

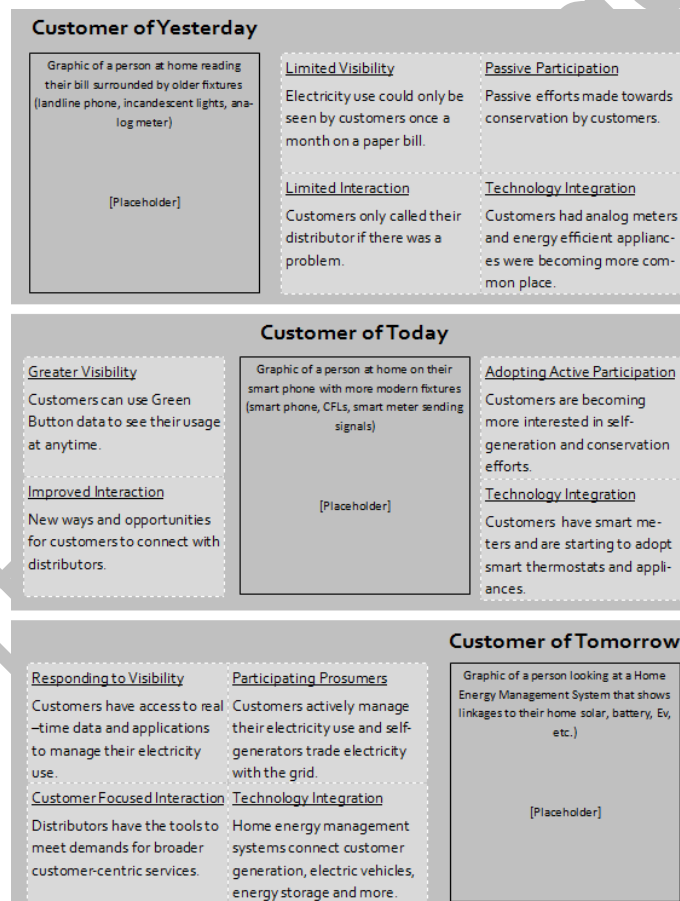
Delivering Fairness and Choice

LTEP 2017

Chapter 5. Preparing for the Future / Innovation

Modernizing the System

The way we deliver that electricity is changing. Technologies are maturing and are becoming cheaper that allow us to capture, store, and use energy locally, while delivering that energy in new and innovative ways. Clean, distributed energy resources are powering our economy and coming closer to home. New tools and devices are appearing on smartphones and in homes, harnessing the power of data, and giving customers greater choice and control over their energy use. Finally, customers' expectations of their utilities are increasing.



Preparing for the future means removing barriers and enabling an environment where utilities are able innovate to modernize their systems in cost-effective ways, getting full value out of technologies, both new and old. It means creating a digital system so customers and utilities can make the right choices. Altogether, it is about creating a modern system where Ontarians have control over their energy future – and exporting our expertise to the world.

Grid Modernization

Electricity distribution is a critical piece of Ontario's grid. Ontario's utilities are the final step in a system that delivers electricity from large generators to our homes and businesses. Ontario lead the world in deploying the smart grid through our early investment in smart meters.¹ They continue to provide a significant amount of data to utilities, allowing them to locate and respond more quickly to power outages, monitor their systems, and better plan for the future – all to the benefit of Ontario's customers²

This investment creates a strong basis for continued modernization³.

An independent study found in 2015 that modernizing the grid over the coming decades would deliver \$6.3 billion in economic, environmental, and reliability benefits to Ontario's consumers and businesses.⁴ Now is the time to build on our investments in smart meters and the smart grid to build a modern grid for Ontarians.

¹ Source forthcoming

² Information provided to the ministry.

³ Navigant roadmap

⁴ [Navigant Roadmap](#), p.2.

GRID MODERNIZATION PLATFORM

Grid modernization is a digital platform will enable the seamless integration of new technology into our distribution networks when it makes sense. The platform uses digital information to get full value out of energy investments made by utilities, homes and businesses. For you, it means that the grid will be ready when you want to buy an electric vehicle or install a battery. For your utility, it means better system planning and more opportunities to partner with you - opportunities that can save us all money.

