



ENABLING POLICIES

for addressing Climate Change and Energy Poverty through Renewable Energy Investments in Africa

Experience from European Support Instruments

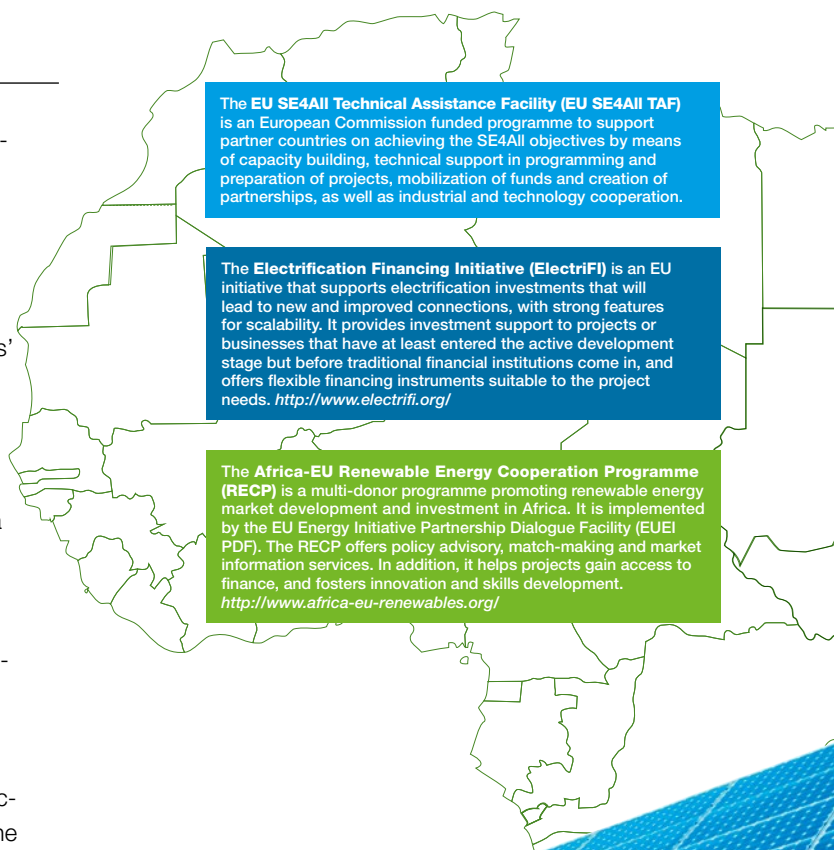
In order to meet the twin challenge of the Sustainable Development Goals as well as human-induced Climate Change, a transformation of energy systems is needed, and in particular a much stronger role of private sector investment.

Mobilising additional private investment requires first and foremost a policy and regulatory framework reflecting the countries' needs and rendering investment sufficiently attractive.

In 2016, the [European Union's](#) flagship programme **ElectriFI** launched a highly successful call for proposals for financial support. More than 240 applications were received from Africa alone. At the same time, the project development advisory service of the **Africa-EU Renewable Energy Cooperation Programme (RECP)** came online, leading to more than 60 applications from Africa within a few weeks time. The applications are structured into five categories of business models (*see explanations on the inside*).

This paper showcases the distribution of applications for financing under ElectriFI as well project development support from the RECP across countries and market segments. On this basis, it highlights the relevance of specific regulatory prerequisites and provides recommendations for policy advisory.

The paper integrates expertise on policy advisory from two European Union initiatives, the EU's **Technical Assistance Facility (TAF)** as well as the **EU Energy Initiative Partnership Dialogue Facility (EUEI PDF)**.



