



*Powering local development*

Micro-grids: Best Practices Around Technology Challenges

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# The two big challenges about electricity access

**Make electricity  
cheaper**

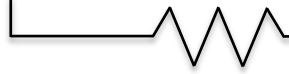
*Technology  
challenges*

**Have people pay  
for it**

*Business model  
challenges*



# Tech challenges? What tech challenges?



## Fun fact 1

System optimization has marginal impact on kWh cost

*Very limited impact compared to exogenous factors :*

- *Cost decline of RE Tech*
- *In hybrid systems: Diesel fuel price fluctuations*
- *Discount factor used for calculations*

## Fun fact 2

Energy in off-grid areas is already extremely expensive

*Ex: Phone charging is a very costly service*

*In Benin:  $\text{¢}0.3/\text{charge}$  (FCFA 150)*

*For 3-5Wh batteries*

*This is over  $\$100/\text{kWh}$*



## Let's look at this the other way around

### The real problem

Is to prevent what was heard in a previous webinar:

*"Users stopped paying as soon as they heard a mere rumor of a future grid connection"*

### The actual challenge

Is to keep users happy over time

### The solution

Is to shift focus from the supply side to the demand side



# BoP is the opportunity to leapfrog to the next tech generation

Tech challenges are not about existing tech, but on tech to be developed to address this user challenge

Make the service easy to use  
Go beyond what people are used to  
Make something they will love

...

→ Add customer value



The hardware is already available:  
mobile phones and smart meters



# Power:On's take on this: user apps



**i**

**Your contract**



**Your consumption**

70%

2 days left until expiration

**Your payments**

Last payment: 17/11/14

Recharge now:  
#1#\*AMOUNT\*

*Prepayment  
Monitoring and control  
Automatic alerts*



**i**

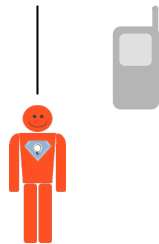
**!!SPECIAL OFFERS!!**



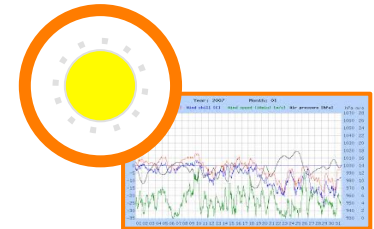
*Special offers  
Customized efficiency tips  
Deals with efficient appliances  
retailers*

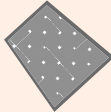


# Impact back on system's efficiency

**i** Demand Spike occurring!  
**!!Special Offer!!**  
Turn off your  and get  
1 hours free tomorrow!



*Quick responses to reduce stress on the systems*



    
PV panels    Batteries    Generators

*Data analysis and forecasting to improve the systems controls*



# Looking ahead and beyond: open questions

## Business transformation

*What will energy supply be like tomorrow?*

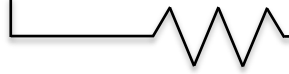
## Disruption potential

*How innovations at the BoP will affect developed countries?*





# The pain point: innovation needs funding



## Funding mismatch

Seed funding is too scarce to fund start ups

*Most organizations want to fund scale ups, through multi millions \$ tickets in debt or equity investment*

*Most start ups in this field are barely past the pilot phase and only need a few hundred k\$*

## Grants inadequacy

Foundations seek to fund proven models

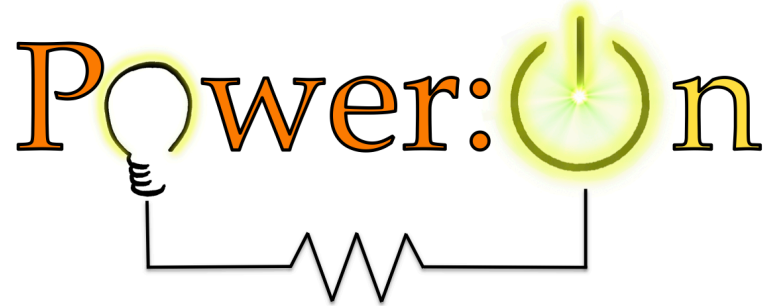
*There are no proven models*

*If a company had a proven model, it should be able to attract regular funding*

*If a company needs grant funding to scale up, then its model is not good enough - and it shouldn't be funded*



Thank you!



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