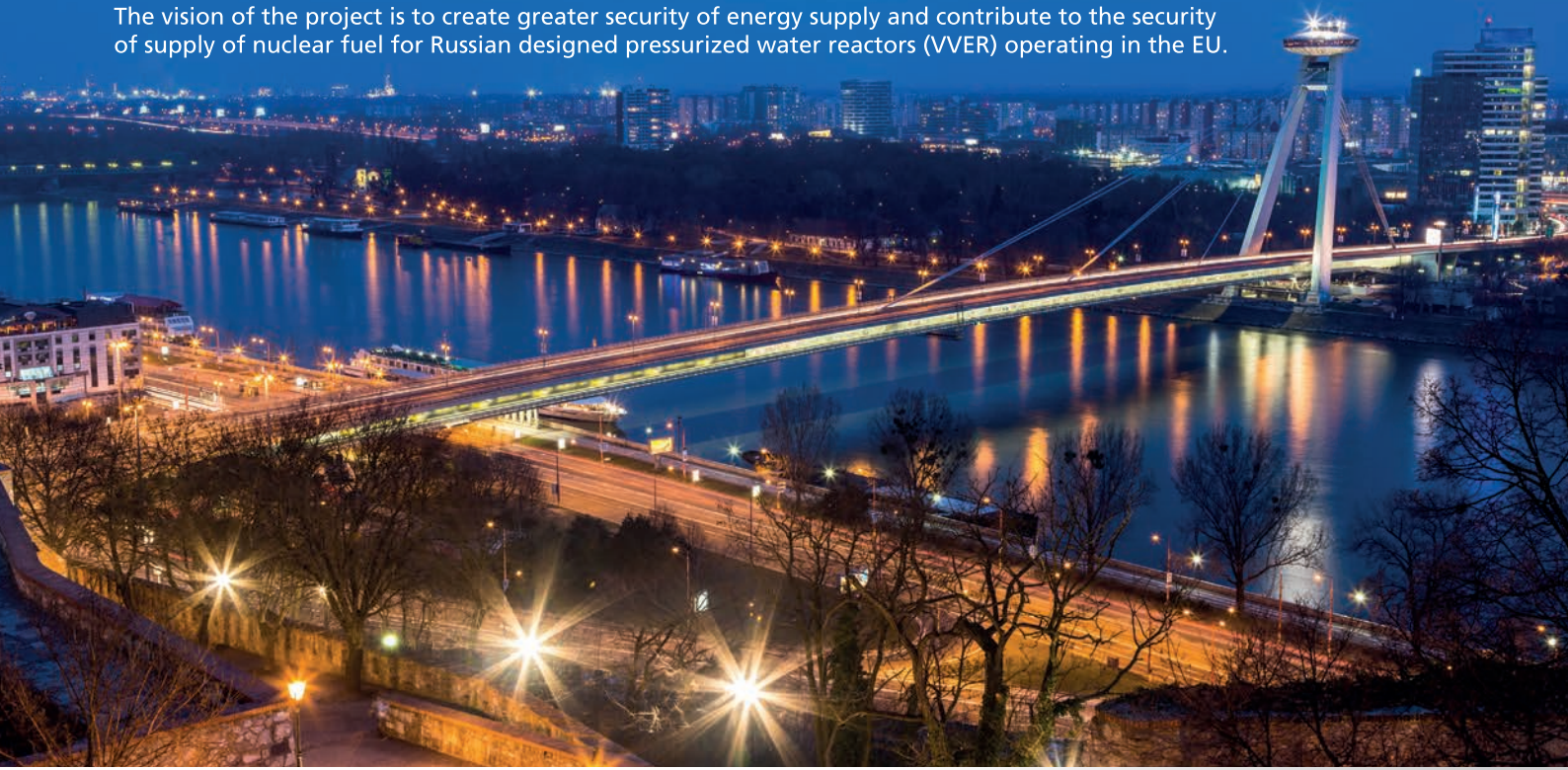


European Supply of Safe Nuclear Fuel

The vision of the project is to create greater security of energy supply and contribute to the security of supply of nuclear fuel for Russian designed pressurized water reactors (VVER) operating in the EU.



In the spring of 2015 the ESSANUF project was awarded funding of 2 million euros from the European Atomic Energy Community, Euratom. The project was launched in September, 2015, and its planned duration is 26 months. The project has participants from nine different organizations in a consortium that is coordinated by Westinghouse Electric Sweden AB.

The overall aim of the project is to create greater security of energy supply and contribute to the security of supply of nuclear fuel for Russian designed pressurized water reactors (VVER) operating in the EU by diversification of fuel sources and in full compliance with nuclear safety standards. The main technical objectives of the project are to:

- develop a conceptual state-of-the-art VVER-440 fuel design, including an assessment of the manufacturing capabilities, including sub suppliers
- establish the methods and methodology required to qualify the VVER-440 fuel design for operation
- create, to the extent possible, a generic licensing scope for the qualification of the fuel design in Finland, Hungary, Slovakia, Czech Republic and Ukraine.