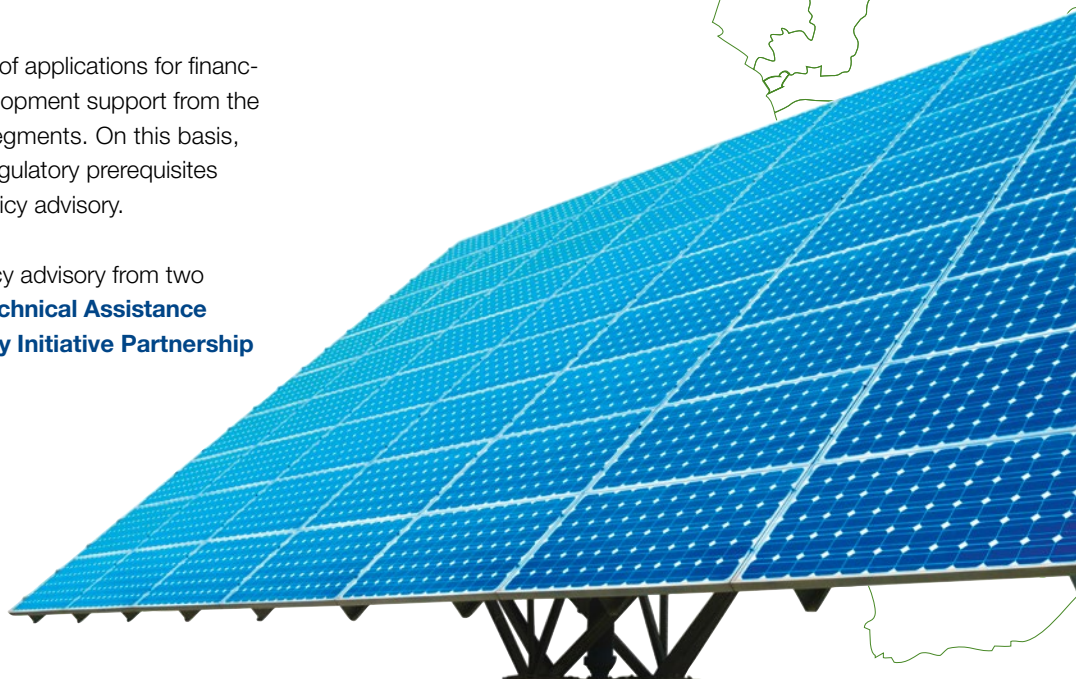
The **EU SE4All Technical Assistance Facility (EU SE4All TAF)** is an European Commission funded programme to support partner countries on achieving the SE4All objectives by means of capacity building, technical support in programming and preparation of projects, mobilization of funds and creation of partnerships, as well as industrial and technology cooperation.

The **Electrification Financing Initiative (ElectriFI)** is an EU initiative that supports electrification investments that will lead to new and improved connections, with strong features for scalability. It provides investment support to projects or businesses that have at least entered the active development stage but before traditional financial institutions come in, and offers flexible financing instruments suitable to the project needs. <http://www.electrifi.org/>

The **Africa-EU Renewable Energy Cooperation Programme (RECP)** is a multi-donor programme promoting renewable energy market development and investment in Africa. It is implemented by the EU Energy Initiative Partnership Dialogue Facility (EUEI PDF). The RECP offers policy advisory, match-making and market information services. In addition, it helps projects gain access to finance, and fosters innovation and skills development. <http://www.africa-eu-renewables.org/>



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Business Models of Applicants under Electrifi and RECP

The applications received under Electrifi and the RECP can be divided into five categories:

- An **Independent Power Producer (IPP)** is a non-utility entity that owns or operates facilities for the generation of electricity and (in most cases) sells the electricity to a utility (based on EIA).
- A **Captive Power plant** typically provides power to commercial or industrial users in grid parallel mode with the ability to export surplus power to the local grid or in island mode. Plants may be operated by the user or by an energy service company (Clarke Energy).

- **Mini-grids** are power systems where the produced electricity is fed into a small distribution network that provides a number of end-users with electricity. Mini-grids are typically off-grid and utilize diesel, renewable (+battery) or hybrid (combined) fuel sources to produce power (ARE, EUEI PDF, IRENA).

- **Standalone systems** refers to small-scale devices providing electricity to a single user, typically households and small commercial undertakings, comprising both solar home systems as well as portable lights. In recent years, such devices have seen rapid roll-out in combination with mobile payment systems (GOGLA).

- **Other** comprises business models not captured by the above categories.

