

Prototype Fast Reactor



Prototype Fast Reactor (PFR)

Manager: **Jim McCafferty**
 Completion date: **2024**
 Cost: **£338M**
 Supported by: **Nuvia Ltd, JGC, BNS, Jacobs Babbie**

Completion date and cost are current estimates, subject to NDA approval

PFR was Britain's second and last fast reactor. In the 1960s, it was the final step to bringing fast reactors into commercial use as conventional power stations.

Fifteen hundred tonnes of liquid sodium metal was used to transfer the heat from the reactor core through to three secondary circuits and a steam-generating plant for electricity production. PFR had the dual role of providing power to the national grid and offering unique research and development facilities. PFR provided information for the future design and operation of large commercial fast reactor stations and had an electrical output of 250 MW, which, at the time, was enough to power a city the size of Aberdeen.

Key facts:

- **Construction:**
- 1967-1974
- **Operation:**
- 1974-1994
- **Output:**
- 250MW (electrical)
- **Decommissioning Completion:**
- 2024



Decommissioning progress to date:

- Redundant electrical plant removed from the turbine hall and steam generator building.
- World's largest destruction plant for liquid metal built at PFR.
- Special water vapour nitrogen process developed for removal of liquid metal residues in the reactor – application submitted for patent.
- Destruction of the 1,500 tonnes of bulk liquid sodium is almost complete.
- Clean-out of 60 tonnes of sodium from irradiated fuel caves is complete and refurbishment of the caves successfully completed to allow decommissioning work to continue.
- Jacking up of major reactor components to release trapped sodium, complete.
- Construction, commissioning and successful start-up of new effluent treatment plant and sodium inventory disposal plant.
- Successful removal of sodium residues in coolant pipework and use of pioneering pipe-piercing and diagrid drilling equipment to remove sodium residues, designed and constructed in-house.
- Use of remotely operated camera to view depths of reactor, designed and constructed in house.
- Control room stripped, refurbished and converted to office space to house PFR project personnel;
- Removal of items from the buffer store pond underway.
- Clean-out of secondary sodium circuits complete in all three cells using specialist technique. Major strip-out work complete.



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