To address these concerns, Ontario's energy organizations are taking a number of actions that will ensure the province's energy system is better prepared to meet extreme weather events:

- Together with several partner organizations, the IESO studied Ontario's transmission system and found it resilient enough to substantially withstand most extreme weather scenarios. However, the study recommended continued monitoring and refinement of climate scenarios.
- More local distribution companies are making adaptation and system resilience a priority. Both Toronto Hydro and the former Horizon Utilities (now part of Alectra Utilities) conducted vulnerability assessments of their systems. A leader in this regard in Canada, Toronto Hydro is addressing climate change vulnerabilities by improving its engineering practices and tools, such as its load forecasting model, and installing more resilient equipment on its system. In its last rate application, Toronto Hydro identified extreme weather as a driver for its capital and maintenance expenditures.
- Local distribution companies such as Oshawa PUC Networks, Veridian and Whitby Hydro are developing adaptation plans to match the adaptation planning done by their local transit, water and communications authorities.

Building on its current activities, Ontario will strengthen the ability of the energy industry to prepare for the effects of climate change and integrate its impacts into their operational and infrastructure planning.

The Province and its agencies will facilitate the exchange of information and knowledge among utilities and other partners to allow them to share best practices and increase their ability to adapt to climate change. Since these activities are best coordinated with other public services, Ontario will encourage utilities to work with municipalities and other public and private infrastructure operators. This knowledge-sharing platform will be a key first step to help with the following initiatives:

- The Province will help develop a vulnerability assessment of the energy distribution sector so utilities can develop state-of-the-art strategies to manage risk. This will complement the vulnerability assessment done of the transmission system in 2015.
- As part of its regulatory review, the OEB will give utilities guidance on cost-effectively integrating climate change adaptation into their planning and operations. The IESO will ensure that climate change adaptation is considered and integrated into the bulk system and regional planning processes.

***Text Boxes: Adaptation Initiatives by Local Distribution Companies***

*Building on its distribution system vulnerability assessment, the former Horizon Utilities (now part of Alectra Utilities), developed a long-term plan for adapting to climate change. The plan considers the risk of flooding when planning infrastructure, and improvements to the LDC's geographic information and outage management system reduces response times.*

*Hydro Ottawa focused its storm hardening initiative, completed in 2015, on revising the schedule for removing and trimming overhanging tree branches. As a result, public safety has been increased, the distribution system is less vulnerable to damage from high winds and ice storms, and the LDC's budget for vegetation management was reduced by $750,000.*

***Summary***

- Ontario remains committed to a clean electricity system that includes renewable energy generation and supports the goals of the Province's Climate Change Action Plan.
- Ontario will encourage the construction of near net zero and net zero carbon emission homes and buildings to reduce emissions in the building sector.
- The Province will continue to work with its agencies to support the deployment of low-carbon energy technologies and consider further opportunities to integrate the delivery of conservation and low-carbon technology programs.
- Ontario is expanding the options for net metering to give building owners more opportunities to integrate renewable energy generation and energy storage technologies.
- Advanced efficiency standards will be set for products and appliances used in new and existing homes and buildings. This will reduce their energy use and GHG emissions and lead to an increase in near and net zero carbon emission homes and buildings.
- Ontario will continue to work with industry partners to introduce renewable natural gas into the province's natural gas supply and expand the use of lower-carbon fuels for transportation.
- Building on its current activities, Ontario will strengthen the ability of the energy industry to anticipate the effects of climate change and integrate its impacts into its operational and infrastructure planning.

## Chapter 7. Supporting First Nation and Métis Capacity and Leadership

First Nations and Métis are leaders in Ontario's energy sector, bringing their unique perspectives, knowledge and leadership to energy planning, projects and policies. They have created an unprecedented level of First Nation and Métis involvement in the energy sector:

- First Nations and Métis are now leading or partnering on over 600 wind, solar, and hydroelectric generation projects across Ontario, accounting for over 2,100 megawatts (MW) of clean energy capacity.
- First Nations and Métis lead or are partners with transmission companies on several major priority transmission lines being proposed.
- Nearly 100 First Nations are participating in the Independent Electricity System Operator's (IESO) Aboriginal Community Energy Plan program. These community-led

energy plans assess a community's current energy needs and priorities and explore options for conservation and renewable energy

Ontario takes its duty to consult First Nation and Métis seriously and is committed to ensuring they are consulted on any energy activity that could potentially affect their Aboriginal and Treaty rights.

***Text Box: What We Heard from You***

- *Need to connect remote communities*
- *Unreliable electricity service hurts quality of life and hinders community development*
- *Eliminate the on-reserve electricity delivery charge to improve electricity affordability*
- *Need for funding to assist with implementing Community Energy Plans*
- *Conservation programming should better meet community needs*
- *General preference for renewable energy over nuclear power*
- *Desire for First Nation and Métis ownership of and partnerships on projects*
- *Need for federal funding for connection of remote communities*

Many First Nations and Métis across Ontario face energy-related challenges: the need for reliable and affordable power, energy-inefficient housing and inadequate infrastructure, to name just a few. The causes and solutions to these challenges are rooted in complex historical, jurisdictional, geographic and regulatory contexts, but progress is being made through nation-to-nation interactions. Ontario is committed to working together with First Nations and Métis to identify issues and propose actions that advance reconciliation and healing.

The Chiefs of Ontario and the Province signed the First Nations-Ontario Political Accord on August 25, 2015, creating a formal bilateral relationship framed by the recognition of the treaty relationship.

***Text Box: The First Nations-Ontario Political Accord***

- *Affirms First Nations' inherent right to self-government*
- *Commits the parties to work together on issues of mutual interest, such as resource benefits sharing and jurisdictional matters*
- *Sets a path for reconciliation*

The Ontario-Métis Nation Framework Agreement signed in 2008 and renewed in 2014, guides Ontario's relationship with the Métis Nation.

