

"Thanks to what we have achieved by returning Units 1 and 2 to service, the people of Bruce, Grey and Huron counties, and across Ontario, will now benefit from the full potential of the Bruce Power site."

- Duncan Hawthorne President & CEO



TABLE OF CONTENTS

WHO WE ARE

OUR VISION, MISSION AND VALUES

A MESSAGE FROM DUNCAN HAWTHORNE

BRUCE A REALIZES ITS FULL POTENTIAL

ONTARIO PUTS ITS FAITH IN BRUCE POWER

BRUCE A REALIZES ITS FULL POTENTIAL

INNOVATION

BEST CNSC REPORT CARD

CLEAN Bruce Power Nuclear

SAFETY & Emergency Response

SOCIAL RESPONSIBILITY

22

2013 OPERATIONAL SUCCESSES



VISION:

To be Canada's world class nuclear operator.

MISSION:

Bruce Power is committed to providing safe, reliable, affordable and environmentally sound electricity.

We will achieve this through living our values, which will condition every decision and action we take. We will leverage the skills and creativity of Canada's most dynamic and innovative team to achieve sustainable performance excellence.

VALUES:

Safety First

We embrace and practice strong nuclear safety principles, recognizing that reactor safety, industrial safety, radiation safety, and environmental safety are essential to the successful achievement of our long-term goals and key to our reputation.

Professionalism and Personal Integrity

We believe in honouring ourselves, our business and our personal commitments.

Respect and Recognition

We recognize that our people are essential to our success and respect their exceptional efforts.

Passion for Excellence

We demonstrate commitment to continuous improvement to create sustainable performance excellence, which benefits all our stakeholders.

Social Responsibility

We recognize business excellence and our financial strength as an opportunity for contributing to the greater good.



A MESSAGE FROM DUNCAN HAWTHORNE

Bruce Power nuclear up, coal down.

That's the best way to describe another year of milestones at Bruce Power.

The company officially became the world's largest operating nuclear generating facility when its eight units operated simultaneously for the first time in nearly two decades, and finished the year having provided 30 per cent of Ontario's power and over 50 per cent of the province's nuclear.

The successful return of all four Bruce A units over the past decade also provided the Ontario government with proof that refurbishing Bruce Power units is beneficial to the province's residents. The Ministry of Energy rewarded Bruce Power with policy support to refurbish Units 3-8, starting in 2016, in its Long-Term Energy Plan.

By realizing the full potential of its eight units, and breaking a 1991 record for site output in 2013, Bruce Power is also a major reason the Ontario government has advanced its plans to shut down all coal-fired electricity generating stations in the province. With a revitalized Bruce site safely and reliably producing over 6,300 megawatts of carbon-free electricity, Bruce Power has provided 70 per cent of the energy Ontario

needs to shut down coal, creating cleaner air for the people of Ontario.

By proving refurbished units can safely and reliably provide massive amounts of carbon-free electricity, Bruce Power has given the Government of Ontario and its residents confidence that future refurbishment projects on the Bruce site will result in a clean source of energy for generations. Another benefit is that Bruce Power nuclear keeps prices low for families, as the average paid for our nuclear in 2013 was 25 per cent lower than the average price paid for electricity in Ontario. This was clear in the government's Long-Term Energy Plan, which was released in December 2013, when the Ministry of Energy introduced the policy framework to enable Bruce Power to refurbish its six remaining units starting in 2016. In 2014, we will work to put the commercial framework in place with the Ontario Power Authority and secure the investment to complete these projects.

