Swarm Electrification - Suggesting a Paradigm Shift through Building Micro-grids Bottom-up

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Symposium: UC Berkeley, April 10 – 12, 2014
Innovating Energy Access for Remote Areas:
Discovering untapped resources


Bangladesh
2.8 million
Solar Home Systems
installed
2,500 systems/ day
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The Market

The “Energy for All Case” expects (IEA, 2011):

- 30% of rural areas can be electrified via centralized grids
- 70% of rural areas can be electrified either with mini-grids or with small stand-alone off-grid solutions

The Conception

Problem of Duality:

- on-grid <-> off-grid
- centralized <-> decentralized
- government <-> private sector

missing links

Result: Electrify the electrified?

The Need

- Demand tends to grow once electricity is available
- Pace of growth is hard to determine
- Oversized systems are not viable
- Undersized systems might hinder economic development
- Productive use is enhanced with bigger load

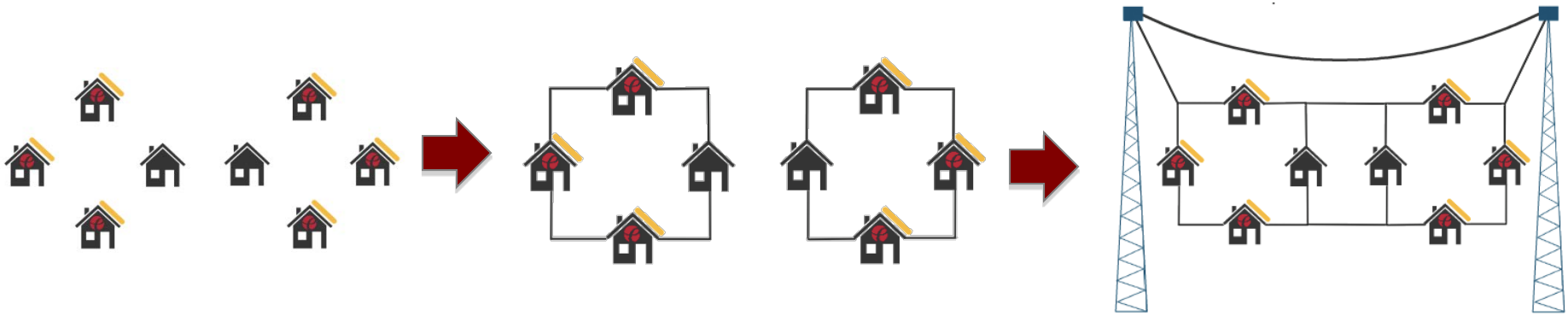
The Concept (I)

Swarm Electrification:

- start from the bottom-up
- work with previously underutilized or unrecognized resources
- set the right incentives

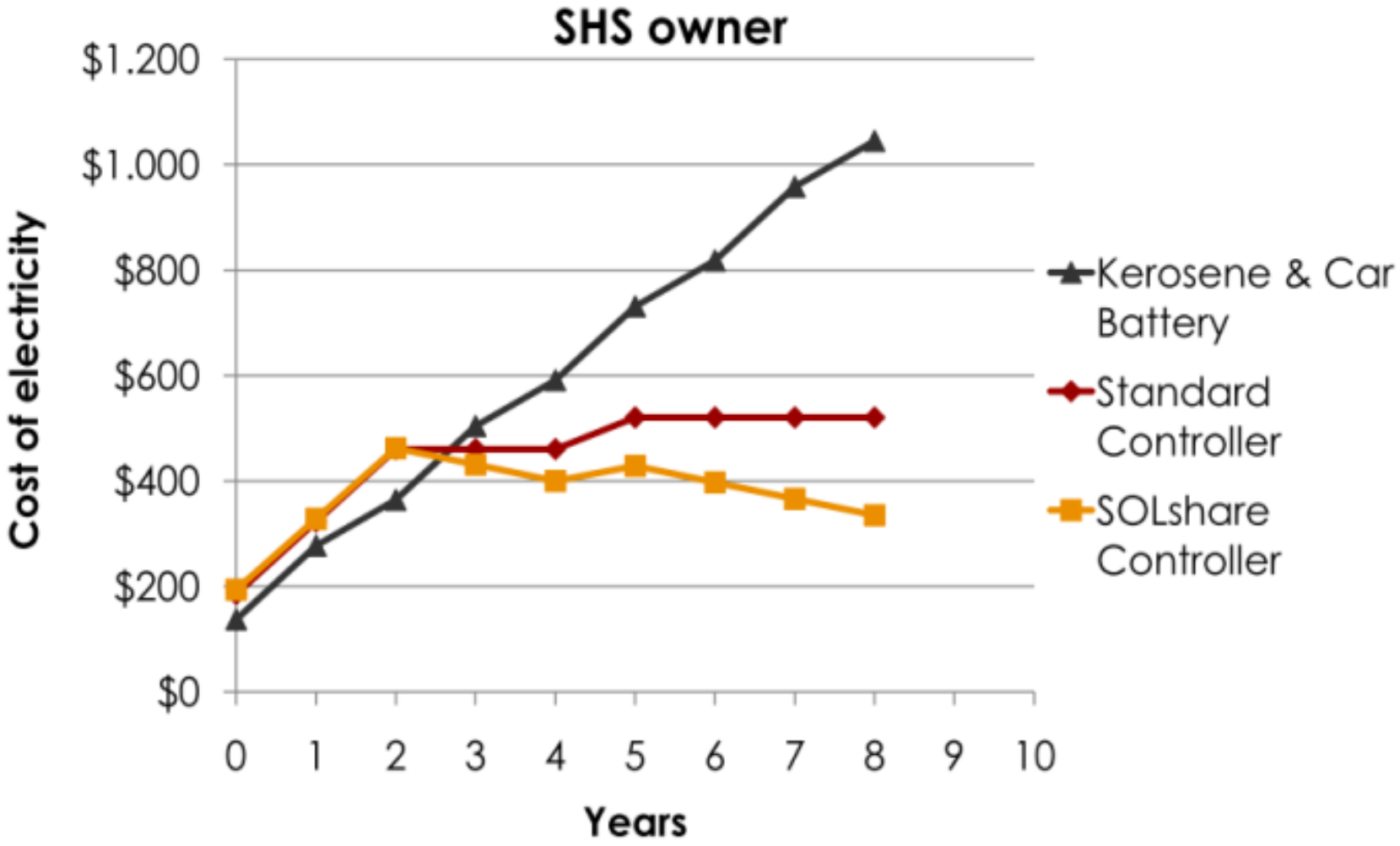
The Concept (II)

Three step process



1. Isolated SHS
2. Autonomous Grid
3. Grid Connected Microgrid

Cost Analysis



Summary

- Huge “off-grid” market
- Paradigm shift needed away from dualistic conception
- Starting from the status quo
- Flexible development, supply closely follows demand
- Real-time monetization of electricity savings
- Not waiting for the grid but building the grid

Thank you!

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