***Text Box: Ontario-Métis Nation of Ontario Framework Agreement***

- *Facilitates the recognition and advancement of Métis people in Ontario*

- *Fosters collaboration between the province and the MNO on issues of mutual interest to support the goals and objectives of the new agreement*
- *Increases awareness of Métis history, identity and culture*

The Province will continue the direction established in the 2013 LTEP and support First Nation and Métis leadership and capacity in Ontario's evolving energy sector. Reflecting the province's strong energy supply position, *Delivering Fairness and Choice* responds to the concerns heard through the LTEP engagement process and the ongoing dialogue between the Province, its agencies and First Nation and Métis partners.

Building on the conversations during the LTEP engagement process, Ontario commits to a more regular and ongoing dialogue with First Nations and Métis. This will include energy awareness and education initiatives, the involvement of youth in the energy conversation, and a more regular communication to ensure First Nations and Métis are informed about the Province's energy commitments and have opportunities to provide insight and feedback.

***Addressing Electricity Affordability***

A major priority for Indigenous and non-Indigenous electricity consumers is to improve the affordability of their electricity. Ontario is working to address the issue with programs such as:

- the Ontario Electricity Support Program (includes enhanced credits for First Nations, Métis and Inuit electricity consumers) (more details in Chapter 1);
- Ontario's Fair Hydro Plan (more details in Chapter 1);
- the Low-Income Energy Assistance Program (more details in Chapter 1); and
- the Conservation First Framework (more details in Chapter 4).

***Text Box:***

*A number of remote First Nations rely on diesel generators for power. The fuel is trucked in on winter roads that are becoming increasingly impassable due to climate change. This drives up the cost of diesel oil, which has to be flown in instead.*

*Ontario selected Wataynikaneyap Power to connect 16 remote First Nations to the province's electricity grid. Wataynikaneyap Power is a transmission company owned by 22 First Nations in partnership with FortisOntario.*

*Grid connection will reduce greenhouse gas emissions and support jobs and economic growth. Once completed, more than 10,000 people will have a reliable, clean supply of electricity.*

*First Nation Delivery Credit*

Ontario recognizes that First Nation electricity consumers living on-reserve face unique challenges with respect to electricity affordability. Customers living on-reserve often pay higher distribution costs than customers in more populated areas because distribution rates are partially based on population density. The problem of higher distribution rates was often exacerbated by energy inefficient homes on reserves that lead to higher levels of energy consumption.

To address these unique energy affordability challenges, First Nation leaders recommended the elimination of delivery charges for electricity transmission and distribution when they met with the Minister of Energy and other energy sector leaders at the First Nations-Ontario Energy Table in April 2016.

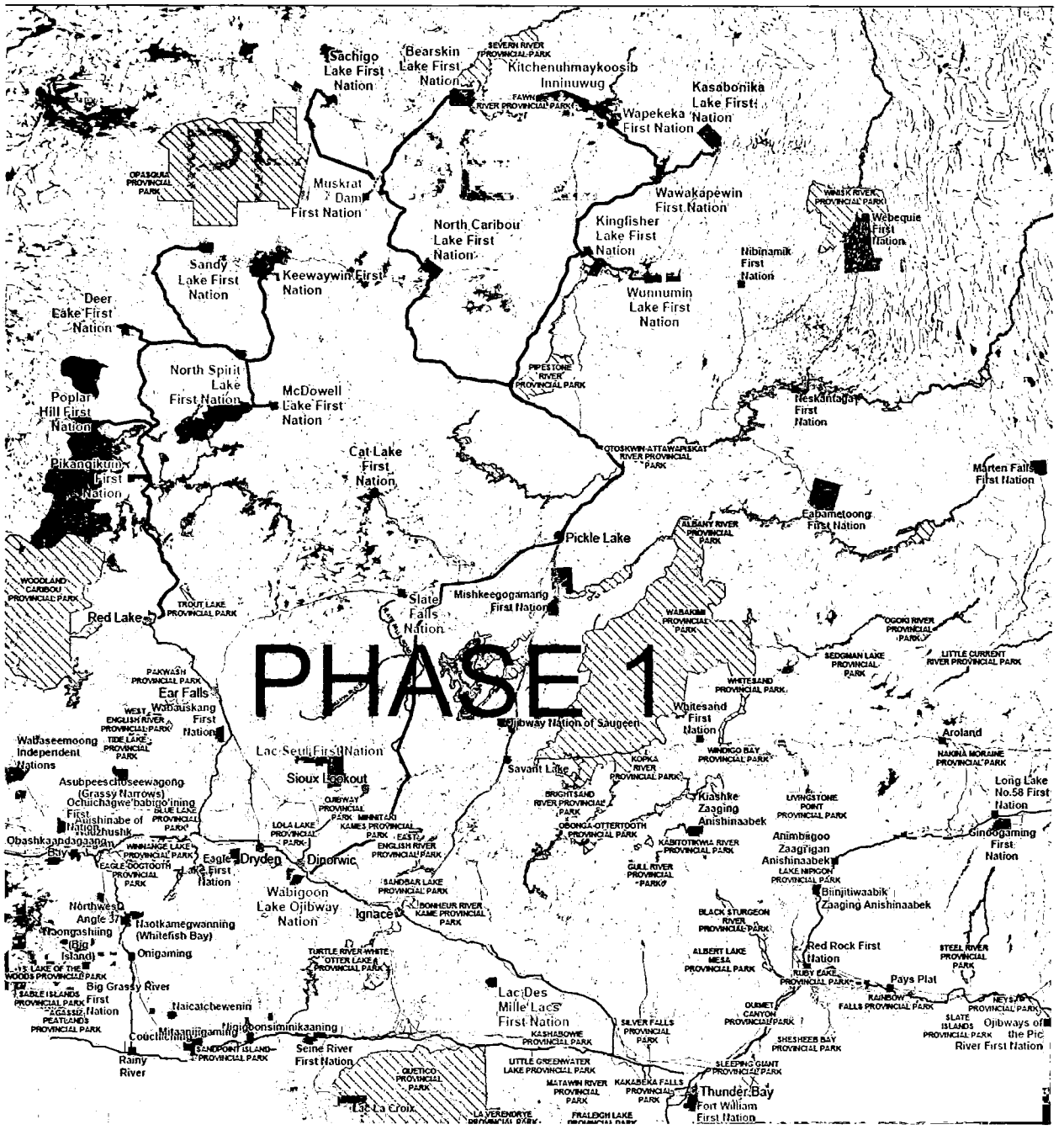
The Minister directed the Ontario Energy Board (OEB) to work with First Nations to research options that would address energy affordability on reserves, and to report back on its findings. Acting on the OEB's findings and feedback from First Nations, the Province collaborated with the Chiefs of Ontario to develop the First Nations Delivery Credit. The First Nations Delivery Credit was implemented on July 1, 2017 and provides a credit equal to 100 per cent of the electricity delivery charge on the bills of on-reserve First Nation residential customers of licenced distributors. This collaborative effort between the Province and First Nations is another example of the Political Accord being brought to life.

