

Mobile Enabled Offgrid Electrification



Allan Demello
Managing Director
Mobisol GmbH
allan.demello@plugintheworld.com
www.plugintheworld.com

Africa at night – an untapped market

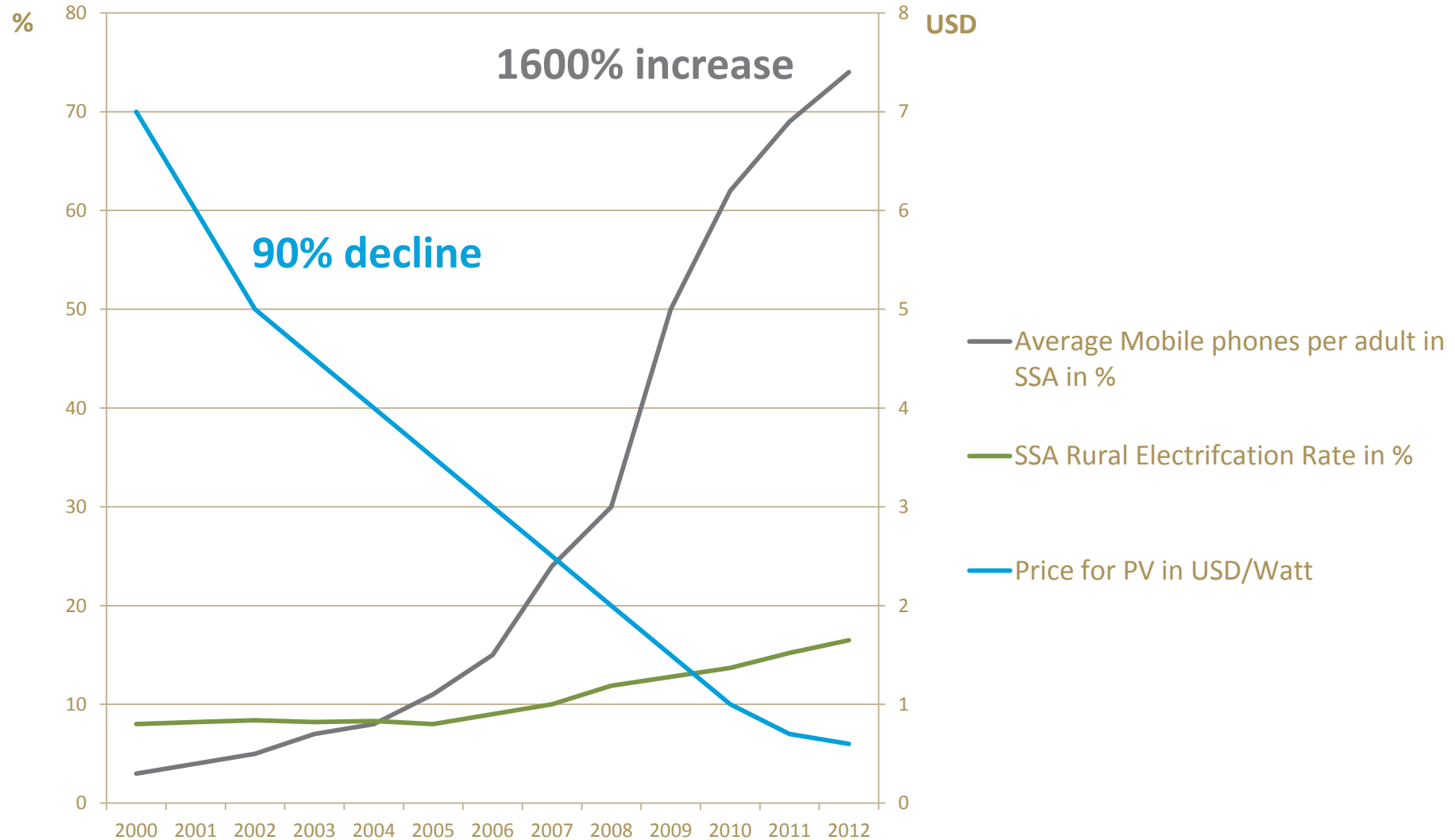
1,6 billion people live off the grid, still an untapped market!

