FLEXGRID



A breakthrough approach for rural electrification. Inspired by nature.



CONCEPT NOTE







UNIQUE BENEFITS OF A FLEXGRID

FlexGrid is based on the award-winning Swarm Intelligence developed by PowerBlox. A FlexGrid is self-learning and self-configuring. Power production, storage and 230 VAC distribution are intelligently and autonomously regulated in a fully decentralised architecture.



architecture of conventional mini-grid systems, a FlexGrid uses a fully decentralised architecture, based on Swarm Intelligence. Each PowerUnit is a member of the swarm and uses its intelligence and power to strengthen and to stabilise the overall grid. The larger the network grows, the more stable it becomes.





SOCIAL IMPACT

The innovative approach taken by FlexGrid offers an unprecedented high impact opportunity for social and sustainable investors to accelerate universal energy access in Sub Saharan Africa. We are targeting low-income households (BoP) and enable small businesses in off-grid areas.



In September 2015, the 194 countries of the UN General Assembly adopted a set of 17 Sustainable Development Goals (SDG's) to be achieved by 2030.

FlexGrid directly contributes towards SDG 7 (access to affordable and clean energy) and indirectly to several other SDG's as electricity access is vital for the achievement of many of the other sustainable development challenges, notably: health, education, food security, gender equality, poverty reduction and climate change.

80 percent of people without access to electricity are living in just 20 high impact countries, Mali being one of them. Most of those living without access reside in rural areas. Therefore, off-grid solutions are vital for achieving universal electricity access.





SERVING THE BASE OF PYRAMID

FlexGrid serves the base of pyramid: no non-usage fees, no subscriptions, no minimum consumption obligations, as those would unfairly over-allocate costs to low-use customers. FlexGrid only charges a price per Wh consumed.

Tiered price model aligned with customers' willingness to pay. FlexGrid provides energy services at a price point that is less than consumers current spending on kerosene, candles, batteries and other low-quality energy services.

Home lightning (2 lamps, 5 hours a day) will cost around 3 EUR / month in the most expensive price tier.

100% HEALTHY/CLEAN ENERGY

When kerosene burns it emits a thick black smoke which is bad for the environment and for people's health. FlexGrid replaces unhealthy, poisonous kerosene lamps by clean energy, at no extra cost for the people.

LOCAL EMPLOYMENT & TRAINING

FlexGrid is hiring a local workforce for the construction and operations in the villages as well as at management level.

FlexGrid will create > 2000 jobs by training and subcontracting local electricians.

STIMULATING ENTREPRENEURSHIP

FlexGrid will enable small businesses to start up or extend their activities: small bakeries, farming, fruit & vegetable drying, sewing companies, small shops selling cold drinks, welding shops...

GENDER EQUALITY

Energy access is increasingly being recognised as a vital factor for gender equality and women's empowerment.

Without access to energy, women and girls spend much of their time completing domestic tasks which often limit their available time to pursue education, formal employment or to start a business.



THE ALTERNATIVES

FLEXGRID DELIVERS MORE IMPACT, FASTER AND AT A LOWER COST THAN ANY OTHER EXISTING ALTERNATIVE

SOLAR PV MINI-GRID	FLEXGRID
High initial costs	CAPEX follows the demand curve
Complex engineering, planning and installation processes	Plug and Power, no engineering needed; fully replicable model
High demand-risk (investment based on a multi- years demand forecast)	Our business model does not rely on a demand forecast. FlexGrids can easily adapt to the real, measured demand
Limited possibilities for expansion	FlexGrids can grow to an unlimited size
Failure of one critical component brings down the entire grid (often for weeks)	Failure of one power-unit only reduces the capacity of the grid; no special skills required to replace the troublesome unit
Time consuming implementation process	A village per day; fully scalable implementation process
Donor dependent and/or necessity to have a big anchor client	Profitable model at scale and no need for anchor clients





SOLAR HOME SYSTEM

- small power range
- cannot be expanded
- credit risk
- an energy shortage in one system, cannot be off-set with surpluses of other systems

DIESEL GENERATOR

- strong pollution
- dependency on fuel supply
- high operation cost
- incertitude due to price fluctuations

KEY STRENGTHS & CONTACT INFO

Evidence of Impact. We are targeting low-income households and small businesses in off-grid areas: FlexGrid is affordable and accessible to anyone.

Reliable. FlexGrid is more stable than a conventional grid as there are no single points of failure

100% Clean. Although FlexGrid can technically connect to back-up diesel generators, FlexGrid strives to deliver 100% renewable energy (PV solar and energy storage)

Scalable. FlexGrid can easily expand in small increments of 250 Wp, to meet the growing demand of its customers (flexible expansion in terms of power, energy production and energy storage)

Investment secure:

- "plug and power" concept allows for fast roll-out; no special skills needed; power can be relocated to guarantee min 80% capacity usage
- prior investments are safe: old and new Power-units can be mixed (even different battery technologies can be deployed alongside each other)
- "cloud monitoring" and "mobile prepayments" allow for a lean and efficient organisation, securing payments

Experienced team

- Solid experience with PV engineering
- Solid experience in managing large-scale projects

For more info, please contact:



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