Microgrids

what?

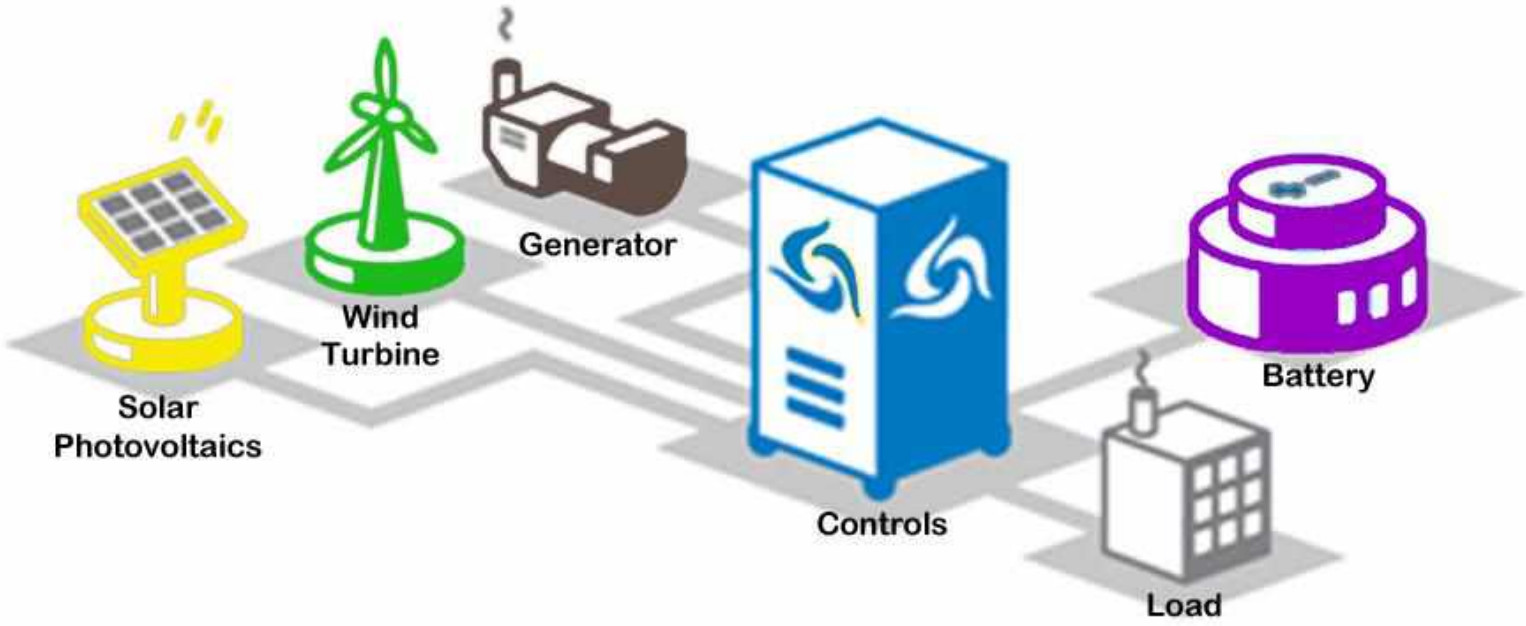
why?

how?

renew.

renew.

What is a Micro-Grid?



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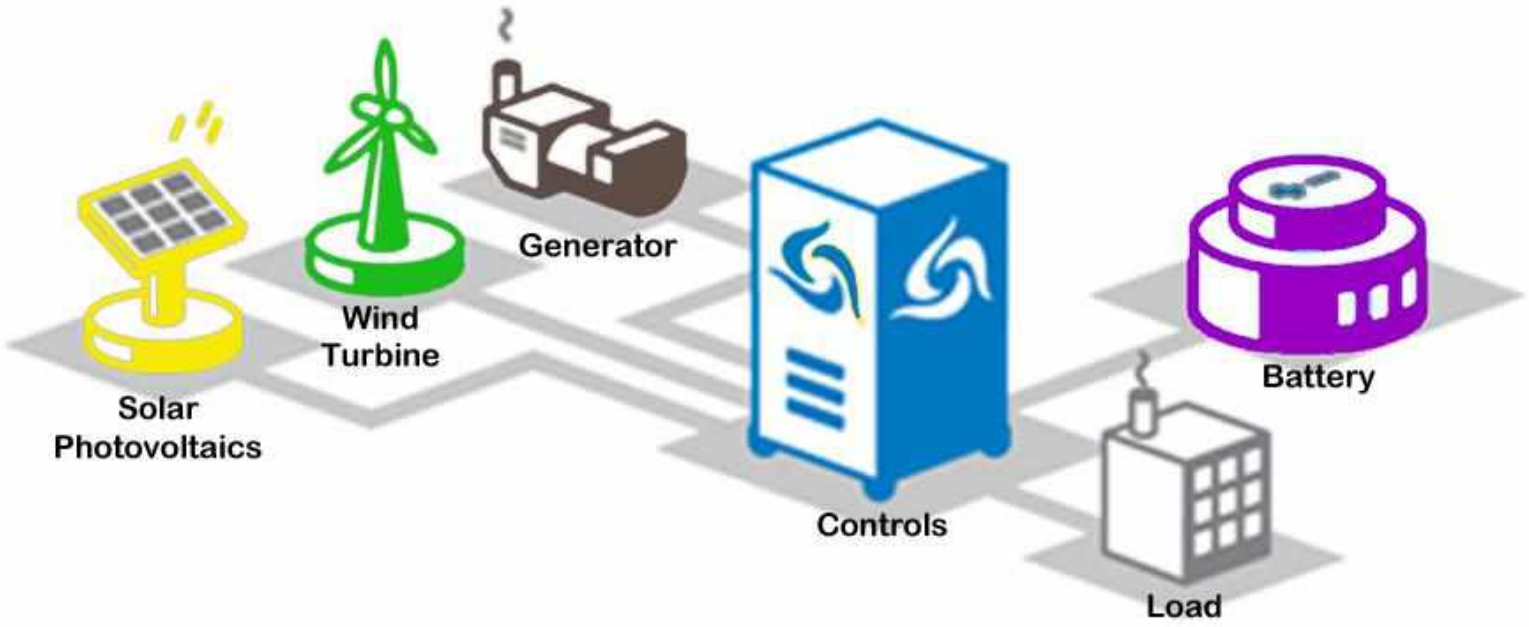


How does the regular grid work?

