

# Electricity: Nuclear

This lever controls the sub-levers listed in the table, and ambition levels are for the end year shown on the right-hand side.

Nuclear power generation, once constructed, is almost zero-carbon and therefore could play a key role in decarbonising the power generation sector.

The UK started using nuclear power generation in the late 50's. In 1994, the UK reached its peak nuclear capacity at 12GW. Today there is around 9GW operating. Most of these existing power stations will soon be retired leaving 1.2GW of legacy capacity (Sizewell B in Suffolk).

The UK is pursuing new nuclear power generation with Hinkley Point C, a 3.26GW plant, where the first unit is due to start generating b in 2025.

Small modular reactors (SMR) are typically up to 300MW in capacity and some aspects can be manufactured in factories to reduce the cost of onsite construction. The modular nature of these reactors means that although each module is small in capacity, multiple units can be used for larger capacities.

**Level 1**  
Legacy power stations are retired as planned. Sizewell B remains in operation, supplemented Hinkley Point C, together capable of generating up to 35 TWh per year.

**Level 2**  
Legacy power stations are retired. Nuclear power stations are built at four or five more sites, giving a capacity of 15 GW and capable of generating up to 120 TWh per year.

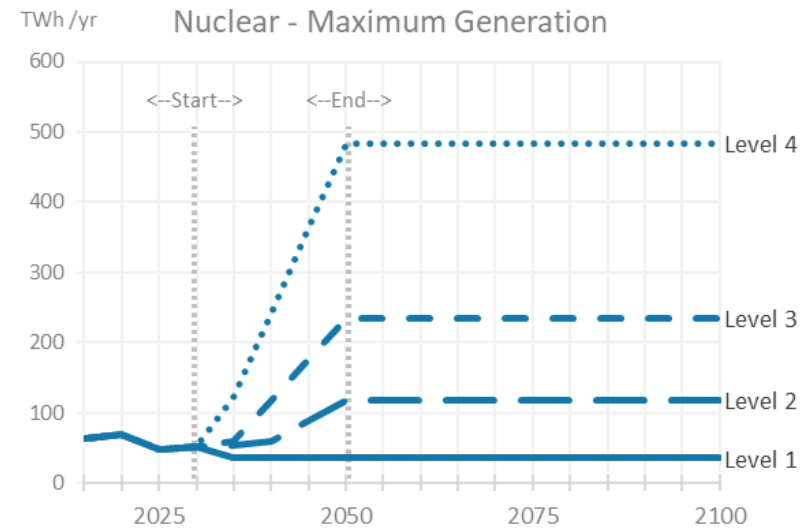
**Level 3**  
All suitable existing sites have power stations similar to Hinkley Point C, giving a capacity of 30 GW and capable of generating up to 230 TWh per year.

**Level 4**  
The maximum potential for new nuclear and SMR power stations is reached, involving multiple reactors at existing and new sites, totalling 60 GW<sup>1</sup> and capable of generating up to 480 TWh per year.

<sup>1</sup><http://d2umxnkyjine36n.cloudfront.net/insightReports/Nuclear-Insights-%E2%80%93Midres-AW.pdf?mtime=20160908152349>

Default Timing    Start year: 2030, End year: 2050

Sub-Lever	Units	2015	Level 1	Level 2	Level 3	Level 4
Nuclear Capacity	GW	9.6	4.5	15.0	30.0	60.0



- 2<sup>nd</sup> Priority
- Biomass CCS
  - Nuclear
  - Hydro
  - Wind
  - Solar PV
  - Wave & Tidal
  - Biomass
  - Gas CCS
  - Interconnector
  - Coal Unabated
  - Gas Unabated

**Lever Priority**  
Nuclear power is second in the priority order for generating electricity, ahead of renewables because nuclear cannot be switched on/off easily.  
  
Where supply would otherwise exceed demand, measures lower in the priority order will be superseded by those above them. Unabated gas will meet any shortfall in demand.