Bruce Power Community Interests – Local Communities

B-REP-03443-30JAN2018

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1.0 EXECUTIVE SUMMARY

On June 30, 2017, Bruce Power applied to the Canadian Nuclear Safety Commission (the "CNSC" or "Commission") to renew its Nuclear Power Reactor Operating Licence for the Bruce Nuclear Generating Stations (the "Site") for 10 years and to undertake certain life extension activities, including Major Component Replacement ("MCR") for six reactors (the "Application"). The Application builds on the work that Bruce Power has undertaken since assuming responsibility for the operations of the Site in 2001 from Ontario Power Generation ("OPG") pursuant to a long-term lease of the Site. This includes a prior refurbishment of two reactors completed in 2012 which extended the life of these reactors to 2043.

The Site is located in the Municipality of Kincardine and Bruce County on the eastern shore of Lake Huron near Tiverton, Ontario. It is within the traditional territory of the Saugeen Ojibway Nation (the "SON") and the traditional harvesting territories of the Historic Saugeen Métis (the "HSM") and the Métis Nation of Ontario (the "MNO"). The Site includes eight operating CANDU reactors as well as ancillary facilities. Nuclear power has been safely generated from the Site for the past 50 years, initially through the Douglas Point Nuclear Generating Station (1968-1982) and subsequently through the Bruce A and B Nuclear Generating Stations which were put into service from 1977 to 1979 and from 1984 to 1987, respectively.

Bruce Power's current operating licence does not include MCR activities and it is requesting a new ten-year licence in 2018 in order to proceed with MCR activities set to commence in 2020 further to a long-term electricity supply agreement with the Ontario Independent Electricity System Operator (the "IESO"). The continued operations of the facility after 2028 will be contingent on Bruce Power undergoing further CNSC reviews of its operations and obtaining new operating licences. In addition to this ongoing operating licensing process, the CNSC, in its role as a life-cycle regulator, will also be responsible for annually reviewing the performance of Bruce Power.

Bruce Power currently supplies approximately 30 per cent of Ontario's electricity and its operations are subject to concurrent federal and provincial jurisdiction. The Province of Ontario sets energy policy, in this case through the Long term Energy Plan ("LTEP"), which provides a commercial framework for the Site to operate. It also issues certain environmental permits for Bruce Power's operations such as permits to take water and Environmental Compliance Approvals. The federal government, through the CNSC, regulates the nuclear sector and through the Nuclear Safety and Control Act regularly reviews Bruce Power's operations and any proposed changes to its operations to determine whether it can continue to safely operate the Site and the conditions of any renewed operating licences. Certain federal departments may also be required to review aspects of Bruce Power's operations for permitting purposes, such as the Department of Fisheries and Oceans. In order to operate as a business, Bruce Power must meet both provincial and federal requirements.

As part of the Application, Bruce Power has been undertaking public engagement activities and engaging with the SON, the HSM, and the MNO to provide information about the activities proposed in the Application, answer questions, and discuss any concerns. This document has been prepared as a supplement to Bruce Power's Application and details its public engagement efforts. This engagement is ongoing and therefore this document is subject to change based on additional information becoming available. The objectives of this document are to:

- Provide background information on the local communities surrounding the Site;

- Detail the prior socio-economic impact assessments that have been undertaken in past reviews relating to the Site and concerns that were raised by community members in the most recent licencing hearing;

- Explain the results of public opinion research relating to the Site that has been conducted in surrounding communities;

- Identify information provided to the members of local communities surrounding the Site about this Application and ongoing engagement efforts; and

- Explain how community concerns were taken into account in the Application.

This document contains some high-level information about the SON, the HSM, and the MNO but it is not intended to summarize any of their past or current concerns relating to the Site or Bruce Power's engagement with these Indigenous groups on the Application. This information is contained in separate community interest documents that have been prepared with respect to each Indigenous group.

In studies associated with the Site, Local and Regional Study Areas (LSA & RSA) are defined to help evaluate the extent of any effects and how they will be experienced in relation to their proximity to the Site. The study areas are described as follows:

- **Local Study Area (LSA)** – includes the Municipality of Kincardine and the Town of Saugeen Shores; and

- **Regional Study Area (RSA)** – includes Bruce County, Grey County, and Huron County.

The LSA is an area of approximately 709 km^2 and a population of 25,104. (Statistics Canada, 2017a). The RSA is an area of approximately 12,003 km^2 with a combined population of 221,274.

This document is primarily focused on the communities closest to the Site (the Municipality of Kincardine and the Town of Saugeen Shores) and the larger Bruce County within which the Site is located. This is an area of approximately 4,090.2 km^2 and a population of 68,147 people (Statistics Canada, 2017a). This document also provides some information about public engagement and concerns in the remaining counties in the RSA (Grey County and Huron County).

Since 2001, Bruce Power has undertaken numerous environmental assessments and reviews which have involved public participation to varying degrees. This has included reviews for:

- the restart and return to service of four nuclear reactors, including the refurbishment and life extension of two reactors to 2043 (2001 & 2006);

- the ongoing operations of Bruce B to 2037 when Bruce Power applied to the CNSC to refuel the reactors at the Bruce B facility with low void reactivity fuel (2004 – not implemented);

- a proposed new build of up to 4 new reactors which contemplated and assessed the impacts of 12 reactors operating at the same time (2009 - not implemented); and

- licence renewals to operate eight reactors (2009 and 2015).

All of these studies, along with follow-up monitoring programs, have confirmed a lack of significant adverse environmental effects from the ongoing operations of the Site, including the prior refurbishment of two reactors. In several of these EAs, Bruce Power evaluated the operation of the Site out to 2043 or to 2075 in the case of the New Build.

As part of the Application, Bruce Power updated an Environmental Risk Assessment ("ERA") completed in 2015 and prepared a Predictive Effects Assessment ("PEA") for future Site activities including the extension of the operating life through to 2064. The Application (including the ERA and the PEA), the prior refurbishment, previous environmental assessments, and the results of research and monitoring programs demonstrate that the continued operations of the Site and proposed life extension will have:

- No significant adverse environmental effects;
- No adverse effects to human health;
- No novel adverse impacts on Aboriginal and treaty rights and that any impacts will be at most minimal and likely not appreciable.

In the spring of 2016, Bruce Power launched a public engagement process for the Application and specifically MCR. Since this time, Bruce Power has been providing community members with information on the Application and the CNSC licencing and intervenor process, as well as answering questions of community members about the Application. Bruce Power recognizes the unique rights of Indigenous groups and has been consulting with the SON, the HSM, and the MNO on the Application separately as detailed in the community interest documents that have been prepared about each group.

Over the past two years, Bruce Power has employed various mechanisms to share information about the Application and provide opportunities for the public to raise any concerns, including but not limited to:

- Releasing two detailed publications on the Application and the CNSC licencing process released to the website and made known via social media outlets
    - Bruce Power's Role in Ontario – The Road Ahead: Our Relicensing and Environmental Activities (August 2016), which provides an in depth overview of the company's long-term investment program, key decision points, and public engagement opportunities
    - 2018 Licence Renewal Briefing (September 2017), which explains the CNSC licencing process and how to participate and contained detail information on Bruce Power's role in Ontario, the MCR program, and how Bruce Power ensures continued safe operations.
- Launching a website (August 2016) and Facebook Group (Fall 2017) to provide details on the Application and upcoming engagement opportunities;
- Distributing a quarterly Community Update to 52,000 households in Bruce, Huron and Grey Counties which included a summary of information about the Application and included a front page spread on licence renewal, that directed people to the website as well as indication of community engagement sessions Published article in local ***Marketplace Magazine*** that is provided for free through mail to 13,000 households across Bruce County, the article included information about the Licence Application, website and engagement opportunities
- Hosting in-person engagement sessions and online webinars, including:
    - 2 community workshops (25 October 2016 and 29 January 2018) both held in Kincardine, these sessions were by invitation to a variety of stakeholders including

general members of the public who show significant interest in our business, municipal and county government representatives, non-governmental organizations, as well as Indigenous communities. These conversations have a formal presentation component, and then breakout sessions to drive conversation and dialogue in areas of interest to those attending.
    - 5 Face to face community engagement sessions, including two in Port Elgin, two in Kincardine and one at the Bruce Power Visitors' Centre (12 September, 5 October, 2 November 2017, and 22, 23 January 2018)
    - 5 Webinars (06 Dec 2016, 26 September, October 27 and November 16, 2017, and January 31 2018, webinars archived for 12 months and available on website)
- Responding to over 29 technical inquiries about the Application from members of the public
- Conducting Public Attitude Research in 2016 and 2017 in the LSA and RSA;

The Public Attitude Research conducted in 2016 and 2017 indicates that there is a high level of public support for refurbishment and the largely positive views of Bruce Power. In surveys of community members closest to the Site, respondents were asked to name the most important issues facing their community; they were allowed to provide up to two responses. In 2017, only 4%, 2% and 1% of respondent's volunteered issues related to Bruce Power in Municipality of Kincardine, Saugeen Shores; and the rest of Bruce County respectively. "Economic issues" and "Jobs, Employment" were cited as the most important challenges facing the community. No other particulate issue is dominant in Municipality of Kincardine, Saugeen Shores and the rest of Bruce County.The most prevalent issue raised after economic issues was "health care" along with "shortage of doctors and nurses".

As detailed in this document, the operation of the Site continues to provide significant benefits to the communities surrounding the facility. As Bruce County's largest employer, Bruce Power currently employs approximately 4,200 in various full-time permanent 1,300 temporary staff utilized as needed depending on workloads. Since 2001, Bruce Power has also contributed approximately $15 million in support of various priorities in local municipalities and Indigenous communities and has introduced initiatives to increase procurement opportunities for local and Indigenous businesses. It is anticipated that the continued operation of the Site and the proposed refurbishment will result in:

- 18,000 direct and indirect jobs annually; and
- $4 billion in annual Ontario economic benefit through the direct and indirect spending in operational equipment, supplies, materials, and labour income.

Bruce Power will continue to provide information to the public about the Application in advance of the CNSC hearings and encourages all members of the public, Indigenous communities and other stakeholders to share their input in the licensing hearing through the CNSC intervenor process.

2.0 INTRODUCTION AND BACKGROUND

Bruce Power has been safely operating the Bruce Power Nuclear Generating Stations since May 2001. The Site, which includes eight operating CANDU reactors and ancillary facilities, is located in the Municipality of Kincardine and Bruce County on the eastern shore of Lake Huron near Tiverton, Ontario. The Site is also within traditional territory of the Saugeen Ojibway Nation and the traditional harvesting territories of the Historic Saugeen Métis and the Métis Nation of Ontario.

The Site first began generating nuclear power in 1968 initially through the Douglas Point Nuclear Generating Station (1968-1982) and subsequently through the Bruce A and B Nuclear Generating Stations which were put into service from 1977 to 1979 and from 1984 to 1987, respectively. The Site, which was previously operated by OPG and Ontario Hydro, also encompasses lands currently occupied by OPG, Canadian Nuclear Laboratories (CNL) Douglas Point and Hydro One. The Site is one of three nuclear power generating stations in Ontario that have operating CANDU reactors. The other two are the Pickering Nuclear Generating Station (operating since 1971) and the Darlington Nuclear Generating Station (operating since 1990) which are both located on the north shore of Lake Ontario.

On June 30, 2017, Bruce Power applied to the CNSC to renew its Nuclear Power Reactor Operating Licence for 10 years and to undertake certain life extension activities, including Major Component Replacement for six reactors. This Application builds on the work that Bruce Power has undertaken since 2001, including a prior refurbishment of units 1 and 2 completed in 2012 which extended the life of these two reactors to 2043.

This document has been prepared as a supplement to Bruce Power's Application and details its public engagement efforts. This engagement is ongoing and therefore this document is subject to change based on additional information becoming available. The objectives of this report are to:

- Provide background information on the local communities surrounding the Site;
- Detail the prior socio-economic impact assessments that have been undertaken in past reviews relating to the Site and concerns that were raised by community members in the most recent licencing hearing;
- Explain the results of public opinion research relating to the Site that has been conducted in surrounding communities;
- Identify information provided to the members of local communities surrounding the Site about this Application and ongoing engagement efforts; and
- Explain how community concerns were taken into account in the Application.

This document does contain some high-level information about the SON, the HSM, and the MNO but it is not intended to summarize any of their past or current concerns relating to the Site or Bruce Power's engagement with these Indigenous groups on the Application. This information is contained in separate community interest documents that have been prepared with respect to each Indigenous group.

This document is a high-level summary and does not purport to detail every issue that has been the subject of engagement between Bruce Power and members of the public. It was prepared based on currently available information and input received from members of the public on the Application. Public engagement on the Application is ongoing and this document is subject to change based on additional relevant information becoming available.

2.1 The Licence Application

Bruce Power currently supplies approximately 30 per cent of Ontario's electricity and operations are subject to concurrent federal and provincial jurisdiction. The Province of Ontario sets energy policy, in this case through the Long term Energy Plan ("LTEP"), which provides a commercial framework for the Site to operate. It also issues certain environmental permits for Bruce Power's operations such as permits to take water and an Environmental Compliance Approvals. The federal government, through the CNSC, regulates the nuclear sector and through the Nuclear Safety and Control Act regularly reviews Bruce Power's operations and any proposed changes to its operations to determine whether it can continue to safely operate the Site and the conditions of any renewed operating licences. Certain federal departments may also be required to review aspects of Bruce Power's operations for permitting purposes, such as the Department of Fisheries and Oceans. In order to operate as a business, Bruce Power must meet both provincial and federal requirements.

Currently, all eight reactors at the Site are operational, and the Site also includes radioactive waste storage among other supporting facilities. Since 2001, a number of environmental assessment (EA) studies have been conducted at key licensing and operational milestones. These include the following:

- 2001 EA Study Report for the Bruce A Units 3&4 Restart;
- 2004 EA Study Report for the Bruce B New Fuel Project (not implemented);
- 2006 EA Study Report for the Bruce A Refurbishment Project (Units 1&2 Restart);
- 2008 Environmental Impact Statement for the Bruce New Nuclear Power Plant Project (New Build, eventually withdrawn);
- 2015 Environmental Risk Assessment in conjunction with the Power Reactor Operating Licence Renewal; and
- 2017 Environmental Risk Assessment and Predictive Risk Assessment in conjunction with the Power Reactor Operating Licence Renewal.

During several of these processes including the previous life extension of Units 1 and 2, Bruce Power has evaluated the operation of the Site out to 2043 or to 2075 in the case of the New Build. The 2017 PEA also considered future Site activities beyond 2043 including the extension of the operating life to 2064. Bruce Power is not advancing any new build options at the Site at this time as the program was suspended in 2009 and subsequently removed from Ontario's Long Term Energy Plan in 2013. Bruce Power is only advancing a brownfield program on the Site, which has been generating nuclear power for decades, by investing in the life extension of existing reactors.

With the completion of each of the above EAs, progressively more environmental data has been collected for the Site. Follow-up monitoring was executed following each review (with the exception of

the New Build and the New Fuel Projects which were not pursued) to confirm that effects were as predicted in the EAs. Bruce Power's environmental monitoring has continued to collect environmental data as part of regular operations and these results are reported annually to the CNSC and are publicly available on the Bruce Power website.

In December 2015, Bruce Power entered into an amended long-term agreement with the IESO to secure 6,400 megawatts (MW) of electricity from the Site through a multi-year investment program that includes life extension activities on six reactors. This was amended from the previous agreement entered into with IESO's predecessor, the Ontario Power Authority, which enabled the restart and life extension of Bruce A Units 1 and 2.

Bruce Power's current operating licence does not include MCR activities and in order to advance this program the company is requesting a new ten-year licence in 2018 that would run to 2028. However, the continued operations of the facility after 2028 will be contingent on Bruce Power undergoing further CNSC reviews of its operations and obtaining new operating licences. This approach is consistent with every operating licence Bruce Power has applied for since 2001. In addition to this ongoing licensing process, the CNSC as a life-cycle regulator will continue to be responsible for annually reviewing the performance of Bruce Power in 14 safety and control areas, including environmental protection. This annual process includes CNSC staff inspections and the CNSC provides an opportunity for members of the public to comment on the draft annual report of their findings before the report is finalized.

All life extension activities will take place within the existing Site and will not change the footprint of the Bruce Power Nuclear Generating Stations. The refurbishment activities will be undertaken sequentially and are proposed to start in 2020 with the Unit 6 MCR, which will have a duration of 48 months. The MCR of the other units is proposed to begin in 2023 for Unit 3, 2025 for Unit 4, 2026 for Unit 5, 2028 for Unit 7, and 2030 for Unit 8.

As part of the Application, Bruce Power developed two environmental technical studies – an Environmental Risk Assessment and a Predictive Effects Assessment. An ERA is used to characterize the baseline environmental and human health conditions and a PEA identifies potential changes to the baseline environmental and human health conditions resulting from future activities, including MCR activities.