***Connecting Off-Grid First Nation Communities***

Twenty-five remote First Nation communities in the province's northwest rely on diesel fuel to power their communities. Ontario recognizes the distinct challenges they face and, because of the high cost of diesel fuel, there is a good economic case to connect as many as 21 of those communities to Ontario's electricity grid.

Ontario has made it a priority to connect these remote First Nations. Communities cannot improve their housing, their water treatment systems or other community infrastructure if they do not have a reliable and adequate supply of electricity.

Connection to Ontario's low-carbon electricity grid will not only improve the quality of life of these communities and enable their economic development, but it will also reduce local pollution, greenhouse gas emissions, and the environmental risks associated with transporting and storing diesel fuel.




For these reasons, Ontario has taken several steps to begin the connection of remote First Nation communities. These include:

- selecting Wataynikaneyap Power as the transmitter for connecting most of the remote First Nations;
- creating a mechanism for funding a portion of project costs; and
- working to reach a fair cost-sharing agreement with the federal government that ensures the project is fully funded and can proceed to construction.

***Text Box: Ontario Power Generation and Gull Bay First Nation*** *[Do not edit]*

*Ontario Power Generation (OPG) and Gull Bay First Nation (GBFN) are in the early stages of building an advanced renewable microgrid on the GBFN reserve on the western shore of Lake Nipigon. GBFN has an on-reserve population of 300 people and is one of the four remote First Nation communities that the IESO has determined to be economically unfeasible to connect to the provincial grid at this time.*

*The Gull Bay Diesel Offset Microgrid project will create a community microgrid by integrating new solar photovoltaic generation, battery energy storage, and a microgrid control system with the existing on-site diesel generators that currently supply the community's entire energy needs. The development, construction and operation of the project will create additional opportunities for capacity building and employment.*

Ontario also supports the connection of the five remote Matawa communities that are not currently part of the Wataynikaneyap Power project. Further steps will be taken to advance their connection when proposals are brought forward.

Grid connection is not currently feasible for four of the 25 remote First Nations in Ontario. So each of these communities has begun the planning and development work to add sustainable technologies that will reduce their reliance on diesel. Projects that reduce diesel reliance could include renewable microgrids, battery storage, and other innovative technologies that meet identified community need

Ontario will continue to partner with these communities and other collaborators, and is looking to the federal government to support these projects. The Government of Canada has agreed to financially support the early connection of Pikangikum First Nation and Wataynikaneyap Power plans to begin construction in 2017 to connect this First Nation. Ontario and Canada are continuing to negotiate cost-sharing to support the remainder of the Wataynikaneyap project.

***Conservation***

Over 40 First Nations participated in the Aboriginal Conservation Program between 2013 and 2015. The program funded energy efficiency upgrades such as new insulation, appliances and lighting for more than 3,000 First Nations households.

Through the 2015–2020 Conservation First Framework, First Nation and Métis customers also have access to other energy efficiency and conservation programs, such as the Save on Energy programs offered by local distribution companies.

***Text Box: Conservation on the Coast***

*Local Distribution Companies (LDCs) owned by Attawapiskat, Kashechewan and Fort Albany First Nations are collaborating to provide conservation programs to their customers, using the name, Conservation on the Coast (COTC).*

*COTC began in 2013 by conducting annual energy audits in the three First Nation communities.*

*By October 2017, 30 homes per community will have LED bulbs, power bars, low flow aerators and showerheads, hot water pipe wrap, and improved insulation. This has reduced electricity usage by 20-25 per cent per home. In addition to the energy savings, residents say their homes are more comfortable to live in, they are burning less wood and moisture and mold problems have diminished.*

***Text Box: Wikwemikong First Nation***

*In June of 2017, the Wikwemikong First Nation launched its Ignite Energy and Infrastructure Project. This is a long-term community driven strategy to address the high energy costs faced by the community and upgrade its aging infrastructure. Phase One is a major retrofit and upgrade to LED lighting for three schools, a nursery school, the community's health centres, arenas, and the band administration office.*

*It is estimated this will save the community more than $157,000 per year in energy costs, a 58% savings in the energy used for lighting. The $1.1 million project will be financed with a contribution of $127,900 from the IESO's the Save on Energy Program and private debt financing.*

*Wikwemikong is also looking to expand its portfolio of renewable energy projects with the Wikwemikong Solar Micro-grid construction project. The 300kW micro-grid is expected to begin construction in 2018/19 and will include a solar generation plant, improvements to the energy efficiency via insulation and replacements of high energy heating and cooling systems of five community buildings and the development of a microgrid software program. This project will receive funding through the Small Community Fund, co-funded by Ontario and the federal government.*

While conservation programs are working well in some First Nation and Métis households, participants in meetings of the Long-Term Energy Plan engagement said the programs need to be more flexible, and more widely available.

