Powering today for tomorrow





Powering Ontario through COVID-19

We provide safe, reliable, clean energy to businesses and families across Ontario, as well as life-saving medical isotopes to the world's health-care community. We power the future.



A message from Mike Rencheck, President and Chief Executive Officer

OUR MISSION

Our Mission at Bruce Power is to safely provide clean, affordable, reliable power and life-saving medical isotopes while strengthening our communities and protecting the environment to secure tomorrow.

Given the challenging year that was 2020, our mission and *Powering Today for Tomorrow* has never been so important not just here at home in Canada, but around the world.



In an extremely difficult year, the collaboration of our stakeholders and a collective effort allowed us to continue to provide power to the province and medical isotopes around the world, and at the same time support our local communities during the worst global public-health crisis of our generation.

The COVID-19 pandemic threatened our business, and more importantly, the people who live and work in our communities around Bruce, Grey and Huron counties. In the face of adversity, so many women and men across Bruce Power stepped up in their daily roles while also contributing the company's donation of more than two million pieces of Personal Protective Equipment (PPE) and more than \$500,000 to local food banks, and supporting our local businesses.

Our Major Component Replacement Project, part of our Life-Extension Program, began with the Unit 6 refurbishment. Despite a period of putting the project on hold because of the pandemic, we remain on plan. We completed two harvests of Cobalt-60, providing enough medical isotopes to sterilize 24 billion pairs of surgical gloves or swabs. We are committed to working with our supply partners on a delivery system to produce additional medical isotopes to treat various types of cancer. We are also excited about our partnership with the Saugeen Ojibway Nation on the Gamzook'aamin aakoziwin (We are teaming up to fight the sickness) project to market new medical isotopes and collaborate on new economic opportunities within the SON territory.

With our partners in the nuclear industry, our elected leaders, and other sectors of the energy industry, we are committed to working together towards a net zero Canada by 2050. By embracing collaboration and innovation, we can create a clean energy future for decades to come.

On behalf of everyone at Bruce Power, we hope you find the 2020 Annual Review and Energy Report insightful.

A new decade began in exciting fashion with the January 2020 start of the Unit 6 refurbishment to raise the curtain on the Major Component Replacement project. Despite the challenges presented by a once-in-a-lifetime public-health crisis,



"We are uniquely positioned to help Ontario and Canada reach net zero greenhouse gas emissions by 2050 while reliably delivering power to homes at 30 per cent below the average cost."

- MIKE RENCHECK, BRUCE POWER PRESIDENT AND CEO





Bruce Power

Formed in 2001, Bruce Power is an electricity company based in Bruce County in the Province of Ontario.

Our 4,200 employees are the foundation of our accomplishments and take great pride in the role they play in safely delivering clean, reliable, affordable nuclear power to families and businesses across the province.

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. "We are in the fourth year of our Life-Extension Program and are at an exciting point in our journey to ensuring clean, reliable energy for Ontario until 2064, with our first MCR project well under way."

Unit 8

– MIKE RENCHECK, BRUCE POWER PRESIDENT AND CEO

Safe. Reliable. Securing Tomorrow.

OPERATIONS

Ontario's residents and businesses depend on Bruce Power to safely and reliably supply the province with 30 per cent of its electricity. In the face of a global health crisis, and at the start of the company's Major Component Replacement (MCR) Project, our workers stepped up and delivered Year 1 of the Unit 6 MCR safely and on time.

Bruce Power's multi-year MCR project to revitalize the site began on January 17, 2020, with Unit 6. The MCR Project has had a successful first year despite the COVID-19 global pandemic, and is on track to deliver the safest, cheapest and fastest CANDU refurbishment ever.

MCR involves the replacement of key reactor components in Units 3-8 including steam generators, pressure tubes, calandria tubes and feeder tubes. The Unit 3 refurbishment will begin in 2023, the same year Unit 6 is completed, and will be followed by Unit 4 in 2025. The life extension of each unit will add 30 to 35 years of operational life, while other investments will add a combined 30 reactor years of operational life to the units.