First Results: Policy Implications from the Electrifi and RECP Applications

The distribution of applications by project developers provides an indication which business models are believed to be attractive in which country. While this can be caused by many different factors, the arising pattern allows for several tentative conclusions:

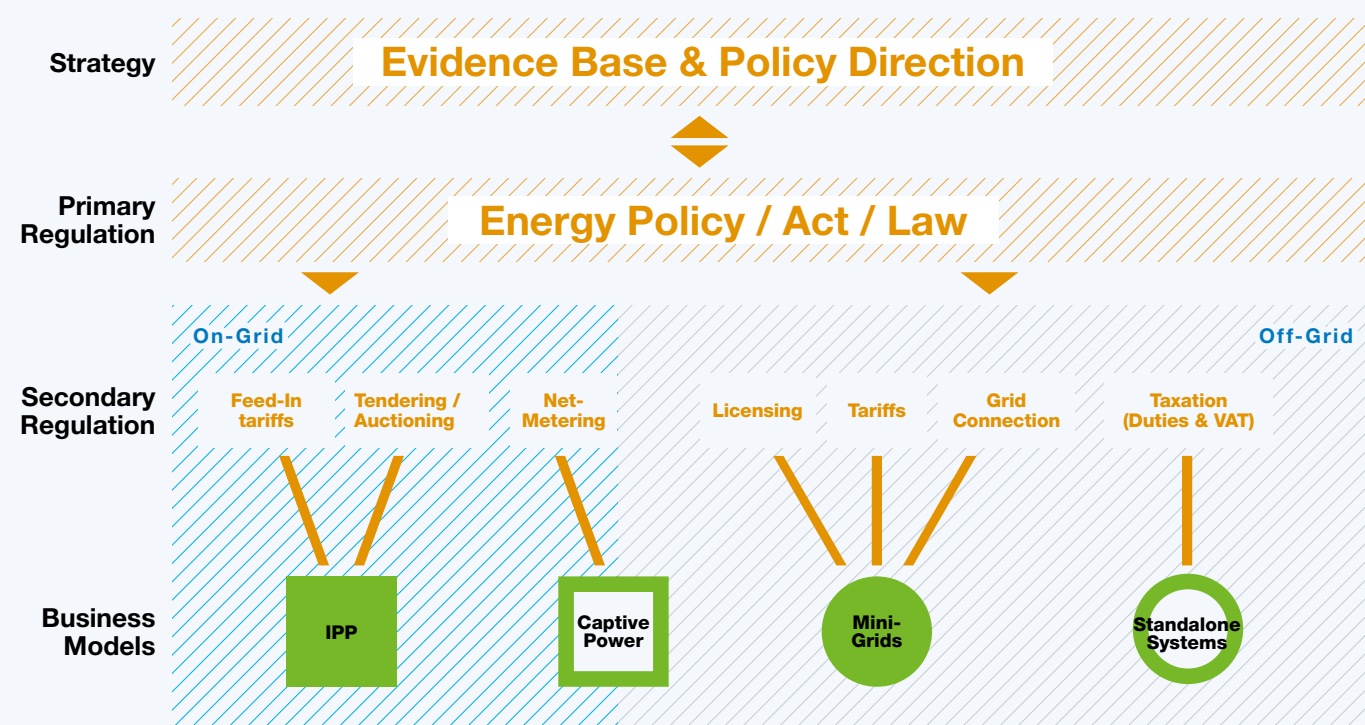
The **specific regulatory conditions for certain business models appear to be the key driving force**. For example, the high number of mini-grid and IPP projects proposed in Tanzania reflects the positive perception of the framework in this country. The same goes for Kenya, Uganda and Zambia for IPP projects.

While the overall investment climate does matter, other factors seem to be more important, as several countries with a relatively low score in the World Bank's Doing Business Index boast an over-proportionally large number of projects.

In some cases, there is a correlation with a large population (e.g. Nigeria), or certain economic conditions, for example the availability of mobile banking (for standalone projects), or relatively large industries with a high captive power potential (e.g. mining in Zambia).

Against this background we will further investigate: what are the key regulatory issues that drive investment, and how do they relate to the overall policy framework?

