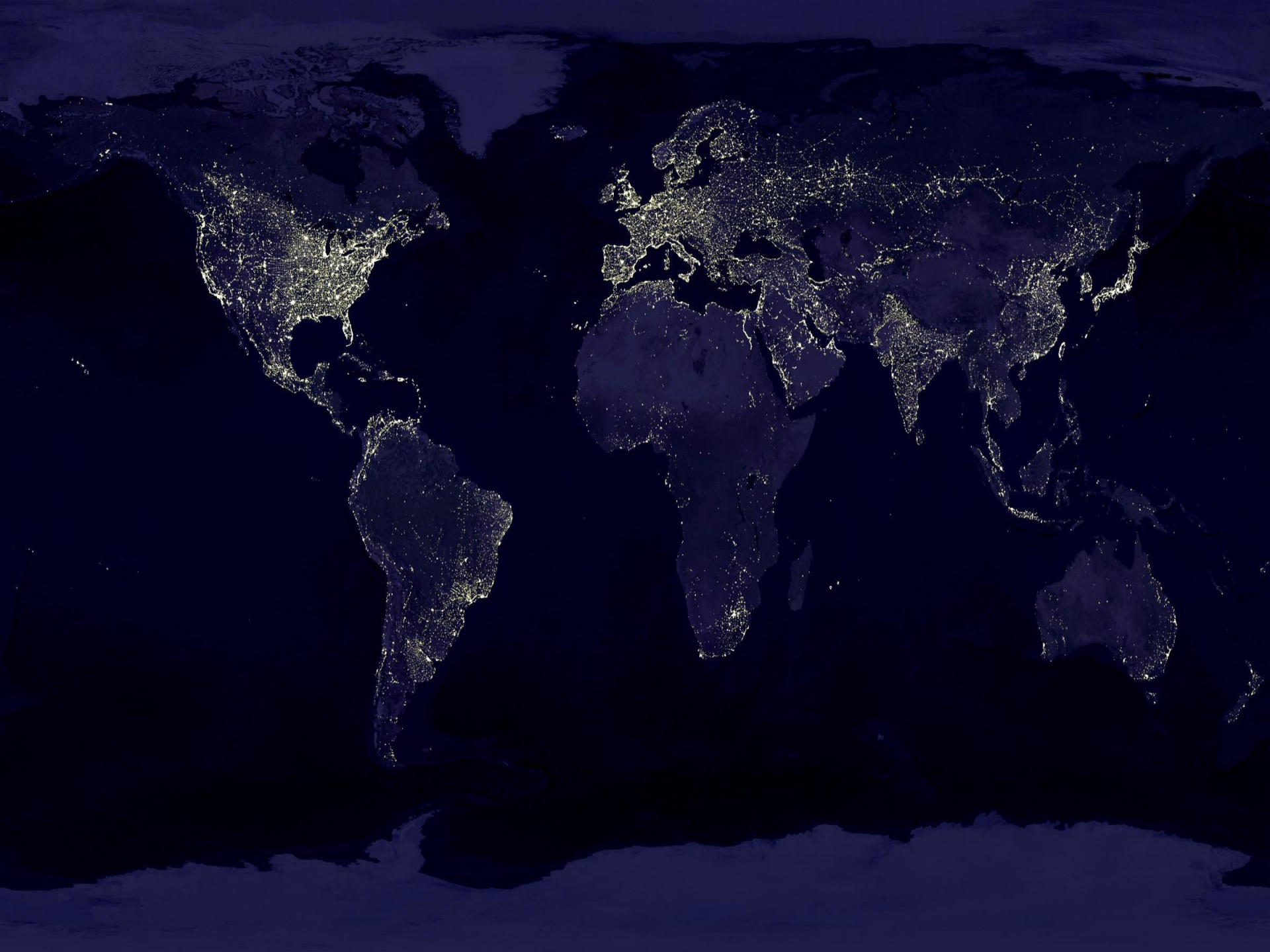


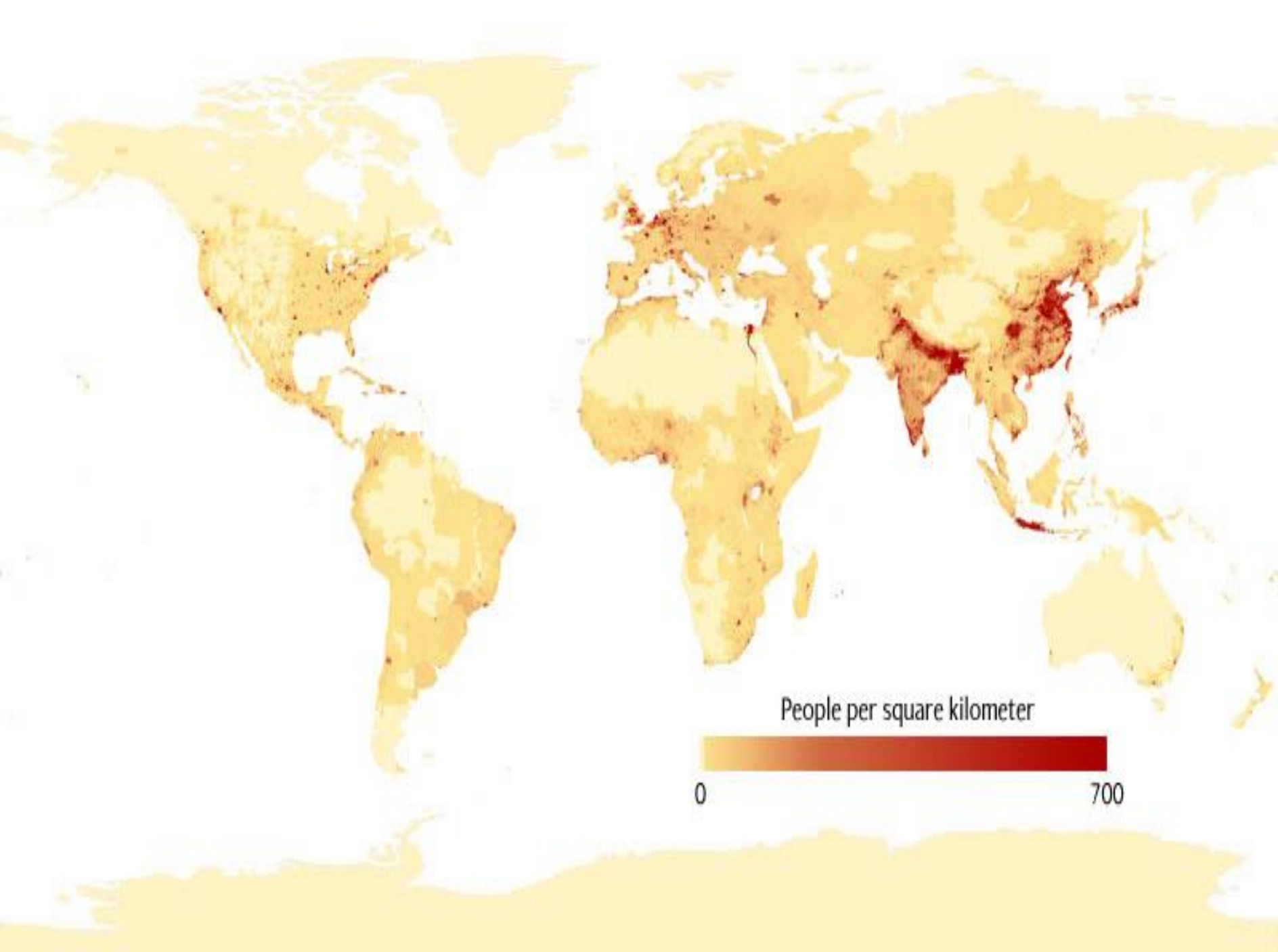
Experimental Evidence on the Demand for and Costs of Rural Electrification

