

UKAEA-Eni Tritium Loop Facility expands international partnership

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Canada's Kinectrics announced as the design and fabrication partner for the UKAEA-Eni H3AT Tritium Loop Facility, a world-leading tritium research facility.

- Kinectrics joins UK Atomic Energy Authority and Eni collaboration as design and fabrication partner for world-leading tritium research facility
- Canada's Kinectrics brings extensive experience in fusion, nuclear and renewable energy, with capability across design, manufacturing and testing
- The collaboration will build on the strong foundation of UK-Canada co-operation in fusion energy, supported by a government Memorandum of Understanding (MoU) between Canada and the UK

The UK Atomic Energy Authority (UKAEA) and Global Energy Tech company Eni have announced Kinectrics as the design and fabrication partner for the UKAEA-Eni H3AT (pronounced 'HEAT') Tritium Loop Facility, which is expected to be the world's largest and most advanced tritium fuel cycle facility when it is fully commissioned in 2030.

Canada-based multinational company Kinectrics brings decades of experience with tritium – a radioactive isotope of hydrogen that is an essential fuel for future fusion power plants.

Kinectrics' expertise includes systems engineering, safety and regulatory compliance, a vertically integrated delivery model, in-house tritium infrastructure, and existing knowledge in fusion fuel cycle systems.

It complements UKAEA's world-leading fusion research capabilities and Eni's experience of delivering industrial scale plants, to accelerate innovation in tritium technologies for the UKAEA-Eni H3AT Tritium Loop Facility, a key international experimental user facility designed to lead the development of tritium technologies for fusion power plants.

Collectively, they aim to solve challenges in the design, manufacturing, testing and delivery of fusion fuel cycles, to develop safe and commercially viable fusion energy.

The recovery and reuse of tritium will be central to the supply and generation of the fuel in future fusion power plants.

As design and fabrication partner, Kinectrics will support UKAEA and Eni to develop and integrate critical tritium-handling technologies, including:

- Atmospheric Detritiation System (ADS): Recovers tritium from gas waste streams to minimise release to atmosphere
- Water Detritiation System (WDS): Recovers tritium from tritiated water
- Gloveboxes: Containing developmental equipment, each glovebox is unique and requires high-performing containment

Sarah Clark, Director of Tritium Fuel Cycle Division at UKAEA and UKAEA-Eni H3AT Tritium Loop Facility sponsor, said:

We are delighted that Kinectrics will join our integrated project team as the H3AT Tritium Loop Facility's fabrication partner. Having the right partners is essential for H3AT's design and development to be successful, and Kinectrics' experience with tritium, fusion and adjacent sectors complements what we already have from UKAEA and Eni. This multinational collaboration will further develop Culham Campus and the UK more widely as an unrivalled location for fusion energy research and development.

Francesca Ferrazza, Head of Magnetic Fusion Initiatives, Eni, said:

Eni supports the development of fusion energy as a breakthrough in the energy transition path. This international partnership reinforces the status of the H3AT facility bringing together world class experts to meet crucial technical objectives related to the tritium fuel cycle and extends Eni's commitment to the industrialization of fusion energy.

Nisa Halsey, Vice President of Nuclear Equipment and Tooling at Kinectrics, said:

As the fusion industry matures, the H3AT facility will become critical infrastructure to optimize the fusion fuel cycle. Kinectrics brings decades of experience as an OEM of specialized equipment for the fission industry and expertise in supplying complex isotopic process systems through rigorous engineering and manufacturing excellence. The Kinectrics team is proud to collaborate with outstanding, global partners like UKAEA and Eni to deliver the H3AT Tritium Loop Facility and support the advancement of fusion energy technology.

The appointment of Kinectrics builds on partnerships between Canada and the UK on fusion energy.

The UKAEA-Eni H3AT Tritium Loop Facility, located at Culham Campus in Oxfordshire, is expected to be complete in 2028, strengthening UKAEA's position as the world's leading hub for fusion energy research and development.

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<https://www.gov.uk/government/news/ukaea-eni-tritium-loop-facility-expands-international-partnership>