Key Regulations for Renewable Energy Business Models



Feed-In tariffs incentivize and provide security of investment for renewable energy Independent Power Producers (IPPs). The key feature is a guaranteed price per kilowatt-hour (kWh) for power producers, usually differentiated by technology and accompanied by streamlined procedures and a standardized Power Purchasing Agreement (PPA). Feed-in tariffs are particularly suitable to promote relatively small power projects in an early stage of market development. (EBERHARD AND KÅBERGER, MONER-GIRONA)

Auctions or Tenders are a procurement process of competitive bidding for electricity from renewable energy sources. The auctioned product can be either installed capacity (MW) or produced energy (MWh). (IRENA)

Net-Metering allows grid-connected electricity consumers who also generate their own power to “bank” their electricity in times of over-production (i.e. for solar energy during peak production mid-day), and to offset their grid consumption with this banked or stored electricity during other times (i.e. during night, morning and evening hours). (EUEI PDF 2013)

Licenses provide private mini-grid operators the legal right to generate, distribute and sell electricity to consumers. Furthermore, they specify roles and responsibilities. Obtaining the required licenses and permits can be a lengthy, risky and costly process. Licensing procedures may be simplified for small systems. (IRENA 2016, EUEI PDF 2014)

Mini-grid tariffs are the price mini-grid operators are allowed to charge their customers for the energy (service) provided, usually per kWh. The issue lies in balancing the interests of operators in terms of recuperating their costs and making a reasonable profit on the one hand, and the interest of end-users and policymakers in having socially and economically acceptable power prices on the other. (IRENA 2016, EUEI PDF 2014)

Grid connection in the mini-grid context refers to the procedures for integrating the mini-grid infrastructure once the main grid arrives, comprising technical, economical as well as financial considerations. Compensation arrangements and grid interconnection mechanisms (e.g. transition to a feed-in tariff for the generation assets, financial compensation for distribution network) can be established to provide security to mini-grid operators (IRENA 2016).

Taxation comprises fees charged to individuals and companies for goods and services. In relation to standalone systems, the key issues are import tariffs and duties as well as value-added tax (VAT), which may over-proportionally affect standalone systems and thereby affect affordability of such systems for rural users in Africa (GOGLA).

What the industry says

“Clear and transparent policy is key, meaning clear grid planning and clear policy messages to investors. Whether FIT or auctions are better really depends on the market, there is no one size fits all.”

Tomas Adcock, Chief Operating Officer, Kenergy

“For users that are not operating 24/7/365, net-metering could make the difference for either putting in a larger system or not investing at all.”

Daniel Davies, Director Hybrid Systems, Solarcentury

“Private sector mini-grid tariffs are often assumed to be high compared to the main-grid-tariff which prevents policy makers from actively using private sector mini-grids in their electrification strategies. In fact mini-grid tariffs pay a lot more than just electricity; as opposed to most main-grid tariffs, they reflect all the costs along the entire value chain.”

Nico Peterschmidt, Managing Director, INENSUS

“Offgrid solutions are easy to implement, cheap and robust and can be a perfect substitute to more heavy, more expensive infrastructure such as the grid. Systems should be exempt from Tax in order rapidly bring reliable and cheap energy to rural areas.”

Thomas Duveau, Head of Business Development, Mobisol

Essential Policy Elements for Mobilizing Private Investment

The starting point for a well-designed energy sector framework is the **strategy level**, where the policy direction is defined on the basis of sound evidence and information. Subsequently, **primary regulation** at legislative level sets the legal foundation and assigns roles and responsibilities to executive bodies to define the actual framework for investment in the energy sector.

