ESFRI

ENERGY / SINGLE-SITED

JHR

Jules Horowitz Reactor

Website
http://www-rjh.cea.fr/index.html

Headquarters
Cadarache Research Centre, CEA
Cadarache, France

Legal Status
Established (ERIC, AISBL, GmbH, Others)

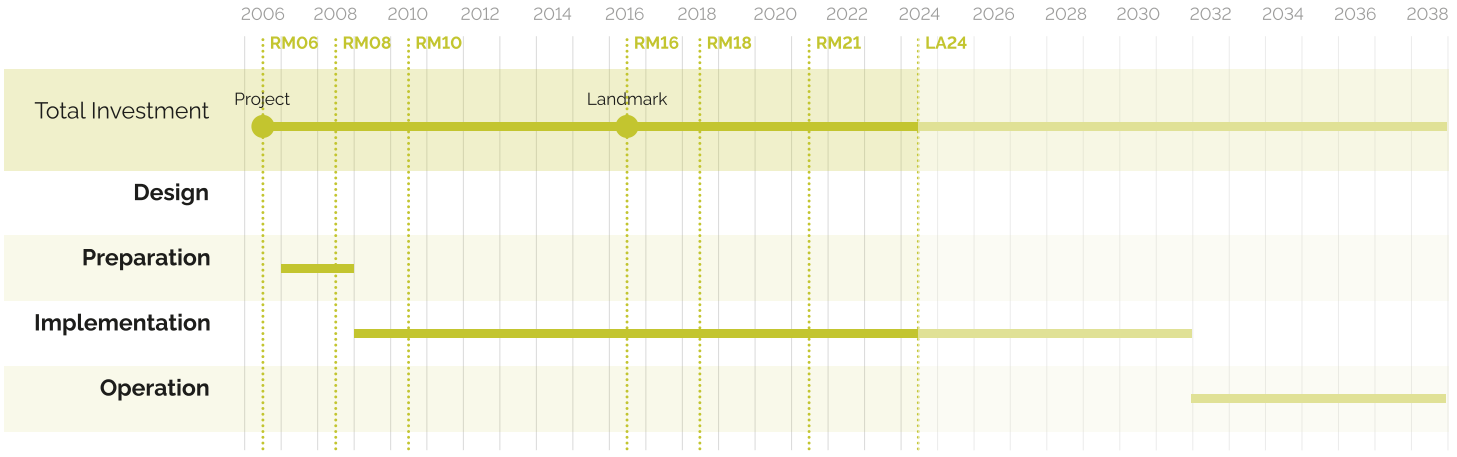
Type
single-sited

Access
physical

DESCRIPTION

The Jules Horowitz Reactor (JHR) is a reference international user facility to observe and understand material and fuel behaviour in extreme nuclear environment with irradiation loops reproducing the operational condition of the different power reactor technologies. Its primary uses will be research into the performance of nuclear fuel at existing reactors, testing of materials used in reactors, testing designs for fuel for future reactors and the production of radioisotopes used in medicine or industry. JHR is built and will be managed in the framework of an international cooperation between 15 organizations from 11 countries bound by a Consortium Agreement signed on March 2007 . The site preparation for the project began at the Cadarache Research Centre in 2007. The civil works of the main buildings are now completed. And since French State decision, in July 2023, to persue, with the support of nuclear industry, the investment in JHR reactor until completion, the roadmap proposed by CEA can be implemented. This roadmap leads to a start up of the reactor in 2032.

TIMELINE & ESTIMATED COSTS



POLITICAL SUPPORT

Lead
pending

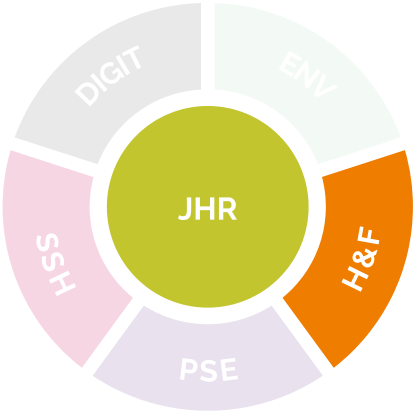
IMPACTS

JHR has a planned lifespan of around 50 years, and is designed to be adaptable for a variety of research uses by nuclear utilities, nuclear steam system suppliers, nuclear fuel manufacturers, research organizations and safety authorities. JHR will represent in Europe a unique experimental facility accessible to industry, research institutes, nuclear regulatory authorities and their technical supports. JHR will be a key RI for the nuclear international community extending performances and assessing safety for nuclear power plants in doing so also strengthening technology credibility and public acceptance. In addition, it will be effective in training new generations of scientist and engineers in the strategic field of nuclear energy also guaranteeing the high level of expertise needed in the staff of power plants in all steps of their lifecycle, including operation and decommission. JHR will also ensure a significant production of radioelements for nuclear medicine and for non-nuclear industry.

SERVICES

The JHR will provide to end-users a large fleet of experimental devices in order to implement experiences on nuclear fuel and materials from TRL 1 to TRL 8/9. With its high neutron flux, JHR will be also able to produce a large range of radioisotopes for research, medicine and industry.

INTERCONNECTIONS



COOPERATION WITH OTHER RIS

JHR works with other research reactor to develop the relevant fleet of experimental devices in order to answer the needs of future end users. CVR, VTT, NNL, SCK CEN are members of JHR Consortium. In operation JHR will be open to other RIs to support them in the implementation of their research experiences.