



UNIVERSITY OF  
BIRMINGHAM

COLLEGE OF  
ENGINEERING AND  
PHYSICAL SCIENCES

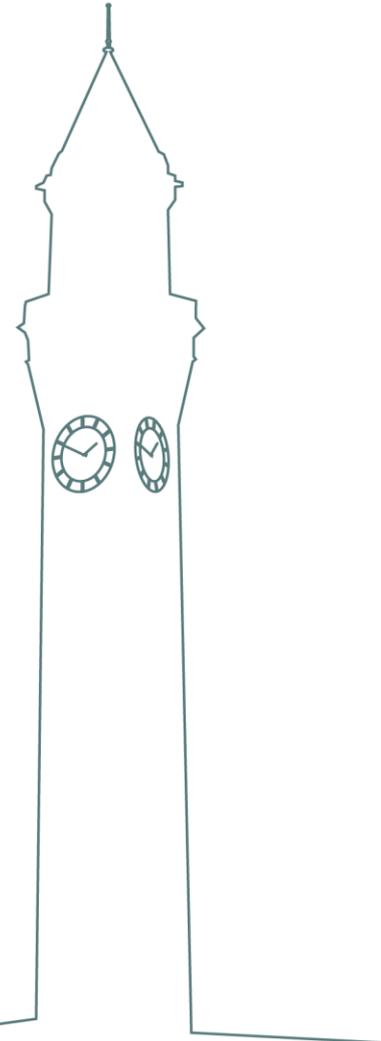


# Energy Storage in Rural Latin America

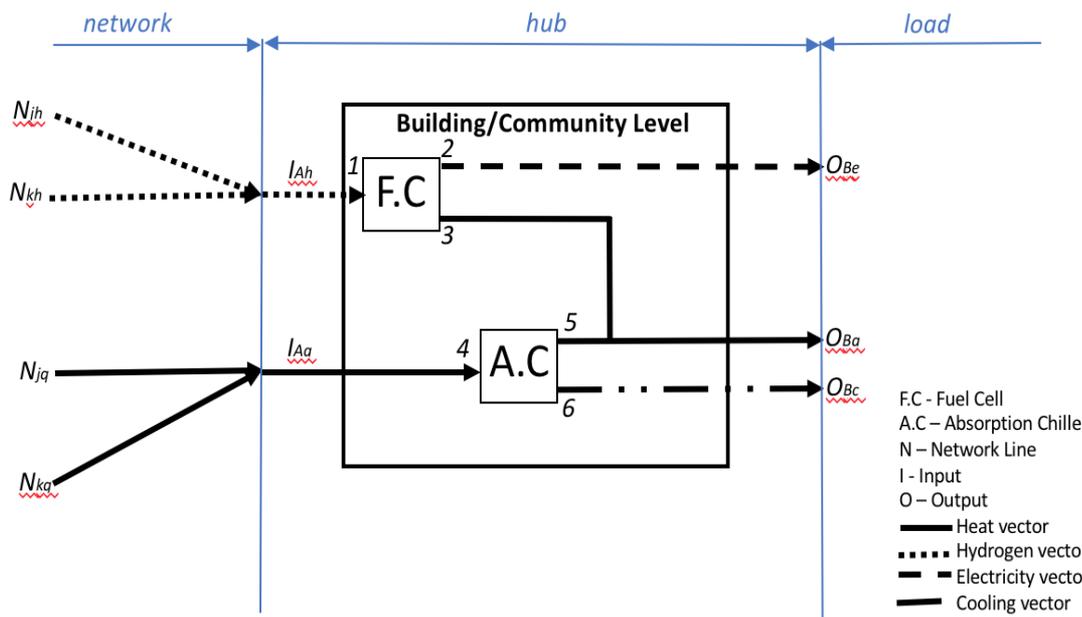
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# Energy Storage in Rural Latin America: *The Model in Development*

