

Tidal Power: Past, Present and Future

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Tidal power plants were invented in the early 1900s. At that time only one tidal direction was utilized. Tidal mills were built in the 18th century when their major competitions were windmills and water wheels. The tidal mills disappeared with the invention of cheap steam engines. Rather few tidal plants have been built so far. The important reference plants are:

La Rance:

The first and largest tidal plant in operation is the 240 MW plant built for commercial production across the La Rance estuary in north-western France between 1961 and 1967. A 75 m dam (including sluices, powerhouse, ship lock and embankment) encloses a 17 km² basin. The tidal power plant has 24 bulb-type Kaplan turbines with a rated capacity of 10 MW each.

Annapolis:

The second commercially operated tidal power plant in the Western hemisphere is a 18 MW plant at Annapolis Royal on the Nova Scotia coast of the

Bay of Fundy in Canada. Built in 1984, the project utilises an existing flood control dam with a 7.8 m diameter Straflo turbine.

Other sites:

Other plants include the 400 kW experimental unit at Kislaya Guna, built in 1968 in Russia on the Barents Sea, and the 3.4 MW jianxia station built in China between 1980 and 1986. Most of the technically available tidal resources in Europe are in the UK. The site in the Severn estuary in south-western England represents a potential of 8 GW and has been the object of several feasibility studies. Large potential also exists in northern France, at the Cotentin Peninsula in Normandy. There are several other possible sites, in Argentina, Chile, Australia, Canada, China, India, Korea and Russia, with a tidal range between 4.8 and 11.5 m. Many of these sites are remote from centres of demand and therefore, although representing very substantial resources at rational equipment cost, stand little chance of development at present.