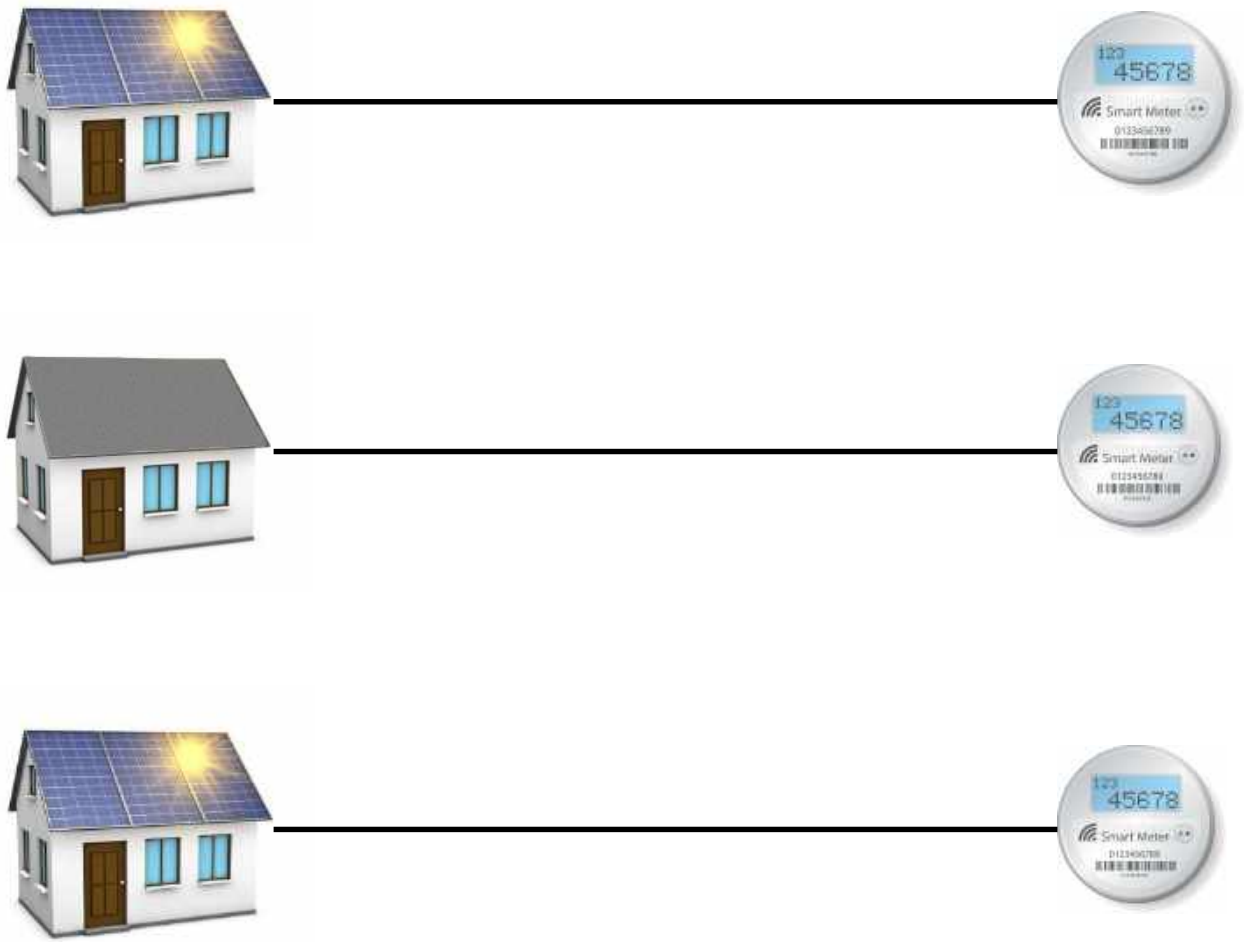
- Household uses energy from the grid
- Retailers pay generators for all their customers' usage (as measured at meters)
- Retailers pay networks for all their customers' use of the grid (as measured at meters)
- Retailer charges household for energy use (as measured at the meter) to recover costs and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

The household is the retailer's customer

The REGULAR grid…

renew.

