

Université de Montréal

**The adoption of advanced feed-in tariffs in Ontario:
A case of institutional layering**

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Ce mémoire intitulé:
The adoption of advanced feed-in tariffs in Ontario:
A case of institutional layering

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Résumé

En mai 2009, l'Ontario a adopté la Loi sur l'énergie verte et devint ainsi la première juridiction en Amérique du Nord à promouvoir l'énergie renouvelable par le biais de tarifs de rachat garantis. En novembre 2010, dans son Plan énergétique à long terme, la province s'est engagée à déployer 10,700 MW en capacité de production d'énergie renouvelable non-hydroélectrique par 2018. Il s'agit de la cible de déploiement la plus élevée dans ce secteur au Canada. Les infrastructures de production et de distribution d'électricité comprennent des coûts d'installation élevés, une faible rotation des investissements et de longs cycles de vie, facteurs qui servent habituellement à ancrer les politiques énergétiques dans une dynamique de dépendance au sentier. Depuis le début des années 2000, cependant, l'Ontario a commencé à diverger de sa traditionnelle dépendance aux grandes centrales hydroélectriques, aux centrales à charbon et aux centrales nucléaires par une série de petits changements graduels qui feront grimper la part d'énergie renouvelable dans le mix énergétique provincial à 15% par 2018.

Le but de ce mémoire est d'élucider le mécanisme de causalité qui a sous-tendu l'évolution graduelle de l'Ontario vers la promotion de l'énergie renouvelable par le biais de tarifs de rachat garantis et d'une cible de déploiement élevée. Ce mémoire applique la théorie du changement institutionnel graduel de Mahoney et Thelen au cas du développement de politiques d'énergie renouvelable en Ontario afin de mieux comprendre les causes, les modes et les effets du changement institutionnel. Nous découvrons que le contexte canadien de la politique énergétique favorise la sédimentation institutionnelle, c'est-à-dire un mode changement caractérisé par de petits gains favorisant l'énergie renouvelable. Ces gains s'accumulent pourtant en transformation politique importante. En Ontario, la mise sur pied d'une vaste coalition pour l'énergie renouvelable fut à l'origine du changement. Les premiers revendicateurs de politiques favorisant l'énergie renouvelable – les environnementalistes et les premières entreprises d'approvisionnement et de service en technologies d'énergie renouvelable – ont dû mettre sur pied un vaste réseau d'appui, représentant la quasi-totalité de la société ontarienne, pour faire avancer leur cause. Ce réseau a fait pression sur le gouvernement provincial et, en tant que front commun, a revendiqué l'énergie renouvelable non seulement comme solution aux changements climatiques, mais aussi comme solution à maints autres défis pressants de santé publique et de développement économique. La

convergence favorable d'un nombre de facteurs contextuels a certes contribué à la réussite du réseau ontarien pour l'énergie renouvelable. Cependant, le fait que ce réseau ait trouvé des alliés au sein de l'exécutif du gouvernement provincial s'est révélé d'importance cruciale quant à l'obtention de politiques favorisant l'énergie renouvelable. Au Canada, les gouvernements provinciaux détiennent l'ultime droit de veto sur la politique énergétique. Ce n'est qu'en trouvant des alliés aux plus hauts échelons du gouvernement que le réseau ontarien pour l'énergie renouvelable a pu réussir.

Mots-clés: énergie renouvelable, tarifs de rachat garantis, sédimentation institutionnelle, Ontario

Abstract

In May 2009, Ontario adopted the Green Energy and Green Economy Act and became the first jurisdiction in North America to promote renewable energy through advanced feed-in tariffs. In November 2010, in its Long-Term Energy Plan, the province pledged to deploy 10,700 MW of non-hydroelectric renewable energy capacity by 2018, the highest such target in Canada. Electricity production and distribution infrastructure is characterized by high setup costs, low capital stock turnover and long life spans, factors that traditionally entrench energy policy in path-dependent trajectories. Since the early 2000's, however, Ontario has diverged from its historic reliance on large hydro, coal and nuclear through a series of gradual policy shifts set to expand renewable energy's share in the overall supply mix to 15% by 2018.

The purpose of this thesis is to uncover the causal mechanism behind Ontario's gradual shift toward the promotion of renewable energy through advanced feed-in tariffs, accompanied by high deployment targets. The thesis applies Mahoney & Thelen's theory of gradual institutional change to the case of renewable energy policy development in Ontario, providing new insight into the causes, modes and effects of institutional change. The thesis finds that the Canadian energy policy context favors a layering pattern of change, characterized by small, yet cumulative, renewable energy policy gains. The driving force of this process involves coalition building. To achieve renewable energy policy gains, Ontario's first renewable energy proponents, mostly environmental groups and early renewable energy supply and service firms, had to build a wide-ranging, multi-stakeholder network of allies and lobby government from a unified front, presenting renewable energy as a solution not only to climate change but a combination of other immediately pressing public health and economic challenges. Elements of timing greatly aided the renewable energy network's campaign. Ultimately, however, the thesis finds that, given provincial governments' ultimate veto power over energy policy, finding allies in the top echelons of government was most crucial to the renewable energy network's success.

Keywords: renewable energy, feed-in tariffs, institutional layering, Ontario

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Table 2.2.2 Contextual and Institutional Sources of Change Agents

Acronyms and abbreviations

ACC	Advisory Committee on Competition
the Alliance	Green Energy Act Alliance
AMO	Association of Municipalities of Ontario
AMPCO	Association of Major Power Consumers in Ontario
APPRO	Association of Power Producers of Ontario
BMU	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
CAE Alliance	Clean & Affordable Energy Alliance
CanSIA	Canadian Solar Industries Association
CanWEA	Canadian Wind Energy Association
CBC	Canadian Broadcasting Corporation
CDM	Conservation and demand management
CERI	Canadian Energy Research Institute
CFRE	Citizens for Renewable Energy
DSF	David Suzuki Foundation
EDA	Electricity Distributors Association
ECSTF	Electricity Conservation and Supply Task Force
FIT	Feed-in tariff
GEGEA	Green Energy and Green Economy Act
GEC	Green Energy Coalition
HI	Historical institutionalism
IEA	International Energy Agency
IESO	Independent Electricity System Operator
IPCC	Intergovernmental Panel on Climate Change
IPPSO	Independent Power Producers' Society of Ontario
IPSP	Integrated Power System Plan
kW	Kilowatt
kWh	Kilowatt-hour
LAO	Legislative Assembly of Ontario
LDC	Local distribution company
MW	Megawatt
MWh	Megawatt-hour
NIMBYism	"Not in my backyard"
NRCAN	Natural Resources Canada
OCAA	Ontario Clean Air Alliance
OEB	Ontario Energy Board
OECD	Organisation for Economic Co-operation and Development
OH	Ontario Hydro
OMA	Ontario Medical Association
OPA	Ontario Power Authority
OPG	Ontario Power Generation
OSEA	Ontario Sustainable Energy Association
PD	Path dependence
PE	Punctuated equilibrium

PWU	Power Workers' Union
RE	Renewable energy
REN21	Renewable Energy Policy Network for the 21 st Century
RESOP	Renewable Energy Standard Offer Program
RFP	Request for proposals
RPS	Renewable portfolio standard
TEA	Toronto Environmental Alliance
USEIA	United States Energy Information Administration
TWh	Terawatt-hour

“Out of the ruins of the Old world, cornerstones of the New can be seen to emerge (...)”