As part of the PEA, future Site activities were evaluated for potential interactions with the environment. Where activities were considered to be materially different than existing operations, a predicted bounding condition was developed and screened against accepted values for the protection of human health and the environment. In all cases, potential effects were predicted to be less than screening criteria for adverse effects. No interactions were identified in the PEA that may pose an unacceptable risk to humans or the environment during future Site activities, including MCR.

Over the past 15 years, Bruce Power has gained a significant amount of experience in the restart and refurbishment of its CANDU reactors. As outlined in the PEA, a work plan to define the activities to be undertaken during the next licensing period, including MCR activities, is developed and continues to evolve. It is anticipated that a number of valuable lessons learned will be applied as MCR activities progress. Overall, potential environmental effects of future operations are anticipated to be similar to those associated with the existing operations. Therefore, the existing environmental monitoring programs will be retained as required to confirm predictions and be reported through the annual environmental monitoring program findings.

In summary, activities at the Site, including MCR activities, will continue to be executed in a manner that ensures continual protection of human health and the environment, in accordance with applicable operating licences, codes and standards.

Major Component Replacement (MCR)

MCR will focus on the replacement of three major components in each unit – fuel channels, steam generators and feeder tubes. Replacement of major components will be achieved through the following primary work programs:

Reactor shutdown and de-fuel: This stage, which will be completed by Bruce Power Operations, involves the removal of all bundles with existing fuel handling equipment. De-fuelling reactors is a common activity and there is extensive experience within the Operations team.

Reactor preparation: This stage will focus on the installation of bulkheads to isolate the unit from the other operating units, given the common fuelling systems in the station, and to create a safe work environment for reactor activities. Once the protective bulkheads are in place, crews will complete moderator and primary heat transport drain and dry activities, and also additional configuration work in the vault to prepare it for safe and productive execution of work.

Reactor detubing and feeder replacement: This is the heart of the MCR Project and will focus on the removal of feeders, pressure and calandria tubes and the re-installation of new components. It is focused on a handful of critical activities that are well understood and defined with great certainty at this early stage in the project. During this stage, 480 fuel channels and calandria tubes will be removed and new ones installed.

Steam generator replacement: The removal and replacement of steam generators is a stage that will be done within the 'critical path window' of reactor re-tubing activities. The replacement itself will involve the removal, replacement and reconnection of eight steam generators in the unit.

Return to service: This is the final component of the MCR that will be focused on bulkhead removal, re-fuelling of the reactor and returning the unit to operation by achieving first synchronization to Ontario's electrical grid.

Asset Management

In addition to MCR activities, Bruce Power will continue with normal operations and inspections of plant equipment through its established Asset Management Program, which has been in place for many years and is driven by the core concepts of system component protection and safe operation through routine inspection. Asset management outlines when replacement of components is required. Through many scheduled outages since 2001, Bruce Power has successfully carried out hundreds of thousands of tasks and investment programs, which have resulted in industry-leading success both in improving the performance of the Bruce Power units and extending their operational lives. Replacement timelines are determined based on the best available component performance information at the time, but has flexibility to change. Component performance is evaluated through a variety of research avenues.

Bruce Power has developed a Life-Cycle Management Plan ("LCMP") for each unit and associated systems, which clearly map how key pieces of equipment are monitored, maintained, replaced or refurbished over time. These plans are consistent with regulatory standards set by the CNSC related to

Aging Management of Nuclear Power Plants. Additionally, Bruce Power has built on recommendations from the Institute of Nuclear Power Operators, which has established best practices on equipment reliability. Station Engineers maintain and revise the LCMPs as required, defining the key maintenance, refurbishment and replacement activities in a long-term plan for the equipment. The LCMPs are developed based on the most current evidence, and are reviewed and revised as new information becomes available. Plans are approved by the CNSC and will continue to be maintained and executed throughout the MCR program.

It is important to note that as Bruce Power continues to advance this investment program which upgrades and enhances equipment, the performance of the facility will continue to operate to the highest levels of safety and reliability. These investments will incrementally improve and further minimize interaction with the environment which is already minimal as concluded in various assessments to date.

3.0 METHODOLOGY AND APPROACH

This report has been prepared utilizing relevant secondary source documents only. These include:

- Bruce Power licence renewal application (ongoing);
- Prior correspondence between Bruce Power and community members on various items;
- Past Environmental Assessments and associated studies such as Socio-Economic Conditions, Cultural Heritage and Aboriginal Interests, and Land Resources;
- Public Attitude Research and Surveys; and
- Bruce Power directed documents, such as policy documents and annual reports, media reports and licence hearing transcripts.

4.0 PROFILE AND HISTORY OF THE COMMUNITIES SURROUNDING THE SITE

This section is a compilation of publicly available information in relation to the demographics and history of the local communities surrounding the Site. It is not intended to replace dialogue with community members or any further information they may want to provide to Bruce Power or the CNSC as part of the Application hearing process. Bruce Power remains committed to continuing to engage with the local community members throughout this process.

4.1 Overview of the Local Communities Surrounding the Site

The Site is located in the Municipality of Kincardine on the eastern shore of Lake Huron within Bruce County. The Municipality of Kincardine is comprised of the town of Kincardine and several small villages and towns including Inverhuron and Tiverton. The area is a popular tourist destination with many cottages and holiday parks attracting visitors from across Ontario and the United States.

Kincardine, was first known as Penetangore, and was named after James Bruce, the 12th Earl of Kincardine and the former Governor General of the Province of Canada. The first settlers arrived in 1848 at the mouth of the Penetangore River led by Captain Alexander M. MacGregor on the ship “The Fly”. The Town of Kincardine was incorporated in 1858. (Municipality of Kincardine, 2017).

The Municipality of Kincardine was created in 1999 following the amalgamation of the Town of Kincardine, the Township of Kincardine and the Township of Bruce. The Municipality of Kincardine is one of eight municipalities in Bruce County. The next closest municipality to the Site is the Town of Saugeen Shores, the southern boundary of which is approximately 25km from the Site. The Town of Saugeen Shores includes Southampton and Port Elgin.

Bruce County can be broadly split into three sections: (i) the Bruce Peninsula, part of the Niagara Escarpment, (ii) the Lakeshore that includes a number of sandy beaches and fresh water, and (iii) the Interior Region, also known as the "bread basket" which has a strong history of farming and agriculture. Bruce County has economic strengths in many sectors including tourism, agriculture and energy.

In studies associated with the Site, Local and Regional Study Areas (LSA & RSA) are defined to help to evaluate the extent of any effects and how they will be experienced in relation to their proximity to the Site. The study areas are described as:

- **LSA –** local study area which includes the Municipality of Kincardine and Town of Saugeen Shores; and

- **RSA –** regional study area, which includes Bruce County, Grey County, and Huron County.

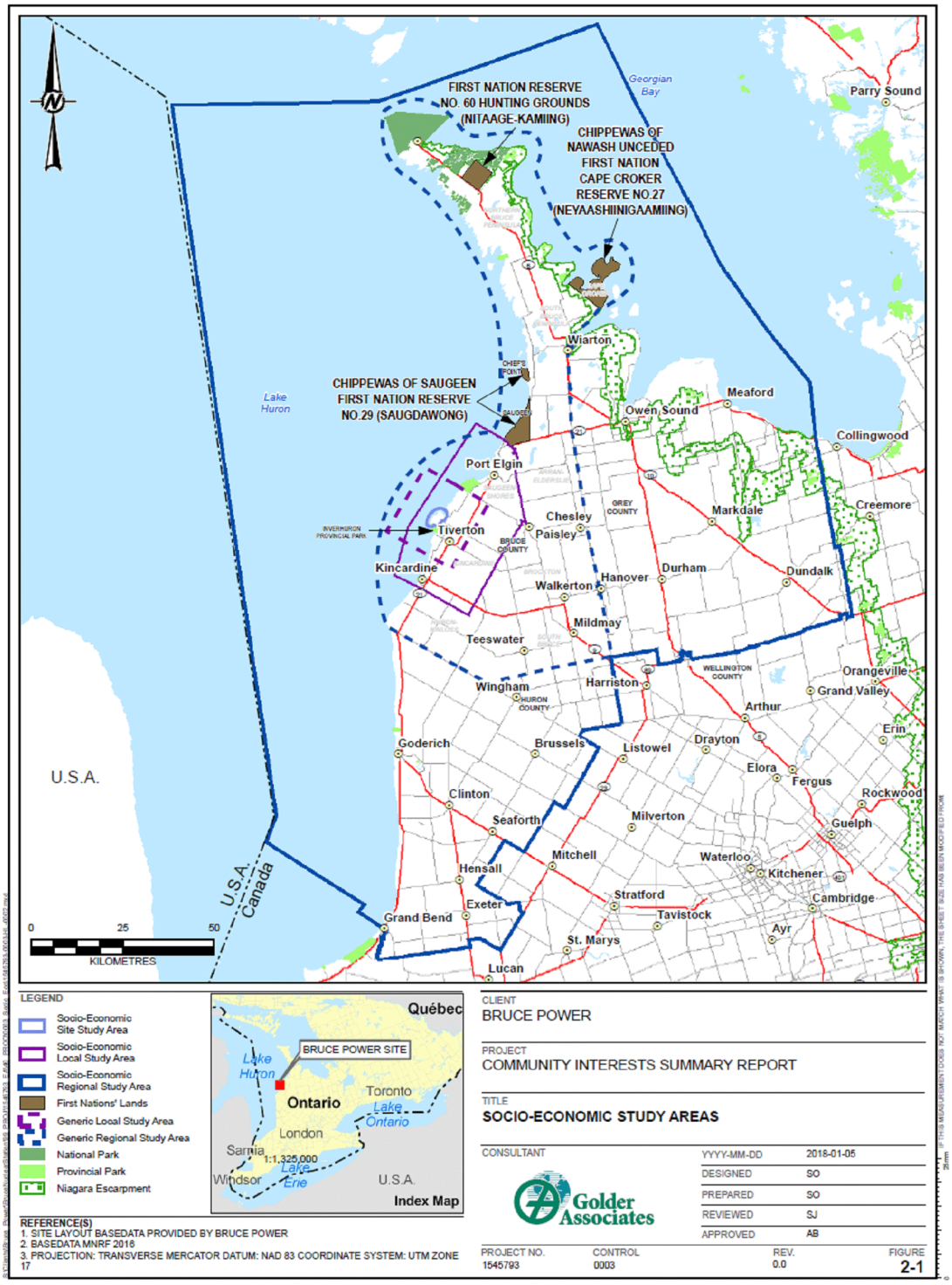

Figure 1 – Showing the boundary of the Community Interests Summary Report.

4.2 Overview of local Indigenous Communities

The Site lies within the traditional territory of the Saugeen Ojibway Nation and the traditional harvesting territories of the Historic Saugeen Métis and the Métis Nation of Ontario.

Saugeen Ojibway Nation

The SON is comprised of the Chippewas of Nawash Unceded First Nation and the Chippewas of Saugeen First Nation. They are Aboriginal peoples of the Grey and Bruce region, which they know as Anishnaabekiing. Their traditional territory includes the lands and waters that surround the Site. The SON has two main on-reserve communities which are located approximately 30 km (Chippewas of Saugeen First Nation Reserve No. 29) and 80 km north of the Site (Cape Croker Reserve No. 27). The SON also has two hunting ground reserves that are located approximately 115 km north of the Site.

The SON's traditional territory, which is identified in Figure 2, includes the Site, although the land on which the Site is located was surrendered by the SON in 1836 pursuant to Treaty 45 1/2.

Figure 2 – Showing the SON Traditional Territory.

The SON describes their asserted and established Aboriginal and treaty rights as follows:

> *"SON has asserted and proven Aboriginal and Treaty rights throughout its Traditional Territory and continues to rely on this Territory for its economic, cultural, and spiritual survival. The SON Territory, including its large reserves, is also the basis of significant and growing commercial fishing and tourism economies. SON asserts its Aboriginal and Treaty rights entitle its members to be sustained by the lands, waters and resources of their Traditional Territory. SON has the right to protect and preserve its Traditional Territory to ensure that it will be able to sustain its future generations. SON asserts that its rights include, but are not limited to:*

- *The right to continue to be a distinct people living within their Traditional Territory;*
- *The right to maintain their culture, language and way of life;*
- *The right to be sustained by the lands, waters and resources of their Traditional Territory;*
- *The right to the exclusive use and occupation of their communal lands;*
- *The right to continued use of all of their Traditional Territory;*
- *The right to harvest for sustenance, cultural and livelihood purposes;*
- *The right to be meaningfully involved in decisions that will affect their Traditional Territory so that they can protect their way of life for many generations to come; and*
- *The right to be the stewards of their Traditional Territory.*

> *SON has a proven and exclusive Aboriginal and Treaty Right to a commercial fishery in the waters of Georgian Bay and Lake Huron, within SON Territory. Members of SON and their ancestors have been fishing these waters for sustenance and as the basis of trade and commerce for many hundreds of generations, and they continue to do so today. This fact has been recognized by the courts and by the Crown. While Lake Whitefish have significant cultural and economic significance to SON – and have consequently been discussed at length in past proceedings and in these submissions – SON's fishing rights are not species specific and include the right to harvest all species of fish." (CMD 15-H2.118, March 16, 2015. See also CMD 17-H3.12, March 13, 2017)*

Historic Saugeen Métis

Métis people living near the Site may be represented by either the HSM or the MNO. The HSM is a self-governing Métis community at the mouth of the Saugeen River in Southampton, Ontario. The HSM is an independent rights-bearing community that began with the arrival of trader Pierre Piché in the Saugeen territory in 1818. Its members have historically hunted, fished, traded and lived in the traditional Saugeen territory since the early 1800s and assert harvesting rights based on the *R. v. Powley* decision of the Supreme Court of Canada. The HSM became independent and self-governing in 2008 (AECOM, 2011), and left the MNO in or around 2009. This Métis community is one of the formally organized Métis communities in Ontario that is not represented by the MNO. Its office is found in Southampton (AECOM, 2011).

According to the HSM website, the HSM:

> *"…are a distinctive Aboriginal community - descended from unions between our European traders and Indian women. We are the Lake Huron watershed Métis - with a unique Métis history and culture who lived, fished, hunted, trapped, and harvested the lands and waters of the Bruce Peninsula, the Lake Huron proper shoreline and its watersheds, their traditional Métis territory.*
>
> *The HSM[C] traded in a regional network since the early 1800s as far as the north shore of Lake Huron and have kinship with the Wikwemikong First Nations community and Killarney Métis community… The geographic scope of the contemporary community is described as covering over 275 kms of shoreline from Tobermory and south of Goderich, and includes the counties of Bruce, Grey and Huron… Upon the decline of the fur trade in the early 1820s, Métis families from the Northwest joined these early Métis at Goderich. The community traded in a cohesive regional trading network that extended from the Upper Detroit River system to the northern shoreline of Lake Huron, to the historic Métis community of Killarney, creating kinship along the network from Detroit to Killarney."*

Métis Nation of Ontario

The MNO was established in 1993 "as a representative organization with the objective to protect, assert, and support the distinct culture, traditions, economic well-being, and Métis constitutional rights embodied in the Constitution Act, 1982, section 35, within the Métis Homelands of Ontario" (CMD 15-H2.117). The MNO has 29 community councils across Ontario, which represent regional rights-bearing Métis communities. Three of these councils (Moon River Metis Council, Georgian Bay Metis Council, and the Great Lakes Metis Council) represent a regional rights-bearing community defined as the Georgian Bay Traditional Harvesting Territory which includes the area surrounding the Site. These

three councils (collectively known as "Georgian Bay Regional Consultation Committee") are distinct from the HSM which are no longer part of the MNO.

The MNO and the Georgian Bay Regional Consultation Committee assert that their people exercise Aboriginal rights throughout the territory surrounding the Site. This includes hunting, fishing, trapping, gathering, sugaring, wood harvesting, use of sacred and communal sites, and use of water as described in the MNO's Oral Presentation to the CNSC in the public hearing for Bruce Power's application to renew its operating licence in 2015:

> *"The MNO and their Regional Consultation Committee assert that their people exercise Aboriginal rights throughout the territory surrounding the Bruce site, including, among other things, hunting, fishing (food and commercial), trapping (food and commercial), gathering, sugaring, wood harvesting, use of sacred and communal sites (i.e., incidental cabins, family group assembly locations etc.) and use of water. These rights are protected under the Constitution Act, 1982, section 35, as existing Aboriginal rights that have not been extinguished by the Crown by way of treaty or other means. Métis peoples live in, harvest throughout and extensively rely on their traditional territories for their individual and community's well-being." (CMD 15-H2.117)*

4.3 Population and Demographics

4.3.1 Municipal Profile

The 2016 Census showed a population of 11,389 people in the Municipality of Kincardine (an increase of 1.9% from 2011) and a population of 13,715 in the Town of Saugeen Shores (an increase of 8.3% from 2011), which includes Southampton and Port Elgin. Both municipalities are in Bruce County, which has a total population of 68,147 (an increase of 3.1% from 2011). Set out below at Table 1 are further details on the municipal populations in the LSA and RSA.

