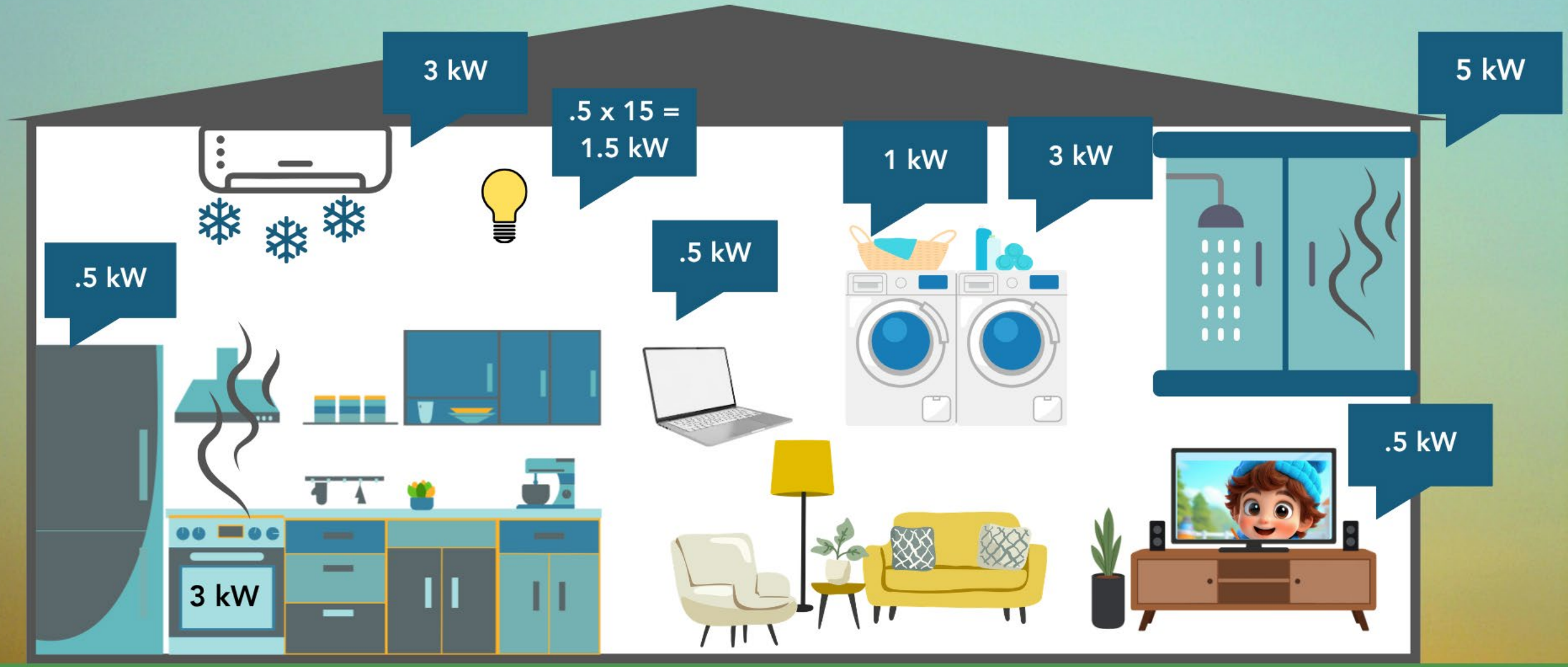
RAEDEN

How Large-Load Data Centers Make Utilities More Efficient

Homes use 40% of their daily power between 5 and 8 PM.

