

AGENDA FOR GROWTH

Policy playbooks to elevate the region

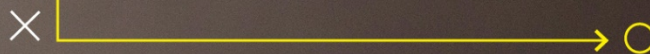


TORONTO
REGION
BOARD OF TRADE



ENERGY

POLICY 2018 PROVINCIAL
ELECTION



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INTRODUCTION

The role that energy plays in our society and economy is often taken for granted. The cost of powering and heating a home or business is treated as a minor concern until the cost of electricity rises dramatically, as it has over the last decade in Ontario. Consumers also expect their appliances, electronics and lights to work consistently and on-demand. The modern economy is so thoroughly reliant upon energy that even a temporary blackout outside of primary business hours can cost hundreds of millions of dollars.¹ Finally, mounting concerns about the effects of climate change require a re-examination of energy consumption in the context of its impact on the environment.

The ideal energy system is one that carefully balances these three qualities: affordability, reliability and sustainability. While maintaining this equilibrium is difficult, it is essential to the long-term health of the economy, the energy sector and consumers. In Ontario, affordability has not been properly prioritized by governments led by all parties, to the detriment of businesses, residents and the broader economy. As a result of poor policy choices, electricity prices have doubled in the past decade. The cap and trade system promises further increases to the price of fuels such as gasoline and natural gas. With high energy prices, businesses are forced to scale back operations, increase prices, shut down or relocate to cheaper jurisdictions, including the United States.

While there is no simple fix for the province, there is a better way forward. The Toronto Region Board of Trade believes that through thoughtful reform, the province and the region can have an energy policy that properly balances the competing priorities of affordability, reliability and sustainability. The Board believes that this can be achieved by embracing the following principles:

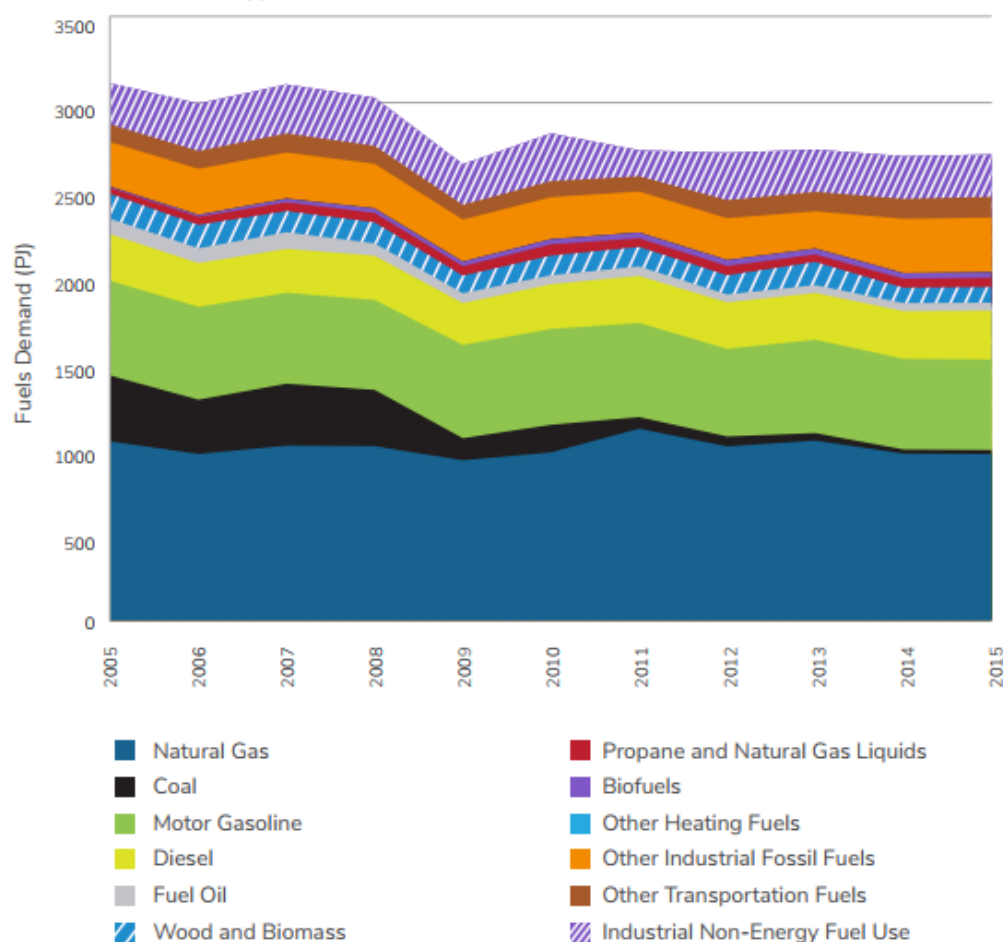
- Greater Transparency
- Independent Governance
- An Emphasis on Flexibility
- A Strong Role for the Private Sector and Competition

This policy brief identifies the key weaknesses in the current energy system and their effects on business, reflects on how this current environment came about and suggests meaningful reforms which embody these principles.

THE IMPORTANCE OF FUELS

There are two main components to the energy system: electricity and fuels. Fuels include natural gas, gasoline and diesel, coal and renewable materials such as wood and biofuels. In 2016, Ontario used more than 2,700 petajoules (PJ) of all fuels combined.² Compared to provincial electricity demand of 493 PJ (equivalent to 137 terawatt hours), most of our energy comes directly from fuels. This is due to the primacy of fuels in heating (natural gas) and transportation (gasoline and diesel). They also serve an essential role in industry as an energy source (heat and power) and an input component in many products. As the 2017 Long-Term Energy Plan (LTEP) indicates, the use of fuels in electricity generation has fallen with the closure of the province's coal plants, while fuel demand for other uses has remained stable.³

Historical Fuels Energy Use, 2005 – 2015



Source: [2017 Long-Term Energy Plan](#)

Despite the relative importance of the fuels in the energy system, most energy discussions in Ontario focus primarily on electricity (including this policy). This is rooted in the degree to which governments control these sectors. Outcomes in Ontario's electricity sector are primarily determined by the decisions of provincial and municipal governments. This mostly unfettered authority has been the source of numerous problems, as this policy outlines. In contrast, the fuels sector has a greater role for the private sector, competition and markets, while still involving governments in a regulatory capacity. Given the challenges facing the electricity sector, the Board's energy policy focuses on these urgent needs. As this policy details, the electricity sector would function more effectively if it more closely resembled the fuels component of the energy sector.

THE CHALLENGES FACING ONTARIO'S ENERGY SYSTEM

Most discussions about Ontario's energy system begin and end with the cost of electricity. Significant and rapid increases over the past decade have increased the importance of electricity prices to the point where polls have found that it is the top issue on voters' minds heading into the 2018 provincial election.⁴

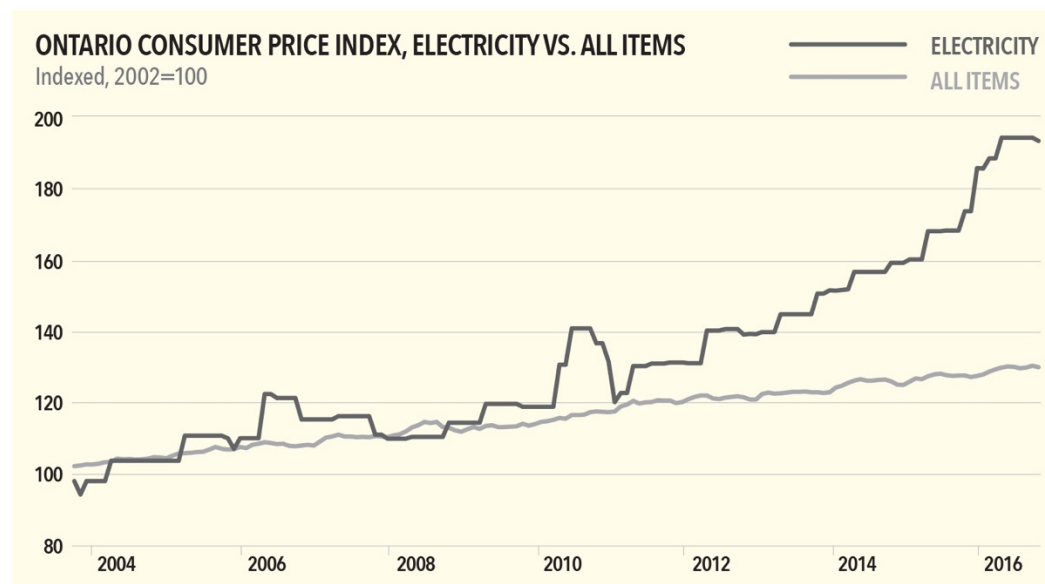
Focusing exclusively on the immediate challenges of high prices ignores the key structural problems in the energy system. These issues are both inherently challenging and are contributing factors to the increase in electricity prices:

- A complicated system for consumers
- The uncertainty created by political risk
- The difficulty of integrating new technology

Addressing these challenges along with high electricity prices is necessary for building an energy system that will benefit business and residential consumers in the Toronto region.

