

## 4.7 Fast neutron reactors (FNRs)

As described in section 2.9, the label *fast neutron reactor* (FNR) refers to a broad class of reactors that rely on fast neutrons alone to sustain the chain reaction. Consequently there is no moderator. Various fuels and combinations of fuels can provide the required self-sustaining reaction. However, they are most often fueled with plutonium or a mixture of uranium and plutonium. Since there is a large store of highly enriched uranium that has been produced for military purposes, this is sometimes added to the fuel of fast reactors.

Often the core of a fast reactor is surrounded by a *blanket* of fertile  $^{238}\text{U}$  in which the neutron flux from the central core produces or breeds additional plutonium; indeed in the presently constructed fast breeder reactors (FBRs) most of the  $^{239}\text{Pu}$  is produced in this blanket.