similar ideas and technological focus to partner together in joint ventures, thereby leveraging on their strengths as well to avoid competition among themselves for limited funds.
- **Knowledge Sharing:** Sharing of experiences among the RE Entrepreneurs.

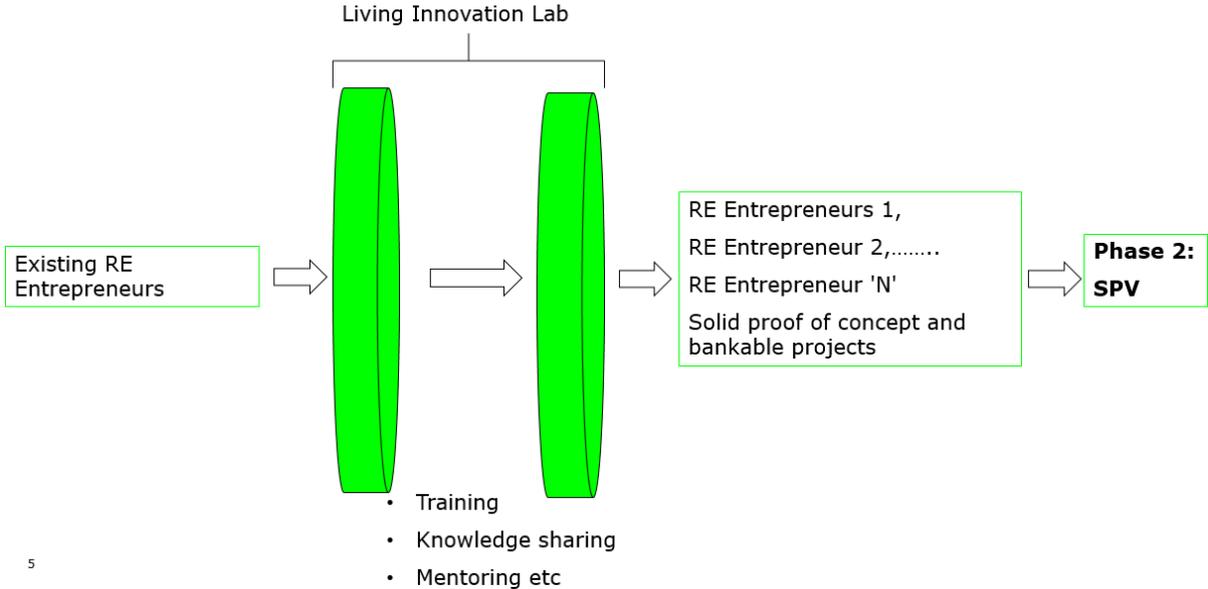


Figure 5: Phase 1 Living Innovation lab to prepare RE Entrepreneurs with bankable projects for Phase 2

### Special Purpose Vehicle phase

RE entrepreneurs' primary source of funds comes often from financial institution, which tends to go along with a short repayment period and high interest rate, because banks often perceive RE businesses to be economically risky. The question of whether RE entrepreneurs would someday be able to pay back the borrowed loans is a key reason why in most cases RE projects stay unfunded. Finally, but not the least, the transaction costs of individual RE projects are high.

The Special Purpose Vehicle (SPV) will be an independent legal entity with the following characteristics and responsibilities:

1. Aggregating relatively small but bankable RE projects that have 'graduated' from phase 1 (innovation labs) into a project 'bundle' investment which can be considered as single investment project.
2. The SPV mobilizes capital not for each single RE project but for the total value of all projects in the pool.
3. To reduce transaction costs for individual RE entrepreneurs/companies, the SPV undertakes the feasibility studies, financial structuring, legal, equipment & instalments, operations & maintenance (O&M) and Monitoring, Reporting, Verification (MRV), as a pooled project.
4. The SPV will set up a reserve fund, the RE financing facility, as intermediary between investors and RE entrepreneurs/companies in order to create financial security.
5. Risk to investors decreases because they do not deal with individual RE companies directly but rather with the SPV.
6. This also helps to create the necessary conditions for long-term investors like insurance companies or pension funds to join in.
7. Investors can get return on their investments based on the success of the SPV.
8. Through the SPV, loans will be available with low interest rates and longer payback period, thereby making it easier for RE companies to repay and for investors to get their investment back.
9. With equity financing, investors become shareholders in the SPV.
10. The SPV will be in need of a guarantee to support the contracted loan, which the donor community can help provide.