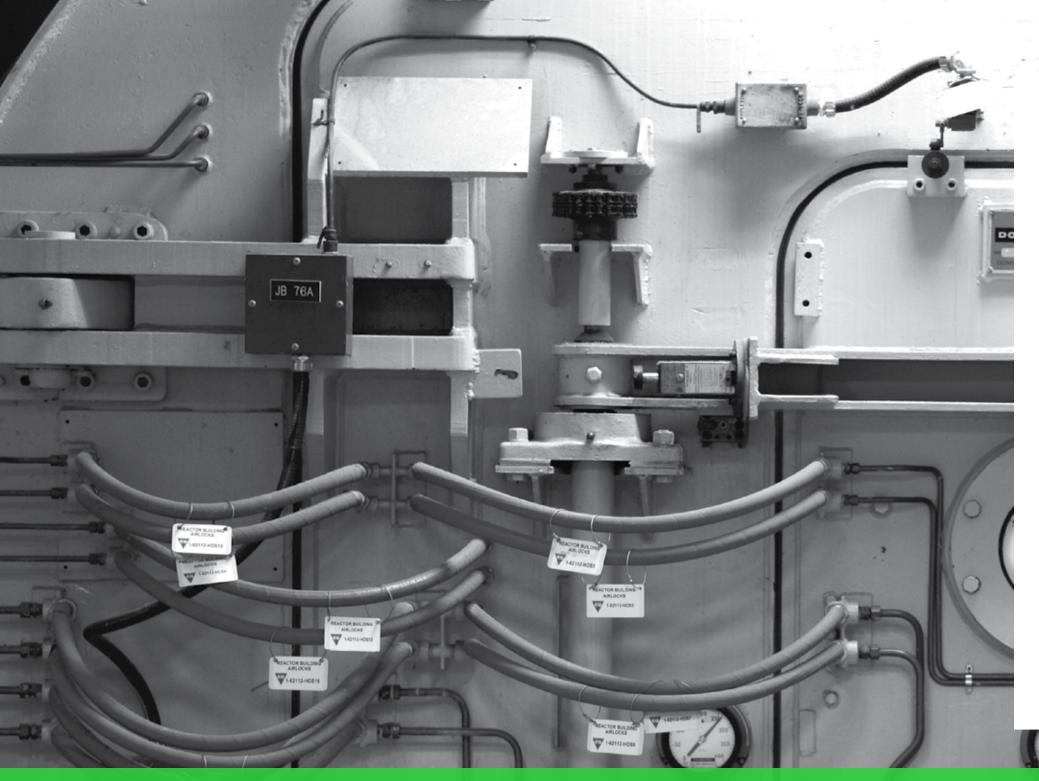
Another success for Bruce Power in 2013 was our safety record. We eclipsed 15 million hours worked without a lost-time injury in December – a period of about 1 ½ years. Combined with another mark of 'Fully Satisfactory,' an equivalent of an A+, from the Canadian Nuclear Safety Commission for industrial and conventional safety, as well as our security function, Bruce Power has continued to live its Number 1 value of 'Safety First.'

Bruce Power, its employees and stakeholders also donated nearly \$2 million through its Community Investment fund, which supports organizations that focus on health and wellness, community, youth development, events, Aboriginal programs and military, veterans and first responders.

The past year was one of the most exciting in our 12-year history, and has laid the groundwork for Bruce Power to provide, clean, reliable and carbon-free electricity to the people of Ontario for generations. "Bruce Power provided 30 per cent of Ontario's electricity in 2013, and over 50 per cent of the province's nuclear. It's the people of Bruce Power who work day and night that should be commended for this effort as they are the ones that deliver safe, reliable operations."

- Duncan Hawthorne President & CEO

 $\mathbf{4}$



NUCLEAR UP. COAL DOWN.

This year, that statement was proven to be true when the Ontario government shut down another coal plant and introduced an historic bill that would end coal-fired generation in the province after its final plant is shuttered in 2014.

This unprecedented environmental achievement simply would not have been possible without Bruce Power, which provides 70 per cent of the energy needed to shut down coal plants after returning four of its units to service over the last decade.

In the 1990s, all four units at the Bruce A facility were removed from service by the former Ontario Hydro, resulting in the loss of 3,000 megawatts of clean electricity that generates practically zero carbon emissions. As a result, the use of fossil fuel-burning coal generation increased from 12 per cent of Ontario's supply mix in 1995 to 29 per cent

in 2000, negatively impacting the province's air quality and health of Ontarians.

Since 2003, Bruce Power has invested billions of dollars to refurbish these four dormant Bruce A units in one of Canada's largest infrastructure projects of the past decade. The first-of-a-kind initiative, which supported nearly 10,000 jobs at its peak, culminated in April 2013 when all eight Bruce Power units supplied clean and carbon-free electricity to the provincial grid for the first time in nearly two decades.

Bruce Power nuclear now provides about one-third of Ontario's electricity from its eight-unit site, which is now the world's largest operating nuclear generating facility. This carbon-free energy source has helped to remove tonnes of CO_2 from the air, positively impacting the environment and the health of Ontarians.

As the single largest contributor to this clean-air initiative, Bruce Power has proven that investing private funds into provincially owned nuclear assets creates a cleaner, more reliable electricity market, which will benefit the people of Ontario for generations.



"Ontario has become the first regional jurisdiction in all of North America to take these steps on the burning of coal. We can solve (climate change), but we need to get busy and follow Ontario's lead."

- Former U.S. Vice-President Al Gore to the Toronto Star (Nov. 21, 2013)

COAL UNITS IN SOUTHERN ONTARIO PRODUCING POWER BY JANUARY 2014 70

PER CENT OF THE ENERGY THE PROVINCE NEEDED TO SHUT DOWN COAL PLANTS WAS PROVIDED BY BRUCE POWER 8

NUMBER OF UNITS ON THE BRUCE SITE GENERATING CARBON-FREE ELECTRICITY 2

SMOG DAYS N 2013, DOWN FROM 53 IN 2005



ONTARIO PUTS ITS FAITH IN BRUCE POWER

Ontario's Ministry of Energy showed its support for Bruce Power by giving it a large role in the Long-Term Energy Plan (LTEP) review, in late-2013.

The government underwent an intensive public consultation process throughout the summer months, which showed nuclear energy is the most supported form of electricity with respondents. In drafting its plan for Ontario's energy supply future, the province pledged its support of refurbishing six nuclear units at the Bruce site over the next two decades. This positions Bruce Power to supply safe, reliable and carbon-free power to the people of Ontario for generations.