Karl Polanyi, 1944

INTRODUCTION

In the context of rising concern for the problems of energy security and climate change (IEA/OECD 2007; IPCC 2007), all societies today face pressure to green their economies by decoupling economic growth and the use of fossil fuels. Given that electricity generation and use are two of the world's largest contributors of greenhouse gases, producing over a quarter of global emissions (IPCC 2007: 36), renewable energy (RE) deployment has emerged as a key component in the mix of policies commonly advocated as being necessary for the transition to a green economy.¹ At the same time, governments intent on transitioning to a low carbon energy future face many challenges related to investment in new infrastructure, long-term horizons in capital stock turnover, and providing stable electricity supplies at relatively low cost.

In response to these common challenges, 118 countries across the globe have developed RE deployment targets by 2011, up from 109 the previous year (REN21 2012: 65). There is however, from one jurisdiction to another, wide variation in both the stringency of targets and the policies adopted to achieve these. In North America, the policy of choice has been renewable portfolio standards (RPS), implemented in over thirty U.S. states and Canadian provinces since the mid-1990s (REN21 2012: 119).² An RPS involves an obligation “placed upon electricity suppliers to provide a set quantity or percentage of their electricity supply from renewable energy sources” (Rowlands 2007: 186). In contrast, Europe has taken a different policy approach, involving the use of feed-in tariffs (FITs).³ FITs are “a guaranteed

¹ This being said, RE uptake policies are not a panacea. According to the International Energy Agency, pro-RE policies should be combined with a carbon-pricing mechanism and energy efficiency measures to really kick-start the green transition (IEA 2012: 119-125).

² RPS are also known as renewables' obligations or quotas.

³ FITs are also known as guaranteed prices or payments, or standard offer contracts.

price per unit of electricity that a utility, supplier, or grid operator is required to pay for renewable electricity from privately owned generators” (Rowlands 2007: 186). Following Germany’s adoption of a limited FIT scheme in 1990, most European countries have opted for this policy (REN21 2012: 118).

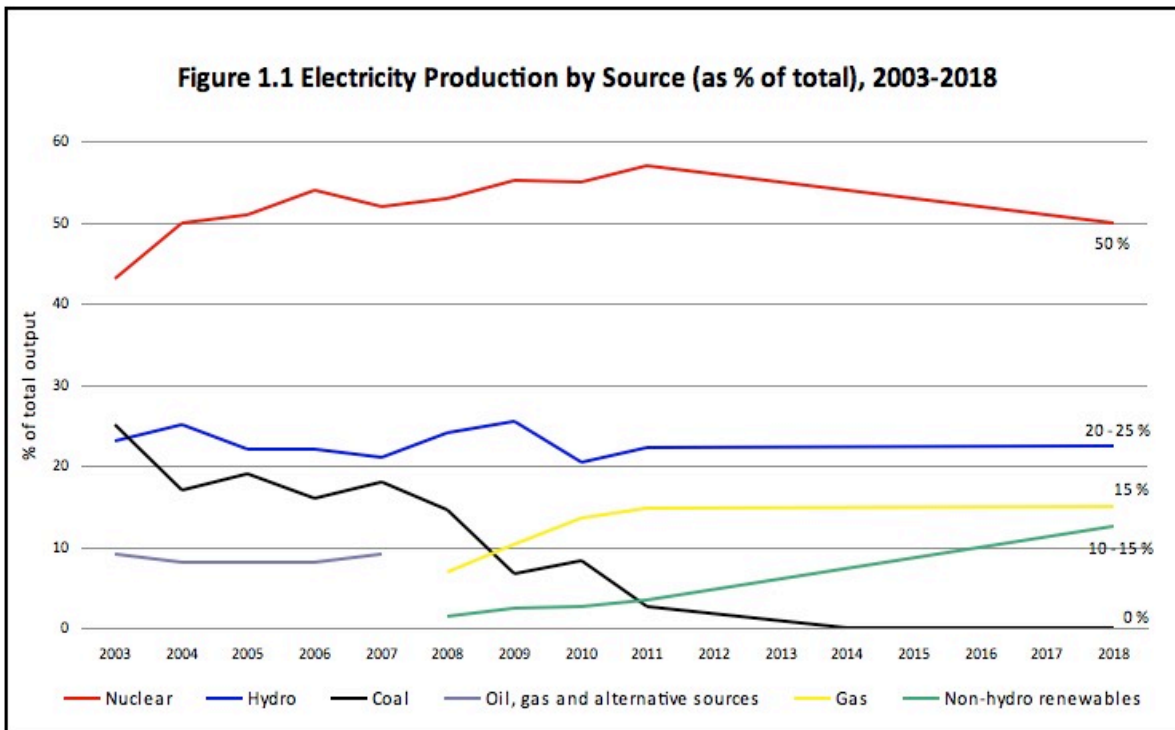
According to the latest research, advanced FITs are currently the most effective means of substituting fossil fuels with RE. Advanced FITs are a step up from the first FIT schemes of the 1990’s in that they include all or nearly all RE technologies, offer differentiated tariffs based on cost of generation and other factors, and are not restricted by conservative caps (Gipe 2010: 5-11).⁴ Germany made the move from limited to advanced FITs in 2000 and, since then, France, Spain and many others followed suit. The experience of Europe shows that advanced FITs achieve greater RE penetration, at lower cost, than any other policy tool (Stern 2007: 366; IEA/OECD 2008: 17; Burer & Wustenhagen 2009; Ernst & Young 2012; Mendonça 2007, 2009: Box 2.1). Given their superior performance in bringing renewables online, wider use of advanced FITs outside Europe is of particular interest for proponents of RE (DSF 2004; OSEA 2005, 2007, 2009; Pembina 2008).

Despite FITs’ superior performance in bringing renewables online, RPS schemes remain the policy of choice in North America. Bucking the RPS trend in North America, however, the Canadian province of Ontario passed into law the Green Energy and Green Economy Act and adopted advanced FITs in May 2009. Ontario thus became the first, and is still the only, North American jurisdiction to adopt advanced FITs.⁵ Shortly thereafter, in its

⁴ For a thorough explanation of all the differences between limited and advanced FITs, see Gipe 2010: 5-11.

