Generating change to secure a brighter future

Powering Ontario Forward

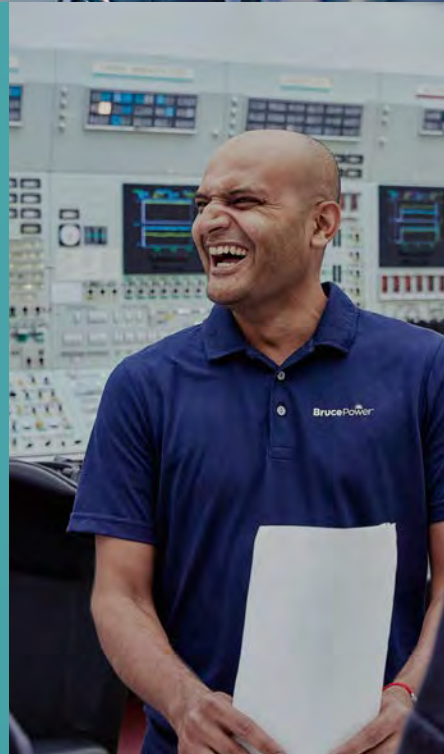
BRUCE POWER 2022 ANNUAL REVIEW AND ENERGY REPORT

Energy Industry Innovation of the Year

Bronze Stevie winner for the Isotope Production System
International Business Award

TOP EMPLOYER FOR YOUNG PEOPLE

Canada's Top 100 Employers



CANADA'S BEST EMPLOYER FOR DIVERSITY 2022

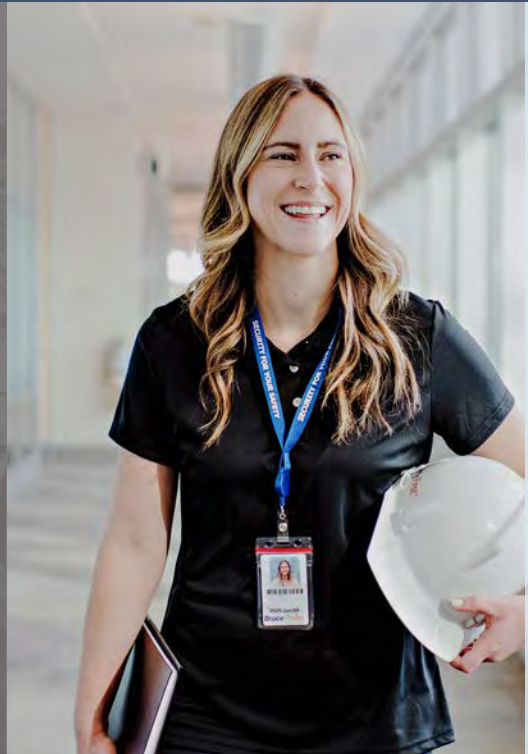
Canada's Top 100 Employers

Powering Ontario Forward

BRUCE POWER
2022 ANNUAL REVIEW
AND ENERGY REPORT

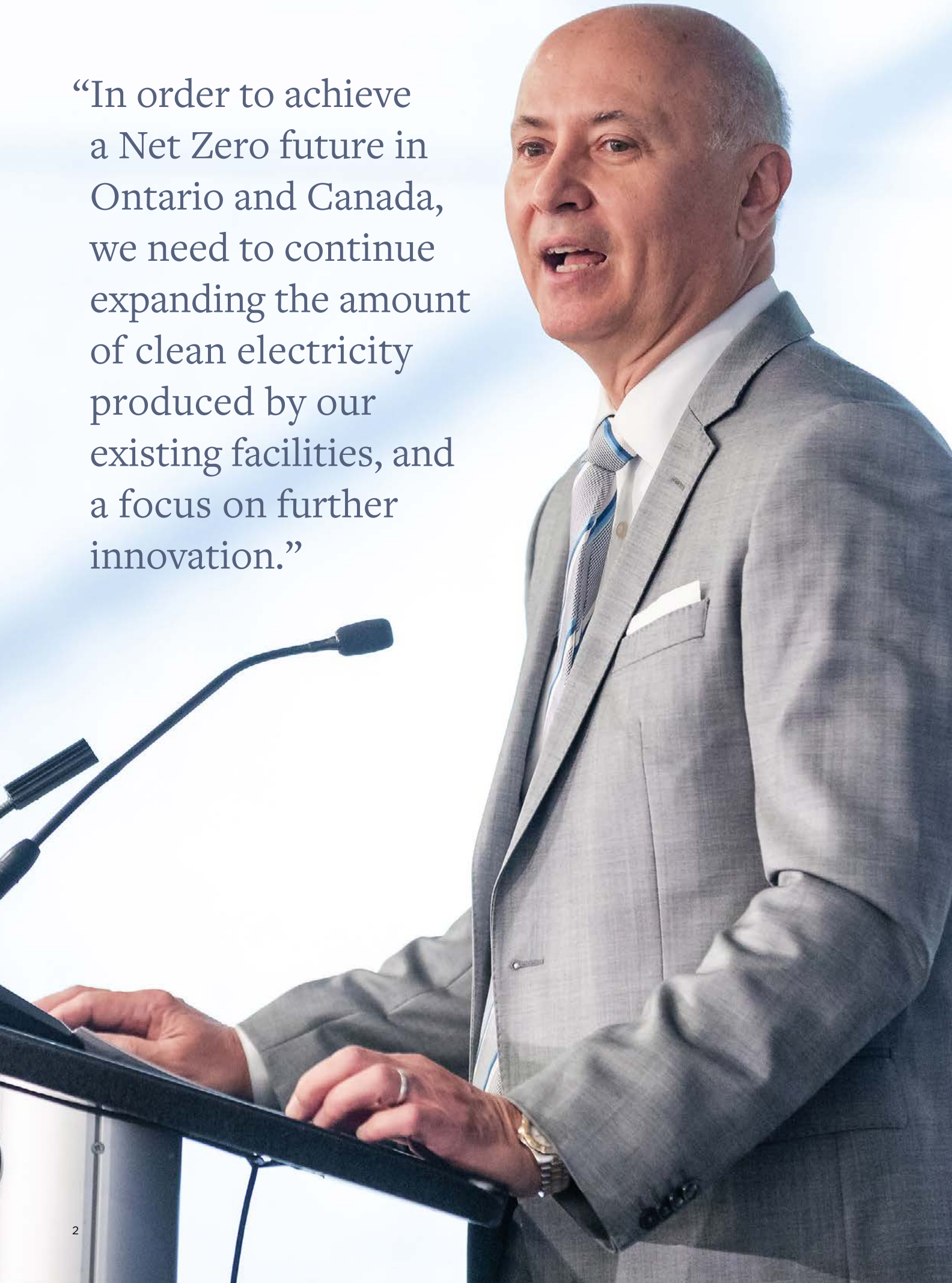
Top Innovative Practice Awards

Nuclear Energy Institute



Top 100 Infrastructure Projects in Canada

Top 100 Projects



"In order to achieve a Net Zero future in Ontario and Canada, we need to continue expanding the amount of clean electricity produced by our existing facilities, and a focus on further innovation."

A message from the President and Chief Executive Officer

At Bruce Power, we are guided by our values of safety first, performance excellence and social responsibility.

We made great strides in all of these areas and, as you will see in our 2022 Annual Review, our company and our industry will play a key role in providing safe, clean and reliable energy to the Province of Ontario for decades to come and help Canada reach its climate change goals.

Our production of cancer-fighting medical isotopes took a large step forward in 2022 with the installation and commissioning of our first-of-a-kind Isotope Production System. Along with our partners, we've expanded our capabilities to produce more medical isotopes for the global fight against cancer and we're helping to establish Ontario and Canada as an isotope superpower.

Electrification is the wave of the future and we're proud to be part of the solution as the province's demands continue to grow. Our Major Component Replacement projects and Project 2030 will help to ensure the people, hospitals and businesses in Ontario continue to have reliable baseload electricity well into the future.

Mike Rencheck,
Bruce Power President and Chief Executive Officer

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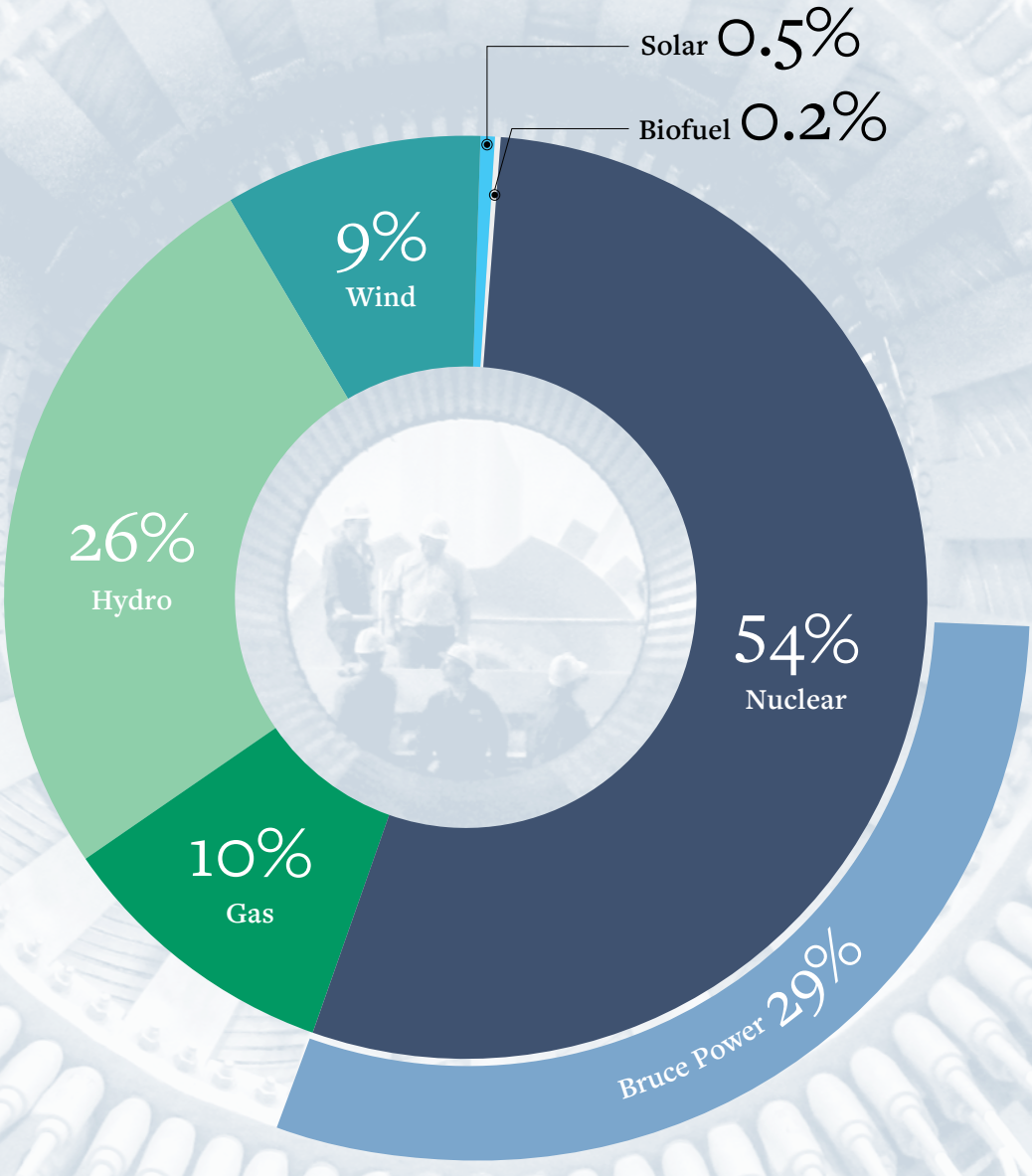


Figure 1: Electricity output by fuel type 2022

Ontario has a deeply decarbonized electricity grid, which is the envy of many jurisdictions around the world thanks to a clean baseload supply of nuclear and hydroelectricity.