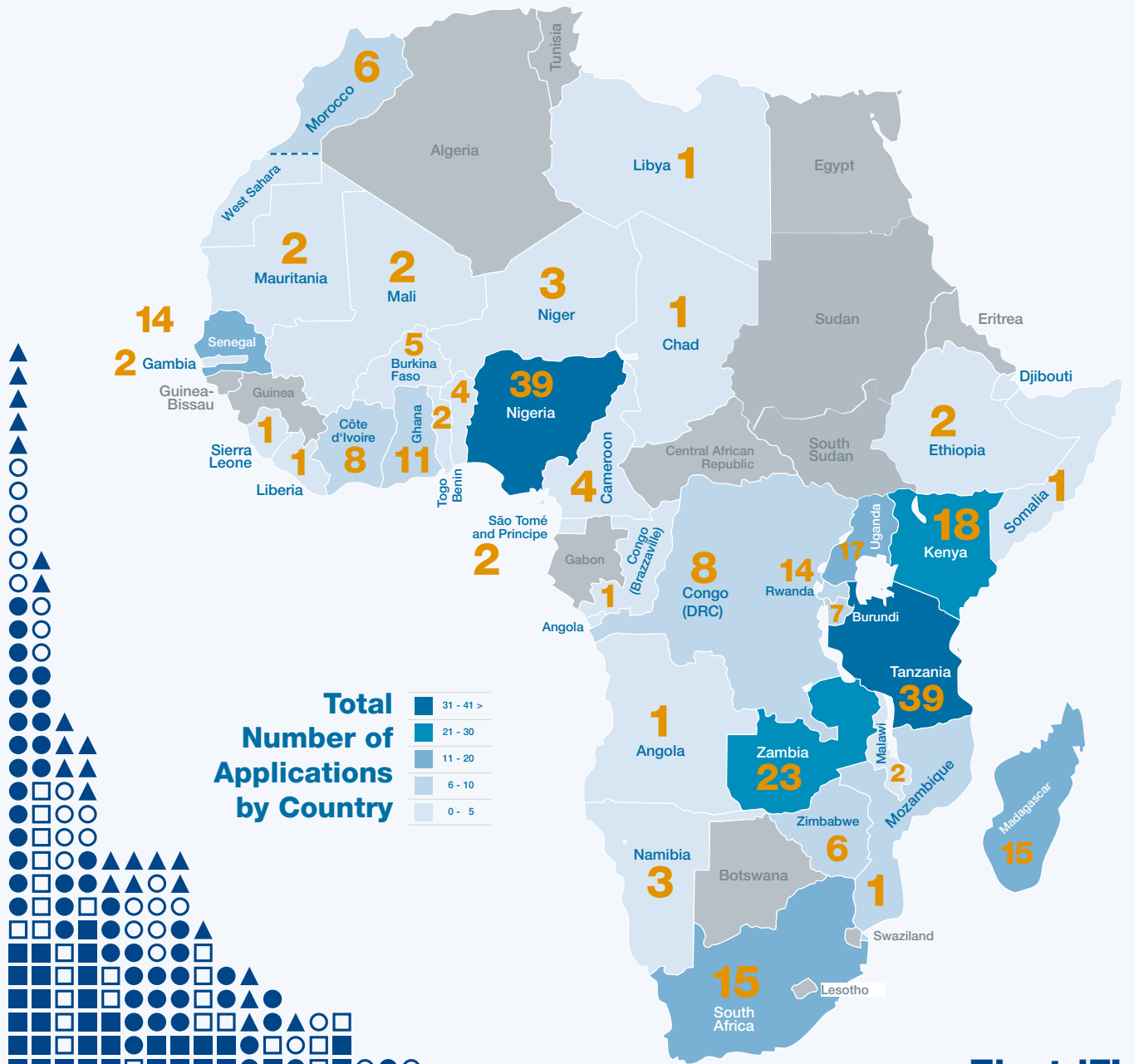
The **key drivers for investment decisions of private developers** are the rules and provisions at the level of the **secondary regulation**, which is put in place by executive bodies, for example by energy ministries or regulators. They define incentives as well as rules and procedures that govern project development and guide investment according to the different **business models**. For private developers and investors these are the key issues, since they provide the basis for appropriate return on investment at acceptable risk.

In addition to specific investment-related regulations, policymakers may design fiscal incentives or subsidy schemes tailored to steer and direct investment flows. Environmental and social regulations need to be provided matching the respective market segments. Technical quality of service standards must be designed and enforced. Licensing, import regulations and taxation affect all market segments and can make a crucial difference to the viability of business models and entire markets.

Transparency, consistency and reliability are essential to any regulation or policy. Many developers have quoted serious challenges caused by incoherent and unclear policy implementation, as well as setbacks through reversal of policy decisions.