The refurbishments of Units 3-8 would begin in Unit 4 on Aug. 1, 2016, and come on the heels of the first-of-a-kind Restart project, which saw Units 1 and 2 returned to service in late-2012 after 15 years dormant. This experience puts Bruce Power in the enviable position of having vast experience with large-scale refurbishment projects.

"There is nothing we need to do on Units 3-8 that we haven't done before," said Duncan Hawthorne, Bruce Power President and CEO, upon reading the LTEP document. "Over the last 12 years, Bruce Power has

restarted four units and demonstrated countless technical innovations to return our site to its full potential. Bruce Power will deliver the renewal program knowing we have the technology and know-how to do the work."

The government's LTEP decision supports Bruce Power's vision for 2040 called, 'Securing Tomorrow. Today. Bruce Power and Ontario in 2040,' which was released in 2013. The document outlines how Bruce Power can meet the challenges of a higher population, more demand for electricity and increased need for carbon-free electricity sources, which will be presented over the next three decades.

With the Ministry of Energy putting the policy into place for Bruce Power to refurbish its six remaining units, the company will now work to put that policy into action through arranging an agreement with the Ontario Power Authority and securing the investment to complete these projects.

Ontarians want clean, affordable electricity to meet their everyday needs, while protecting the environment for future generations. Bruce Power provides that.

"Bruce Power believes the focus on renewing our nuclear fleet is the right thing to do, as both the Bruce and **Darlington units are** critical to protecting the air we breathe and keeping electricity prices low and stable for our families and businesses for future

President & CEO



NUMBER OF REFURBISHMENTS **BRUCE POWER WILL COMPLETE OVER THE NEXT** TWO DECADES

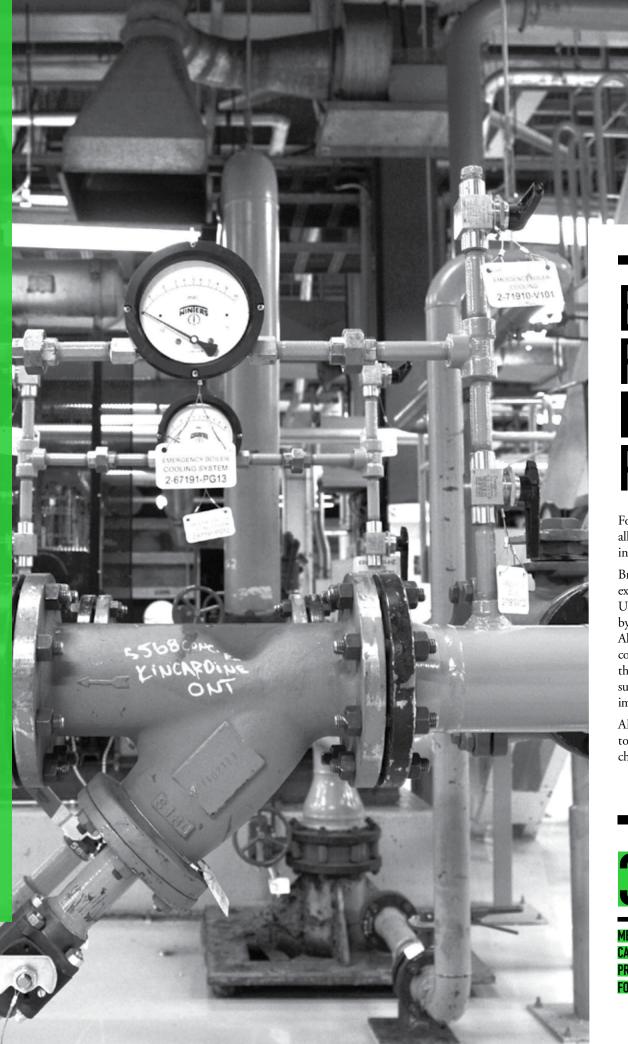
74

PER CENT OF **ONTARIANS POLLED WHO SUPPORT BRUCE POWER** REFURBISHMENT

15,000

NUMBER OF JOBS **BRUCE POWER POSITIVELY IMPACTS ANNUALLY**

BILLIONS OF DOLLARS IN ECONOMIC ACTIVITY BRUCE POWER CREATES ANNUALLY



1995 UNIT 2 SHUT DOWN

1997 UNIT 1 SHUT DOWN

1998 UNIT 3 & 4 SHUT DOWN

2001 BRUCE POWER FURMED: ASSUME OPERATIONAL CONTROL OF SITE

BRUCE POWER FORMED: ASSUMES

UNIT 4 IS RETURNED TO SERVICE

UNIT 3 IS RETURNED TO SERVICE

AUTHORITY TO RESTART UNITS 1 & 2

UNITS 1 & 2 MADE CANDU HISTORY

BY SUCCESSFULLY COMPLETING

THE REFUELLING PROCESS

MEGAWATTS TO ONTARIO'S

2013 ALL EIGHT UNITS PRODUCED CARBON-FREE ELECTRICITY FOR THE

FIRST TIME IN NEARLY TWO DECADES. MAKING BRUCE POWER THE WORLD'S

LARGEST OPERATING NUCLEAR FACILITY.