Solar PV is a solution, but has not yet scaled due to:

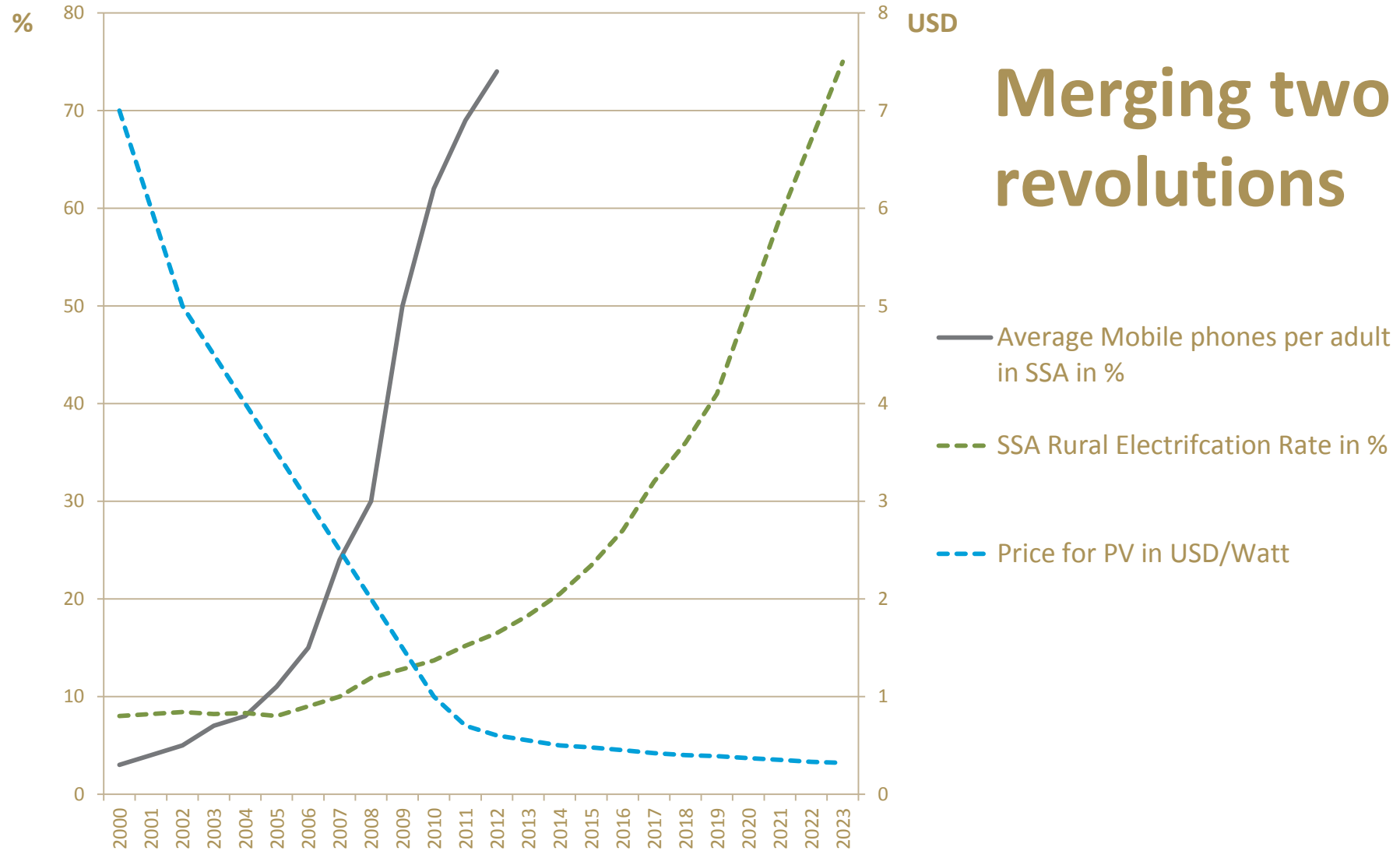
2 MAIN BOTTLENECKS:

- High upfront investment for customer
- Difficult maintenance & control of units

The next African revolutions: peaceful ones that Mobisol will leverage



Mobile + Solar = Off-grid electrification



Off-grid Solar and mobile technologies provide powerful solutions that have to date been under-utilized

- 1.6bn people live off grid: this is one of the biggest inhibitors to development & poverty alleviation
- Solar PV prices have dropped 90%, making technology affordable to nearly all
- Mobile penetration very high even in remote areas
- The combination of both technologies can be the breakthrough for off-grid electrification