In conjunction with the mid-term review of the Conservation First Framework and engagement with the Indigenous communities, the IESO will give the Province options for improving conservation programs and their availability for First Nations and Métis, including the 10 communities served by unlicensed LDCs in north-western Ontario known as the Independent Power Authorities: Eabametoong, Keewaywin, Muskrat Dam, Nibinamik , North Spirit Lake, Pikangikum, Poplar Hill, Wawakapewin, Wunnumin and Weenusk .

The Climate Change Action Plan (CCAP) allocates $85-$96 million from the Greenhouse Gas Reduction Account (GGRA) for collaboration with Indigenous communities. This includes establishing a fund for community level greenhouse gas pollution reduction projects and for community energy and climate action planning in First Nation communities, particularly to reduce emissions from buildings and infrastructure, and for the development of carbon sequestration projects.

*Implementing Community Energy Plans*

Community energy plans are an important way to understand local energy needs better. They help communities identify opportunities for energy efficiency and clean energy and develop a plan to meet their community's energy goals. Close to 100 First Nations are now developing community energy plans, with funding from the Aboriginal Community Energy Plan (ACEP) program. Ontario is committed to continuing this funding.

But energy plans are just a first step and Ontario recognizes that further support is needed to turn these plans into tangible actions and results. That is why the ACEP program will be expanded to help communities implement their community energy plans and support Ontario's Climate Change Action Plan.

The IESO will engage with First Nation and Métis communities and organizations to identify the strengths and weaknesses of the current ACEP program, explore the use of conservation projects or other community-directed energy initiatives, and then recommend changes that allow community energy plans to flourish. Funding will come from the $10 million the IESO has dedicated for this and other support programs. Ontario's Climate Change Action Plan also identifies opportunities for Indigenous program support.

***Supporting Local Opportunities***

*Building Sector Knowledge and Capacity*

The IESO's Education and Capacity Building (ECB) program supports the education, training and skills building of First Nations and Métis. The ECB program will continue to support initiatives that help build local business skills, energy literacy, and youth engagement.

*Exploring Energy Projects and Partnerships*

The IESO's Energy Partnerships Program (EPP) supports First Nation and Métis communities and organizations that want to lead or be partners on renewable energy and transmission projects. Three streams of funding from the EPP help support:

- financial, legal and technical due diligence so First Nation and Metis can partner on major priority transmission lines and renewable energy projects;
- the development of renewable energy projects, including costs for regulatory approvals; and
- initiatives that reduce the reliance on diesel fuel for the four First Nations that can't be feasibly connected to the transmission grid.

Ontario will engage further and explore how to change these programs so they better reflect the needs of First Nations and Métis within the current energy system. This may include an examination of how programs can help integrate small-scale renewable energy projects into the local energy system, or the use of net metering and other innovative solutions that address local or regional energy needs and interests.

*Access to Financing*

The development of energy projects requires significant financial and human capital, and barriers can prevent First Nation and Métis communities and organizations from accessing this capital so they can actively participate in the energy sector. Barriers to more widespread First Nation and Métis participation include:

- lack of capital at reasonable terms;
- high financing costs; and
- a shortage of capacity around financing and building partnerships.

The Aboriginal Loan Guarantee Program has helped First Nations and Métis obtain lower-cost financing to participate in large-scale energy projects. However, Ontario recognizes that barriers to financing remain, particularly for smaller-scale projects. As a result, Ontario will engage with First Nations and Métis to identify gaps in financing, possible changes to existing programs, and alternative financing models.

***Text Box: What is the Aboriginal Loan Guarantee Program?***

*Launched in 2009, the $650 million Aboriginal Loan Guarantee program (ALGP) provides a provincial guarantee to support a First Nation or Métis corporation borrowing to purchase up to 75 per cent of the corporation's equity in a qualifying project application, to a maximum of $50 million. To date, the ALGP has supported First Nation or* Métis *equity interests in nine projects, including the 438MW Lower Mattagami hydro-electric project, the Bruce to Milton transmission reinforcement project, the 28MW Peter Sutherland hydro-electric project, and the 4MW Mother Earth Renewable Energy wind project.*

Ontario can build on its strong record and apply innovative financing models to promote First Nation and Métis participation in energy projects. These financing models and social finance

tools have been successfully used in the United States, Australia, and elsewhere in Canada to facilitate greater Indigenous economic participation.

Ontario also appreciates the unique social benefits that can accrue to First Nation and Métis with their participation in energy projects. Measuring and assessing these non-financial benefits could help Ontario take a broader and more inclusive view of outcomes when deciding on energy policies and projects.

***Text Box: The Mother Earth Renewable Energy (MERE) Project***

*MERE is the first wind project in Canada wholly owned by a First Nation. The 4MW project consists of two wind turbines owned by M'Chigeeng First Nation (MFN) that generate enough electricity to power the community's 418 homes. The project received an ALGP loan guarantee in 2012.*

*MERE was established under MFN's mandate to build a green economy. The proceeds, averaging $300,000 a year for the first 14 years, pay for community development programs. The MERE project is an innovative example of how clean energy and the ALGP can be used to create additional financial and socioeconomic benefits for communities.*

***Text Box: Rainy River First Nations Solar Project***

*Rainy River First Nations signed a memorandum of understanding with Ontario Solar PV Fields to purchase three solar projects located in their community. The cost of the projects was around $154 million, of which $19 million was guaranteed by the ALGP.*

*Rainy River First Nations partnered with Clark, Conner and Lunn for the project. The projects will produce a net profit of $1.3 - $2.3 million a year for 20 years and generate around 37 million kilowatt-hours of electricity in their first year of operation in 2014. The project generates enough energy to meet the average electricity needs of approximately 3,080 households.*

Building on these and other successes across the province, Ontario will take the following actions to increase First Nation and Métis access to financing:

- engage with leaders, organisations, and financing experts to identify financing gaps and barriers to the participation of First Nation and Métis in energy projects;
- investigate innovative financing models to better support First Nation and Métis participation in energy projects; and
- develop methods to better capture the social, environmental, and local benefits of First Nation and Métis participation in energy projects.

