



Rural Electrification: Energy Access and Energy Use

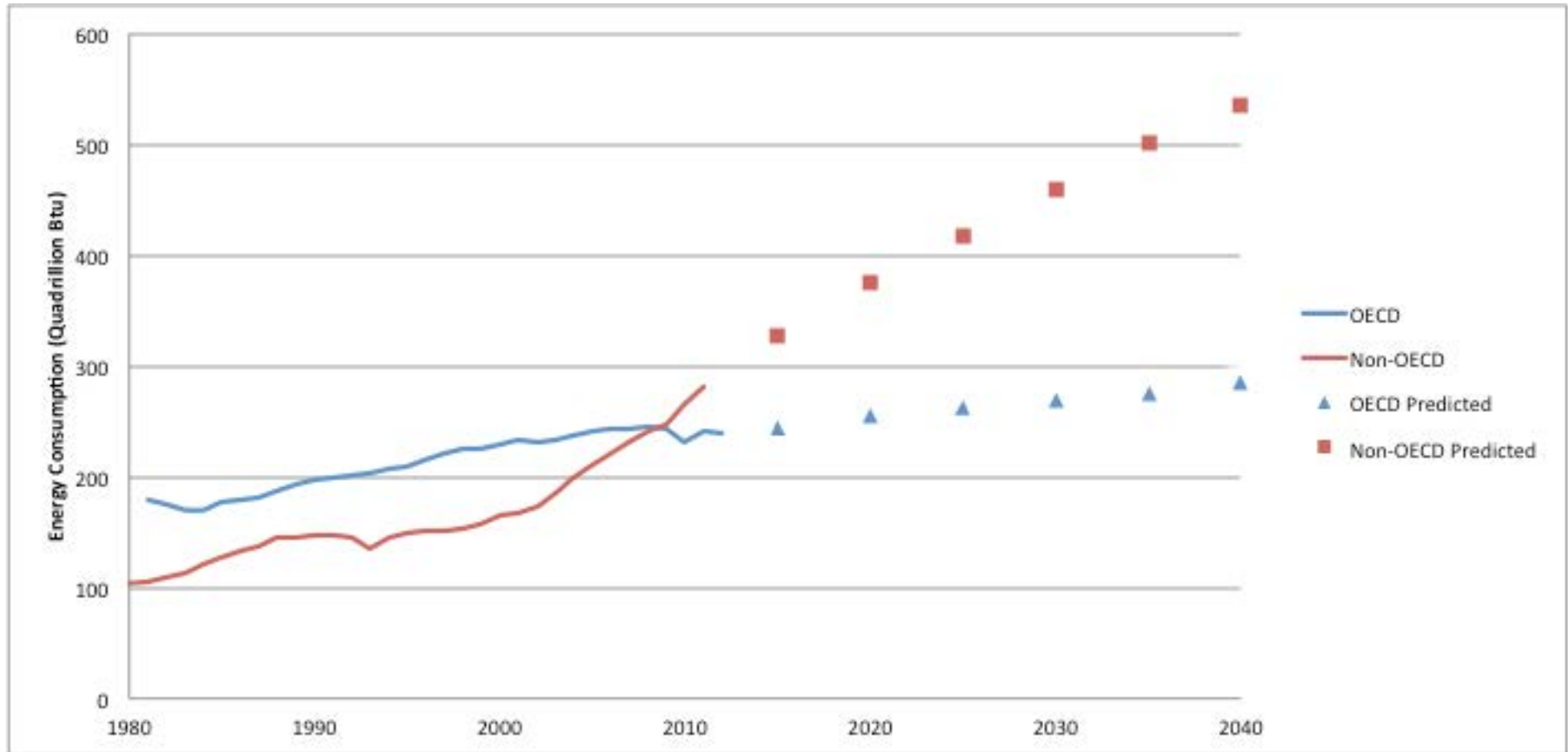
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Emerging economies will drive future energy consumption



The EIA projects that virtually all of the growth in energy demand over the coming decades will come from outside of the OECD.

Major economic and policy questions

- What are the main barriers to getting electricity service to more people?
 - Businesses as well as households
 - Barriers vary by service delivery model (grid, off-grid)
- In what ways does electricity service influence economic development?
- How do the benefits and costs vary as a function of electricity quality?
- What are the environmental impacts (local and global) of different electricity connection technologies? Of an electricity connection relative to the alternative?