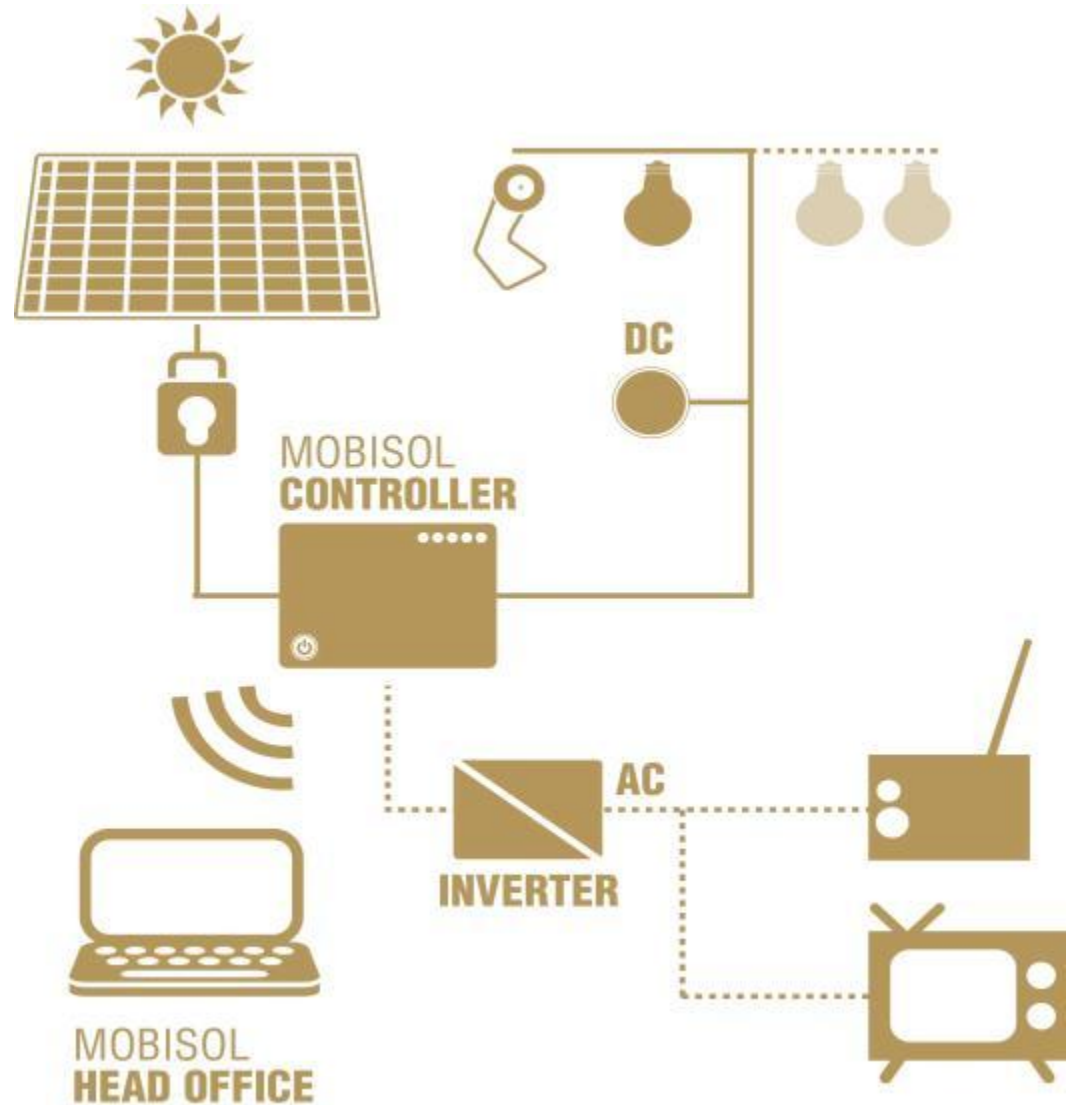
Mobisol's unique selling points can be a game changer in the industry

- Mobisol's engineers developed a unique suite of robust and plug&play solar home systems
- Products are affordable (prepaid), powerful (up to 200W) and remotely managed for Bottom of the Pyramid (BoP) clients
- Over the past 2 years, Mobisol has distributed over 2,000 systems to its target market, developing a business model and a blueprint for operations scalable to millions