THE HIGH PRICE OF ELECTRICITY

Ontario's electricity prices increased dramatically in the decade ending in 2016. According to the Ontario Energy Board (OEB), on-peak prices rose from 10.5 cents per kilowatt hour (¢/kWh) to 18, an increase of 71.4%.⁵ The increase in off-peak prices was even more significant, growing from 3.5 ¢/kWh to 8.7, or 149%. As the figure below indicates, the increases in the past five years have been especially dramatic, with annual increases many times the rate of inflation.



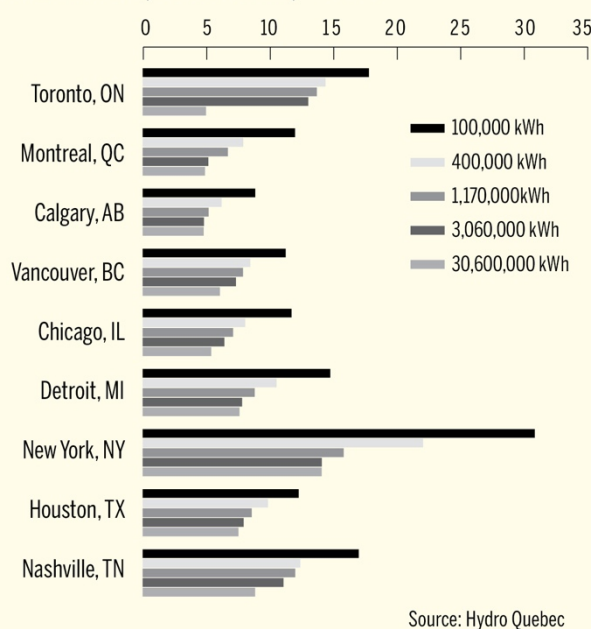
Sources: *The Globe and Mail*, *Statscan*

Industrial consumers and other large users have also faced increases in electricity rates. According to the Association of Major Power Consumers in Ontario, wholesale power rates have risen to the highest in Canada, with particularly large increases to midrange (Class B) consumers.⁶ These increases have also made electricity prices in the Toronto region some of the highest in North America, according to a Hydro-Québec comparison.⁷

LARGE ELECTRICITY USERS: CLASS A VERSUS CLASS B

Consumers with a peak demand of more than 50 kilowatts purchase power through the wholesale market rather than the Regulated Pricing Plan (primarily for residents and small businesses). They pay the Hourly Ontario Electricity Price (HOEP) combined with the Global Adjustment (GA). The difference in how the GA is calculated for each Class can make a significant difference in the cost of power.

COMPARISON OF MEDIUM AND LARGE POWER USER RATES (CENTS/KWH) - 2016



Class A—1 MW to 5 MW: The largest users are eligible for the Industrial Conservation Initiative (ICI), which calculates GA costs based on their percentage contribution to the top five peak Ontario demand hours. This allows consumers to manage their usage and provide significant cost relief (see below for a price comparison chart). In 2017, the provincial government announced that certain users above 500 kW of peak demand are now also eligible for the ICI.

Class B—40 kW to 1 MW: Remaining wholesale customers pay GA costs based on the costs of providing adequate capacity and delivering conservation programs. This amount is reduced by the revenues collected by the HOEP, which does not fully cover these costs. These medium-sized users pay some of the highest electricity rates in North America.

Source: [Hydro-Québec](#)

Because electricity is a key input cost for all businesses, from small offices to large manufacturing plants, recent price rises are creating two new challenges. First, as the cost of electricity increases faster than inflation, it consumes a larger portion of a business's budget. As prices continue to increase, this requires owners to reduce spending in other areas (including payroll and investment), increase prices or even relocate or close.

Second, if energy prices are rising faster than in competing jurisdictions, businesses in export-based industries become less competitive. This is an especially serious problem for Ontario and the Toronto region, economies that depend upon manufacturing. Ontario is home to 49% of Canada's total manufacturing output, with 96% of Canadian automotive production, 58% of medical devices, 52% of steel and 48% of fabricated metals, machinery and equipment manufacturing. These businesses are part of a group of energy-intensive, trade-exposed (EITE) industries which can face strong pressures to relocate to cheaper jurisdictions when prices rise high enough. Making matters worse, some of Ontario's chief competitors for these manufacturing industries, such as Kentucky, Michigan, Ohio and New York, offer further incentives which reduce the cost of electricity below base rates.⁸

Although high electricity prices remain a key economic and political issue, there are no simple solutions to this problem. In 2017, the provincial government introduced the Fair Hydro Plan (FHP) to reduce current prices for residential and small-business consumers. This plan includes three elements:

- Harmonized Sales Tax (HST) rebate: refunding the 8% provincial portion of the HST from electricity bills. Before the creation of the HST, Provincial Sales Tax was not charged on electricity.
- Funding electricity relief programs from taxes: the Rural or Remote Rate Protection (RRRP)⁹ program and the Ontario Electricity Support Program (OESP) will now be funded by the Treasury and not via electricity prices.
- Refinancing the cost of electricity: the government will borrow an average of \$2.5 billion annually from 2017 to 2027 to pay a portion of electricity costs, reducing current prices. This money will be paid back over an 18-year period beginning in 2028. This refinancing was justified as a way of spreading out the cost of energy infrastructure over its total life, rather than the initial contracted period.¹⁰

While the immediate reduction in prices is welcome for those who are eligible, the FHP is controversial. The first two measures involve either forgoing revenue (HST rebate) or increasing the costs to taxpayers rather than ratepayers, but the third element is specifically controversial. The province's Financial Accountability Officer (FAO) has estimated that the cost of refinancing will be \$39.4 billion (\$18.4 billion of electricity costs and \$21 billion in interest). This will have a similar effect to the current Debt Retirement Charge: an additional cost on future bills that is not directly related to the immediate cost of generation or delivery. The FHP also extends the repayment period for electricity assets over a longer time which make the electricity market less flexible and able to respond to future challenges such as reduced demand. The program effectively increases the cost of electricity even further.

The FHP also introduces further opacity in the price of electricity. By giving the government the authority to set the “all-in” price for customers (and then borrowing money to cover the difference), it eliminates transparency and the price signals that encourage investment.

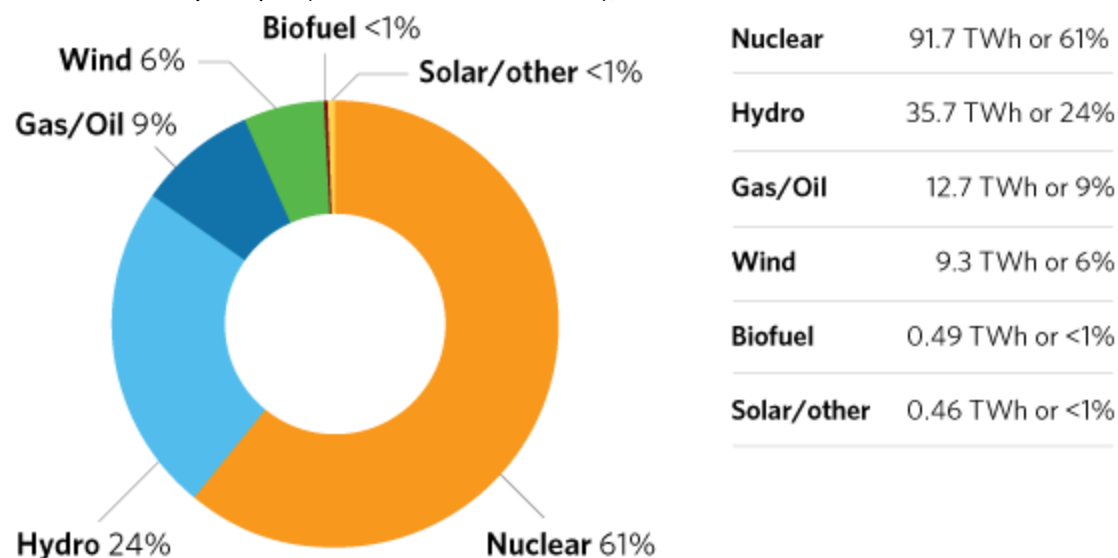
Finally, the FHP primarily affects ratepayers under the Regulated Pricing Plan (RPP), mostly residential consumers and small businesses. Larger users, many of which count electricity as one of their principal input costs, are not eligible (except for the relief created by moving the RRRP and OESP to taxpayers). Instead, large users must rely on a myriad of conservation and discount programs which reduce their costs, such as the Industrial Conservation Initiative (ICI) which the government has recently expanded. Businesses that do not qualify for these programs or are not eligible (such as Class B users) have little to no relief.

Other proposed alternatives are also problematic. While the government is free to attempt to renegotiate generation contracts with suppliers, it should not consider simply abrogating such agreements, as some have suggested.¹¹ Cancelling lawful contracts would set an unacceptable precedent, increase costs in the long run and reduce the involvement of the private sector—involvement Ontario's energy system needs.

Likewise, advocating for greater political or public control is not a pathway to lower electricity rates. As this report demonstrates, the rapid increase in the cost of power can in many cases be attributed to poor decision-making by successive governments. Public ownership does not remove the need for infrastructure renewal, nor is there strong evidence that it controls costs.¹² Moreover, greater public control gives more room for greater political meddling and less cost discipline, factors that increase costs.

