

New Isotope Production System at Bruce Power successfully produces first medical isotope

First-of-a-kind Isotope Production System continues to progress towards commercial, industrial-scale production of medical isotopes for cancer therapeutics



June 21, 2022 – An international collaboration between Bruce Power, Isogen (a Kinectrics and Framatome company) and ITM Isotope Technologies Munich SE (ITM), announced today a milestone marking the first instance lutetium-177, a short-lived medical isotope, has been produced in a commercial nuclear power reactor.

This milestone was achieved using a new Isotope Production System (IPS) that was installed in Bruce Power's Unit 7 during a recent planned maintenance outage. The IPS successfully irradiated targets to produce lutetium-177, a medical isotope used in precision oncology for targeted therapy of a growing number of cancers. Lutetium-177 based treatments are designed to precisely target malignant cells while sparing surrounding healthy tissues.

"Bruce Power and our partners at Isogen, ITM, and Saugeen Ojibway Nation are thrilled to have reached this exciting milestone, bringing our partnership project to its final phase as we complete commissioning and approach commercial operations," said James Scongack, Bruce Power's Chief Development Officer and Executive Vice President, Operational Services. "Today's announcement is the culmination of years of hard work by hundreds of dedicated people and we are proud to demonstrate the power of using Bruce Power's CANDU reactors to provide large-scale, reliable production of critical medical isotopes to use in the fight against cancer."

As part of commissioning activities, ytterbium-176 was successfully irradiated using the IPS, designed and installed by Isogen, to produce lutetium-177. These isotopes were then sent to ITM in Germany for processing, using its proprietary manufacturing methodology and industrial scale production capacities yielding high-quality, pharmaceutical-grade no-carrier-added lutetium-177 (n.c.a. lutetium-177), which ITM provides to health care facilities around the world. n.c.a. lutetium-177 has been successfully used in various clinical and commercial radiopharmaceutical cancer treatments. ITM holds a U.S. DMF with the FDA for n.c.a. lutetium-177 and has marketing authorization in the EU (brand name EndolucinBeta®).

"Following commissioning of the IPS, physicians and their patients worldwide will have access to a new, dependable supply of lutetium-177 for their cancer treatments," said David Harris, CEO of Kinectrics.

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“Moreover, through our partner ITM, pharmaceutical developers can rely on a large-scale supply of lutetium-177 for their clinical trials and commercial products. This milestone demonstrates Kinectrics, Bruce Power, ITM and Framatome’s commitment to innovation and ability to mobilize, as well as complete a large-scale EPC project with both local economic and global health care impact.”

“Accomplishing the design, development, installation, and implementation milestones of a complex project such as the IPS demands a high level of expertise and commitment,” said François Gauché, Director of Framatome Healthcare at Framatome. “We congratulate our Isogen project team working with Bruce Power, who achieved each milestone with tenacity, and we are looking forward to the first delivery of lutetium-177 to ITM. We applaud Bruce Power’s commitment to innovation that supports the continuous production of both electricity and medical isotopes, and to harnessing the therapeutic power of nuclear energy. We are proud to play a critical role in developing this production system that supports the value chain for the radiopharmaceutical isotopes used for diagnostic imaging and therapeutic purposes.”

ITM will receive exclusive access to the irradiation service provided by the IPS for the production of lutetium-177, further expanding its capabilities of producing this high-quality isotope at a large scale for hospitals worldwide, global partners, and ITM’s own clinical pipeline of radiopharmaceuticals for hard-to-treat cancers.

“This cutting-edge, first-of-its-kind irradiation site is the result of the combined expertise of Bruce Power, Isogen and ITM, the great commitment of our partners and our joint belief in the importance of lutetium-177 in novel cancer therapy,” said Steffen Schuster, CEO at ITM. “The exclusive access to the new Isotope Production System will allow ITM to further scale our global pharmaceutical n.c.a. lutetium-177 production, which is critical to meet the growing demand of high-quality medical isotopes for use in Targeted Radionuclide Therapy for cancer patients worldwide.”