The REGULAR grid…



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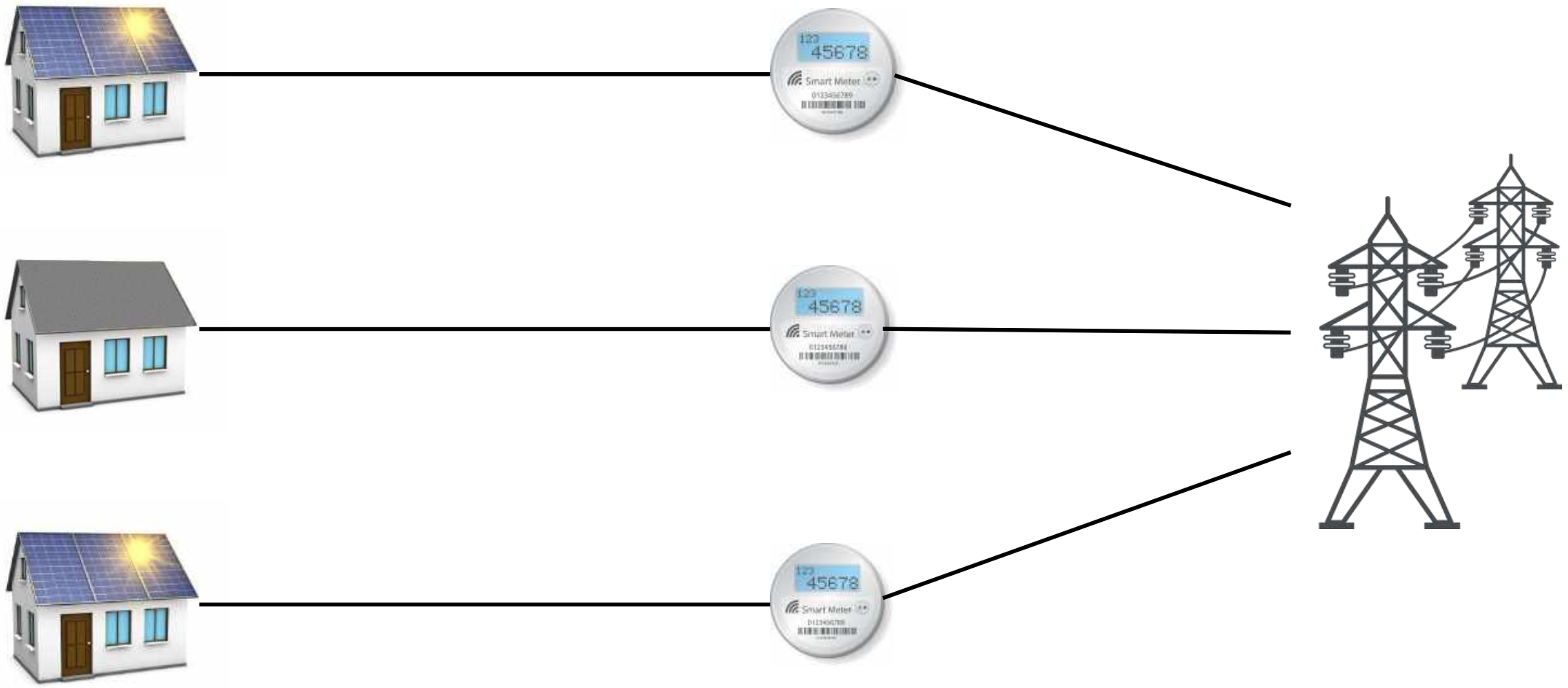

The REGULAR grid…

Grid Connection

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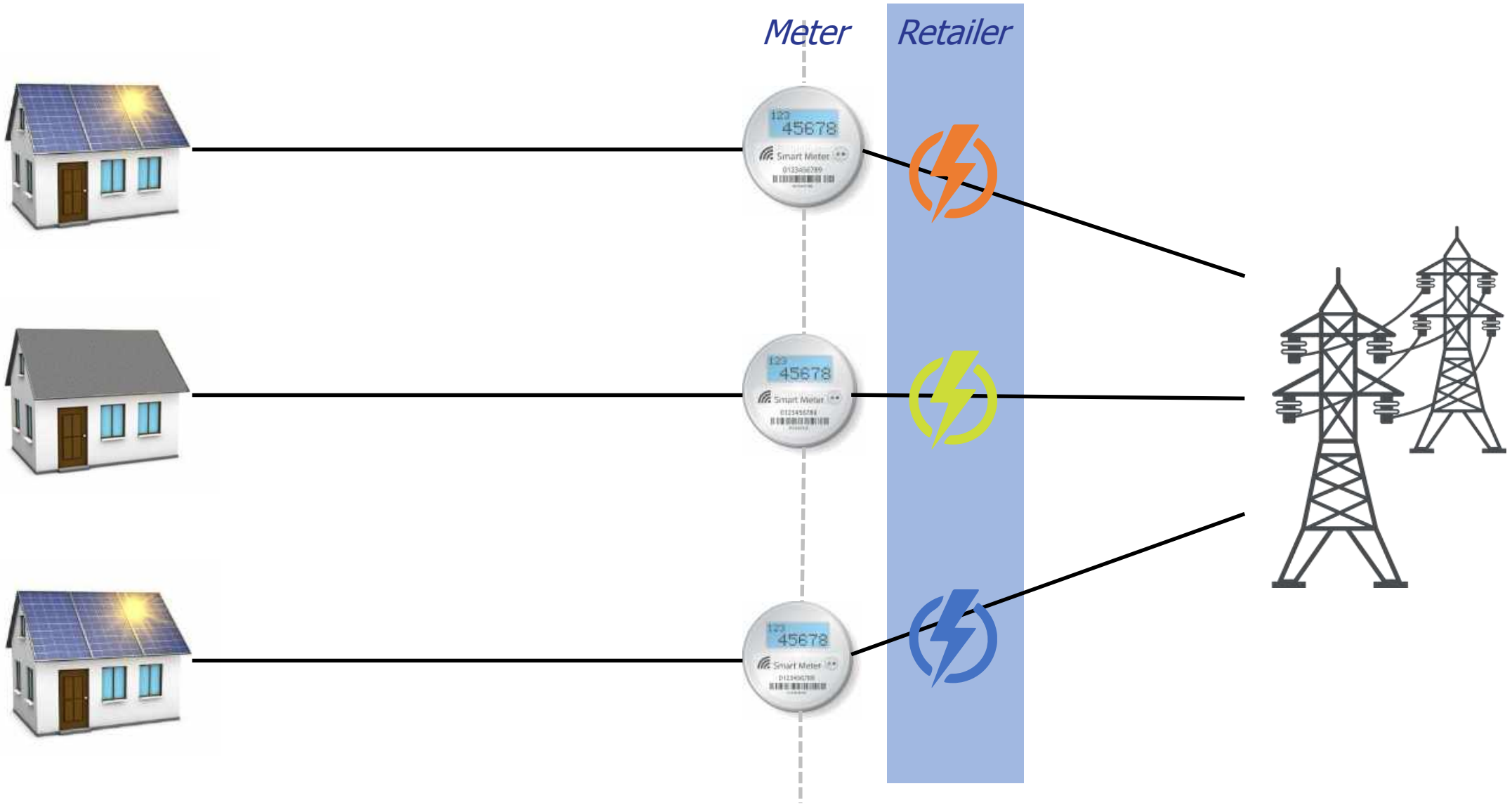

