



Microgrids

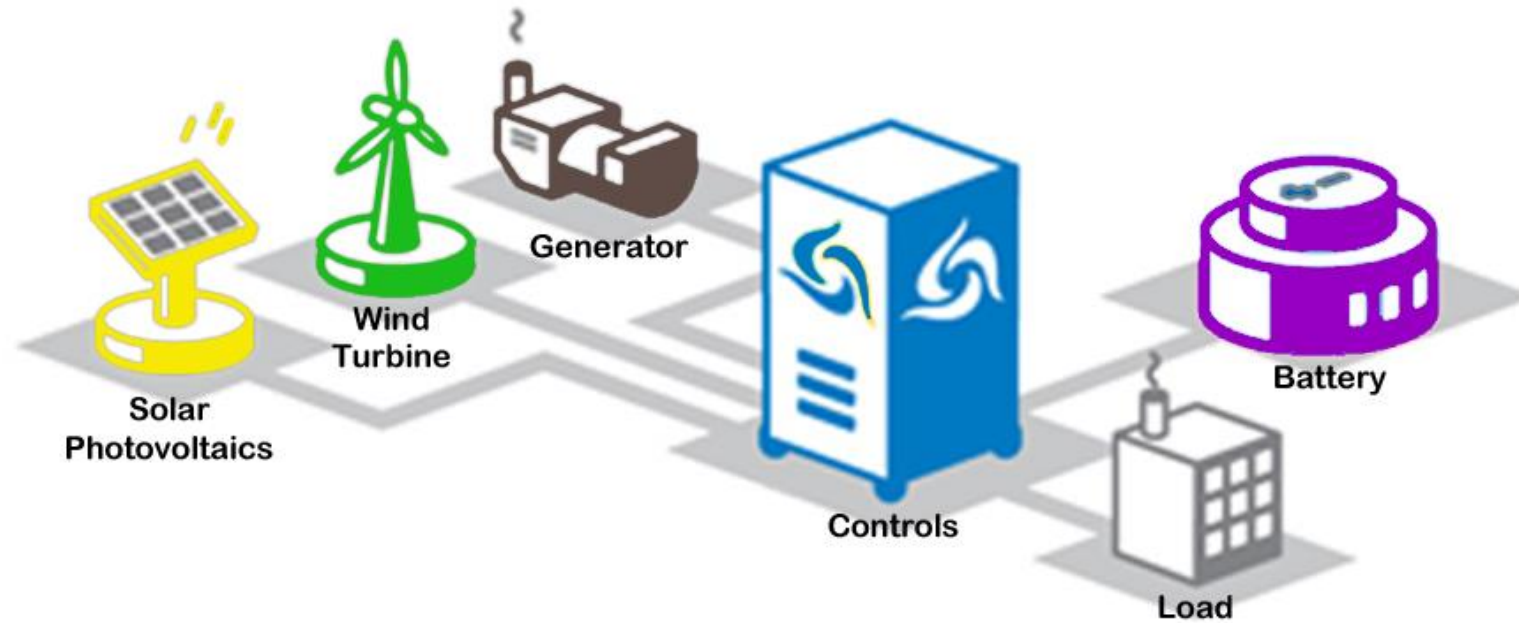
what?

why?

how?

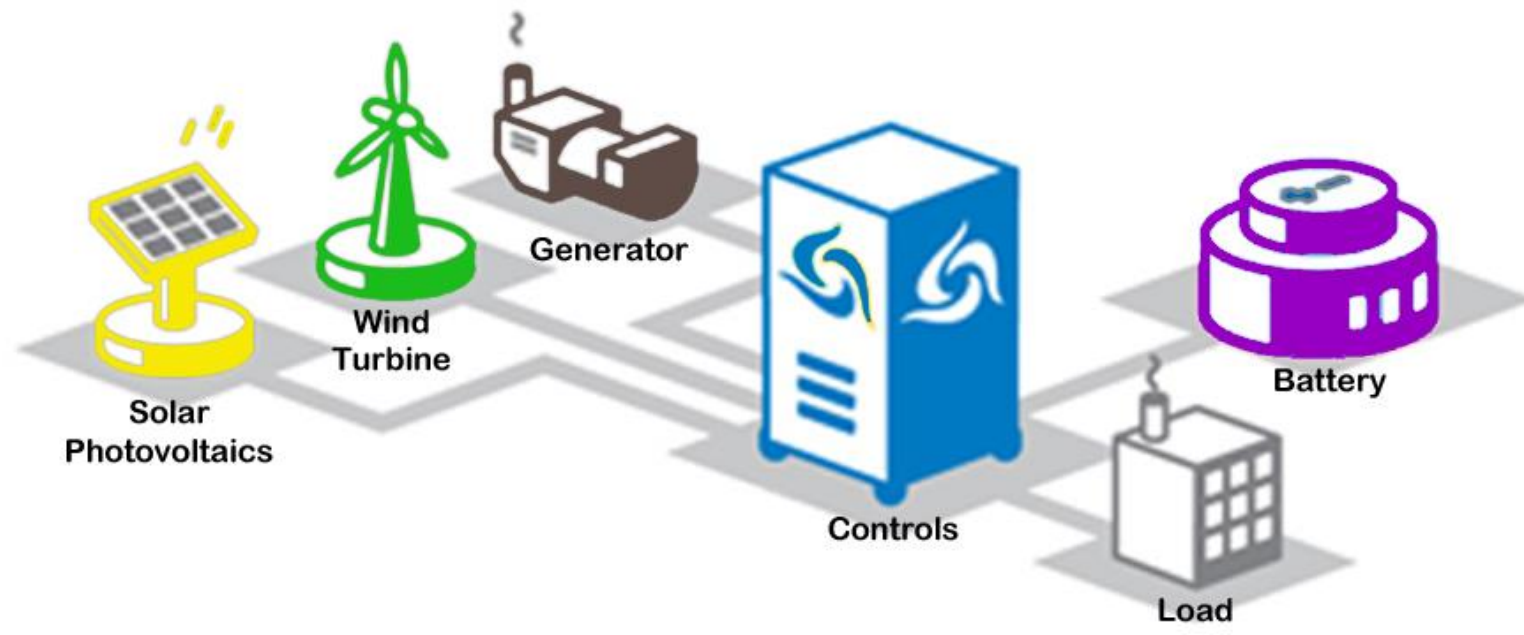
renew.

