The International Atomic Energy Agency (IAEA) defines 'small' as under 300 MWe, and up to about 700 MWe as 'medium' – including many operational units from the 20th century. Together they have been referred to by the IAEA as small and medium reactors (SMRs). However, 'SMR' is used more commonly as an acronym for 'small modular reactor', designed for serial construction and collectively to comprise a large nuclear power plant. (In this information page the use of diverse pre-fabricated modules to expedite the construction of a single large reactor is not relevant.) A subcategory of very small reactors – vSMRs – is proposed for units under about 15 MWe, especially for remote communities.

Small modular reactors (SMRs) are defined as nuclear reactors generally 300 MWe equivalent or less, designed with modular technology using module factory fabrication, pursuing economies of series production and short construction times. This definition, from the World Nuclear Association, is closely based on those from the IAEA and the US Nuclear Energy Institute. Some of the already-operating small reactors mentioned or tabulated below do not fit this definition, but most of those described do fit it. PWR types may have integral steam generators, in which case the reactor pressure vessel needs to be larger, limiting portability from factory to site. Hence many larger PWRs such as the Rolls-Royce UK SMR have external steam generators.

This information page focuses on advanced designs in the small category, *i.e.* those now being built for the first time or still on the drawing board, and some larger ones which are outside the mainstream categories dealt with in the Advanced Nuclear Power Reactors page. Some of the designs described here are not yet actually taking shape, others are operating or under construction. Four main options are being pursued: light water reactors, fast neutron reactors, graphite-moderated high temperature reactors and various kinds of molten salt reactors (MSRs). The first has the lowest technological risk, but the second (FNR) can be smaller, simpler and with longer operation before refuelling. Some MSRs are fast-spectrum.

Today, due partly to the high capital cost of large power reactors generating electricity via the steam cycle and partly to the need to service small electricity grids under about 4 GWe,[b] there is a move to develop smaller units. These may be built independently or as modules in a larger complex, with capacity added incrementally as required (see section below on Modular construction using small reactor units). Economies of scale are