Digital - the key difference between today and tomorrow is that the grid will be digital - moving both electricity to power our homes, and information to power our choices.

Software - data is not enough. Software and computing power turns data into information so that utilities and customers can make the right decisions.

Communications - data from sensors and smart meters require communications infrastructure to provide the data needed to make sound decisions.

Sensors - throughout the grid, sensors consistently feed data back to the utility on the health of different components of the grid, the flow of electricity, and report any outages.

FUTURE

TODAY

Ontario's early investment in smart meters provides the basic communications infrastructure and data that acts as the foundation for the platform.

DRAFT

Outcome #1: Choice for you.

The platform provides the information required for home energy management systems, smart electric vehicle chargers, even energy apps on your smart-phone. It can help you decide when to best use your in-home battery, or the right time to turn down your thermostat. It can even enable new opportunities for you to participate in the electricity marketplace, like joining a community microgrid, renting solar and storage services, or partnering with your utility to provide support for the grid from your car as you sleep overnight. Grid modernization is all about greater choice for you.

Outcome #2: Real-time Data

Currently, many utilities do not have visibility into much of their system. The sensors within the platform will generate a wealth of data on health of the grid - at nearly every point, in real-time. Software will help your utility turn this data into information - information that can quickly identify outages and increase reliability. In the long-run, this data will help utilities better plan their system - meaning more reliable and cost-effective service for you.

Outcome #3: Optimizing the Entire Grid

New distributed energy resources are becoming cheaper and more efficient - and stand poised to change how electricity is generated and delivered. Solar panels, electric vehicles, and energy storage are just some of the technologies that stand poised to change how the grid works. These technologies bring the promise of cost-effective ways to generate and store electricity locally - and the complexity of many more devices connected to the system. A modern grid uses data to optimize the operation of these technologies to get full value out of our investments, while maintaining a safe and reliable system.

PLACEHOLDER FOR GRAPHIC ON GRID MODERNIZATION, ONE PAGE SPREAD – PROOF OF CONCEPT:

Grid modernization is like the transition from old touch-tone telephones to smartphones. You can still make calls on smart phones – but with the addition of software, hardware, and the ability to transmit data, they are much more powerful. Utilities will still move electrons, but will be empowered by data to realize full value from the grid for their customers.

Our distribution system is entering a period of renewal⁵. Instead of refurbishing our system with the same old technology, modernizing our grid – where it makes sense – will enable Ontarians and their utilities to be ready to harness the power of these emerging new technologies.

A modern grid will be resilient to climate change, giving utilities the real-time visibility they need to respond to problems and even address them before they happen. A modern grid will give customers more choice, ranging from dynamic pricing models to home energy management to EVs. A modern grid will make sure that distributed resources like solar power, storage, and microgrids can be integrated in the most efficient way possible. Above all, a modern grid will help to drive down costs for customers.

Renewing the Smart Grid Fund

The Smart Grid Fund was launched in 2011 to support innovation in Ontario's electricity sector. Through the Fund, we are learning about how technologies can be applied to distribution grids and address problems or challenges. Utilities are gaining experience with new technologies on their systems and a deeper understanding of their potential benefits. Ontario's businesses have found the support they need to turn a pilot into commercial success. We've created jobs and growth for all Ontarians⁶.

The breadth of technologies that have been developed to date with the support of the Smart Grid Fund include home energy management, data analytics, grid automation, electricity storage, microgrids, cyber security, and energy storage. Over the life of the Smart Grid Fund, we have learned that the smart grid sector is moving away from focusing on single technologies towards building integrated solutions to bring greater benefits to utilities and customers. Software, communications technology, and sensors are at the heart of many of these solutions.

As part of Ontario's grid modernization strategy, it is the right time to renew the Smart Grid Fund. A renewed Smart Grid Fund will focus on ways to encourage a culture of innovation within the electricity sector, look at innovative processes, explore solutions that integrate many technologies, test new business models, and generate new ideas for advancing grid modernization.

⁵ Source forthcoming.

⁶ Internal data confirms these facts.