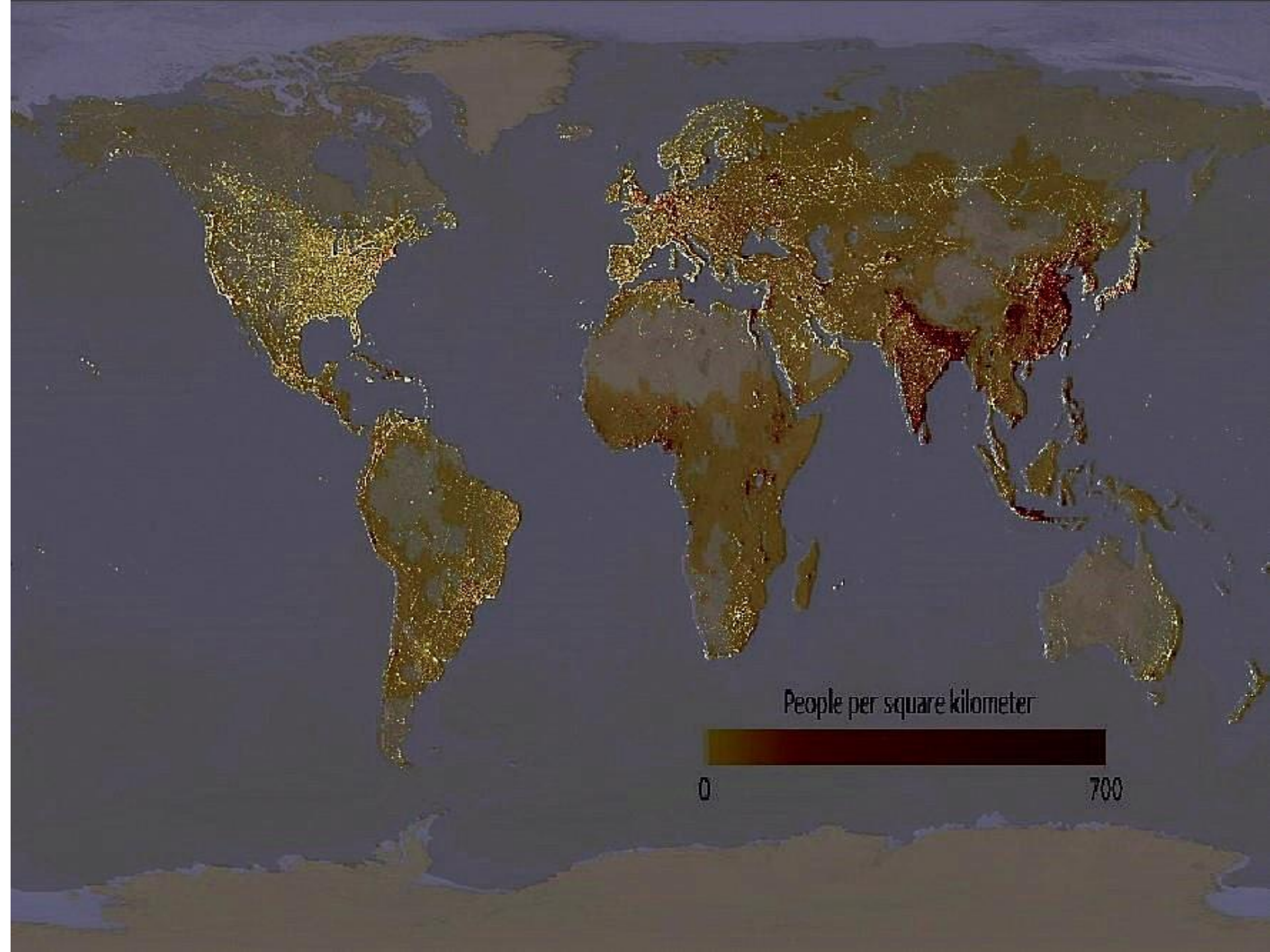
November 2015

Catherine Wolfram, UC Berkeley
with Ken Lee and Ted Miguel









People per square kilometer



0

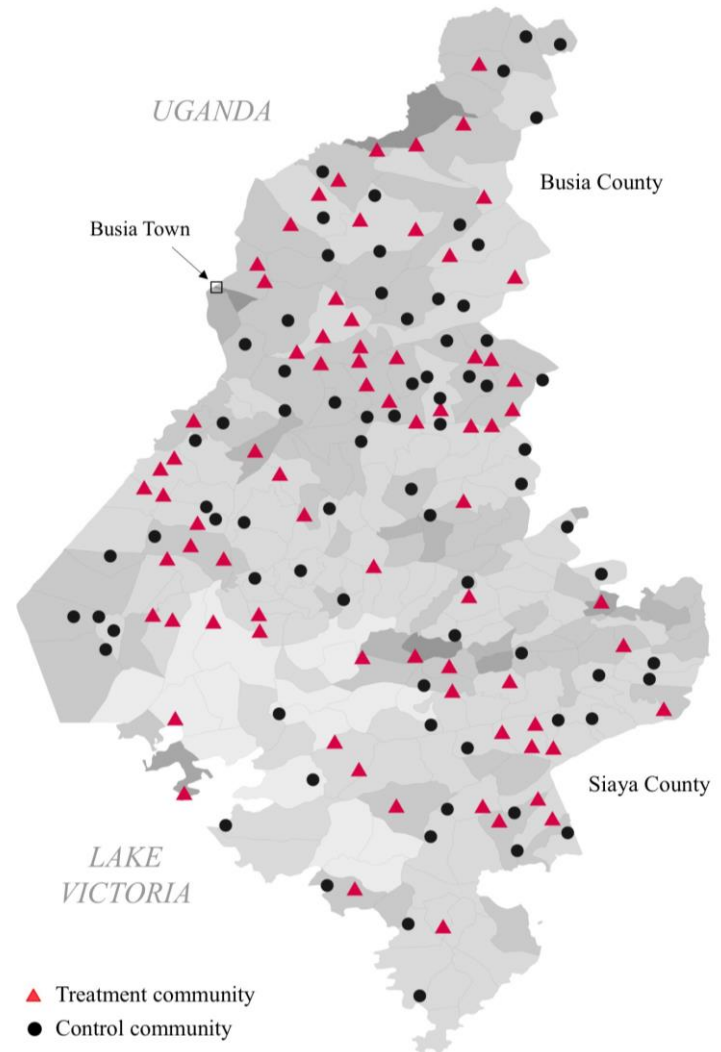
700