2012 UNITS 1 & 2 RETURN TO SERVICE.
ADDING ADDITIONAL 1,500

ELECTRICAL GRID

2005 MULTI-BILLION DOLLAR AGREEMENT REACHED WITH ONTARIO POWER

BRUCE A REALIZES ITS FULL **POTENTIAL**

For the first time in nearly two decades, all four of Bruce A's units were operational in 2013.

Bruce Power spent the first 12 years of its existence, and billions of dollars, refurbishing Units 1-4 after the units were shut down by the former Ontario Hydro in the 1990s. Although challenging, Bruce Power and its colleagues developed innovative new technologies that allowed this first-of-a-kind work to be successfully completed – a feat many thought impossible when the projects began.

Although Units 1 and 2 were returned to service in October 2012, a long and challenging outage on Unit 4 lasted into 2013. After highly technical maintenance was completed on Unit 4, it successfully joined Units 1-3 on Ontario's electricity grid, making Bruce A fully operational for the first time in two decades.

Although Unit 4's outage made for a challenging start to the year at Bruce A, all four units performed at an impressive 5.6 per cent Forced Loss Rate as fall turned to winter and the people of Ontario required more electricity to heat their homes, schools, hospitals and businesses.

By proving refurbished units can safely and reliably provide massive amounts of carbon-free electricity, Bruce Power has given the Government of Ontario and its residents confidence that future refurbishment projects on the Bruce site will result in a clean source of energy for generations.

By realizing its full potential, Bruce A is a major reason the Ontario government has advanced its plans to shut down all coal-fired electricity generating stations in the province in 2014. With Bruce A safely and reliably producing over 3,000 megawatts of carbon-free electricity, Bruce Power has provided 70 per cent of the energy needed to shut down coal. Cleaner electricity from Bruce Power nuclear has resulted in substantially fewer smog days in the province, from 53 in 2005 to two in 2013, positively impacting the health and well-being of Ontario residents for generations.

