

Windsor-Essex Regional Energy Paper
March 2013

Executive Summary

This paper presents recent research and analysis of the Windsor-Essex and the Ontario energy system. The statements and positions expressed by the Windsor-Essex Regional Chamber of Commerce (The Chamber) are a result of membership surveys and opinions gained during the past year as well as continuous Chamber research on the current and past trends in the electricity and gas supply systems serving the business community in our region. From a business perspective, the energy system is an important component of business competitiveness in a global market. For them to succeed all levels of government must ensure that we have a reliable, modern and efficient supply of energy at reasonable rates. The paper outlines the challenges of the current system and a number of recommendations that are based on achievable outcomes.

The Ontario Energy System

Ontario's electricity system has a capacity of approximately 35,900 MW of power. The electricity demand Ontario requires approximately 25,000 MW at peak times.

Ensuring enough energy to meet that demand is an ongoing and highly-complex process. It requires close co-ordination of all parts of the system. These system parts are organizations with different mandates and management structures.

The organizational framework of the energy system in Ontario has five key organizations: The Independent Electricity System Operator (IESO), the Ontario Power Authority (OPA), Hydro One, Ontario Power Generation (OPG) and the Ontario Energy Board (OEB). The IESO and OPA are organizations that provide coordination and planning for the energy system. Hydro One is responsible for the delivery of electricity to the Local Distribution Companies and is the largest of five such companies in Ontario. Hydro One is responsible for the safety and reliability of the electricity system. OPG is the Ontario-based electricity generation company whose principal business is the generation and sale of electricity in Ontario. The OEB is the regulator of all non-commodity electricity rate licenses.

Given the structure and the complexity of the energy system in Ontario, the Chamber supports an on-going review and organizational improvements to ensure efficiency, transparency and cost effectiveness of the organizations responsible for managing various components of the system. The system should ensure a reliable, modern and efficient supply of energy to its customers at reasonable rates that enable business and industry to be competitive in the global market place.

The Ontario Green Energy Act (GEA) was introduced in the Ontario legislature on February 23, 2009. It was intended to expand renewable energy production, encourage energy conservation and

create green jobs by the implementation of its renewable energy programs and by investing in production of clean energy. The Act is best known for creating a number of feed-in-tariff rates for different types of renewable energy sources. Notable among these are the Micro FIT program for small non-commercial systems under 10 KW, and FIT, the larger commercial version of the program which covers a number of project types with sizes into the megawatts.

The Smart Grid is a series of integrated initiatives by a variety of organizations that work together to create a modern electricity system aligned with the digital age. The concept was envisioned by the Ontario Green Energy Act to ensure increased reliability, efficiency and sustainability of the electricity system by better management of the sources of energy and the use of technology. The Smart Grid would empower Ontarians to better manage their electricity use, allow more renewable electricity generation, and help utility companies manage crisis and outage situations more quickly.

To implement the new law and to help guide the Province's energy supply, distribution and consumption well into the future, the Government of Ontario released its Long-Term Energy Plan (LTEP) in 2010. The plan provides an overview of the overall energy system, the demand and supply of electricity in Ontario as well as the conservation plan and renewal of Ontario's transmission and distribution system.

According to the LTEP, the province has plans to phase out coal fired generation and utilize localized generation from smaller, cleaner sources of electricity. Renewable energy such as wind, solar, hydro and bioenergy are becoming integrated into the energy supply mix in Ontario.

The main concerns expressed by various participants and analysts of Ontario's planning policies and current legislation include weaker than projected demand for electricity and lack of flexible (load-following) power generation. Ontario Domestic Content (DC) provisions of the Act were set up to ensure that the technology and the solutions behind renewable energy will help generate green jobs in Ontario.

Our Chamber continues to support the use of nuclear technology as an integral part of our electrical energy supply. The Chamber urges the Government to apply a very high level of safety and reliability to all energy producing installations. Ontario must plan for natural disasters that could potentially impact our nuclear, gas or oil facilities based on lessons we are learning from the incident in Japan in 2011.

Electricity Forecast

Electricity consumption in Ontario has declined since reaching a peak in 2005. For the next 10 years, the Ontario Government is expecting the demand to recover from the recent recession and then stay relatively flat due to conservation efforts and an evolving economy.

The latest short-term forecasts from the IESO do not align with the Long Term Energy Plan. According to the forecast for 2011-2014, usage will decline in 2013 as it had each year from 2006-2011. They expect that the continued growth in embedded generation and conservation programs

will offset any increases from an expanding economy and growing population. It is currently projected that embedded solar capacity alone will increase 600 MW by the summer of 2013 helping to further offset the summer demand peaks. Additional downward pressures on demand are expected from time-of-use rates and global adjustment charges.