Rural Electrification Authority (REA) transformers

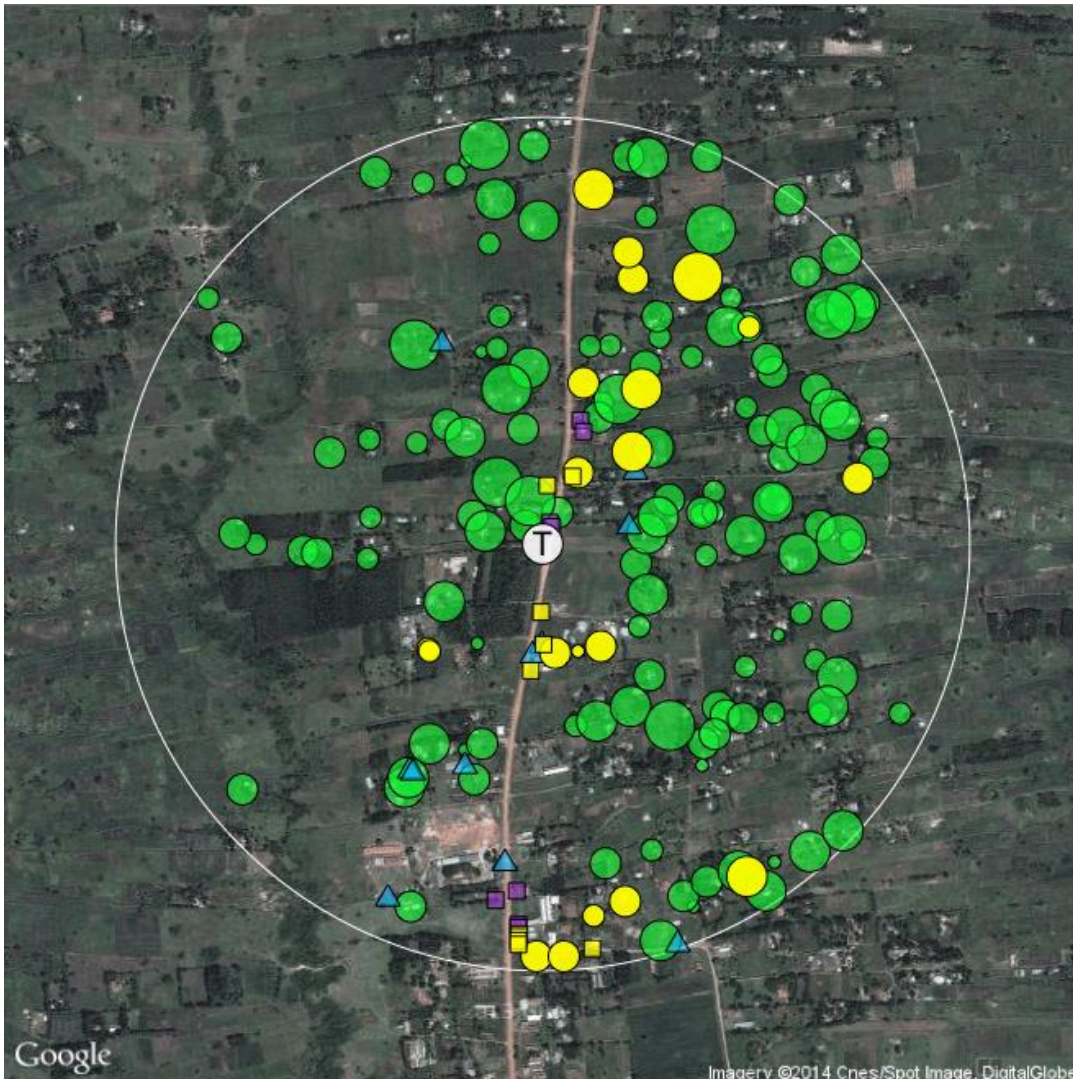
In our experiment, we provided households in randomly selected transformer communities with an opportunity to connect to the national grid at a subsidized price.