Extending the operational life of the Bruce Power units will ensure Ontario families and businesses have long-term electricity price stability. MCR is part of Bruce Power's Life-Extension Program which began at the start of 2016 and involves the replacement of older systems in the company's eight reactors during regularly scheduled maintenance outages. The program will secure an estimated 22,000 jobs directly and indirectly from operations, and an additional 5,000 jobs annually throughout the investment program, injecting billions of dollars into Ontario's economy. "Our Major Component Replacement project goes beyond refurbishing six nuclear reactors to power Ontario for decades to come. By successfully executing MCR, we will empower people and communities into the future."

- CHRIS MUDRICK, CHIEF NUCLEAR OFFICER AND EXECUTIVE VICE-PRESIDENT





Extending the operational life of the units

More than 1,000 tradespeople came to the Bruce Power site in 2020 to work on the MCR project, allowing for the successful completion of a number of key project milestones. Unit 6 was defueled 10 days ahead of schedule, all eight of the 145 tonne steam generators were delivered to site from supplier BWXT in Cambridge, and more than 50,000 feet of feeder tube was removed from the reactor vault.

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Major Component Replacement

Bruce Power's MCR project and Life-Extension Program is teamwork at its best, from our owners, executives and employees, to contracted workers and tradespeople, as well as the Canadian nuclear industry's supply chain companies.

The preparations and work completed in 2020 around the Unit 6 refurbishment are testaments to the aforementioned participants. On the supply chain side, we collaborated with Shoreline Power Group, Promation Nuclear and Laveer Engineering on the innovation and delivery of a new Reactor Maintenance Platform to provide access to all 480 fuel channels and support several MCR activities.

The United Steelworkers and BWXT built and delivered from its facility in Cambridge, Ont, eight steam generators — part of its commitment to provide Bruce Power with 32 steam generators between now and 2030 for MCR projects. Laker Energy, Cameco, Nu-tech, Brotech, BCI and Niagara Energy also completed orders for components to be used in the Unit 6 MCR.





















Major Component Replacement

In November, the Unit 6 Major Component Replacement (MCR) project successfully completed the lower feeder removal event-free — a first in CANDU refurbishments.

MCR transitioned to the removal series in October with 960 feeder tubes, 480 fuel channels and 480 calandria tubes to be replaced. To execute the lower feeder removal, workers rigged and cut the feeder tubes before packaging them into low-level waste containers. During the lower feeder cabinet removal, thousands of bolted connections were manually removed.

At the end of 2020, more than 50,000 feet of feeder tube were removed from the vault. MCR tradespeople, including boilermakers, millwrights, electricians, Teamsters and more, worked approximately 24,000 hours in December — the busiest month of the entire Unit 6 project.

units to be refurbished between now and 2033

billion dollars in direct and indirect economic activity from operations and life extension work 17



A Net Zero Canada; and

THE FUTURE OF NUCLEAR

Bruce Power has a prominent role to play in a clean energy future. "I have not seen a credible plan for net zero without nuclear as part of the mix," Seamus O'Regan, the Minster of Natural Resources for the federal government, told the Canadian Nuclear Association conference in February. That's why our President and CEO Mike Rencheck, speaking to the Empire Club of Canada in October, introduced NZ-2050 — the company's strategy to achieving zero greenhouse gas emissions over the next 30 years while also growing the economy and fostering innovation.

NZ-2050 builds off the strong foundation built by Canada's largest clean energy infrastructure project at Bruce Power, which provided 70% of the clean energy needed in Ontario to phase out the province's coal-powered generation in 2014. That's the most substantial emissions-reduction initiative in Canada this century.

The multi-layer strategy includes optimizing and leveraging existing investments in our Life-Extension Program to drive further decarbonization; foster innovation in new energy technologies; utilize nuclear to produce clean fuels and electrify industrial processes and transportation; create an ecosystem of 'green collar' jobs with a focus on diversity and greater representation from women; Indigenous peoples and visible minorities and support strong social responsibility and sustainability while providing contributions to global health care as the world battles COVID-19.

Bruce Power will also work with the Nuclear Innovation Institute through the joint Centre for Next Generation Nuclear to explore pathways and find solutions to deliver a clean energy future.

We're creating thousands of jobs and economic opportunities for our communities and for the next generation.

"We are placing nuclear energy front and centre, something that has never been done before."