The average age in the Municipality of Kincardine was 44 years (slightly higher than the provincial average age of 41). There is a relatively even split of male and female residents (49% and 51% respectively) and the median total individual income in 2015 was $39,424. The median income amongst male residents was significantly higher than that of female residents ($60,565 compared to $26,837). The median income of male residents in Kincardine is also notably higher than that of male residents in the rest of Bruce County ($44,638). The average total household income in Kincardine is also higher than the rest of Bruce County ($86,363 compared to $71,193) as well as the provincial average ($74,287) (Statistics Canada, 2017a).

Table 1: Municipal Populations

		Population 2016	Population 2011	Change
Local Study Area (LSA)	Municipality of Kincardine	11,389	11,174	1.9%
	Town of Saugeen Shores	13,715	12,661	8.3%
Regional Study Area (RSA)	Bruce County	68,147	66,102	3.1%
	Grey County	93,830	92,568	1.4%
	Huron County	59,297	59,100	0.3%

(Statistics Canada, 2017a-g).

4.3.2 Indigenous Profile

The 2016 census revealed that there are 3,160 self-identified Aboriginal people living in Bruce County.

Métis people account for 685 (21.7%) of the Aboriginal population (Statistics Canada, 2017a). Of this total, 42% of the Métis population are male and 58% female.

The remaining Aboriginal population in Bruce County is mainly made up of members of the SON. Table 2 shows 2016 census population data for the Chippewas of Saugeen Reserve #29, the Chippewas of Nawash Reserve #27 and Bruce County.

Table 2: Saugeen Ojibway Reserve Populations

	Population 2016	**Population 2011**	**Change**
Chippewas of Saugeen Reserve #29	1,041	726	43.4%
Chippewas of Nawash Reserve #27	615	667	-7.8%

(Statistics Canada, 2017c and d).

The 2016 census data shows a significant increase in the number of members living on the Chippewas of Saugeen reserve (up 43% in 5 years) while numbers on the Chippewas of Nawash reserve have decreased by almost 8% in the same period. The average age on the Saugeen First Nation and the Chippewas of Nawash reserves was 36.1 years and 37.7, respectively. This is younger than the rest of Bruce County where the average age is 44.8 years. The Saugeen First Nation has a 50/50 split of male and female members while the Chippewas of Nawash has a slightly higher female population on reserve (54%). (Statistics Canada, 2017).

4.4 Tourism

4.4.1 The Economic Impact of Tourism

The tourism industry is one of the most important sectors of the economy in the Local and Regional Study Areas. Tourism information will generally be described herein in respect of Bruce Country, as activities at the Site are not expected to affect public perceptions of tourists' enjoyment of the surrounding counties of Grey and Huron counties.

Provincial tourism statistics for Bruce County are reported on in Ontario's Tourist Region 7, which includes the area of the Bruce Peninsula, Southern Georgian Bay and Lake Simcoe. A map of Ontario's Tourist Region 7 is set out below as Figure 3.

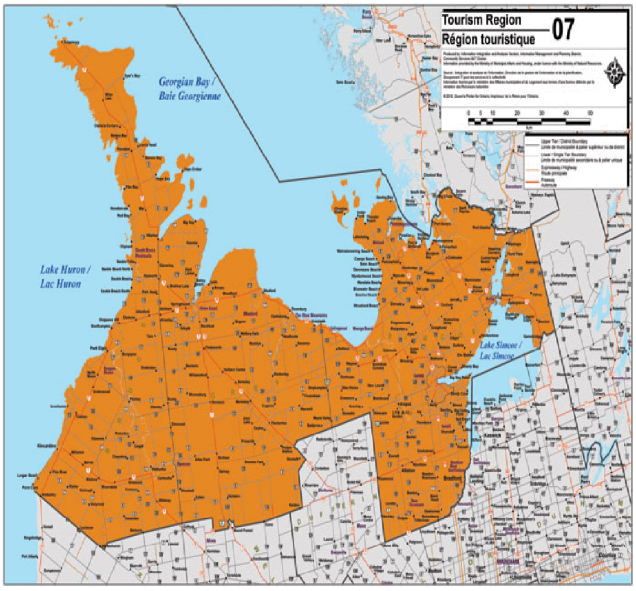

Figure 3 – Map of Ontario's Tourist Region 7

In 2015, there were a total of 12,401,200 individual tourists that travelled to Region 7. The overwhelming majority (99%) of visitors came from other areas of Ontario, with the remaining visitors coming from elsewhere in Canada and overseas[1] (MTCS, 2015). Almost two thirds of visitors came to Region 7 for day trips, although overnight visitors accounted for 37% of all travel. The average length of stay of overnight visitors was 2.6 days, and most visitors stayed in private homes or cottages, followed by commercial accommodations and then camping (MTCS, 2015).

Overall, the party size per trip in Region 7 was approximately 2.7 people. Approximately 45% of all tourists were visiting family and friends while 42% were visiting for pleasure. Other reasons that people travelled to the region were for business activities and shopping trips (MTCS, 2015). The total visitor spending in Region 7 was estimated at $1.35 billion in 2015 with average spending for same-day visits averaging $73 per person per day and $168 per person per overnight visit. Highest spending was on food and beverages (38%), followed by transportation (21%), accommodation (14%) and recreation activities (10%). The peak tourism spending period was during the summer months (July to September) when 38% of all tourism spending is generated (MTCS, 2015).

More specific information about tourism can also be extrapolated using secondary sources from municipalities. Data from Tourism Information Centres reported that in 2013 there were approximately 55,000 walk-in clients seeking tourist information in Bruce County. Of these, the Bruce Power Visitor Centre had approximately 6,100 walk-ins, the Municipality of Kincardine had approximately 5,500 walk-ins and the Port Elgin Tourist Information Centre had approximately 6,300 walk-in tourist clients. Information was also requested by phone (approx. 13,700 calls) and emails (74,600 messages) in Bruce Country (County of Bruce Planning and Economic Development Department, 2013).

It is estimated that the Municipality of Kincardine had approximately 105,000 visitors in 2012 and the economic contribution of tourism was more than $26 million. Port Elgin, in the Town of Saugeen Shores

[1] Note that numbers relating to US visitors were particularly low in 2015 and are not reported due to confidentiality reasons

is also a popular tourist destination and is popular for its summer beaches. Other popular destinations in Bruce County include the Niagara Escarpment World Biosphere Reserve (a UNESCO World Heritage Site), Fathom Five National Marine Park, and the Bruce Trail.

Bruce County has estimated the economic impact of tourism by looking at gross sales generated at 5 destinations in the County in 2012 and 2013. The value of only entrance and/or parking fees at these five destinations was approximately $2,563,000 and $2,742,000 respectively in 2012 and 2013 (County of Bruce Planning and Economic Development Department, 2013). The value of gross sales at each destination presented in Table 3.

Table 3: Economic Impact Measured by Gross Sales at Five Popular Destinations in Bruce Country, 2012 and 2013

Destinations	**2012 Sales ($)**	**2013 Sales ($)**
Bruce County Museum & Cultural Centre	$76,000	$49,000
Sauble Beach Parking	$200,000	$177,000
Inverhuron Provincial Park	$560,885	$604,854
MacGregor Point Provincial Park	$1,284,485	$1,419,600
Sauble Falls Provincial Park	$441,915	$491,500

(Source: County of Bruce Planning and Economic Development Department, 2013)

Tourism data was also collected on event and attraction attendance by communities within Bruce County. Table 4 provides 2010 to 2013 data for attendance at select touristic events. 2013 attendance at events and attractions in Kincardine was 84,767 people, the Town of Saugeen Shores 286,916 people and in Bruce County was 940,953 people (County of Bruce Planning and Economic Development Department, 2013). Attendance data provides information on the level of tourism, and the main tourist attractions that are visited by tourists on an annual basis. Event and Attraction Attendance is presented in Table 4, by community for the years 2010 to 2013.

Table 4: Event and Attraction Attendance by Community, Bruce County, 2010 to 2013

Event and Attraction	**2010 Attendance**	**2011 Attendance**	**2012 Attendance**	**2013 Attendance**
Town of South Bruce Peninsula				
Sandfest	48,500	60,000	5,000	8,850
Winterfest	1,000	1,000	1,000	n/a
Canada Day	40,000	60,000	75,000	n/a
Family Movie Nights	3,000	3,200	4,000	2,250
Cruise Nights	15,000	25,000	30,000	n/a
Sauble Falls Provincial park	79,053	78,436	78,745	66,737
Wiarton Willie Festival	15,000	10,400	22,000	22,000
Municipality of Northern Bruce Peninsula				
Bruce Peninsula National Park	224,149	244,139	247,080	284,000
Fathom Five National Marine Park	238,000	242,000	n/a	250,000
Cabot Head Lighthouse	10,879	9,730	10,069	12,500

Table 4: Event and Attraction Attendance by Community, Bruce County, 2010 to 2013

Event and Attraction	2010 Attendance	2011 Attendance	2012 Attendance	2013 Attendance
Municipality of Brockton				
Midwestern Ontario Sportsmen Show	3,500	2,500	2,000	1,500
Brockton's Buskers Festival	4,500	4,700	5,200	5,000
Saugeen Home and Recreation Expo	1,500	1,000	2,000	1,200
Town of Saugeen Shores				
Pumpkinfest	55,000	55,000	55,000	55,000
Bruce county Museum & Cultural Centre	34,251	33,575	26,614	23,248
Chantry Island Lighthouse Tours	n/a	n/a	1,325	1,211
MacGregor Point Provincial Park	141,617	146,891	144,254	122,690
Municipality of Kincardine				
Kincardine Lighthouse Blues Festival	560	725	3,200	3,000
Inverhuron Provincial Park	66,854	68,713	67,784	69,767
Kincardine Scottish Festival	n/a	7,500	9,500	12,000
Kincardine Lighthouse	n/a	n/a	2,225	n/a

(Source: County of Bruce Planning and Economic Development Department, 2013)

4.4.2 Temporary Accommodation

A review of tourism websites for hotels, bed and breakfasts, vacation homes and cabins and camping facilities identified 16 accommodations in the Municipality of Kincardine and 56 accommodations in the Town of Saugeen Shores. Table 5 below provides an estimate of temporary accommodations by type in the LSA.

Table 5: Temporary Accommodations by Type, Municipality of Kincardine, Town of Saugeen Shores, and Bruce County, 2018

Location	Bed and Breakfast/Inns	Cabins/Cottages / Vacation Homes	Camping / RV Parks	Hotels / Motels		Total
Municipality of Kincardine	5	4	1	6		16
Town of Saugeen Shores	8	27	8	13		56
Bruce County	41	21	24	28		114

(Source: Explore the Bruce, 2018, Visit Kincardine, 2018, Visit Saugeen Shores, 2018)

Ontario Tourist Region 7 reported 421 registered accommodations in 2015 (MTCS, 2015).[2]

[2] Accommodation types in the total accommodation data includes: hotels, motor hotels, resorts, casino hotels, bed and breakfast, housekeeping cottages and cabins, all other traveller accommodation, RV Parks and campgrounds, hunting and fishing camps, recreations (except hunting and fishing) and vacation camps.

5.0 BRUCE POWER'S APPROACH TO COMMUNITY RELATIONS AND ENGAGEMENT

Bruce Power owes much of its successes to its surrounding communities. The employees Bruce Power inherited when the company was formed in 2001 have lived in Bruce, Grey and Huron counties for decades. Bruce Power has worked with local Indigenous communities and municipal and county governments to partner on programs that benefit the entire region, and Bruce Power is proud to be a respected and welcome member of the business community.

5.1 Bruce Power's Community Engagement

Bruce Power has a long history of engaging and supporting local communities surrounding the Site. Bruce Power's values guide its conduct, decision-making and relationships both on the Site and in the community. To Bruce Power, living its values means conducting business ethically, respectfully, safely and with professionalism. Bruce Power's Code of Conduct is based upon these corporate values and sets a high standard of personal and professional integrity and behavioural expectations for everyone. It provides detailed information, guidelines, and references to other policies and resources that will help the company's employees make the right choices on a daily basis.

Bruce Power's engagement with local communities and Indigenous groups is supported by its Public Disclosure Protocol, its Indigenous Relations Policy, and its relationship/engagement agreements with the three Indigenous groups.

5.1.2 Public Disclosure Protocol

Bruce Power is committed to open and transparent communication through its Public Disclosure Protocol which ensures information is provided in a timely manner to members of the public, community, stakeholders and organizations with an interest in its operations. Information is communicated in a number of ways based on audience identification; their interests; perception of risk; and their preferred means of communication. This ensures clear understanding of our operations, activities and projects to allow the public to make informed objective decisions through readily accessible information, open dialogue and opportunities to have concerns addressed.

Through its Public Disclosure Protocol, Bruce Power commits to:

- communicating significant operational developments such as expansion or changes to facility design or operation;
- communicating, as soon as reasonably possible, unplanned events exceeding regulatory limits or causing off-Site effects or which could result in public or media interest or concern;
- communicating changes in station operations either planned or unplanned that may have the potential to generate public or media interest;
- effectively managing the protocol with 24/7 on-call support;
- proactively posting and issuing media releases, as soon as reasonably possible, information that reflects safe and effective operations or information resulting in significant changes in operations or environmental events;
- maintaining comprehensive crisis communication procedures to effectively manage events of significance to ensure timely and effective communications and dissemination of information;
- publicly posting on brucepower.com, on a quarterly basis, a listing of CNSC regulatory event reports;

- maintaining two-way communication channels for the public to have issues and concerns addressed;
- annually posting and communicating the Environmental Monitoring Program (EMP);
- posting and communicating quarterly updates on our operations;
- actively providing updates and briefings on our nuclear operations to local organizations, elected officials, agencies and First Nations and Métis communities to ensure open and transparent communication broadly communicating to residents and stakeholders in facility host communities via newsletters; fact sheets, emails, information phone lines, Bruce Power Visitors' Centre and electronic communication via websites, emails and social media;
- periodically consulting with the public and stakeholders to confirm types of information of public interest; and
- publicly posting Bruce Power's Public Disclosure Protocol.

5.1.3 Indigenous Relations Policy

There is a long history of engagement and understanding between Indigenous groups and Bruce Power in relation to the Site. Bruce Power's current Indigenous Relations Policy was established in 2012 and states that:

> "Bruce Power is committed to having a positive relationship with Indigenous groups and communities. We will achieve this through living our values, which will condition every decision and action we take. Bruce Power understands that our primary base of operation lies within the traditional territories of particular Indigenous groups and communities."

Through its Indigenous Relations Policy, Bruce Power has committed to:

- Work to build and maintain a positive, long term relationship with local Indigenous groups or communities that is based on mutual understanding, respect and open and honest communication;

- Develop strategies in several key areas including employment, business development, education, training and community sponsorship that appropriately reflect the interests of Indigenous people;

- Enter into appropriate relationship/engagement agreements with local Indigenous groups and communities who wish to be informed and involved with the key areas of our business;

- Conduct timely and meaningful consultation with Indigenous groups and communities whose Aboriginal or treaty rights may be directly affected by elements of our operations;

- Enhance our employees understanding of Indigenous history and culture and the role Indigenous groups and communities play in Canada and in our communities; and

- Identify opportunities to increase our knowledge of the local environment and ways we can work together with Indigenous groups or communities to preserve or enhance that environment for all to enjoy.

The Indigenous Relations Policy is being implemented through a variety of mechanisms, including through activities pursuant to relationship/engagement agreements that Bruce Power has with the SON, the HSM, and the MNO. These agreements, which are confidential, have a number of objectives including creating a forum to exchange information relating to future regulatory approvals, facilitating the participation of the Indigenous groups in regulatory reviews through annual and review specific capacity funding, enabling the Indigenous groups to assess any potential impacts of the Site on their rights, interests, and way of life, and encouraging Indigenous participation in employment, training, and business development opportunities.

As a result of its significant work in this area, Bruce Power has received a gold level certification in Progressive Aboriginal Relations from the CCAB. This certification program assesses corporate performance in Aboriginal relations in four areas (leadership actions, employment, business development, and community relationships) and companies that obtain the certification are ranked at the bronze, silver, or gold level. It includes an independent verification process that involves gathering information from the company as well as the local Indigenous communities that interact with the company. Bruce Power was awarded a silver level designation in 2012 and awarded a gold level certification in 2014 and was re-certified at the gold level in 2017. The PAR gold level certification, which is only currently held by 17 companies in Canada, is described by the CCAB as follows:

> *"PAR Gold companies demonstrate sustained leadership in Aboriginal relations and their commitment to working with Aboriginal businesses and communities has built the business case that other companies aspire to prove. Their introduction of innovative programs and engagement of Aboriginal people have made an enduring impact on Aboriginal businesses and communities, and demonstrate best practice for those companies introducing Aboriginal relations to their business strategy or seeking to improve year over year."* (Canadian Council for Aboriginal Business, n.d)

5.1.4 Community Engagement on the Application

Since as early as December 2015, Bruce Power has been providing information to the SON, the HSM, and the MNO about MCR and the upcoming Application. Details of this information sharing and engagement are set out in the Community Interest documents for each respective community.