What is a Micro-Grid?



renew.

What is a Micro-Grid?



How does the regular grid work?

- Household uses energy from the grid
- Retailers pay generators for all their customers' usage (as measured at meters)
- Retailers pay networks for all their customers' use of the grid (as measured at meters)
- Retailer charges household for energy use (as measured at the meter) to recover costs and make profit
- Retailer pays household for solar exports and uses it to meet other customers' needs

The household is the retailer's customer

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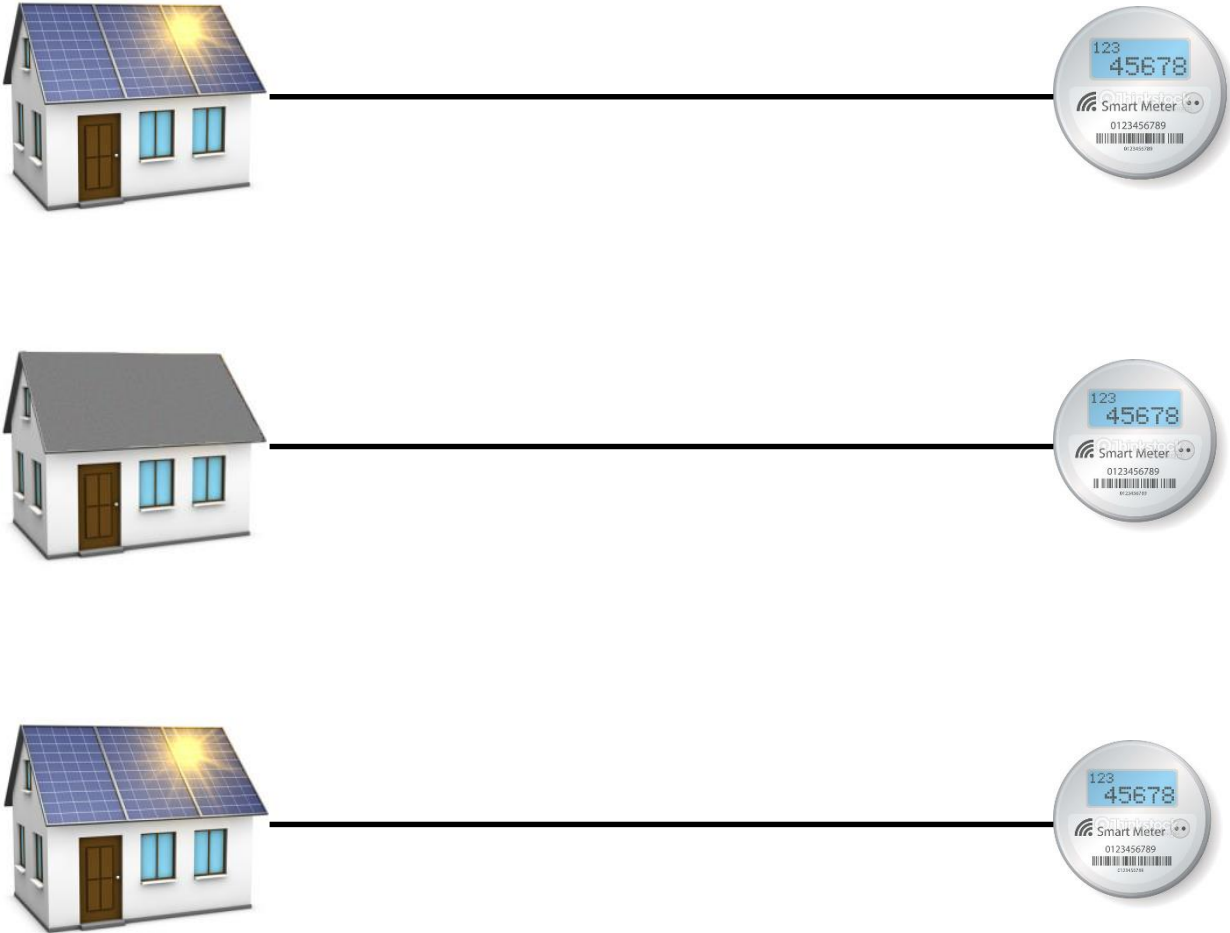
The REGULAR grid...