The difficult truth is that there is no simple solution to Ontario's current high prices. Most remedies that offer immediate relief simply pass on increased costs to future ratepayers. The long-term solution is to reform the energy sector along sound principles to eliminate many of the factors that have led to recent price rises.

Ontario Electricity Output (Transmission Connected), 2016



Source: [Independent Electricity System Operator](#)

FURTHER COSTS: CAP AND TRADE

Beyond increases to electricity prices, the provincial government's implementation of a cap and trade program in 2017 has put further upward pressure on the cost of energy for consumers. Cap and trade increases the cost of electricity generated by natural gas facilities, though this amounts to only about 10% of Ontario's annual generation. More importantly, it increases the price of natural gas and liquid fuels, elements of the energy system that have not been subject to the same recent price increases as electricity has. According to one estimate, the cap and trade program will increase energy costs for households by approximately \$150 annually, with another \$80 in indirect costs.¹³ This reduces the overall impact of the FHP and conservation programs as a means of reducing energy costs.

A Complicated System for Consumers

After high prices, one of the most common complaints about Ontario's electricity system is that it is too complicated for consumers.¹⁴ Much of this confusion comes from the opaque and confusing way that the sector charges both a market rate for electricity and the Global Adjustment (GA). In theory, electricity in Ontario is bought and sold at what is known as the Hourly Ontario Electricity Price (HOEP). This market does not represent the actual cost or price of electricity, however, but the spot price, independent of whatever rates have been contracted with generators (both high and low). The Global Adjustment collects the difference between the HOEP and the true cost of the system, which includes the rate guaranteed to producers by contracts as well as additional costs such as conservation.¹⁵

Much of the rise in electricity prices can be attributed to the growth in the GA, which reflects growing system costs not accounted for by the HOEP. Since peaking in 2005, the HOEP has continued to fall, sometimes even reaching negative prices.¹⁶ At the same time, the GA has continued to rise and now makes up more than 80% of the cost of electricity for commercial and industrial customers.¹⁷ For midsized to large-scale power users, the GA represents an opaque and confusing charge that continues to rise, even while Ontario has a surplus of generation and a decreasing HOEP. The recently implemented Fair Hydro Plan has the potential to exacerbate the complicated price reporting for Ontario consumers. Because the FHP reduces consumer rates but not the cost of electricity, today's reduction must be paid for by future consumers. This will lead to either larger-than-expected increases in the GA or a new charge, similar to the Debt Retirement Charge. The lack of transparency and clarity in prices undermines confidence in the system and increases consumer frustration.

Beyond confusion concerning the price of electricity, conservation and demand management programs add an additional layer of complication. For businesses and residents seeking to reduce their consumption and save money, the myriad of programs run by the Independent Electricity System Operator (IESO) and local distribution companies (LDCs) provide opportunities for savings. For simpler programs, such as replacing light bulbs, this can be a simple calculation; for expensive energy retrofit grants or demand management schemes, it can be difficult for businesses to determine value for money. Conservation programs are further challenged by the current excess capacity in Ontario, as new generation is not needed, even with greater consumption.

The Industrial Conservation Initiative (ICI) is an example of this dilemma. It provides a way for large electricity users to significantly reduce the cost of power by one-third (or more in some cases). To benefit from the ICI, a business must be able to carefully identify and track electricity usage (notably peak demand) and be able to scale usage back at certain times.¹⁸ Participation in the program often requires businesses to hire energy experts to manage this system and adjust their operations to the needs of the electricity system, an added cost and complication. Many industrial customers are not even eligible if they do not exceed a certain usage limit.

High electricity prices are the principal problem of the province's electricity system, but an opaque pricing scheme and a complicated suite of conservation programs exacerbate the challenges faced by consumers.

Continued Political Risk Creates Uncertainty for the Energy Sector & Consumers

Much of Ontario's energy sector is still owned and controlled by provincial and municipal governments. While advocates of public ownership argue that government control can properly contain costs, many of the causes of increased costs are a consequence of past political decisions.

Some government decisions about energy are transparently political and costly, such as the cancellation and relocation of gas-fired power plants in Mississauga and Oakville. The provincial Auditor General estimates this process will cost \$1.1 billion over 20 years.¹⁹ Other decisions expose the lack of transparency and oversight in government decision-making, such as recent negotiations concerning an increase in electricity imports from Quebec. These negotiations were only revealed by a leaked memo to the Quebec press and surprised the public and energy professionals alike, particularly given the current oversupply of the Ontario market.²⁰ Finally, the provincial government as well as municipalities (through their ownership of LDCs) make a myriad of decisions that impose small costs on the electricity sector. The recent requirement from the province for LDCs to include a promotional flyer for the Fair Hydro Plan with electricity bills is an example of this. Municipal governments are also guilty of “small” requests that contribute to increased costs: every council and committee meeting is an opportunity to order yet another review of some aspect of their LDC’s operations. In all cases, governments are responding to political calculations and not the needs of a well-functioning energy system. The result is confusion, inefficiency and increased costs.

The ability of governments to make significant decisions about the energy sector with little oversight, restraint and sometimes expertise also limits private sector investment. Companies that create a business model based on current procurement policy are then surprised when the government decides to cancel or revise their plans. The recent report by the Auditor General on the FHP raises serious questions concerning whether political goals are again impeding the proper management of the energy sector.²¹ Again, the lack of transparency, independent governance, and market forces produces poor results.

There will always be a role for government to set the broader policy agenda for the sector and to serve as a regulator through the Ontario Energy Board (OEB). However, the present electricity system centralizes most decision-making power with governments, which has not proven to be a route to effective policy in Ontario. Unfortunately, recent legislation passed by the provincial legislature (Bill 135, the *Energy Statute Law Amendment Act, 2016*) strengthens government’s authority over the sector and reduces the influence of independent agencies.²² This is drawing the wrong lesson from the mistakes of the past several decades: what is needed is more voices at the table, not overwhelming power for one.

Integration of New Technology

The energy sector is currently undergoing an impressive amount of innovation. The development of new technologies includes the following:

- **Generation:** Significant investments in renewable energy have reduced costs and increased efficiency, particularly for solar power. Nuclear technology is also advancing quickly with the development of Small Modular Reactors (SMR)—cheaper, lower-power nuclear generators that could be approved and built incrementally as demand and supply change, or deployed into smaller and more remote communities.²³
- **Energy Storage:** Innovation in storage has led to the development of new technologies (such as compressed air energy storage) as well as the refinement and improvement of existing ones (including thermal storage to manage heating and cooling and battery storage for electricity, particularly in electric vehicles). These technologies are making it cheaper and easier to store energy, which, among other things, allows for a more effective deployment of intermittent renewable (such as wind power) and provides new options for businesses and residents to reduce their energy costs.
- **Big Data and Analytics:** The widespread use of wireless technology, combined with the growing capabilities of analytics, cloud computing and even artificial intelligence, is allowing generators, transmitters, distributors and consumers to better understand the energy system. For example, when properly used, smart meters allow energy consumption to be tracked by the minute and allow the system operator to more accurately procure the required amount of power.

Despite these exciting developments, Ontario's energy sector is not in an optimal position to take advantage of them. In particular, there are three challenges which impede the greater innovation of new technology.

First, the energy system is heavily regulated, requiring regulatory approval for rates, new entrants and new technologies. Innovation often must be approved by regulators before it can be deployed into the system or funded by regulated rates. For legitimate reasons of safety and security, nuclear technology is even more tightly controlled. While the Board does not dispute the need for careful regulation of the energy sector, this provides an initial hurdle to incorporating new technology.

Second, Ontario's electricity market relies heavily on fixed contracts for generation, the largest share of costs. Because these costs are locked in for long periods of time, technologies that reduce electricity consumption or develop distributed generation or storage have the perverse consequence of increasing the average cost for all other consumers. While signing longer-term contracts may lead to lower prices (provided that there is a competitive procurement), it can make it more difficult to integrate new technologies. The lack of market forces in certain areas also limits the incentive to innovate to reduce costs or provide better service.

Third, publicly owned local distribution companies and smaller power providers lack the resources to properly incorporate new technologies at the scale necessary to have a large impact. Often wholly owned by their local municipalities, LDCs lack the ability to raise capital from their shareholders, from capital markets or through prices (which are regulated by the Ontario Energy Board).

HOW WE GOT HERE: NECESSARY INVESTMENTS & COSTLY MISTAKES

It is not enough to identify the challenges facing the energy system; without an understanding of how these problems developed, it is impossible to propose the proper solutions. This section reviews five factors which have led to increased prices as well as other problems in the electricity system.

The Need to Invest in Infrastructure

Following a surge of investment into the early 1980s, Ontario's electricity prices rose sharply in the late 1980s and early 1990s. In an effort to control costs, governments of all parties attempted to limit further price increases by limiting investment. By the early 2000s, the result was a significant underinvestment in all aspects of the electricity system.