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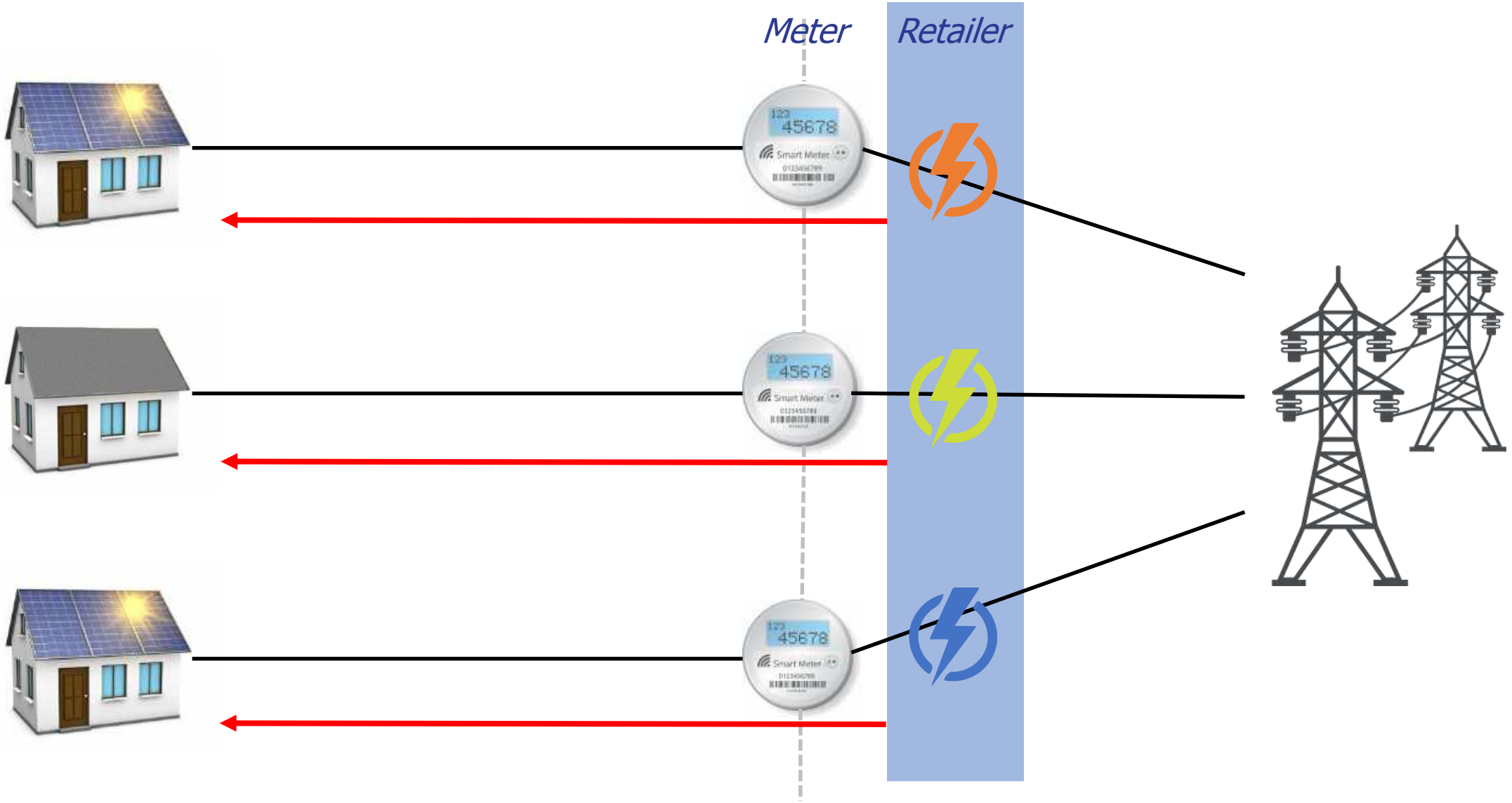

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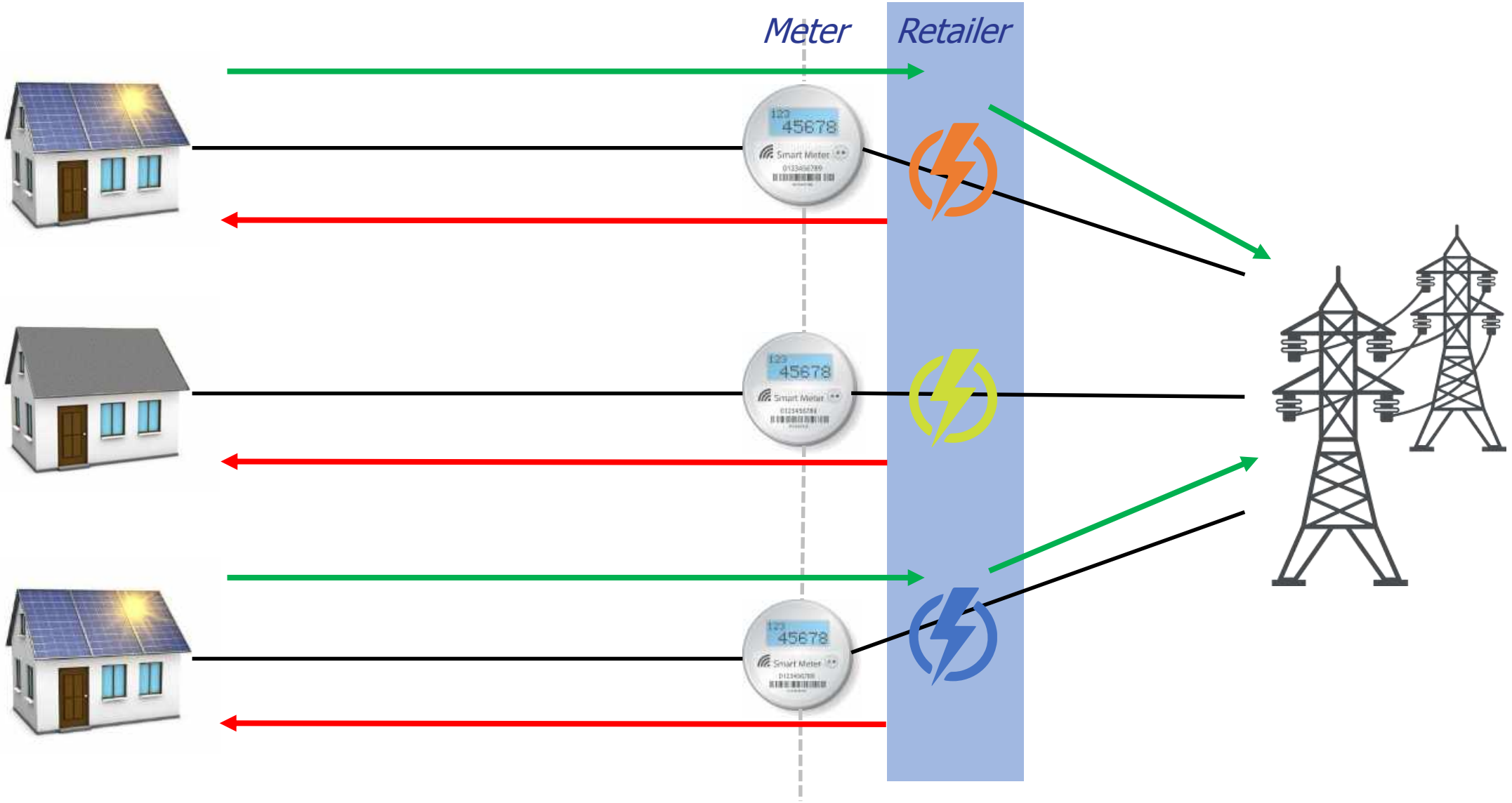