Mobisol all-in-one service: installation, usage, maintenance & after sales customer service

How it works:

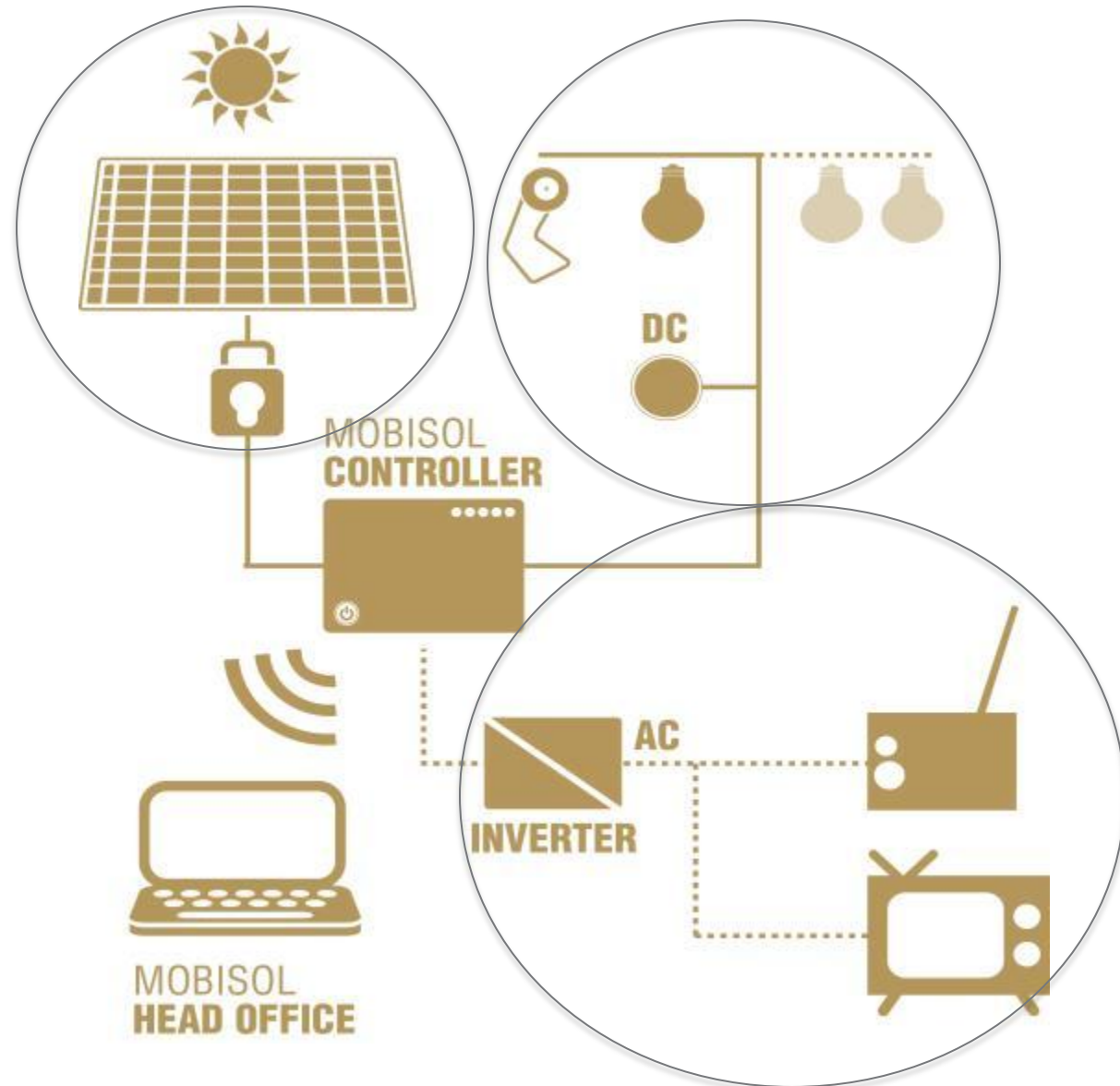
- A Solar Home System is easily installed & trained local technicians are available for help
- Mobisol controller tracks usage remotely
- User pays monthly via phone
- 36 months credit period with 30 days of flexible grace period per year
- System shuts off in case of payment default; impossible to disable without breaking
- Free maintenance for first 3yrs