⁵ California, Nova Scotia, Oregon, Prince-Edward Island, Rhode Island, Vermont and Hawaii have also adopted FIT policies (REN21 2012: 118), but their programs are not considered advanced as they do not apply to a wide enough array of different technologies, and/or lack tariff differentiation, and/or are limited by conservative caps (Gipe 2010: 5-11).

2010 Long-Term Energy Plan, the province pledged to deploy 10,700 MW of non-hydroelectric RE capacity by 2018 (Ministry of Energy 2010: 10). This is the most ambitious target for the deployment of “second-generation”⁶ RE in Canada, and represents a massive change to the provincial energy supply mix in a relatively short period of time. As illustrated in Figure 1.1, non-hydroelectric RE will account for approximately 10-15% of total generation by 2018 (Ministry of Energy 2011: 3).



* Data for 2003-07 is from IESO 2005a: 3, 2005b, 2006, 2007, 2008. Data for 2008-2012 is from IESO 2009, 2010, 2011, 2012c, 2013. Targets for 2018 are from Ministry of Energy 2010, 2011. Data from 2013-17 was approximated using Microsoft Excel’s interpolate function.

** Prior to 2008, the IESO bundled oil, gas and alternative sources into a single category. From 2008 onward, it split this category into three: gas, wind, and other (biomass, biogas, solar energy). This change in data grouping explains the end of the oil, gas and alternative sources graph line in 2007, and the start of the gas and non-hydroelectric renewables graph lines in 2008.

⁶ The International Energy Agency identifies three generations of RE technology (IEA/OECD 2007: Annex II). First generation technologies include hydropower, biomass combustion, geothermal power and heat; second generation technologies include solar heating and cooling, wind energy, solar photovoltaics, modern forms of bioenergy; and, third generation technologies include concentrating solar power, ocean energy, enhanced geothermal systems, integrated bioenergy systems.

Adoption of this policy course represents an important change in Ontario's electricity generation planning, which has traditionally relied on large hydro, coal and nuclear power. Given the significance of this policy shift – both in terms of parting ways with historical trends and its regional uniqueness – this thesis seeks to examine the factors that led Ontario to pursue advanced FITs, and become a RE leader in North America.

Research Question and Context

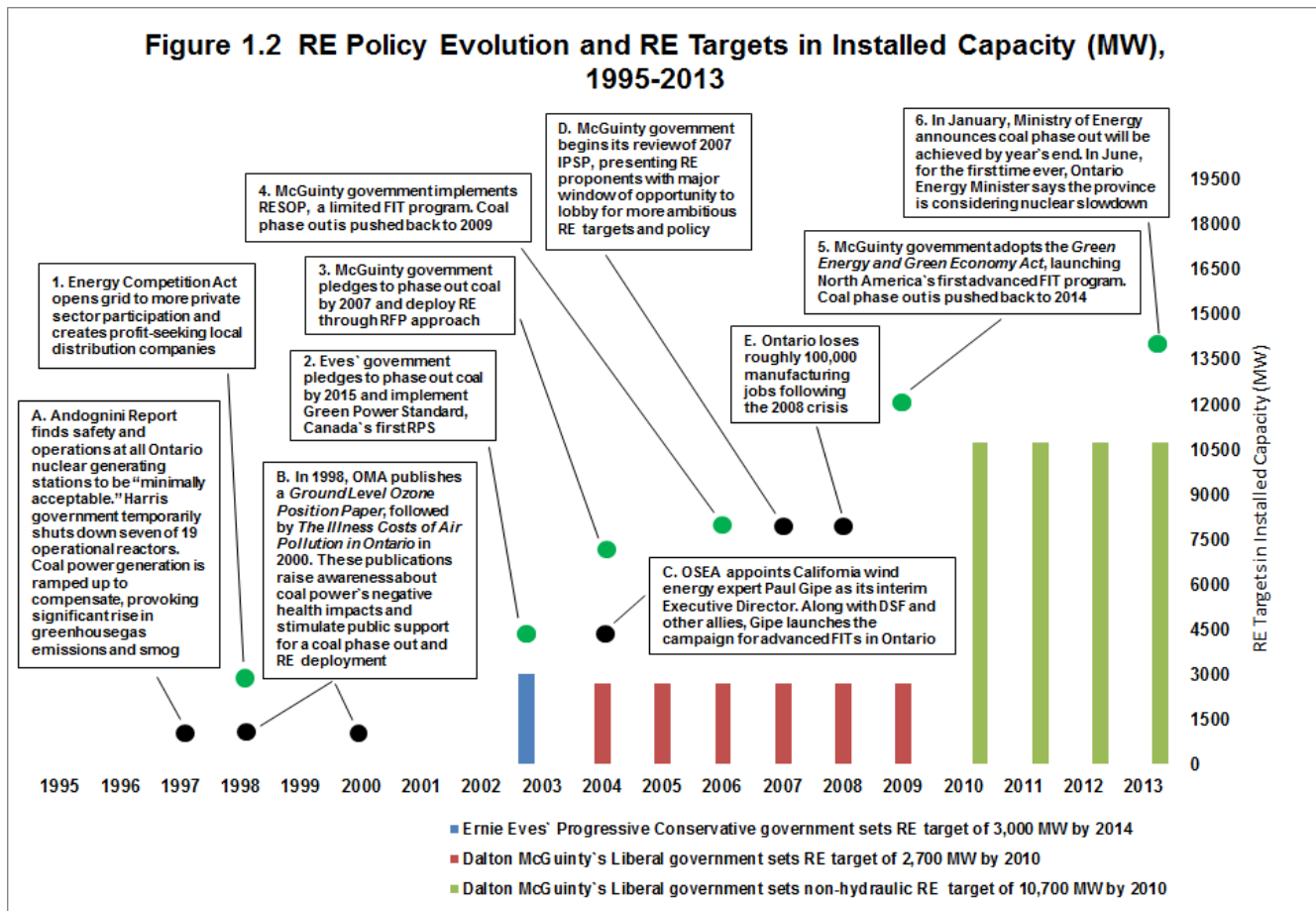
Ontario is unique for both its policy choice of advanced FITs and the high level of its RE target. Since the early 20th century, Ontario has developed a dependence on traditional energy sources – large-scale hydro, coal and nuclear. Given the dynamics of path dependence (Arthur 1994; Pierson 2000, 2004), the province might be expected to follow traditional energy trajectories as most other North American jurisdictions have. In contrast, the province parted ways with both historical trends and patterns in nearby jurisdictions, raising the question – why did Ontario establish Canada's most ambitious second-generation RE target? Also, given the dominance of RPS policies in North America, why is Ontario pursuing RE deployment through advanced FITs?