renew.



The REGULAR grid...

renew.



The REGULAR grid...

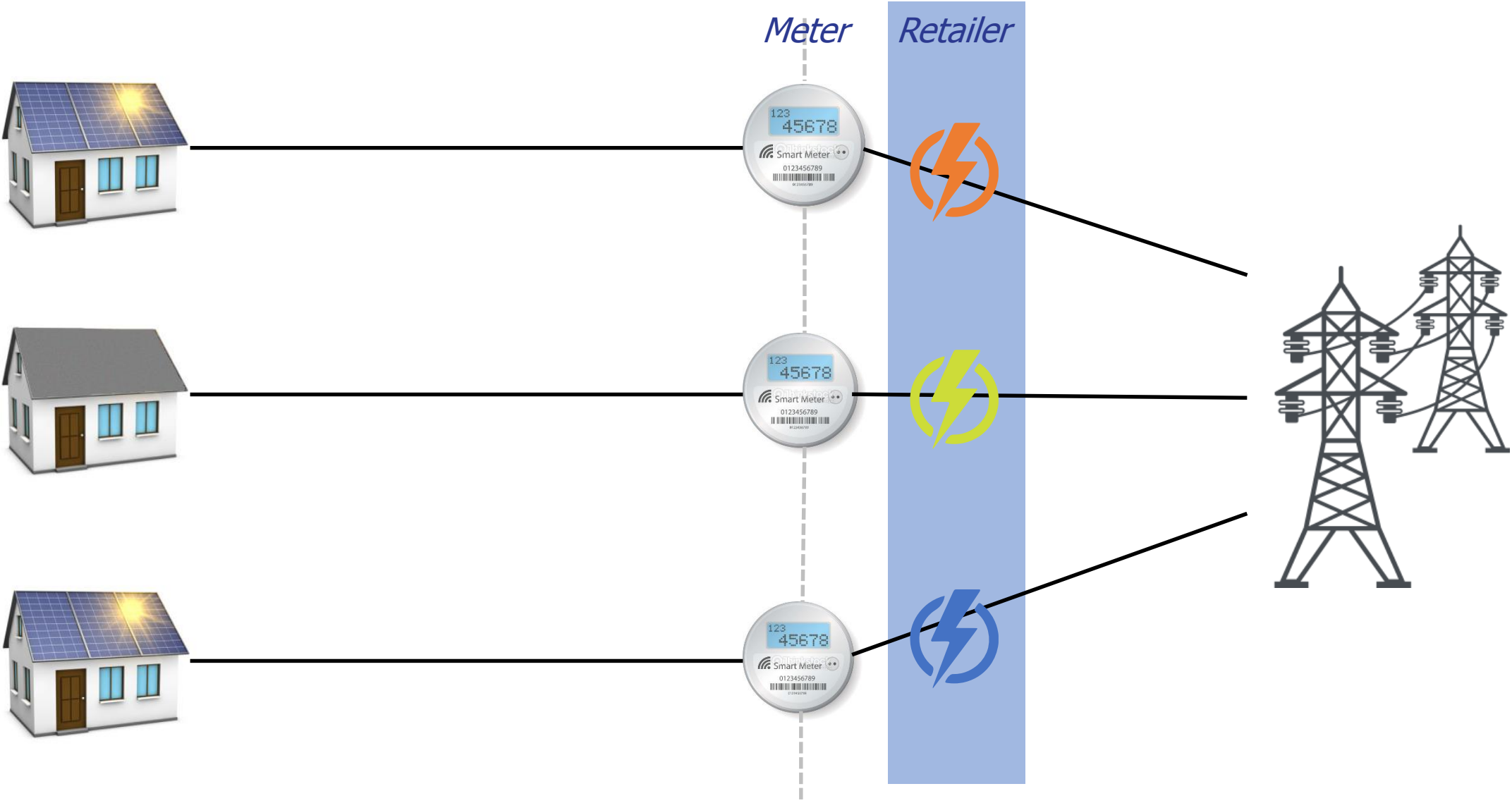
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The REGULAR grid...