Mobisol all-in-one service: installation, usage, maintenance & after sales customer service

How it works:

- A Solar Home System is easily installed & trained technicians available for help locally
- Mobisol controller tracks usage remotely, security alarm fitted
- User pays monthly via phone
- 36 months credit period with 30 days of flexible grace period per year
- System shuts off in case of payment default; impossible to disable without breaking
- Maintenance for first 3yrs at no additional cost



Robust, innovative and mature products



Products are robust, mature, plug & play, and easy to service

Product design minimizes need for repair

- Manufacturer solar panel warranty is 20 years
- System designed for easy replacement of controllers – done by local fundis (technicians)
- 3 year warranty on batteries, Mobisol unit technology prevents rapid decline
- Additional warranty possible after 3 years
- Electronics inside unit are manufactured to Mobisol specifications in Berlin, Germany before shipping to Shenzhen, China for assembly

Components are high quality and robust

- Battery has been used worldwide and throughout Africa
- Unit design enhances battery life time with controlled charge cycles
- PV cell technology in solar panels made by Q-CELLS, a reputable German company

Key components are easily repairable with help from database

- Database automatically informs Mobisol Hub when unit is malfunctioning
- Shows what component of unit is causing disruption
- All components can be fixed or exchanged quickly, with a recyclable screwdriver as only tool

4 Mobisol products cover consumer needs

Customers can upgrade easily over time



Product range	30W	80W	120W	200W
Standard packing list:	<ul style="list-style-type: none"> • Battery • 3 LED lights • 1 portable light • phone charge pins set • Pocket Radio 	<ul style="list-style-type: none"> • Battery • 3 LED lights • 1 portable light • phone charge pins set • Pocket Radio • TV and decoder(DC) 	<ul style="list-style-type: none"> • Battery • 5 LED lights • 1 portable light • phone charge pins set • Pocket Radio 	<ul style="list-style-type: none"> • Battery • 6 LED lights • 1 portable light • phone charge pins set • Pocket Radio