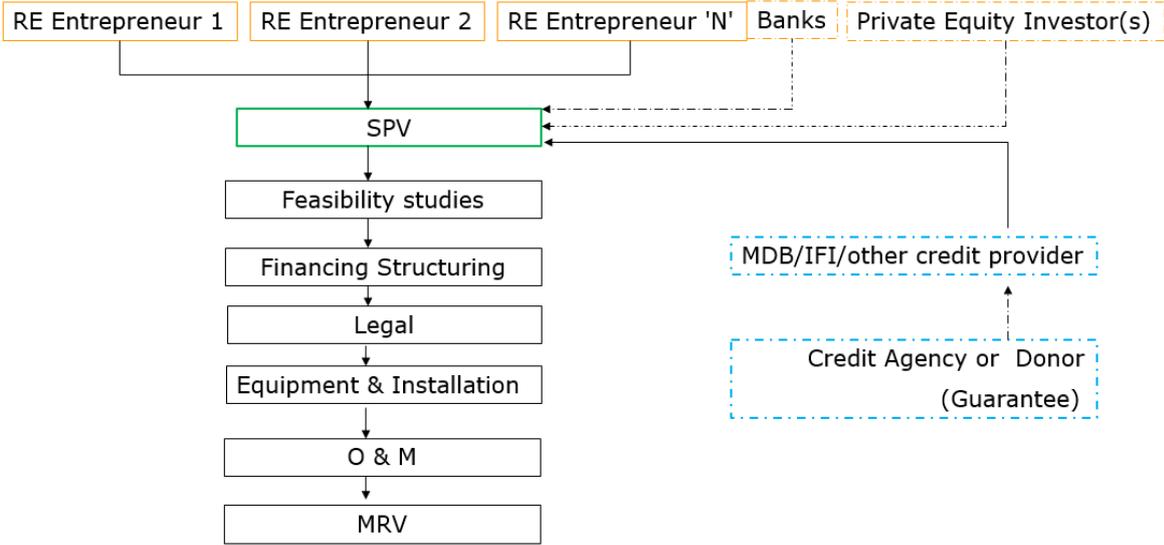


Figure 6: Special Purpose Vehicle (SPV) for piloting in selected countries

Therefore, the SPV will provide RE entrepreneurs with access to finance for continuous investments thus enabling RE entrepreneurs to provide modern energy services to more people.

- New Energy Nexus (California, USA): In the New Energy Nexus model, RE entrepreneurs are matched with energy corporations for deal makings. However, the model proposed in our approach is a better option in that it ensures that local RE enterprises are not bought over by big corporations.
- The New Energy Nexus South East Asia (New Energy SEA, 2018) model is a great model and appears to have an approach similar to what we are proposing. However, the uniqueness of our approach is that it guarantees more RE deployment due to the fact that RE entrepreneurs are supported with their challenge to overcome the cost differential between the most competitive fossil fuel based generation plant and a RE plant, i.e. to become more competitive. Hence, they will be guaranteed greenhouse gas offsets from power generation and from supporting the implementation of NDC targets in the respective countries.

## Innovative characteristics

The innovativeness of the proposed approach is reflected in the following characteristics:

- bottom up approach;
- micro-level and localized;
- transformational in shifting to increased deployment of renewable energy;
- environmentally benign and climate friendly;
- it increases employment and skills development in particular for young people (co-benefit);
- increased REs businesses, especially by young entrepreneurs, can lead to creating a “vibe” and making climate protection through REs “cool”, which in turn can entail a social transformation.

## Key features

The primary feature of the model is that it is **local** in all aspects. The other feature is that it is **dynamic** to respond to changes in financial, regulatory, policy, markets environments and fossil fuel subsidies.

## Success factors

Key success factors include:

- Funding
- Leadership
- Risk-taking
- Drivers/motivation
- Matchmaking
- Networking – good communicators
- Enabling framework - regulatory, policy, financial
- Legislation
- Ease of doing business

- No monopoly
- Knowledge sharing and communication
- Training

## Replicability

Even though this approach has been developed with the intention to primarily address stakeholders in Ghana, Kenya, Uruguay and Mexico, it has high replicability potential and can thus be applied to many other countries, as the practice of mentoring, networking and fund matching have proven record regarding business successes.

The approach has great potential for helping countries meet their NDC targets through RE implementation.

## Key Stakeholder Groups

- RE entrepreneurs
- Entrepreneurial groups /coalitions
- Government
- Innovation labs/agencies
- Funding agencies (domestic, international, private sector, public)
- Knowledge institutions

## Next steps

Support will be needed to develop the concept note further into a full proposal that aligns the business model to NDC targets of the respective countries. Specifically, to:

- understand and analyse the ecosystem (i.e. relevant stakeholders; enabling framework etc) in a couple of pilot countries where the model will be tested;
- map out RE entrepreneurs in the selected countries;
- mobilise resources (funds);
- refine the model;
- develop, pilot test, scale and evaluate the business models.

## References

BNEF (2018). Bloomberg New Energy Finance. State of Clean Energy Finance. Accessed on 10<sup>th</sup> September, 2018 at: <https://about.bnef.com/clean-energy-investment/#toc-download>

IEA (2014). International Energy Agency World Energy Outlook. 726 pp.

IRENA (2017). Untapped potential for climate action: Renewable energy in Nationally Determined Contributions, International Renewable Energy Agency, Abu Dhabi. 34pp.

New Energy Nexus (2018). Accessed on 15<sup>th</sup> September, 2018 at: <https://energynexus.co/>

New Energy Nexus SEA (2018). Accessed on 15<sup>th</sup> September, 2018 at: <https://nexusea.co/>

**Authors:** Emmanuel Kofi Ackom (UNEP DTU Partnership, Denmark Technical University)

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