### *Expanding Access to Natural Gas*

Natural gas remains a clean, reliable energy option, and it will continue to play a critical role in Ontario's energy mix. We know access to natural gas is an important issue, especially for First Nations.

To assist with natural gas expansion, the Province launched a new $100 million Natural Gas Grant Program in April 2017. Through the program, municipalities and First Nation communities are able to work with natural gas utilities to bring forward proposals to expand access to natural gas. The guidelines for the Natural Gas Grant Program state that special consideration will be given to projects located in northern Ontario or located within First Nation reserves. Successful applicants under this program can then apply to the OEB for leave-to-construct approval for their expansion projects.

Over the coming years, Ontario looks forward to seeing natural gas expansion projects deliver greater consumer choice and economic growth to municipalities and First Nations in Ontario.

### *Summary*

- Ontario will improve the availability of conservation programs for First Nations and Métis, including communities served by Independent Power Authorities.
- Ontario will continue to prioritize the connection of remote First Nation communities to the grid and continue to support the four First Nations where transmission connection is not economically feasible.
- The Aboriginal Community Energy Plan program will be expanded to help communities implement their community energy plans and support Ontario's Climate Change Action Plan.
- Ontario will engage with First Nations and Métis to explore options for supporting education and capacity building, the integration of small-scale renewable energy projects, net metering and other innovative solutions that address local or regional energy needs and interests.
- Innovative financing models and support tools will be investigated to lower the financing costs of projects led or partnered by First Nations or Métis.
- Ontario will report back to First Nations and Métis between Long-Term Energy Plans to provide updates on the province's progress and seek ongoing feedback.
- Ontario's Natural Gas Grant Program will support the expansion of natural gas access to First Nation communities.

## Chapter 8. Supporting Regional Solutions and Infrastructure

Different regions and communities may require different solutions to meet their specific energy needs and the local impacts of large energy infrastructure projects on their communities. For example, urban regions may experience an increase in demand due to population growth, while more rural or remote regions may be more concerned about the reliability of their energy supply.

Industrial activities such as mining and manufacturing have different patterns of energy use than health and social services. Agri-businesses have different needs than commercial centers. Regions also have different priorities for large infrastructure projects. It is crucial that the process for reviewing interregional projects such as pipelines reflects these priorities. Ontarians need to be able to influence these energy solutions through community planning and engagement.

***Regional Planning***

Since 2013, communities have participated in a formalized regional planning process to identify their electricity needs and develop cost-effective solutions for meeting them. For some it could mean additional supply from transmission lines, for others it could come from local resources like district energy or conservation, or a combination of both. Over the past three years, the electricity needs of all 21 of Ontario's planning regions have been evaluated, completing the first full cycle of regional planning assessments across the province.

***Text Box: What We Heard from You***

- *Integrate electricity planning with municipal planning*
- *Consider impact on economic development*
- *Improve local reliability*
- *Innovative technologies and fuels face special barriers in the North.*
- *Programs should meet customer and regional needs*

***Text Box***

*Agri-business is growing in rural Essex County, near Kingsville and Leamington. The region has the largest concentration of greenhouse vegetable production in North America. Greenhouses, food processing operations and increasing wineries-related tourism are adding to electricity demand, particularly in the summer months.*

*At the same time, other needs in the area are triggering infrastructure upgrades that would benefit not just the local agri-business sector, but those looking to connect distributed generation, other customers in the Windsor-Essex region and Ontario ratepayers as a whole.*

*If the infrastructure upgrades were carried out separately, they would have cost about $100 million. Instead, by looking at the totality of the needs, the recommended solution, which*

*includes a new 13-kilometre line and a new transformer station in Leamington, addressed the same needs for over $20 million less. Collaborative solutions like these are critical to realizing the benefits of the enhanced regional planning.*

Regional planning gives communities the opportunity to consider all the cost-effective resources for meeting their regional needs. It promotes the principle of Conservation First by first incorporating conservation targets into the forecasts of net regional electricity demand. Only then are other economical solutions considered, such as new supply, distributed generation, additional conservation and demand management or investments in transmission and distribution.

In order to increase the range of cost-effective solutions, barriers to non-wires solutions, such as conservation, demand response and other distributed energy resources must be reduced.

***Text Box: Toronto Hydro***

*"Our Local Demand Response initiative at Cecil TS allows us to cost-effectively defer capacity investments and provide other valuable benefits. This project exemplifies Toronto Hydro's commitment to delivering customer value and building a more flexible, integrated grid."*

- *Anthony Haines, CEO Toronto Hydro Corporation*

The Ontario Energy Board (OEB) is also working to integrate conservation into the regional and local planning of natural gas infrastructure planning. The OEB's 2015-2020 Demand Side Management (DSM) Framework says natural gas utilities need to consider conservation as a key principle in their infrastructure planning. As part of the mid-term review of the DSM Framework that is currently underway, natural gas utilities are expected to propose a transition plan on how to integrate natural gas conservation into their planning for future infrastructure.

***Text Box***

*Targeted conservation initiatives can be the most cost-effective solutions for meeting local and regional electricity needs.* [redacted] *. In the mid-term reviews of the 2015–2020 Conservation First Framework and Industrial Accelerator Program, the IESO is also exploring how to further integrate conservation initiatives into the regional planning process.*

Local advisory committees have helped their communities to understand regional electricity issues. These committees allow residents to provide input and their advice improves the implementation and the regional plan. Community engagement is also crucial to linking regional energy plans with community energy planning.

*Community Energy Planning*

Ontario's Municipal Energy Plan (MEP) program and the IESO's Aboriginal Community Energy Plan (ACEP) program both support the efforts of municipalities and Indigenous communities to assess their energy use and needs, consider the impact of future growth, and foster local economic development. Communities have been encouraged to develop their own energy plans identifying opportunities for conservation and priorities for infrastructure. The resulting community energy plans have helped communities recognize opportunities to conserve energy, improve energy efficiency and reduce greenhouse gas (GHG) emissions. More information on the ACEP program can be found in Chapter 7: Supporting First Nation and Métis Capacity and Leadership.