Warranty

----- *20 years on panel, 3 years on battery and lighting* -----

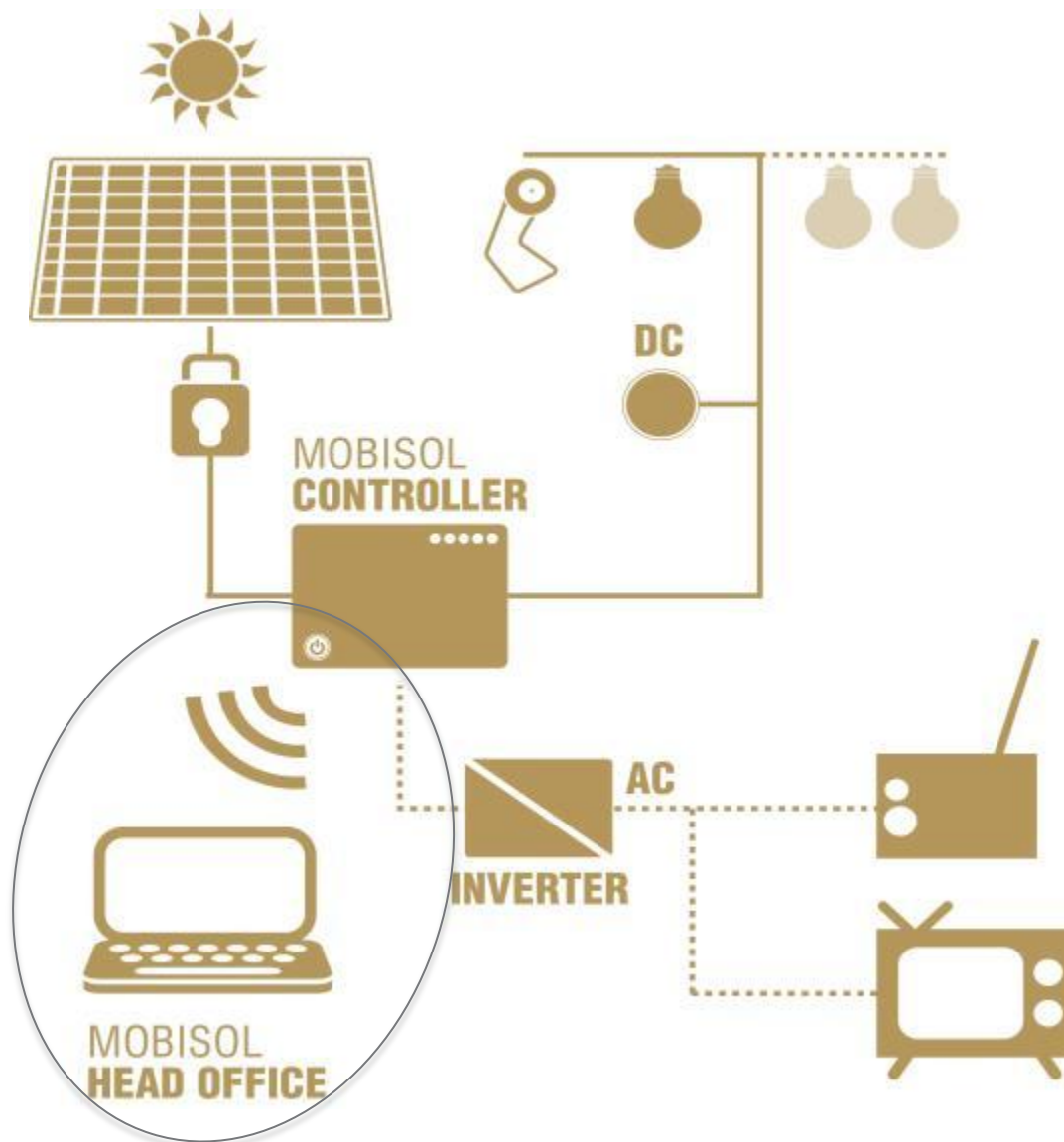
Additional Services

- *Real-time performance monitoring*
- *Maintenance & repair visits when necessary at no additional costs*
- *Customer Care call center for complaints*
- *DC to AC inverter available at extra cost*
- *TV and decoders available at extra cost*
- *DC refrigerator available at an extra cost*

Mobisol all-in-one service: installation, usage, maintenance & after sales customer service

How it works:

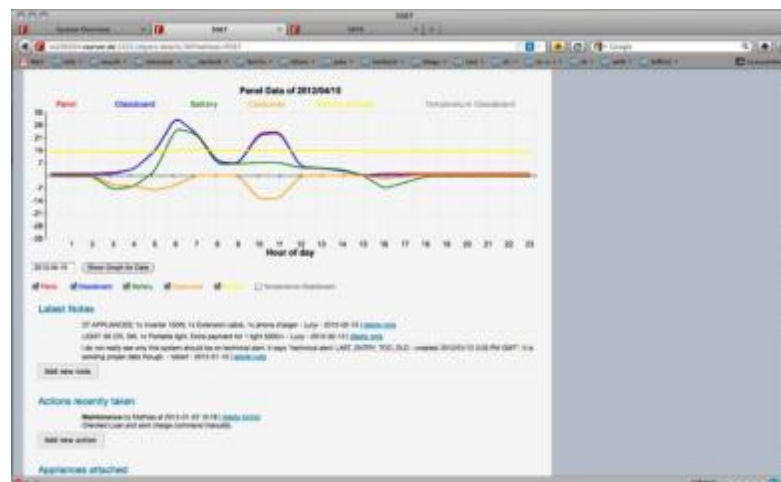
- A Solar Home System is easily installed & trained technicians available for help locally
- Mobisol controller tracks usage remotely
- User pays monthly via phone
- 36 months credit period with 30 days of flexible grace period per year
- System shuts off in case of payment default; impossible to disable without breaking
- Maintenance for first 3yrs at no additional cost



Major investments in powerful IT monitoring back-end: streamlined customer service

