Scenario Description

Domestic demand:

* Specified quantities: Number of meters, total annual demand
* Notes:
  + I suggest using the same peak per household irrespective of differences in total annual demand. Differences in total consumption may have little bearing on peak

Nondomestic demand:

* Specified quantities: Number of meters, total annual demand
* Notes:
  + I suggest scaling peak per business wrt total annual nondomestic demand, as nondom demands are probably more consistent.

Domestic PV Deployment:

* Specified quantities: Number of installations, total capacity per LSOA
* Notes:
  + For UK as a whole, both number and summed capacity of PV are scaled up by the multiplicative factor provided in FES for microgeneration between 2020 and 2050
  + For UKPN and NPG regions, capacity growth is specified explicitly on an LSOA/LA level.
  + For NPG, LA level values are split between LSOAs on the basis of number of meters (same number per meter in each LSOA in the LA).
  + For these regions, growth in number is calculated from capacity based on an assumed 4kW PV capacity for domestic installations (as assumed by UKPN)
  + In a few LSOAs (~3%), this results in more PV installations than meters. I suggest limiting PV deployment to 100% of rooves in these cases)

Nondomestic PV Deployment:

* Specified quantities: Number of installations, total capacity per LSOA.
* Notes:
  + The same approach as for domestic PV for UK as a whole.
  + For UKPN, nondomestic PV deployment capacity is specified explicitly. Number of installations are calculated by dividing this number by mean capacity of nondom PV installations (63kW)
  + For NPG, nondomestic PV deployment is not specified, therefore values for UK as a whole are used.

HP Deployment:

* Specified quantity: Number of heat pumps per LSOA
* Notes:
  + For the UK as a whole, national numbers from FES allocated per LSOA, divided equally between each domestic meter
  + For UKPN and NPG, values are specified on an LSOA/LA level.
  + For NPG, LA level values are split between LSOAs on the basis of number of meters (same number per meter in each LSOA).
  + I haven’t specified power consumption, but a recent paper indicated an ADMD of 1.7kW for domestic HPs, and a maximum power output of 4kW for an individual heat pump.

EV Deployment:

* Specified quantities: Number of EVs, aggregated peak demand
* Notes:
  + For the UK as a whole, aggregated peak demand at a national level (with smart charging) and number of EVs as specified in FES (I found these data after our discussion - I included only cars and vans)
  + For UKPN and NPG, numbers of EVs per LSOA/LA are specified in DFES.
  + For NPG, LA level values are split between LSOAs on the basis of number of meters (same number per meter in each LSOA).
  + FES peak demand is divided equally between each domestic meter in the UK to give aggregated peak demand per LSOA
  + Aggregated peak demand across the NPG region (which has the same scenario basis) is divided by total number of EVs in this region to give “aggregated peak demand per EV”
  + The above number is used to (1) revise aggregated peak demand in UKPN and NPG regions based on number of EVs, and (2) calculate number of EVs for LSOAs across the UK

Storage

* I have included this as data was available, but probably makes sense not to include these in a first set of runs as discussed.