The experiment generated random variation in:

1. Effective connection price (at the community-level)
2. Number of households connecting to the grid at the same time from each community



We define “under grid” households



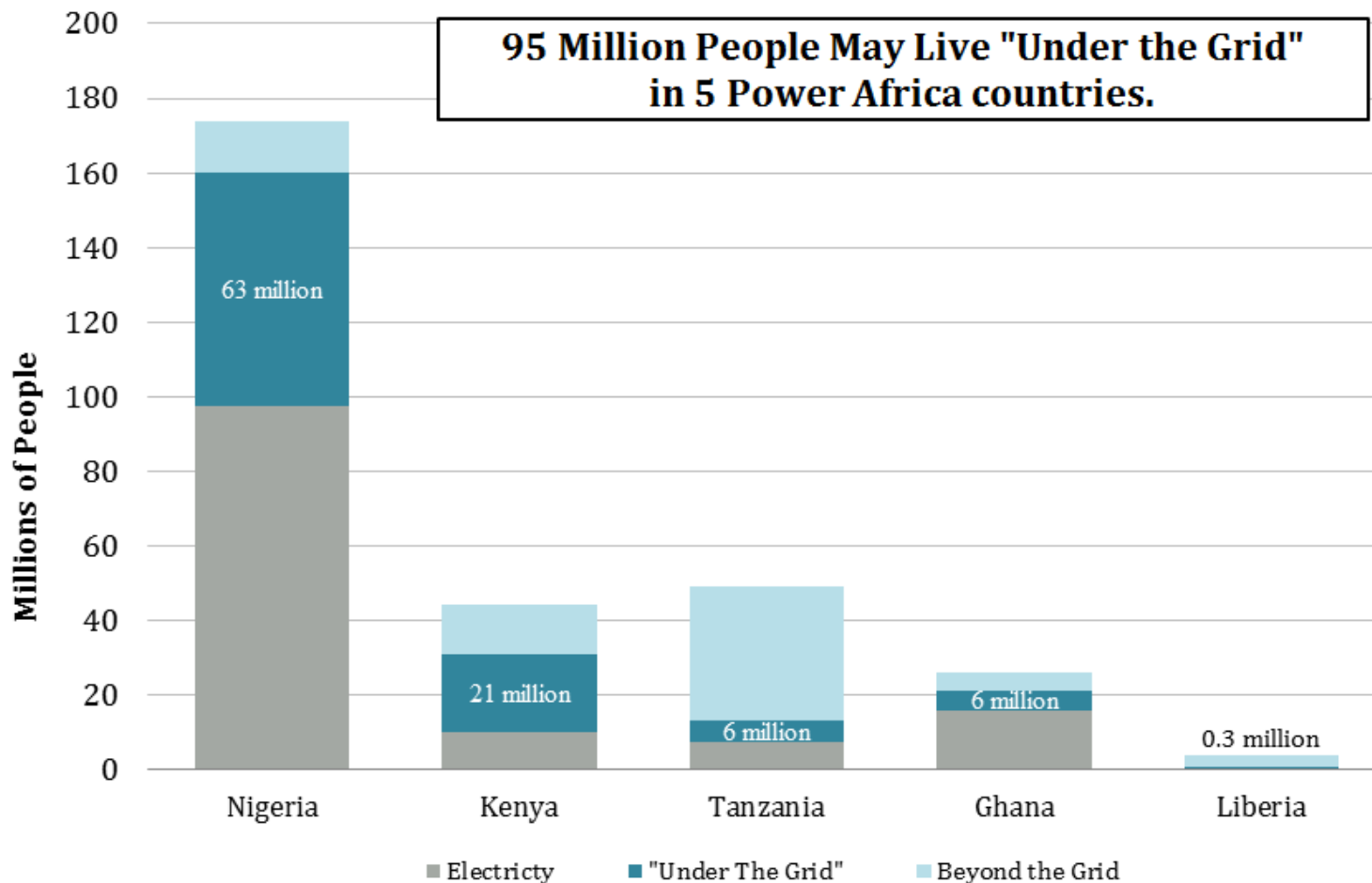
Legend

- Ⓣ Transformer & 600 meter radius
- Households (scaled by household size)
- Businesses
- ▲ Public facilities (e.g. schools, health)
- Electrified households
- Electrified businesses
- ▲ Electrified public facilities

Note that the price of a connection is ~\$400.