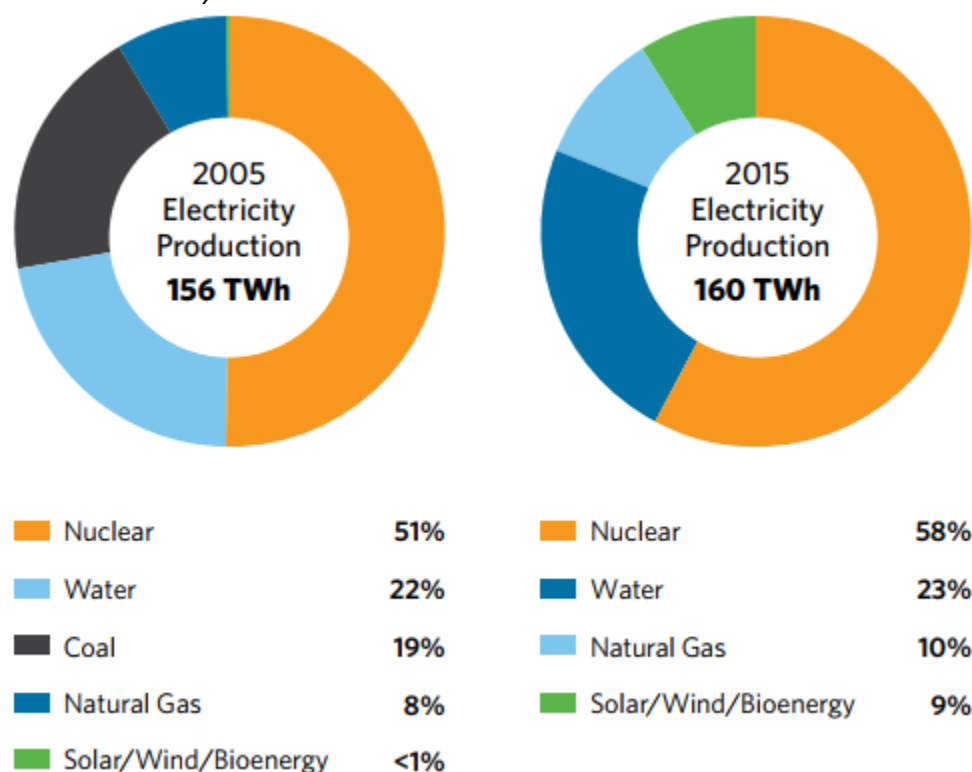
Over the previous 12 years, the overall bill for new generation and transmission assets, as well as repair of existing infrastructure, has been estimated to be higher than \$50 billion.²⁴ However, it is difficult to disentangle investments such as needed transmission repairs and expansion and the cost of policy decisions such as phasing out coal or expanding renewable energy (see below). In terms of transmission upgrades, the government reported that in the decade ending in 2014, Hydro One (responsible for most of Ontario's transmission infrastructure) had invested more than \$11 billion.²⁵ Local distribution companies (LDCs) are also continuing to invest in infrastructure renewal and expansion, particularly in growing areas such as the Toronto region. Toronto Hydro estimates that 26% of its assets are past their end-of-life expectancy and it will cost up to \$26 billion to update and replace this needed infrastructure.²⁶

The need to invest in infrastructure also includes the past and ongoing refurbishment of Ontario's nuclear facilities at Darlington and Bruce. These projects cost billions, take years and, in the past, have seen significant cost overruns which have helped increase energy prices.²⁷ The current refurbishment process will further increase the price for electricity generated by nuclear. If these refurbishments can remain on time and on budget, then nuclear power will still be competitive as baseload generation providing two-thirds of Ontario's power, while remaining emissions-free.²⁸ The current project is \$40 million under budget, and Bruce Power and Ontario Power Generation (OPG) are working together to share information and lessons learned from past refurbishments and the current process to control costs.²⁹

These investments are significant and increase overall costs for the system but will be recovered over billions of kWh of generation, as nuclear power supplies more than 60% of Ontario's current power. However, even with these needed costs, there is a need for greater transparency. Even for necessary upgrades, it is important to hold decision-makers accountable, to avoid repeating mistakes and to find ways to improve planning and procurement.

The Closure of the Coal Plants

During the 2003 provincial election, the Liberal Party under then-leader Dalton McGuinty proposed the closure of Ontario's coal plants by 2007 and their replacement with new natural gas, renewable generation and an expanded role for the province's nuclear fleet.³⁰ While the implementation timeline proved too ambitious, the provincial government announced in 2014 that the final coal generating station had been shut down.

Ontario Electricity Production in 2005 and 2015

Source: [Ontario Planning Outlook](#)

The closure of the coal plants has helped contribute to a significant reduction in greenhouse gas (GHG) emissions and atmospheric toxins (such as mercury).³¹ The closures are also credited with an improvement in air quality which may have led to some reduction in healthcare costs.³² However, replacing nearly 20% of the province's electricity supply did not come without a cost. There is no certain estimate of the costs (the government has never made one publicly available), but an early estimate by the Association of Major Power Consumers in Ontario (AMPCO) suggested it could increase costs by \$3 billion annually.³³ As a means of reducing greenhouse gases, it was also very expensive, costing as much as \$250 per tonne of carbon emissions.³⁴ Whatever the true figure, the decision to phase out coal generation increased the cost of electricity in Ontario, even if it also brought laudable environmental and health benefits. While these sorts of policy decisions come with positive effects, they increase the costs of the energy system and reduce the ability of consumers to absorb other costly decisions.

Declining Demand & Oversupply

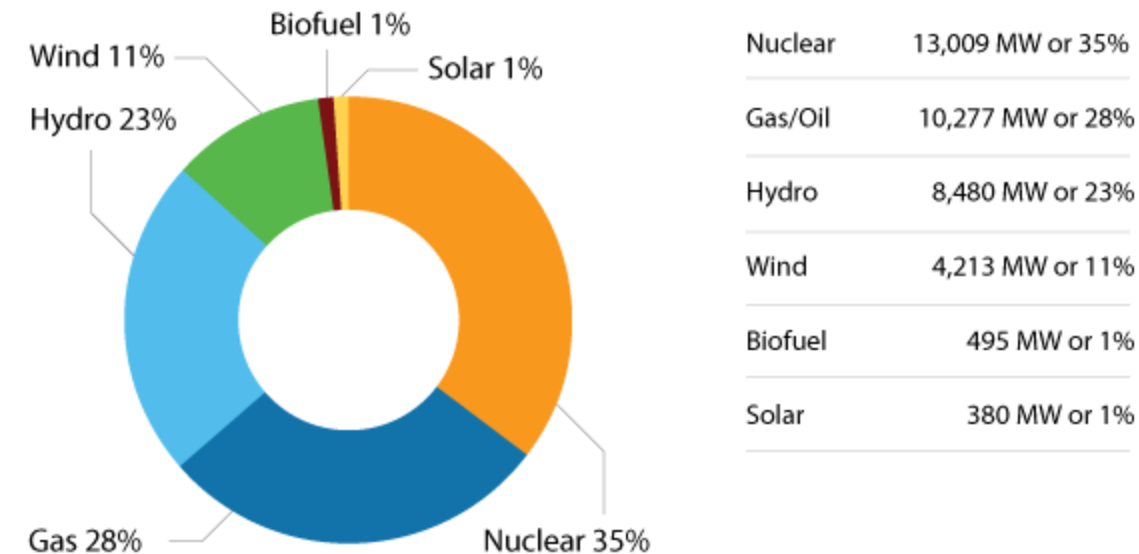
As with any projections, predicting the future demand for energy is a difficult and often inaccurate endeavour. Energy demand is influenced by the strength of the economy, technology, policy decisions, the regulatory environment, taxation and consumer preferences. The 2016 IESO *Ontario Planning Outlook* demonstrated this difficulty by projecting four different scenarios for electricity demand over the next 15 years. These scenarios range from modestly declining (Outlook A) to rapidly increasing demand (Outlook D).³⁵ Planning to ensure adequate energy supply for each of these scenarios leads to very different outcomes. Although the 2017 LTEP provided a single, flat demand projection, it remains to be seen whether increases in electrification, new technologies and environmental priorities will put renewed upward pressure on demand in the years to come.³⁶

The challenge for the energy sector is that as a complicated, capital-intensive industry, investments must be made years in advance based on these projections. Particularly for areas where demand is expected to grow, Ministry officials, system operators and LDCs must plan to procure new generation, transmission and distribution assets to serve rising demand. When projections are accurate, these new projects will add costs to a growing rate base. When they are not, or when procurement programs are too large—as has been the case in Ontario in the past decade—the result is new fixed costs which increase energy prices even though consumers are using less electricity. Making matters worse is the lack of market forces or effective competition in the procurement of previous generation, mistakes which have often been locked into long-term contracts.

