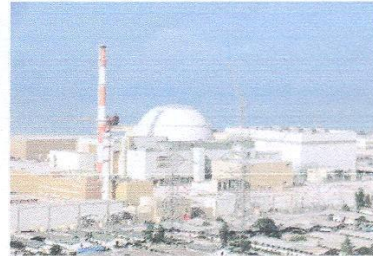


Bushehr goes critical

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Iran's first nuclear power reactor has achieved a sustained chain reaction, Russian builder AtomStroyExport (ASE) has announced.

According to ASE, Bushehr achieved criticality at 11.12am on 8 May 2011 and is now functioning at the minimum controlled power level. Final commissioning tests will now be carried out prior to ramp-up to 100% power and the start of commercial operation. According to Iranian news agency Fars, the plant is expected to be connected to the national grid within the next two months.



Bushehr (Image: AEOI)

Construction work began on two German-designed pressurised water reactors (PWRs) at the Persian Gulf site in the mid-1970s but was abandoned in 1979 following the Islamic revolution when unit 1 was substantially complete. In 1994, Russia's Minatom agreed to complete unit 1 as a VVER-1000 making use of the infrastructure already in place. However, this necessitated major changes, including fabrication of all the main reactor components in Russia under a construction contract with AtomStroyExport. The Atomic Energy Organization of Iran (AEOI) said in 2008 that it was no longer planning to complete Bushehr unit 2.

Further delays ensued for negotiations over fuel supply for the plant, but two agreements were signed early in 2005 covering the supply of fresh fuel for the reactor and its return to Russia after use, securing the plant's fuel supply needs for the foreseeable future.

The road to start-up still was not without hold-ups. In February 2011, only weeks before operation was expected to start, the discovery of debris from damaged coolant pumps meant that all the fresh reactor fuel had to be unloaded, checked and cleaned, and the reactor internals and main circulation pipeline flushed through.

The plant will initially be operated by a 50:50 Russian-Iranian joint venture, with Russia gradually withdrawing over the next three years.

Unlike the controversial parts of Iran's nuclear program, such as uranium enrichment and a heavy-water reactor, the Bushehr plant has been entirely built and will operate under full IAEA safeguards. It will produce about 1000 MWe for the Iranian grid, establishing nuclear power at about 3% of the country's power supply.