Grid Connection

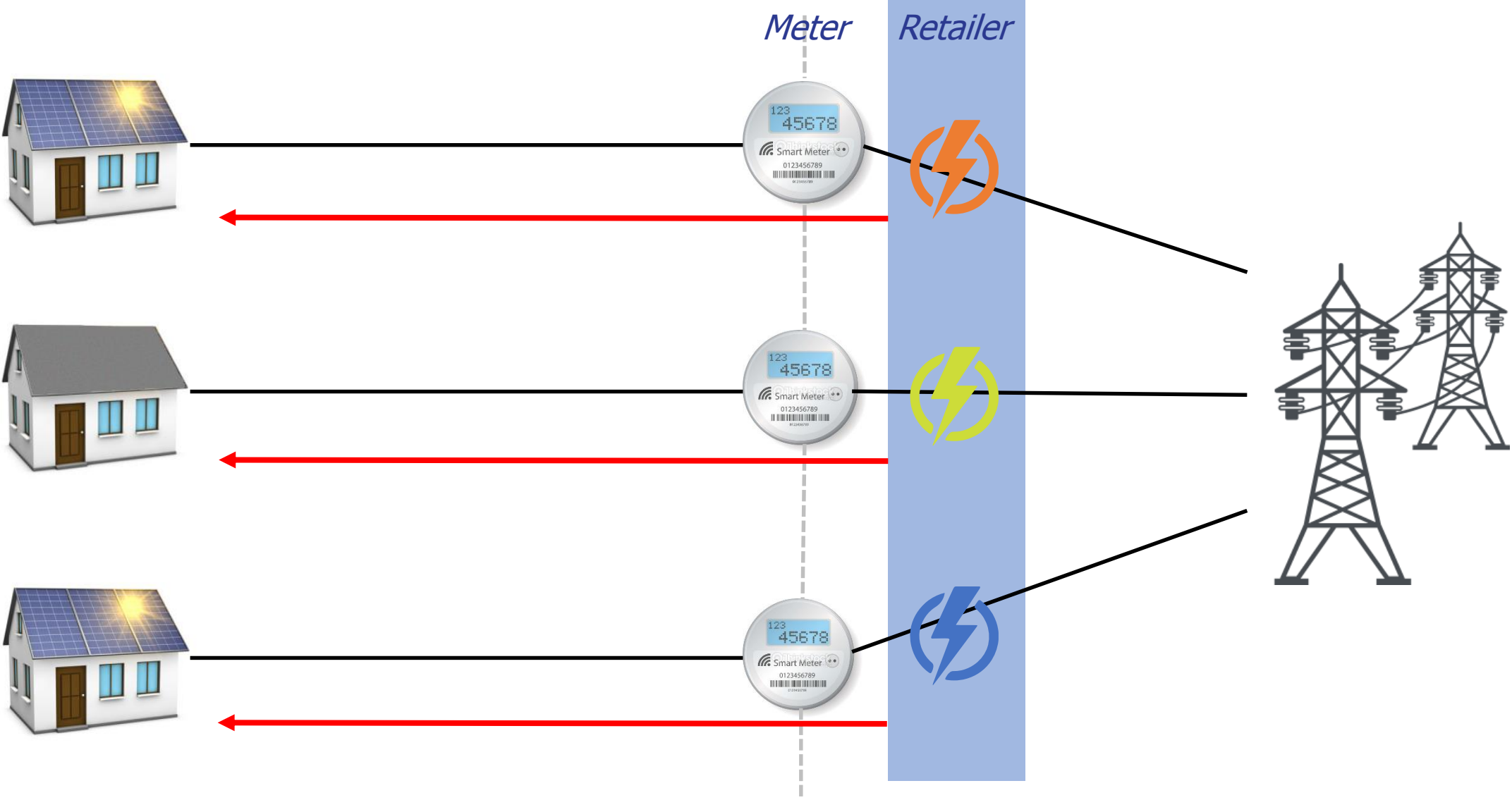
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The REGULAR grid...