Bruce Power will market the new isotope supply in an historic collaboration partnership with Saugeen Ojibway Nation (SON). The partnership project with SON, named Gamzook’aamin Aakoziwin, includes an equity stake for SON and a revenue-sharing program that provides a direct benefit to the community.

“Today’s announcement is a big win for our Gamzook’aamin Aakoziwin project, which is on track to meet the increasing demand from doctors and cancer patients around the world for medical isotopes,” said Chief Veronica Smith, Chippewas of Nawash Unceded First Nation. “We all know somebody who has been affected by cancer, and Saugeen Ojibway Nation is proud of the part we have played, and will continue to play, in this project to help those who need treatment from these innovative medicines.”

“As researchers look for new ways to fight cancer, lutetium-177 has been turned to as a way to treat patients in a non-invasive way,” added Chief Lester Anoquot, Chippewas of Saugeen First Nation. “This project is coming online when demand for treatments is increasing daily, and it will provide a much-needed source of these isotopes for patients close to home, in our communities, and around the world.”

With this milestone now achieved, commissioning activities will be completed this summer and will be followed by commercial operations, pending final regulatory review and approval by the Canadian Nuclear Safety Commission (CNSC).

Learn more about how isotopes help to keep hospitals safe, as well as diagnose and treat cancer at www.brucepower.com/isotopes.

[Find out more by viewing a video about today’s announcement here.](#)

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About Framatome

Framatome is an international leader in nuclear energy recognized for its innovative, digital and value added solutions for the global nuclear fleet. With worldwide expertise and a proven track record for reliability and performance, the company designs, services and installs components, fuel, and instrumentation and control systems for nuclear power plants. Its more than 15,000 employees work every day to help Framatome's customers supply ever cleaner, safer and more economical low-carbon energy. Visit us at www.framatome.com, and follow us on [Twitter](#) and [LinkedIn](#). Framatome is owned by the EDF Group (75.5%), Mitsubishi Heavy Industries (MHI – 19.5%) and Assystem (5%).

About Bruce Power

Bruce Power is an electricity company based in Bruce County, Ontario. We are powered by our people. Our 4,200 employees are the foundation of our accomplishments and are proud of the role they play in safely delivering clean, reliable, low-cost nuclear power to families and businesses across the province and life-saving medical isotopes around the world. Bruce Power has worked hard to build strong roots in Ontario and is committed to protecting the environment and supporting the communities in which we live. Formed in 2001, Bruce Power is a Canadian-owned partnership of TC Energy, OMERS, the Power Workers' Union and The Society of United Professionals. Learn more at www.brucepower.com and follow us on [Facebook](#), [Twitter](#), [LinkedIn](#), [Instagram](#) and [YouTube](#).

About Isogen

[Isogen](#) is a joint venture between [Framatome](#) and [Kinectrics](#), whose mission is to enable the use of CANDU reactors to produce the medical isotopes needed to treat and diagnose patients with serious diseases world-wide. Isogen's enabling partnerships with [Bruce Power](#) and ITM allows us to produce the world's largest and most reliable supply of life-saving, short-lived, therapeutic medical isotopes. Learn more at www.isogen.ca and follow us on [LinkedIn](#).

About ITM Isotope Technologies Munich SE

ITM, a leading radiopharmaceutical biotech company, is dedicated to providing a new generation of radiomolecular precision therapeutics and diagnostics for hard-to-treat tumors. We aim to meet the needs of cancer patients, clinicians and our partners through excellence in development, production and global supply. With improved patient benefit as the driving principle for all we do, ITM advances a broad precision oncology pipeline, including two phase III studies, combining the company's high-quality radioisotopes with a range of targeting molecules. By leveraging our nearly two decades of pioneering radiopharma expertise, central industry position and established global network, ITM strives to provide patients with more effective targeted treatment to improve clinical outcome and quality of life. Further information at: www.itm-radiopharma.com

ITM Medical Isotopes GmbH, a 100% subsidiary of ITM Isotope Technologies Munich SE, had signed a supply arrangement for lutetium-177 with Isogen in 2020.

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