18 kW in use for **3 hours** x **30,000 homes** = **1,620 MWh** (MegaWatt hours)



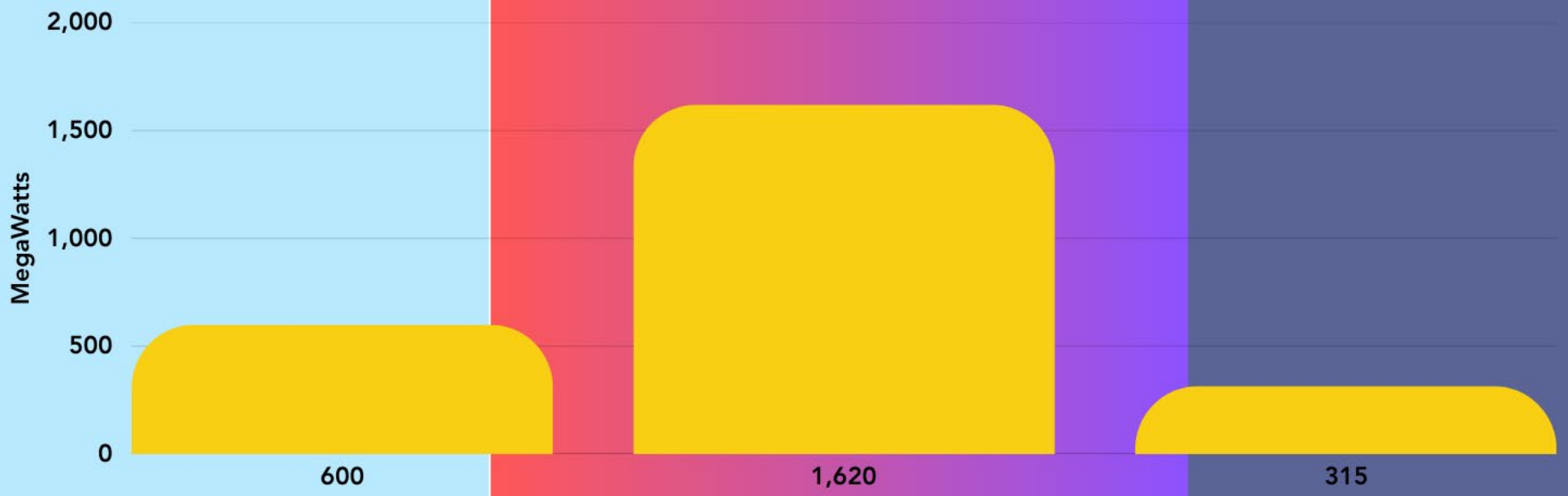
Residential usage is low between 11 PM and 2 AM.

3.5 kW in use for **3 hours** x **30,000 homes** = **315 MWh** (MegaWatt hours)