±3,000

homes are supplied with electricity from the wind farm that is owned by Bruce Power Net Zero Inc.

22,000

direct and indirect jobs secured annually through Life-Extension Program.

10+

years since the successful conclusion of the Bruce A Restart Project and the site's successful return to eight-unit operation.

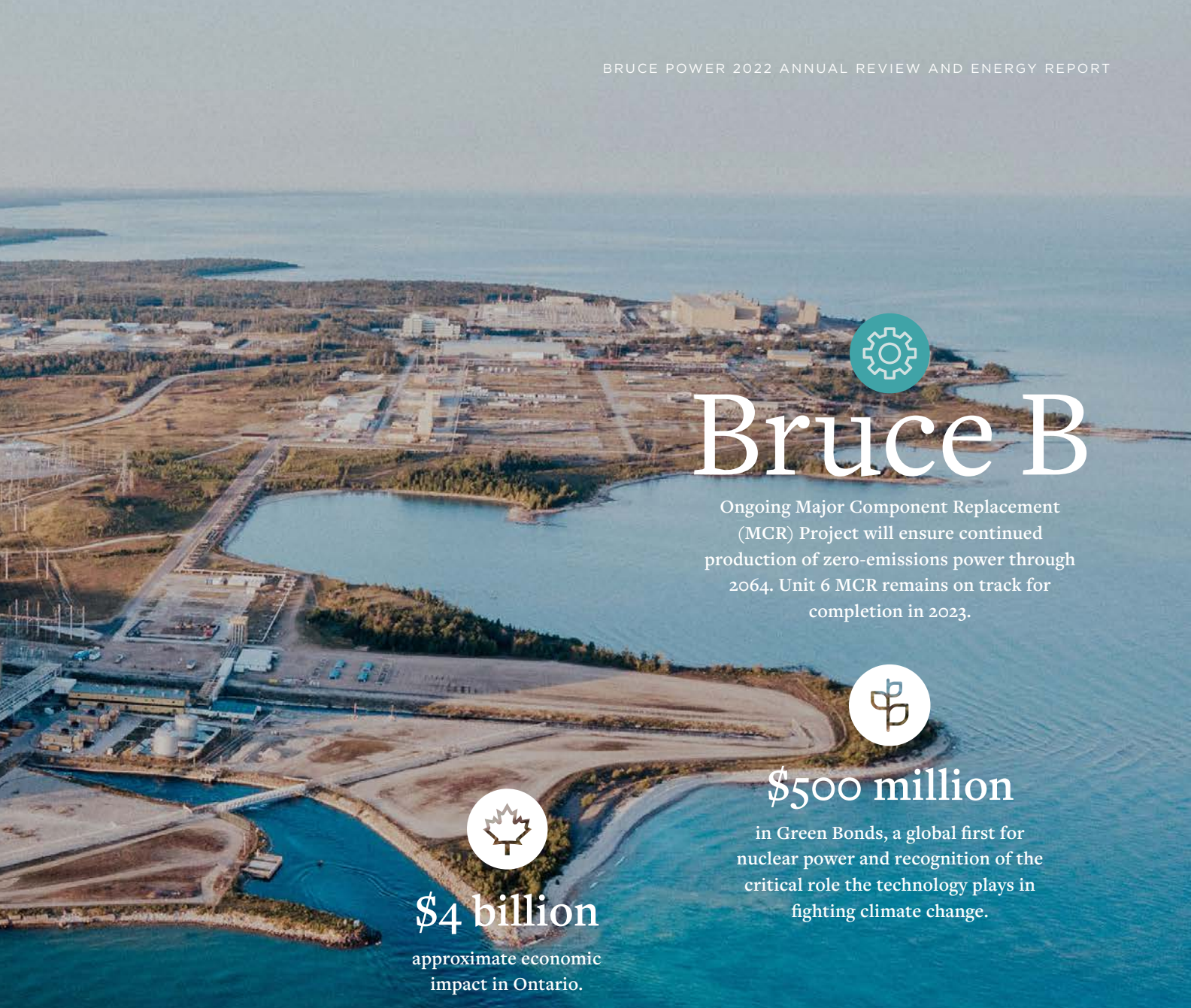
Bruce A

Optimizations in Unit 2 and Unit 4 in 2022 mean approximately 45 MW of additional clean energy in Ontario — enough to power 45,000 homes.

Clean, reliable nuclear power

In 2022, Bruce Power celebrated a decade of eight-unit operation following the conclusion of the Bruce A Restart Project, which provided 70 per cent of the carbon-free electricity the province needed to phase out coal in 2014.

Building on this position of strength, Bruce Power is investing in extending the life of its fleet and increasing the output of existing units, both of which contribute to a prosperous, clean energy future.



Bruce B

Ongoing Major Component Replacement (MCR) Project will ensure continued production of zero-emissions power through 2064. Unit 6 MCR remains on track for completion in 2023.

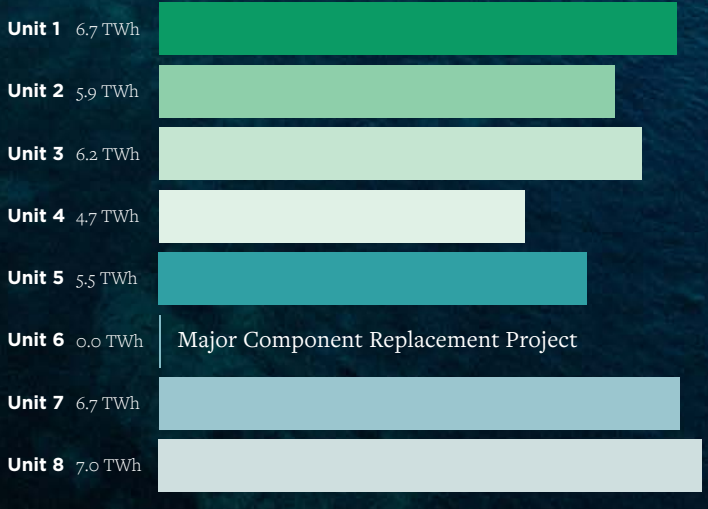
$500 million

in Green Bonds, a global first for nuclear power and recognition of the critical role the technology plays in fighting climate change.

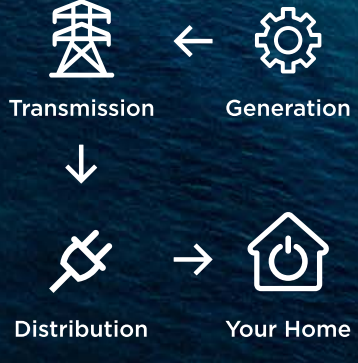
$4 billion

approximate economic impact in Ontario.

Bruce Power unit output



Electricity generation and distribution



A carbon-free source of energy

Zero-emissions nuclear power is the backbone of Ontario's clean electricity system, providing reliable, carbon-free power for the dynamic needs of our province.

More than
90%
emissions-free electricity sector in Ontario.

Only **3%**
of Ontario's total emissions are from the electricity sector.

Nuclear power is a crucial part of Ontario's low-carbon future.

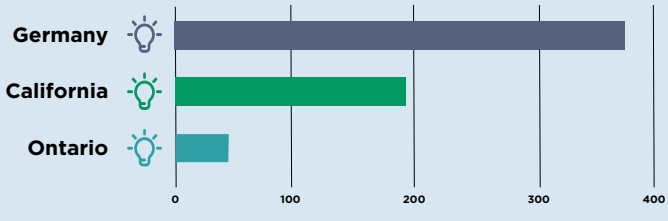
Very few jurisdictions have been able to reduce carbon emissions from their electricity system as successfully as Ontario, which relied heavily on nuclear power to enable the province's coal phase-out program, achieved in 2014. Bruce Power has been a proud and active partner of the Ontario government for many years, helping the province to explore opportunities to use nuclear power to decarbonize its economy and achieve its climate change objectives, while simultaneously maintaining a reliable and stable electricity grid.

In 2019, Ontario produced 26 per cent of Canada's overall electricity, however, total GHG emissions from this was 3.9 Mt CO_2e, or six per cent of Canada's total emissions from electricity generation. This achievement was due in large part to carbon-free nuclear energy which provides 60 per cent of Ontario's daily energy needs.

As we look to further decarbonize the economy and hit aggressive provincial Net Zero goals, Bruce Power's carbon-free nuclear power continue to play an integral role in this transformation to a low-carbon future.

Without nuclear, achieving high carbon-free output to meet the demands of a dynamic population is extremely challenging. Compared with California and Germany, two jurisdictions which made massive investments in low-carbon energy sources, Ontario's electricity system significantly outperforms with the lowest emissions intensity by the electricity sector. Due to the reliable electricity output and low-emissions of the nuclear industry, Ontario has been able to cut emissions from the electricity sector while also maintaining a low-cost system for consumers.

Figure 2: Emissions intensity from the electricity sector by jurisdiction (gCO_2e/kWh)



Source: US Information Administration (EIA) 2021, Eurostat, 2021.

In 2011, Germany moved away from its nuclear program, resulting in a power grid that is far more carbon-intensive and dependent on fossil fuels despite heavy investments in renewable generation such as wind and solar over the last decade. California followed a similar path, abandoning nuclear power in favour of large-scale renewables, yet still seeing an uptick in emissions. When viewed in contrast with Ontario, the results are clear: a low-emission grid powered by nuclear and hydro will retain system reliability while dramatically cutting emissions from the electricity sector.


EV
CHARGING
ONLY
chargepoint.
chargepoint.

Clean energy future

Electricity generation is fundamentally linked to climate change and decarbonization.

In Ontario, the Independent Electricity System Operator (IESO) projects a need to increase electricity production in the province to meet rising demand from electrification, especially from adoption of electric vehicles and electrifying heavy industry. As a result of increased demand, the annual emissions from electricity generation in Ontario could increase by as much as 120 per cent this decade.[1]

To meet this challenge and advance Ontario's and Canada's climate goals, a range of clean-energy solutions will be required.

In December 2022, the IESO released the Pathways to Decarbonization report to the Minister of Energy to evaluate a moratorium on new natural gas generation in Ontario and to develop a pathway to zero emissions in the electricity sector, while considering reliability, cost and impacts on broader electrification efforts. The report sends a clear signal that nuclear power is essential to building an achievable path to Net Zero, a fact which has led to growing support for nuclear on a global scale. Ontario is a leader in nuclear innovation, and with many promising new energy technologies on the horizon, it's important to recognize that large-scale nuclear continues to do the heavy-lifting for the province's clean energy needs.

> "In order to meet a projected 60,000 MW of customer demand, Ontario will need all of the resources available to it to simultaneously expand and decarbonize. While many options are already available and understood (wind, solar, hydroelectric and large nuclear), others options such as SMRs and low-carbon fuels will require support, and their availability is not guaranteed."
>
> *Independent Electricity System Operator Pathways to Decarbonization 2022 report*

1 GHD Limited (2022) The Energy Sector's Role in Net Zero pg11.

More power. Zero emissions.

PROJECT 2030 AND THE NEXT GENERATION OF NUCLEAR

Delivering solutions now for a clean energy future

Optimizing our existing assets to meet Ontario's increasing demands.

POWERING UP TO DRIVE ONTARIO FORWARD

Project 2030 is a Bruce Power initiative that will support Ontario's climate change targets and future clean energy needs by targeting a site net peak capability of 7,000 Megawatts (MW) by the early 2030s.

Project 2030 will incrementally increase the site generation output through asset optimization, innovation and leveraging new efficient technology. This additional generation will be equivalent to adding about a ninth large-scale reactor to our site without the need to build additional infrastructure.