Ontario's Climate Change Action Plan has reinforced the importance of community energy and community GHG plans, and indicated Ontario will continue to support them. Ontario's Climate Change Action Plan also includes a Challenge Fund to provide funding for projects to reduce GHG emissions proposed by a municipality that has completed a community energy or community GHG plan and meets program eligibility criteria. The Province launched the Municipal GHG Challenge Fund on August 14, 2017. Municipalities may request up to $10 million per project to reduce GHGs in the building, energy supply, water, transportation, waste and organics sectors. Any Ontario municipality with a community-wide GHG emissions inventory, emissions reduction targets and a strategy to reduce emissions is eligible to apply. MEP program participation is one path to eligibility for the Municipal GHG Challenge Fund.

Now that the first cycle of regional planning has been completed, the Province is directing the IESO to review the regional planning process and report back with options and recommendations to address the challenges and opportunities that have emerged.

**Text Box: Regional and Community Energy Planning by the Numbers:**

*21 Electricity Regions*

*16 Int[redacted]ources Plans (IRRP) completed. An IRRP, led by the IESO with[redacted] range[redacted] address the electricity needs of the region*

*8 Regional Infrastructure Plans (RIP) underway or complete. An RIP, led by the transmitter, identifies investments in transmission and/or distribution facilities to meet a region's electricity needs.*

*14 Active [redacted] for [redacted] general and First Nations,*

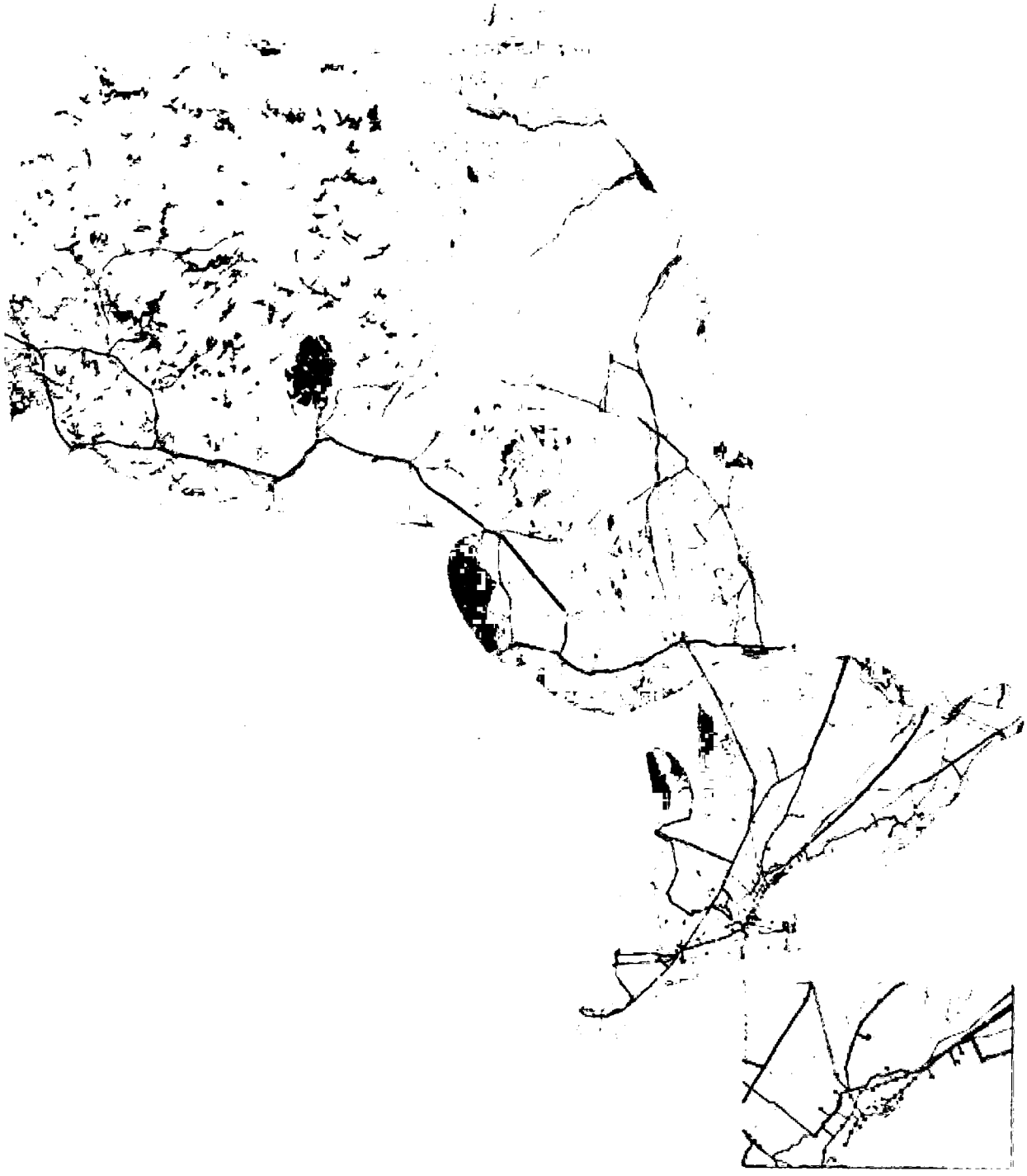
*36 Municipalities have Municipal Energy Plans underway or complete*

*[redacted] Aboriginal Community Energy Plans underway*

Text Box:

*More information on your region can be found by entering your postal code online at http://www.ieso.ca/en/get-involved/regional-planning*

**Map: Differing Regional Needs**



***Text Boxes – From Graphic above***

***North of Dryden and Remote Connection***

*The construction of a new line to Pickle Lake and the connection of remote First Nation communities currently served by diesel generators are priorities for Ontario. The regional plan for North of Dryden recommended two projects to meet the near-term electricity needs of the region:*