Smart Grid Fund Success Stories

Control for You - FleetCarma

With the support of the Smart Grid Fund, FleetCarma developed a solution to control electric vehicle charging. This solution gives utilities the ability to control when an electric vehicle is charged, helping utilities protect local grid infrastructure. FleetCarma's solution accomplishes this while taking the needs of EV owners into account. Toronto Hydro saw up to 85% in temporary reductions on the electricity moving through their local wires at peak times, reducing stress on the system and increasing reliability for all.

For customers, FleetCarma's web portal and app, customers will always know what the state-of-charge is of their vehicle. EV owners can help support the grid, and opt-out on a day-to-day basis and set a minimum, guaranteed charged for the morning commute. The choice is yours.

A great example of Ontario's exporting expertise: After participating in several trade programs FleetCarma announced In April 2017 that the New York City utility, Con Edison, will be using their system.

Real-time Data - Essex Energy and Utilismart

With the support of the Smart Grid Fund, Essex Energy and Utilismart have developed and deployed SmartMAP, a software application that uses smart meters to pinpoint power outages and areas where the local system is under stress.

Utilities can combine SmartMAP with other tools to analyze and optimize their current system and model the effect of changes before they buy costly equipment and put shovels in the ground. This promotes sound planning and asset investment and saves customers money.

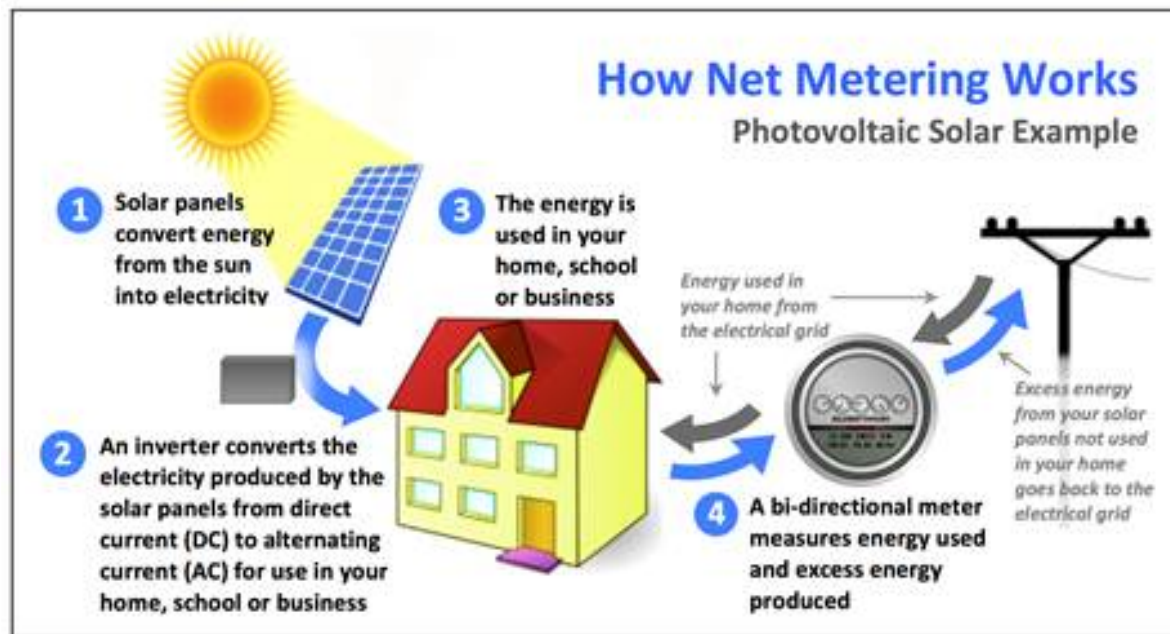
Optimizing the Entire Grid – Prolucid

Prolucid has developed a solution that gathers data from utility assets, distributed generation resources, and smart grid devices in real-time feedback on system conditions. This data helps their solution automatically and optimally control assets on Ontario's grid. During the demonstration, data was reported to Toronto Hydro on one minute intervals. Along with software that forecasted demand, the utility was able to get full value out of several distributed generators.