Meeting future electricity demand for the province

Bruce Power's units are now capable of producing even more reliable, carbon-free electricity for the families and businesses of Ontario.

Unit 2 achieved a new gross peak capability of 880 MW

39 MW

increase from its previous capability.

Achieved through key equipment replacements and upgrades.

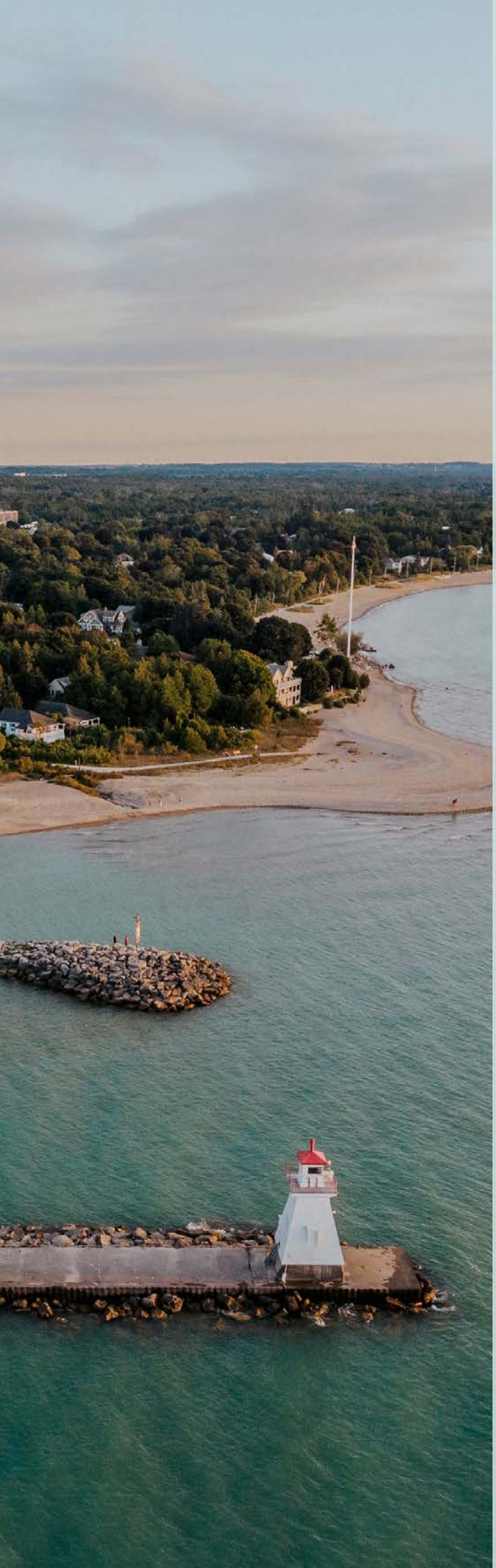
THESE UPGRADES CAN POWER ABOUT 39,000 ADDITIONAL HOMES AND BUSINESSES.

Bruce Power continues to foster innovative thinking in implementing investments to key equipment upgrades during planned maintenance outages, providing more carbon-free electricity to the homes, businesses and hospitals of Ontario while maintaining the reliability of the site. Thanks to these investments being made into the Bruce Power site today, we will continue providing reliable, emissions-free electricity for decades to come.

"Ontario has already led one of the largest and most successful greenhouse gas and pollution-reduction programs with the phase out of coal in 2014. We're breaking new ground for the nuclear industry once again by establishing a nuclear carbon offset protocol for new incremental nuclear power, which will be generated from existing reactors and will further decarbonize the province's energy supply mix."

Mike Rencheck, Bruce Power President and CEO

INCREMENTAL CLEAN ENERGY PRODUCTION AND AVOIDED EMISSIONS



COP27

For the first time, nuclear energy was an integral part of the Conference of the Parties of the United Nations Framework Convention on Climate Change (COP27).

Bruce Power attended November's conference in Egypt as part of a Canadian contingent with a tangible story to tell about how the nuclear industry led the way in eliminating the greenhouse gas produced by coal and how it is shaping Canada's clean-energy future.

Pat Dalzell, Head of Corporate Affairs, Bruce Power (left), meets with Catherine Stewart, Canada's Ambassador for Climate Change, and John Gorman, President & CEO, Canadian Nuclear Association at the 27th Conference of the Parties of the United Nations Framework Convention on Climate Change (COP27).

Nuclear power will play a critical role in achieving Net Zero, both in providing supply to decarbonize other sectors of the economy and in helping avoid emissions from other GHG-emitting resources.

In 2022, Bruce Power advanced a project to establish the necessary nuclear carbon offset protocol to allow new incremental nuclear output realized through site investments as part of Project 2030, to be accredited for an avoided emissions benefit, to quantify and validate the vital role nuclear power plays in decarbonizing the economy.

The company also announced its intent to form strategic partnerships with Ontario-based industrial operations in difficult-to-decarbonize sectors of the economy, which have committed publicly to Net Zero targets, and are supportive of the development of the Clean Energy Registry and of carbon offsets generated from new, incremental nuclear power.

“We are opening the door to possibilities for new innovative technologies that will contribute to Ontario’s Net Zero 2050 goal.”

Mike Rencheck, Bruce Power President and CEO

The next generation

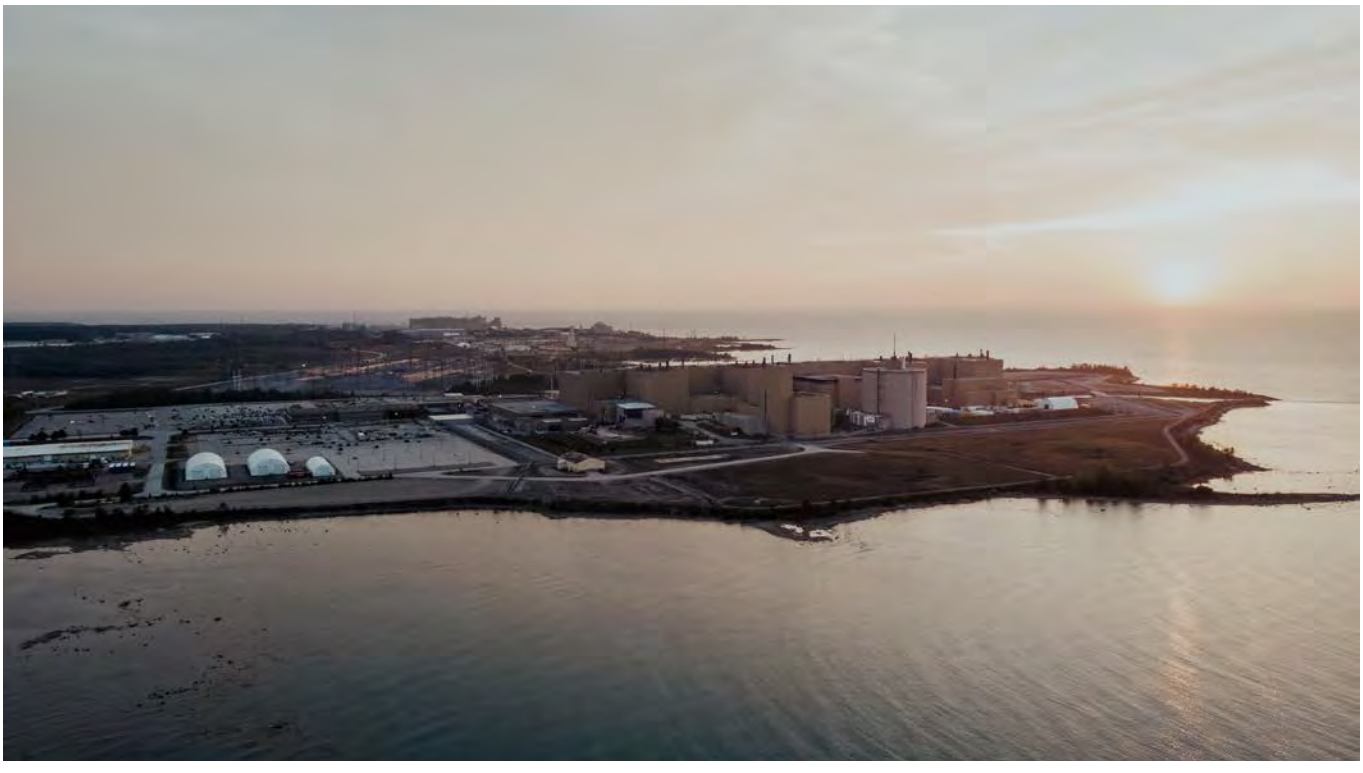
While Bruce Power's focus remains on the safe, reliable operation and its Life-Extension Program and Major Component Replacement Projects, there's an understanding that new technologies are emerging.

Bruce Power provides the baseload generation that allows next generation technologies to be developed, it's also an active participant in supporting a stable, long-term clean energy supply mix that will help Ontario meet its climate change goals.

Through its NextGen initiative, Bruce Power is taking a targeted approach in assessing new nuclear opportunities including large-scale nuclear, Small Modular Reactors (SMRs), advanced nuclear and micro-reactors, as well as complementary technologies to lead the industry to meeting or exceeding the expected 2050 generation gap and Net Zero targets.

Bruce Power is leveraging its expertise to progress opportunities for SMRs in Ontario and Canada and is a member of 'Team Canada' — the Pan-Canadian effort to carry out Canada's SMR Action Plan.

The company is also leveraging its experience by advising a number of companies on potential projects related to advanced nuclear, fusion and conducting feasibility studies toward producing hydrogen or other clean fuels at our existing facilities.



Securing decades of clean electricity

BRUCE POWER LIFE-EXTENSION PROGRAM

Economic impact of Life-Extension

"Nuclear power is the backbone of Ontario's electricity system. The Life-Extension Program at Bruce Power will ensure that Ontario families and businesses have a clean, reliable source of emissions-free electricity, while also supporting tens of thousands of good jobs across the province for decades to come."