It is reasonable to assume that Windsor's short term demand will not significantly vary from this forecast. Long term demand will be largely dependent on the region's ability to retain existing businesses and attract new investment.

Electricity Supply Mix

The Ontario electricity supply mix is set to balance reliability, cost and environmental performance and considers the following factors: conservation, baseload power, variable or intermittent power and intermediate and peak power.

The main sources of electricity in Ontario are Coal, Nuclear, Renewable and Natural Gas. The Chamber's recommendations for the supply of electricity in Ontario include supporting the shift from Coal to Natural Gas and the importance of utilizing Hydro and Nuclear energy for the supply of base power. The Chamber urges the Government of Ontario to be more transparent in re-examining the costs, benefits and sustainability of the current energy supply mix, including renewable sources of energy.

The local distribution system of Windsor and Essex County is managed by 3 Local Distribution Companies (LDCs): EnWin Utilities, Essex Powerlines and E.L.K. Energy. Their responsibilities include serving individual electricity customers and managing the local distribution grid. Additionally, under the GEA, the LDCs have the responsibility of connecting participants in the government's FIT and Micro FIT programs to the electricity grid.

Most significant electricity generation in the Windsor-Essex region comes from Windsor's two natural gas power plants; Brighton Beach Power (580 megawatts) and Windsor West Power (112 megawatts). The full generating capacity of the region from all sources is 1.33 GW. The region has also seen significant uptake in the renewable energy programs through wind and solar installations. Wind capacity includes Comber Wind (166 MW) and Gosfield (51 MW).

The Ontario government indicated that the changes since the introduction of the Green Energy Act would result in an increase in electricity prices over the next several years and into the future. The government's own Long Term Energy Plan estimates that electricity prices will rise by just over 30% (in real terms) between 2010 and 2014. The government attributed these cost increases to investments in new renewable energy generation, transmission and distribution upgrades, and improvements to nuclear and gas capacity.

A study recently published by Hydro Quebec focused on electricity prices as of April 1, 2012 in 22 utilities across North America. Business rates for electricity in Ontario (Toronto and Ottawa) were in the top 10 for all categories assessed and in the top 3 for large power customers.

The total cost of electricity is recovered through a combination of the Hourly Ontario Energy Price (HOEP) and the Ontario Global Adjustment (GA). The GA is the difference between the revenues received from the sale of electricity and the payments made to suppliers of electricity and conservation services. The Chamber urges the Government of Ontario to be more transparent in the actual breakdown of the Global Adjustment fees associated with energy bills in Ontario.

The Chamber supports conservation programs to reduce provincial demand but believes that the benefits realized need to be continually evaluated against other costs. A key conservation initiative of the Province was the banning of inefficient light bulbs. The ban, which will ultimately come into effect at the end of this year, will eliminate the 87 million incandescent bulbs currently in Ontario households. The Chamber supports the elimination of energy inefficient products from the marketplace. It is however equally important to ensure that policy and a communication plan is in place to address the resultant 'spin off' impacts and costs of these initiatives, including the release of mercury into the natural environment.

Natural Gas

The utilities, licenses of natural gas marketers and agreements between utilities and municipalities for the delivery of natural gas and use of road allowances and easements are regulated by the Ontario Energy Board. The OEB also approves gas storage facilities, the sale of distribution systems and any distributor amalgamations.

Natural gas power generation is the third largest source of electricity after nuclear and hydro power. With natural gas as the cleanest of the fossil fuel fired generation systems, and the ability of gas-fired generation to respond quickly to peak electricity demands, there has been and will continue to be an investment in new gas-fired generation and co-generation systems in the province.

As an affordable and plentiful source of energy, natural gas demand for power generation is likely to double over the next 20 years. As gas prices are predicted to stay relatively stable over the next 10 years, its use for household and business heating is likely to increase as well. The estimated additional supplies of natural gas in North America will ensure its supply for the next 100 years.

The pricing structure for natural gas varies between users based on the quantity of gas delivered. Customers are grouped into rate groups that accommodate individual residences, commercial/industrial establishments as well as electrical generators and wholesalers.

By regulation, Union Gas is not permitted to earn profit on the sale of the gas commodity or the transportation to its infrastructure. These charges are passed directly through to the customer. Union Gas forecasts the rates and then makes a correction through charging a 'price adjustment' to ensure customers only pay the actual market price. Changes to the forecast price are approved by the Ontario Energy Board on a quarterly basis. The OEB also approves the rates charged for delivery and storage.