In the spring of 2016, Bruce Power launched a public engagement process for the Application and specifically MCR. Since this time, Bruce Power has been providing community members with information on the Application and the CNSC licencing and intervenor process, as well as answering questions of community members about the Application. Bruce Power recognizes the unique rights of Indigenous groups and has been consulting with the SON, the HSM, and the MNO on the Application separately as detailed in the community interest documents that have been prepared about each group.

Over the past two years, Bruce Power has employed various mechanisms to share information about the Application and provide opportunities for the public to raise any concerns, including but not limited to:

- Releasing two detailed publications on the Application and the CNSC licencing process released to the website and made known via social media outlets
    - Bruce Power's Role in Ontario – The Road Ahead: Our Relicensing and Environmental Activities (August 2016), which provides an in depth overview of the company's long-term investment program, key decision points, and public engagement opportunities

  - 2018 Licence Renewal Briefing (September 2017), which explains the CNSC licencing process and how to participate and contained detail information on Bruce Power's role in Ontario, the MCR program, and how Bruce Power ensures continued safe operations.
- Launching a website (August 2016) and Facebook Group (Fall 2017) to provide details on the Application and upcoming engagement opportunities;
- Distributing a quarterly Community Update to 52,000 households in Bruce, Huron and Grey Counties which included a summary of information about the Application and included a front page spread on licence renewal, that directed people to the website as well as indication of community engagement sessions
- Publishing an article in local ***Marketplace Magazine*** that is provided for free through mail to 13,000 households across Bruce County, the article included information about the Licence Application, website and engagement opportunities
- Hosting in-person engagement sessions and online webinars, including:
  - 2 community workshops (25 October 2016 and 29 January 2018) both held in Kincardine, these sessions were by invitation to a variety of stakeholders including general members of the public who show significant interest in our business, municipal and county government representatives, non-governmental organizations, as well as indigenous communities. These conversations have a formal presentation component, and then breakout sessions to drive conversation and dialogue in areas of interest to those attending.
  - 5 Face to face community engagement sessions two in Port Elgin , two in Kincardine and one at the Bruce Power Visitors' Centre (12 September, 5 October, 2 November 2017, and 22, 23 January 2018)
  - 5 Webinars (06 Dec 2016, 26 September, October 27 and November 16, 2017, and January 31 2018, webinars archived for 12 months and available on website)
- Responding to over 29 technical inquiries about the Application from members of the public
- Conducting Public Attitude Research in 2016 and 2017 in the LSA and RSA;

The licensing process offers significant opportunities for public participation, including Commission hearings and community meetings.

In addition to general public outreach efforts, Bruce Power has also regularly met and provided updates to local municipal and county councils on Site-related activities and plans including Major Component Replacement. In 2015 , Bruce Power Municipality of Kincardine and the Town of Saugeen Shores signed a Memorandum of Understanding (MOU) that provides the framework to build on their successful working relationships over the last 13 years and identify new areas of collaboration. Areas of focus include but are not limited to promoting ongoing communication and information sharing on Site activities and projects, advancing mutually beneficial economic development and infrastructure opportunities, ensuring community input into the Bruce Power Community Investment and Sponsorship Fund and regional outreach activities, promoting collaboration on emergency preparedness efforts, and supporting initiatives beneficial to the region. The MOU consolidated a range of activities that had been underway between the organizations and provides some additional oversight and reporting on activities to the public consistent with the commitment to openness and transparency by all parties. These were signed in 2015 and since then many initiatives have been developed including enhanced support for

health care initiatives within the community, increased economic development to support Bruce Power's Life Extension program and on-going emergency preparedness.

Bruce Power has also been engaging with the SON, HSM, and the MNO about the Application pursuant to their respective relationship/engagement agreements.

5.2 Community Benefits from the Site

5.2.1 Employment and Economic Development

The Site is a defining feature of the Bruce County landscape and a key player in the social and economic fabric of the community. Bruce Power is the largest employer in Bruce County and employs 4,200 people in various full time permanent roles and a further 1,300 temporary staff utilized as needed depending on workloads.

It is estimated that by securing the future of the Bruce Power site, the long-term annual economic impact of the facility will result in:

- 18,000 direct and indirect jobs annually;
- $4 billion in annual Ontario economic benefit through the direct and indirect spending in operational equipment, supplies, materials and labour income.

(Ontario Building and Construction Trades Council of Ontario et al, 2016).

There are many social and economic benefits resulting from the presence of the Site such as employment opportunities, training and education for local people and benefits to the local economy from the use of local businesses and suppliers.

Initiatives to Increase Indigenous Employment at the Site

Bruce Power has made it a priority to increase Indigenous employment at the Site. Staffing strategies have been developed to attract, develop, promote and retain Indigenous candidates.

Bruce Power has a published an Indigenous Employment Guide that covers the different types of employment and training opportunities offered to Indigenous community members. Since 2015, Bruce Power has also had an HR specialist that is dedicated to Indigenous employment and training. Each year, Bruce Power hosts information sessions, workshops, career fairs and visits to communities to attract new Indigenous employees. Through a Development and Summer Student program, in 2017 Bruce Power has supported the career development of Indigenous students who are gaining experience in Communications, Human Resources/Labour Relations and Training. Outreach efforts have also included technical resume writing support and interview skills

In 2016, Bruce Power established the Indigenous Education and Work Experience Opportunity program. This is a full tuition scholarship that began in 2016 and facilitates Indigenous students attending a post-secondary program that will allow them to meet the minimum education requirements for positions at Bruce Power. The program funds 10 Indigenous students in educational programs (i.e. Power Engineering Program, Administrative Program at Georgian College and Applied Nuclear Science and Radiation Protection at Algonquin College), whereby Bruce Power funds the tuition component for the successful candidate with a future work experience and internship placement at Bruce Power.

In addition to this program, Bruce Power is also currently providing financial support and placements for the MNO's Skilled Employment Energy Stream program. This program provides Indigenous students with a fully funded 8-month training program at Georgian College in an energy sector field followed by an 8 week work placement in the energy sector. The program is open to Métis, First Nations, and Inuit people, with a focus on women.

Bruce County Nuclear Industry Investment Strategy

In June 2016, Bruce Power and the County of Bruce agreed to a Memorandum of Understanding with respect to Economic Development and Innovation. As part of the initiative, a jointly funded Business Investment Specialist position was established to create a single interface to facilitate a range of economic development and innovation ideas as part of the multi-year investment program at Bruce Power. This initiative is designed to leverage economic opportunities for all communities across Bruce County given Bruce Power's multi–billion dollar investment program. As part of this initiative, a Nuclear Industry Investment Strategy was developed in 2017 by Bruce Power and the County of Bruce. This strategy establishes a framework for moving forward and sets criteria to monitor progress and measure results. It focuses on three main goals:

1. Expand the regional supplier network to support Bruce Power's long term needs;

2. Enhance regional training and employment opportunities for Indigenous communities, that align with the nuclear sector's long term needs; and

3. Support and promote community investment readiness to better align with an expanded regional supplier network and increased employment opportunities.

   (Bruce Power, 2016a)

Bruce Power and the County of Bruce have hosted two Economic Development and Innovation Summits in September 2016 and November 2017. These summits brought together over 50 municipal, regional and provincial economic development professionals. (Bruce Power, 2016b). Since the development of the Nuclear Industry Investment Strategy, 11 suppliers have located offices or committed to opening facilities in the Bruce County. This includes Kinectrics, which committed to creating up to 50 jobs over the next several years in Kincardine and Teeswater, and Abraflex, a new Bruce Power supplier, which is operating a manufacturing facility in the town of Paisley.

Indigenous Relations Suppliers Network and Other Business Initiatives

The Bruce Power Indigenous Relations Suppliers Network is part of Bruce Power's commitment to increase Indigenous employment and create new economic opportunities for Indigenous communities. This is a network of all major suppliers to Bruce Power with a commitment to:

- Hiring programs and commitments;
- Enabling community investment opportunities;
- Partnering with Indigenous communities on business opportunities that will provide community benefit.

There are over 20 companies participating in the network, which functions as a coordinating body to assist local Indigenous communities with participating in contracting, sub-contracting, joint ventures, and other opportunities that may be available. Bruce Power has a dedicated HR specialist coordinating staffing needs of suppliers.

5.3 Bruce Power's Community Involvement and Investment

Corporate Social Responsibility (CSR) has been a core value at Bruce Power. Since 2001, Bruce Power has been making an overall positive contribution to the region. Bruce Power's Community Investment fund has grown over the years and currently results in an annual giving of upwards of $2 million a year, through five funding streams: Community Investment & Sponsorship, Environment & Sustainability, Indigenous Community Investment, Gifts in Kind and Tripartite. Since 2001, we have contributed approximately $15 million to the local communities.

The following sections detail some of the community-related initiatives that Bruce Power has supported in recent years.

5.3.1 Health Care

Bruce Power has long supported community initiatives to improve health care in the region. Since 2001, Bruce Power has hosted an annual charity golf tournament which has raised over $2 million for local health care initiatives of the Southampton and Kincardine Hospital Foundations over the past 17 years. In 2014, Bruce Power also pledged $1 million to support an $11.4 million dollar fundraising campaign to upgrade services at all six Grey Bruce Health Services hospitals and improve cancer care in the Grey Bruce region.

In April of 2015, Bruce Power entered into a Memorandum of Understanding between Bruce Power and the South Bruce Grey Health Centre (SBGHC) and Grey Bruce Health Services (GBHS), which provide care at 10 different hospital sites in Bruce and Grey counties. This MOU has the following objectives:

a) Invest in hospital infrastructure, including facility enhancements, diagnostic equipment, and specialized instrumentation
b) Improve emerge preparedness through training of staff, participation in drills and exercises and maintenance of an integrated response plan
c) Ensure alignment and collaboration to new regulatory requirements related to the pre-distribution of KI Pills

d) Continue physician recruitment initiatives with surrounding municipalities to bring new emergency room and family doctors to the region
e) Support health and wellness programs
f) Sponsor public health education and awareness campaigns; and
g) Strengthen cooperation through a knowledge partnership, including research and information sharing in the areas of common interest

A full-time Physician Recruitment Specialist has been hired and the program has led to the recruitment of a number of full time emergency room and family physicians as well as a general surgeon, this position was solidified under the MOU signed in 2015, the position had operated for a few years prior to the MOU (Bruce Power, 2017). Bruce Power provides a third of the funding for this position, the other parties of the MOU provide the remainder of the funding.

5.3.2 Housing

In addition to health care, Bruce Power has partnered with Habitat for Humanity Grey Bruce to support their efforts in building new energy efficient homes for low-income families in Grey and Bruce County.

Between 2006 and 2008, an average of 279 families in Grey and Bruce Counties were on waiting lists for affordable housing programs. Habitat for Humanity helps families in need build and buy affordable homes through a no-interest mortgage with a set repayment structure. Houses are built using volunteer labour, donated or discounted materials, and donated funds. New homeowners also assist in construction, and are required to invest 500 hours of 'sweat equity' during the build of their new home. Through the program, families are able to build assets and reduce their dependence on social assistance.

Between 2013 and 2018, Bruce Power donated $150,000 to Habitat for Humanity Grey Bruce to purchase materials for new homes. With Bruce Power's help and the support of others, Habitat for Humanity Grey Bruce has built 12 homes for families in Hanover, Port Elgin, Tobermory and Sauble Beach.

Since the start of our partnership, we have also supported Habitat for Humanity Grey Bruce through an 'Adopt-a-Day' in 2013 where Bruce Power employees volunteered their time to assist in the construction phase of a home built in Hanover. Recently in 2017, Bruce Power employees donated time to assist in the Neyaashiiningmiing build, which was the first Habitat for Humanity build on a First Nations reserve in Ontario. Bruce Power employees also participated this same year in an e-waste recycling campaign that saw over 10,380 pounds of e-waste collected over a four-day period. Employees dropped off their old or broken electronics for recycling free of charge and proceeds raised from the recycled materials went to Habitat for Humanity Grey Bruce.

To date, Habitat for Humanity Grey Bruce has completed 37 homes, providing affordable housing to 63 adults and 89 children. 2017 is going to be another exciting year for Habitat and the ground was recently broken for two new homes that will be built in Owen Sound.

5.3.3 Other Community Investments

In addition to the Bruce Power Community Investment & Sponsorship Program two separate funds have been created, the Environment & Sustainability Fund as well as the Indigenous Community Investment Fund.

The Environment and Sustainability Fund was created to support environmental projects in Grey, Bruce and Huron counties. It was created in 2015 and operates with an annual budget of approximately $400k It considers applications that support the following focus areas:

1. Restorative and rehabilitation projects and programs involving waterways and habitats
2. Projects and programs that manage invasive species that pose a threat to the natural environment
3. Projects and programs that promote the growth and survival of plants and species that are native to the Grey, Bruce and Huron region
4. Educational events that promote environmental sustainability or facilitate the collaboration of new projects and partnerships that contributes to more sustainable communities.

Notable partnerships formed through the Environment & Sustainability Fund include but are not limited to:

- Lake Huron Fishing Club this partnership was established in 2013 and continues today and involves support for the elementary school educational Mini-Hatcheries Program, tree planting, stream assessments, improvement and rehabilitation as well as establishing an open channel for communication

- Saugeen Valley Conservation Area (SVCA) to support the Discover Energized Environmental Resources (DEER) program, a program which provides primary school aged children environmental education based learning. These education programs are delivered by SVCA employees, and hosted at the Bruce Power visitors centre and two conservation authority locations. If children are participating in the programs offered at the Bruce Power facility they get to explore lands surrounding the site,

- Lake Huron Centre for Coastal Conservation, partners in the protection of Lake Huron's coastal ecosystem. This partnership sees the funding of a variety of programs often the Citizen Science Coast Watchers program, which is an initiative designed to engage members of the community to take an active part in both observing and helping to improve the quality of nearshore waters.

- Butterfly Gardens of Saugeen Shores, partners in the protection of biodiversity. This partnership has resulted the establishment of over 15 pollinator gardens along the shores of Lake Huron, as well as Educational signage.

Between 2001 and 2016, Bruce Power also invested approximately $1.74 million in donations and sponsorship to Indigenous groups at both the local and provincial level. This has supported cultural events such as Pow Wows, recreational programs for children and youth, and initiatives in literacy, education and mental health, among other things.

In 2016, Bruce Power launched a $1.2 million Indigenous Community Investment Fund ("ICIF") that seeks to invest in key community, educational, environmental, training and youth development

initiatives in local Indigenous communities from 2016-20. The fund focuses on supporting initiatives in four areas:

- **Community Initiatives focused on health & wellness and the environment**
- **Youth Leadership** through education and sports programs;
- **Cultural Events** through awareness activities and celebrations; and
- **Community Infrastructure** as it pertains to public works and recreation.

6.0 SUMMARY OF EXISTING REGULATORY STUDIES

During the 2015 hearing to renew the Power Reactor Operating Licence for the Bruce A and B Nuclear Generating Stations, a variety of members of the general public provided input into the hearing process. Review of past interventions, results of polling, as well as public inquiries shows that there are key items of interest to members of the public. Sections 6.0 and 7.0 outline the different items that are of interest to the general public.

Socio-economic Impact Assessments are a crucial part of all nuclear related Environmental Assessments and help to understand effects on the human environment from site operations and proposed changes.

Socio-economic studies evaluate effects on the human environment via a number of different parameters including employment, population, economics, community features, community character and tourism. Effects can be evaluated both qualitatively and quantitatively and will usually encompass findings from technical disciplines such as air quality, noise and traffic.

Table 7 below summarizes all Environmental Assessments completed since Bruce Power took over the licence at the Site in 2001 and the findings from relevant socio-economic studies.

Table 6: Summary of Community Evaluations in Past Studies at Bruce Power

Study Title and Year	Key Findings	Overall Evaluation/Follow up
Environmental Assessment for the Bruce A Units 3&4 Restart, 2001 Socio-Economic Impact Assessment.	The following effects were determined in this study: • Effects on population and economic base (i.e., commercial fishing, agriculture, tourism); • Effects on community services (i.e., community and recreational facilities/resource use, educational facilities); • Effects on residents and communities (i.e., community character, use and enjoyment of property, personal security, community satisfaction). Overall, the existing socio-economic conditions that may be potentially affected by the project were characterized. Available secondary source data was reviewed; personal and telephone interviews were conducted and public attitude research was undertaken to characterize the socio-economic conditions within the study areas and assist the assessment of likely effects on socio-economic conditions. Economic modelling was also undertaken to quantify the relationship between Bruce A with the existing population, economic base and housing stock in the study areas. Through the assessment of likely environmental effects and the consideration of mitigation, it was concluded that there were no residual adverse effects from the Bruce A Restart Project. All adverse changes to existing socio-economic conditions were either not solely attributable to the Bruce A Restart Project, or not measurable (i.e., negligible) given the data available or collected as part of this study. Three positive environmental effects were identified. These were:	• Overall, it was determined that the Project would not have any adverse impacts on the socio-economic environment. A preliminary follow-up monitoring was recommended to confirm key assumptions in the analysis, verify predictions and confirm the effectiveness of recommended mitigation measures. Follow-up monitoring demonstrated that the assessment was suitably conservative and appropriate.