Hon. Todd Smith, Minister of Energy

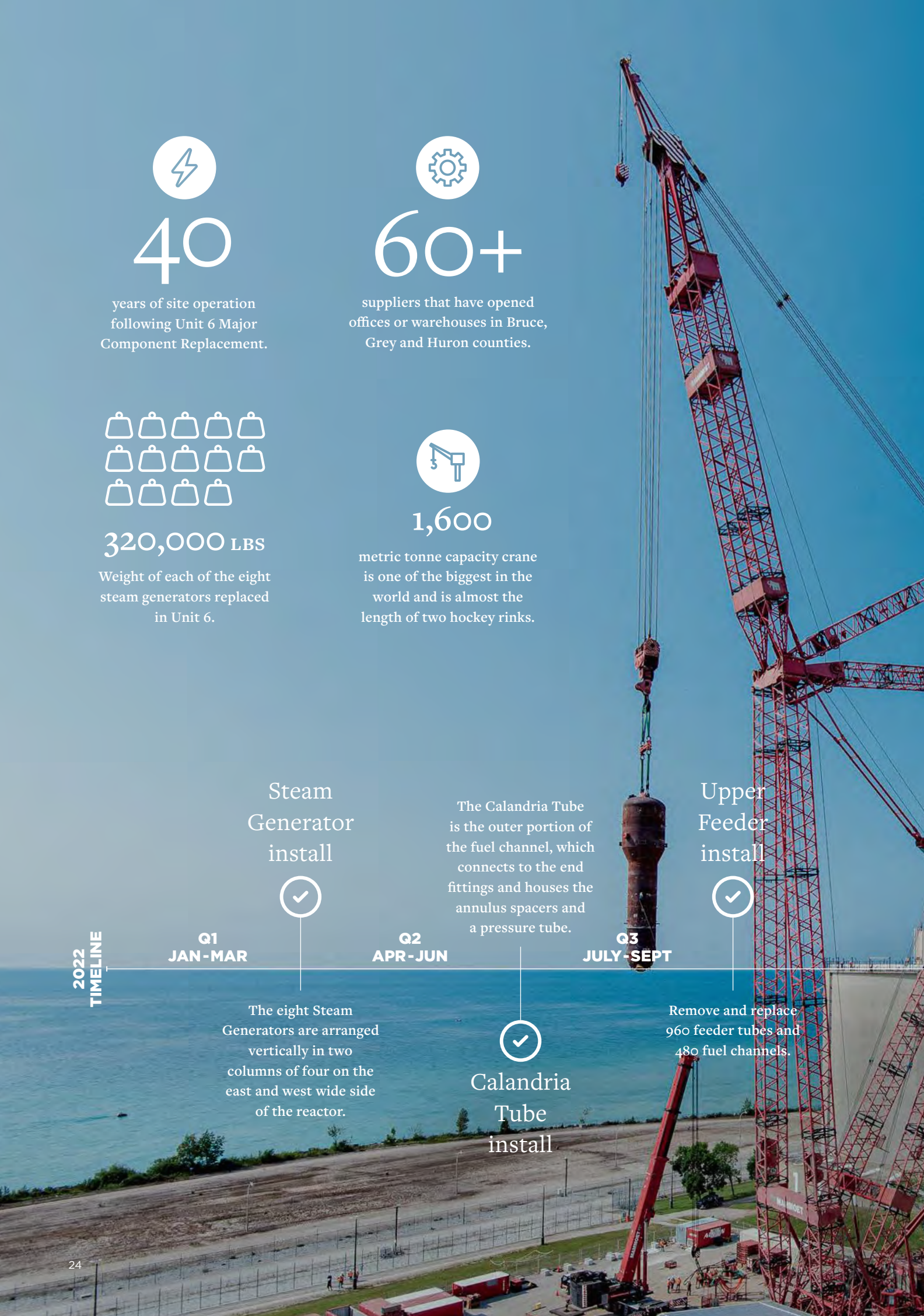
Ontario needs nuclear now more than ever as it faces an unprecedented increase in demand for clean electricity in the coming years.

Bruce Power's Life-Extension Program, Ontario's largest private sector clean energy infrastructure project, consists of Major Component Replacement (MCR) Projects in Units 3-8 and lifetime Asset Management Program that will extend the life of the site until 2064 and beyond.

The lifetime Asset Management Program and Unit 6 MCR remain on plan, and the Independent Electricity System Operator verified Bruce Power's plan for the Unit 3 MCR, which begins in 2023.

Bruce Power and its partners will carry forward experience and innovation gathered in Unit 6 to find efficiencies in each subsequent MCR outage. An example of this was the development of an award-winning groundbreaking technology by ATS Industrial Automation in collaboration with Bruce Power that will fully automate the Inspection and Calandria Tubes Installation series to deliver significant critical path savings while also reducing worker radiation exposure.

Bruce Power and Ontario Power Generation continue to collaborate and benchmark their MCR projects, setting a worldwide standard for nuclear refurbishment.



40

years of site operation following Unit 6 Major Component Replacement.

60+

suppliers that have opened offices or warehouses in Bruce, Grey and Huron counties.

320,000 LBS

Weight of each of the eight steam generators replaced in Unit 6.

1,600

metric tonne capacity crane is one of the biggest in the world and is almost the length of two hockey rinks.

2022 TIMELINE

Q1 JAN-MAR

Steam Generator install

The eight Steam Generators are arranged vertically in two columns of four on the east and west wide side of the reactor.

Q2 APR-JUN

Calandria Tube install

The Calandria Tube is the outer portion of the fuel channel, which connects to the end fittings and houses the annulus spacers and a pressure tube.

Q3 JULY-SEPT

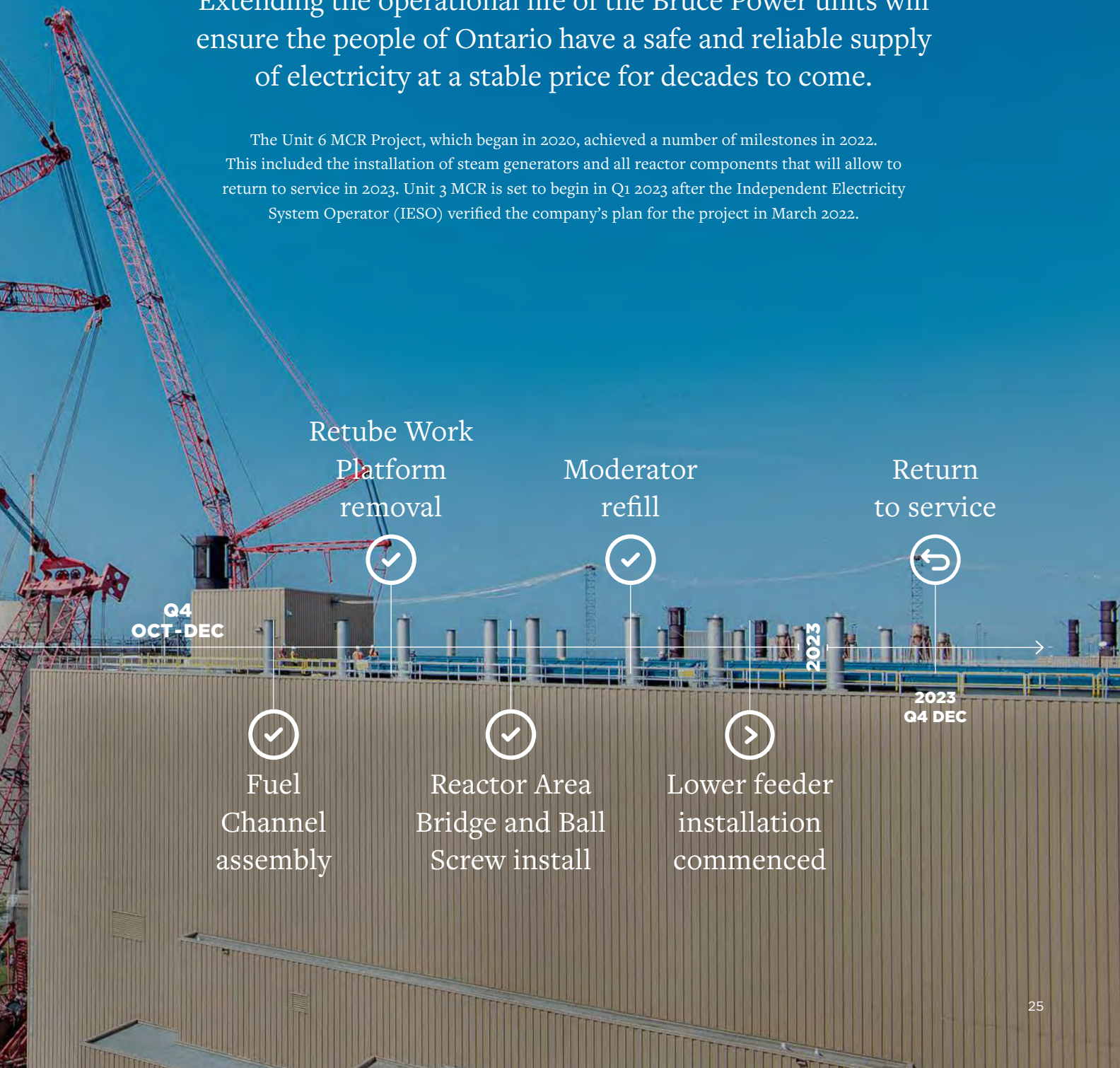
Upper Feeder install

Remove and replace 960 feeder tubes and 480 fuel channels.

Major Component Replacement Project

Extending the operational life of the Bruce Power units will ensure the people of Ontario have a safe and reliable supply of electricity at a stable price for decades to come.

The Unit 6 MCR Project, which began in 2020, achieved a number of milestones in 2022. This included the installation of steam generators and all reactor components that will allow to return to service in 2023. Unit 3 MCR is set to begin in Q1 2023 after the Independent Electricity System Operator (IESO) verified the company's plan for the project in March 2022.



Safe, reliable operation

OPERATIONAL EXCELLENCE TODAY
FOR A BRIGHT FUTURE

A decade of eight units in service

In October, Bruce Power marked the 10th anniversary of the completion of the Bruce A Restart Project.

All four Bruce A units were shut down in the 1990s by the province when it was facing the largest surplus of electricity in its history. When Bruce Power was formed in 2001, it committed to restart Units 3 and 4, which it did by 2004, paving the way for the Units 1 and 2 Restart Project.

Over the past decade Bruce Power has reliably produced 30 per cent of Ontario's electricity, while keeping our air clean by providing 70 per cent of the carbon-free electricity Ontario needed to shut down its coal plants by 2015.

Bruce Power has proven that refurbishing and extending the life of its units allows them to operate safely and with improved performance, providing clean energy for decades to come.

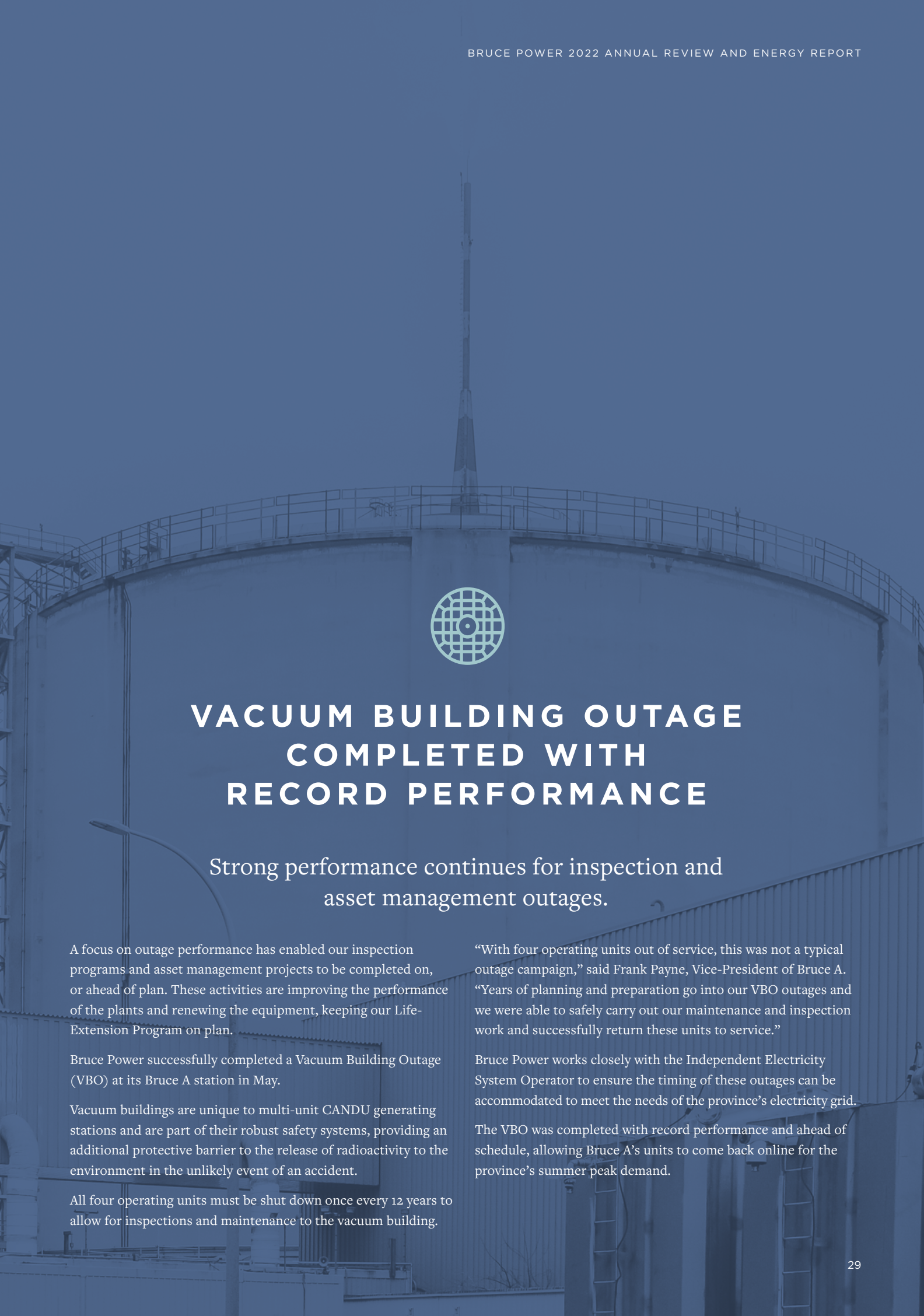
Our focus on equipment reliability and investments into our assets has led to increased performance. Our plants are operating better than ever.