TO ANSWER THESE QUESTIONS
WE NEED MORE
DATA

Two countries and two technologies



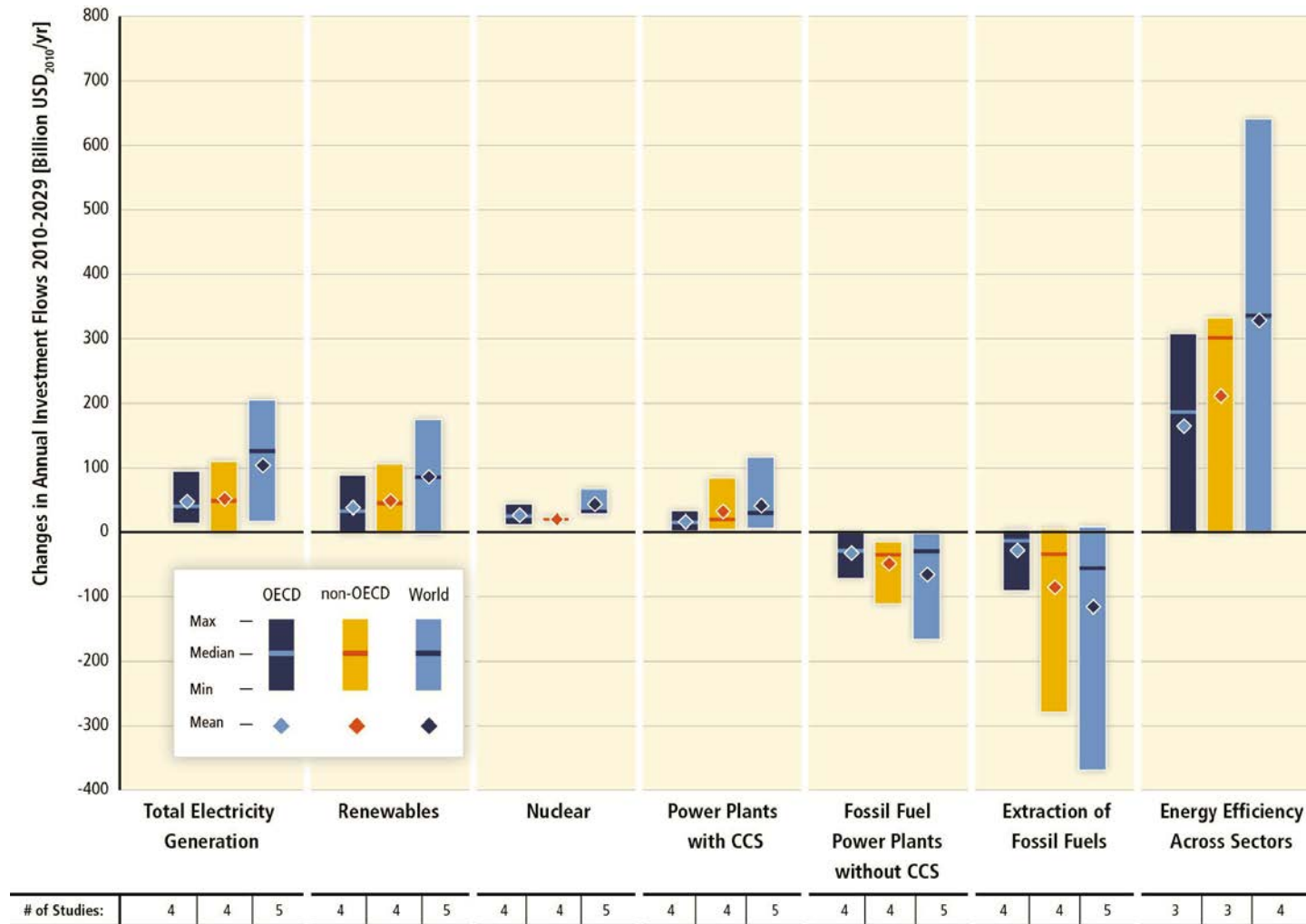
India: Smart microgrids



Kenya: subsidized grid connections



How to decouple economic growth and emissions growth?