Argument and Summary

To answer these questions, we need to examine why and how environmental, public health and economic issues tied to RE started to gain traction in the energy policy context. Multiple time-specific challenges opened the door to RE deployment. But once the door opened, change agents had to seize the opportunity and push the provincial government through lobbying in all its forms to implement pro-RE policy. Canada's Constitution Act grants provincial governments control over their electricity systems (United Kingdom 1985).

In Ontario, as in all Canadian provinces, the provincial government is the main arbiter of energy policy, and it is only by influencing its choices that RE policy gains can be achieved.

To understand how RE policy development took form, one must initially go back to a set of previous decisions that initially had little to do with RE, but nevertheless shaped the energy policy context into one that was much more amenable to RE and FITs. This thesis thus traces the gradual evolution of RE policy in Ontario through three time periods: 1995 to 2003, 2003 to 2006, and 2006 to 2009. We will see that each period culminated in minor, yet crucial institutional shifts that widened parameters of potential change until the adoption of advanced FITs became a foreseeable option.



After being elected in June 1995, Mike Harris' Progressive Conservatives moved to break Ontario Hydro's monopoly over the electricity system through deregulation and privatization. Ontario Hydro, a provincial government-owned corporation, held near complete control over every aspect of electricity. In October 1998, the Harris government passed the Energy Competition Act. The law contained no provisions whatsoever favoring RE, but it opened grid access to private electricity producers, including RE developers. Although the high cost of RE would, for years to come, impede market penetration, the Energy Competition Act gave private RE firms access to the grid like never before. This access gave RE firms incentive to lobby government for pro-RE policy so they could start feeding power the grid alongside established energy players, and grow their businesses. The Energy Competition Act also transformed hundreds of municipal government-owned electric utilities into profit-seeking local distribution companies. Some municipal governments also owned small electricity generation assets, which were also required to become corporations. The Harris government's deregulation and privatization drive unleashed a wide assortment of profit-seeking entities – RE firms, local distribution companies, local electricity producers – that would eventually play a leading role in lobbying for pro-RE policy as they sought to increase revenues by selling RE onto the grid.

Progressive Conservative efforts to restructure electricity coincided with the unexpected shut down of seven nuclear reactors in 1997, leading to a 6% rise in coal energy production from 1997 to 2003 and accompanying smog levels (ECSTF 2004: 23; OMA 1998, 2000). Furthermore, given coal energy's low price, coal stations were expected to proliferate in Ontario's forthcoming electricity market, potentially giving way to yet more smog (OMA 1998: 3). In response, the Ontario Medical Association started to publish studies denouncing

smog's negative health effects (OMA 1998, 2000), receiving wide media attention. Simultaneously, the Ontario Clean Air Alliance pushed for a greener energy system through its large network of local contacts, by maintaining an active email distribution list, submitting articles to local newspapers, and participating in citizen groups' and municipal council meetings (Rowlands 2007: 191). These actions turned Ontario's coal power stations into a public health liability government could not afford to ignore. In early 2003, the Eves government announced plans to entirely phase out coal energy by 2015 and implement the Green Power Standard, an RPS (LAO 2003: 7). The Standard would have, starting in 2006, required the proportion of RE in the energy supply to rise 1% per year for a total of 3,000 MW by 2014 (Ministry of Energy 2003). The Progressive Conservatives were however ousted from power, in October 2003, before their RPS could be put into effect. Nonetheless, events leading to the RPS set the table by opening up new institutional space for RE proponents to lobby for increased RE, and the RPS itself represented an important first step toward RE deployment because the newly elected McGuinty government would carry its RE target of 3,000 MW forward.

Elected in October 2003, Dalton McGuinty's Liberals had campaigned on a promise to phase out coal by 2007 (Ontario Liberal Party 2002: 3), which meant that about a quarter of Ontario's electricity would have to be replaced in the span of four years. It was also recognized at the time that the nuclear fleet, responsible for producing roughly half of Ontario's electricity, would have to be renewed or replaced starting in the late 2000's until 2020 (ECSTF 2004: 55-57). Ontario's looming electricity supply shortfall was illustrated by the Northeast blackout of August 2003, which affected nearly all of its citizens (CBC 2003).

The promise to phase out coal by 2007 combined with aging nuclear infrastructure opened up space, both on the grid and in policy makers' minds, for RE deployment.

As government explored new energy supply options, RE proponents maintained pressure for change. From the Fall of 2003 to the Fall of 2006, the Ontario Clean Air Alliance published no less than 9 reports on coal energy and its harmful health and environmental effects, while calling for more RE.⁷ Upon appointing California wind energy expert Paul Gipe as its interim Executive Director in February 2004, lobbying efforts of the Ontario Sustainable Energy Association gained heightened prominence and vigor. Starting in 2004, the Ontario Sustainable Energy Association and the David Suzuki Foundation began eagerly promoting advanced FITs not only as a solution to environmental and health challenges, but as a job creation engine (DSF 2004; OSEA 2005). A province-wide series of public information meetings on advanced FITs hosted by the Ontario Sustainable Energy Association, accompanied by a steady flow of press releases, were particularly effective in associating FITs with economic development. As media coverage of this campaign spread, messages of 'rural economic revival', 'new manufacturing jobs', and 'electricity as an engine of local development' began to flow through Ontario (Rowlands 2007: 198). This advocacy culminated in the Renewable Energy Standard Offer Program, a limited FIT program intended to fulfill part of the McGuinty government's 2003 election pledge to obtain 10% of Ontario's electricity from RE by 2010 (Ontario Liberal Party 2002: 4). At the time, 10% represented 2,700 MW (Ministry of Energy 2004a), a near carbon copy of the Progressive Conservatives' 2003 RPS target of 3,000 MW. A major difference between the two pledges was that the Liberals would have the chance to fulfill theirs. They were re-elected in October 2007.

⁷ For a list of all OCAA publications, see the "Publications" section of their website at <http://www.cleanairalliance.org/publications>.