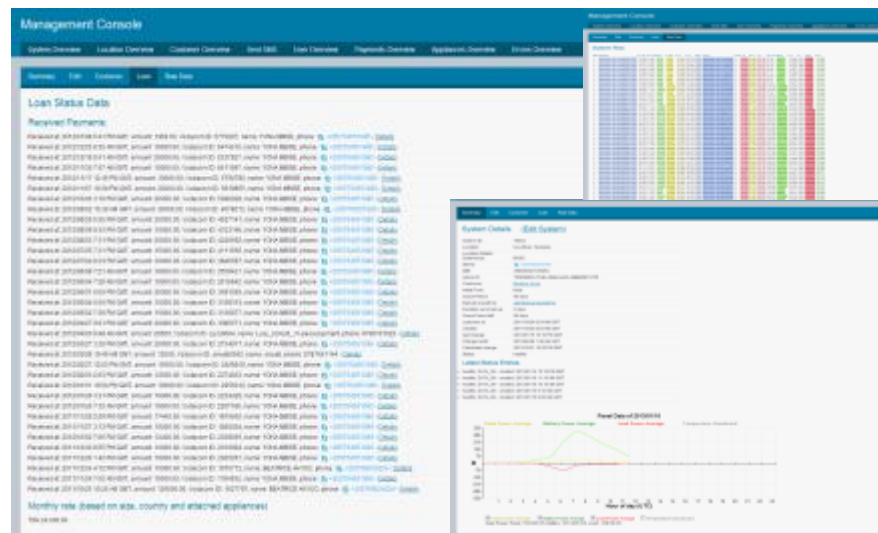
Virtual tracking & credit management

- Proprietary database receives real-time usage data for all systems
- Tracks mobile payments, usage of grace period, prevent fraud, automatic SMS reminders



Data collection

- Database aggregates system statistics, e.g. time of usage, appliances used, payment trends
- Data is unique and powerful for sales and credit processes: better target customers based on known preferences, and maintain longer-term relationship
- Statistics collected enable Mobisol to track and measure economic, social and environmental impact



Mobisol's unique value proposition: prepaid AND powerful AND remotely monitored



Unlike Kerosene or other solar products, Mobisol is:

Affordable (prepaid)

- African households pay ~\$360/year for energy
- Africans spend >\$10 billion on kerosene alone for lighting each year
- **Mobisol** saves ~80% on energy, creating up to 30% more income
- 36 month payment plan makes Mobisol prepaid product highly affordable even for the low-income population

Saving money and creating income

- Mobisol is more than just a substitute for kerosene or a generator
- For less money (incremental savings), Mobisol can power many different appliances: multiple lights, mobile charging, radio, TVs, fridges, etc.
- Customers can generate incremental income (e.g. mobile charging business)

Monitored and maintained remotely

- Mobisol products can be monitored and maintained remotely
- System tracks SHS in real time and collects detailed user data
- Mobile payments are also recorded
- In case of default on the loan, the system can be remotely switched off, creating a high incentive to pay

Africa at night – an untapped market

1,6 billion people live off the grid, still an untapped market!

Solar PV is a solution, but has not yet scaled due to:

2 MAIN BOTTLENECKS:

- High upfront investment for customer
- Difficult maintenance & control of units

Units sales create direct impact...