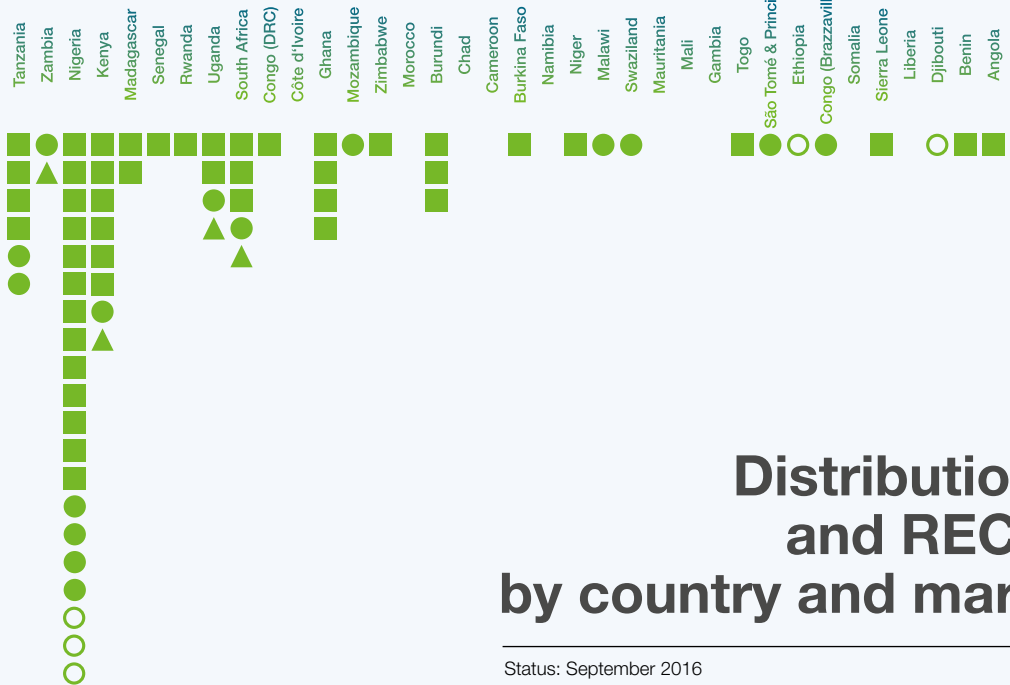
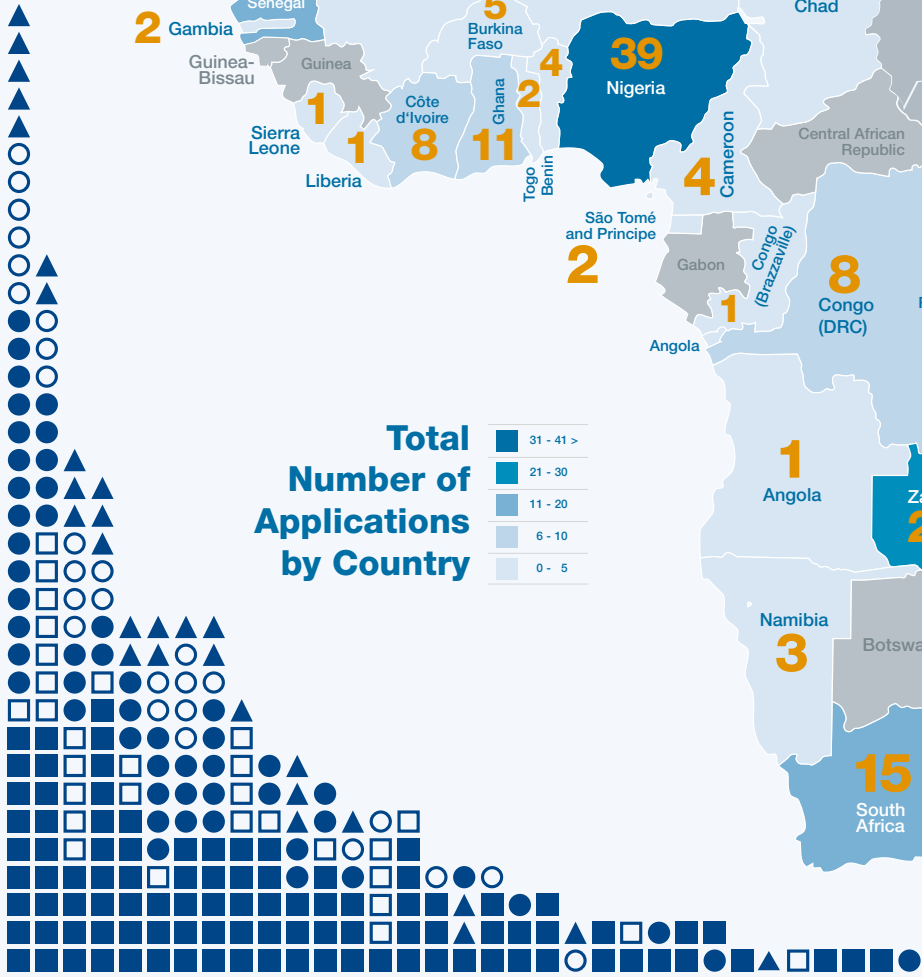
The *diagram on the left* shows how the different policy levels relate to each other, and indicates the link between business models and the most important regulatory elements in a simplified manner.