From 2006 to 2009, Ontario's pro-RE network further expanded and consolidated, incorporating groups from nearly every sector of society – including farm groups, First Nations groups, education and research institutions, unions, and others. Two major umbrella organizations formed, the Ontario Green Energy Act Alliance and the Renewable is Doable coalition. Following the Ontario Sustainable Energy Association and David Suzuki Foundation's lead, the RE coalition promoted FITs as a job creation engine. This would prove an effective framing strategy. From 2000 to 2010, Ontario lost over 300,000 manufacturing jobs (Statistics Canada: Table 281-0024), roughly a third of those losses occurring as a result of the 2008 financial and economic crisis. Government was looking for innovative ways of kick-starting job creation and FITs fit the bill. Policy makers at the highest level, namely Energy and Infrastructure Minister George Smitherman and Prime Minister Dalton McGuinty, were open to RE proponents' arguments and sided with them. With the Energy Minister and Premier firmly onside, Ontario's Green Energy and Green Economy Act, containing provisions for North America's first advanced FIT, passed into law in May 2009. Government then adopted its Long-term Energy Plan in 2010 and Minister of Energy Brad Duguid issued a February 2011 Supply Mix Directive, both mandating the Ontario Power Authority to obtain 10,700 MW, or up to 15%, of its energy from RE sources by 2018 (Ministry of Energy 2010; Ministry of Energy 2011). The passing of advanced FITs and the adoption of a 15% second-generation RE target turned Ontario into a regional, and even global, RE leader.⁸

This being said, the shift to more RE, as opposed to say for instance, more nuclear, was no *fait accompli*. RE proponents operated in a competitive environment. They faced strong opposition from embedded players with vested interests in the status quo. This opposition

⁸ In the media, comparisons to world leaders Germany and California have become commonplace (Boutin 2009; Gorrie 2012).

came from both inside and outside government. Ontario Hydro, the government-owned monopoly that exercised enormous influence over energy policy until restructuring in 1998, had a well-documented history of favoring traditional energy sources to the detriment of RE and conservation (Solomon 1982; McKay 1983; Hampton & Reno 2003; Swift & Stewart 2004). Due to its large economic clout in Ontario (CERI 2008), the Canadian nuclear industry held particular sway over Ontario Hydro decisions. The nuclear industry still holds much influence today, albeit in a less direct manner through Ontario Hydro offshoot organizations and Ontario's nuclear supply and service chain. These entities form a powerful constituency of support for nuclear energy and the energy policy status quo. Also, the Association of Major Power Consumers in Ontario, whose 38 members today account for 14% of electricity consumption (AMPCO 2013), strongly lobbied against RE deployment due to concerns about rising electricity costs. Facing established, well-resourced defenders of the status quo made it very difficult for RE proponents to exert change over energy policy and, to a large extent, explains why RE policy development in Ontario proceeded in a gradual, piecemeal fashion.

Theorizing institutional change: Theory and Hypotheses

Political scientists have long puzzled about policy change and the politics of instrument choice, but are somewhat ill equipped to study subtle processes of gradual institutional change. One exception is Mahoney and Thelen's theory of institutional layering. According to these authors, layering is defined as "the introduction of new rules on top or alongside existing ones" (2010: 15). Given the incremental nature of policy changes leading to the adoption of advanced FITs in Ontario, this thesis will investigate the relevance of Mahoney and Thelen's theory for explaining RE policy development. Crucial in this regard will be the task of tracking the presence or absence of a specific type of change agent expected to successfully

operate in a layering context: subversives (Mahoney & Thelen 2010: 28-29). “Subversives are actors who seek to displace an institution, but in pursuing this goal they do not themselves break the rules of the institution (...) they may encourage institutional changes by promoting new rules on the edges of old ones, thus siphoning off support for the previous arrangements” (Mahoney & Thelen 2010: 25). This thesis will seek to identify subversives as they endeavored, through configurations of contributing and counteracting factors, to promote RE.

Mahoney and Thelen further state that subversives need to build coalitions in order to succeed (2010: 29). They ally themselves to other subversives, and to opportunists, described as being “available for all kinds of alliances (...) depending on the political winds” (2010: 30). Opportunists are by definition malleable and, in pursuit of their interest, will ally themselves with subversives or whomever the prevailing distribution of power favors.

Specifically, we expect to find that institutional change in Ontario (dependent variable) was brought about by subversive change agents (independent variable) with a vested interest in the environmental, health and economic benefits offered by RE and FITs. Acting in a high-veto context, subversives established coalitions and were able to promote small, gradual changes to RE policy at key moments, when the necessary and sufficient conditions for change were present (conditioning variables).

Method

The method of process tracing will be used to assess the role of layering in RE policy development in Ontario. Process-tracing conceives explanations by firmly linking within-case observations in temporal succession to expose a causal mechanism. George & Bennett specify that causal mechanisms evolve in a context of interdependence and competitiveness, where

some configurations of mechanisms contribute to, while others operate to counteract, outcomes (2005: 145).

In the case of Ontario, we expect the causal mechanism behind RE deployment to concern coalition building. The formation of a wide-ranging, multi-stakeholder coalition was essential to gaining RE policy gains. These gains were hard-fought as they were actively opposed by powerful defenders of the status quo. Most importantly, given the provincial government's ultimate veto power over energy policy, RE proponents needed to find allies at the highest level of government to affect change.

ANALYTICAL PERSPECTIVE

2.1 Historical Institutional Perspectives on Stability and Change

Historical Institutionalism (HI) traditionally views institutions as exhibiting a “sticky” quality whereby, in the words of Pierson, “each step along a particular path produces consequences that increase the relative attractiveness of that path (...). As such effects begin to accumulate, they generate a powerful cycle of self-reinforcing activity” (2004: 17). This process whereby feedback effects produce increasing returns that lock-in institutions on a given path is referred to as path dependence (PD) (Thelen 1999: 392-96; Pierson 2000, 2004: Chapter 1). PD works to reproduce institutions by constraining choices in the long run, as costs of exit rise. While certain contexts are more susceptible to PD dynamics than others, this theory has helped scholars explain institutional stability in a broad range of situations.⁹

As argued by Arthur, four features of technology and their social context make them susceptible to PD (1994: 112). First, when a technology's setup or fixed costs are high, this

⁹ See, e.g., Shefter 1977; North 1990; Collier & Collier 1991; Ertman 1997; Hacker 1998; Huber & Stephens 2001; Mahoney 2001; Pierson 2001.

creates incentive to stick with it because large, long-term production runs allow costs to be spread out over more output, lowering unit costs. Second, cumulative knowledge gained from repetitive use of complex technologies leads to higher efficiencies and higher returns, encouraging continuing use. Third, when technology use depends upon a linked infrastructure, this attracts investment in the infrastructure. Its costly build-up then discourages switching to technologies that are incompatible with the established system. Fourth, individuals tend to feel a need to pick the technology they believe will win the broadest acceptance. Projections about future aggregate use patterns thus favor the fulfillment of these projections. The above features apply, in varying degrees, to all electricity systems today.