Table 6: Summary of Community Evaluations in Past Studies at Bruce Power

Study Title and Year	Key Findings	Overall Evaluation/Follow up
	• Increased proportion of the population associated with, or directly dependent on Bruce A related employment; • Creation of new direct, indirect and induced employment opportunities and the maintenance of existing jobs within the study areas, resulting in improved employment stability; and • Creation of new business activity and an increased number of industrial and commercial businesses/operations that are associated with, or directly dependent on Bruce A related expenditures.	
Environmental Assessment for the Bruce A Units 1&2 refurbishment, 2006 Socio-Economic Impact Assessment	Socio-economic conditions were divided into the following five subcomponents for the assessment of effects: Population and Economic Base, Community Infrastructure, Community Services, Municipal Finance and Administration and Residents and Communities. The following positive effects were identified: • New direct, indirect and induced employment opportunities and the maintenance of existing jobs within the study areas, resulting in improved employment stability and maintenance of the existing economic base. This is due to the additional Bruce Power staff that will be required to implement the necessary improvements to Bruce A for the refurbishment and ongoing operations. • New business activity due to increased consumer spending that is directly or indirectly related to the Project. • Improved financial status of Local Study Area municipalities resulting from increased property tax revenue, user fees, and potentially increased property taxes paid by Bruce Power. The following potential adverse effects were identified:	• The assessment found that potential adverse consequences of the Bruce A Refurbishment Project were not significant. Both of these effects are not related to environmental change nor are they anticipated to be permanent effects of the Project. • Follow-up monitoring was conducted and confirmed that increased competition did not have any long-term effects on the tourism industry.

Table 6: Summary of Community Evaluations in Past Studies at Bruce Power

Study Title and Year	Key Findings	Overall Evaluation/Follow up
	• Increased competition for temporary accommodations; and • Ad hoc or short-term increases in community service requirements due to the large number of temporary workers anticipated at the Site during the Refurbishment Phase.	
Environmental Impact Statement for the Bruce New Nuclear Power Plant Project, 2008 **(Subsequently cancelled)** Socio-Economic Impact Assessment	• Effects on the socio-economic environment during site preparation and construction, operations and maintenance and decommissioning and abandonment were assessed. This included looking at residents and communities, public service and infrastructure and Bruce Power site services and infrastructure. • Beneficial effects of the Project on Socio-Economic Conditions were identified for both the Construction and Operations Phases because of increased Employment, Population, Economic Activity and Municipal Finances. • A total of 13 likely residual adverse effects were identified on Socio-Economic Conditions, including but not limited to effects on labour supply, tourism, community services, housing, traffic, and municipal and Bruce Power infrastructure from increased workforce and local population. • A serious nuclear accident was also identified to be expected to have stigma-related effects on Tourism, Agriculture, Community Character, Use and Enjoyment of Property and Feelings of Safety and Security.	• All of the identified likely residual adverse effects were judged to be minor (not significant). Workforce and stigma-related effects on Residents and Communities and Public Services and Infrastructure are of moderate to high social context, but are generally low to moderate in magnitude, geographic extent, timing and duration, probability of occurrence and frequency, degree of irreversibility and ecological context. Residual adverse effects due to a nuclear accident are judged not to be significant primarily due to the extremely low probability of such an accident. • For those effects that are identified as adverse, mitigation measures were recommended. • Follow-up monitoring including

Table 6: Summary of Community Evaluations in Past Studies at Bruce Power

Study Title and Year	Key Findings	Overall Evaluation/Follow up
		public attitude research, and other surveys and data collection, was identified to verify these predictions.
Environmental Impact Statement for OPG's Deep Geologic Repository (DGR) for Low and Intermediate Level Waste (L&ILW), 2011*	The following socio-economic valued Ecosystem Components (VEC) were assessed: • Population and demographics – including population levels, population mobility and demographic characteristics such as family size, composition and age profile; • Other Human Assets – including availability of skills and labour supply, capacity of schools and availability of educational opportunities, availability of social services and availability of health and safety facilities and services; • Employment – such as employment opportunities; • Business Activity – including business opportunities; • Tourism – tourism visitation patterns; • Residential property values – likelihood of changes in residential property values attributable to the Project; • Municipal Finance and Administration – municipal revenues and expenditures; • Other financial assets – including income levels, agricultural activities and renewable and non-renewable resource use; • Housing – availability of housing; • Municipal Infrastructure and Services – including availability of municipal water and sewer infrastructure and services and availability of waste management facilities and services; • Other Physical Assets – compatibility with existing and planned land use, traffic levels and community character; • Inverhuron Provincial Park – use and enjoyment of Inverhuron	• Overall, the DGR Project is not expected to result in any significant adverse effects on the socio-economic environment. Beneficial effects will serve to enhance community well-being. Given the central role that public attitudes play in determining whether or not socio-economic effects occur, follow up monitoring of public attitudes toward the DGR Project was deemed warranted and results of the follow-up studies should be communicated to the public. It was recommended that OPG continue to monitor public attitudes toward the DGR Project. Public attitude research (PAR) that provides directly comparable results to the 2009 PAR, in terms of questions and approach to sampling, was to be undertaken as

Table 6: Summary of Community Evaluations in Past Studies at Bruce Power

Study Title and Year	Key Findings	Overall Evaluation/Follow up
	Provincial Park; and • Other Social Assets – including archaeological or cultural heritage sites, culturally sensitive areas, availability of community recreational facilities and programs, use and enjoyment of private property and community cohesion. Based on the assessment documented in this TSD, one residual adverse effect is identified: • Off-Site noise levels will be increased by approximately 5 dBA during the Site preparation and construction phase and during the decommissioning phase, which is a noticeable change. This change in noise levels may reduce the enjoyment of private property in the Baie du Doré area, in close proximity to the Site. This effect is not significant. Based on the assessment documented in this TSD, no other direct or indirect residual adverse effects to socio-economic environment VECs were expected as the result of the Site preparation and construction, operations or decommissioning of the DGR Project. The anticipated beneficial effects as a result of the DGR Project are as follows: • Increased population associated with DGR Project related employment will occur in all Regional Study Area municipalities, with the greatest benefit anticipated in Kincardine. • Increased educational opportunities for local students and others with an interest in nuclear technology. • The DGR Project will create new direct, indirect and induced employment opportunities. • A positive effect on business activity is anticipated during all DGR	follows: • One time during the Site preparation and construction phase; • One time during the decommissioning phase; and • Subsequent to any accidents or malfunctions involving the DGR Project that result in an unplanned release of radioactivity to the environment.

Table 6: Summary of Community Evaluations in Past Studies at Bruce Power

Study Title and Year	Key Findings	Overall Evaluation/Follow up
	Project phases, which can be enhanced through policies to utilize local business services wherever practical and appropriate. • The DGR Project may result in increased municipal revenue because of increases in property taxes and other revenues; as well as through one-time and annual payments agreed to in the 2004 Hosting Agreement. • The DGR Project will increase the direct, indirect and induced labour income in the Local and Regional Study Areas.	

* Note that this project was conducted by OPG not Bruce Power but covers the same geographical areas.

7.0 COMMUNITY INVOLVEMENT IN PRIOR REGULATORY PROCESSES

7.1 Public Involvement in Licensing Hearings

There have been a number of hearings related to different regulatory studies as well as the relicensing process at Bruce Power. Table 8 below shows a summary of public comments and concerns from the 2015 licence renewal hearing and how they have been examined and addressed by Bruce Power in the Application. The hearings featured written and oral testimony from members of the public, community organizations, interest groups and NGOs.

Table 7: Summary of Public Concerns and how Addressed in Bruce Power Studies

Summary of Concerns	**Report or Study Addressing Concern and Section as Part of the 2017 Licence Renewal Package**	**Key Points**
Effects on human health	• 2017 MCR Environmental Quantitative Risk Assessment– Section 4 • Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – Section 4 • Performance Review of Bruce A and B – Section 7 Environmental Monitoring Report 2016 – Sections 1 & 5	• The ERA and PEA conclude that there will be no radiological or non-radiological adverse effects to members of the public near the Site or visitors to the Site. • The operations of the Bruce site are well within regulatory limits and requirements. With respect to non-radiological emissions, Bruce Power is in compliance with applicable provincial regulations, approvals, and permits. With respect to radiological airborne emissions and liquid releases, derived release limits (DRLs) have been developed by Bruce Power to ensure release limits to the environment will not exceed the annual regulatory public dose limit of 1 millisievert (mSv). Furthermore, Bruce Power has established action levels that are set at approximately 10% of the DRLs. • As a result, for the 25th consecutive year, Bruce Power's calculated dose to a member of the public is less than the 10 microsieverts/year (µSv/y) value that is regarded as the lower threshold for significance. • The risk to human health from radiological and non-radiological hazards will be the subject of ongoing monitoring.
• Accidents and preparedness	• Bruce Power's 2018 Licence Renewal – Emergency Preparedness, Safety First	• Bruce Power has been safely operating the Site since 2001.

Table 7: Summary of Public Concerns and how Addressed in Bruce Power Studies

Summary of Concerns	**Report or Study Addressing Concern and Section as Part of the 2017 Licence Renewal Package**	**Key Points**
• Safety • Emergency preparedness for community members	• 2017 Application for the renewal of the Power Reactor Operating Licence – Sections 1, 2, 3, 4, 6, 8, 9 & 12 • Predictive Environmental Risk Assessment for Bruce Power Continued Operations including Major Component Replacement – Sections 3, 4 and 5. • Environmental Monitoring Report 2016 – Section 3 and Section 10.	• Both Bruce A and B received an overall 'Fully Satisfactory' mark for the CNSC's Integrated Plant Ratings, which the regulator has compared to an 'A+' in past media reports. Both stations were also deemed Fully Satisfactory for Operating Performance, Conventional Health and Safety, Waste Management and Security. The other 10 areas rated by the CNSC were deemed 'Satisfactory,' which is equivalent to an 'A. • Bruce Power has a Nuclear Emergency Plan prepared and implemented and works in tandem with local emergency services to ensure that any emergencies are appropriately managed. • In 2012, Bruce Power formed an integrated emergency response organization bringing all emergency response capabilities under one command. The organization saw Bruce Power's Security team join forces with the Fire and Emergency Services teams to form Bruce Power Emergency and Protective Services. About 10% of Bruce Power's workforce lies within this organization. This type of organization is considered a best practice and aligns with provincial and federal agencies who adopted the integrated emergency response model. • Key changes have included new fire trucks, new backup generators, a dedicated emergency response team, a new state of the art Emergency Management Centre (EMC), fail safe communications systems, a fire training facility, testing for an FM broadcast alert system and

Table 7: Summary of Public Concerns and how Addressed in Bruce Power Studies

Summary of Concerns	**Report or Study Addressing Concern and Section as Part of the 2017 Licence Renewal Package**	**Key Points**
		exploring an all channel alert system. • By the end of 2015 Bruce Power employees had worked 13 million hours without an acute lost-time injury. Bruce Power complies with relevant federal and provincial environmental legislation, regulations, and other requirements; specifically with regulations and programs which protect human health and the environment under the *Canadian Environmental Protection Act* and *Nuclear Safety and Control Act*. As well, Bruce Power complies with the Environmental Compliance Approvals and Permits issued by the Ontario Ministry of Environment and Climate Change. • On-Site staff are protected by the facility health and safety protocols and the Site is protected by security 24 hours a day and access is heavily restricted. • Bruce Power has a Nuclear Emergency Preparedness Exercise and Drill Program as part of its Nuclear Emergency Plan. Potassium iodide tablets are distributed to households and businesses around the Site as part of emergency preparedness. • Comprehensive environmental monitoring will be implemented including procedures for spills and emergency responses and the Site will be subject to annual reviews by the CNSC, including physical inspection

Table 7: Summary of Public Concerns and how Addressed in Bruce Power Studies

Summary of Concerns	**Report or Study Addressing Concern and Section as Part of the 2017 Licence Renewal Package**	**Key Points**
• Environmental impacts • Adequacy of study areas and scope of studies	• Bruce Power's 2018 Licence Renewal – Environmental Protection • 2017 MCR Environmental Quantitative Risk Assessment– Section 5 Ecological Risk Assessment • Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – Sections 4 & 5 • Performance Review of Bruce A and B – Sections 9 & 11 • Application for the renewal of the Power Reactor Operating Licence – Section 3 • Environmental Monitoring Report 2016 – Sections 1, 3, 5, 6, 7 & 9	• Bruce Power has an Environmental Policy in place that focuses on minimizing the environmental footprint by preventing pollution in the area of emissions, spills, waste and reducing impacts on the environment. The ERA and PEA have concluded that the continued operation of the Site and the life extension will not cause significant adverse effects to the aquatic and terrestrial environment. • Bruce Power's environmental policy looks to integrate environmental safety into its nuclear safety culture to promote and ingrain a sense of environmental responsibility beyond compliance. • The operations of the Site will be the subject of ongoing environmental monitoring programs and subject to annual review by the CNSC.
Impacts on Indigenous communities	• Bruce Power Environmental Quantitative Risk Assessment 2017 • DGR Aboriginal Interests TSD – Section 8.5 Summary of assessment • DGR Project EIS Guidelines • DGR Archaeological Assessments • 2005 Bruce A Refurbishment Cultural Heritage TSD • 2017 MCR Environmental Quantitative Risk Assessment – Section 3, Tier 1 Chemical	• The Application, the prior refurbishment, previous environmental assessments, and the results of research and monitoring programs demonstrate that the continued operations of the Site and the proposed life extension will have no novel adverse impacts on Aboriginal or treaty rights and that any impacts will likely not be appreciable and will at most be minimal. • Bruce Power has made and is making significant efforts to ensure that the continued operation of the Site will continue to provide benefits to Indigenous communities through increased employment, training, and business

Table 7: Summary of Public Concerns and how Addressed in Bruce Power Studies

Summary of Concerns	**Report or Study Addressing Concern and Section as Part of the 2017 Licence Renewal Package**	**Key Points**
	Screening, Section 4, Human Health Risk Assessment, Section 8, Conclusions and Recommendations • Major Component Replacement EA (2017) ERA - Section 5, Ecological Risk Assessment • Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – section4.5 Geology and Soil, section 4.6 Aquatic Environment and section 4.8 Human Environment • 2017 MCR Environmental Quantitative Risk Assessment - Section 5, Ecological Risk Assessment • Bruce Power's 2018 Licence Renewal – Community Interests, Consultation & Engagement • Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – Section 4	opportunities. • Further details regarding assessments with respect to impacts to Indigenous communities are set out in the respective Community Interest documents for the SON, the HSM, and the MNO.
Regulatory processes and compliance	• Bruce Power's 2018 Licence Renewal – CNSC Relicensing Process • Application for the renewal of the Power Reactor Operating Licence – Sections 2-5 • 2017 MCR Environmental Quantitative Risk Assessment– Section 1	• Bruce Power complies with all regulatory requirements set out by the Canadian Nuclear Safety Commission (CNSC). • The Environmental Management Plan seeks to ensure Routine communication between Bruce Power and the

Table 7: Summary of Public Concerns and how Addressed in Bruce Power Studies

Summary of Concerns	**Report or Study Addressing Concern and Section as Part of the 2017 Licence Renewal Package**	**Key Points**
	• Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – Section 5 • Performance Review of Bruce A and B – Sections 3, 6, 13 & 15 • Environmental Monitoring Report 2016 – Sections 1- 8	CNSC, ECCC, MOECC, the MOHLTC, the Municipality of Saugeen Shores, and the Municipality of Kincardine as well as annual reporting to OPG.
Contribution to reducing climate change	• Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – Section 5 • Performance Review of Bruce A and B – Section 9 • Environmental Monitoring Report 2016 – Section 5	• Bruce Power is registered to ISO 14001 Environment Management System as their environmental framework as well as applicable best industry standards as a framework for achieving continual improvement and sustainable performance excellence, while minimizing the environmental impact and preventing pollution. • Bruce Power's environmental policy aims to manage the Company's environmental footprint by protecting, conserving, and restoring resources through energy conservation, reducing water consumption, and by reusing or recycling materials.
Employment opportunities	• Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – section 4.8 Human • Environment Bruce Power Indigenous Employment Policy • Bruce Power's 2018 Licence Renewal –	• Bruce Power is the largest employers in Bruce County with over 4,000 staff. • Bruce Power is committed to the employment and training of local people with competitive salaries and comprehensive benefits. • Bruce Power has many partnerships with local colleges

Table 7: Summary of Public Concerns and how Addressed in Bruce Power Studies

Summary of Concerns	**Report or Study Addressing Concern and Section as Part of the 2017 Licence Renewal Package**	**Key Points**
	Socio-economic Contributions • Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – Section 4	and schools and provides educational opportunities and scholarships to try and attract the best future employees and encourage careers in science and engineering. • The MCR activities will also require a temporary (about 5 year) increase in the Site workforce (approximately 1,300 [spring time roughly an increase of 22%) to 2,600 [summer in roughly an increase of 58%).
Safe Storage of Nuclear Waste	• Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – Section 3.2 Major Component Replacement Activities, Section 4 – Interactions and Predictions • Bruce Power's 2018 Licence Renewal – Environmental Protection • Application for the renewal of the Power Reactor Operating Licence – Sections 3, 4 & 5 • Performance Review of Bruce A and B – Sections 11 & 14 • Bruce Power Environmental Quantitative Risk Assessment 2017 – Section 2 • Predictive Environmental Risk Assessment For Bruce Power Continued Operations including Major Component Replacement – Section 6 • Environmental Monitoring Report 2016 –	• Storage of waste is expected to continue as per current practices and no changes is expected from the MCR project works and continued operations. • No interaction with the terrestrial or aquatic environment is predicted. • Contractors handling hazardous waste will be qualified in Transportation of Dangerous Goods and completed training in O. Reg. 347: General – Waste Management under the Environmental Protection Act.