Total Number of Applications by Country

- 31 - 41 >
- 21 - 30
- 11 - 20
- 6 - 10
- 0 - 5



ElectriFI



RECP

Distribution of ElectriFI and RECP applicants by country and market segment



Recommendations for Policymaking and Policy Advisory

- A strong evidence base and good statistics are the foundation of a sound policy environment and thereby informed policy direction. Only on this basis an appropriate regulatory environment can be defined. Key issues include the appropriate (least cost!) space for on-grid and off-grid solutions, whilst optimally integrating variable renewable energy sources in the energy mix.
- Market-segments and business models differ considerably in terms of their regulatory implications and requirements. In order to attract private investment, each market segment requires a well-tailored framework providing incentives and “rules of the game” for market participants.
- Soundly formulated policies and regulations are not sufficient. Equally important is the appropriate level of institutional capacity for actual implementation, as well as clear and transparent implementation procedures that provide developers and investors with certainty and confidence.
- Policy frameworks should respond rationally to the needs articulated by market actors, while balancing the interest of private developers and investors with the public interest. Consultation of stakeholders and their involvement throughout framework development and implementation is vital to ensure functionality and success in attracting investment. Renewable Energy Business Associations should be strengthened and recognized as essential counterparts.
- Many African countries are facing the same challenges and are working on similar solutions. Regional exchange allows for learning and know-how transfer. It can furthermore accelerate policy reform and remarkably reduce the costs to policymakers, tax-payers, investors and consumers. Regional bodies, such as the regional centres of excellence and the power-pools, can play a crucial role.
- Policy advisory support should be provided in a neutral fashion through “honest brokers”. Advisory should thus be channelled through independent bodies, i.e. not those that are involved in either upstream or downstream investment activities, in order to avoid conflict of interest.

Outlook

This paper highlights key policy issues determining the success or failure of attracting private investment in Africa. In a follow-up activity, further evidence on the correlation between policy and regulatory frameworks will be collected on the basis of anonymised information from the databases of ElectrIFI and RECP.

This will subsequently provide input to the design of policy interventions and the implementation of policy advisory support through European programmes, notably the Technical Assistance Facility and the EU Energy Initiative Partnership Dialogue Facility.

1) Literature / Sources: ARE 2014. “Hybrid Mini-Grids for Rural Electrification: Lessons Learned.”; Eberhard, Anton, and Tomas Kåberger 2016. “Renewable Energy Auctions in South Africa Outshine Feed-in Tariffs.”; Ernst and Young “Renewable Energy Country Attractiveness Index.”; EUEI PDF 2015. “EUEI-PDF Kenya 2013 Project Renewable Energy Regulatory Capacity Development.”; EUEI PDF 2014. “Mini-Grid Policy Toolkit. Policy and Business Frameworks for Successful Mini-Grid Roll-Outs.”; EUEI PDF 2015. “Building Energy Access Markets. A Value Chain Analysis of Key Energy Market Systems”; GIZ 2012. “Legal Frameworks for Renewable Energy. Policy Analysis for 15 Developing and Emerging Countries.”; GOGLA 2014. “Meeting the Energy Needs of Households.”; IRENA 2015. “Renewable Energy Auctions: A Guide to Design.”; IRENA 2016. “Policies and Regulations for Private Sector Renewable Energy Mini-Grids.”; Moner-Girona et.al. 2016. “Adaptation of Feed-in Tariff for Remote Mini-Grids: Tanzania as an Illustrative Case.”; The World Bank 2014. “From the Bottom Up: How Small Power Producers and Mini-Grids Can Deliver Electrification and Renewable Energy in Africa.”; UNEP Finance Initiative 2012. “Financing Renewable Energy in Developing Countries. Drivers and Barriers for Private Finance in Sub-Saharan Africa.”; World Bank “Ease of Doing Business Rank”, <http://www.doingbusiness.org/rankings>.

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