Electricity demand in Ontario has fallen by 7% over the last 10 years, despite an increase in population of about 13 percent.³⁷ Over this same period, however, system planners had expected demand to rise. The result is an overbuilt system with installed generation now totalling 36,563 megawatts (MW). This total is almost 10,000 MW above the all-time demand peak of 27,005 MW, recorded on August 1, 2006. More recently, the Ontario summer peak for 2017 was 21,171 MW (September 25), much lower than the total installed supply.³⁸

This figure does come with a few important caveats. First, 4,000 MW of generation are sourced from wind and solar. This makes them intermittent and thus unreliable during times of peak demand. Second, the ongoing refurbishment of the province's two largest nuclear power plants (Bruce and Darlington) will require additional baseload generation, which will have to be relied upon during the summer and winter peaks.³⁹ Finally, while supply in Ontario has outpaced demand to a significant degree, some surplus in generation is preferable to being undersupplied as Ontario was in the early 2000s.⁴⁰

Installed Electricity Generation Capacity, 2016



Source: [IESO](#)

The declining demand and oversupply in the system has had a negative impact on prices and conservation efforts. Regardless of whether consumers in Ontario need the power or not, most generation is procured through contracts which guarantee specific prices. In the case of some renewable energy contracts, the IESO must purchase power when it is available or pay generators not to generate.⁴¹ This has led to the need for dams to “spill water” rather than run it through turbines, effectively wasting green energy. The Ontario Society of Professional Engineers estimates that this spillage totalled 7.6 terawatt hours (TWh) or approximately \$1 billion of electricity in 2016.⁴² When electricity is not being wasted, it is often being exported, well below the contracted price. These exports cost Ontario ratepayers an estimated \$5.8 billion between 2009 and 2015.⁴³

Oversupply has also had a negative impact on conservation programs. The economic rationale behind conservation programs is that reducing demand and encouraging energy efficiency benefits all ratepayers through avoided costs. Prices remain lower if the system doesn’t need to build additional infrastructure; ratepayers spend approximately \$300 million a year to fund conservation programs and avoid these costs. However, due to oversupply and the reality that many of the costs are based on long-term contracts, prices continue to rise despite the fact that Ontario has surplus capacity. When demand is reduced through conservation programs, these fixed costs still must be paid, but by fewer consumers who use less energy. Thus, the oversupplied market for electricity has created a situation where effective conservation programs can increase the price of a kilowatt hour of power, offering little to no relief.

These fixed costs and above-market rates for surplus generation have cost ratepayers significantly. In her 2015 Annual Report, the Auditor General found that over the last decade, generation costs had increased by 74% and the Global Adjustment (GA) had become the largest cost on consumer bills (she estimated that between 2007 and 2015, Ontarians paid \$37 billion in GA costs and can be expected to pay a further \$133 billion by 2032).⁴⁴ Although the government has disputed the meaning of these numbers, the cost of oversupply has surely been significant. Furthermore, the inflexible system limits the ability of participants to reduce costs through effective conservation.

The Green Energy Act & the Procurement of Renewable Energy

The plan to eliminate coal as a source of electricity generation required the provincial government to replace almost 20% of the province’s electricity generation. Instead of simply replacing coal with a similar source of power (such as natural gas), the government instead used this need for new generation to focus on renewable energy procurement. The result was the *Green Energy Act, 2009 (GEA)*, which prioritized the procurement of wind and solar power by exempting them from local planning restrictions and setting up the Feed-In Tariff (FIT) program, which would pay above-market rates for renewable power. According to the government, the *GEA* and FIT program had three main objectives:

- reduce GHG emissions by phasing out coal and including more renewable generation;
- reduce health risks from coal pollution; and
- create green energy jobs and attract investment capital to Ontario in the midst of the recession.⁴⁵

Despite these good intentions, the procurement of renewable energy in Ontario suffered from three significant failings. First, the intermittent nature of solar and wind power made it a poor choice as even a partial replacement for coal. Consumers expect electricity on-demand, not simply when the sun is shining or the wind is blowing. Because the demand for electricity and the supply of renewable energy do not always coincide, there are three potential responses:

1. Back up renewable power resources with a proportionate amount of reliable and dispatchable generation, such as coal or natural gas.
2. Utilize centralized or distributed energy storage to save wind and solar power when it is generated and dispatch it when needed.
3. Go without power or scale down operations when renewables are not available (demand management).

At the time the *GEA* was enacted, there were limited means of achieving options 2 and 3. Promising research and investment into energy storage has improved this option significantly and may eventually produce the reliable, low-cost storage necessary to support the broader adoption of competitively priced solar and wind energy, but this was not the case in 2009. Likewise, the growth of smart meters and data analytics provides more applications for demand management, but this alone cannot fully solve the renewable dilemma.

Instead, the provincial government has addressed the intermittency of solar and wind power by relying upon natural gas-fired generating stations for backup power (option 1). Unlike the renewables they support, gas plants are fully dispatchable—meaning they can be turned on and off as necessary. This allows them to respond to gaps between demand the supply of renewables and serve as “peaking power”—supplies that can be added to baseload generation to support periods of highest demand. According to the government’s estimates, for every 10,000 MW of wind generation, 47% of backup generation would be needed to ensure continuous supply.⁴⁶ Due to the overall surplus in generation along with the intermittent nature of renewables, these gas plants may sit idle for long periods of time, requiring them to charge a higher rate for electricity when they are generating. As the table below indicates, this makes gas power in Ontario artificially expensive, particularly compared to other jurisdictions which run their gas plants more frequently.

Total Electricity Supply Cost, 2017⁴⁷

	% of Total Supply	% of Total Global Adjustment	Total Unit Cost (Cents/kWh)
Nuclear	60%	40%	6.9
Hydro	24%	12%	5.8
Gas	6%	15%	20.5
Wind	8%	18%	17.3
Solar	2%	14%	48.0
Bio Energy	0%	0%	13.1

Source: [Ontario Energy Board](#)

The second failing was the *GEA*'s misguided attempt to kick-start a domestic solar and wind industry through subsidies funded by ratepayers. Enacted during the heart of the "Great Recession" in 2009, the government hoped that the *GEA* would kick-start a green energy industry in Ontario that would replace declining auto manufacturing employment. While the government claims that 42,000 jobs have been created by this effort (less than the 50,000 originally promised), independent critics have suggested that most new jobs were temporary installation contracts.⁴⁸ The recent closure of the Siemens wind turbine plant in Tillsonburg is but one example of the difficulty in retaining these jobs without large incentives.⁴⁹

Part of the failure of the *GEA* as a form of industrial policy was that some of its subsidies and contracts broke international trade rules. In 2013, a World Trade Organization ruling found that Ontario's domestic content requirements for renewable generators violated trade rules and must be cancelled.⁵⁰ Even if these measures had proved successful, this ruling made it impossible to continue.

The biggest problem with the attempt to use the *GEA* to grow a domestic green energy industry was subsidizing these efforts through electricity rates rather than the tax base (through above-market generation contracts and guaranteed procurement). This increased the price of electricity for all consumers, including energy-intensive industries in globally competitive sectors such as automotive manufacturing. Funding industrial support from the rate base is a self-defeating approach. Even if the province had successfully kick-started a profitable green energy industry, doing so would still have raised the cost of electricity, having a negative impact on much of the province's economy. This explains why green energy subsidies in many American states come from taxpayers and not ratepayers.

The third and final failing of the *GEA* is the high cost of green energy procurement. Much has already been written about the significant costs of the FIT program, particularly the high costs of early contracts. Some early solar contracts were at rates more than 10 times the cost of nuclear or hydroelectric power, receiving more than 80 ¢/kWh.⁵¹ In 2015, the Auditor General estimated that Ontario ratepayers had paid a total of \$9.2 billion above market rates for solar and wind power since 2009.⁵²

If anything, these figures understate the total cost of the *GEA* to ratepayers and the broader economy. Three other significant costs often go unrecognized. First, wind and solar power require transmission infrastructure to connect them to the grid. Wind power in particular is often located in areas of more frequent winds, but farther away from consumers.⁵³ It is unclear the degree to which this increased the costs of green energy, but it certainly contributed to higher prices. Second, as previously explained, wind and solar require some form of backup power (natural gas, in Ontario's case). The high cost of the gas plants which back up these intermittent renewables is rarely included in total cost estimates, but adds significant costs to the final bill. Finally, in addition to the high prices given to solar and wind generators, most producers were promised that the IESO would buy their power when available or be compensated. This has led to other, cheaper forms of power being displaced, including contributing to the spillage of water at hydroelectric dams.⁵⁴ Again, this wasted power is generally not included in estimates of the cost of solar and wind energy.

These added costs are not short-term. Most of the FIT contracts were signed on a 20-year term and will not expire until the second half of the 2020s or later.⁵⁵ As technology improves and the cost of renewable power continues to fall, Ontario cannot take advantage of these developments because these costs have been locked-in. These costly mistakes will continue to increase electricity prices for more than a decade and demonstrate the need to reform the way that new generation is procured. The province's recent decision to cancel future rounds of its Large Renewable Procurement (LRP) suggests that the government has acknowledged the folly of paying above-market rates for electricity in a system that is oversupplied.⁵⁶

Political Interference

The Board believes that the ideal energy system appropriately balances the principles of affordability, reliability and sustainability. While achieving this balance is not easy, energy policy in Ontario adds an additional consideration: political expediency. The significant control exercised by provincial and municipal governments creates a persistent temptation for ministers and MPPs, mayors and councillors to make energy decisions to serve their short-term political interests.