Source: Lee et al. (2015).

Other under-grid households in Africa



Source: Center for Global Development (CGD).

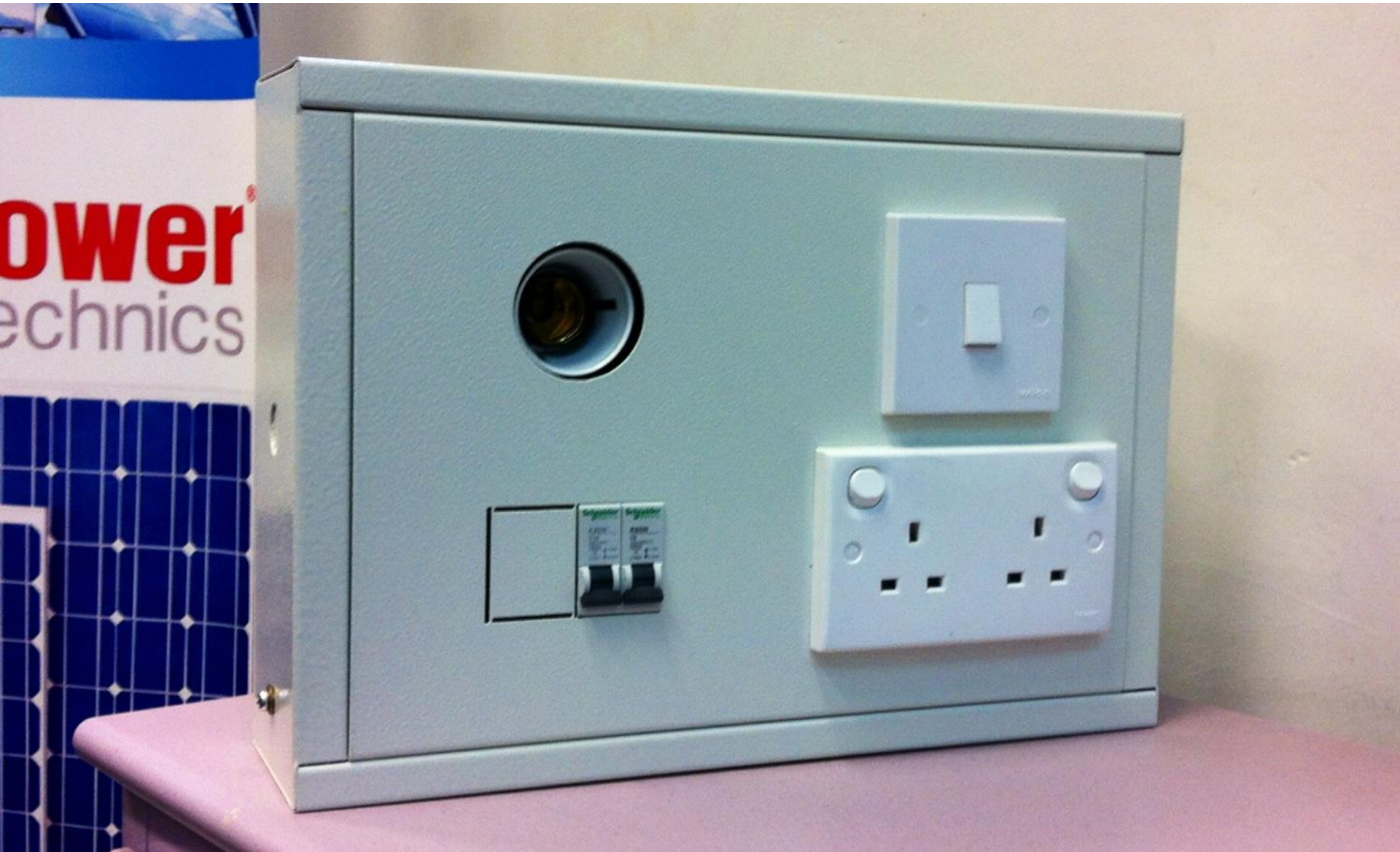
Step 1: IPA distributes subsidies to households



Step 2: REA extends national grid to households



Step 3: IPA provides “ready boards”