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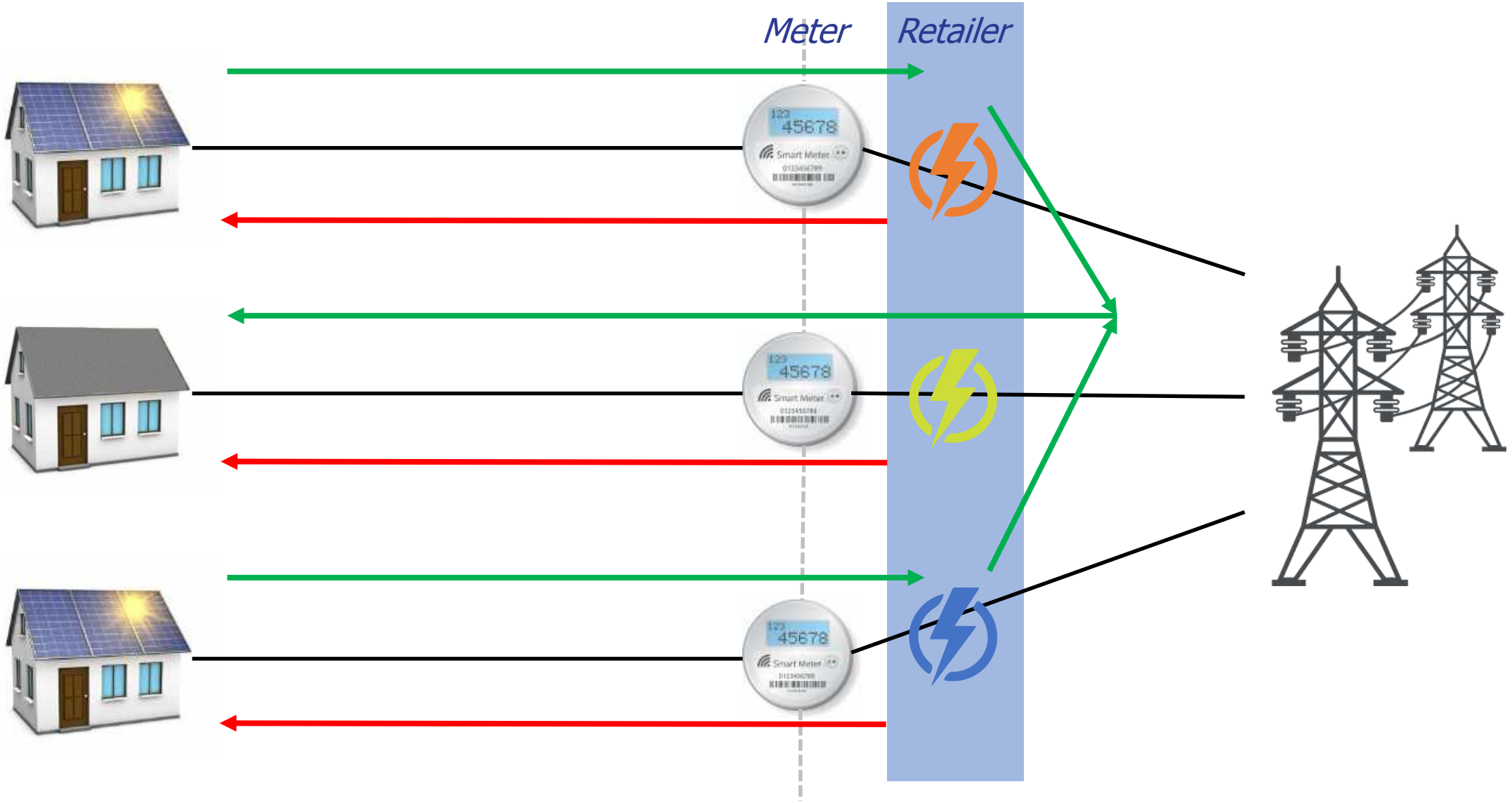


How does a microgrid work?