- *building a new 230 kV transmission line from the Dryden/Ignace area to Pickle Lake*
- *upgrading the existing transmission lines from Dryden to Ear Falls and from Ear Falls to Red Lake*

*Together, these projects will substantially increase the ability of the systems in Pickle Lake and Red Lake to meet demand.*

*Wataynikaneyap Power is the proponent of the 230-kV transmission line from the Dryden/Ignace area to Pickle Lake and is currently acquiring the necessary approvals. The line is expected to be in service in early 2020.*

***Ring of Fire***

*The Ring of Fire is in one of the most significant mineral regions of the province, and includes the largest deposit of chromite ever discovered in North America. Electricity supply for the development of mines and the connection of remote First Nations in the area was assessed in the North of Dryden regional plan and the most economic option was found to be transmission connection to the Ontario grid.*

*The final approach to electricity supply in the Ring of Fire will depend on decisions related to transportation infrastructure, Indigenous community preferences and the electricity needs of mining companies.*

***Ottawa***

*Work is underway or complete on five transmission projects to address the near-term reliability needs and growth in demand in the Ottawa region.*

*The projects include the upgrading of a 115-kV circuit to provide increased supply capability for downtown Ottawa and a new transmission station and transmission line to meet the growing electricity needs of new developments in South Nepean.*

*A Local Advisory Committee has been established to provide advice on the development of the region's longer-term electricity plan.*

***Central Toronto***

*Increased density, new large transit projects and aging infrastructure are all driving new investments in Toronto's electricity infrastructure.*

*Conservation will be a key component of meeting the city's future electricity needs, with conservation resources expected to offset nearly 40 per cent of the growth in demand until 2036.*

*Investments in the Runnymede, Horner and Copeland transformer stations will ensure new customers can be connected without harming reliability in the area.*

*As early as the mid to late 2020s, two major autotransformer stations and key transmission facilities are expected to reach the limit of their ability to supply growth in Central Toronto.*

*A Local Advisory Committee has been established to provide advice on the development of the region's longer-term electricity plan.*

***Windsor-Essex***

*Agri-business is growing in the rural portion of Essex County, increasing the demand for electricity. Hydro One is building a new transmission line, a new transformer station near Leamington, and refurbishing the Kingsville and Keith transformer stations to address this growth and improve restoration timelines. The projects are expected to be in service by 2018.*

***York Region***

*Three transmission projects are underway to address the near-term needs for capacity and reliability in York Region, including a new transformer station in the City of Markham.*

*Based on current projections, York sub-region`s electricity system is expected to reach its capacity to supply growth in the medium to long term. A Local Advisory Committee has been established to provide advice on the region's longer-term electricity plan.*

**Text Box**

*The City of Temiskaming Shores began developing its Municipal Energy Plan (MEP) in 2015. Thanks to its MEP, the city has found ways to be more energy efficient. For example, it installed LED lighting in 955 street lights, converted to smaller pumps and motors in water and wastewater treatment facilities, and installed more efficient heating systems. The energy efficiency changes the city made have resulted in 20 per cent reductions in the utility bills for some projects. The MEP ensures that city council will approve one energy-related project each year. Temiskaming Shores has also increased its public transit service to reduce the number of private vehicles on the road.*

***Setting Standards for Pipelines***

Apart from a small share of domestic production, Ontario's oil and natural gas is delivered from outside the province by interprovincial and international pipelines. These pipelines are under federal jurisdiction and regulated by the National Energy Board (NEB). The 2013 Long-Term Energy Plan outlined a set of principles that Ontario will use to evaluate oil and natural gas pipelines, such as TransCanada's proposed Energy East Pipeline. In November 2014, Ontario and Quebec agreed on the following seven principles for pipeline reviews:

- Pipelines must meet the highest available technical standards for public safety and environmental protection;
- Pipelines must have world-leading contingency planning and emergency response programs;
- Proponents and governments must fulfill their duty to consult obligations with Indigenous communities;
- Local municipalities must be consulted;
- Projects should provide demonstrable economic benefits and opportunities to the people of Ontario, over both the short and long term;
- Economic and environmental risks and responsibilities, including remediation, should be borne exclusively by the pipeline companies, who must also provide financial assurance demonstrating their capability to respond to leaks and spills; and
- GHG emissions and the interests of natural gas consumers must be taken into account.

In November 2014, Ontario and Québec jointly adopted these six principles for their review of Energy East and added a seventh principle, the need to take into account GHG emissions and the interests of natural gas consumers.

Ontario is committed to public engagement on major pipeline developments. On November 12, 2013, the Province asked the OEB to conduct province-wide consultations regarding TransCanada's Energy East proposal. The consultation process focused on four areas of potential impact:

- The impacts on Ontario natural gas consumers in terms of rates, reliability and access to supply, especially those consumers in eastern and northern Ontario;
- The impacts on pipeline safety and the natural environment in Ontario;
- The impacts on First Nations, Métis and local communities; and
- The short and long term economic impacts of the project in Ontario.

The OEB undertook an extensive consultation and review process. It hired experts in the subjects of pipelines, environmental reviews and economics to assist in understanding of the project and made their reports public. The OEB visited seven cities and towns along the route, meeting with local residents, First Nations and Métis in the spring of 2014 and again in the

winter of 2015, to get their views on TransCanada's application. In addition, the OEB received more than 10,000 written submissions during its review.

On August 13, 2015, the OEB published its report *Giving a Voice to Ontarians on Energy East*. The report concluded there was not an appropriate balance between the economic and environmental risks of the project and its expected benefits for Ontarians. The report will help guide Ontario's participation in the NEB's regulatory proceeding on Energy East.

To ensure its strategic interests in pipeline projects are represented, Ontario will continue to participate in regulatory proceedings at the NEB and at intergovernmental forums that discuss the delivery of energy in a safe and environmentally sustainable manner. Ontario is also working with the federal government on regulatory initiatives such as modernizing the NEB to ensure major energy projects are reviewed in a predictable manner that increases public confidence.