Step 4: Kenya Power installs prepaid meters



Panel A

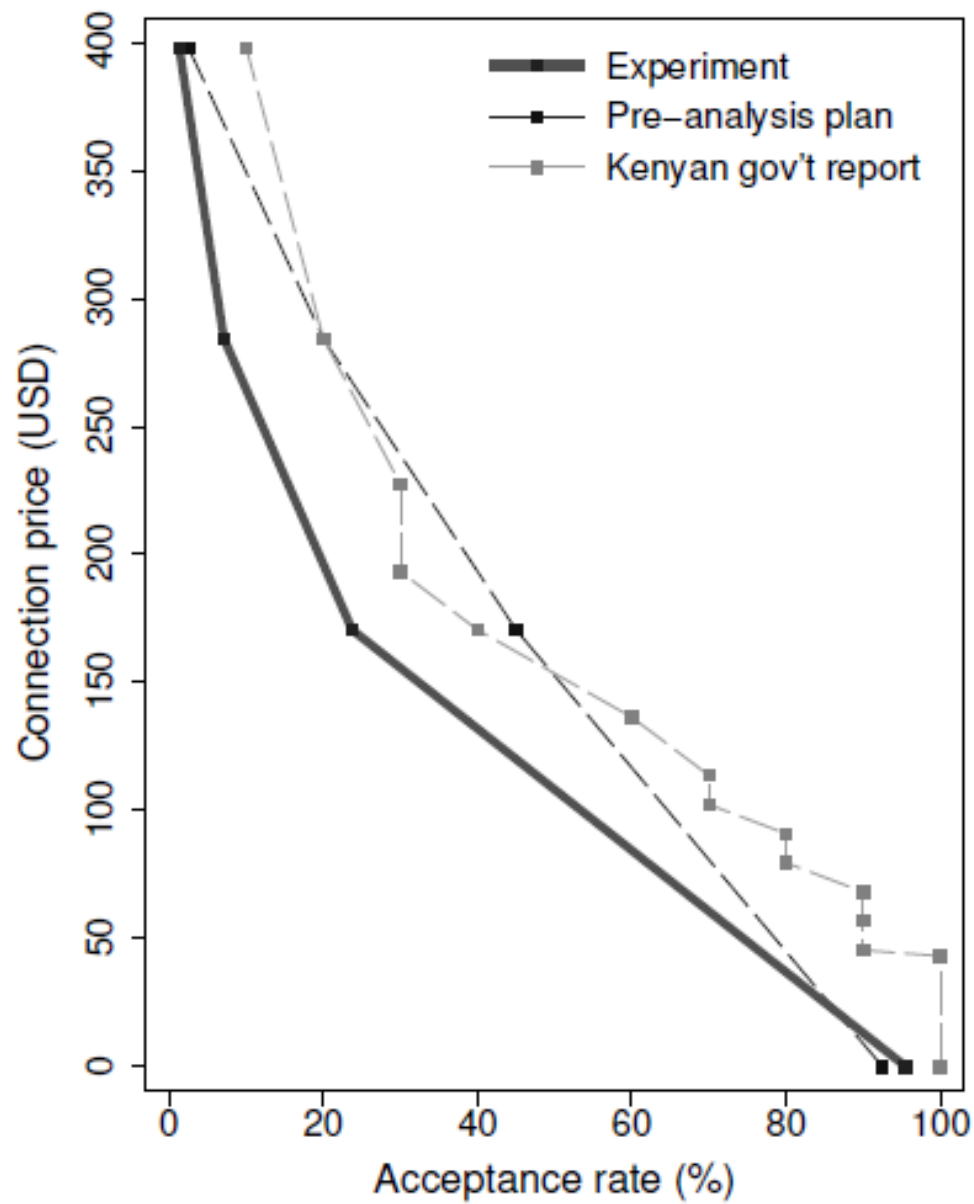