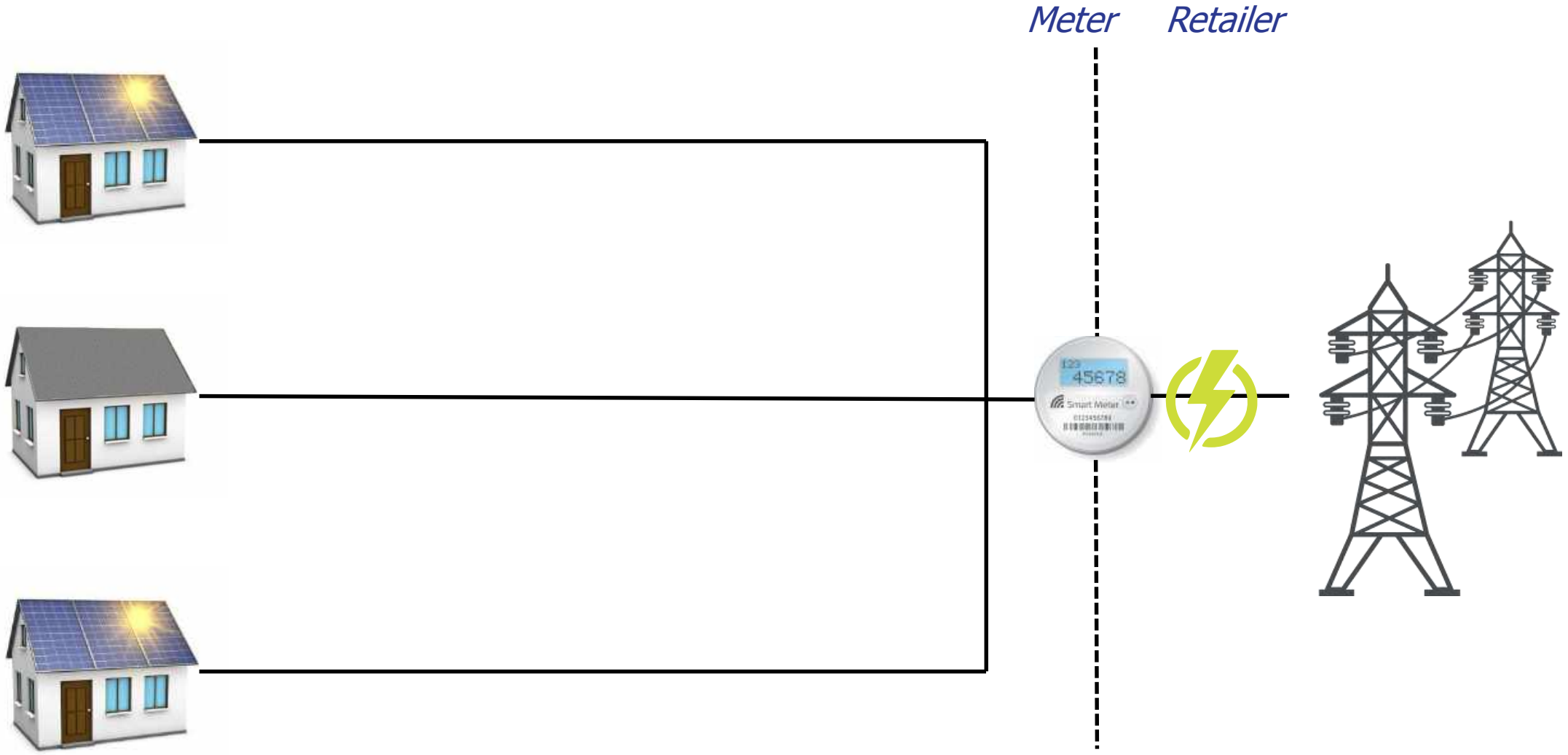
- Microgrid uses energy from the grid
- Retailers pay generators for all their customers' usage (as measured at meters)
- Retailers pay networks for all their customers' use of the grid (as measured at meters)
- Retailer charges microgrid for energy use (as measured at the meter) to recover costs and 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

renew.



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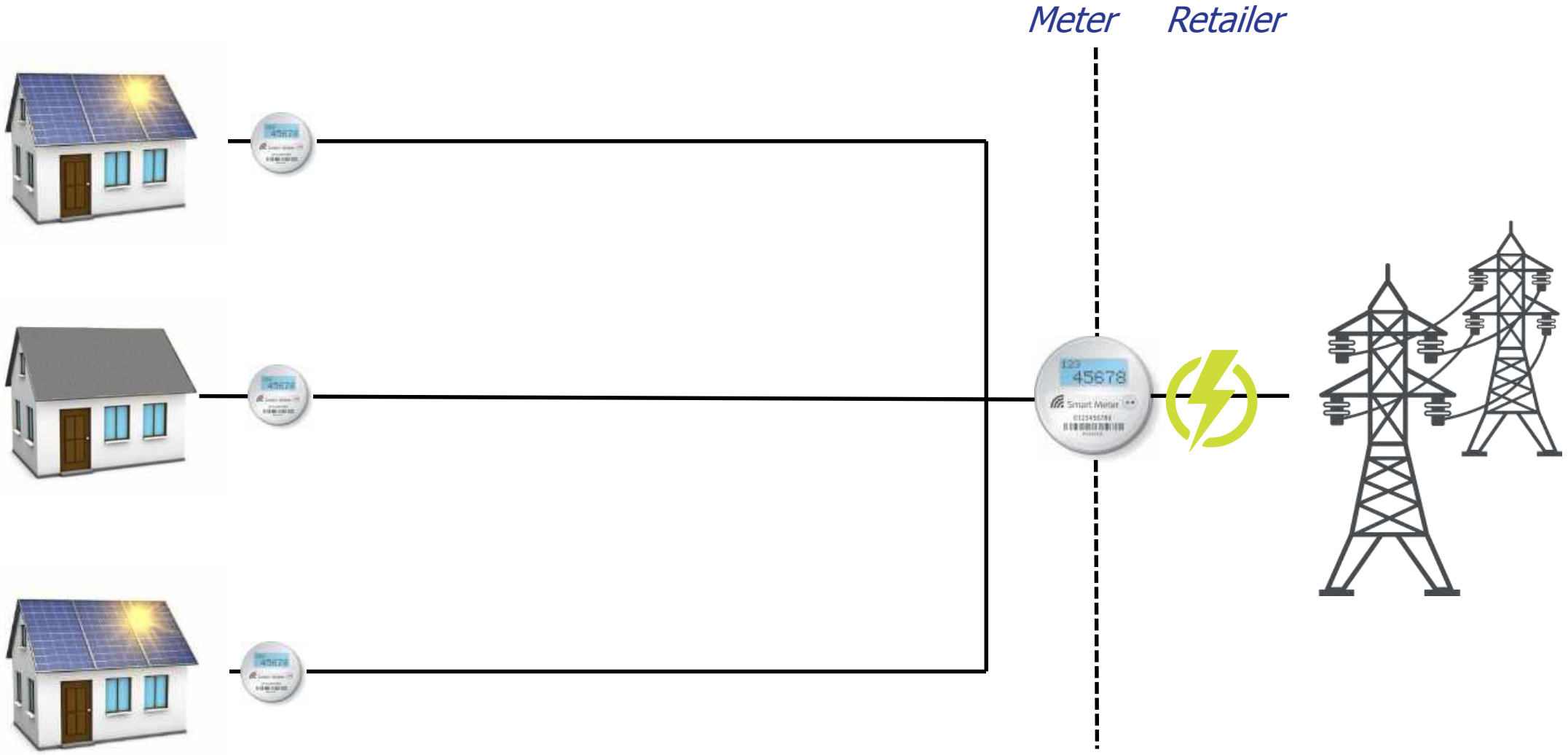