Some residential power demand
9 AM - 2 PM

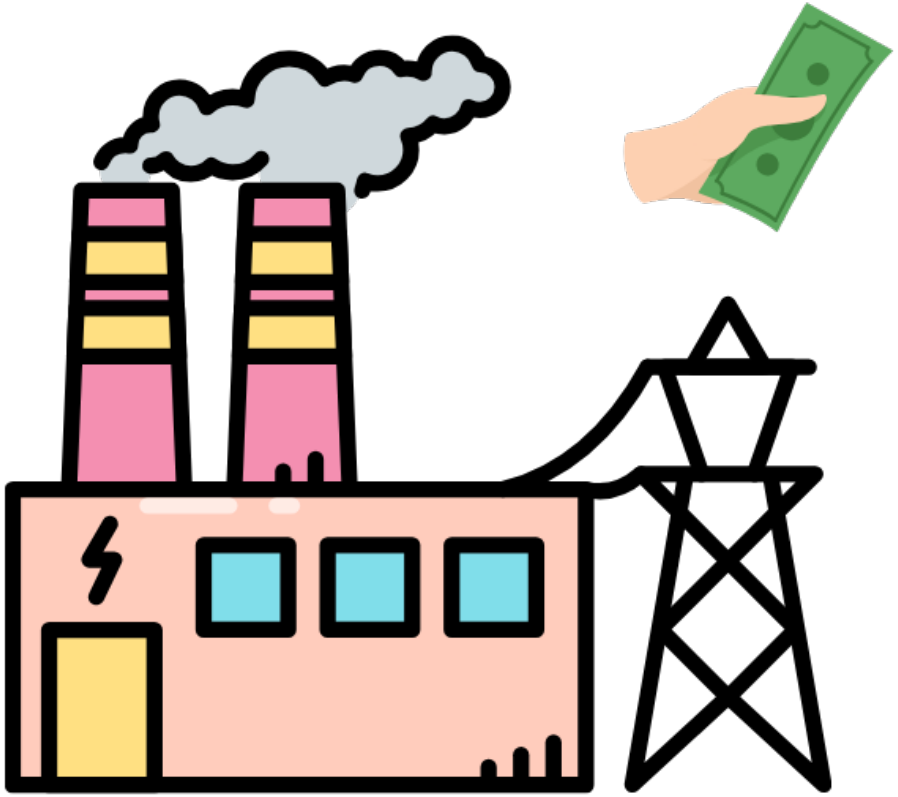
Peak residential power demand
5 - 8 PM

Very low residential power demand
11 PM - 4 AM



Utilities must predict the amount of power that **could be used** by their service area at any given time.

They **buy 15-20% more** to cover unexpected peaks.



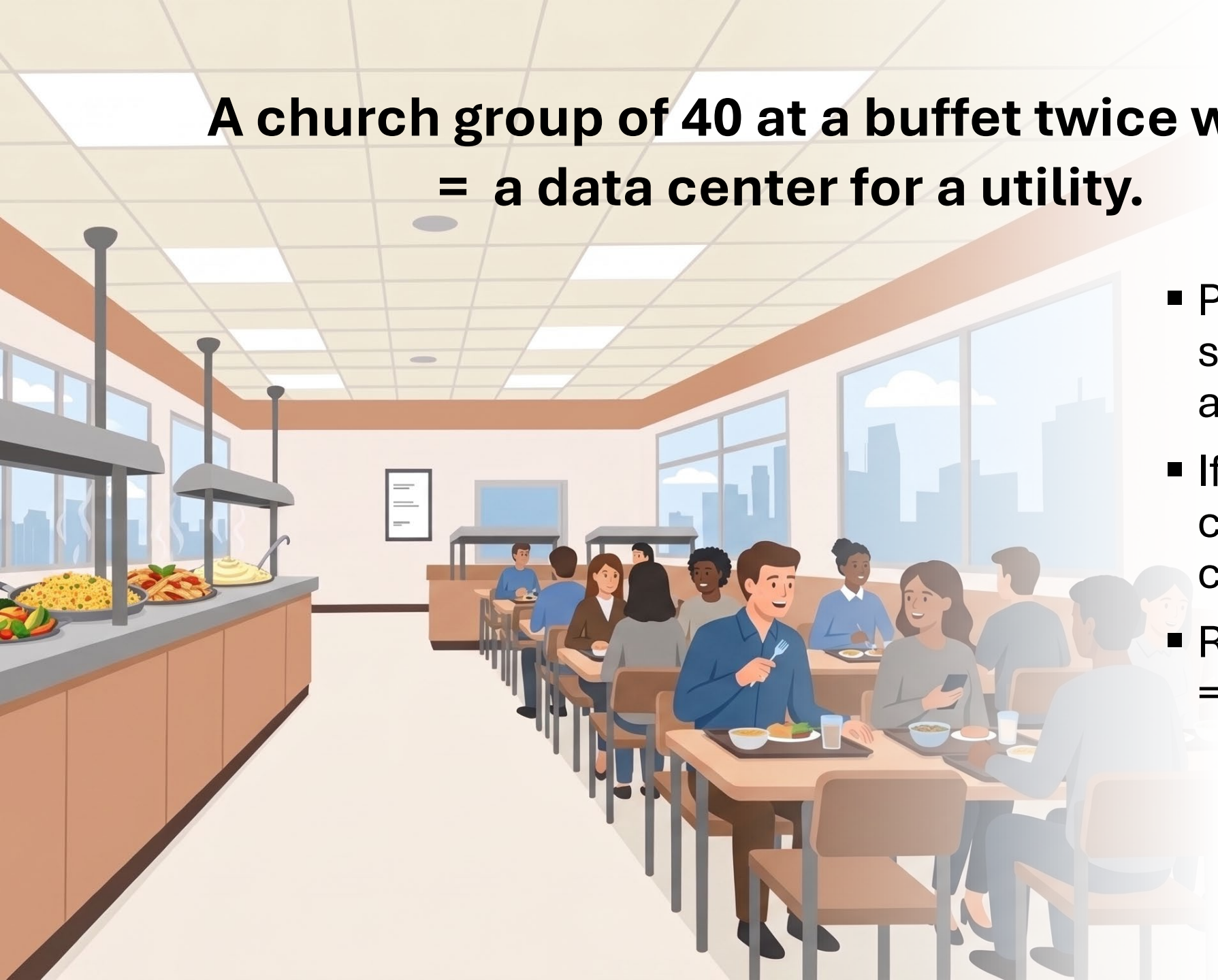
Running a utility is like running a buffet.