Every major component of the grid has both high setup costs and long lifespans. For example, the building and operation of large electricity generating stations, which comprise the core of the modern grid, costs anywhere from hundreds of millions of dollars, for natural gas or coal plants, to billions of dollars, for nuclear plants (USEIA 2010: 7; 2012). Such high costs result in low capital stock turnover, protecting established energy players' as costs of exit are too high for investors to bear. The high costs also impose a barrier to entry in the market, and guard established players from competition of new entrants. Furthermore, generating stations' lifespans extend over decades: on average, 25 years for natural gas, over 40 years for coal, from 30 to 60 years for nuclear, and over 75 years for hydro (Stern 2006). The long planning lead times required prior to construction adds yet several more years to the process. High building costs and long lifespans lock-in energy policy choices because investors need to spread expenses over as much output as possible to earn a return.

Over the course of the 20th century, electricity systems were built according to a hub-and-spoke model. Energy produced at large generating stations is transmitted over high-

voltage lines to local distribution areas whom, through a network of lower voltage lines, substations and transformers, deliver power to end-use consumers (USEIA 2000: Chapter 3). Since the 1980's, deregulation has opened grid access to new players but the grid remains, from an infrastructure perspective, built to accommodate large, established energy producers.

As observed by Stern,

“National grids are usually tailored towards the operation of centralised power plants and thus favour their performance. Technologies that do not easily fit into these networks may struggle to enter the market, even if the technology itself is commercially viable. This applies to distributed generation as most grids are not suited to receive electricity from many small sources. Large-scale renewables may also encounter problems if they are sited in areas far from existing grids” (2006: 355).

The grid cannot handle a sudden influx of new small- to medium-sized energy producers. It must be prepared years in advance to do so. RE producers in particular face high barriers to entry because RE is usually intermittent and functions optimally on a distributed grid system, which most jurisdictions have not put in place. For example, the proposed construction of new hub-and-spoke energy infrastructure in Toronto would drown out potential deployment of 1,300 MW of new, distributed solar energy (OCAA 2012a). Similarly, the proposed construction of the Guelph Transmission Line promises to stifle RE deployment in that city (OCAA 2012b). Infrastructure incompatibility constitutes a major barrier to RE deployment.

As noted by Pierson (2001), the development of core constituencies with concentrated interests in the status quo further contributes to PD processes. In Ontario, the largest constituency in the electricity system is the nuclear industry. According to a 2008 study commissioned by the Canadian Nuclear Association, operation of Canada's nuclear fleet provides 66,694 full-time jobs, directly and indirectly (CERI 2008: 55). Starting in the 1950's, Canadian-made CANDU nuclear technology was developed in Ontario, at the Chalk River Laboratories, and the province is now home to 20 of Canada's 21 commercial-scale reactors.

Canada's nuclear industry is based in Ontario. Spanning the public and private sector, it forms a powerful constituency of support for nuclear energy and is a crucial variable sustaining Ontario's energy policy status quo.

The dominant theory of change in HI is referred to as punctuated equilibrium (PE) (Krasner 1984; Collier & Collier 1991; Pempel 1998). The PE model views institutions as epiphenomenal in that they respond to changes in societies' balance of power. When power shifts in times of crises, institutional stability is punctuated with major, abrupt change. Crises can destroy old institutions and hard-fought political battles decide what form new institutions will take. These moments of flux and instability, called critical junctures, are of key importance as choices made at this point start to cement through PD dynamics. Once this occurs, change ceases and stability resumes, often to the extent of institutional stasis.

The main problem with the PD/PE perspective is that it tends to overlook subtler types of change processes that, over time, can lead to important outcomes. For example, Ontario's first RE deployment target, set in July 2003 by the Progressive Conservatives, required RE to account for 8% of supply by 2013 (Ministry of Energy 2003). The following target, implemented shortly after the Liberals came to power in October 2003, was 10% by 2010 (Liberal Party of Ontario 2002). In February 2011, Energy Minister Brad Duguid confirmed the RE target had again been revised upward, to 15% by 2018 (Ministry of Energy 2011). At first blush, these non-binding targets may be seen as largely inconsequential; they may be interpreted as too small and not likely to drive substantial institutional change in the energy system. Over time, however, this series of decisions opened space, and set the stage for FITs. Indeed, the development of RE policy in Ontario was fundamentally gradual. As a result, the case of Ontario does not fit the PD/PE model, and new methods of explanation are needed.

Over the past two decades, HI scholars have begun to consider the role of gradual change in the evolution of institutions (Steinmo, Thelen & Longstreth 1992; Thelen 1999, 2003, 2004; Streeck & Thelen 2005). Mahoney & Thelen's theory of gradual institutional change (2010) represents one of the most thorough examinations of gradual change processes to date. This thesis' case study, which examines the causes, modes and effects of gradual institutional change in the development of RE policy in Ontario, is thus linked to a growing body of literature.

Mahoney & Thelen reject the idea of institutional stasis, stating that

“Once created, institutions often change in subtle and gradual ways over time. Although less dramatic than abrupt and wholesale transformations, these slow and piecemeal changes can be equally consequential for patterning human behavior and for shaping substantive political outcomes” (2010: 1).

The authors view institutions as fundamentally dynamic, in fact claiming that “path-dependent lock-in is a rare phenomenon” (2010: 3). Their theory also considers both exogenous and endogenous sources of institutional change, a welcome strategy given that HI scholars have “overlook(ed) shifts based on endogenous developments that often unfold incrementally” (2010: 2). Moving beyond the traditional HI perspective, Mahoney & Thelen present a more balanced, general model of change that, despite its appellation, encapsulates all types of change, both sudden and gradual, stemming from exogenous and endogenous sources.

2.2 Mahoney & Thelen's Theory of Gradual Institutional Change

In line with HI tradition, Mahoney & Thelen define institutions “as *distributional instruments* laden with power implications” (2010: 8). Institutions are fraught with tensions as they structure resource allocation, invariably leading to situations with winners and losers. As institutional losers take conscience of their disadvantaged position, they move to tip the distributional, balance-of-power scale in their favor through institutional change. For their

part, institutional winners mobilize resources to maintain the status quo. This power-distributional view gives institutions an element of persistent dynamism and provides the basic motor for change.

Ambiguity influences processes of change and stability. Although institutions tend to reflect the interests of powerful actors, “institutional outcomes need not reflect the goals of any particular group; they may be the unintended outcome of conflict among groups or the result of “ambiguous compromises” among actors” (2010: 8). Furthermore, the application of institutional rules is often fraught with ambiguity and the means through which this ambiguity is resolved has further distributional consequences. This raises the issue of compliance. Mahoney & Thelen view compliance as a key variable in institutional change processes. It provides institutions with an element of constant uncertainty, facilitating or spurring change.

According to the authors,

“the need to enforce institutions carries its own dynamic of potential change, emanating not just from the politically contested nature of institutional rules but also, from a degree of openness in the interpretation and implementation of these rules. Even when institutions are formally codified, their guiding expectations often remain ambiguous and always are subject to interpretation, debate, and contestation” (Mahoney & Thelen 2010: 10).