Net Metering

Net metering is a billing arrangement between an electricity distributor and a customer that is designed to facilitate the use of renewable distributed generation to offset a customer's load. A net-metered customer can generate their own electricity on-site while still being able to draw power from the local distribution network when needed. Any surplus electricity can be sent to

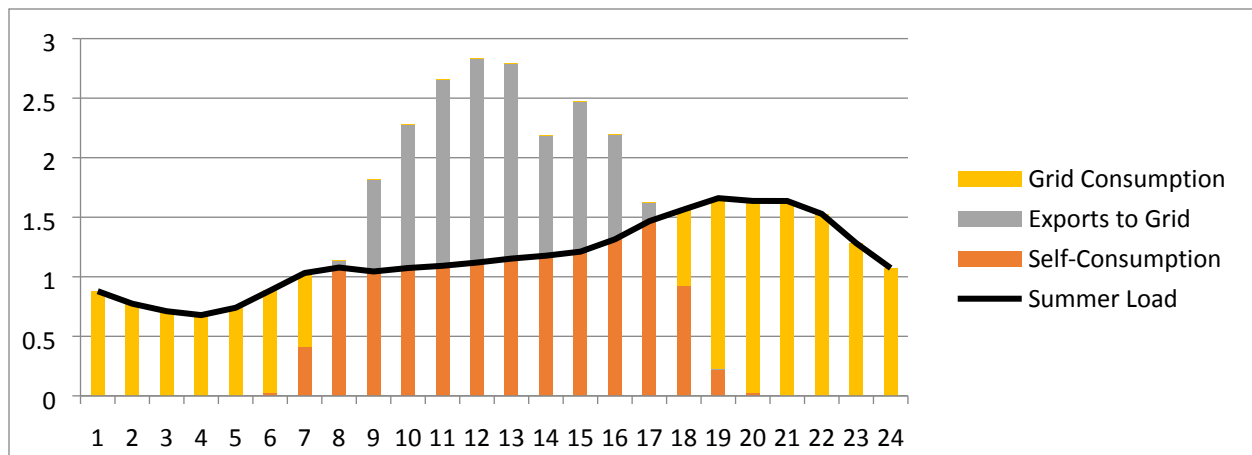
the grid for a credit on their electricity bill, or carried over for credit on future bills for up to 12 months, reducing total bill charges.



The graphic shows how a typical residential rooftop solar project works under net metering. Other types of renewable energy installations are also allowed to net meter in Ontario.

1. Solar photovoltaic (PV) panels mounted on the roof of a house generate electricity.
2. The electricity generated is first used on-site to power the house.
3. Net-metered customers receive credits on their electricity bill when they send any excess electricity to the local grid.
4. Net-metered customers receive a charge on their electricity bill for the electricity they draw from the local grid when their electricity needs cannot be met by the on-site generation.
5. A net-metered customer's monthly electricity bill is calculated based on the difference between the dollar value of any electricity used from the local grid, and the dollar value of electricity sent to the grid from their renewable energy system.

The graph below shows the activity of a typical net-metered residential rooftop solar project in the summer. The purple columns show how much electricity is being used from the grid, the red columns show how much of the electricity being generated by the rooftop solar PV is used on-site, and the green column shows how much electricity being generated from the solar PV is exported to the grid.



Net metering is becoming more important as a platform for innovative technologies and customer-utility relationships. As more Ontario electricity consumers choose to embrace clean renewable energy in their homes and businesses, such as rooftop solar, energy storage devices and electric vehicles, new customer-utility relationships are needed to ensure safe, clean and reliable power.

Ontario has recently taken steps to enhance Ontario's net metering framework by removing the size limit for eligible generation systems and opening up opportunities for energy storage technologies to be paired with renewable generation.

The ministry will also take further actions to broaden eligibility to allow for ownership and operation of net-metered generation by third parties. This will open up new options for customers to use clean, renewable energy while also helping to manage their electricity costs.