3,000

\$7 BILLION

SITE SINCE 2001

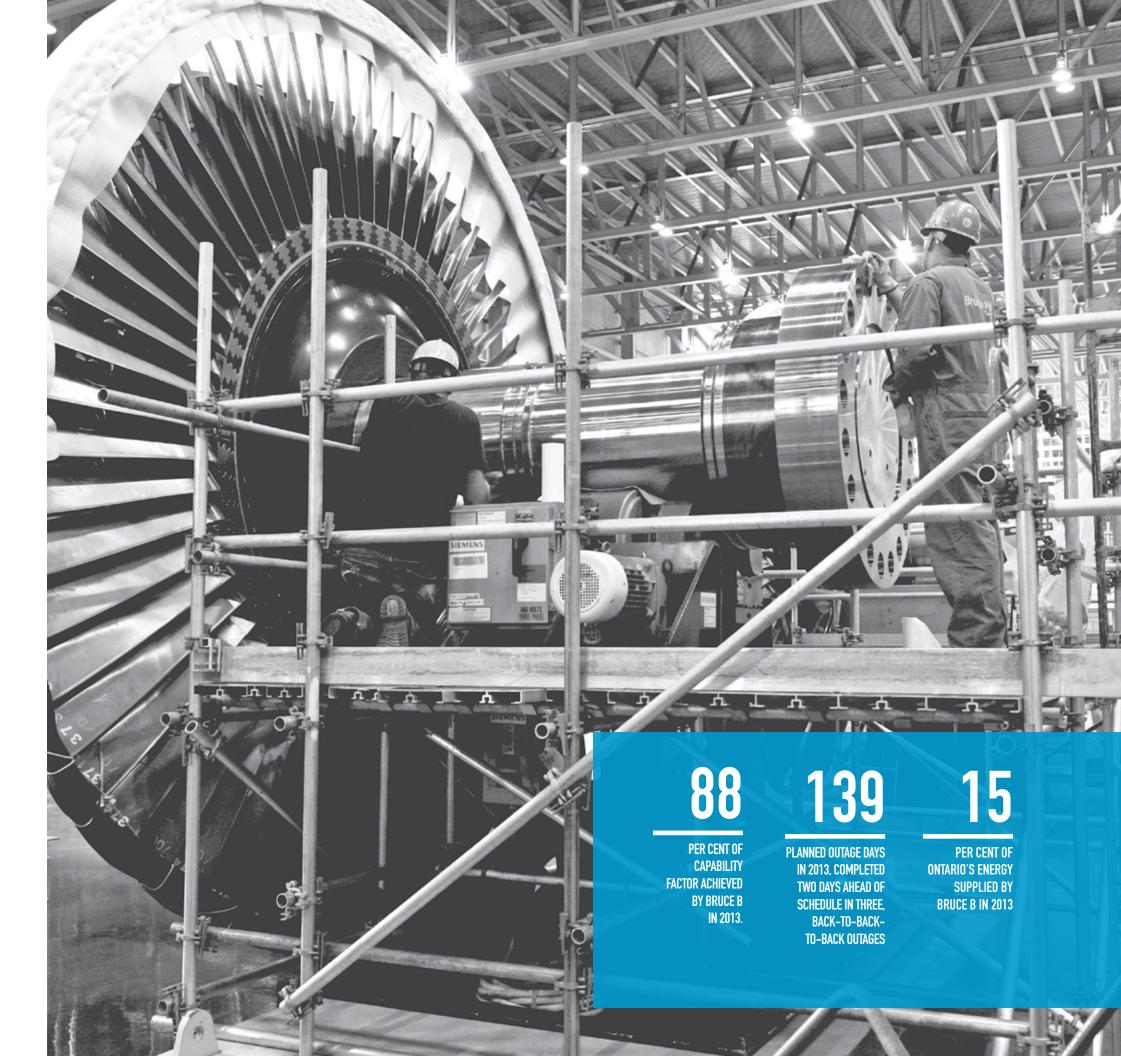
A STELLAR 2013 AT BRUCE B

The four units at Bruce B were a workhorse for the people of Ontario in 2013.

After successfully completing 139 days of planned maintenance outages in Units 5, 6 and 8 ahead of time and budget, the station's four units did a stellar job of providing safe, reliable and carbon-free electricity to the province.

Bruce B also finished the year with a capability factor of over 88 per cent and a miniscule Forced Loss Rate of two per cent, an impressive run of reliable production from the facility. This consistency of operations wouldn't be possible without the commitment of all employees across the organization, as well as improved alignment in the way we plan and complete work, ensuring the right jobs get done at the right time. This improves the overall health of the equipment and the plant, and keeps our units producing electricity reliably and as intended.

The reliable performance of the Bruce B units was evident in the long runs Units 5, 6 and 7 experienced in 2013 after their planned maintenance outages. Unit 5 provided clean, reliable power for 243 consecutive days, Unit 6 did so for 256 straight days, and Unit 7 eclipsed both with a run of 280 straight days of carbon-free power for the people of Ontario.





INNOVATION

Since it was formed in 2001, Bruce Power has been one of the nuclear industry's most innovative companies.

While returning four dormant units to service over the past decade, Bruce Power and its partners have engineered and developed first-of-a-kind technologies to do what many thought was impossible; breathe new life into reactors that were shut down by the former Ontario Hydro in the 1990s. This ability to face a challenge head-on and develop ways to safely overcome them has earned Bruce Power recognition as a world leader in the energy industry.

With the incredibly intricate work of refurbishing Units 1 and 2 completed in 2012, Bruce Power refocused its innovative efforts onto more operational aspects of the business this year. Whether it be developing new radiation protection practices to significantly reduce dose to workers, utilizing new training methods to sharpen the skills of workers in a safe setting or creating technologies that make our reactors safer, cleaner and more reliable – innovation continues to be a key to the success of Bruce Power.

As the company prepares for future refurbishment projects on six of its units, these groundbreaking technologies will play a key role in infusing over 30 years of life into these reactors – providing safe, reliable and carbon-free electricity for generations.



30

YEARS OF LIFE
THAT WILL BE
ADDED TO
UNITS 3-8
DURING THE
NEXT PHASE OF

4

BRUCE POWER NUCLEAR UNITS RETURNED TO SERVICE SINCE 2003 1

MANY INNOVATIVE
FIRST-OF-A-KIND
TECHNOLOGIES
HAVE BEEN
DEVELOPED BY
BRUCE POWER
AND ITS
STAKEHOLDERS

A+

OF 'FULLY
SATISFACTORY'
MARKS FOR
SECURITY AND
CONVENTIONAL
HEALTH AND
SAFETY



THE MARK FOR LL OTHER AREAS GRADED IN THE REPORT CARD

EPORT CARD I RUCE POWER' HISTOR

BEST CNSC REPORT CARD

Bruce Power once again received a stellar report card from the Canadian Nuclear Safety Commission (CNSC) in 2013.

For the second year in a row, the CNSC rated Bruce Power as 'Fully Satisfactory,' equivalent to an A+, for its security and conventional health and safety functions, while all other areas of the business were deemed 'Satisfactory,' which is an A.

This matches last year's result, which was the best the company had received since it was formed in 2001. With a culture of continuous improvement, Bruce Power continues to identify ways to be better, and will not rest until those expectations are met or exceeded.

Bruce Power will continue to push forward with improvements to all aspects of our business, with the ultimate goal of having all areas rated as Fully Satisfactory. As Duncan Hawthorne, Bruce Power President and CEO, says, "Good will never be good enough. World-class nuclear operators like Bruce Power are constantly looking for ways they can be better in all areas of their business."