In May, before it was removed from service for a planned maintenance outage, Unit 2 set a post-refurbishment continuous run record of 626 days. This milestone came in the reactor's 45th year since being put into service in 1977 and is significant as it demonstrates the value of refurbishing Ontario's nuclear fleet.

Bruce Power's Unit 5 marked a record run of 591 days of providing clean, reliable electricity before it was removed from service for a planned maintenance outage in February. The Unit 5 refurbishment outage is scheduled for 2026.

"With the return to service of Units 1 and 2 in 2012, and their strong performance over the past decade, we're showing that investments into existing nuclear assets build on Ontario's nuclear advantage and will help achieve climate targets."

Mike Rencheck, Bruce Power President and CEO



VACUUM BUILDING OUTAGE COMPLETED WITH RECORD PERFORMANCE

Strong performance continues for inspection and asset management outages.

A focus on outage performance has enabled our inspection programs and asset management projects to be completed on, or ahead of plan. These activities are improving the performance of the plants and renewing the equipment, keeping our Life-Extension Program on plan.

Bruce Power successfully completed a Vacuum Building Outage (VBO) at its Bruce A station in May.

Vacuum buildings are unique to multi-unit CANDU generating stations and are part of their robust safety systems, providing an additional protective barrier to the release of radioactivity to the environment in the unlikely event of an accident.

All four operating units must be shut down once every 12 years to allow for inspections and maintenance to the vacuum building.

"With four operating units out of service, this was not a typical outage campaign," said Frank Payne, Vice-President of Bruce A. "Years of planning and preparation go into our VBO outages and we were able to safely carry out our maintenance and inspection work and successfully return these units to service."

Bruce Power works closely with the Independent Electricity System Operator to ensure the timing of these outages can be accommodated to meet the needs of the province's electricity grid.

The VBO was completed with record performance and ahead of schedule, allowing Bruce A's units to come back online for the province's summer peak demand.

4

Special effects make-up artists.

15

role-playing actors.

13 months of planning.

1,000

emergency officials across Ontario took part in the mock disaster training.

100

Bruce Power emergency responders deployed.

1,400

total participants involved in the exercise.

20

hours of exercise time.

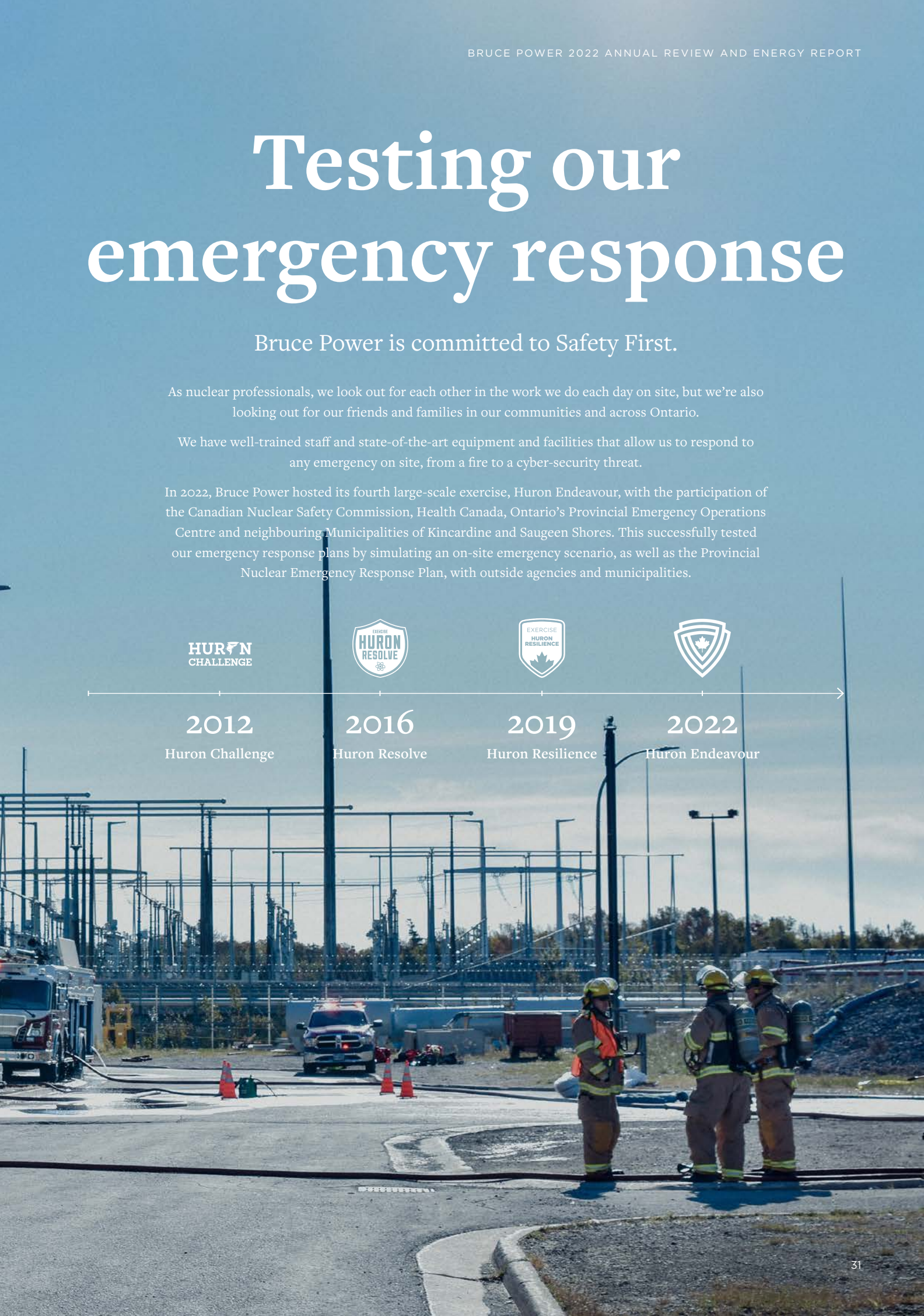
Testing our emergency response

Bruce Power is committed to Safety First.

As nuclear professionals, we look out for each other in the work we do each day on site, but we're also looking out for our friends and families in our communities and across Ontario.

We have well-trained staff and state-of-the-art equipment and facilities that allow us to respond to any emergency on site, from a fire to a cyber-security threat.

In 2022, Bruce Power hosted its fourth large-scale exercise, Huron Endeavour, with the participation of the Canadian Nuclear Safety Commission, Health Canada, Ontario's Provincial Emergency Operations Centre and neighbouring Municipalities of Kincardine and Saugeen Shores. This successfully tested our emergency response plans by simulating an on-site emergency scenario, as well as the Provincial Nuclear Emergency Response Plan, with outside agencies and municipalities.



Global fight against cancer

BRUCE POWER MEDICAL ISOTOPES

Bruce Power has been a global leader in the production of medical isotopes for more than 35 years, beginning with the production of cobalt-60.

In 2022, Bruce Power took another leap forward in its isotope program, expanding capabilities to supply cancer-fighting isotopes to the world market through the installation of a first-of-a-kind Isotope Production System (IPS) for the short-lived medical isotope lutetium-177. The IPS is a Framatome proprietary technology licensed through Isogen (a Kinectrics and Framatome company).

Worldwide, more than 40 million nuclear medicine procedures are performed each year using medical isotopes, with approximately 36 million for diagnostic nuclear medicine and four million for therapy. The number is expected to grow as demand for these powerful medical tools is harnessed and treatments are developed for an expanding list of cancers.

Bruce Power is crucial to the world's isotope supply, helping make Canada a global leader in the production of medical isotopes, used in the sterilization of medical equipment and in the which are diagnosis and treatment of certain forms of cancer.

Isotopes at Bruce Power

Lutetium-177

Produced in the Isotope Production System — a first-of-its-kind solution to produce short-lived medical isotopes in a commercial reactor.

Cobalt-60

Cobalt-59 adjuster rods are inserted into the reactor and cobalt-60 is harvested during planned outages.

40+ million

nuclear medicine procedures are performed worldwide each year using isotopes, with approximately 36 million for diagnostic nuclear medicine and four million for therapy.

Cancer-fighting medical isotopes

40%

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

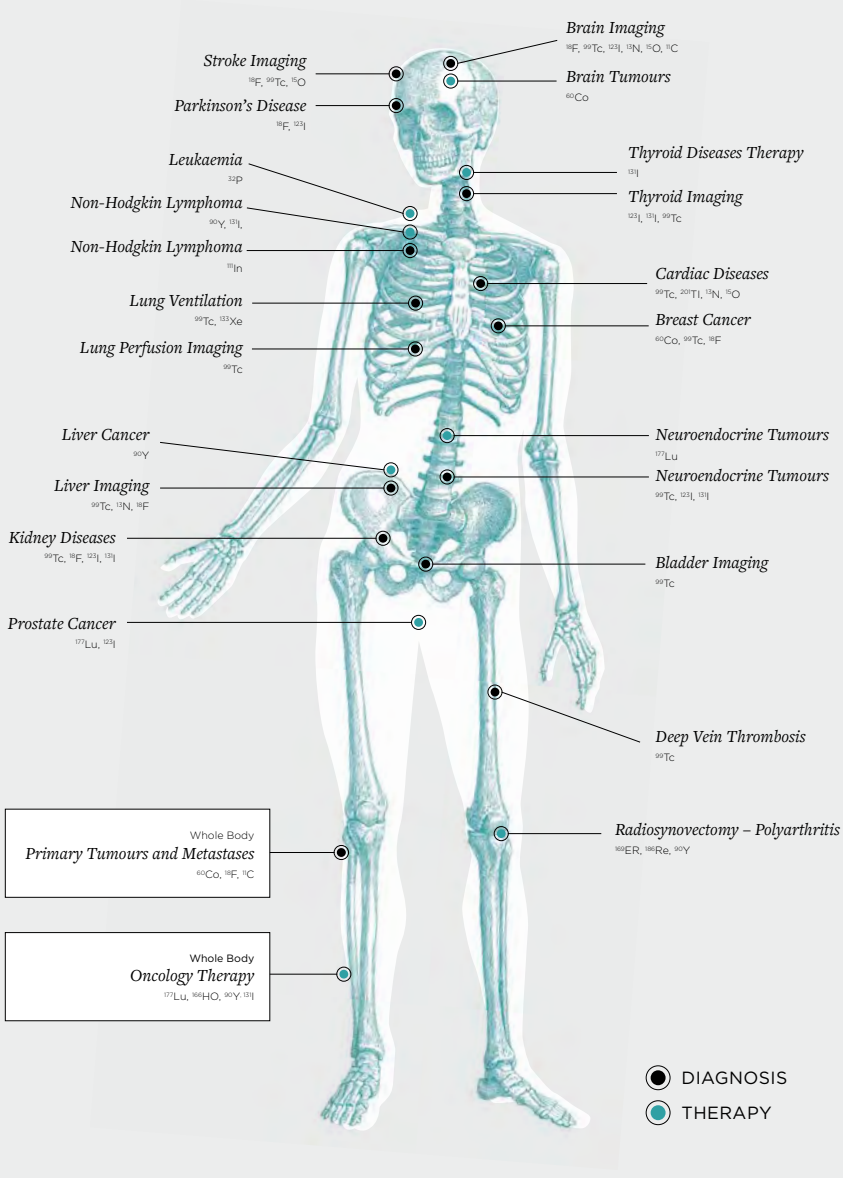
Made-in-Ontario Isotope Production System (IPS) installed in Bruce Power's Unit 7 in 2022.