In order to better understand considerations and impacts related to virtual net metering, where renewable generation could be sited away from a customer or customers but still provide a credit to offset their electricity bills, the ministry (in coordination with the Independent Electricity System Operator) will look to enable and support the deployment near-term virtual net metered demonstration projects. The goal of these demonstration projects will be to inform future net metering policy opportunities and decisions.

Taken together, these enhancements to Ontario's net metering framework put the province at the forefront of renewable energy integration in Canada and provide a platform for future innovation in clean, distributed energy and grid modernization.

POWER.HOUSE

In 2015, Alectra Utilities – with support from the IESO’s Conservation Fund – launched a pilot of POWER.HOUSE, an innovative residential solar storage program. Twenty homes were outfitted with solar panels, an energy storage device, and digital devices that allowed the home and Alectra to communicate with each other.

Alectra could treat the 20 homes as a single, virtual power plant to provide services for the local and provincial grid. The homes provided enough energy together to make the case for delaying upgrades to the local distribution network by several years. This resulted in savings for all Alectra’s customers. Alectra believes that 30,000 homes in York Region alone could participate in an expanded POWER.HOUSE pilot in the future. (Fact check forthcoming)

Distributed Energy Resources

A Distributed Energy Resource (DER) is a decentralized energy resource that provides electricity services to individual customers, or to the wider system close to where it is located.

Specific examples of DER include:

- Distributed Generation: electricity generation embedded in the distribution system for self-consumption and/or export to the distribution grid.
- Energy storage: energy stored for use close to where it is needed.
- Microgrid: a mini electricity grid or network that can operate independently when it is disconnected from the main electricity grid.
- Demand Response: a temporary reduction or shift in demand in response to prices and requests from a system operator.

Commented [AH(1)]: Should we tie this in to remotes at all?

Individually, DERs offer unique benefits. However, the whole can become greater than the sum of its parts when utilities use smart communications systems to integrate these technologies across their distribution network. Their true value emerges when they are combined and communicate with each other and interact in real time with, and in support of, the local grid.

Renewable Distributed Generation

Renewable generation systems, such as solar PV, are increasingly being deployed on the distribution system since they can be scaled to almost any size and sited in a wide variety of locations. While it is generally understood that renewable distributed generation can provide benefits to utilities and provide customers with greater energy choices, their full value is not well understood and the optimal integration of the variable nature of renewable generation is still a challenge.

That is why the ministry, in coordination with the IESO, will develop a funding program to support the strategic deployment of renewable distributed generation systems, paired with other distributed energy resources and smart grid technologies, to demonstrate innovation and value to customers and utilities. Project partners will gain experience in delivering cost effective and innovative projects, helping them to develop scalable business models to better serve customer and utility needs. The data gathered from these innovative demonstration projects will be used by the ministry, the system operator and regulators to inform approaches to enabling broader adoption and better integration of distributed energy resources in Ontario.

Energy Storage

Energy storage is a game-changing technology. Sometimes, it acts like a home or business, consuming electricity from the grid. At other times, it acts like a power plant, sending electricity out when needed. It is an incredibly dynamic technology that can do a lot of different things depending on where it is installed.

Since 2013, the ministry has made it a priority to understand the value of energy storage for Ontarians. This includes:

- procuring 50 MW of different types of energy storage to test how they can support Ontario's electricity network;
- supporting several energy storage projects through the Smart Grid Fund to test the full range of their capabilities on distribution systems; and,
- undertaking important studies that take a close look at the different values of storage, and how that value can be captured.

These activities will go a long way to help us better understand the role that storage could have in Ontario's energy future. To support these learnings, we have also looked very closely at the full value range of storage. In March 2016, the IESO published a study looking at the value of storage on the network⁷, and more recently, the government commissioned Essex Energy to produce a similar report on distribution grids. This latter study showed that there are significant opportunities for using storage on-site, at factories, industrial facilities, and in large commercial facilities⁸.

The dynamic nature of energy storage means that some of the rules governing the electricity system may be outdated, resulting in barriers to the adoption of this technology. The government will amend its own regulations and work with the IESO and OEB to do the same for instances where energy storage is unfairly disadvantaged by these rules.

⁷ Footnote forthcoming

⁸ Independent study commissioned by the ministry. Not yet public.