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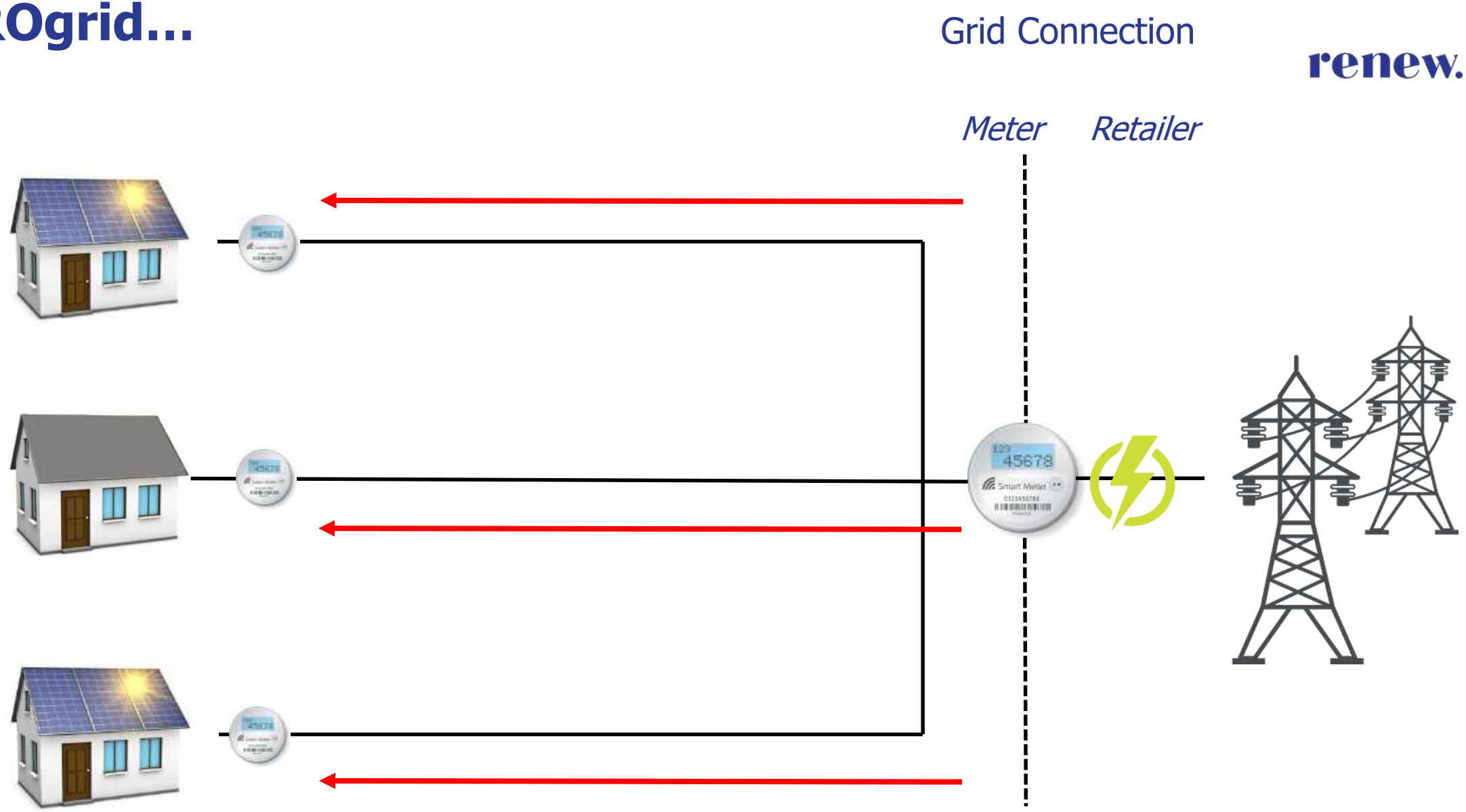