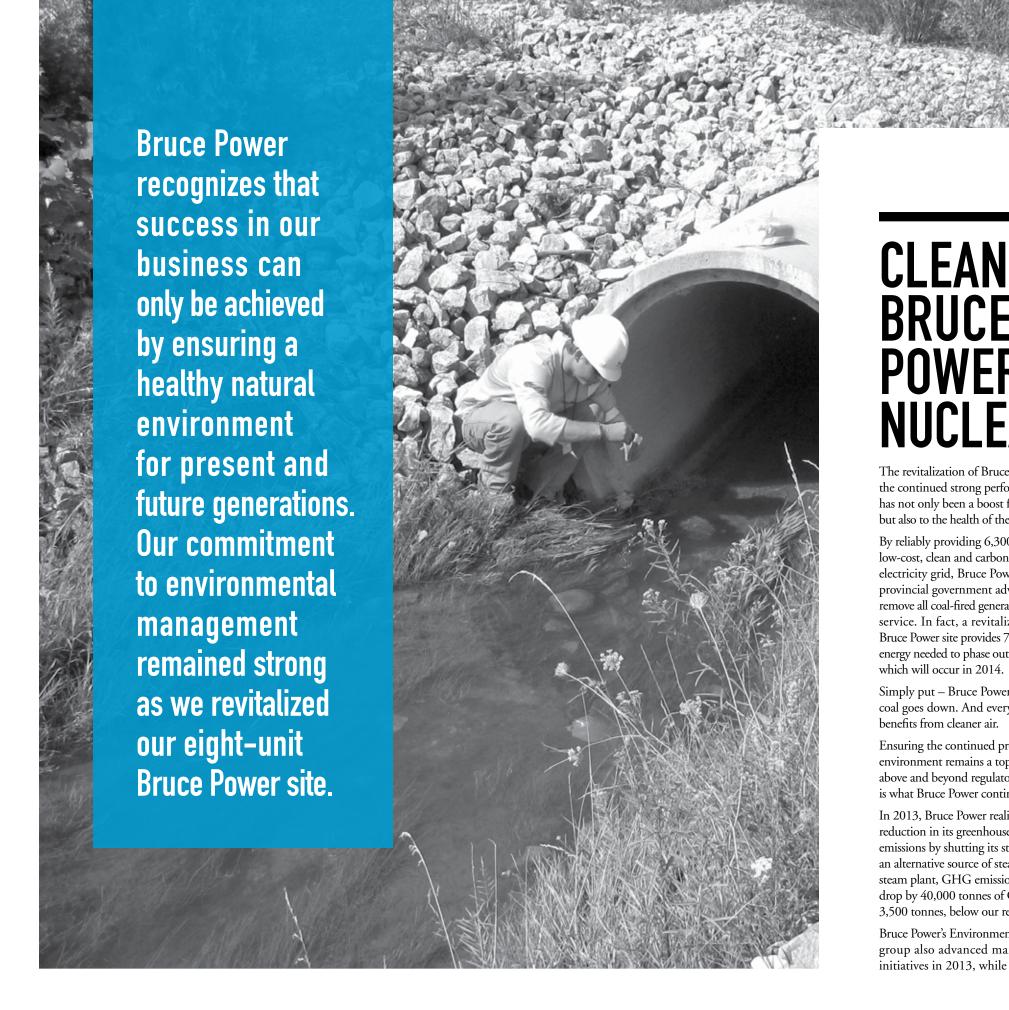
"It (is) clear to me what an incredible amount of innovation and work has gone into the revitalization of the Bruce Power site, which has contributed to... the phase out of coal in Ontario."

- Bob Chiarelli, Ontario's Minister of Energy, during a visit to the Bruce site on Oct. 7, 2013

"We are proud of 2013's CNSC report card, but our goal is to continuously improve our operations."

- Duncan Hawthorne, President and CEO

14 15



ISO14001 registration. The group ran an extremely successful Earth Week program, educating over 400 Grade 4-6 students in local communities about Ontario's energy supply mix; collected over 10,000 lbs. of electronic waste, with proceeds going to Habitat for Humanity; and volunteers picked up over 100 bags of litter on site and 20 bags of litter and 26 bags of recyclables on the roads leading to the Bruce Power site.

Bruce Power also purchased its first electric vehicle (EV) in 2013, while installing a charging station for public use at the Bruce Power Visitors' Centre. The vehicle is being used to educate people about the environmental benefits, innovation and future of EVs.

The Environment and Sustainability group was also very active in the surrounding communities in 2013. It formed a three-year partnership with the Lake Huron Fishing Club to assist with such things as mini-hatcheries, stream improvements and rehabilitation, tree planting, fish stocking and volunteer resources. Another partnership was formed with Georgian Bay Forever, which is dedicated to scientific research and public education on Georgian Bay's aquatic ecosystem.

Bruce Power's partnership with the Grey Bruce Sustainability Network also saw over 5,000 binders diverted from local landfills and either recycled or donated to local schools.

The revitalization of Bruce A's four units and the continued strong performance at Bruce B has not only been a boost for Bruce Power, but also to the health of the people of Ontario.