Medical-grade cobalt-60 is used to treat complex brain cancers and conditions through non-invasive procedures.

Commercial production

of lutetium-177 announced October 2022, a world's first for large-scale nuclear reactor.

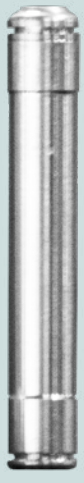
Isotope use for diagnosis and therapy



European Industrial Association for Nuclear Medicine and Molecular Healthcare

24/7

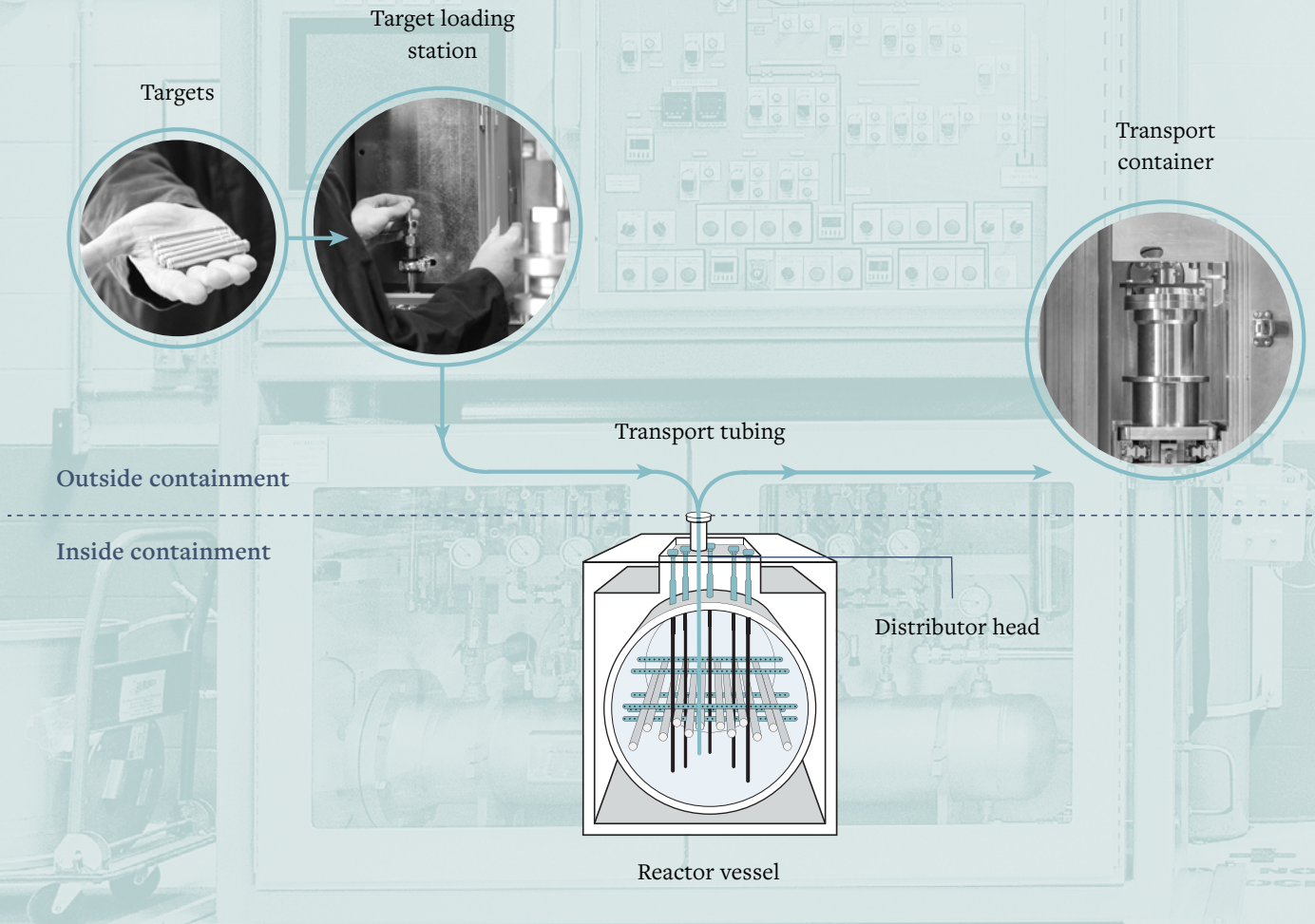
The IPS will leverage Bruce Power's continuous operation to provide a consistent and scalable supply of cancer-fighting isotopes.



Isotope Production System

"The IPS is a huge step forward in advancing Ontario as a world leader of isotope production in the fight against cancer. This unique international project, using Made-in-Ontario infrastructure, will help doctors and patients at home and around the world have greater access to the cancer-fighting isotopes they need."

Ontario Premier Hon. Doug Ford



Medical isotopes

Bruce Power's Unit 7 is the first commercial power reactor in the world with the capability to produce short-lived medical isotopes.

TARGET

Contains Yb-176 in the form of ytterbium oxide powder, encased in an aluminum carrier.

The system uses an inert carrier gas to pneumatically insert targets into the reactor then retrieve them after the required irradiation period.

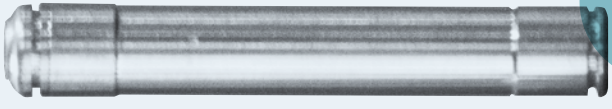
The pneumatic control panel retrieves the targets, which then after a delay period are be deposited directly into a shielded transport container. The transport container protects the targets from damage while allowing workers to safely transport the targets for off-site processing.

ISOTOPE PRODUCTION WITH GLOBAL REACH

A groundbreaking Isotope Production System (IPS) began commercial production of lutetium-177 in October 2022, making Bruce Power's Unit 7 the first commercial power reactor in the world to produce short-lived medical isotopes.

Commercial service of the IPS in 2022 is the culmination of a project which began in 2019, meeting an ambitious timeline to supply lutetium-177 to meet growing demand from doctors and cancer patients around the world.

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 24/7 operations means a consistent supply of cancer-fighting isotopes at a much larger scale than traditional research reactors are capable to supply. Lutetium-177 produced at Bruce Power is used by doctors to treat patients around the world.



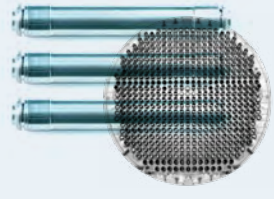
Actual size of target

70
Yb
ytterbium-176

Isogen encases ampules in target carriers, which are shipped to Bruce Power.

German company ITM sends ampules of ytterbium-176 to Isogen.

The targets are loaded into the nuclear core and irradiated to lutetium-177.



Targets are extracted from the core and packaged for transportation.

AN INNOVATIVE PARTNERSHIP

Bruce Power worked with a unique group of domestic and international partners to bring the Isotope Production System to commercial service.

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.

ITM

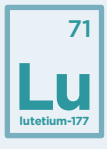
ITM Isotope Technologies Munich SE (ITM) is a Germany-based radiopharmaceutical biotech company that specializes in cancer treatment and provides the source material for isotope creation. ITM is responsible for isotope processing and distributing the final product to its clients in the health care and cancer treatment sectors, and is one of the largest and most reliable producers of lutetium-177 for pharmaceutical use.

Gamzook'aamin aakoziwin

("We are teaming up to fight the sickness")

A Bruce Power and Saugeen Ojibway Nation (SON) partnership; SON is an equity investor and partner to jointly market isotopes in support of the global fight against cancer.

Packages are transported to ITM in Germany for processing.



ITM processes targets into highly pure, pharmaceutical-grade no-carrier-added lutetium-177.

Recovered recycled target material is decayed for use in a subsequent irradiation.

Pharmaceutical grade lutetium-177 is shipped to customers around the world to treat patients.

LUTETIUM-177

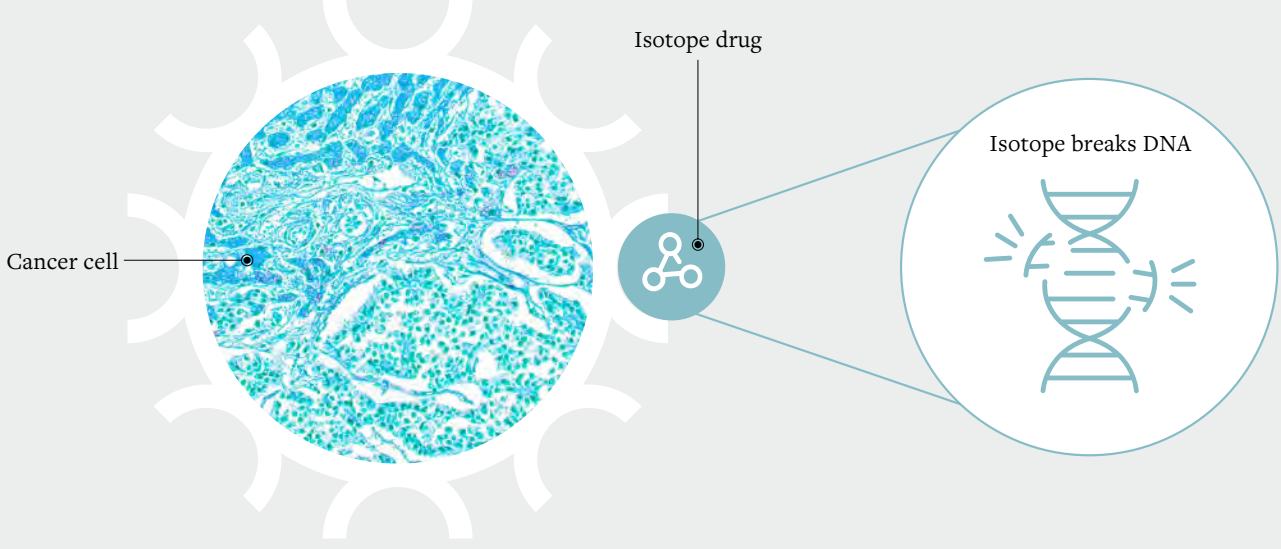
Bruce Power became the first and only commercial nuclear power reactor in the world to produce lutetium-177, a short-lived medical isotope, in the Isotope Production System installed in Unit 7.

In October, in partnership with Isogen (a Kinectrics and Framatome company) and ITM Isotope Technologies Munich SE (ITM), Bruce Power announced the start of commercial production of lutetium-177, expanding the scale and availability of an isotope that is growing in demand from physicians and patients worldwide for use in the fight against cancer.

Lutetium-177 produced at Bruce Power will be used in precision oncology for targeted therapy of a growing number of cancers, including neuroendocrine tumors, and prostate cancer. Lutetium-177 treatments are designed to deploy precision nuclear medicine that directly targets malignant cells while sparing surrounding healthy tissues.

Bruce Power's lutetium-177 is sent to Germany for processing, to yield, high-quality, pharmaceutical-grade no-carrier-added lutetium-177 (n.c.a. lutetium-177). ITM is a supplier of n.c.a. lutetium-177 to health care facilities around the world, and the isotope has been successfully used in various clinical and commercial radiopharmaceutical cancer treatments.

This advancement in isotope production further cements Bruce Power as a worldwide leader in the production of medical isotopes, and matures Canada's status as a leader among the international medical isotope community.