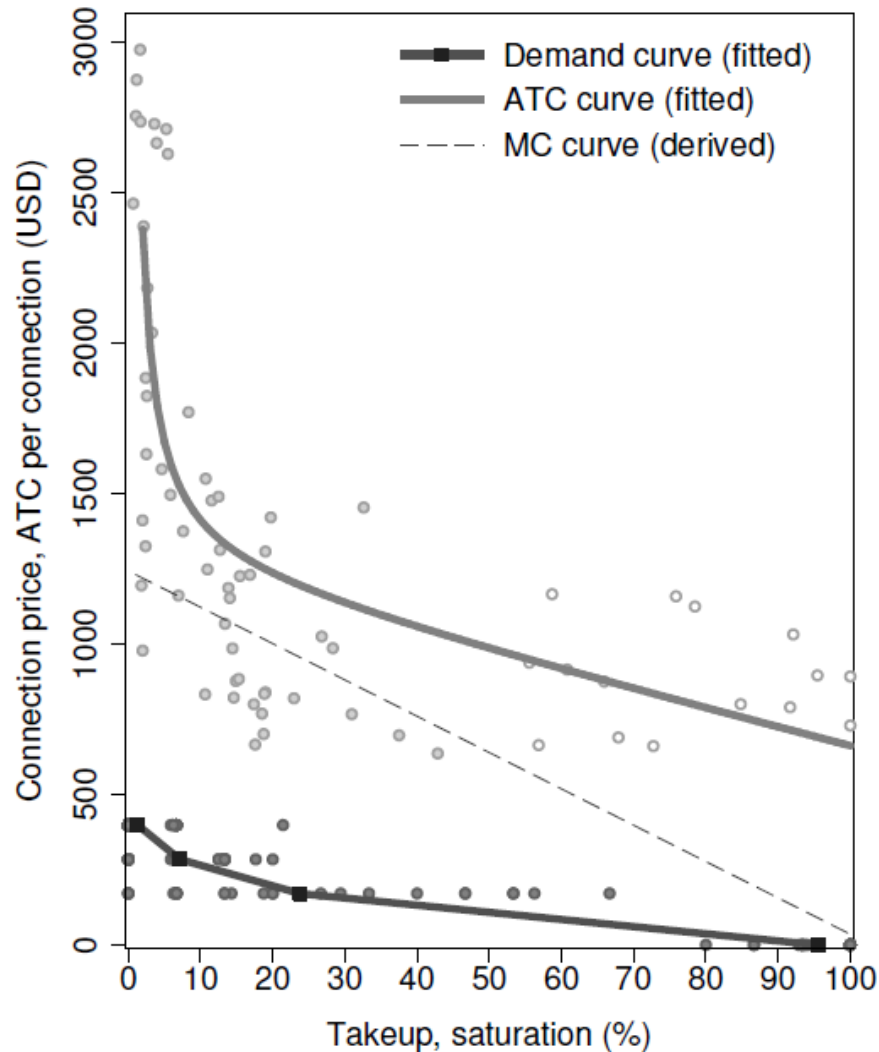
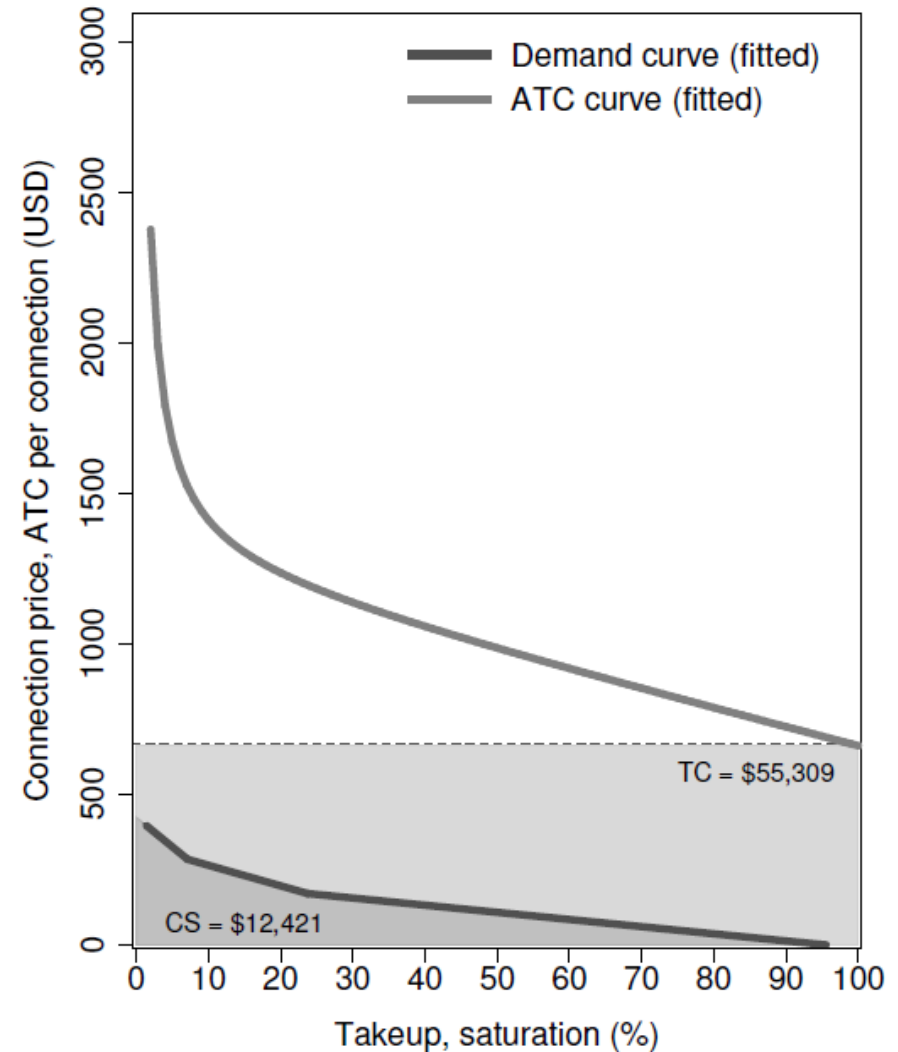