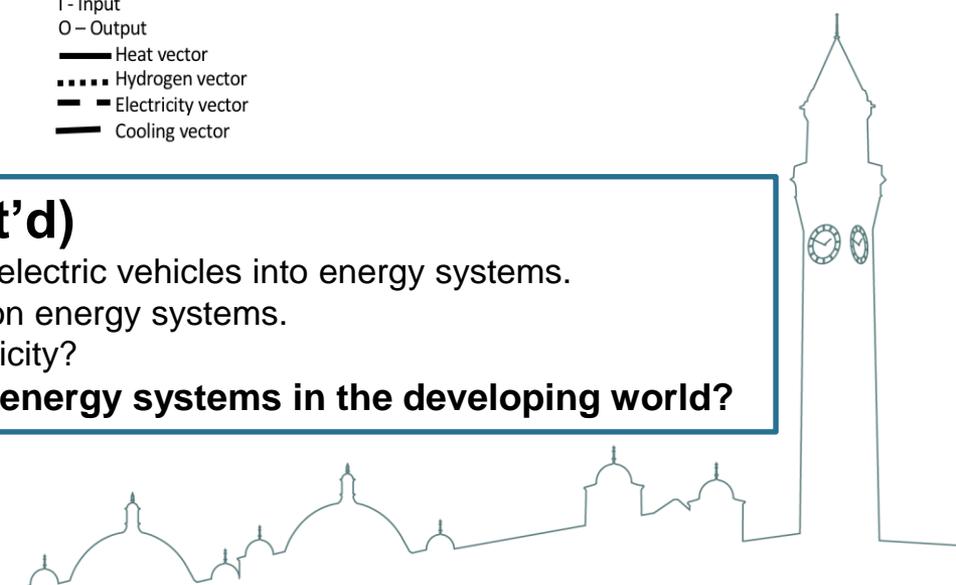


## Intended Research Questions

1. Consider on a robust level, the link between heat and electricity supply and demand.
2. Consider the optimal introduction and operation of storage in local energy systems.

## Intended Research Questions (cont'd)

3. Consider possible pathways for the introduction of electric vehicles into energy systems.
4. Consider the effect of a change in demand profile on energy systems.
5. In what ways could we supply our heat using electricity?
6. **How can storage technologies benefit local energy systems in the developing world?**



# Energy Storage in Rural Latin America: *Energy Storage Prioritisation Assessment of Mexico*

## Objective

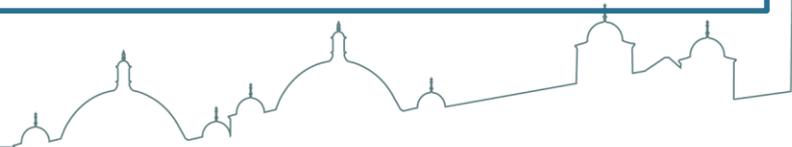
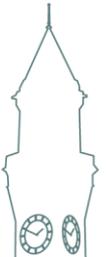
- Assessment of the role which energy storage can play in the reduction of energy poverty in rural Mexico and local energy system at large.

## Key Deliverables

- **Stakeholder workshops** to help define and engage with case study location.
- **Technical report** to detail the project methodology- e.g how energy system trajectories to 2030 were made. Also, suggest options to progress/finance energy storage in Mexico.
- **Policy Manual** to detail policy changes required to drive the energy storage technologies considered in the project.