Although there is no good estimate of the total cost of political interference, here are a few examples of energy decisions made, in part, for political reasons:

- *Government-directed price freezes & reductions (1993, 2002, 2017)*

When electricity prices have increased too quickly or by too much, governments come under political pressure to intervene. These interventions generally do not address the fundamental reasons behind increased prices, but instead paper over these problems by borrowing money, subsidizing prices with tax dollars or deferring needed infrastructure investments. At best, these decisions defer costs to the future (when they will still need to be paid); at worst, costs increase due to failing infrastructure or increased interest payments.⁵⁷

- *Banning offshore wind*

Through the *GEA*, the provincial government put an emphasis on procuring wind and solar power. This focus on renewable power did not stop the government from issuing a brief moratorium against offshore wind power in 2007 (lifted in 2008) and another ban in 2011 (still in effect today). Despite the fact that offshore wind has a greater potential to produce power than coastal or onshore installations, the government banned it over concerns about effects on marine wildlife and drinking water.⁵⁸ However, these claims were based on virtually no evidence, and in 2016, Windstream Energy—a firm that had an offshore wind project cancelled by the moratorium—was awarded \$28 million in damages by a NAFTA tribunal.⁵⁹

- *Undercapitalization of Toronto Hydro & other LDCs*

As the sole shareholders of their LDCs, municipal governments often prioritize increasing annual dividends from their LDCs rather than reinvesting in their operations. For example, over the past several decades, the City of Toronto has decided to sell off assets outside of its core responsibilities as a local distribution company. In virtually all of these sales, the City has chosen to spend these funds on other priorities, despite the significant infrastructure deficit faced by the LDC. The recent decision of Toronto Hydro's Board to slash the dividend paid to the City—and the subsequent response of Council to reinvest in the LDC—highlights the lack of a proper long-term capital strategy.⁶⁰

- *Cancellation of the Mississauga and Oakville gas plants.*

The cancellations occurred in the lead-up to (Oakville) and during (Mississauga) a provincial election when it became clear that local residents and municipal politicians opposed the plants. The cancellations occurred despite the fact that system planners had identified a clear need, they had received regulatory approval and construction had actually begun on the Mississauga plant.⁶¹ The Auditor General estimated that the total cost for the cancellation and relocation will reach \$1.1 billion.

This last example demonstrates the dangers of unfettered political control of the energy system. The Mississauga and Oakville gas plants were sited and approved by an arm's-length bureaucracy entrusted with energy planning (the now-defunct Ontario Power Authority).⁶² Despite a system designed to limit political interference, the government still made a costly political decision.

In any energy system, even one with a large degree of private sector participation, the government will always have a role to play in regulation, safety and consumer protection. However, the present system is one where provincial and municipal politicians have a great deal of authority to make political decisions concerning energy with limited oversight or consequences. This not only puts upward pressure on prices, but also is potentially the strongest factor behind the other three challenges facing the energy system: a complicated system for consumers, political risk and the difficulty in integrating new technology.

A BETTER ENERGY SYSTEM FOR ONTARIO & THE TORONTO REGION

Ontario's energy system, particularly its electricity sector, may be beset by numerous problems, but the system can be fixed. Many of the difficulties facing it stem from poor government decisions; this means corrections can be made through better policy choices. Ontario still benefits from robust nuclear and hydroelectric industries, innovative and growing start-ups specializing in district energy, renewable energy and storage, and tens of thousands of experienced energy professionals. To build on these strengths and correct the policy mistakes of the past, the Board proposes the following five recommendations.

Improve Governance

Many of the problems with Ontario's energy sector identified by this report are not one-time occurrences. According to one energy analyst:

Every 10 years or so, the government of Ontario finds it necessary to freeze or cut electricity prices because the costs of an ambitious energy policy prove to be politically unacceptable. This leaves every generation of electricity customers paying for the cost of a failed experiment from a previous generation.⁶³

This troubling and repetitive history is directly linked to the poor governance structure in Ontario's electricity system. Provincial and municipal governments have few limits to their decision-making powers and often make decisions based on political concerns and not system needs. All of these recommendations are, in part, about introducing constraints into the system that will help improve governance. Competitive procurement, transparency and an expanded role for the private sector reduce the ability of governments to act unilaterally, behind closed doors.

While these reforms will contribute greatly to improved governance and decision-making in the energy sector, further changes are necessary to enhance the oversight and regulatory capacity of the OEB and the IESO. To begin with, legislation should be introduced to repeal the reduction in oversight made by the *Energy Statute Law Amendment Act, 2016*. This legislation weakened Ontario's already feeble oversight of government decisions by removing the OEB's role to review procurement and planning to determine if it is "economically prudent and cost effective."⁶⁴ Likewise, the IESO's planning role is restricted to generation while the provincial government's authority is extended to the distribution sector (historically managed by municipal LDCs and regulated by the OEB).⁶⁵ Accompanying the recent release of the LTEP, the Ministry sent detailed directives to both agencies with 30 initiatives that the agencies must address in their implementation plans, further limiting their independence.⁶⁶

Instead, reforms to governance should be moving in the opposite direction, towards greater oversight. In recent months, the Ontario Electricity Stakeholders Alliance and others have proposed that governance of the electricity sector should be significantly improved. This can be accomplished by adopting a number of measures. First, the provincial government should confine itself to setting the broad objectives of the system and ensure a robust regulatory framework. The government should not pick specific technologies or providers. The decisions necessary to achieve these objectives should be made by system operators (IESO) and public and private service providers of generation, transmission and distribution, all under the auspices of a robust and independent OEB.

Second, to strengthen the authority and independence of electricity agencies and LDCs, the government should ensure that its policy decisions are made transparently. The Long-Term Energy Plan should be introduced in the legislature and should receive scrutiny through the committee process. To ensure that this transparency is not undermined, all meetings between government and agency officials should be registered in the same way that private sector representatives must register.

Third, both the government and electricity agencies must make major decisions public and present a proper cost–benefit analysis for significant policy choices. To ensure that legislators and the public have an unbiased source of expert information on energy decisions, a new position should be created within the Financial Accountability Office (FAO) to evaluate energy policy and its economic impact. This position would report through the FAO, reducing the possibility of government interference.

Reform Ontario's Electricity Procurement

Ontario's history of politicized, uncompetitive procurement has created an expensive and inflexible system where above-market prices are preserved for years through long contracts. While some large procurement projects—notably nuclear—will involve a role for government, the remainder of the market would greatly benefit from less centralized decision-making and more competition. In recent years, many analysts and organizations have concluded that Ontario's market for electricity would benefit greatly from adopting new mechanisms, including a capacity auction.⁶⁷ However, whether through a capacity auction or a better Request for Proposal (RFP) system, Ontario needs to improve procurement through transparency and competition. In a sense, Ontario's electricity market needs to become more like the markets for gasoline and natural gas, as the fuels system already has a greater degree of competition and transparency.

As the previous section indicated, the high price of electricity and many of the other problems in the system have been caused by the uncompetitive procurement process. Particularly over the last decade, the government has purchased power at artificially high prices and sometimes outside of a competitive bidding process, most infamously through the FIT program for renewables. Despite recent suggestions from the government that they would be moving to a more competitive, technology-agnostic procurement process, recent actions suggest differently. The recent contract to purchase electricity from Quebec (as well as secret negotiations to expand this program) reveals that the government is still engaged in uncompetitive procurement practices.⁶⁸

The IESO has also identified the need to reform the way that the wholesale electricity market is managed and is proposing a Market Renewal plan, involving three broad changes:

1. **Energy:** Move to a single-schedule market, including locational marginal pricing for suppliers, improved generation commitment and dispatch in real time, and a financially binding day-ahead market.
2. **Operability:** Increase system flexibility and improve utilization of interties (interconnections) with neighbouring systems to reduce the cost of surplus-generation conditions, variable renewable generation uncertainty and the need to curtail resources.
3. **Capacity:** Improve procurement of resources to meet the province's resource adequacy needs through an incremental capacity auction that stimulates competition from all qualified supply resources in a technology-neutral manner.⁶⁹

This latter reform is particularly significant given recent procurement history in the province. A full commitment by both the IESO and the provincial government to a technology-neutral, competitive procurement would avoid the costly, above-market contracts that have been signed, such as wind and solar under the FIT program. Proper implementation of such a market would also require any additional electricity imports from Quebec to be competitive with existing Ontario generation, rather than being purchased through another centralized, long-term contract commissioned by the government. The government's future cost projections in the LTEP are relying heavily on these market forces to reduce future costs, making this an important reform.

Whether through the IESO's Market Renewal process or simply through a thorough reform of the existing RFP system, a new approach is needed to achieve a competitive, efficient and transparent market for energy. A truly open and competitive market will also offer the flexibility to take advantage of different approaches and new technologies such as electricity and thermal storage, combined heat and power as well as district energy, particularly where these offer lower costs. The goal is not to select specific technologies, but to ensure that competitive principles are paramount.

Even large hydroelectric and nuclear procurements can stand to benefit from a renewed emphasis on competition, transparency and market forces. These large procurements, particularly nuclear, require years of planning and very large investments that need to be amortized over long periods of time. However, large hydro and nuclear assets provide a constant supply of power at rates below other contracted offerings, reducing the urgency of reforming the market for this type of power (see previous table comparing total supply costs). To keep these contracts on time and on budget, strict oversight and competitive bidding must be maintained. The risk transfer and cost-sharing provisions can also add further competitive pressure. In addition, the "off-ramps" included in the current refurbishment plans—allowing the government to cancel the refurbishment of future reactors should costs rise too high—provide a way for the government to maintain cost pressure on this process.