Figure 6—Experimental estimates of the welfare implications of rural electrification

Panel A



Panel B



→ Total Cost 4.5x Consumer Surplus

Panel B

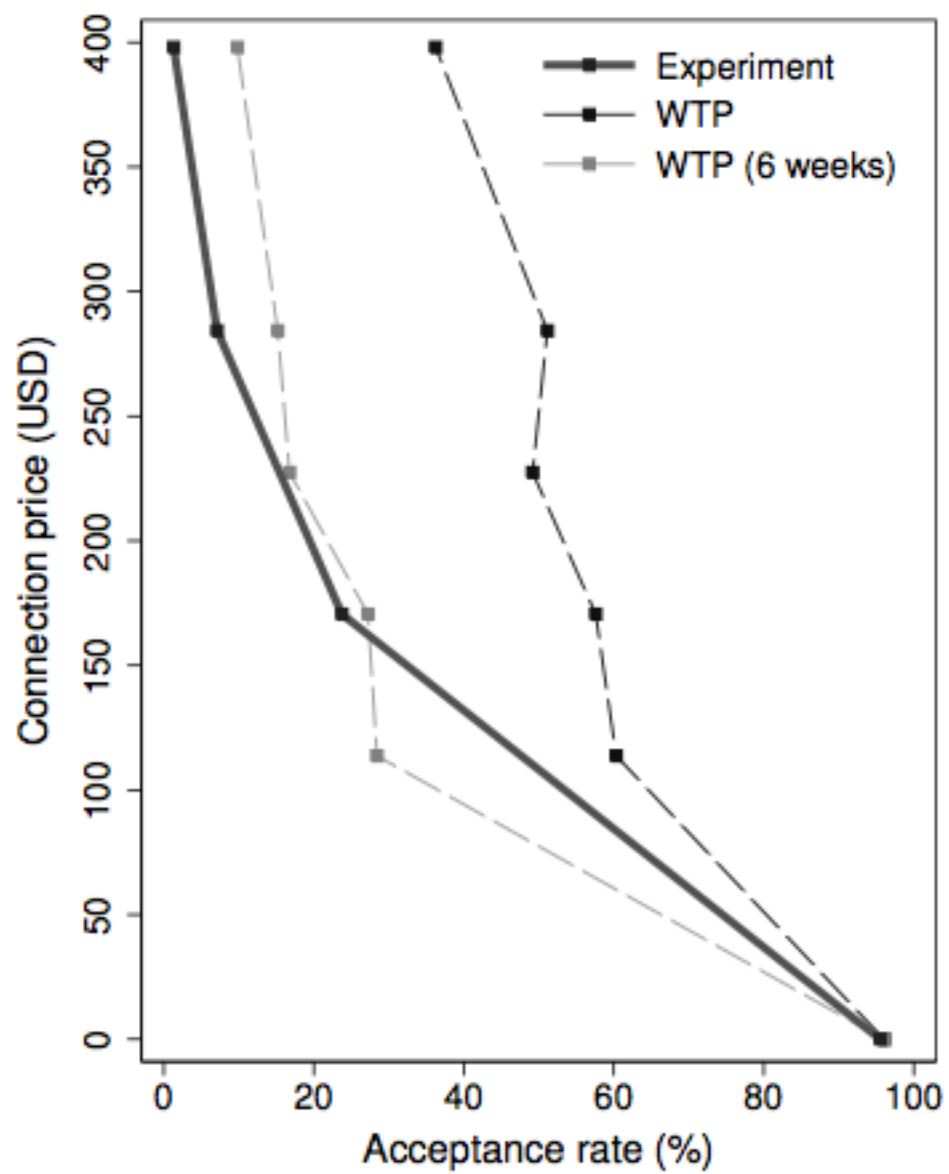


Figure 7—Timeline of the rural electrification process

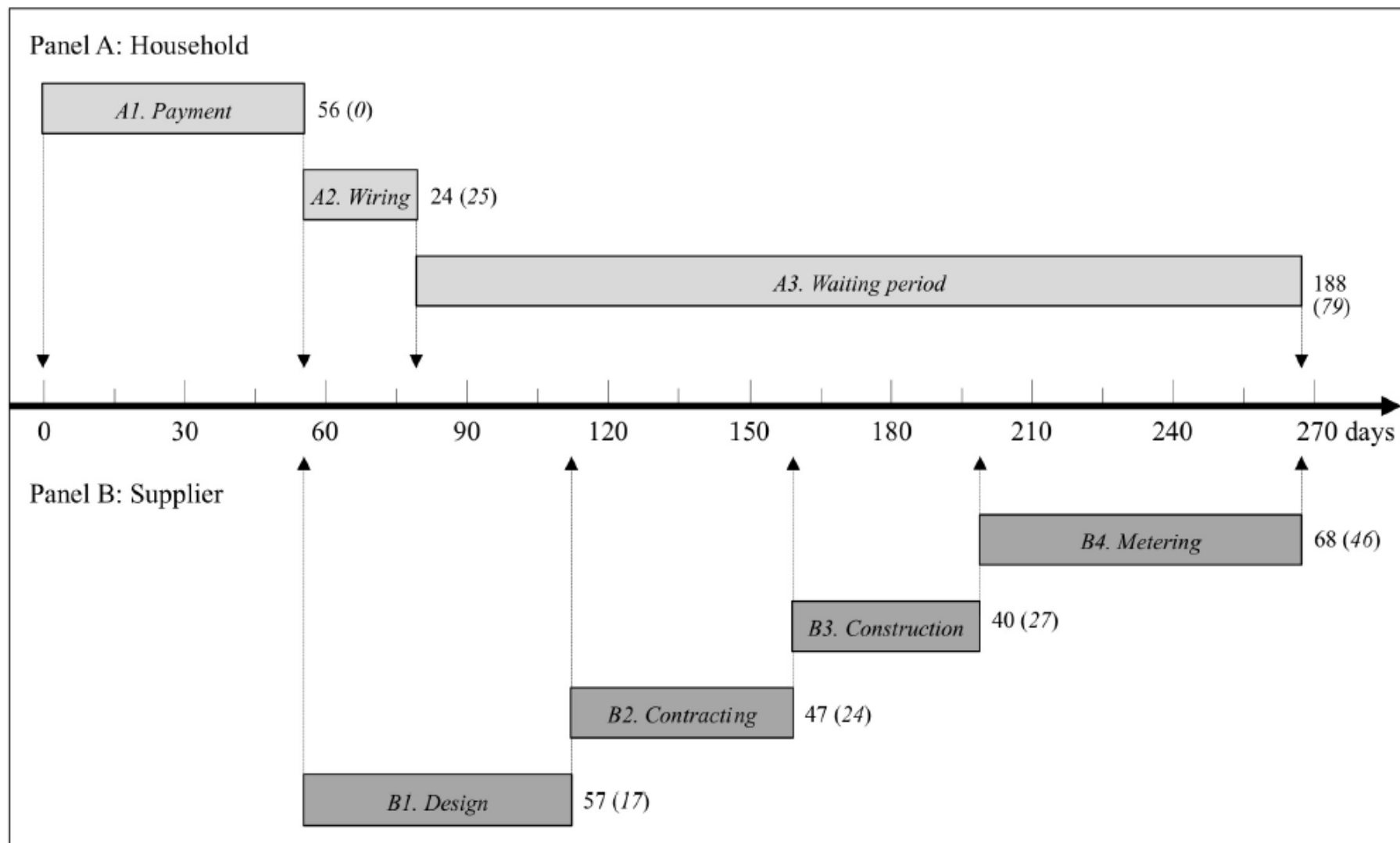




Figure 8—Discrepancies in costs and poles, by contractor

