



BRUCE POWER FACTS

Cancer-fighting isotopes

Since 1986, the Bruce Power site has been a consistent, reliable source of medical isotopes, beginning with the production of cobalt-60 in the four Bruce B units.

Cobalt-60 is an isotope used worldwide to keep patients safe through the sterilization of medical devices such as artificial joints and heart stents. Cobalt-60 also fights brain and breast cancers through specialized treatments.

Beginning in 2022, Bruce Power became the first commercial nuclear reactor to produce lutetium-177 in Unit 7.

Lutetium-177 is a leading isotope used in novel theranostic treatments, which target the site of cancer cells. Lutetium-177 is used to treat prostate cancer and neuroendocrine tumours.

The unique design of the IPS enabled rapid scaling with a second production line added in 2024. Looking ahead, a hot cell is being commissioned to support the isotope supply chain. A new IPS will be rolled out to Unit 6, scheduled for 2027.

Medical isotope demand is expected to grow, with many clinical trials underway that support better diagnosis and treatment of health conditions like cancer.



Bruce Power is crucial to the world isotope supply, helping make Canada a global leader in the production of medical isotopes.

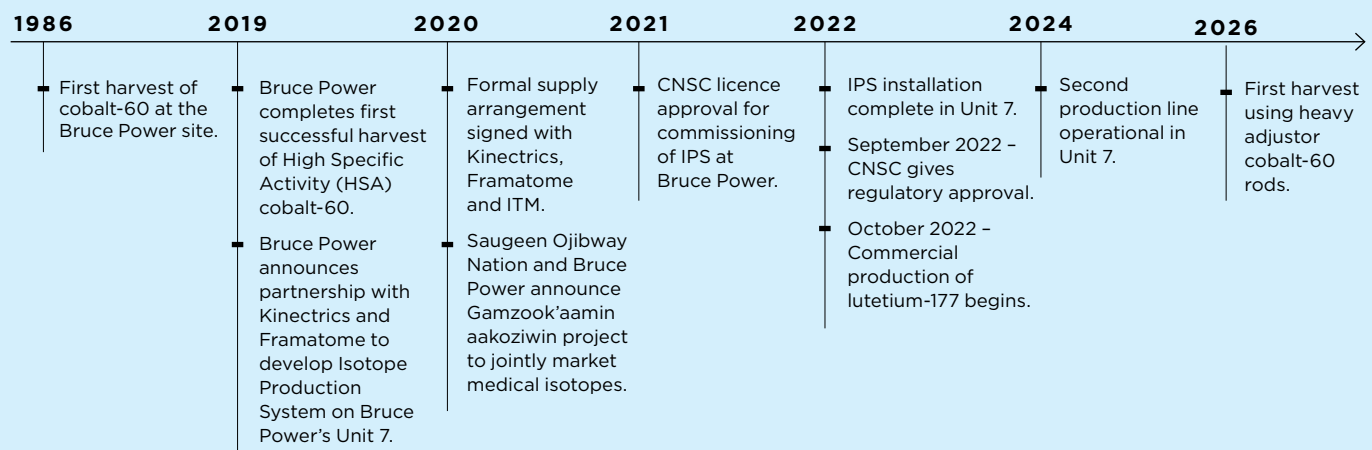
30%

of the world's single-use medical equipment is sterilized with cobalt-60.

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The IPS leverages Bruce Power's continuous operation to provide a consistent and scalable supply of cancer-fighting isotopes.

A HISTORY OF ISOTOPES AT BRUCE POWER



COBALT-60: NEARLY 40 YEARS OF RELIABLE PRODUCTION

Cobalt-60 is an isotope that emits gamma rays essential to the medical community for the sterilization of single-use medical devices and in the treatment of certain cancers.

Cobalt-60 is used to sterilize more than 30 per cent of the world's single-use medical equipment through gamma irradiation, a process which sterilizes equipment more quickly and in larger volumes than other forms of sterilization. Cobalt-60 also supports patients and treatments through the sterilization of medical implants like artificial joints, heart stints, and heart valves, and even tissues used in skin grafts for serious burn injuries.

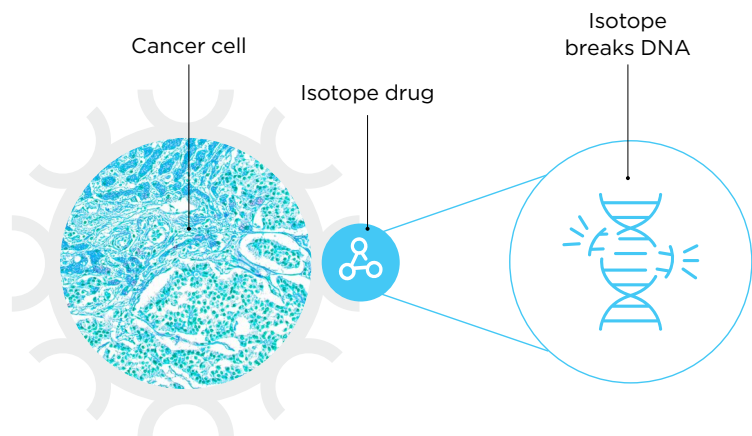
Since 2019, Bruce Power has produced high-specific activity cobalt-60, which is used to treat brain, breast, and spinal cord tumours by focusing gamma beams to localized areas, with less damage to healthy tissues than conventional therapies.

LUTETIUM-177

Bruce Power is the first commercial nuclear power reactor in the world to produce lutetium-177, a short-lived medical isotope, in a first-of-a-kind Isotope Production System (IPS), which was installed in Unit 7.

Lutetium-177 produced at Bruce Power is used to treat prostate cancer around the world. These innovative treatments combine lutetium-177 with a targeting molecule that, in treatment, lock onto biomarkers associated with the tumours, breaking tumour cell DNA while largely sparing surrounding healthy tissues.

Lutetium-177 can also be used to treat neuroendocrine tumours and is being explored in a number of other clinical trials including for breast cancer. Lutetium-177-based treatments are designed to deploy precision nuclear medicine that precisely targets malignant cells while sparing surrounding healthy tissues.



Precision nuclear medicine using lutetium-177 is used to seek and destroy cancer cells, while sparing surrounding healthy tissues.

ISOTOPE PRODUCTION SYSTEM: A GAME CHANGER IN ISOTOPE PRODUCTION

The IPS is a game changer in the global medical isotope supply chain, providing unprecedented capacity for isotope production within existing Bruce Power nuclear infrastructure. Historically, most medical isotopes are produced in smaller scale research reactors with non-continual operation. Bruce Power's continual operations – 24 hours a day, seven days a week – means a consistent supply of cancer-fighting isotopes, and not in a much larger production capacity than traditional research reactors are able to supply.