BRUCE

POWER

NUCLEAR

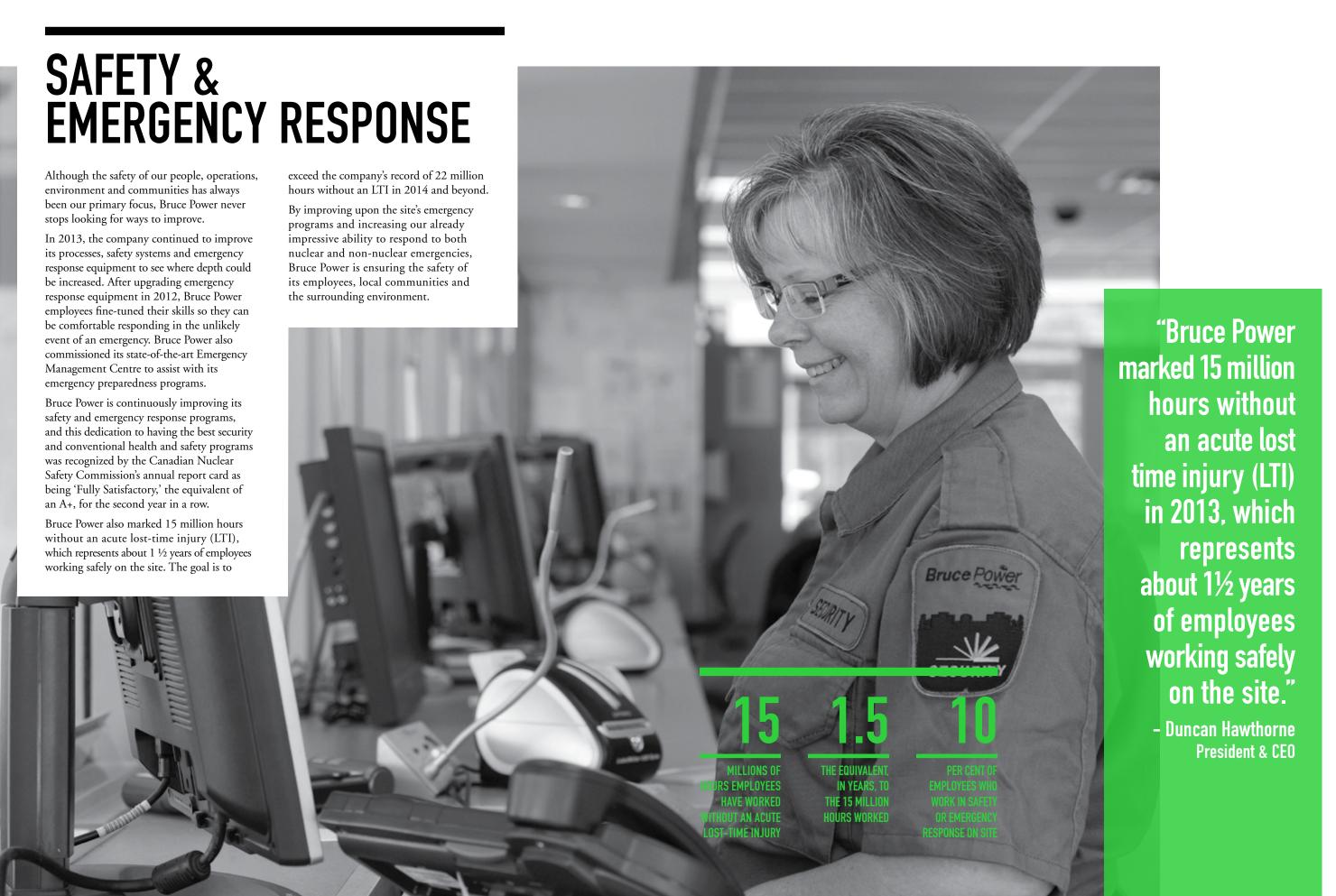
By reliably providing 6,300 megawatts of low-cost, clean and carbon-free energy to the electricity grid, Bruce Power is helping the provincial government advance its plan to remove all coal-fired generating stations from service. In fact, a revitalized, eight-unit Bruce Power site provides 70 per cent of the energy needed to phase out coal in Ontario, which will occur in 2014.

Simply put – Bruce Power nuclear goes up, coal goes down. And everyone in Ontario benefits from cleaner air.

Ensuring the continued protection of our environment remains a top focus, and going above and beyond regulatory requirements, is what Bruce Power continuously strives for.

In 2013, Bruce Power realized a 92 per cent reduction in its greenhouse gas (GHG) emissions by shutting its steam plant and using an alternative source of steam. By closing the steam plant, GHG emissions from the site will drop by 40,000 tonnes of CO, per year to about 3,500 tonnes, below our requirements.

Bruce Power's Environment and Sustainability group also advanced many important initiatives in 2013, while maintaining its





SOCIAL RESPONSIBILITY

One of Bruce Power's core values focuses on social responsibility and being a good corporate partner to our neighbouring communities.