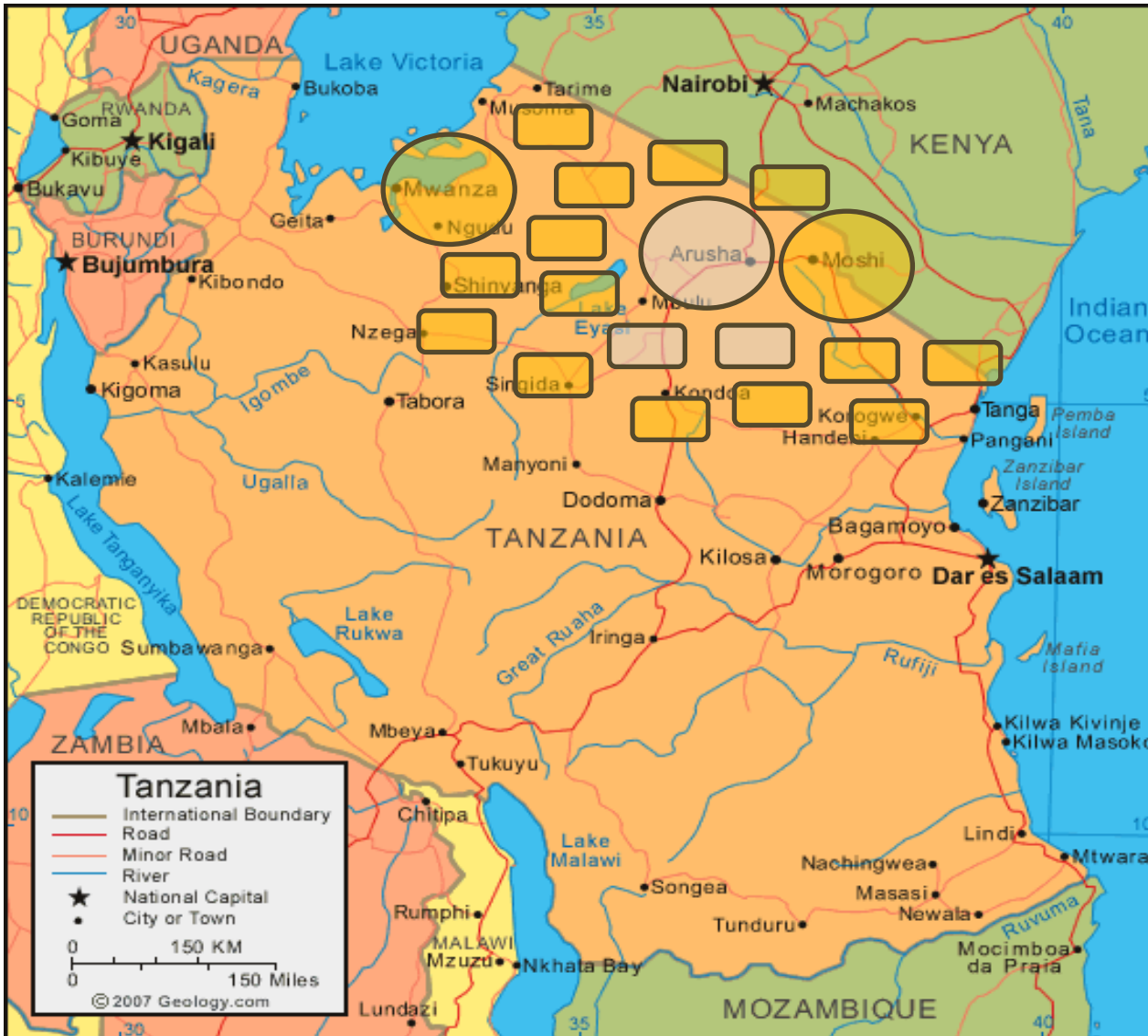
- Expect to sell units to >223,000 low-income households (~1.34M ppl) by 2019
- Study indicates each household realizes \$126 net benefit per year owning a Mobisol unit
- Mobisol business in a box' generates \$311/yr. income per household
- Over next 6 years, Mobisol will reach >223,000 households, creating >\$129M cumulative income benefit

...But many forms of indirect impact

- Over next 6 yrs., Mobisol will install 29 MW of capacity, saving over 0.22M tons of CO₂ emissions
- Over 223,000 households will lead healthier lives, avoiding kerosene accidents/fumes
- Mobisol will enable thousands of businesses and allow 100,000s of children to study way past light hours



Plan to open 2 more Regional Hubs and 18 more market hubs in Tanzania within the next 18 months



Location	Hub Function	OPS
Arusha	National & Regional	yes
Moshi	Regional	Jan `14
Mwanza	Regional	May `14
Arusha	10 Market hubs	Dec `13
Moshi	5 Market hubs	Mar `14
Mwanza	5 Market hubs	Jul `14

-  Current Hubs
-  Planned Regional Hub
-  Current Market Hub
-  Planned Market Hub

OUR VISION 2015



Vision 2015

Mobisol product costs

Customers can upgrade easily over time



Product range	30W	80W	120W	200W
Appliances	<ul style="list-style-type: none"> • battery • 3 LED lights • 1 portable light • Phone charging pins set • Pocket radio 	<ul style="list-style-type: none"> • battery • 3 LED lights • 1 portable light • Phone charging pins set • Pocket radio 	<ul style="list-style-type: none"> • battery • 5 LED lights • 1 portable light • Phone charging pins set • Pocket radio 	<ul style="list-style-type: none"> • battery • 6 LED lights • 1 portable light • Phone charging pins set • Pocket radio
Down-payment	55 US\$	80 US\$	122 US\$	171 US\$
Monthly cost (over 36 mo.)	9 US\$	24 US\$	32 US\$	44 US\$
Warranty	----- 20 years on panel, 3 years on battery and lighting -----			
Included Services	<ul style="list-style-type: none"> • Real-time performance monitoring • Free maintenance & repair visits when necessary • Customer Care Department for complaints • DC accessories at extra cost available 			