Mahoney & Thelen outline four modes of institutional change. Two factors – political context and institutional characteristics – affect the likelihood of occurrence for each mode of change. Political context is determined by differing levels of veto possibilities afforded to defenders of the status quo, and “veto possibilities are high where there exist actors who have access to institutional or extrainstitutional means of blocking change” (2010: 19). Institutional characteristics are determined by “differences in levels of discretion in the interpretation or enforcement of rules” (2010: 21).

The energy policy context affords defenders of the status quo strong veto possibilities. The multi-billion dollar nuclear, coal and hydro industries, be they publicly or privately-owned, are well-resourced, and well-entrenched due to PD dynamics. Through all forms of lobbying, they influence government to maintain the energy policy status quo. These industries' veto power is indirect, however, and requires government cooperation to be put into effect.

In Canada, provincial governments are the gate keepers of energy policy. Article 92A(c) of Canada's Constitution Act grants provincial governments control over the "development, conservation and management of sites and facilities in the province for the generation and production of electrical energy" (United Kingdom 1985). In Ontario, successive provincial laws have modified the political structure through which this control is exercised – i.e., the 1906 Power Commission Act, the 1974 Power Corporation Act, the 1998 Energy Competition Act, and the 2004 Electricity Restructuring Act – but, through it all, the provincial government remains the final arbiter of energy policy. Through a host of hard and soft power measures, it directs the electricity system's actors to fulfill its will. Furthermore, Canada's provinces follow the Westminster tradition of government, implying strict party discipline and the concentration of power within the executive. Elected members thus "tow the party line," voting in accordance with the leader of their party. As the study of Ontario demonstrates, a provincial Premier can orient energy policy with impressive speed when he or she wishes to do so.

In the Ontario energy policy context, the importance of compliance issues is greatly reduced by an extremely low, to non-existent, level of openness in the interpretation of rules. Electricity cannot be stored. Nearly every aspect of its production, distribution and

consumption must be controlled by finely detailed laws and regulations to ensure a timely, synchronous balance between supply and demand. For example, new power producers simply cannot start feeding electricity onto the grid if it has not been outfitted to handle the extra load. Inversely, major power consumers cannot suddenly triple their electricity consumption if the grid has not been equipped to supply the extra demand. Excess offer or demand both threaten to disrupt, if not blackout, the system. Detailed laws and regulations ensure this does not materialize. Safety issues concerning electricity add yet more laws and regulations to the system. However, as stated by Mahoney & Thelen, even if the electricity system is heavily controlled, compliance to dominant expectations relative to it is never assured (2010: 10). These expectations remain subject to interpretation, debate and contestation. In this narrower sense, compliance acts as a constant variable of potential change in the energy policy arena.

Depending on political context and institutional characteristics, different types of change are expected to occur. As displayed in below Table 2.2.1, where there is a low level of discretion in the interpretation or enforcement of rules, two modes of change – layering or displacement – are most likely to occur (2010: 19). If a low level of discretion occurs in conjunction with a political context that affords defenders of the status quo strong veto possibilities, as in the case of electricity systems, layering is the most likely mode of change. Layering is defined as “the introduction of new rules on top or alongside existing ones” (2010: 15). Mahoney & Thelen go on to specify that

“Processes of layering often take place when institutional challengers lack the capacity to actually change the original rules (...). They instead work within the existing system by adding new rules on top of or alongside old ones. While defenders of the status quo may be able to preserve the original rules, they are unable to prevent the introduction of amendments and modifications. Each new element may be a small change in itself, yet these small changes can accumulate, leading to a big change over the long run” (2010:17).

Due to the physical nature of electricity, energy grids are controlled by finely detailed laws and regulations. These systems offer an extremely low, if not non-existent, level of discretion in the interpretation of rules. Also, the energy policy context affords defenders of the status quo powerful veto possibilities. Following Mahoney and Thelen’s framework, the energy policy context should thus favor layering change processes.

TABLE 2.2.1 Contextual and Institutional Sources of Institutional Change			
		Characteristics of the Targeted Institution	
		Low Level of Discretion in Interpretation/ Enforcement	High Level of Discretion in Interpretation/ Enforcement
Characteristics of the Political Context	Strong Veto Possibilities	Layering	Drift
	Weak Veto Possibilities	Displacement	Conversion

*Source: Mahoney & Thelen (2010: 19)

But even if favorable conditions are in place, layering processes will not unfold if sufficient levels of individual agency are not present. It is only when change agents work towards their goals that modes of change are set in motion. Mahoney & Thelen’s theory is non-deterministic. It presents structure and agency as two parts of a unified equation.

TABLE 2.2.2 *Contextual and Institutional Sources of Change Agents*

		Characteristics of the Targeted Institution	
		Low Level of Discretion in Interpretation/ Enforcement	High Level of Discretion in Interpretation/ Enforcement
Characteristics of the Political Context	Strong Veto Possibilities	Subversives (layering)	Parasitic Symbionts (drift)
	Weak Veto Possibilities	Insurrectionaries (displacement)	Opportunists (conversion)

*Source: Mahoney & Thelen (2010: 28)

Different types of change agents are expected to dominate in different environments. As displayed in above table 2.2.2, a context with a low level of discretion in the interpretation or enforcement of rules and strong veto possibilities for defenders of the status quo, as in the case of electricity systems, favors the emergence of a specific type of change agent: subversives. According to Mahoney & Thelen,

“Subversives are actors who seek to displace an institution, but in pursuing this goal they do not themselves break the rules of the institution (...) they may encourage institutional changes by promoting new rules on the edges of old ones, thus siphoning off support for the previous arrangements” (2010: 25).

It is said that subversives disguise the extent of their preference for institutional change and bide their time, working within the system until an opportunity for affecting change appears. They then take an active stance of opposition in pursuit of their goals. For change to occur, subversives need to connect with each other as well as other types of change agents with the same objectives in order to tip the balance of power in their favor. They usually don't, and need not, hold the monopoly of power.