Grid Connection

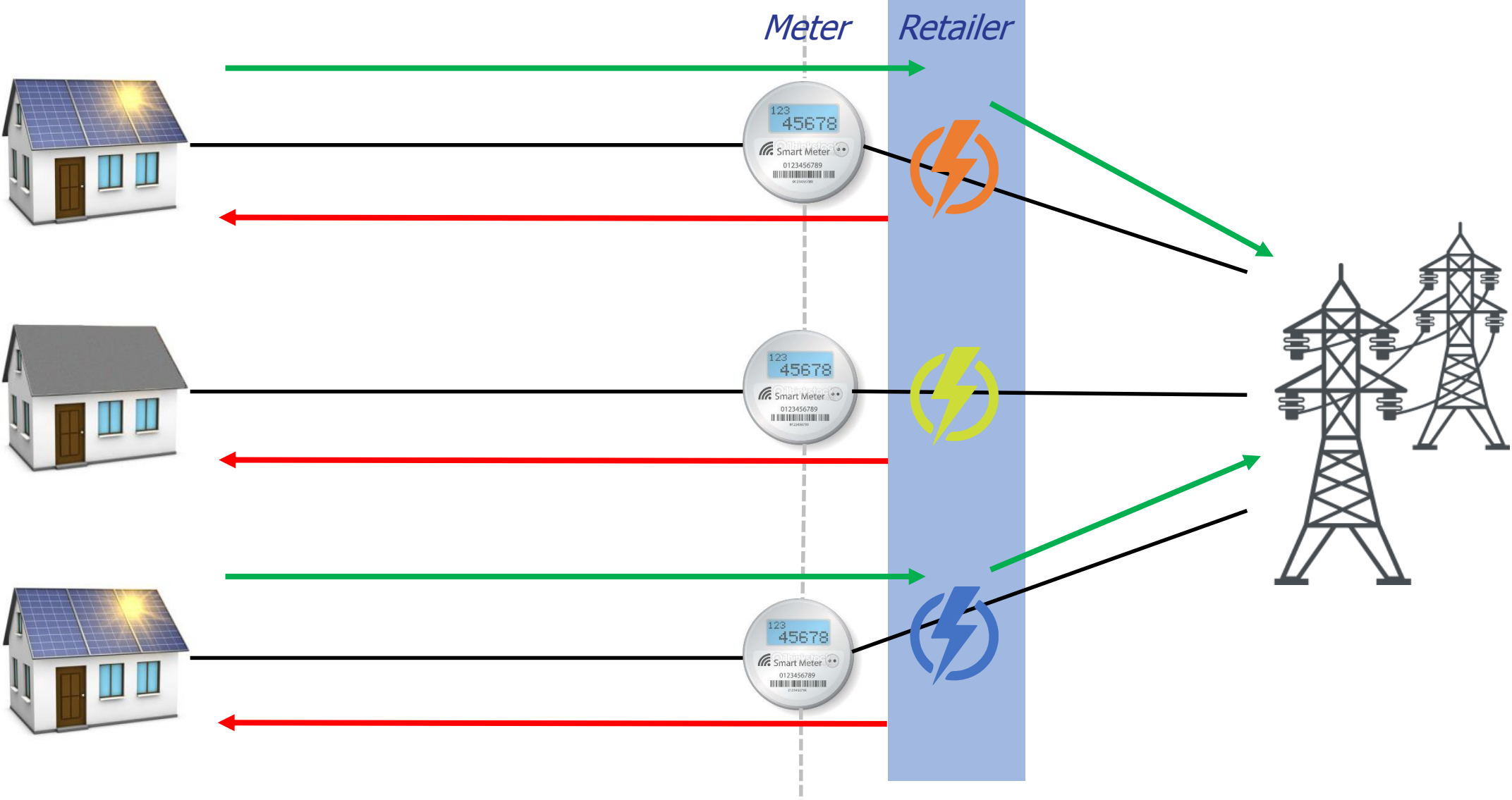
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The REGULAR grid...

