



# Energy Cafe

Where do we use energy at home?

Energy use = power x time



High  
Power



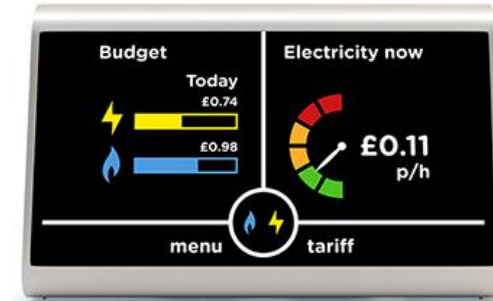
Short periods of time

On most of the time

# How to measure Electricity Use



- Meters
  - Regular meter readings - some good apps
  - Smart meter
  - Plug in meter - to check individual appliances
- kWh per day is a good measure
  - easy to compare days
  - changed behaviour
  - replaced appliances
- Key changes
  - newer better insulated fridge
  - LED lighting, especially if replacing halogen bulbs
  - Newer lower power TV? (replace plasma models)



# Heating for rooms & water



- Gas typically 8,000 - 12,000 kWh per year

~ 1800 Kg CO<sub>2</sub>

- Electricity 2,000 - 4,000 kWh per year

~ 600 Kg CO<sub>2</sub>

- Insulation & Draught proofing

- Alternative heating options now exist – see later presentation

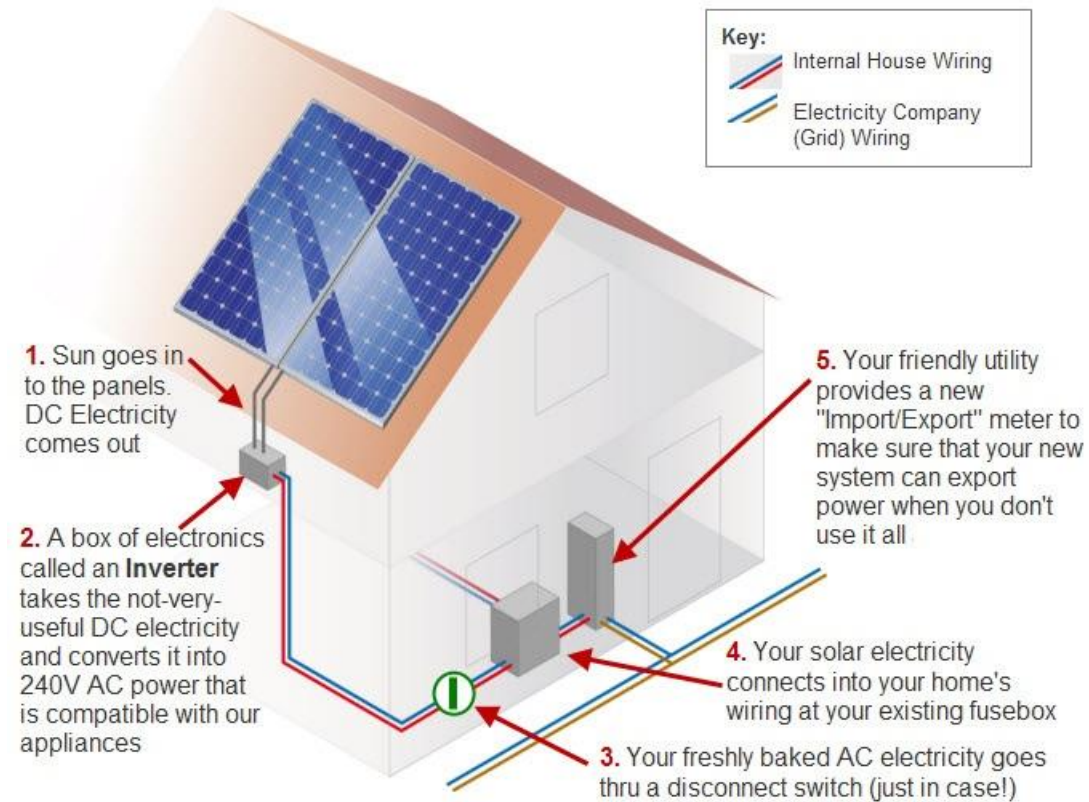




# Energy Cafe

How to add renewables

# Solar Panels – how it works





# Solar panels process

- Select a couple of potential suppliers – [MCScertified.com](https://www.mcscertified.com)
- Remote survey using on-line “satellite” images
- Initial quotation
- On-site survey – roof & electrical supply
- Install panels on the roof
- Install electrical equipment & connections
  
- Electricity supplier – for export payments





# Other Options

- Heating using Heat Pumps - make 3x the heat from 1x the electricity
  - air source – an air conditioner in reverse
  - ground source
- Hot water
  - using electricity from solar panels to heat the immersion heater
  - solar hot water panels
- Batteries - useful for delaying power from the day to the evening
  - Suppliers: Tesla PowerWall, PowerVault, Moixa (both London based)
- Electric car charging
  - useful for using solar power during the day or low carbon overnight electricity