Food consumption is unpredictable.

Much is wasted.

But food must be available when hungry customers arrive.

A church group of 40 at a buffet twice weekly = a data center for a utility.

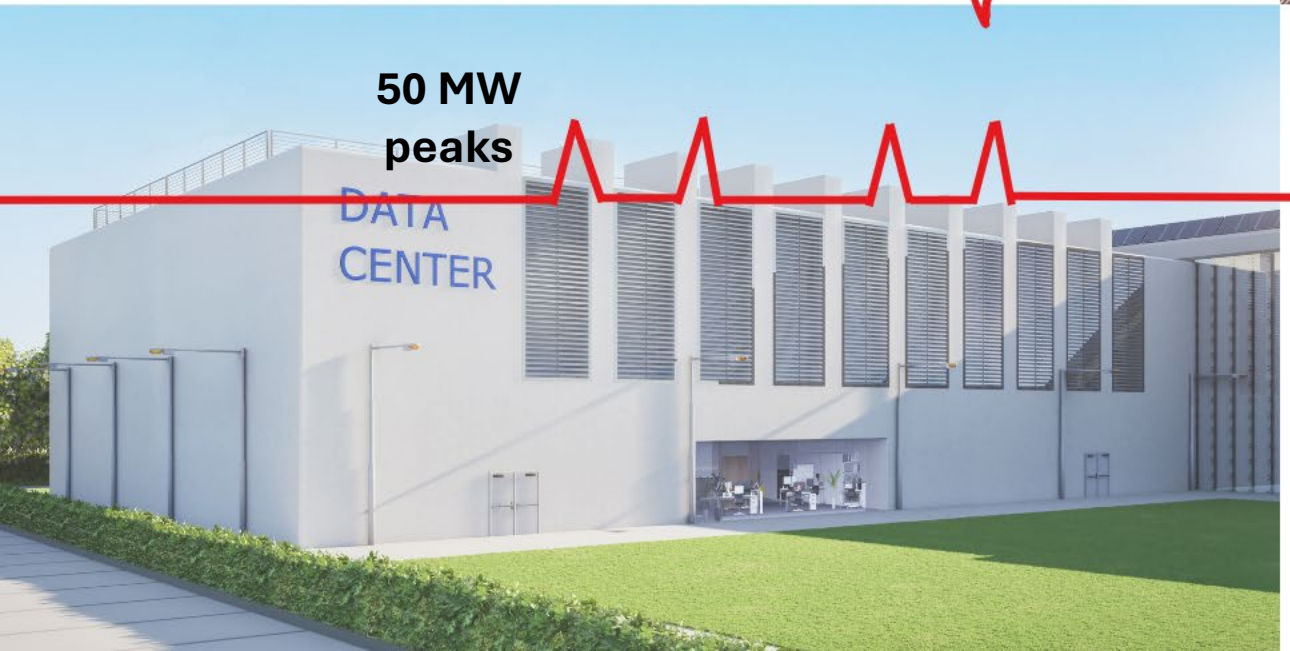


- Predictable use at scale lowers prices and creates efficiency.
- If users need a lot and commit to using it, costs are lower.
- Reliable consumption = minimal waste.

Residential Power Use = ERRATIC

- **30,0000 homes**
- **30,000 bills**
- **30,000 meters to read**
- **100s of miles of power lines**
- **100s of service calls**

500 MW



50 MW peaks

Data Center Power Use = stable

45 MW most of the time

- **1 building**
- **1 bill**
- **1 customer on the phone**
- **< 1 mile of infrastructure**