Callout box: Essex Energy Storage Study

- Essex Energy is an Ontario-based company with significant expertise in community energy planning, distributed energy resources, and the smart grid technologies required to realize their full value.
- In their report, Essex identifies that the single most effective measure to improve the economic case for distribution connected energy storage will be to reform the way in which Global Adjustment charges are applied to energy storage facilities.
- The report also notes that one application of energy storage already has a strong business case – supporting large customers and helping those customers to reduce peak demand and the associated peak demand charges.

Electric Mobility

To curb climate change, Ontario is moving forward to increase the use of low-emission transportation. This is critical to establishing a green economy and a carbon-free Ontario.

The continued adoption of electric vehicles (EV) will have an impact on our distribution networks. If enough electric vehicles in a neighborhood charge at the same time, important parts of the distribution system can be damaged. As the uptake of EVs continues, our distribution networks will need to be upgraded to ease the pressure.

There are ways for utilities and EV owners to work together on charging vehicles in ways that minimize these impacts. In fact, the Smart Grid Fund successfully tested this how to do this in partnership with FleetCarma and Toronto Hydro. Other innovative utilities like Burlington and Oakville Hydro⁹ are testing how smart chargers can achieve the same goal.

We want to move beyond these pilots and provide Ontario's utilities with more options for integrating EVs into their grids at the lowest cost. The OEB will support this goal by looking at how utilities can invest in cost-effective technologies that provide benefits to all customers, including smart charging for EVs.

The ministry will also work with its agencies and partners to share information and data on EV usage, and to collaborate on policies and programs that support electric mobility. While the focus is often on personal EVs, we want to broaden that to include other types of mobility, including electrified transit. These projects have the potential to significantly reduce emissions, but can also have impacts on the grid. Getting our utility partners involved early in the planning

⁹ Citation forthcoming

and testing of electric mobility will ensure that these low-emission solutions make the most sense for everyone.

Vehicle-Grid Integration

Vehicle-grid integration is a perfect example of what grid modernization can achieve – providing more choice for customers while giving utilities the information and tools to optimize their systems.

A car is parked 95% of the time.¹⁰ For electric vehicles, some of that time is dedicated to charging; other times, it sits, waiting for its next trip. When plugged in, an EV acts like any other appliance in your home or business. Vehicle-grid integration presents an opportunity to make an EV much more valuable than just an appliance.

In the future, the battery of an electric vehicle could deliver electricity to the home in the event of an outage. It could also deliver electricity back to the community, or even the entire grid. Essentially, the EV turns into more than just a car – it becomes a distributed energy resource, one that can help avoid system upgrades and reduce costs for everyone.

The ministry will engage with stakeholders to develop a Vehicle-Grid Integration Roadmap that will look closely at this technology and what it could mean for Ontario.

Barriers to Innovation

In order to embark on solutions like vehicle-grid integration, utilities need the communication network, sensors, and software needed to make this happen – the grid modernization platform.

Initiatives to modernize the grid are underway around the world in response to improving and more cost-effective technologies. In many places, grid modernization means deploying smart meters – something we have already achieved. In others, it means developing completely new utility models in response to government policy.

A made-in-Ontario approach to grid modernization means building on our strengths: smart meters, updated transmission infrastructure, and a robust fleet of renewable and clean energy generators.

Ontario's approach to grid modernization is to create the right environment for utilities to make the best decisions for their systems and their customers. To get there, we need to address the barriers to innovation. Many of these barriers are a legacy of the old way of doing things, when power flowed one way and the technologies were simple and straightforward.

¹⁰ <http://fortune.com/2016/03/13/cars-parked-95-percent-of-time/>

However times are quickly changing, and with it, the range of new technologies that can potentially make systems work better at lower costs. The OEB has made significant progress in keeping up with these changes, thereby ensuring that customers are treated fairly and the system is efficient and reliable. The ministry will work with the OEB, utilities, and stakeholders to encourage grid modernization, including promoting, where cost appropriate:

- The equitable treatment of energy storage;
- Utility participation in residential smart charging;
- The deployment of distributed generation and other distributed energy resources;
- The use of innovative, non-wires solutions;
- Clarity in the OEB's expectations when utilities seek out these innovative solutions, particularly when the benefits of these solutions are experienced by the broader sector;
- Investments in technologies that can defer or replace capital – like software and cloud computing;
- Cost-sharing between utilities other sector participants, including customers, that demonstrate cost-effective ways to optimize assets;
- Utility participation in market opportunities that can offset or reduce costs for their customers; and,
- Promoting greater partnerships between utilities and their customers.