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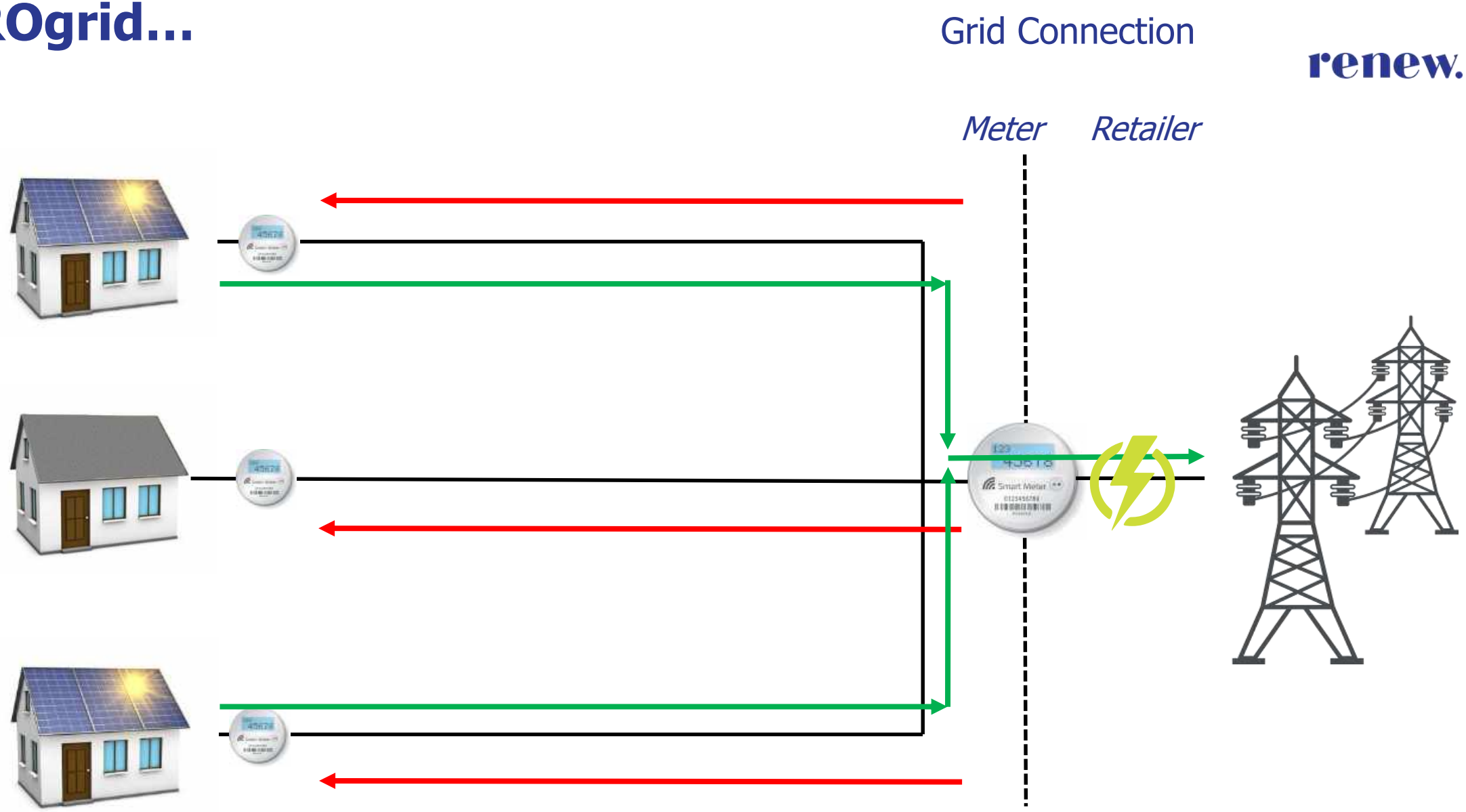

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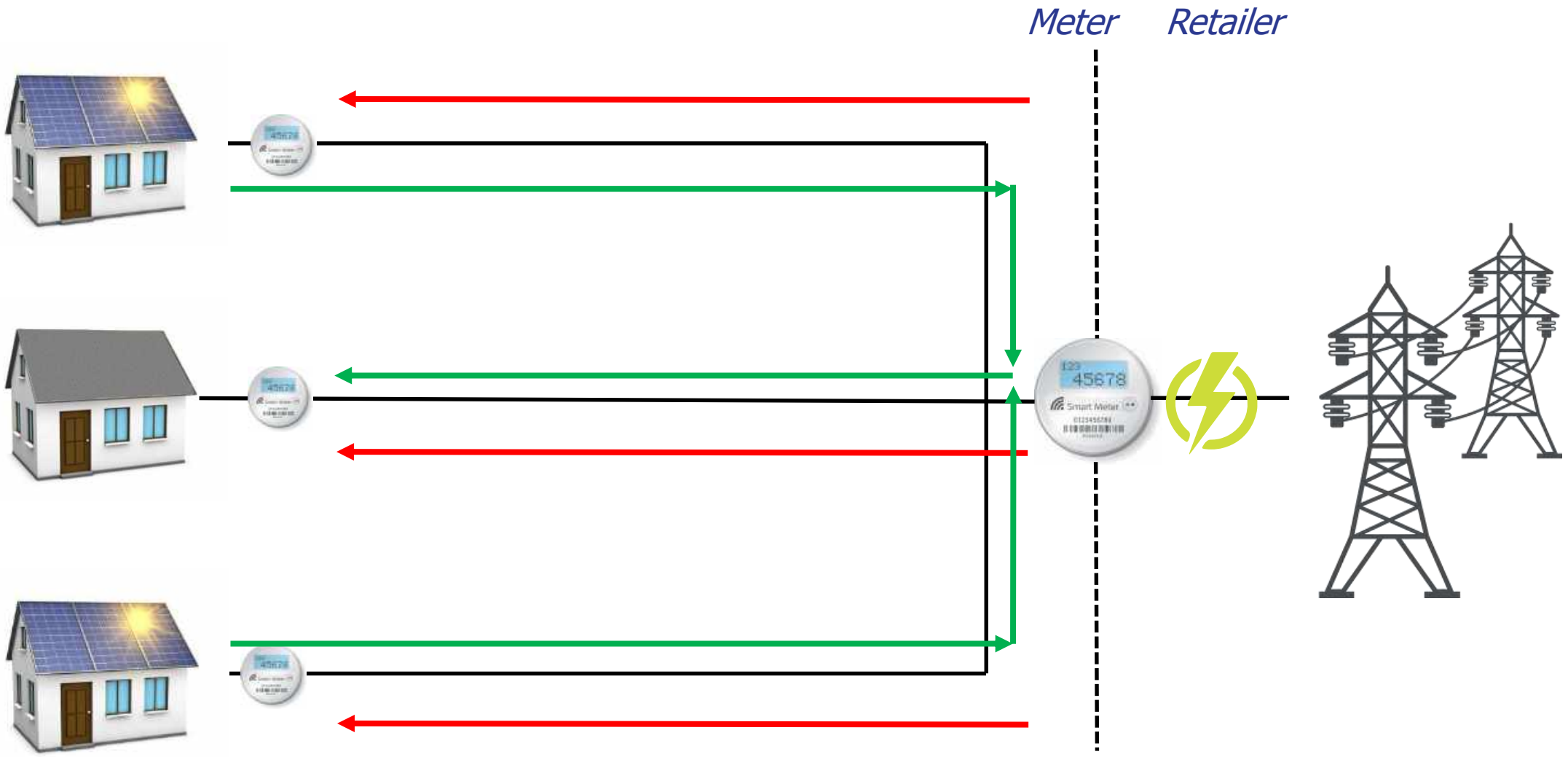

Why a microgrid?

- 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