



## Analysis Of Suitability Of Micro Grids And Individual Systems

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# Outline

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# Objectives

- To explore the possibilities of co-existence of micro grids and individual systems for energy access.
- To evaluate the following notions

1. Either micro grids or individual systems are better or more suitable than their counterpart.
2. Micro grids support livelihoods.
3. Lack of sustainable business models in micro grids.

# Methodology

- Literature Review
- Interactions with Practitioners
- Interactions with Policy Makers

**Micro Grid (solar PV):** A power system where produced electricity (200W – 10kW) is fed into a small distribution network that provides a number of end users with electricity in their premises. For analysis we have considered models catering up to 100 households.

**Individual Systems:** A stand-alone system that is capable of providing energy for households, institutions and powering equipments without a transmission network. This includes solar home systems, standalone systems for institutions, enterprises and livelihood activities.

# Suitability Factors

## Technical

- Flexibility for the End User
- Scalability
- Scope for Grid Integration

## Operational Sustainability

- Operation and Maintenance
- Ownership Models

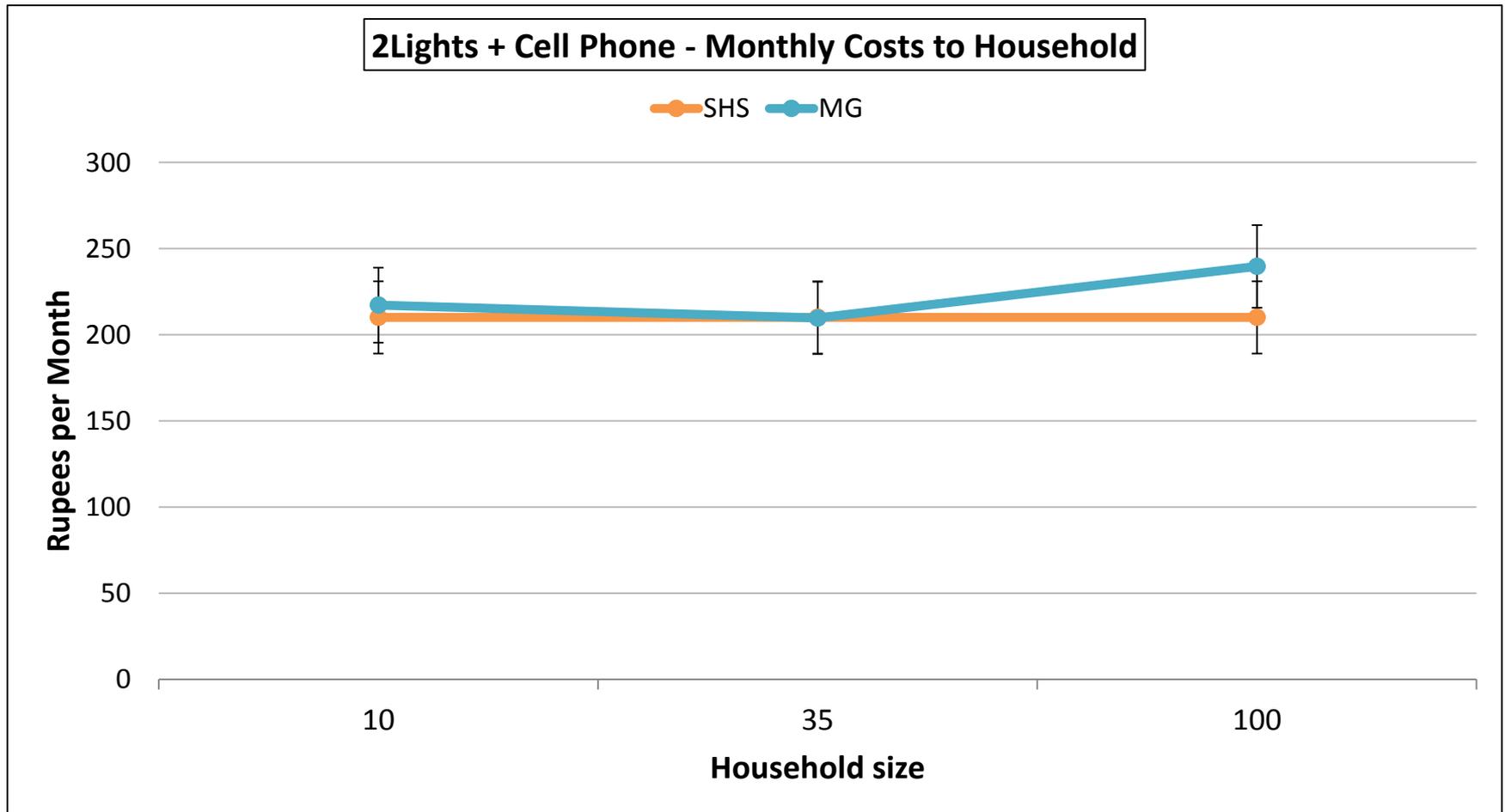
# Financial Factors

- Demonstration of Viable Business Models
- End User Financing
- Collection and Repayment Mechanism