These efforts seek to encourage a culture of innovation throughout the sector. As part of this effort, utilities will report on their efforts to transform their grids and their businesses for the future.

This ministry's approach is about enabling customers, businesses, and utilities to make the choices that are right for them. By overcoming barriers to innovation, the sector will be able to react and evolve to address the changing needs of their customers, and to take advantage of new products and services when they become cost-effective. In creating this environment, this will set a course for a modern grid that empowers customers to become full participants in their energy future.

Breakout box: EDA's Vision of the Future

The Electricity Distributors' Association (EDA) recognizes the need to build a modern grid that is responsive to new technologies, innovation, the power of data, and customer control. They recognize the transformation ahead – moving from a one-way grid to a two-way grid. Distributed energy resources will be at the centre of this transformation, driven by customers who become active in the electricity marketplace, seeking greater control and choice over how they use energy.

For the EDA, creating a platform to enable DER, integrating DER into utility operations, and allowing utility control to optimize the operation of their grids are critical to realizing the full value of grid modernization. The Government looks forward to working with the EDA and other stakeholders in overcoming barriers preventing grid modernization.

Building on the Renewables Revolution

The tremendous growth of Ontario's clean tech and renewable energy sectors has attracted billions of dollars in investment to Ontario and led to the creation of thousands of new jobs. Ontarians can expect these economic benefits to continue. The renewables sector is expected to contribute nearly \$5.4 billion dollars to Ontario's GDP and create 56,500 jobs between 2017 and 2021.¹¹ Much of this economic activity will occur at the local level. Wind energy development is expected to result in over \$900 million in spending in Ontario communities between now and 2021¹². The Windsor Solar project will invest more than \$18 million over the next 20 years in local activities, including significant funding for community initiatives, a contribution to a Community Vibrancy Fund, and taxes paid to the local municipality.

Exporting Ontario's Energy Expertise

"As climate action picks up speed and the costs of renewables continue to fall, the prospects for the future of the clean energy industry are very strong. The question is, will Ontario take advantage or be left behind?" – Renewable Energy Alliance of Ontario

The firms that participated in Ontario's expansion of renewable energy are now poised to export their expertise and products to foreign markets.

For example, Ontario based hydroelectric component manufacturers have been successfully exporting to the United States for years. And wind component manufacturers have developed

¹¹ Market Analysis of Ontario's Renewable Energy Sector, Compass Renewable Energy Consulting Inc., June 2017

¹² Market Analysis of Ontario's Renewable Energy Sector, Compass Renewable Energy Consulting Inc., June 2017

expertise in Ontario that will help them access opportunities in nearby American markets with strong renewable energy targets. Many of Ontario's solar manufacturers are also reporting increased export activity to the US, citing shipping and logistics costs and product quality as important factors leading to their success, despite strong global competition.

Ontario's energy innovators – those with expertise in smart grid, renewables, nuclear and other technologies – are using the solid base they established in Ontario to export to other jurisdictions in North America and around the world.

Canadian Solar, a Global Success Story

Headquartered in Ontario, Canadian Solar Inc. is one of the world's largest solar power companies, with subsidiaries in 24 countries on 6 continents, and over 8,900 employees.

The company has invested more than \$800 million Canadian in research and development. Canadian Solar operates three state-of-the-art research centres for PV cells, modules and systems, one of them in Guelph.

A Northern Ontario Success in Manufacturing Renewable Energy

Heliene Canada has been manufacturing solar photovoltaic (PV) panels in Sault Ste. Marie since 2010. Heliene currently exports over half of its modules to US markets.