***Summary***

- The Province will continue to work with its agencies to implement the Conservation First policy in regional and local energy planning processes.
- With the first cycle of regional planning completed, the Province is directing the Independent Electricity System Operator (IESO) to review the regional planning process and report back with options and recommendations that address the challenges and opportunities that have emerged.
- Ontario's Climate Change Action Plan has reinforced the importance of community energy plans, and indicated Ontario's continued support for them.
- Ontario and Quebec have established seven pipeline principles to evaluate oil and natural gas pipelines, and is committed to public engagement when it undertakes reviews of major pipeline projects.

## Glossary

**Aboriginal Rights** – Rights held by Indigenous peoples though long-standing use and occupancy of the land, protected under Section 35 of the *Constitution Act, 1982*.

**Baseload Generation** – Generation sources designed to operate more or less continuously through the day and night and across the seasons of the year. Nuclear and many hydro generating stations are examples of baseload generation.

**Behind-the-Meter Generation** – On-site generation where the electricity generated is used within a facility. Under the Independent Electricity System Operator's (IESO) current program rules, behind-the-meter generation projects include combined heat and power and waste energy recovery.

**Beneficiary Pays** – an approach to cost allocation where consumers pay for an asset in proportion to the benefits they derive from it. This protects ratepayers from paying for infrastructure that benefits only a few customers.

**Bioenergy and Biodiesel** – Energy produced from agricultural residues, food byproducts, animal manure, waste wood and kitchen waste.

**Cap and Trade Program**– A market-based system that sets a hard cap on greenhouse gas emissions while giving flexibility to businesses and industry in terms of how they meet their obligations under the program. Companies must have enough allowances (also known as permits or credits) to cover their emissions. As the cap declines, companies can invest in clean technologies to become more efficient, switch to lower carbon fuels, or purchase additional credits from other participants that have more allowances and credits than they need.

**Climate Change Action Plan** – A five-year plan, part of Ontario's long-term fight against climate change. The current Climate Change Action Plan will be followed by a revised plan in 2020.

***Climate Change Mitigation and Low Carbon Economy Act, 2016*** – Ontario legislation that creates a long-term framework for climate action. The Act establishes the province's greenhouse gas reduction targets in legislation, sets out the framework for the cap and trade program, requires the creation of a climate change action plan, and ensures accountability and transparency in how cap and trade proceeds are spent.

**Conservation First** and **Conservation First Framework** – Conservation First is Ontario's policy of making cost-effective conservation the first resource considered when planning the

province's energy needs. The Conservation First Framework sets out the rules for conservation and energy efficiency programs offered by Ontario's electricity distributors.

**Demand Side Management Framework** – The Demand Side Management Framework sets the rules and guidelines for conservation and energy efficiency programs offered by Ontario's main natural gas distributors.

**Demand Response** – Financial incentives offered to residential and business users to shift or reduce their electricity at times of system need.

**Distributed Generation (also known as Embedded Generation) –** Electricity generation that is located on the distribution system close to where it is used.

**Energy Audit** – Determining the changes that can be made in a building to improve its energy efficiency and reduce costs and greenhouse gas emissions

**Energy Retrofit** – Renovating a building in order to decrease its use of energy.

**Energy Storage** – Equipment or technology that collects energy so it can be used at a later date.

**Ethanol** – A renewable fuel made from plants such as corn, sugar cane and grasses whose use can reduce greenhouse gases.

Gigawatt - A unit of power equal to one million kilowatts (kW) or one billion watts (W).

**Green Button** – A data standard that gives customers the ability to access and share their utility data in an electronic, standardized and secure way.

**Heat Pumps** – A device that heats or cools buildings by absorbing heat from one area and transferring it to another.

**In-Front-of-the-Meter Technologies -** Technologies that are deployed on distribution networks and provide electricity savings and peak reductions to customers behind the meter. Examples include technologies that reduce line losses and optimize voltage levels.

**Incremental Capacity Auction –** A competitive market that commits a supplier to provide a specified amount of electricity in the future.

**Independent Electricity System Operator (IESO)** –. The provincial agency that -delivers key services across the electricity sector including: managing the power system in real-time, planning for the province's future energy needs, enabling conservation and designing a more efficient electricity marketplace to support sector evolution.

**Independent Power Authority – an** unlicensed LDCs that serves one of 10 First Nation communities in northwestern Ontario.

**Kilowatt (kW)** – A standard unit of power equal to 1,000 watts. Ten 100-watt light bulbs operated together require one kW of power.

**Megatonnes (Mt)** – One million metric tons.

**Megawatt** – A unit of power equal to 1,000 kilowatts (kW) or one million watts (W).

**Megawatt-Hour (MWh)** – A measure of the energy produced by a generating station over time: a one MW generator, operating for 24 hours, generates 24 MWh of energy.

**Microgrid** – A local electricity network that in the event of a failure of the larger network, can seal itself off and provide power to local homes and businesses.

**National Energy Board (NEB)** – The federal agency that regulates the international and inter-provincial operations of oil and gas pipelines and electricity transmitters.

**Net Metering** – Allows customers to generate their own electricity and receive bill credits for any surplus electricity sent to the local distribution system.

**Net-Zero Energy Buildings** – Buildings that annually produce at least as much energy as they consume.

**Ontario Energy Board (OEB)** – The OEB is the independent agency that regulates Ontario's electricity and natural gas sectors in the public interest.

**Pumped Storage** – A way to store lower-cost energy, by using it to pump water into a reservoir, and release it to generate electricity when prices are higher.

**Regulated Price Plan (RPP)** – Prices set by the OEB for residential and small business customers in Ontario.

**Terawatt-Hours (TWh)** – One billion kilowatts of electricity used for one hour.

**Time-Of-Use Prices** – Prices that vary according to the cost of producing the electricity.

**Watt (W)** – A unit that measures how much electricity is generated or used at any one time.