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

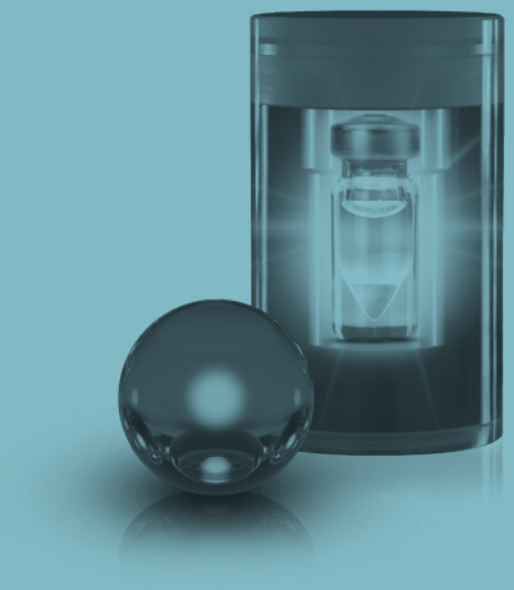
EXPLORING THE PRODUCTION OF YTTRIUM-90

Bruce Power is looking to expand its production of medical isotopes, signing a Memorandum of Understanding (MOU) with Boston Scientific to explore the feasibility of producing cancer-fighting yttrium-90 (Y-90) in its reactors.

Isogen will also work with Bruce Power and Boston Scientific on the feasibility of yttrium-90 production using the Isotope Production System.

TheraSphere™ Y-90 Glass Microspheres, manufactured by Boston Scientific, is a targeted liver cancer therapy consisting of millions of microscopic, irradiated Y-90 glass microspheres used to treat hepatic malignancies.

Through this collaboration, Bruce Power will seek to play a critical role in ensuring Boston Scientific customers and their patients have dependable access to a reliable, Made-in-Canada supply of TheraSphere devices, which are currently distributed to more than 30 countries.

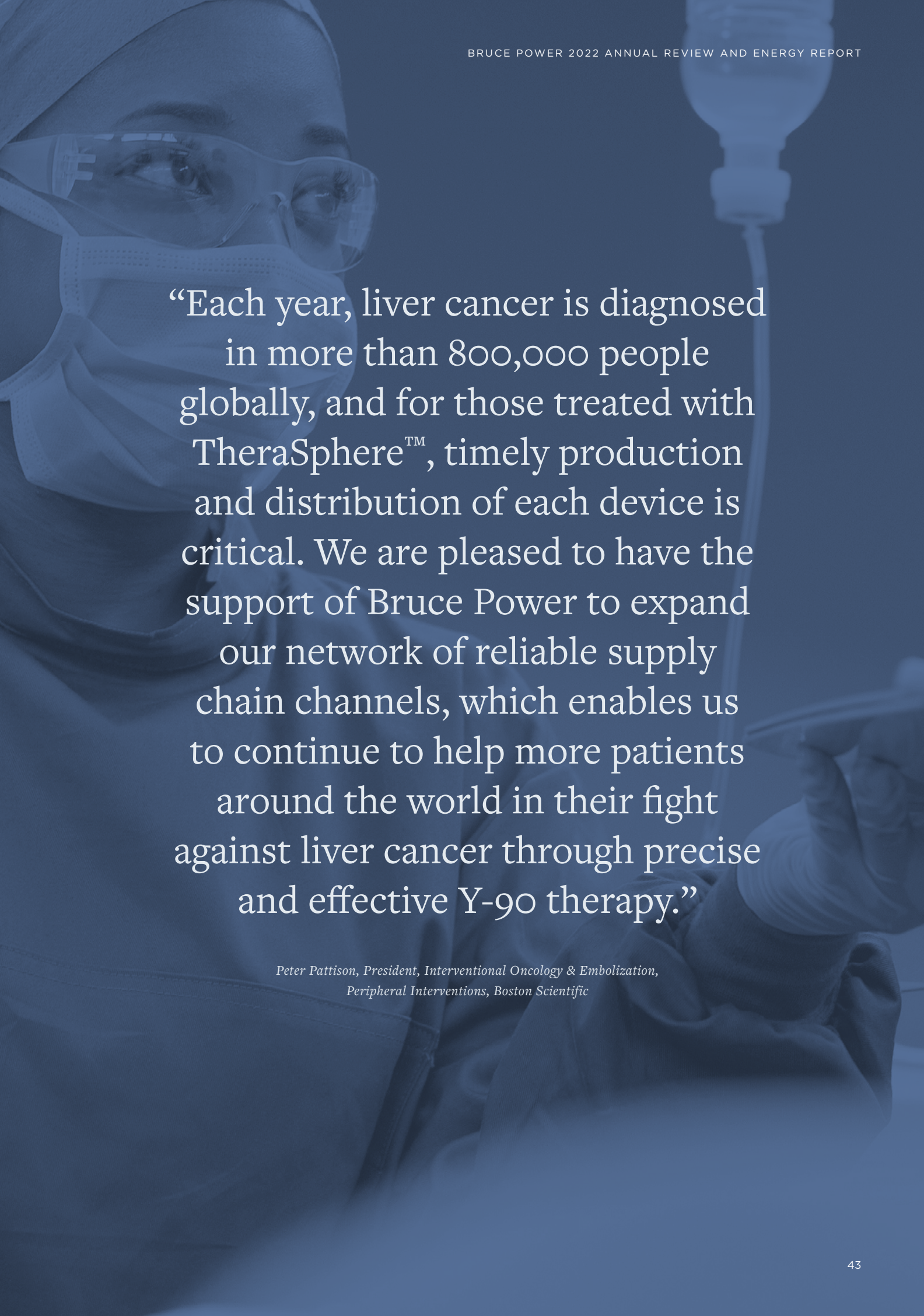


TheraSphere™

is a highly potent Y-90 treatment that allows for precise and personalized dosing delivered directly to the tumor.

Results

in less damage to healthy tissue while improving tumor response and patient outcomes.



"Each year, liver cancer is diagnosed in more than 800,000 people globally, and for those treated with TheraSphere™, timely production and distribution of each device is critical. We are pleased to have the support of Bruce Power to expand our network of reliable supply chain channels, which enables us to continue to help more patients around the world in their fight against liver cancer through precise and effective Y-90 therapy."

Peter Pattison, President, Interventional Oncology & Embolization, Peripheral Interventions, Boston Scientific

1,000+ patients

have been treated with the Leksell Gamma Knife® at the Radiation Medicine Program at the Princess Margaret Cancer Centre in the last three years.

360 hospitals worldwide

use non-invasive procedures using the Leksell Gamma Knife® technology.

13 billion

In 2022, Bruce Power harvested enough cobalt-60 to sterilize 13 billion single-use medical devices.

COBALT-60

For over 35 years, Bruce Power has been a consistent, reliable source of cobalt-60 used for the sterilization of single-use medical devices and in the treatment of certain cancers.

In 2022, Bruce Power harvested enough cobalt-60 to sterilize 13 billion single-use medical devices. Cobalt-60 is used to sterilize over 40 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. Over the last few years, demand for cobalt-60 has been at an all-time high as the world's health care sector continues to battle COVID-19, while also managing routine medical needs.

Medical-grade cobalt-60 is produced by Bruce Power to be used in radiation therapy in the treatment of complex brain cancers and conditions through non-invasive procedures like the Leksell Gamma Knife®. This technology, which is growing in popularity each year, is used in over 360 hospitals worldwide, including six in Canada. In 2022, Princess Margaret Hospital re-loaded High Specific Activity cobalt-60 produced at Bruce Power into its Leksell Gamma Knife®, a process which is only done once every three years. Over 1,000 patients have been treated by the Gamma Knife at the Radiation Medicine Program at the Princess Margaret Cancer Centre in the last three years.

Reducing our footprint

OUR APPROACH TO SUSTAINABILITY

Bruce Power's Net Zero 2027 Strategy

Avoid and reduce

Optimizing building usage and occupancy and implementing efficiency upgrades.

Undergoing a fleet optimization study to look at implementing more efficient practices and moving a portion of the company's vehicle fleet to electric.

Substitute

Cleaner, more efficient fuels and electrification.

Offset

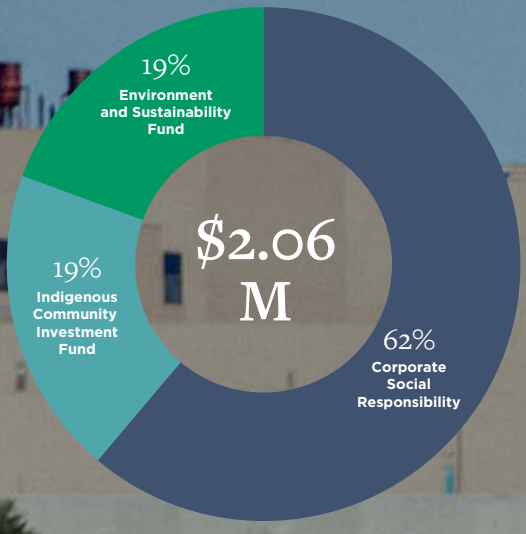
Funding the development of carbon-offset projects in our local communities through the Carbon Offset Coalition. Bruce Power has committed to a three-year partnership with the ALUS New Acre Project to enhance and maintain ecosystem services on agricultural lands resulting in carbon offsets (*estimated between 4,500-6,000 CO2e*).

We're not only producing carbon-free electricity, we're working to minimize our impact on the environment by achieving Net Zero greenhouse gas emissions from our site by 2027.

At Bruce Power, we integrate environment safety into our nuclear safety culture to promote and ingrain a sense of environmental responsibility through our Environment and Sustainability Policy. As part of our policy, we commit to excellence by meeting or exceeding all relevant legal and voluntary requirements and by understanding our environmental impact through monitoring, collaborating with industry and the community, and driving related strategic research and innovation.

Bruce Power's Net Zero 2027 strategy makes it the first nuclear operator in North America to set such an ambitious target. It will be accomplished by identifying and implementing energy and emission-reduction projects in its operations, identifying substitutions for high-emission energy sources and, where further reductions are not feasible, pursuing emission offsets.

Bruce Power's Community Investment Program



$1 million

Carbon Offset Accelerator Fund announced to support carbon offset projects in Bruce, Grey and Huron counties and throughout Ontario.

$250,000

A five-year commitment to Zero Emission Vehicle (ZEV) infrastructure with Plug'n Drive. Bruce Power also has agreements in place with Westario Power and ChargerCrew Canada to help bring dozens more Level 2 EV chargers to Bruce, Grey and Huron Counties.

$400,000

distributed in support of local environmental initiatives in the areas of:

Conservation and restoration

Education, awareness and research

Climate change mitigation and resilience

99.99%

of the water used on site is used for once-through cooling purposes and is returned directly to the lake.

Protecting the environment

We care deeply about people and the environment while generating carbon-free electricity for about 30 per cent of Ontarians. That's why we have a thorough environmental program that monitors, tracks, and analyzes air, water, precipitation, and aquatic samples, including fish, sediment and sand, to ensure our natural environment is not harmed by our operations. We also have an extensive Environmental Monitoring Program which ensures, through measurement, sampling and analysis, that the health of the environment and people are protected.

208,440

seedlings planted since 2018 through our partnership with Saugeen Valley Conservation Authority.

12.9

Our 2022 Environmental, Social, and Governance (ESG) risk rating, which is the lowest we've achieved. This maintains Bruce Power's spot in the Top 3 within its sub-industry on a global scale.

15

types of fish species were measured over three years and it was found there was a negligible risk to fish resulting from our operations.

"We are committed to protecting the environment. We strive to learn from others and improve our sustainable practices."

Kevin Kelly, Bruce Power Executive Vice-President, Finance and Business Development

A sustainable future

Bruce Power continues to advance its sustainability goals, further strengthening its leadership position in minimizing the environmental and ethical impacts of its business.