Table 7: Summary of Public Concerns and how Addressed in Bruce Power Studies

Summary of Concerns	**Report or Study Addressing Concern and Section as Part of the 2017 Licence Renewal Package**	**Key Points**
	Sections 3 & 5	

7.2 Indigenous Group Involvement in Licencing Hearings

Concerns heard by each local Indigenous group in various regulatory reviews since 2001 have been outlined in the Community Interest documents for the SON, the HSM, and the MNO.

8.0 PUBLIC ATTITUDES TOWARDS THE BRUCE POWER NUCLEAR GENERATING SITE

Bruce Power has made significant investments in public attitude research and polling in the communities near the Site so that concerns and issues can be monitored and addressed. This research has been primarily undertaken in the communities closest to the Site (the Municipality of Kincardine and the Town of Saugeen Shores) and other communities within Bruce County. This provides vital information to help develop Bruce Power's communications and engagement strategies.

The following sections present a summary of key points and trends from the most recent surveys completed on behalf of Bruce Power. These are:

- Public Attitude Research (PAR) on the Proposed Major Component Replacement Program (Intellipulse, November 2017 and November 2016).
- Bruce, Huron and Grey Counties Public Opinion Research Tracking (Ipsos Public Affairs, Spring 2017).

8.1 Public Attitude Research on the Major Component Replacement Program – Key Findings

Public Attitude Research has been conducted as part of many regulatory studies and is important in evaluating and tracking public opinion on Site-related issues over time. The most recent round of PAR was conducted by Intellipulse in November 2017 and was a repeat of the same survey conducted by Intellipulse in November 2016. There have been several rounds of PAR prior to 2016, including in 2001 and 2005, as part of the Bruce A Units 3&4 Restart EA and Bruce A Refurbishment EA, respectively, with follow-up studies in 2013 and 2016 to help understand if the refurbishment project had affected perceptions in the community and evaluate overall impacts. This depth of data over the years helps to provide valid comparisons and comprehensive conclusions on any community effects from the Site.

In order to understand attitudes toward living in the community and toward the Site itself, a total of 500 telephone interviews were conducted in both 2016 and 2017. These were split geographically as follows – 225 interviews in the Municipality of Kincardine, 200 interviews in Saugeen Shores and 75 interviews in the remaining 6 areas in Bruce County (Arran-Elderslie, Brockton, Northern Bruce Peninsula, South Bruce Peninsula and Huron-Kinloss). The sample split was the same in both 2016 and 2017 so accurate comparisons year on year can be made.

8.1.1 Themes Covered

The surveys covered issues such as:

- Level of satisfaction with living in the community;
- Use of outdoor recreation spaces and activities near the Site;
- Understanding of Nuclear related issues;

- Influence of the Site in their day to day lives;
- Effects from construction and operations at the Site; and
- Likelihood that they would leave the community.
- These themes can be used to help understand how stable a community is and if there is an element of the environment that may cause the constitution of the community to change in some way resulting in it being a less desirable place to live and work and jeopardizing future growth and development.

Community Issues and Concerns

- The satisfaction of those surveyed with living in their respective communities is high. Of those surveyed in 2017, 97% of Kincardine and Saugeen Shores residents and 96% of Other Bruce County residents were somewhat satisfied, satisfied, or very satisfied with living in their community, with about 7 out of 10 residents in Kincardine and Saugeen Shores being "very satisfied". This compares similarly to 2016 when 97% of Kincardine residents, 98% of Saugeen Shores residents, and 99% of Other Bruce County residents were somewhat satisfied, or very satisfied with living in their community.

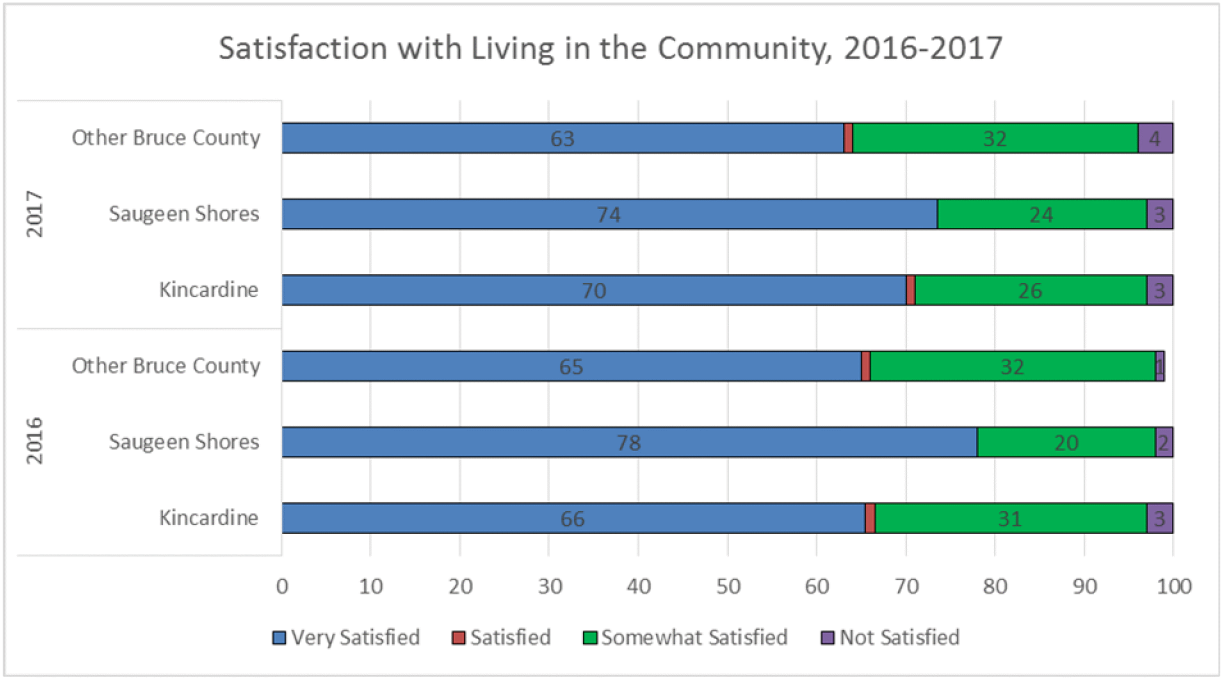

Figure 4: Summary of Community Satisfaction in 2017 & 2016 PAR

- While there was no change in satisfaction levels across surveys conducted in 2001 to 2016 in Saugeen Shores and the rest of Bruce County, Kincardine has seen a significant decline in "very satisfied" (70%) compared with 2001 (78%) and a commensurate rise in "somewhat satisfied".

- Respondents were asked what were most important issues facing the community, which in both 2016 and 2017 were considered to be economic issues such as tourism, development and jobs, health care and services, cost of utilities, wind turbines and municipal spending/debt/taxes. Issues related to DGR/nuclear waste were lower in number and Bruce Power related issues even lower still.

- The lack of natural gas service has notably increased as a community issue in both Kincardine and Other Bruce County.

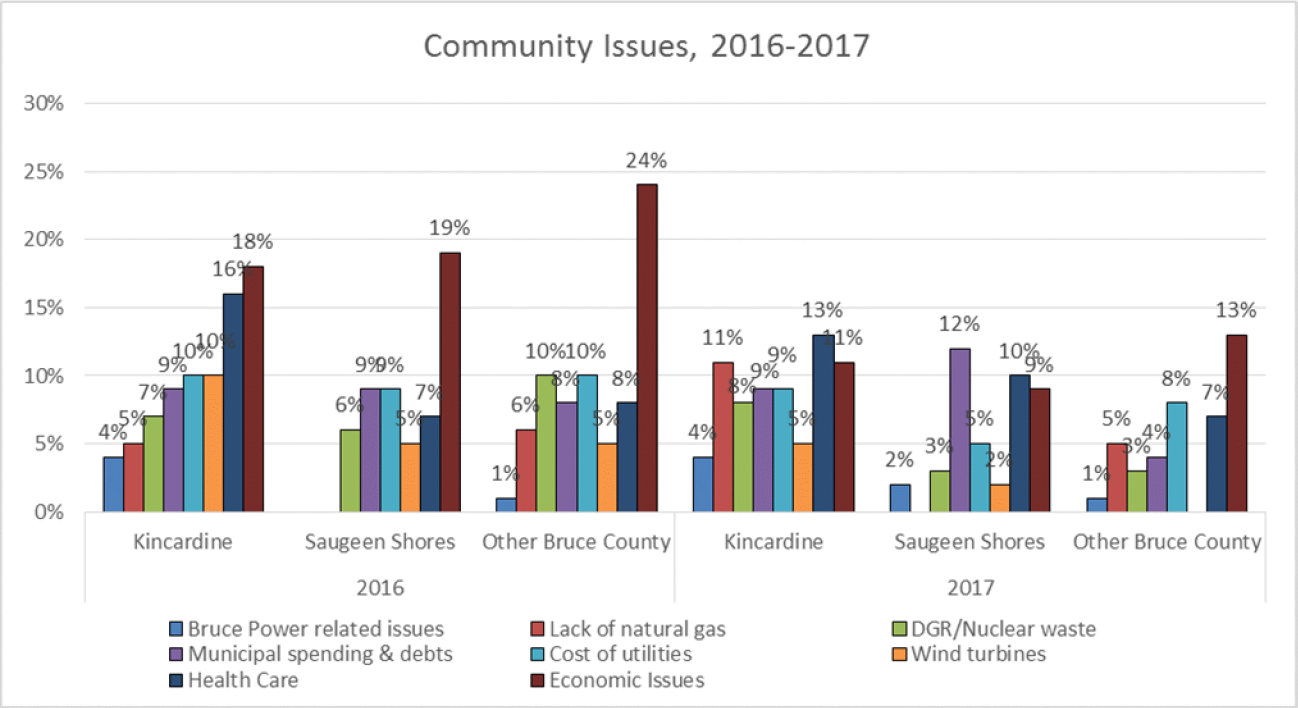

Figure 5: Summary of Community Issues by Study Area in 2016 & 2017 PAR

- The issue of water quality, which was a significant concern in 2000, most likely due to a known outbreak of e-coli in Walkerton in the same year. This issue has, however, decreased significantly over the years, to the point where it is barely an issue for the local community.

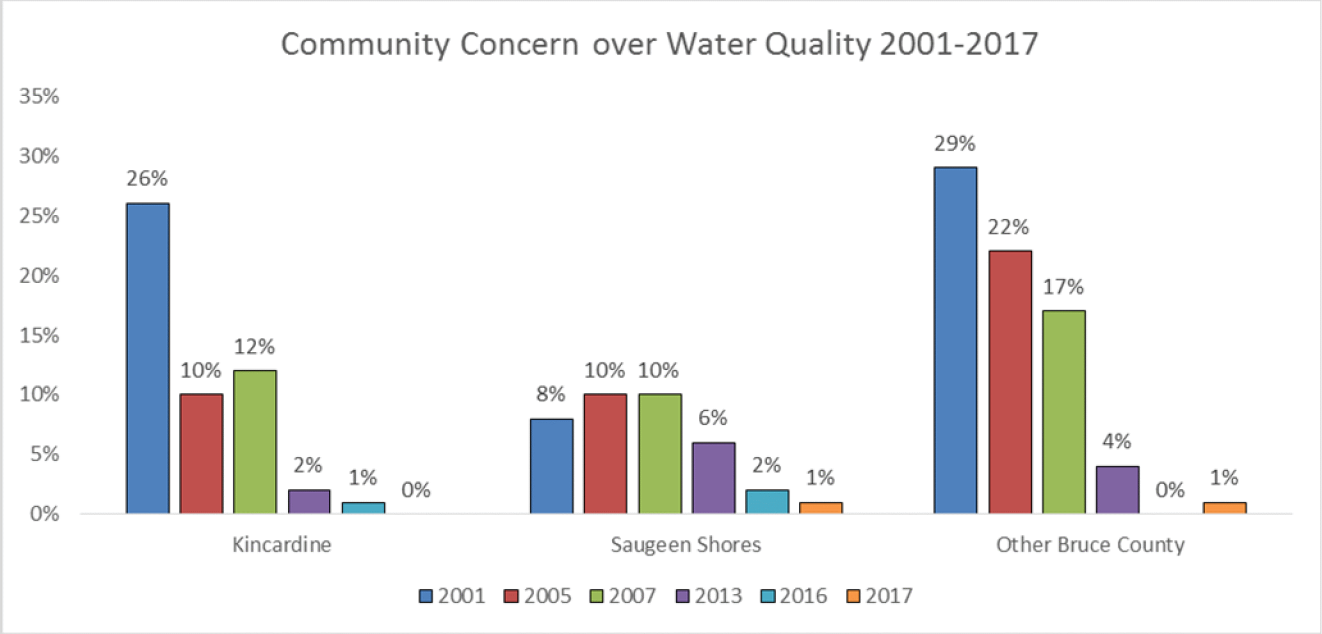

Figure 6: Level of Community Concern related to Water Quality, 2001-2017

- When asked what issues in the community affected their sense of health and safety or personal security, the most common response in 2017 in all three study areas was health care and hospitals (22% in Kincardine, 13% in Saugeen Shores and 11% in Other Bruce County) while only a small proportion of people mentioned Bruce Power related issues (less than 5% in all areas). A third of people (33%) across all areas in 2017 said that they did not have any concerns or felt threatened by anything in the community. These findings are consistent with 2016.

Residents' Activities – Kincardine

- **Sports and community services** – 77% "occasionally" or "regularly" participate or join in sports and community services in 2017. "Regularly" participating in this activity was significantly higher than in 2001 and 2005.

- **Use beaches along the waterfront near the Site** – 72% of respondents in 2017 use the beaches along the waterfront near the Site at least "occasionally" and the number of respondents who "regularly" use the beaches along the waterfront near the Site was significantly higher in 2017 than in 2001, 2005, and 2007.

- **Bird watching or nature viewing along the Lake Huron shoreline** – 69% of the Kincardine respondents in 2017 undertake bird watching or nature viewing at least "occasionally". This is a decrease of 5% from 2016. "Regularly" participating in this activity is significantly higher than in 2001 and 2005.

- **Use the parks and trails along the waterfront near the Site** – 65% of respondents in 2017 at least "occasionally" use the parks and trails near the Site. This is a decrease of 7% from 2016

although significantly more respondents now undertake this activity "regularly" compared to 2001. Respondents with a household member employed in the power industry, who have children, are younger, and those who have a higher household income are more likely to use the parks and trails.

- **Fishing or boating near the Site** – Similar to previous years, 33% of respondents in 2017 engage in on-the-water activities near the Site at least "occasionally".

Residents' Activities - Saugeen Shores

- **Sports and community service groups** – 71% of respondents in 2017 use sports and community services at least "occasionally". This was a decrease of 7% compared to 2016.

- **Use beaches along the waterfront near the Site** – 64% of respondents in 2017 use the beaches along the waterfront near the Site at least "occasionally". The number of respondents that "regularly" use these beaches was lower in 2017 and 2016 when compared to 2013 but not significantly different to 2007 or 2005.

- **Use the parks and trails along the waterfront near the Site** – 58% of respondents in 2017 at least "occasionally" use the parks and trails near the generating stations, which is an 8% decrease compared to 2016 but not significantly different to prior years.

- **Fishing or boating near the Bruce Power site** – 31% engage in on-the-water activities near the stations at least "occasionally".

- **Bird watching or nature viewing along the Lake Huron shoreline** – 71% of the Saugeen Shores respondents undertake bird watching or nature viewing activities at least "occasionally", with regular participation in this activity stable over time.

Residents' Activities – Other Bruce County

- **Sports and community services** – 57% of respondents in 2017 use sports and community services on at least an "occasional" basis.

- **Use beaches along the waterfront near the Site** – 41% of respondents in 2017 use the beaches along the waterfront near the Bruce Power site at least "occasionally". This decreased from 57% in 2016 but is not significantly different to prior rounds of PAR.

- **Bird watching or nature viewing along the Lake Huron shoreline** – 48% of the rest of Bruce County respondents undertake bird watching or nature viewing along the Lake Huron shoreline at least "occasionally".

- **Use the parks and trails along the waterfront near the Bruce Power site** – 41% at least "occasionally" use the parks and trails near the generating stations. Respondents who have children and are younger have higher participation rates.