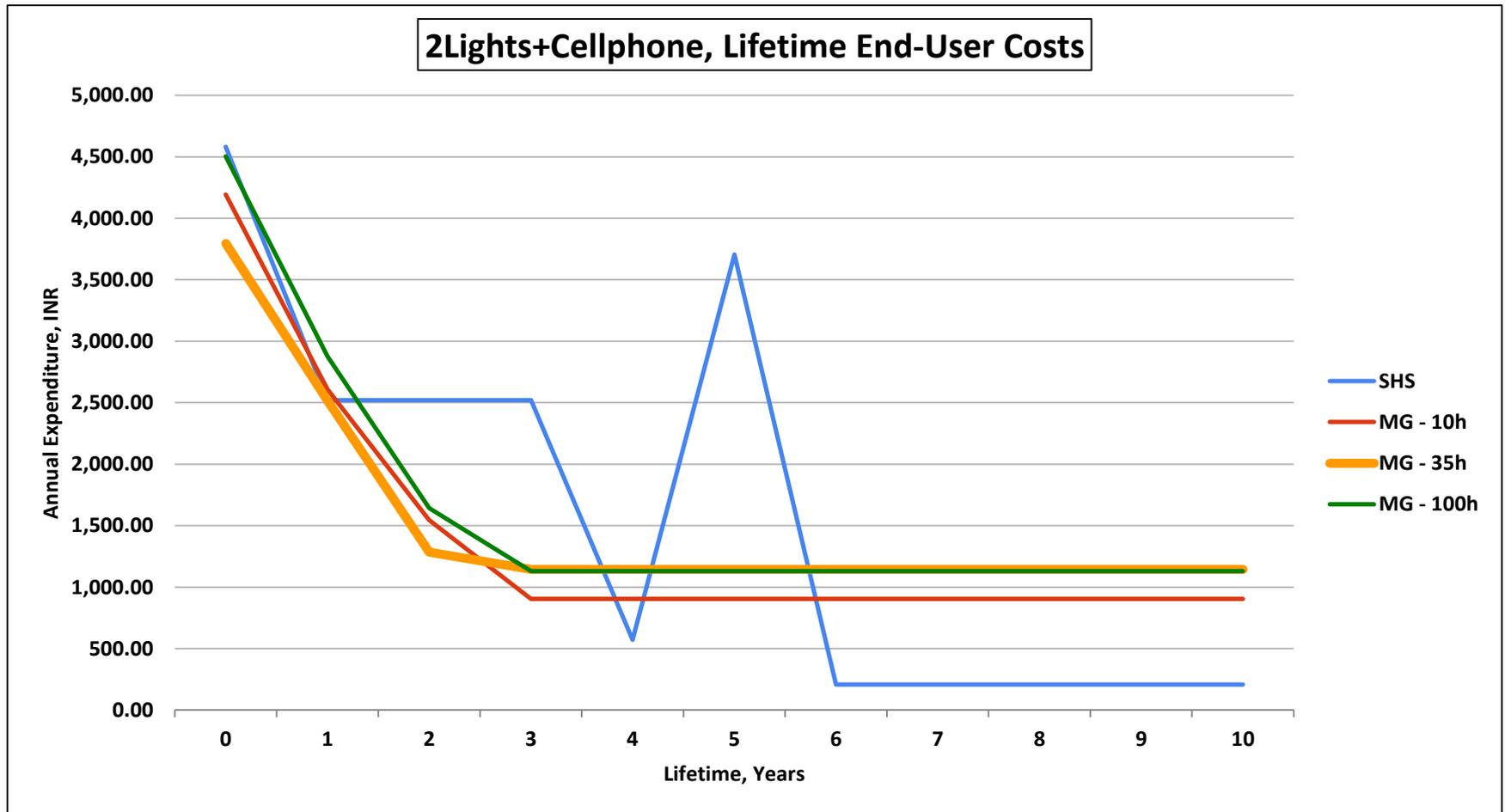
# Impact

- Towards Cost/Service
- Livelihood Impact

# Monthly cost for the end user



# Life time costs for the end user



# Conclusions

- Micro grids and individual systems provide comparable services in the present energy access scenario.
- Considering the lifetime costs for the end user, micro grids are costly owing to operator and an entrepreneur.
- Currently both micro grids and individual systems are facing challenges to support livelihoods – behavioral changes, non availability of vendors and technology providers , lack of financial support for innovative products.

# Recommendations

## Policy Makers

- Clarity regarding aspects of grid integration.
- Mechanism for comprehensive data monitoring and analysis (quality of power supply) to prepare targeted incentives for DRE adoption at regional levels.
- Flexibility for using different DRE models for energy access in government schemes.
- Introduction of DRE modules into the existing ITI course.

## Financial Institutions & Funding Agencies

- Extend Financial support for innovations in the sector especially for anchor loads and different payment models.
- Financing for micro enterprise development along with energy access for ensuring sustainability (Soft Funds).

# Entrepreneurs

- Make use of wide spectrum of technologies and business models for energy access according to the suitability factors.
- Assure proper follow up and maintenance services by building local capacities and constant up gradation of skills.
- Leverage on existing MFIs and other micro credit institutions for carrying out tariff collection