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## Igor Kurchatov and the Russian Fusion Program

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The 110-th anniversary of Academician Igor Kurchatov was celebrated a year ago. Kurchatov belongs to the pleiad of greatest Russian scientists. His research and managerial activity determined further development of Nuclear Energy and Controlled Fusion both in Russia and in the world.

In 1951 Kurchatov recognized the fundamental significance of high temperature plasma research performed by Igor Tamm and Andrei Sakharov and suggested the Government of USSR to use fusion neutrons for Pu239 and U233 breeding from U238 and Th232 as well as tritium breeding from Li6. His historic letter initiated plasma research in devices with straight magnetic field, mirror machines and in toroidal magnetic configurations with plasma current, later named 'tokamaks'. Kurchatov clearly understood that building a magnetic fusion reactor was impossible without a deep knowledge of high temperature plasma physics. He appointed Academician Lev Artsimovich as the leader of the national fusion program and Academician Mikhail Leontovich as the leader of theoretical research.

A national Fusion Program for the period from 2014 to 2030 has been formulated in Russia taking into account the present status of fusion research, results of ITER design and construction activity, trends in development of Nuclear Energy and prospects of Fusion Energy. The program includes two main directions of research and development:

1. active participation in the ITER project and supporting it by theoretical research and experimental activity on national facilities;
2. implementation of magnetic fusion achievements and innovative nuclear technologies for faster development of global Atomic Energy via supplementing it by Fusion-Fission Hybrid Systems (FFHS) capable of extending fissile recourses, improving safety, ecology and nonproliferation regime.

The R&D program for hybrid systems and enabling technologies will be realized with the following milestones:

1. Design and construction of the demonstration fusion neutron source DEMO-FNS on the basis of a superconducting tokamak for tests of hybrid blankets and nuclear technologies by 2023;
2. Design and construction of the Pilot Hybrid Plant (PHP) by 2030.

### Country or International Organisation

Russian Federation

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