- **Fishing or boating near the Bruce Power site** – 17% engage in on-the-water activities near the stations at least "occasionally".

Bruce Power Communications

A majority of respondents in 2017 (79%, Kincardine, 76% Saugeen Shores and 71% in Other Bruce County) rate Bruce Power as doing a good or very good job at addressing questions about its activities at the stations. This was a slight drop from 2016 in the number of respondents in Kincardine and Saugeen Shores who felt that Bruce Power were doing a good or very good job while there was a significant increase in those saying this in Other Bruce County.

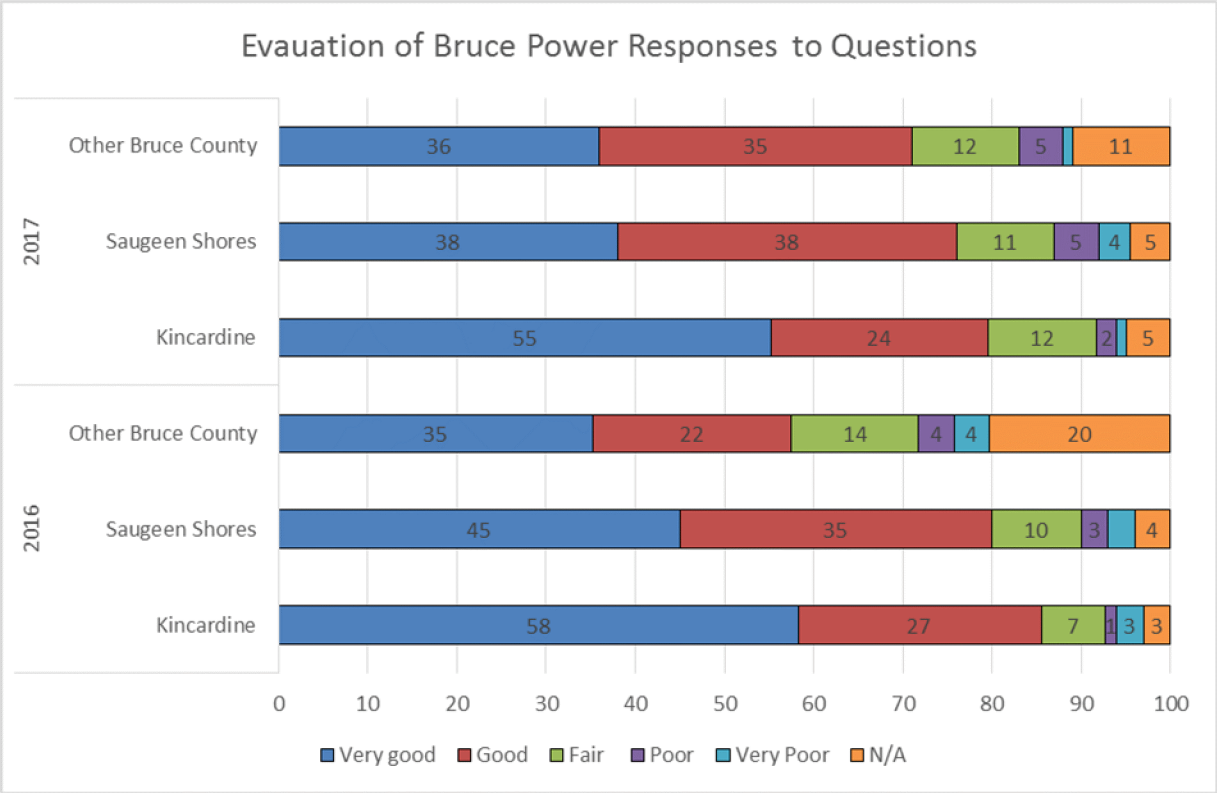

Figure 7: Summary of satisfaction with Bruce Power's Response to Questions by Study Area in 2017 & 2016 PAR

Community Attitudes toward the Major Component Replacement Project

The Public Attitude Research conducted in 2016 and 2017 asked local residents about the MCR project, their understanding of it and their thoughts on potential benefits and issues related to the project.

Key Points (from 2017 results):

- Awareness of the MCR project was highest in Kincardine (73% knew "a great deal" or "something" about the project in 2017) this was 73% in Saugeen Shores and 64% in the rest of Bruce County. These are not significantly different from the 2016 results.

- Awareness of the MCR project in 2017 is higher than it was in 2005 for the restart of Units 3 and 4 project and in 2004 for the Refurbishment of Units 1 and 2.

- Over time, three-quarters of the Kincardine respondents (79% in 2017) report "no change" due to previous construction activities. Among those who anticipate a change, significantly more respondents anticipate that their satisfaction level will increase (17%) compared with 2005 (10%).

- The clear majority (93% in 2017) of respondents in Kincardine indicated there has been "no change" in their use and enjoyment of personal property as a result of MCR activities. Three percent anticipated that their use and enjoyment of property will increase with Bruce Power's MCR program versus 1% who anticipates a decrease.

- Ninety-two percent of respondents in Kincardine, 87% in Saugeen Shores, and 86% in Other Bruce County did not change their commitment to living in the community. More respondents who noted a change anticipate an increased commitment due to Bruce Power's proposed MCR program than anticipate a decrease..

- 2017 Kincardine respondents are significantly more likely compared with previous years to have not changed their commitment to living in the community as a result of previous construction activities as Bruce Power.

- Only 1-% (across all areas in 2017) anticipated that their use and enjoyment of local parks and trails would decrease or increase due to the MCR program. Similar trends are shown for fishing or boating on Lake Huron, use and enjoyment of beaches near the site and bird watching and other nature activities.

- Employment opportunities, economic growth, population increases and community stability were commonly mentioned as anticipated positive changes to the community as a result of the MCR project.

- Overpopulation, traffic, housing costs, crime and strain on infrastructure were mentioned as anticipated negative changes as a result of the MCR project.

8.2 Trends in Public Attitudes towards Bruce Power and the Site (Ipsos Public Affairs 2017)

Public opinion research was also conducted by Ipsos Public Affairs in April 2017 of residents in Bruce County, Grey County, and Huron County, which was a repeat survey from winter 2014. Bruce Power commissioned this research in order to understand and track attitudes and opinions from Bruce, Grey, and Huron County residents towards a number of topics and issues, including:

- Energy/electricity issues in the community and support for the refurbishment of the Bruce facility;
- Familiarity with and attitudes towards Bruce Power; and

- Communications with or about Bruce Power.

Five hundred local residents were interviewed by phone; 216 interviews in Grey County, 150 in Bruce County and 134 in Huron County. This was a shorter survey than the Public Attitude Research and focused on energy and nuclear issues while the PAR looked at community wide issues and larger scale satisfaction with living there.

Key Trends and Findings Across all Areas:

- Most commonly mentioned issues for local residents were education, jobs and healthcare;
- Support for the Site is high among local residents (85%) – an increase from 79% in 2014;
- Support for refurbishment was high in 2017 with 85% of respondents either strongly or somewhat supportive of refurbishment, which is an increase of 6% compared to 2014;
- Job creation is the primary reason that local people support the refurbishment (20% of respondents mentioned this). Other reasons included that the refurbishment is necessary, refurbishment is preferable to rebuilding, residents like nuclear power, economic benefits and that it is clean/good for the environment;
- Reasons for opposing the refurbishment included concerns about safety, costs and there being the potential for other, better, energy options;
- Local residents are generally familiar with Bruce Power – over three quarters of residents (76%) said that they were very or somewhat familiar with Bruce Power. This is on par with findings from 2014, however there was a significant increase in those who said they were “very familiar” with Bruce Power in 2017 compared with 2014 (21% and 15% respectively);
- Impressions of Bruce Power are positive and relatively unchanged among residents of Bruce, Grey, and Huron counties, with 83% of respondents having an “excellent”, “very good” or “good” impression of them. This has increased since 2014;
- Residents’ recall of Bruce Power was high with 61% of people stating that they had heard or seen something about Bruce Power recently. This was a significant increase from 2014.
- The most commonly mentioned sources of information where people would like to hear more on Bruce Power and their facility were newspapers and newsletters or flyers (21% and 19% respectively); and
- Over half of respondents (55%) said that nuclear power plants in Ontario have taken appropriate actions to enhance safety and prevent events such as Fukushima.

8.2.1 Key Conclusions

The most recent round of PAR shows that the majority of residents in the local communities closest to the Site are satisfied with living there. Some issues have been front of mind over the years but abated over time (notably, wind farms, which were a significant issue in 2013 but are now much less so). Nuclear power/Bruce Power related issues have been noted and were highest in 2005 (particularly in Kincardine) but are currently mentioned by less than 4% of the communities. Use and enjoyment of property, sense of health and personal security and levels of satisfaction with living in the community are all high in each community. There is also an increasing level of satisfaction with Bruce Power communications with the majority of respondents and a high level of support for the refurbishment.

9.0 FUTURE SITE ACTIVITIES AND COMMUNITY EFFECTS

Socio-Economic evaluations are crucial in understanding how future action, such as the proposed refurbishment, will impact a local, regional and provincial areas, from an economic and human well-being stand point. Understanding the Socio-Economic landscape is critical to the development of long term strategy for surrounding communities as well as the overall success of the Site. Based on historical data collection and analysis the Socio-Economic environment has been identified as a positive influence from both an economic standpoint as well as human well-being. As society and economy continues to evolve, it is important to routinely evaluate the relationship Bruce Power has on both a social and economic level.

Effects on the socio-economic environment are largely dependent upon findings from other disciplines such as atmospheric, aquatic and ecological studies as well as traffic studies and public attitude and resident surveys. The Predictive Effects Assessment (PEA) is also a useful source of information relating to effects on the elements making up the socio-economic environment.

The following sections look at how potential effects on the social and economic environment are examined in the ERA, PEA, and in standalone studies such as traffic.

9.1 Bruce Power Environmental Risk Assessment and Predictive Effects Assessment

A Preliminary Quantitative Environmental Risk Assessment was completed in 2015, in accordance with CSA Standard N288.6-12. This assessment was updated in 2017 in anticipation of licence renewal, along with a Predictive Effects Assessment for future Site activities, including Major Component Replacement Life Extension Program. The MCR is expected to extend the operating life of Units 3 to 8 by approximately 30 to 35 years. The ERA was submitted to the CNSC on June 30, 2017 as part of the Application.

9.1.1 Summary of Findings

The ERA was originally prepared in 2015, and subsequently updated in 2017 to provide updated baseline conditions through 2016. It forms the basis for forward-looking predictions within the Predictive Effects Assessment. The ERA document will be used in support of licence renewal. In summary, the ERA and PEA conclude:

- For human health, there are considered to be no radiological or non-radiological adverse effects to members of the public near the Site or visitors to the on-site Indigenous burial ground;
- For ecological health, there are not considered to be any radiological or non-radiological adverse effects on wildlife or to the environment;
- All activities are within bounds as determined through detailed review and assessment;
- Potential environmental effects of future activities are anticipated to be similar to those of existing operations and/or those observed during refurbishment of Units 1 and 2; and
- Current environmental monitoring programs are robust and will be maintained.

A section of the ERA is related to Indigenous Interests and summarizes concerns and interests raised during the 2015 licence renewal hearing regarding potential impacts on Indigenous rights and interests.

The ERA, the PEA, and Bruce Power's operations to date, including the prior refurbishment, demonstrate that the continued operations and life extension of six reactors will have no novel adverse impacts on Aboriginal rights and interests and any impacts will likely not be appreciable and will at most be minimal.

9.1.2 Impacts on Human Health

The continued operations and life extension of six reactors will not have an adverse impact on human health. The subsistence farmer receptor (Mennonite / Amish) was identified as the critical receptor group (full-time resident adjacent to the site), and modelled accordingly with a very high consumption of locally grown and harvested foods (100% of food consumed is local food). Results of the ERA show that the receptor with the highest potential radiation dose is an infant in the subsistence farming household (located near the intersection of Highway 21 and Concession Road 4), which had a predicted average annual dose of 0.0013 mSv and an upper annual dose of 0.0026 mSv. To put this into perspective, the protective annual effective dose limit for members of the public established by the Canadian Nuclear Safety Commission (CNSC) is 1 mSv; therefore, the predicted maximum dose to the infant is 0.26% of the protective annual limit. The critical receptor group are considered to be those whose lifestyle and behavioural characteristics may contribute to greater exposure as compared to other potential public receptors. Typically, only the critical receptor group is modelled. However, the current risk assessment also includes the direct evaluation of exposures to hunter/fisherman receptors (Adult, Child and Infant) living 20 km north of the Site. The additional receptor was added to address Indigenous community members who engage in traditional harvesting activities and ensures they are captured within the characteristics of the receptors directly modelled as part of the assessment. The infant has the highest calculated dose among the hunter/fisherman receptors, with the predicted average annual dose of 0.0008 mSv and an upper annual dose of 0.0012 mSv.

The hunter/fisherman's dietary habits included a relatively large consumption of wild game and fish. Most of the Indigenous population reside more than 20 km from the Site and hunting is permitted only in certain areas within 20 km of the Site and not permitted on the Site, Inverhuron Provincial Park, MacGregor Point Provincial Park, The Bruce Energy Centre, or land leased by Bruce Power adjacent to the Site. Generic hunter/fisherman receptors evaluated were assumed to have full-time residency 20 km from the Site, and have the same exposure pathways as the subsistence farmer receptor except that they would be consuming more wild game and fish.

Typically, dietary characteristics (e.g., fish and game consumption) including those for Indigenous communities are based on those provided by Health Canada guidance (Health Canada 2010). However, based on the results of the 2016 Site Specific Survey, the amount of wild meat consumed by local residents is approximately 18 times more than the average Canadian. Therefore, the local food intake rates were increased to account for increased consumption (100% of the food consumed is local food; this includes wild game, fish and most other foodstuffs). Overall, the Human Health Risk Assessment was completed in a manner that ensured the potential exposure to any member of the public was well encompassed by the receptors and habits (e.g., diet, interaction with environment and location) modelled. As discussed in Section 6.1.1.2 of the ERA, fish and wild game intake rates for the generic hunter/fisherman receptor were based on the 95th percentile results of the First Nations Food, Nutrition, and Environmental Study. All other characteristics of this receptor were assumed to be the same as the subsistence farm resident.

In addition to the human critical receptor group, the assessment included the direct evaluation of aquatic and terrestrial animals and plants that represent a variety of ecological guilds (i.e., groups of species that exploit the same resources, occupy the same ecological niches), as well as locally found

species that include species harvested for food. Species identified as "of interest" by Indigenous communities were either directly assessed in the assessment or a species of the same guild was chosen to be assessed that would ensure effects to each species of interest was indirectly evaluated (e.g., species known to be sensitive to changes in the environment compared to other species in the same guild). Overall, the ERA was completed in a manner that ensured the potential exposure to any ecological receptor (i.e., plant or animal) within the vicinity of the Site was well encompassed by the receptors and habits (i.e., diet, interaction with environment and location) modelled.

Impacts on Fish, Mammals, Birds, and Vegetation

The Application (including the ERA and PEA), previous environmental assessments, the prior refurbishment, and the results of monitoring programs demonstrate that Bruce Power's operations have no significant adverse effect on fish, mammals, and vegetation.

Fish

The operation of the Bruce Power uses cold, deep Lake Huron water in a once through cooling system to condense the steam and supply operational needs. About 99.9% of the water used by the stations is immediately returned to Lake Huron. Fish habitat is not impacted, but some fish are drawn into the cooling system. Based on our monitoring these losses are small. Outfall water doesn't displace fish eggs and larvae away from critical habitat this has been studied by Ontario Hydro and Bruce. Impingement and Entrainment results in only 2,393 kg of age -1 equivalent each year. This loss is equal to a typical day's catch for three commercial fishing vessels on the Great Lakes. Bruce Power carefully tracks fish losses and shares data with the public, local indigenous groups and regulatory agencies in the annual Environmental Monitoring Report. Bruce Power is working to improve fish populations in Lake Huron, where fisheries provide work and tourism for communities. Proposed initiatives include such things as:

- Providing the Ministry of Natural Resources with funds to stock 50,000 yearling lake trout into Georgian Bay each year.
- Working with partners to remove the Truax Dam in Walkerton to give fish access to high quality upstream habitats.
- Monitoring of the Saugeen River and tributaries to document fish abundance and productivity.
- Continuing remediation on the Shebeshekong River near Parry Sound, with the Eastern Georgian Bay Stewardship Council:
  - Walleye upstream access points have been restored.
  - Ongoing monitoring will carry on to quantify the benefits.

Bruce Power is committed to protecting the environment and supporting local partner groups in their projects. To date, some of the projects funded by Bruce Power include but are not limited to:

- Petun Dam removal on Black Ash Creek (Collingwood), Nottawasaga Valley Conservation Authority;
- Restoration of local streams throughout Bruce County, Lake Huron Fishing Club;

- Rehabilitation of the rainbow trout nursery habitat in Beeton Creek (Tottenham), Nottawasaga Valley Conservation Authority;
- Control of the invasive Phragmites australis in Lake Huron coastal wetlands, Invasive Phragmites Control Centre;
- Agricultural stream improvements in the Scott Drain Tributary (Belgrave), Maitland Valley Conservation Authority;
- Habitat creation for small-bodied fish in Baie du Doré.