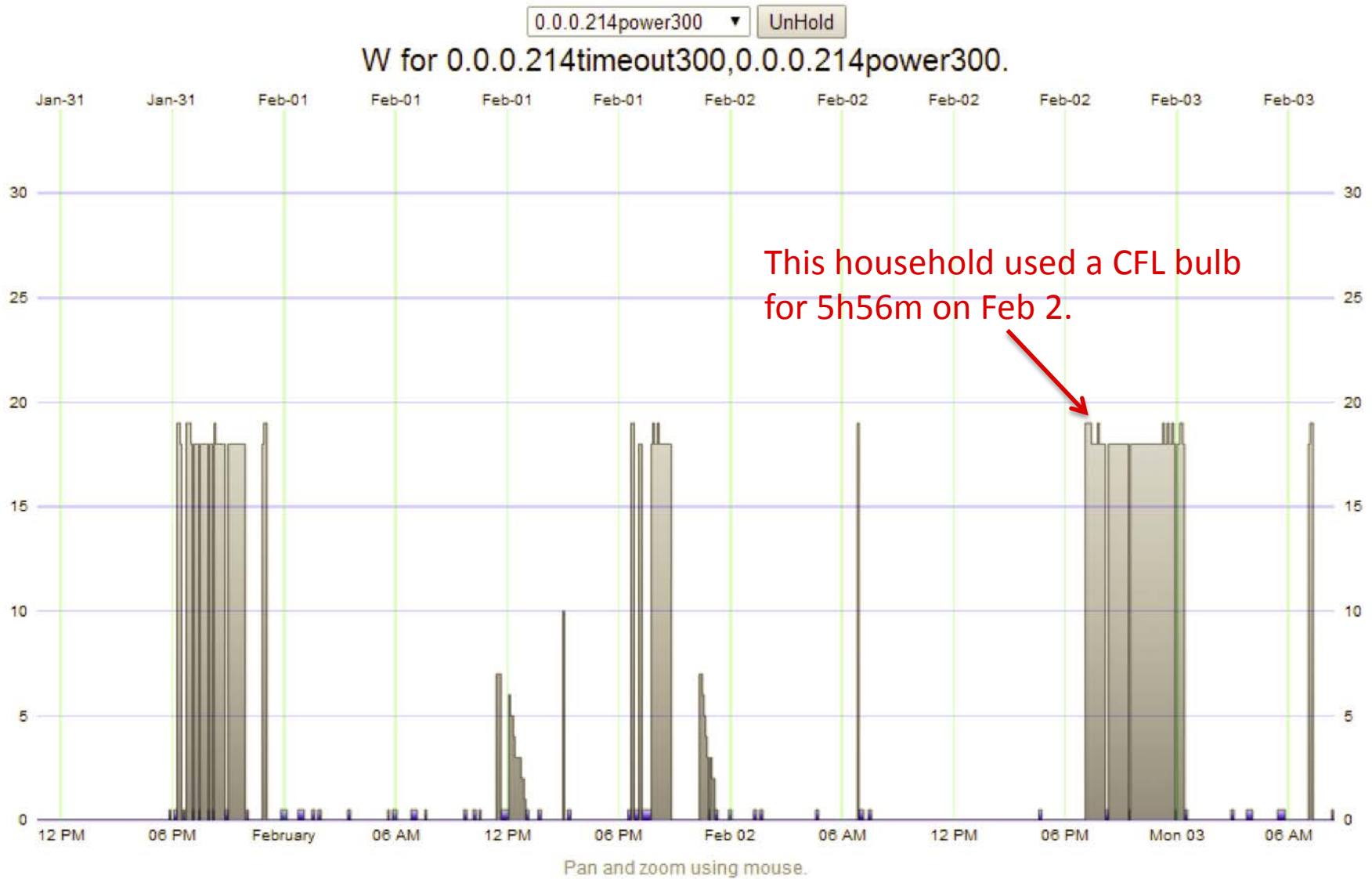
Source: IPCC 2014

Change in annual investment flows from the average baseline level over the next two decades (2010-2029) for mitigation scenarios that stabilize concentrations within the range of approximately 430-530 ppm CO₂eq by 2100

A Gram Power meter



Smart meters = great data!