Beyond providing reliable baseload power, Ontario's nuclear industry is ripe for further development that a more competitive procurement system could encourage. Nuclear technology is on the cusp of significant technological change, with research and deployment into small modular reactors (SMRs), thorium and even fusion power. With nuclear plants at Bruce, Darlington and Pickering, Ontario already has a robust supply chain for nuclear technology and supplies. As the world moves towards electricity sources that do not emit GHGs, the province should look for opportunities to not only deploy these resources domestically but also seek new export markets. Any deployment should meet the industry's stringent safety standards as well as market demands, but the government and regulators should ensure the system is flexible enough to accommodate and encourage nuclear innovation.

Reform Electricity Pricing

With few exceptions, energy markets (both for electricity and fuels) are supposed to be self-financing. The fees collected cover everything from generation or fuel purchase to delivery and regulation. The weakness of this approach is that it provides the government with a self-contained revenue pool that is not split between competing priorities the way that tax revenue must fund healthcare, education and more.⁷⁰ In addition, many decisions regarding electricity procurement and infrastructure do not face nearly the same level of scrutiny as normal government spending decisions. The lack of transparency is exacerbated by the use of the Global Adjustment (GA) as a catchall for system costs. The result is a system that is confusing for consumers and burdened with additional costs that are not directly necessary to the functioning of the electricity system.

Electricity pricing requires two broad reforms. First, most costs not directly related to generation, transmission and distribution should be moved out of electricity prices and either funded by the tax base or cancelled. The Board was encouraged by the provincial government's recent decision to fund the Rural or Remote Rate Protection (RRRP) program and the Ontario Electricity Support Program (OESP) from tax dollars and not electricity prices. This is a more appropriate model for what are essentially income assistance programs. Rather than increasing electricity prices to fund these programs (and thus potentially making more people eligible for support), they are better funded from tax revenues and coordinated with other welfare strategies.

The one exception to this removal of other costs from the electricity price is maintaining funding for conservation programs. When properly designed and administered, conservation programs decrease overall system costs by reducing peak consumption and reducing or delaying the need for new generation and delivery infrastructure. However, to maintain funding, all conservation programs should undergo regular value-for-money audits to ensure that they continue to be effective at lowering costs. The recent decision to end the Peaksaver PLUS program—which allowed utilities to remotely access home thermostats and reduce energy usage during peak times—indicates that the government is already moving in this direction.⁷¹

The second change necessary is to increase the simplicity and transparency of the electricity price. Much of this will occur through other reforms recommended by this analysis; as non-electricity costs are removed from prices and procurement becomes more competitive, many of the additional costs currently funded by the GA will no longer apply. The expiry of uncompetitive contracts (such as the FIT program) along with the implementation of competitive procurement will further shift costs from the opaque GA to the more transparent commodity price. Remaining charges, including conservation programs and carbon pricing (such as cap and trade) should be itemized transparently. Although the average consumer may not understand or care about these nuances, this information should still be clearly presented for those who are interested. This will allow interested consumers to track what costs are increasing their electricity bills.

Changes in electricity should also become more predictable. Currently, the OEB allows prices to change every six months. However, the government is able to introduce other changes to prices that do not have to coincide with these periods. The result is a situation in which customers may experience price changes as many as three to four times in a single 12-month period. To make price changes simpler to follow, all price and regulatory changes should be implemented at a single time of year. This will make it easier for consumers to account for all relevant changes at the same time, instead of spread out over the year.

If these changes are implemented, pricing will be simpler and more transparent. This will increase the accountability for decision-makers, as it will make it easier for consumers to track the effects of energy policy. The goal is to produce an Ontario Electricity Price that clearly presents the cost of energy and provides an effective price signal to suppliers and consumers.

Expand the Role of the Private Sector

Unlike the energy system of the 1980s and earlier, Ontario has significantly increased the role of the private sector in most aspects of the system. Private companies generate electricity, build and manage pipelines, run gas stations and provide innovative energy technologies. Private sector involvement introduces innovation and new technology, needed capital investments and competitive pressure which encourages efficiency. A flexible and more competitive market for electricity will allow these benefits to become more pronounced.

Despite a successful role for the private sector in fuels and electricity generation, other parts of the electricity sector have not had the same level of involvement. Until the recent sale of shares in Hydro One, the transmission and distribution sectors were virtually devoid of private ownership, with provincial and municipal governments keeping full control. Although the provincial sale of Hydro One shares provides a viable model for introducing private ownership into municipally owned LDCs, city governments are not following this example. The Board believes this is a missed opportunity—cities, beginning with those in the Toronto region, should move immediately to include private sector ownership and capital within LDCs.

The sale of shares in LDCs provides more than an immediate capital boost to cash-strapped municipalities—it also provides the capital and expertise needed to introduce new technology and develop new lines of business.⁷² The three major LDCs in the Toronto region—Toronto Hydro, Alectra and Veridian—all run numerous pilot programs for new services, including distributed energy resources. Unfortunately, municipalities do not have the funds or risk appetite necessary to invest in innovation, and LDCs cannot divert revenues from their core operations, as these are strictly regulated by the OEB.

Two Canadian LDCs provide models for how a greater private role for LDCs can provide greater returns for consumers and governments. In Alberta, Edmonton's LDC EPCOR was reorganized in the 1990s to put it at arm's length from the City and eventually allow it to raise private capital for new lines of business. For instance, in 2009, EPCOR split itself into two parts, allowing it to sell shares in its generation arm, raising capital and allowing for further expansion.⁷³ Although the core business is still wholly owned by the City of Edmonton, EPCOR has expanded to include utilities and other energy assets throughout Canada and the United States. The result is a more efficient and diversified LDC, a greater financial return for the City and a vehicle for private investors.

Similarly, Fortis Energy, founded in Newfoundland, provides an example of how the private sector has effectively managed and expanded from the starting point of a small-market LDC. Unlike EPCOR, Fortis has been privately owned for decades, which has allowed it to aggressively expand and diversify throughout Canada and the US.⁷⁴ By owning multiple assets, Fortis is a safer investment and can draw on a broader range of expertise across its subsidiaries.

In keeping with the examples of EPCOR and Fortis, Hydro One's recent acquisition of Avista, an American utility, demonstrates that such expansion and diversification is possible in Ontario if LDCs incorporate private capital and management.⁷⁵ Similarly in Toronto, the successful privatization of the Toronto District Heating Corporation, now Enwave, brought in \$100 million in needed funds for the City, while providing Enwave with the freedom and resources to expand and succeed.⁷⁶

Greater private ownership of LDCs will also provide an important check on city councils and their involvement in LDC operations. While municipal councillors will retain an important role as conduits for public feedback and, in some cases, as members of LDC boards, the present ownership model subjects LDC management to the constant risk of political intervention. Even partial private ownership will require municipal governments to maintain a disciplined approach to LDC management in order to maintain the confidence of private investors (not to mention, avoid frivolous political decisions that could lead to lawsuits). Regardless of the level of privatization, all municipalities would benefit from copying Edmonton's model of arm's-length ownership of EPCOR, where the City appoints an independent Board of Directors and does not interfere in daily operations.⁷⁷

Again, the sale of shares in Hydro One provides municipalities with a model for how partial privatization could proceed. Rather than attempt to reach a maximum level of private involvement in one sale, municipalities should begin by selling 10% of these utilities. This allows municipalities to slowly acclimatize themselves to the involvement of private investors while still retaining overall control. Private investors could then work with LDC executives to identify the most profitable areas for expansion or new operations. The Affiliate Relationship Code offered by the province could allow LDCs to immediately leverage private capital to expand into new business lines, which could provide new and better services to consumers while also increasing returns for both public and private investors. Done successfully, the short-term reduction in municipal dividends from a partially privatized LDC can be replaced by a larger and more diverse company.

To help facilitate the sale of shares in LDCs, the provincial government announced tax incentives to encourage consolidation in its 2015 Budget.⁷⁸ These included reducing the transfer tax to 22% from 33% (with full exemption for smaller utilities) and removing the capital gains portion of the departure tax.⁷⁹ The government announced these incentives would only be available until 2019. Although there has been some consolidation—most notably the creation of Alectra from the merger of PowerStream, Enersource and Horizon, along with the acquisition of Hydro One Brampton—there has not been nearly the kind of progress that the province sought and the industry needs.

A more permanent solution is needed to facilitate private sector investment in LDCs. As long as municipalities face the potentially severe tax consequences of bringing in much-needed private capital, and the uncertainty about the future of the entire LDC tax regime, we cannot expect progress. The best approach would be for the province to eliminate these taxes altogether. While this may mean that the province forgoes some tax revenue (or payments in lieu), there is an opportunity to reach an accommodation with the federal government. Ontario could negotiate an arrangement under which the federal government would, for a set period of time, pay the province any corporate tax revenue it earns from municipally owned distributors. Canada does not currently receive any corporate taxes from LDCs so it would lose no revenue.

There is no shortage of private capital willing to invest in the LDC sector, just as there is already private capital throughout the gas distribution sector. Companies like Corix already own a portion of one LDC (Entegrus), and OMERS, the municipal pension fund, owns a piece of another (Alectra) as a consequence of a prior investment in Enersource. Fortis is a significant player in the LDC sector, often acting as a consolidator, but to do so it has had to rely upon unduly complicated arrangements.⁸⁰ The objective should be to achieve neutrality between public and private sector ownership of LDCs to encourage the necessary consolidation and infusion of capital.