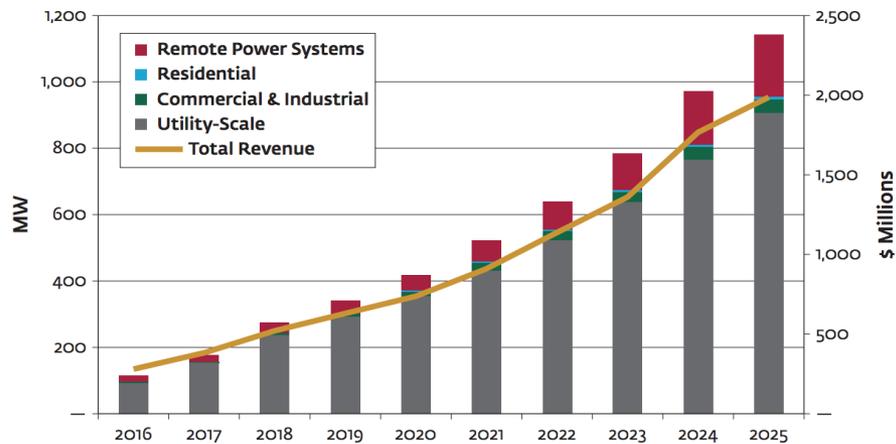
## Some Early Observations

- Potential to reduce rural house spend on energy by about **35%** percent by replacing fossil fuel based lanterns with PV and lead acid battery storage.
- Storage technologies have a strong potential to help realise a night-time economy in these rural areas of Mexico.

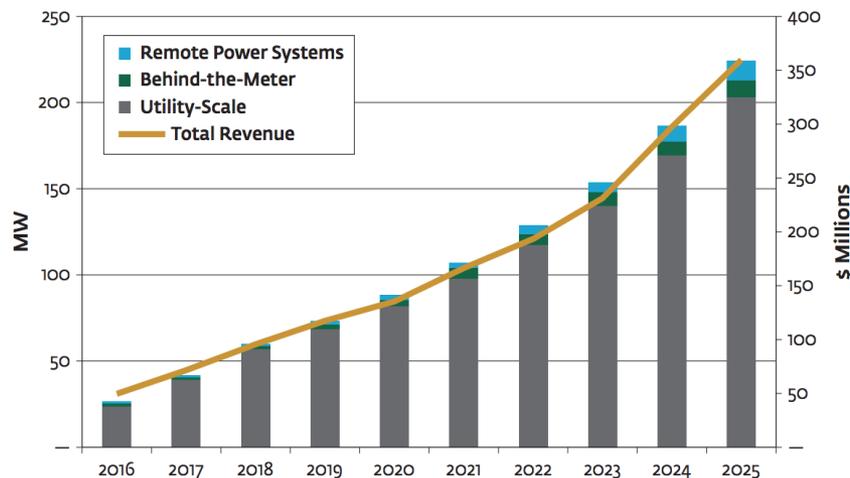


# Energy Storage in Rural Latin America: *The Brazilian Context*

1. 300,000 communities without access to traditional electricity grids.
2. Electricity consumption to grow from 531 TWh in 2014 to 791 TWh in 2024.
3. Unique opportunity to be the leader in this space in Latin America



Latin American Energy Storage Projections



Brazil Energy Storage Projections

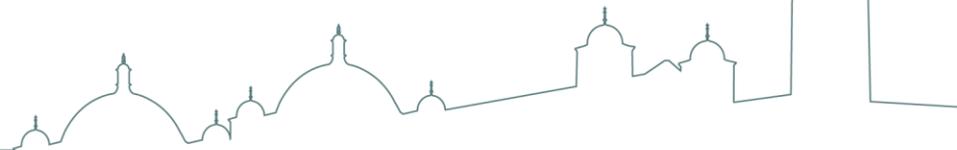
## Opportunities for Collaboration

1. Research.
2. Demonstration



# Building Data Analytics in Rural Latin America: *The challenges*

- 1. Limited Data Availability:** Sheer lack of data. For instance, there is barely any documented measured U-values for different construction types.
- 2. Data ownership and access:** Commercial and legal sensitivities from manufacturers and building developers.
- 3. Lack of influence of relevant bodies:** The agencies responsible for building energy data have too lowly a position the organizational structures of energy ministries.
- 4. Fragmented Research Base:** Fragments of different research teams doing things in different tangents.



# Closing Remark: *Collaboration!* *Collaboration! Collaboration!*