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Transformer community example #1

Legend

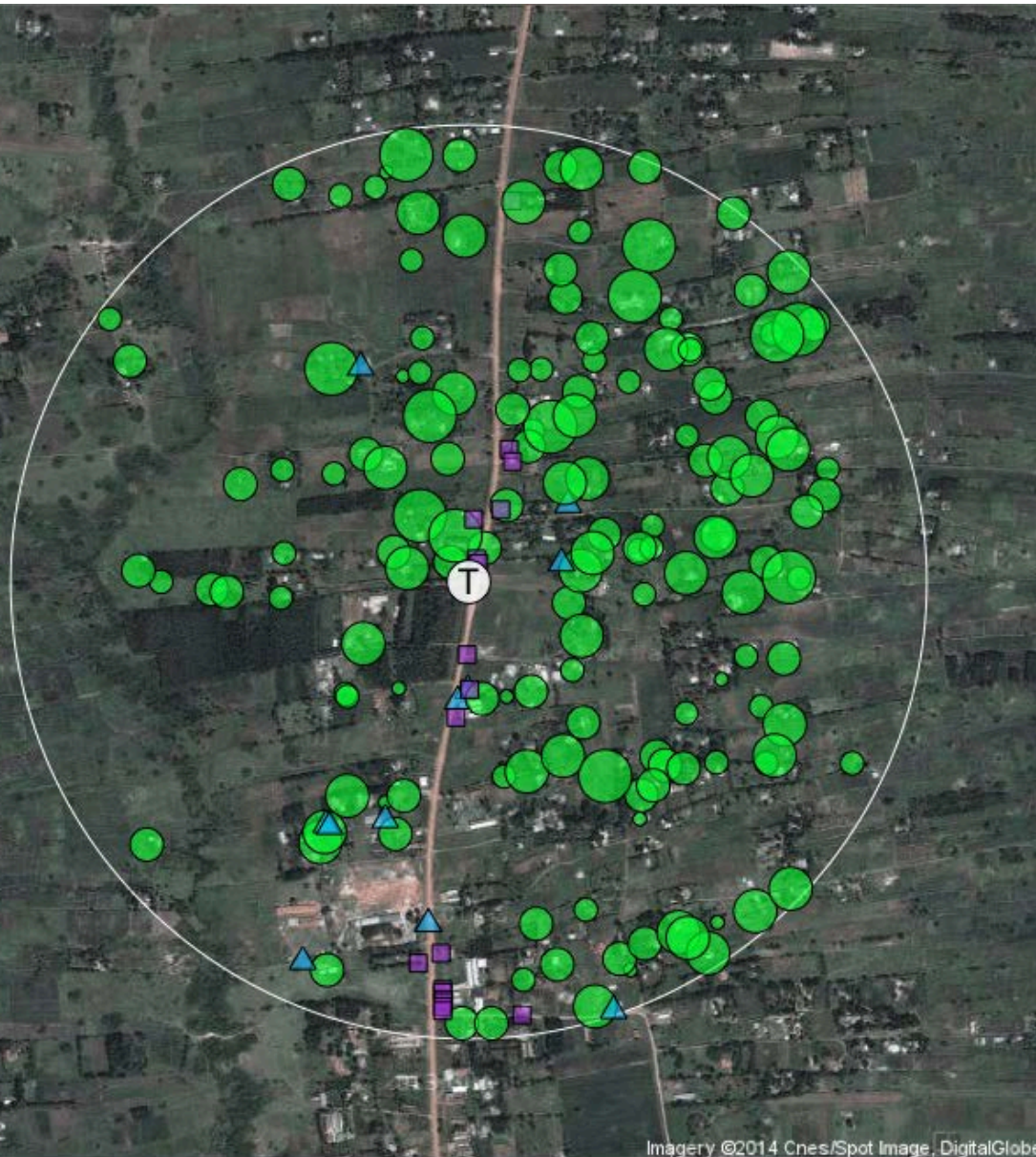
Ⓣ Transformer & 600 meter radius



Transformer community example #1

Legend

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



Transformer community example #1

Legend

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