The model of purely public ownership is akin to a security blanket—it conveys the feeling of safety and control of a vital resource: the electricity system. However, this unfettered control has been a liability, leading to costly decisions that are made in a non-transparent fashion. Municipalities should take advantage of the many benefits of private capital and management by selling shares in LDCs at the earliest opportunity.

Price Carbon

It is not enough for businesses to advocate solely for an affordable and reliable energy system; they must also be concerned about sustainability and the environmental impacts of our energy choices. Pollution, including greenhouse gas (GHG) emissions, is a negative externality that impacts society, and government has a responsibility to regulate it. The need to reduce GHG emissions puts a special responsibility on the energy sector, as carbon-based fuels (including coal, natural gas and liquid fuels such as gasoline) are the largest source of CO₂ and other by-products which contribute to global warming.

The Toronto Region Board of Trade believes that for most forms of GHG emissions, the most effective approach is to put a price on carbon and allow companies, residents, non-governmental organizations, researchers and entrepreneurs to find the best ways to reduce pollution.⁸¹ This price can be achieved through either a cap and trade system or a carbon tax, but should slowly and predictably rise over time to encourage emissions reductions. However, as with energy procurement, the government should not be attempting to pick particular technologies or setting targets for fuel or electricity usage. This type of micromanagement was the fatal flaw of the FIT contracts and is unfortunately a feature of the Climate Change Action Plan (CCAP).⁸² Ontario must learn from the mistakes of the past and rely on competition and private sector innovation, aided by a rising carbon price, to achieve an efficient and lasting benefit to the environment.

To ensure that carbon pricing has support from the public and does not seriously harm the economy, any system should exhibit the following characteristics:

Transparency

Pricing carbon will increase the price of many goods and services, but for most consumers, the most obvious increases will come in the cost of gasoline and natural gas. Where possible, the increases attributable to carbon pricing should be presented transparently to consumers as a separate line item (in contrast to the recent decision of the OEB).⁸³ This allows consumers to understand what price increases are attributable to cap and trade and use this information

A commitment to transparency also extends to the government and its reporting of revenues. Whether through a cap and trade or carbon tax, these revenues should be reported separately from general revenue. Spending from this account should only be put to programs related to carbon pricing (described below). Thus far, Ontario has done a good job of ring-fencing cap and trade revenues, but this needs to continue as the program matures.

Support for Energy-Intensive, Trade-Exposed Industries

Critics of carbon pricing often point to the threat of displacement as a reason not to introduce a carbon tax or cap and trade scheme. Displacement is when a province or country reduces their emissions due to emitting firms relocating to jurisdictions that do not have carbon prices. This risk is particularly significant for energy-intensive, trade-exposed (EITE) industries such as chemical, cement, steel and automotive manufacturing. Many of these industries, already facing intense global competition, can ill afford to pay an ever-increasing carbon price. Without some special consideration, many will instead choose to move to other jurisdictions and export their products back into Canada.

Although it is tempting to consider putting a tariff on these kinds of products, in practice such a policy can be difficult to enforce, can cause friction with trading partners and may still not be enough to discourage companies from relocating (particularly if they are trading with many other countries). The most effective response is instead to provide relief directly to EITE industries through free carbon credits or tax rebates. Importantly, this support should not simply target large firms; consideration must be given to small and medium-sized enterprises (SMEs) within EITE industries.

In a cap and trade system, this can be delivered through free credits, while a carbon tax may issue exemptions or rebates. This approach prevents companies from relocating due to carbon pricing, which does nothing to reduce global emissions but directly harms local economies.

Use Tax Cuts or Rebates to Build a Revenue-Neutral System

The most contentious issue concerning any carbon price (beyond whether to impose one at all) is what should be done with the revenues. Jurisdictions such as Ontario and Quebec have decided to use any revenues raised to fund programs to further decrease GHG emissions. In contrast, British Columbia and Alberta have chosen to return most-to-all revenues back to taxpayers in the form of tax cuts or rebates.

The Board believes this latter approach is the best way to distribute revenues from carbon pricing, for three reasons. First, operating costs for businesses, non-profits and other organizations in the Toronto region and Ontario generally are already high. High electricity prices, increased labour costs and the difficulties presented by congestion and the high costs of housing present significant challenges. Carbon pricing should be used to increase the relative costs of carbon-intensive goods and services rather than simply increase costs for all businesses without recourse or relief.

Second, while the idea of reinvesting carbon pricing proceeds towards further reductions in GHG emissions is appealing, governments are often poor at selecting effective investments. This report has cited numerous examples of governments making poor and politicized decisions in the energy sector, leaving significant costs for consumers; there is no reason to believe cap and trade revenues will be spent more effectively. For instance, a recent analysis from the Ecofiscal Commission of Canada has found that electric vehicle subsidies in Quebec are a very expensive way to reduce GHG emissions.⁸⁴ Ontario has a similar program and has even expanded it recently to include more expensive vehicles.⁸⁵ For programs that are efficient and worth investing in—such as research and development or certain types of energy efficiency programs—the government can fund these through existing revenues or conservation spending. This forces these programs to be evaluated on their cost-effectiveness rather than simply on whether they decrease emissions, regardless of the cost. It also avoids the kind of duplication exemplified by recent energy efficiency programs announced under the CCAP that seem to overlap with established conservation initiatives.

Third, providing businesses and residents with tax cuts and rebates is more likely to ensure long-term support for carbon pricing and allow the price to rise continually over time. Public opinion research from BC indicates that almost two-thirds of British Columbians support the carbon tax, and a 2013 poll further indicated that a majority of Canadians (in all provinces except Alberta) would support carbon pricing that also cut other taxes.⁸⁶ Compared to polls in Ontario which have found that residents are in favour of addressing climate change but are not keen on the present cap and trade scheme, this suggests that returning revenues through tax cuts and rebates is more likely to be politically sustainable. Additionally, without some kind of offsetting rebates or cuts, it is difficult to see how it will be politically possible to raise carbon prices to the level that economists believe will be needed to make a significant impact on behaviour (\$100 to \$200 per tonne). As Roger Pielke correctly identified, when citizens are faced with a major trade-off between economic well-being and the environment, the economy will almost always triumph.⁸⁷

A fully transparent carbon pricing system that supports EITE industries and returns its proceeds in tax cuts is the kind of sustainable environmental action that businesses and residents can support. A system that misses any of these characteristics is likely to hurt the economy or lack the necessary support to persist over the long term.

CAP & TRADE OR CARBON TAX?

Once a country, province or state decides to put a price on carbon and other GHG emissions, the next question is whether this should be a cap and trade system or a carbon tax. For the Ontario carbon price, the Board is agnostic to the question of which system should be used, as both come with advantages and disadvantages.

In addition to incumbency, the cap and trade system has a few notable benefits. As the name suggests, emissions permits can be traded between firms. This allows firms that are effective in reducing their emissions to sell surplus credits in the market, creating an immediate return on investment for GHG reductions. In addition, the trading of credits allows market forces to find the most efficient forms of GHG reduction—if certain firms can reduce emissions more cheaply than others, this saves money for the entire economy. Finally, cap and trade systems provide governments with predictability in GHG reductions: as the cap falls, so must emissions (assuming there are sufficient penalties for violations).

The advantageous qualities of cap and trade must be balanced against its weaknesses. For businesses, the more significant problem with the system is its complicated nature. Firms must participate in auctions, sometimes linked with other jurisdictions (such as Ontario joining a common carbon market with Quebec and California), where prices can be unpredictable. Secondary markets for trading between firms can be difficult for SMEs to manage. For governments, the largest difficulty comes from determining the correct number of emissions permits to issue. Set the number too low and a steep carbon price will harm the economy. Set it too high, as in Europe and occasionally in the Western Climate Initiative market (which Ontario is due to join in 2018), and prices fall to the point where there is little incentive to reduce emissions.⁸⁸

The strengths of a carbon tax are, in effect, the inverse of the weaknesses of cap and trade. Carbon taxes are much simpler to comprehend and administer, lowering compliance costs for businesses. Governments also have full control over the price, rather than leaving it to a market to determine, creating predictability. However, the simplicity and predictability of a carbon tax also remove the possibility of market forces further reducing the cost to firms, as with cap and trade.

As the form of carbon pricing is debated in Ontario, the Board believes that the most important task for policymakers is to ensure that the system used exhibits the three qualities identified by this report: transparency, support for EITE industries, and rebates for businesses and the public.

CONCLUSION

In the long term, an effective and efficient energy system is not one founded on a specific policy decision or a particular type of generation. Instead, good energy policy for the Toronto region and the province is centred around strong principles, transparent institutions and consistent rules. Central to this is independent governance, open competition and limits to government subsidies. This allows businesses to plan for a more predictable and rational system, less prone to political whims.

There are no easy solutions to the immediate challenge of high electricity prices, at least in the near and medium term. The mistakes that have driven these increases, from underinvestment in infrastructure to costly green energy procurement, have introduced costs which are locked into the system for years to come. What is possible now is to set the course to a better system for consumers, one which brings together the public and private sectors as well as intelligent policymaking and regulation with the benefits of market competition. By making wise decisions now, we can ensure a better energy system for the future, one that meets all of the key objectives of affordability, reliability and sustainability.

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