Grid Connection

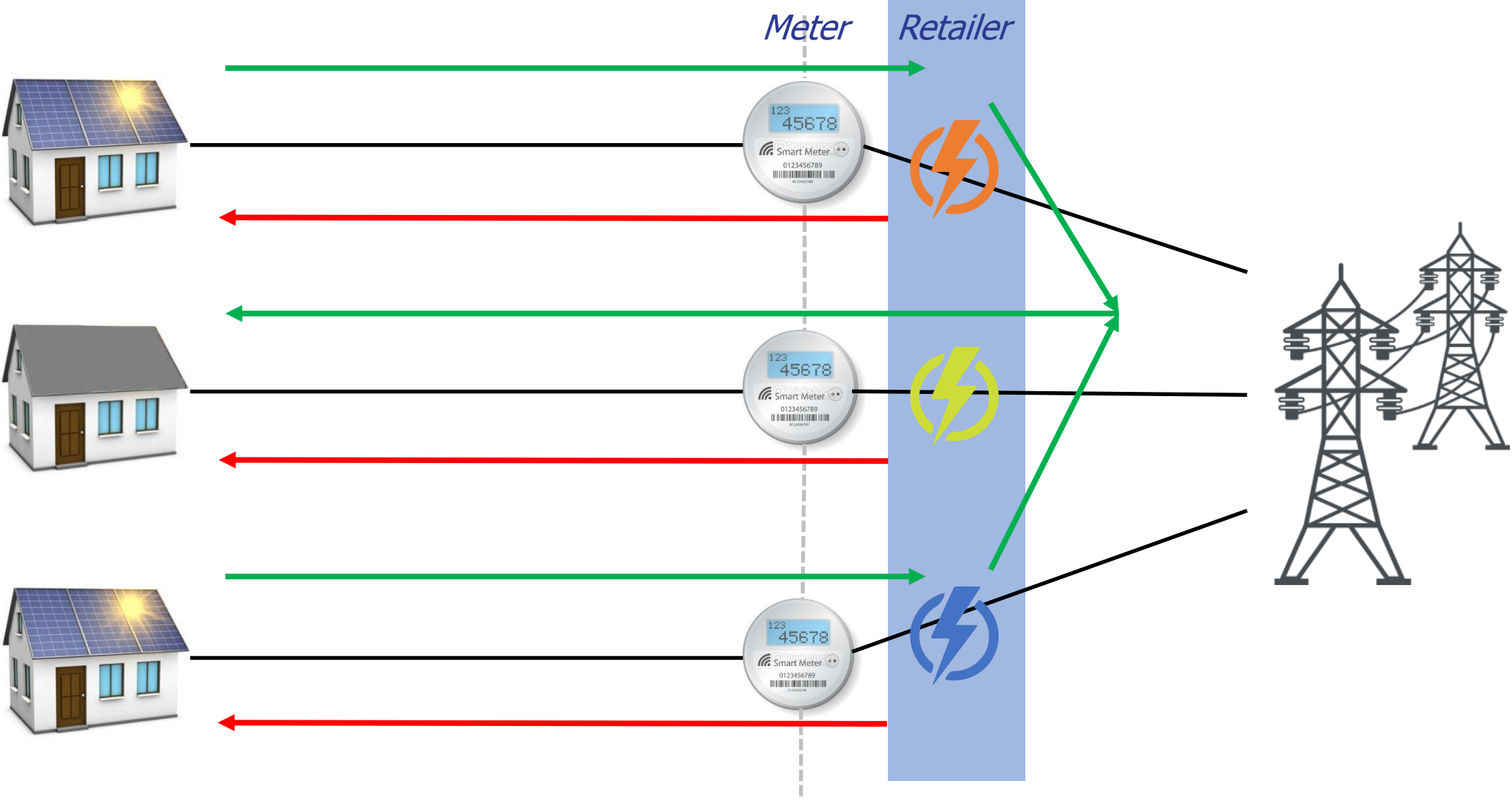
renew.



The REGULAR grid...

Grid Connection

renew.



How does a microgrid work?

- Microgrid uses energy from the grid
- Retailers pay generators for all their customers' usage (as measured at meters)
- Retailers pay networks for all their customers' use of the grid (as measured at meters)
- Retailer charges microgrid for energy use (as measured at the meter) to recover costs and make profit
- Retailer pays microgrid for solar exports and uses it to meet other customers' needs

The microgrid is the retailer's customer



A MICROgrid...

Grid Connection

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Meter

Retailer



A MICROgrid...