In 2013, Bruce Power, its employees and stakeholders gave nearly \$2 million to grassroots initiatives, community organizations and disaster relief funds that focus on health and wellness, community, youth development, events, Aboriginal programs and military, veterans and first responders.

Bruce Power receives numerous applications for funding annually and uses a selection process that helps direct funds to the groups that best fit within the company's core values. A Sponsorship Committee, which consists of senior management, departmental experts and CEO Duncan Hawthorne, chooses which groups to provide grants to based on a set of approved criteria.

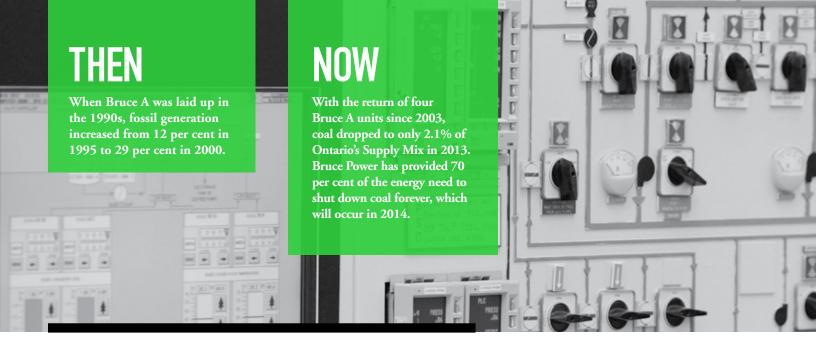
Bruce Power has built a relationship over the years with many of the groups it funds, while others we are just learning about. Some may only need funding once, but the intention is always the same – to support the great work that is being done to improve lives, protect the environment, celebrate culture, encourage education and build healthy communities in Bruce, Grey and Huron counties.

The company and employees also have a close relationship with the United Way of Bruce Grey, donating over \$250,000 to the organization in 2013, through corporate donations and payroll deductions. Since 2003, over \$1.5 million has been donated to the non-profit group.

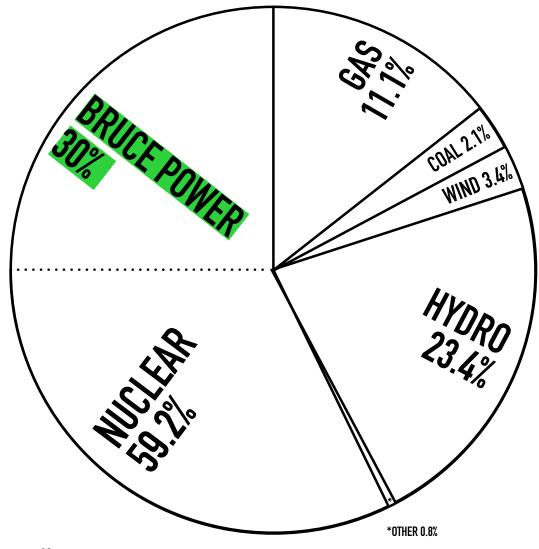
Bruce Power has also been working diligently to foster our relationships with the local Aboriginal communities on whose historical lands our site is situated. We continue to establish a positive working relationship with the Saugeen Ojibway Nations at the communities of Saugeen and Nawash, while on a community sponsorship level in 2013, we teamed up to develop recreational and educational opportunities for children, supported social and cultural programs and assisted with their emergency response capabilities by providing them with fire trucks, among many other initiatives.

The combination of corporate and personal support from the Bruce Power site gives an important boost to local initiatives and organizations so they can continue to improve the quality of life for residents along the Lake Huron shoreline, and make our area one of the greatest places to live in Ontario.

In 2013 polling, residents familiar with Bruce Power agree:



2013 OPERATIONAL SUCCESSES



ONTARIO'S ENERGY SUPPLY MIX

Bruce Power provided 30 per cent of Ontario's energy in 2013, and over half its nuclear. With all four Bruce A units returned to service, the province is benefiting from even more safe, reliable and carbon-free Bruce Power nuclear, which is 25 per cent less expensive than the average price paid for electricity in Ontario.

ELECTRICITY OUTPUT

AGE OF EMPLOYEES

UNDER 36

2013: 1,364 (33.25%)

36-45

2013: 1,006 (24.52%) 2001: 1 265 (40%)

46-55

2013: 1,261 (30.74%)

56+

2013: 471 (11.48%) 2001: 173 (5%)

In 2002, Bruce Power generated 20 terrawatt hours (TWh) from its four units. With a revitalized Bruce A and an eight-unit site, Bruce Power generated 45 TWh of carbon-free electricity in 2013, helping to create cleaner air and healthier lives for Ontario residents. In fact, smog days in Ontario have dropped from 53 in 2005 to only two in 2013.



OF THE ENERGY NEEDED TO
PHASE OUT COAL IN ONTARIO
COMES FROM A REVITALIZED,
EIGHT-UNIT BRUCE POWER SITE

45 TWh

20 TWh

2006 2007 2008 2009 2010 2011 2012 2013