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SEAMUS O'REGAN, FEDERAL MINISTER OF NATURAL RESOURCES



per cent of Ontario's electricity produced by Bruce Power

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750 W

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per cent less than the average cost to generate power for Ontario residents

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Be a Light

Bruce Power committed \$1 million to Bruce, Grey and Huron counties through the *Be a Light* campaign to continue the fight against COVID-19. It supported Public Health Communications, Additional Community Protections, Buying Local, Mental and Physical Health Initiatives and Lending a Helping Hand. We are hometown proud.

COMMUNITY

We're at our best when we help each other by working together. That's never been more obvious — and necessary — in a year when a global pandemic cost the lives of more than one million people.

At Bruce Power, we rely on the support and commitment of the surrounding communities and everyone who lives here. We have the privilege of contributing to the community and encourage our partners to do the same. When the COVID-19 crisis struck, our people, our communities and our partners rallied to protect families, friends, businesses and workers.

Through collaboration between our elected leaders, our employees, our partners in the nuclear supply chain and the business community, we executed a number of initiatives. That esprit de corps played a leadership role in Bruce Power donating more than two million pieces of personal protective equipment to health-care facilities, other front-line workers, small businesses, our Indigenous communities, and schools — the largest-announced donation of PPE from Canada's private sector. More than \$1 million was raised within the company and with support from many of our suppliers. That funding was used to help food banks, local and national organizations in financial distress, and for the production of ventilators used to treat COVID-19 patients. We procured hand sanitizer and masks to distribute in our communities, and worked closely with our public-health experts to inform residents about COVID-19.

In 2020, we were there to support the great work that is being done to improve lives, protect the environment, celebrate culture, encourage education and build healthy communities in Bruce, Grey and Huron. "I want to thank Bruce Power for showing the true Ontario spirit and making this generous donation of PPE to support Ontario businesses, schools, and non-profits. I am incredibly proud of how the Ontario business community, including Bruce Power, has stepped up during these extraordinary times to give back to their local communities, keep people safe and healthy, and ensure we defeat this terrible virus."

- ONTARIO PREMIER DOUG FORD









million pieces of PPE donated to health-care and front-line workers for the fight against COVID-19

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Life-saving technology

MEDICAL ISOTOPES

Canada is a global leader in the production of medical isotopes, used in the sterilization of medical equipment and in the diagnosis and treatment of certain forms of cancer here at home and in countries around the world. In 2020, we completed two harvests of Cobalt-60 during unit outages, and that provided medical isotopes for the sterilization of 24 billion pairs of surgical gloves or swabs.

Our company mission includes forming partnerships to seek ways to expand the isotopes being produced. Bruce Power has joined forces with supply chain partners Kinectrics and Framatome, and a group of biotechnology and radiopharmaceutical companies, to collaborate on establishing Ontario as a global hub for medical isotopes.

The company has also partnered with the Saugeen Ojibway Nation on "Gamzook'aamin aakoziwin" (*We are teaming up to fight the sickness*) to explore ways to jointly market new isotopes and also work together to create new economic opportunities within the SON territory. The partnership will use the made-in-Ontario Isotope Production System installed in our nuclear reactors to produce lutetium-177 and has the potential to produce other isotopes in the future.

Bruce Power is the founder of the Canadian Nuclear Isotope Council, a coalition of science, health care and nuclear sector organizations ensure isotopes remain a superpower of Canada and a world leader in isotope production. We are committed to having a role in medical innovation, and to continue delivering life-saving medical isotopes to hospitals around the world — improving the quality of life of millions of people in the process. TODAY, BRUCE POWER PRODUCES MORE THAN JUST ELECTRICITY. THANKS TO DECADES OF CANADIAN INNOVATION, BRUCE POWER ALSO PRODUCES A SECONDARY FUEL – COBALT-60 – A RADIATION SOURCE USED TO KILL GERMS AND FIGHT CANCER.

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"We believe there's a leadership role for Bruce Power in working with the scientists, engineers and doctors to keep finding new ways for medical isotopes to improve the lives and health of people around the world."

- JAMES SCONGACK, EXECUTIVE VICE-PRESIDENT, CORPORATE AFFAIRS AND OPERATIONAL SERVICES

"Our mission is to safely provide clean, affordable, reliable power and life-saving medical isotopes while strengthening our communities and protecting the environment to secure tomorrow." A

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- MIKE RENCHECK, BRUCE POWER PRESIDENT AND CEO





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