Grid Connection

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Meter

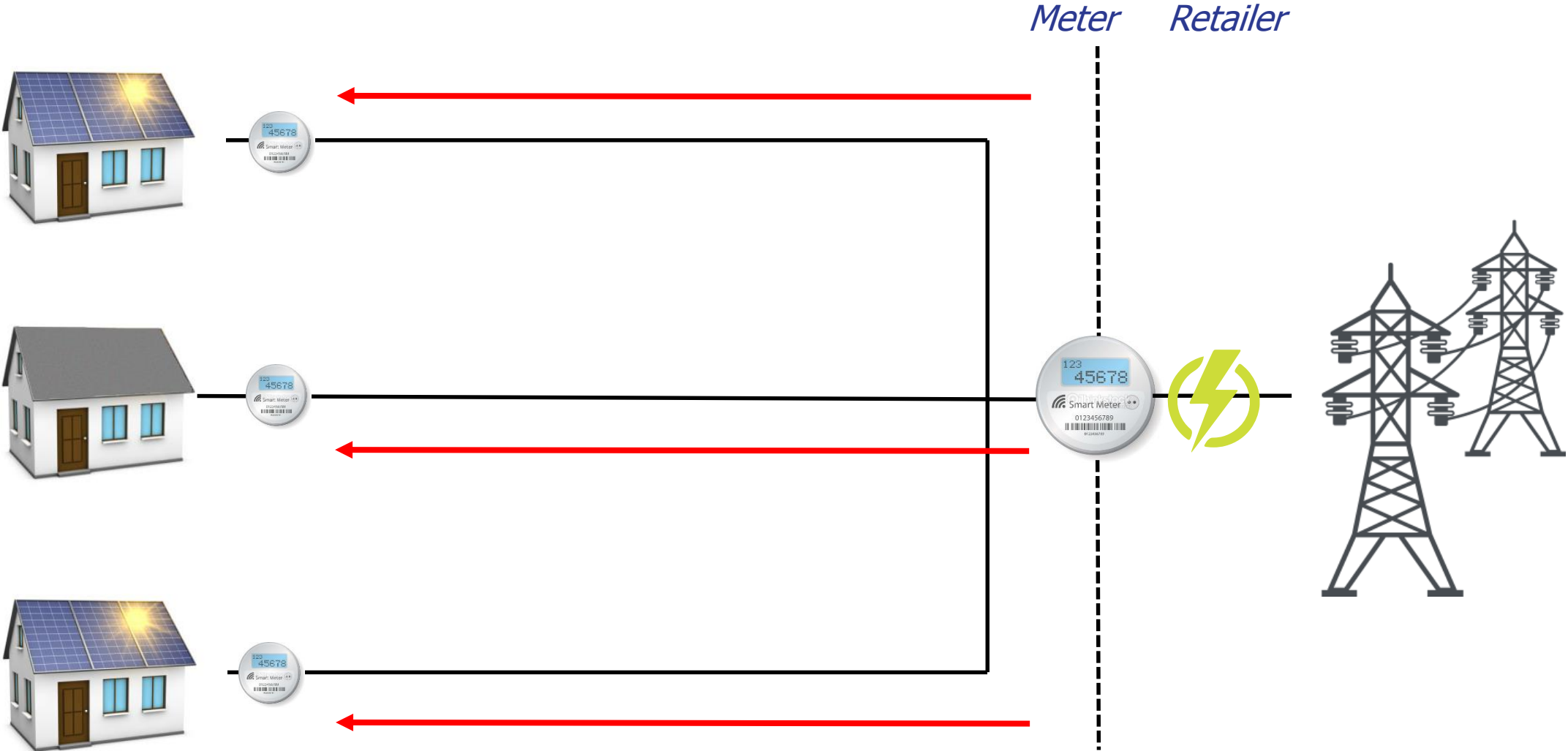
Retailer



A MICROgrid...

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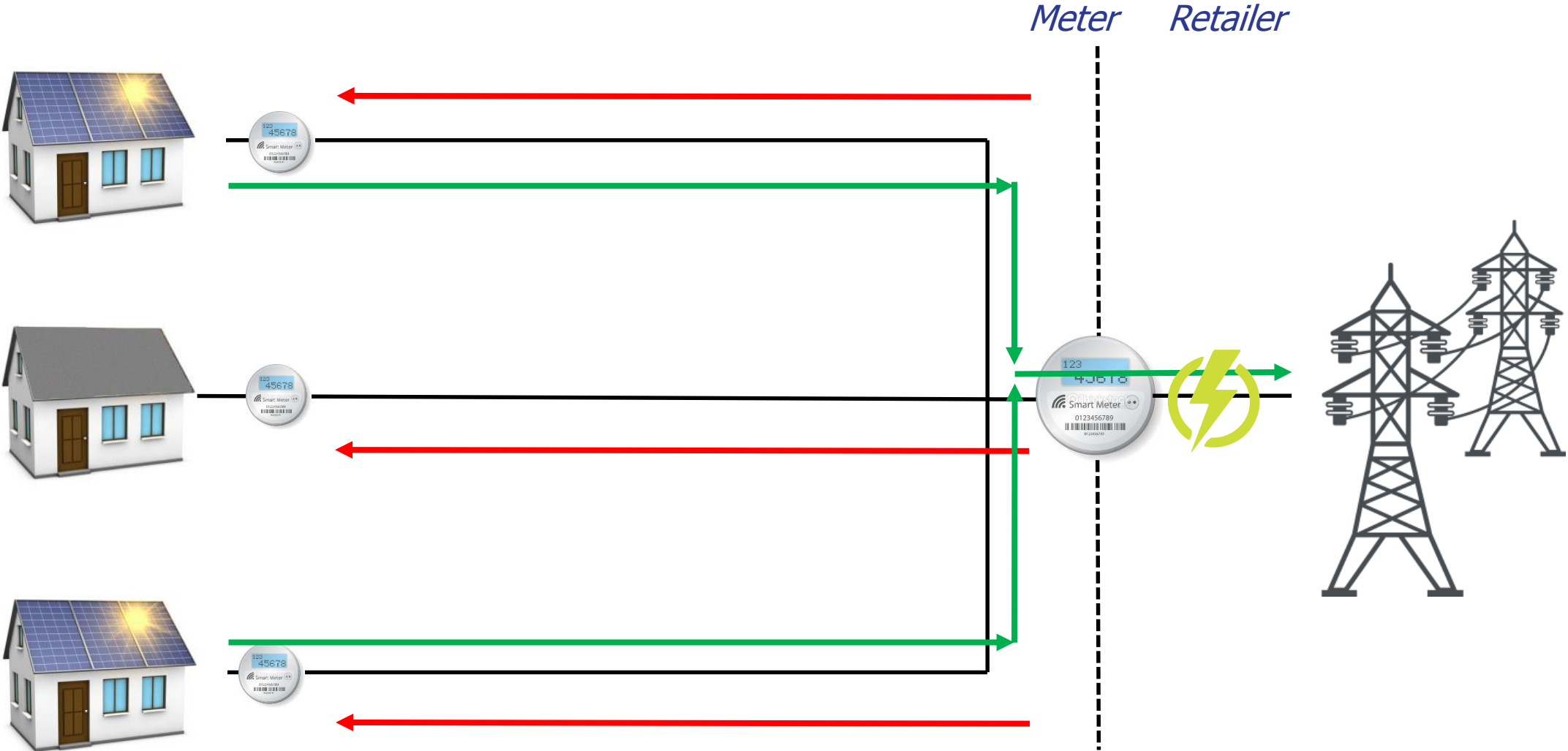
Meter

Retailer

A MICROgrid...