In 2022, the company received its Environmental, Social and Governance (ESG) Risk Rating by the third-party ESG rating agency Morningstar Sustainalytics, which showed strong and improving performance year over year. The rating ranked the company a spot in the Top 3 within its sub-industry on a global scale and sits in the top three per cent in the Utilities industry covered by Morningstar Sustainalytics.

The ESG Risk Rating reported strong performance in a number of categories, including Community Involvement, Emergency Response, Diversity Programs, Waste Management and Environmental Programs and Policies.

Bruce Power's approach to sustainability is integrated across the organization and builds on well-established and existing efforts which have significant positive impacts on our local community, and on a wider scale as we support provincial and federal carbon-reduction goals, while contributing to economic growth, innovation and environmental protection.

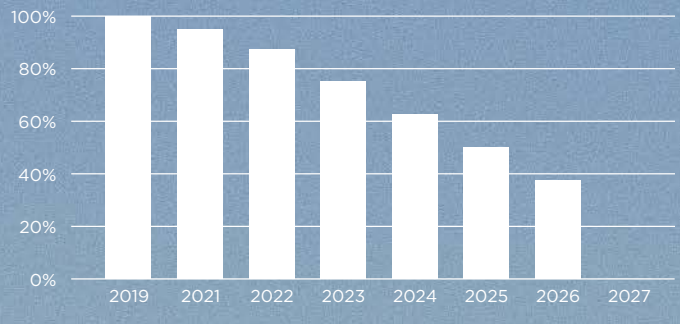
Bruce Power Net Zero Inc.

Bruce Power is already a clean-energy supplier of 30 per cent of Ontario's electricity, which results in the avoidance of about 19 million tonnes of greenhouse gases (GHGs) a year.

Starting from this position of strength, Bruce Power Net Zero Inc. is leveraging investments to generate pathways to achieve Net Zero GHG emissions from the Bruce Power site by 2027.

Bruce Power Net Zero Inc. is focused on projects that are complementary to leverage Bruce Power nuclear, including energy storage, carbon offsets, renewables, hydrogen and electrified transportation.

Bruce Power interim GHG reduction targets relative to a 2019 baseline



	2021	2022	2023	2024	2025	2026	2027
% Reduction (cumulative)	5%	12.5%	25%	37.5%	50%	62.5%	100%

Bruce Power Net Zero Inc. is an Ontario corporation which owns and operates a 9 Megawatt renewable energy project located adjacent to Bruce Power. Its purpose is to advance projects that deliver a clean energy mix for the province and Canada.

NET ZERO INITIATIVES IN 2022

POTENTIAL HYDROGEN PRODUCTION

Bruce Power signed a Memorandum of Understanding with companies within the Clean Energy Frontier region of Bruce, Grey and Huron counties – Bruce Power Net Zero Inc., Greenfield Global, Hydrogen Optimized and Hensall Co-op. The companies are collaborating on a feasibility study to determine opportunities for hydrogen production using excess energy and to recommend how this unique asset could allow the region to become a centre of excellence for hydrogen production and key hydrogen hub for the province.

LEAD THE CHARGE

Bruce Power Net Zero has partnered with Westario Power to provide hands-on support and funding to municipalities in Bruce, Grey and Huron to increase the availability of Electric Vehicle (EV) chargers to address growing needs. The first EV chargers were approved for installation in the Municipality of Brockton.

ENERGY STORAGE

Bruce Power Net Zero joined the Leadership Council of Energy Storage Canada (ESC). Energy storage technologies, including large pump hydro and batteries, use power that is generated elsewhere at times when demand is lower to “store” the energy in a form that may be delivered back to our electricity systems when demand is at its highest. The greatest potential for storage is when it is paired with nuclear power, as it presents the most effective, emissions-free and reliable energy solution for Ontario’s energy mix.

Investing in our community

SOCIAL RESPONSIBILITY

Many of our employees have lived in Bruce, Grey and Huron counties for decades, and we are proud to have been an active member of the business community since 2001. Local Indigenous communities and municipal and county governments partnered with us on programs that benefit the entire region and we look forward to continuing to foster meaningful relationships with community partners.

Bruce Power and its supplier partners work together to support local, provincial and national non-profit organizations that focus on Indigenous youth, health and wellness organizations, Canadian veterans and local Royal Canadian Legions, community initiatives, and hospital foundations.

$2.06 million community donations by Bruce Power in 2022

Including

Indigenous Community Investment Fund

Environment & Sustainability Fund

Local hospitals and health care initiatives

Youth development programs

Youth scholarships

Mental health support

Walking the path together

Partnering with Indigenous communities

Bruce Power's site lies within the traditional Treaty Territory of the Saugeen Ojibway Nation and the traditional Harvesting Territory of the Métis Nation of Ontario (Region 7) and the Historic Saugeen Métis.

Bruce Power's Indigenous Employment Program was an integral component of the Workplace Diversity and Inclusion Award through Electricity Human Resources Canada (presented in 2022).

The company is working toward true reconciliation by building partnerships that offer real and tangible benefits for Indigenous communities.

Bruce Power has partnered with the Saugeen Ojibway Nation (SON) in an historic collaboration to market medical isotopes. The partnership, named "Gamzook'aamin Aakoziwin," which translates to "We are teaming up on the sickness," includes an equity stake for SON and a revenue-sharing program that provides a direct benefit to the community.

Bruce Power's Community Investment Fund supports many of SON's community programs and initiatives and helps to support social programs to sustain necessities such as roads, water, education and recreation.

As the area's largest employer, Bruce Power helps to create pathways through training programs.

In 2022, Bruce Power launched its Supporting Pathways to Training program, a collaboration between Building Trade Unions, suppliers and vendors, Indigenous Skills and Employment Training delivery organizations, to increase Indigenous presence and help address the shortage of trades workers across the nuclear industry. The company also partnered with local Indigenous communities on Virtual Career Fairs and collaborated throughout the year with local Indigenous community members on various events, including a Sunrise Ceremony on September 30 (National Truth & Reconciliation Day), Lunch & Learns for Indigenous History Month and Treaty Recognition Week.

Community programs

Social responsibility is one of Bruce Power's core values. Along with our supplier partners, we're giving back to make our communities a better place to live for our employees and the public.

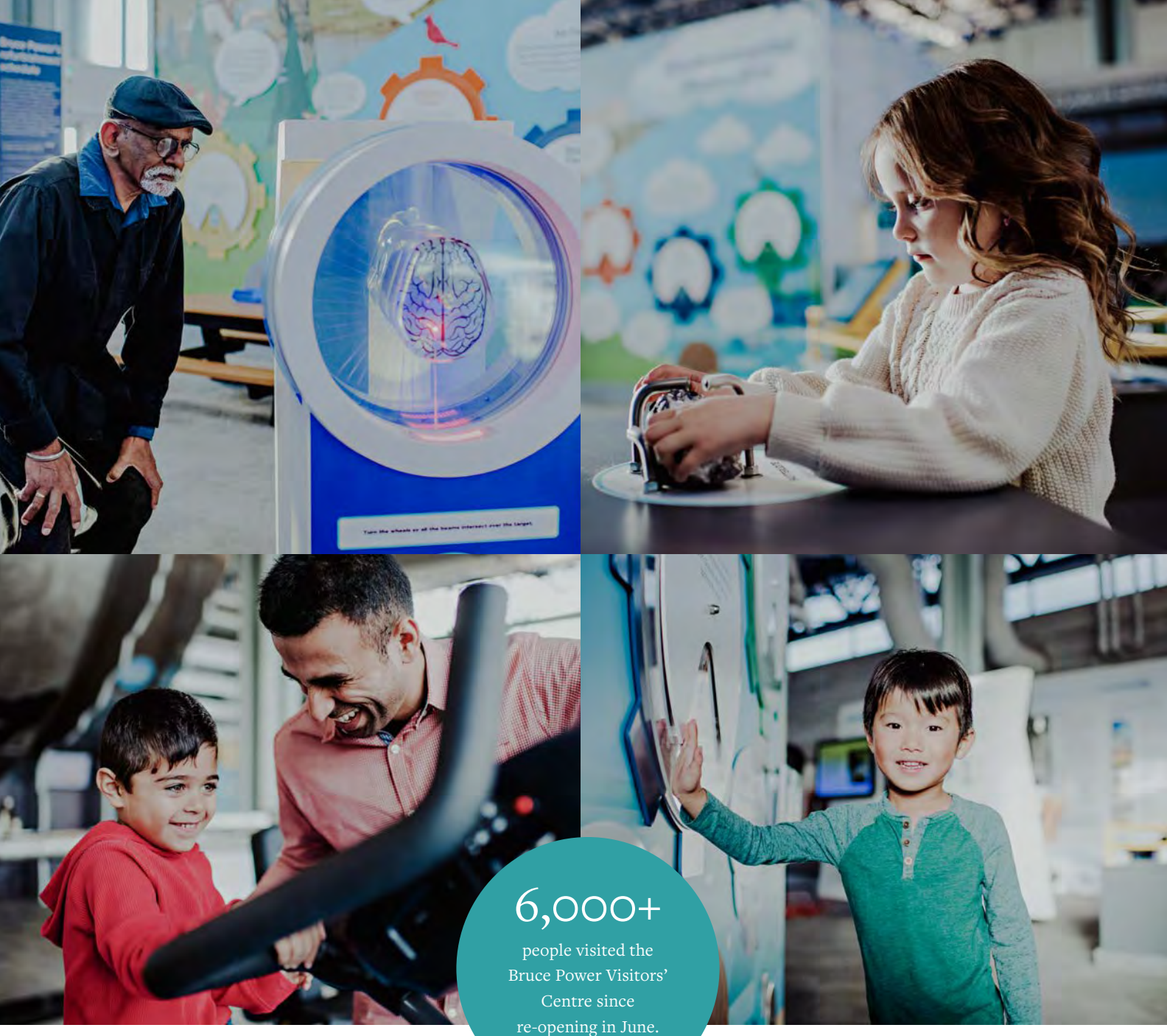
2
COMMUNITY FIREWORKS DISPLAYS

$25,000
DONATION TO HABITAT FOR HUMANITY ON BEHALF OF EMPLOYEES

Lead sponsor of local Pride Parades

We're committed to Diversity, Equity and Inclusion in the workplace and in the community.

Proud sponsor of the NII SWERVE event



6,000+

people visited the Bruce Power Visitors' Centre since re-opening in June.

Learning more about clean nuclear power

The Bruce Power Visitors' Centre re-opened in 2022 following an extensive renovation, with new interactive exhibits and a busy summer site bus tour program that educated thousands of people about safe, clean nuclear energy and its exciting by-product, cancer-fighting medical isotopes.

Advancing Made-in-Ontario solutions for a sustainable future

P.O. Box 1540 Tiverton, Ontario, Canada N0G2T0 www.brucepower.com 519-361-7777

FSC
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FSC® C000000
The mark of responsible forestry

PCF

BIOGAS ENERGY

PERMANENT

Just like safety, environmental stewardship is central to Bruce Power's daily operations. We are committed to meeting or exceeding the standards of environmental performance set by our regulators. We remain committed to preserving the environment by continually assessing the implications our day-to-day actions have on the land, water and air that surround us.

Special care and consideration went into the selection of paper to produce this book.

Cover: Curious Matter, 100C Goya White. This paper is produced with potato starch, a by-product of the food industry. It is acid free, lignin free, PH neutral, Elemental Chlorine Free (ECF), Green-E certified and FSC® certified.

Interior: Rolland Enviro® Satin, 80T. This paper contains 100% post-consumer fibre, is manufactured using renewable energy — Biogas and chlorine free. It is FSC® and Ancient Forest Friendly™ certified.

CS220515 R000 JAN 2023