This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 671546.

Participants of the ESSANUF program



NATIONAL NUCLEAR
LABORATORY

enusa

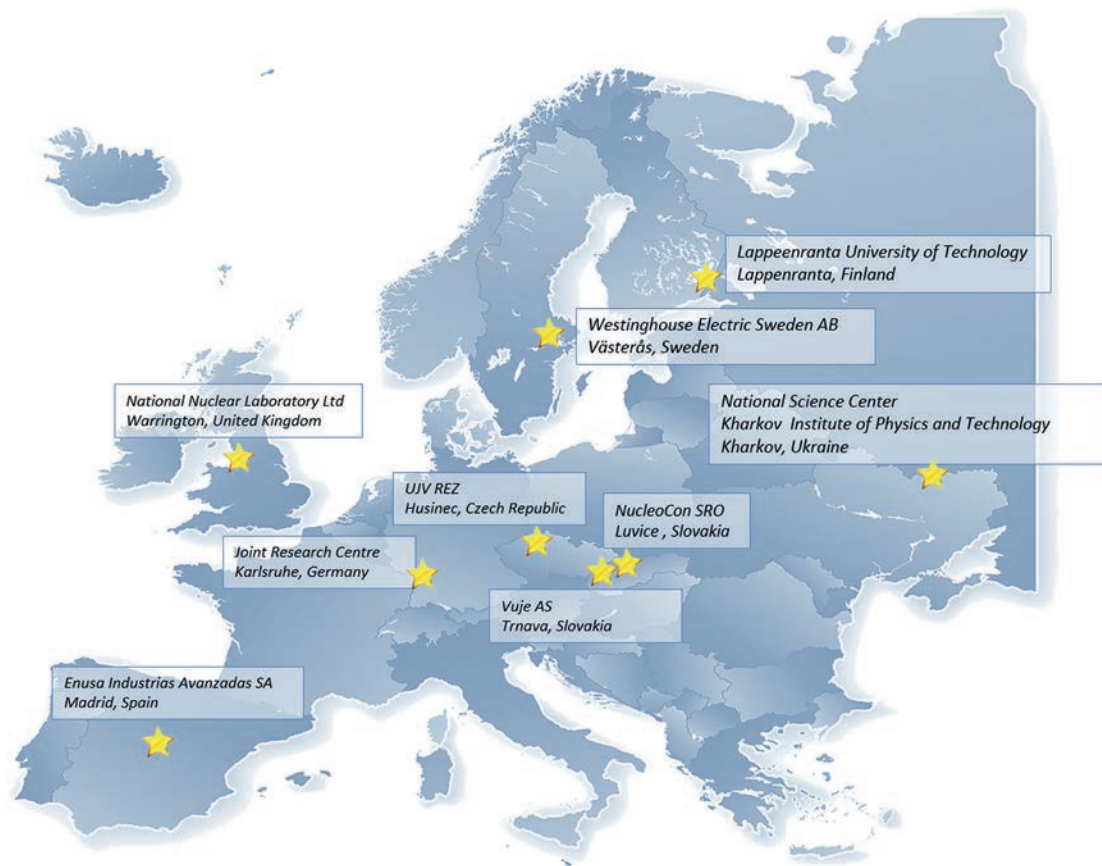
vuje

NUCLECON
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NSC KIPT
National Science Center
Kharkov Institute of Physics and Technology

LUT
Lappeenranta
University of Technology



The map shows the participating organizations of the ESSANUF project.

Project Status

A year into the program, the project is on schedule on all of its main activities. A brief summary of the key accomplishments are provided below.

A very essential part of the ESSANUF program is the development of the enhanced fuel design, based on Westinghouse former VVER-440 product (NOVA-E3), manufactured by Enusa and delivered as reloads to the Loviisa plant in Finland in 2001–2007. A conceptual design has been defined and will include Westinghouse advanced materials, proven at a wide range of reactor conditions, a modified grid design including improved grid-to-rod fretting resistance, and an optimized fuel rod and pellet diameter to reduce the fuel cycle costs. The new conceptual design will be subject for a thorough review in February of 2017.

The manufacturing assessment has also been completed, resulting in a plan of actions for restart of the fuel manufacturing and supply organizations.

Several steps have also been taken to ensure that proper methods and methodology are available to qualify the new fuel design for operation. To date, the neutronic code validation has been completed, and the nuclear criticality safety methods and methodology have been established. Significant advances have also been made in the fuel rod design and the thermal hydraulic design area.

An approach for licensing of the new fuel design in the different countries operating VVER-440 units within Europe (Finland, Czech Republic, Hungary, Slovakia and Ukraine), was presented

to representatives from the utilities and regulatory bodies during a workshop in Prague in June, 2016. Useful information and feedback were provided during the session supporting the finalization of the licensing approach, also taking into account what analyses and reports can be used generically between the countries.

Additional Information

This is the first in a series of newsletter to keep you updated on the status and progress of the ESSANUF project.

Additional information is also available on our website, please visit: www.essanuf.eu