Grid Connection

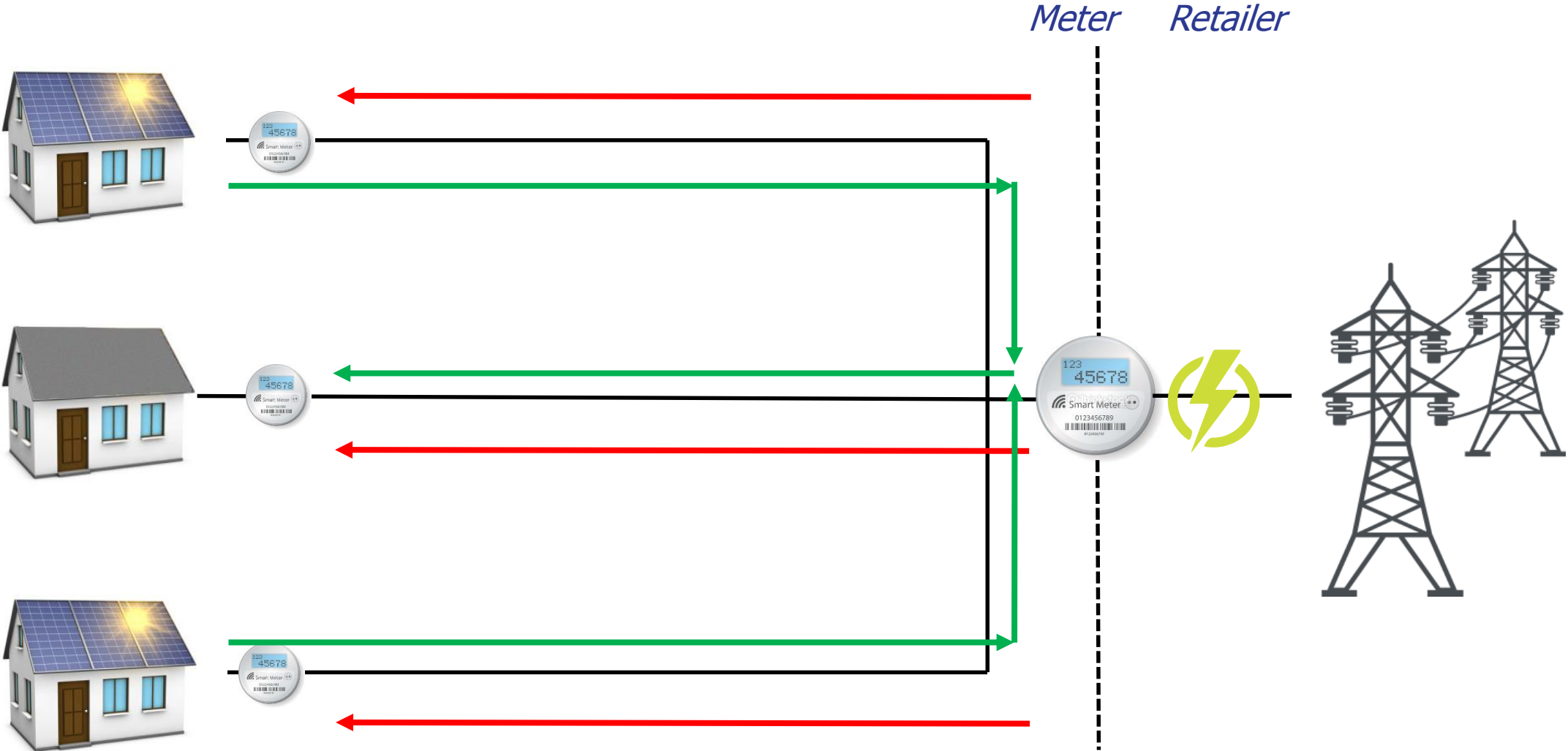
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A MICROgrid...

Grid Connection

renew.



Why a microgrid?

- Access cheaper grid energy (economies of scale)
 - Like *embedded networks* – share or monopolise the savings
- Share solar and batteries
 - Or trade among each other
- Operate independently of the grid when possible
 - ...and energy retailers, generators, and networks
- Participate collectively in a *virtual power plant* (VPP)



Policy and regulatory issues

- Consumer protections
 - Probably under *embedded networks* framework
 - Maybe some variations for community-owned networks?
- Stand-alone systems policy framework
 - ...maybe? Still in train
- Trading outside the microgrid
 - Requires *multiple trading relationships* rule change, or a friendly retailer or network business

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