Heliene's manufacturing facility utilizes state of the art technologies from around the world, including Japanese robotics, a Spanish lamination machine, glass from the United States and solar cells from Thailand.

Heliene Canada collaborates with other industry players and universities, such as the Rotman School of Business at the University of Toronto, to create a link between academic research and industrial applications.

Ontario continues to be committed to the dynamic and innovative business climate that made this possible. The ministry will expand its role in supporting Ontario energy companies that want to export their goods, services and expertise, by:

- working with other provincial and federal government partners, industry associations and companies to develop and support trade initiatives that strengthen international relationships and create new business opportunities
- developing market intelligence that determines which foreign markets hold the most promise for Ontario's energy goods and services

- participating in energy-related trade missions abroad
- promoting Ontario's technical expertise at appropriate international forums

The ministry, in collaboration with partner ministries, will also develop a pilot program that supports the demonstration of made-in-Ontario technologies abroad. Through \$10 million in pilot funding, the program will be designed to help Ontario energy companies get a foothold with foreign utilities and other buyers in global markets. Through the demonstration of Ontario expertise in new markets, the program intends to grow Ontario's energy brand internationally and create longer term market opportunities. In designing this program, the ministry will seek to collaborate with the federal government, which announced several investments in the cleantech sector in the 2017 budget.

"Ontario can lead globally on development of clean and low-cost remote energy systems ... Emerging global economies, including India, are demanding these solutions and Canadian entrepreneurs are poised to seize that opportunity." – MaRS Cleantech

Callout Box: *Laker Energy Products is a leading supplier of nuclear-class pipes and fittings for the CANDU nuclear power industry. The Ontario company is building on this success to export its precision-tooled products around the world.*

Laker recently purchased a new 65,000 sq. ft. facility to handle the more than \$85 million in contracts it has helping refurbish the Bruce and Darlington nuclear reactors. The facility will also support Laker's service to international markets, including existing and new-build projects in Argentina, Romania, China and the UK

From our own backyard, Laker has become a world leader in the provision of fully integrated, high-precision machining, assembly and testing of CANDU-related products.

Nuclear Innovation

Nuclear energy doesn't only power our homes. It has enabled Canada to be a world leader in nuclear research and nuclear medicine, saving lives and bringing peace of mind to countless numbers of cancer and heart patients around the world.

Ontario is keenly interested in collaborating with the federal government, universities and industry partners to continue to support the nuclear industry for both energy and non-energy applications. Ontario can help create new export opportunities for our "home-grown" nuclear innovations, such as;

- **Small Modular Reactor (SMR) Technology:** SMRs are a new generation of nuclear power reactors that have smaller footprints than conventional reactors and promise economies of scale through mass production.

- Nuclear Fuel Research: Technological innovations could lead to the reprocessing or recycling of used nuclear fuel or the use of thorium to power nuclear reactors.
- Hydrogen: Ontario's nuclear technology could be used for the large-scale production of hydrogen. Hydrogen is a low-carbon energy source that could in the future replace gasoline for transportation or natural gas for heating.
- Isotopes: Isotopes are as used in applications such as nuclear medicine and space exploration (e.g., supplying heat and power for Mars Rovers). Research is underway into expanding Ontario's role in the production and use of isotopes.

Medical Isotopes

Isotopes from Ontario's power reactors are used in both the diagnosis and treatment of life-threatening diseases, the sterilization of medical equipment and food products, and to better the lives of Ontarians and around the world.

Currently, 70% of the world's supply of the medical-grade Cobalt-60 isotope is produced in Ontario in nuclear reactors at Chalk River, Pickering and Bruce. The isotope accounts for 10 million cancer therapy treatments each year worldwide and is also used for medical imaging, equipment sterilization and non-invasive brain surgery.

Recently, Cobalt-60 harvested from the Bruce reactor has been used in the Sterile Insect Technique or SIT, to combat the spread of Zika, West Nile and Dengue viruses.

In November 2016, Bruce Power and medical health-sciences company Nordion announced a long-term supply agreement for the Cobalt-60 produced by the Bruce reactor. Nordion is exploring opportunities to expand production to the Bruce A and Darlington reactors in the future.