Mammals

The operation of the Site, including the prior refurbishment, has had no significant adverse effects to mammal species residing on and off the Site. Mammalian assessments have taken place on the Site for many years including a recent Site-wide bioinventory completed in 2016 and 2017. There is a good diversity of mammal species on and off the Site. The overall footprint of the facility has not significantly increased over the last several years, and habitat loss through development on the Site has been minimal over this time. Mammalian data were evaluated in the ERA to assess potential routes of exposure to contaminants by ingestion of soil, soil invertebrates, prey, terrestrial and aquatic plants, surface water, fish, and benthic invertebrates. The level of conventional and radiological contamination found in these food sources across the Site is nil to very low, and the risk to mammals is negligible.

Birds

The operation of the Site, including the prior refurbishment, has had no significant adverse effects on birds. Historical and recent breeding, migratory and winter raptor bird surveys show there is a high density and diversity of birds within the property boundary and in the surrounding environment. There is a variety of suitable habitat nearby for the majority of local bird species, including mixed woods, marsh, meadow marsh, ponds, and other surface water features. Bruce Power has ongoing monitoring programs for infrastructure and vehicle mortality (bird strikes). Recent and historical risk assessments have evaluated the risk to birds from exposure to radiological and non-radiological contaminants through ingestion of terrestrial animals, soil & sediment, plants, fish, benthic invertebrates and water, and the overall risk was considered to be negligible.

Vegetation

The operation of the Site, including the prior refurbishment, has had no significant adverse effects on vegetation. An Ecological Land Classification (ELC) of the Site was conducted by external consultants in 2001 using the ELC System for Southern Ontario to identify and characterize the plant communities on the Site. This data was updated in 2016 and 2017 as part of a Site-wide bioinventory. There is a very good diversity of flora on the Site and several vegetation habitat types exist, including wetlands, coniferous and deciduous forest, shrub thickets, and meadow. The overall footprint of the facility has not significantly increased over the last several years and on-Site habitat alteration has been minimal. There are no plans to expand the footprint of the Site in the near future; instead existing developments will be reused where possible. Bruce Power is currently working with outside partners to acquire wetlands and woodlands within Southern Ontario for long-term protection and preservation of these critical habitats. Bruce Power has measured radiological contaminants in local vegetables and grasslands for many years and results show that they are well below the limits set for safe consumption. These results have been independently verified by the CNSC.

Impacts from Increased Workforce

Economic Benefits

Economic benefits can be both direct and indirect. The MCR will significantly extend the life span of the Bruce A and B generating stations and will result in a 15 year period of increased activity on site. This will result in the maintenance of the current workforce for the foreseeable future resulting in a sustainable contribution to the local economy through both taxes and spending.

Over the next 20 years, the anticipated economic impacts of the continued operation and life extension of the Site for the province will be:

- 22,000 direct and indirect jobs annually through 2064
- $4 billion in annual Ontario economic benefit through the direct and indirect spending on operational equipment, supplies, materials and labour income

Bruce Power collaborates with the County of Bruce on Economic Development and Innovation Initative which has seen over 12 suppliers open offices along the Lake Huron shoreline. As part of the initiative, a jointly funded Business Investment Specialist position was established to create a single interface to facilitate a range of economic development and innovation ideas. The initiative has three goals:

1. Expand the regional supplier network to support Bruce Power's long term needs

2. Enhance regional training and employment opportunities for Indigenous communities, which align with the nuclear sectors long term needs
3. Support and promote community investment readiness to better align with an expanded regional supplier network and increased employment opportunities.

In 2017 in addition to the 12 companies about 10 more have committed to opening satellite offices in 2018. Hundreds of jobs are being created locally, and families are moving to the area to work and live. Job creation is the primary reason that local people support the refurbishment of the Site.

Traffic

Traffic increases and congestion was a frequently raised concern in the public attitude research, a traffic study was completed to understand the predicted level of increased traffic volumes and the associated impacts.

With a potential increase to 7,100 employees by 2033 at the Bruce Power Site, this is expected to generate an additional 3,124 vehicles in the weekday morning and 1,988 in the afternoon peak. These traffic levels are similar to the prior refurbishment and the station containment outage in 2016 and were appropriately managed.

Bruce Power has an approved traffic management plan which outlines the manner in which privately owned and corporate owned vehicles are being driven on Site. This plan supports and enforces traffic and parking regulations as well as identifying parking and traffic rules to staff, contractors and visitors. Mitigation measures to alleviate traffic volumes include shuttle buses for workers that travel from Kincardine and Port Elgin to the Site as well as carpooling initiatives and staggered shift times.

Future monitoring of study area intersections is recommended to confirm that traffic patterns do not change significantly and that the recommendations are still adequate. Similar recommendations were made during the Bruce A Refurbishment EA traffic study as well as the New Nuclear traffic TSD.

Impacts on Accommodation & Community Services

A temporarily increased workforce may result in increased demand on temporary accommodation in the area as well as placing additional strain on community services. Increased strain on temporary accommodation can have indirect effects on the tourism industry. The increased workforce required during the 2016 shut-down however can be used as a guide to the potential increase in local population. During this exercise, no notable effects were felt on temporary accommodations. Additionally, the Official Plans for Kincardine and Saugeen Shores account for a population change of 2-3% through to 2026 which ensures that local services are capable of handling the expected change in population from Project works.

Waste Management

Based on information within the Public Attitude Research, respondents were asked to describe what things or issues in their community affect their sense of health and safety or personal security the most. During the survey people indicated that ‘nuclear waste’ was a topic of interest, typically people expressed concerns in relation to the ongoing Deep Geologic Repository; however, in a small percentage (5%) of respondents specifically indicated the Site in relation to nuclear waste.

Although small, it is important to provide information on the waste management practices being implemented during the Life Extension program. In NK29-PLAN-09700-00001 Section 4.15.4 *Waste Management* of our Licence Renewal Package indicates that a Waste Management Plan is created during the development phase of the MCR project. This plan MCR6-WMP-018 currently in revision state, describes the strategy and the overall organizational framework for the management of all waste material resulting from the Bruce B Unit 6 Major Component Replacement program activities. As the project planning moves to different milestone gates this plan will continue to be refined.

Waste Categories

During the Life Extension program, both radioactive and non-radioactive waste will be created. Non-radioactive waste consists of hazardous waste (oils and chemicals), recyclables (glass, cardboard, plastic, paper and metals), organic waste (compostables) and landfill waste (items that do not fall into the other categories).

Radioactive Waste

The handling of radioactive waste is a systematic, procedure-based approach, with a focus on safe handling practices and minimizing volumes generated to ensure impacts on workers, the environment and the public are minimized. All aspects of nuclear waste management in Canada are governed by federal regulation, with the CNSC providing regulatory oversight of waste operations from generation, processing, packaging, transport, storage and disposal.

Low Level Radioactive waste consists of equipment and material that has come into contact with radioactive material from within a reactor, thus becoming contaminated. Radiation levels associated with LLRW do not, for the most part, require shielding or specialized packaging. Much of the low-level waste lends itself to processing to reduce its end-state volume for storage and eventual disposal. Processing can be by means of incineration, compaction or melting of certain metal components.

Intermediate-Level Radioactive Waste (ILRW) has higher radiation fields than LLRW and as a result often requires shielded containment for handling, transport and interim storage prior to final disposal. Reactor components removed for replacement or refurbishments (repair) are typically ILRW. Station systems with the purpose of cleaning up circulating fluids also generate ILRW in the form of filters and exhausted ion exchange resins.

High-Level Radioactive Waste (HLRW) is typically confined to irradiated (‘used’ or ‘spent’) reactor fuel. It is managed under strict controls and is overseen by federal and international authorities. HLRW is not included in the scope of the Life Extension Program. In addition to routine LLRW and ILRW, the Life Extension Program will generate two non-routine forms of radioactive waste: re-tube and feeder waste, and waste steam generators (SGs).

Non-Radioactive Waste

Similar to radioactive waste, a systematic approach is applied to identify, handle and dispose of non-hazardous wastes with a focus on minimization at source and recycling. Nonradioactive hazardous chemical waste is handled in accordance with procedures aligned with applicable regulatory requirements.

Re-Tube Waste

Re-tube waste consists of a mix of LLRW and ILRW. The ILRW stream includes reactor fuel channel assembly components removed from a reactor in preparation for installation of new replacement components, such as end-fitting assemblies, pressure and calandria tubes, calandria tube inserts and pressure tube-calandria tube spacers. Pressure and calandria tubes will be volume-reduced upon removal from the reactor, and the pieces deposited directly into an engineered, disposal-ready shielded waste container. Remaining components are typically LLRW and are directed to an off-Site facility for volume reduction. Removed feeder piping and its associated hardware is considered to be LLRW. The feeder piping connecting reactor fuel channel assemblies to the reactors' SGs will be sectioned and boxed for storage at the on-Site waste management facility. Other metal components associated with feeder piping will be transported off-Site for volume-reduction processing.

Waste Steam Generators

Steam generators (SGs) are large heat exchanger vessels (eight per unit) and during the Life-Extension Program all steam generators in each unit will be removed and replaced. The removed SGs are LLRW, and will be sealed prior to being stored intact at the waste management facility on Site. Sealed waste SGs provide containment and shielding of the radioactive material within. At a future time, the waste SGs will be sectioned and volume reduced in preparation for disposal.

Waste Minimization & End State

Radioactive waste will be handled, transported and processed according to established procedures. To the extent practical LLRW will be transported to a service provider for volume reduction, the volume reduced end product returned to site for storage at the on-site waste management facility. It is expected such an initiative will reduce the volume of LLRW to be stored and disposed by about 90 per cent of its original volume. The final stage of the Life Extension program includes the planned demobilization of equipment to ensure maximized re-use of tools and equipment and minimized discard of contaminated tools and equipment as radioactive waste. Where possible, small tools and equipment items will be processed through an on-site decontamination facility and re-usable tools and equipment will be inventoried and loaded into containers for storage so they can be used during future Life Extension work.

9.1.3 Impacts of Climate Change at the Site

A quantitative assessment of the current climate analysis and future climate projections up to the year 2100 was conducted by Golder Associates in 2016. To understand how the climate has been changing, and may change in the future, climate trends were analyzed by:

- Describing the current climate using available long-term (30 year) data;
- Documenting how the climate has changed over the past 30 years in the region; and
- Discussing the range of future climate projections expected post-operationally (2041 through 2070 and 2071 through 2100).

To describe the current climate, the most representative climate station was selected. The current climate and current climate trends for the selected climate station were documented. The current

climate conditions were defined using climate norms, which are long-term (usually 30-year) averages of observed climate data. Current climate conditions are used to document how the climate has changed over the thirty-year period in the region surrounding the Site by identifying apparent trends and assessing whether these apparent trends are statistically significant.

The future climate at the Site is projected to be likely warmer and slightly wetter, consistent with the observed current climate trends (1981 through 2010) at the Wiarton A climate station. The projected temperatures will continue to increase for both the Mid Term and Far Term periods. The projected changes in precipitation also show an increase for both the Mid Term and Far Term.

Thermal loading from Bruce Power operations to Lake Huron represent significantly less than 1% of those from atmospheric and natural sources. The most pronounced effects of Bruce Power operations on lake temperatures are very localized and temperature increases associated with thermal plumes decrease exponentially with distance.

Currently, water temperatures in the discharge area are monitored and compared to thermal effects criteria, and should temperatures reach or exceed thermal effects criteria, action is taken. Bruce Power is engaged in understanding the impacts from climate change predictions and considering how they may affect future operations and the local environment. As climate change prediction models become more advanced and/or the environment changes, the ERA will be updated to determine how and if such change impacts the operation of Bruce Power's facilities and, if required, review what changes are necessary to ensure continued environmental protection.

Bruce Power is reviewing its ongoing and future operations to ensure that adaptive mitigation to changes in climate are incorporated into Site operations.

9.2 Addressing Effects identified in Past Studies

As detailed in Section 5 of this report, the various past EAs have shown some effects on the socio-economic environment. In this section, we look to more recent studies to evaluate how these are being addressed in this licence renewal and associated studies – e.g. ERA and PEA.

Table 8: Analysis of Past Effects and Predictions for MCR

Community Feature	PRA – Key Findings	Project Interaction
Local Population and Economy	The MCR will extend the safe operating life of Units 3 to 8 by approximately 30 to 35 years. Extending the operating life of the Site results in reliable long-term procurement and employment opportunities, including opportunities for local municipal and Indigenous community members. A sustainable local economy will contribute to the wellbeing of these residents. The MCR activities will also require a temporary (about 5 year) increase in the Site workforce (approximately 1,300 [spring time roughly an increase of 22%) to 2,600 [summer in roughly an increase of 58%).	The MCR project will extend the life of the Bruce Power site by approximately 30 to 35 years ensuring employment for the existing workforce, and MCR activities will also provide jobs for approximately 1,300 people, including both local and Indigenous people. The will result in a sustainable contribution to the local economy, as well as wider socio-economic benefits. This temporary change in population

Table 8: Analysis of Past Effects and Predictions for MCR

Community Feature	**PRA – Key Findings**	**Project Interaction**
	Maintenance of workforce for the foreseeable future, including local and Indigenous employees, will result in a sustainable contribution to local economy, as well as other socio-economic benefits.	is accounted for in the growth predictions of the official plans of both the Municipality of Kincardine and the Town of Saugeen Shores, which predict an increase of 2-3%. As such, the MCR project is not expected to have an adverse effect on the local population or economy.
Community services	As MCR activity level is comparable to that experienced in 2016 during the station containment outage, the effects from the substantial increase in workforce is not expected to result in a residual effect requiring additional compensatory action. This includes predicted demand on municipal services and infrastructure (e.g., roads). The 2005 refurbishment EA for the Bruce A site also evaluated the impacts on community services from site activities. While some changes to services were predicted these were not deemed to be significant and positive benefits for community services were predicted via increased stability and growth.	The official plans of both the Municipality of Kincardine and the town of Saugeen Shores account for population growth of 2 to 3%, meaning that community infrastructure and services will be capable of accommodating an increased local population for MCR.
Residents and communities	Residents can be affected by a change in community character from changes in population and nuisance effects which can affect the use and enjoyment of private property and outdoor recreation spaces. Effects such as these can be evaluated through studies such as PAR. Findings from the most recent round of PAR show that residents are generally satisfied with living in the community and only small minority of residents feel that the MCR project will affect their satisfaction with living in the community.	Public attitude surveys have shown a high level of satisfaction with living in the community over the past decade. MCR activities are not expected to change this. Continued surveys and community outreach will take place to make sure that satisfaction remains high.
Temporary Accommodation	A temporarily increased workforce during MCR project work will result in an increased demand for accommodation for non-local workers. This can have consequent effects	A temporarily increased work force may mean increased demand for temporary accommodation in the local

Table 8: Analysis of Past Effects and Predictions for MCR

Community Feature	PRA – Key Findings	Project Interaction
	on tourism.	area. However, it's anticipated that this is manageable within current growth predictions and available accommodation and will not have any negative impacts on the tourism industry.
Community Services	There is expected to be an increase in local population, resulting in a short-term increases in demand on local services, which could affect municipal finances, community infrastructure and services, and community facilities and resources.	Maintenance of the existing workforce and an increased temporary workforce can cause additional strain on municipal services, facilities and finances. The official plans of both the Municipality of Kincardine and Town of Saugeen Shores account for population growth of 2-3% which is sufficient to accommodate this increase in population
Noise	The predicted change in noise levels as a result of MCR activities will not likely be measurable (i.e., not discernible from existing conditions) at off-Site receptors locations, as the predicted levels are consistent with current conditions. The estimate is also based on conservative assumptions (e.g., used smallest possible distance from receptor to activities and did not include potential dampening provided by Site-specific buildings and/or topography).	Under certain circumstances, noise from the site is disturbing to our neighbours. These occurrences are usually occasional and short-term and are often influenced by certain meteorological conditions. Going forward, Bruce Power will aim to give advance notice to the public and the Ministry of the Environment if a noticeable change in noise is anticipated. Construction work will follow the guidelines set out by the regulatory bodies and will take place during daytime hours. A complaints procedure is in place for the general public to raise issues with Bruce Power.

10.0 MOVING FORWARD AND NEXT STEPS

Bruce Power is dedicated to being a strong community partner and ensuring that the Site is run in a way that enhances the social, economic and cultural environment surrounding it. Past EA studies as well as public attitude research (PAR) have shown that effects on the local community have been

sufficiently mitigated and in many instances resulted in positive effects such as economic, business and population boosts as well as ensuring long term employment and education opportunities. Monitoring of public attitudes has allowed Bruce Power to understand key issues that the community have and address them in a timely fashion, as such attitudes towards Bruce Power and the site have remained consistently positive over the years.

Outreach events will continue to occur throughout the licence process via workshops, newsletters, community updates and webinars and Bruce Power will continue to work closely with local communities and Indigenous groups to further the working relationship and build upon existing community initiatives.

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