Mahoney & Thelen state that “the success of various kinds of agents in effecting change typically depends crucially on the coalitions they are able to deliberately forge or that emerge unexpectedly in the course of distributional struggle” (2010: 29). As far as subversives are concerned, they “need to work to the extent possible under the radar of the dominant actors. This means that, despite their preference for change, they may not align themselves (certainly not openly) with insurrectionaries. Instead, they work on their own, behind the scenes or in the shadows” (Mahoney & Thelen 2010: 30). These insurrectionaries Mahoney & Thelen refer to are a type of change agent that can emerge in any setting (2010: 28). They “consciously seek to eliminate existing institutions or rules, and they do so by actively and visibly mobilizing against them. They reject the status quo (...)” (Mahoney & Thelen 2010: 23).¹⁰ In the energy policy arena, established players with an interest in the status quo are simply too powerful to be opposed directly. They not only set the original rules of the game but often decide who gets to play. Although subversives and insurrectionaries might share the same objectives, subversives cannot ally themselves with the latter because doing so would place them too far out to be considered. They would be pushed aside or simply ignored. Subversives may however ally themselves with opportunists, described by Mahoney & Thelen as “available for all kinds of alliances (...) depending on the political winds” (2010: 30). Opportunists are by definition malleable and, in pursuit of their interest, will ally themselves with whomever the prevailing distribution of power favors. But they can just as easily switch alliances when the balance of power starts to shift again. Applied to the case of Ontario FITs, we should expect to find subversive agents working inside and outside of government toward energy policy change.

¹⁰ Insurrectionaries and the type of change they seek, called displacement, have much in common with the traditional PE model of change in HI.

2.3 Hypotheses

This thesis proposes two hypotheses derived directly from Mahoney & Thelen's theory of gradual institutional change (2010):

1) Given that the Ontario energy policy context is characterized by a low level of discretion in the interpretation of rules while affording defenders of the status quo strong veto possibilities, we expect the process leading to advanced FITs to follow a layering pattern of change, characterized by small, yet cumulative, RE policy gains.

2) We expect subversive change agents to be the catalysts of layering. They lead the way to advanced FITs by achieving incremental pro-RE policy gains alongside established energy policy trajectories. The keys to their success are rooted in coalition building, and biding their time until opportunities for change arise, at which time they may take decisive action.

3. METHODOLOGY

3.1 Process-tracing

According to Mahoney & Thelen, institutional change should be explained in the form of causal propositions. They state, "if theorizing is going to reach its potential (...), institutional analysts must go beyond classification to develop causal propositions" (2010: 3). These causal propositions, or mechanisms, should encapsulate the sources, modes and effects of change processes. George & Bennett specify that causal mechanisms evolve in a context of interdependence and competitiveness, where some configurations of mechanisms contribute to, while others operate to counteract, outcomes. Such "explanations take the form of "Y occurred because of A, despite B," where A is a set of contributing causes and B is a potentially empty set of counteracting causes" (2005: 145). Explanations utilizing causal mechanisms invariably imply ontological choices, as the researcher must define a mechanism before it can be demonstrated to be operating within processes.

In the case of Ontario, we expect the main causal mechanism to concern coalition building. While Ontarians are concerned with global climate change, it does not yet affect them directly enough as a stand-alone issue to motivate policy change. The formation of a wide-ranging, multi-stakeholder coalition lobbying for RE as a solution not only to climate change, but a combination public health and economic development challenges, was essential to RE deployment. Furthermore, given the provincial government's ultimate veto power over energy policy, RE proponents needed allies at the highest level of government to affect change. This reality was illustrated by the fact that RE proponents' actions grew far more effective following the 2002 resignation of Progressive Conservative Premier Mike Harris, whom opposed RE for his entire seven-year tenure. From 2003 onward, however, Dalton McGuinty's successive Liberal governments oversaw the gradual expansion of RE targets and a new focus on the best policy for achieving these. Finding allies in government was essential to RE proponents' success.

The causal mechanism behind RE policy development in Ontario will be exposed through the method of process-tracing. Process tracing aims to identify social processes' foundations and evolution by "identify(ing) the intervening causal process – the causal chain and causal mechanism – between an independent variable (or variables) and the outcome of the dependent variable" (George & Bennett 2005: 205). Process tracing generates numerous within-case observations, and it is by firmly linking these in temporal succession to form a causal chain that explanations are conceived. George & Bennett define causal mechanisms as

"ultimately unobservable physical, social, or psychological processes through which agents with causal capacities operate, but only in specific contexts or conditions, to transfer energy, information, or matter to other entities. In so doing, the causal agent changes the affected entity's characteristics, capacities, or propensities in ways that persist until subsequent causal mechanisms act upon it" (2005: 137).

But how can inference be achieved by identifying particularizing, micro-level causal mechanisms? And, what is the strength of causal inference in single case studies?

3.2 Causal Inference in Single Case Studies

Inference by means of process-tracing is achieved by sorting causal explanations as various classes of events in a wider typological theory. A typological framework, such as that provided by Mahoney and Thelen's theory of gradual institutional change, preserves individual cases' uniqueness and, through acceptable levels of abstraction, allows for middle-range generalization of phenomena into recurrent types. Needless to say, although the objective is to cumulate empirical explanations until sturdy generalizations may be achieved, some cases will never fit into established categories and may be considered fundamentally irreproducible.

As George & Bennett point out, "there is a growing consensus that the strongest means of drawing inferences from case studies is the use of a combination of within-case analysis and cross-case comparisons within a single study or research program" (2005: 18). The study of Ontario will provide multiple within-case observations, but it remains a limited, single case study. Its findings will need to be compared with other cases in order to achieve acceptable levels of causal inference. In the words of Collier, the study of Ontario is a straw-in-the-wind test that "can increase the plausibility of a given hypothesis or raise doubts about it, but (is) not decisive by (itself)" (2011: 826). This modest aim characterizes this thesis. The study of Ontario should be interpreted not as a final word, but as one of many building blocks for future research.

4. ADVANCED FEED-IN TARIFF ADOPTION IN ONTARIO

4.1 1995-2003, Electricity Restructuring and Renewable Portfolio Standard Set Stage for Renewables Deployment

In June 1995, the Progressive Conservative Party of Ontario, led by Mike Harris, won a landslide electoral victory, gaining the status of majority government in the Legislative Assembly.¹¹ RE proponents at the time, comprised mainly of committed environmentalists and early RE firms, were few in number and did not mobilize in favor of RE during the election campaign. They also had no allies among the Harris Conservatives espousing their cause. There was no way RE could register as a government priority in this setting.

To be sure, no mention of RE was made in the Progressive Conservatives' "Common Sense Revolution" manifesto for the 1995 election campaign. It contains only one reference to energy policy, concerning rate freezes and the privatization of electricity assets. As a measure for "removing barriers to growth," the Progressive Conservatives proposed "reforming Ontario hydro" by enacting "a 5 year freeze (...) on Hydro rates to give consumers, employers and industries guaranteed stability in planning their budgets" (Progressive Conservative Party of Ontario 1994: 14). The manifesto specified "this may mean more changes at Hydro, including some moves towards privatization of non-nuclear assets" (Ontario PC 1994: 14). This was the Progressive Conservatives' first published reference to their plan to end Ontario Hydro's monopoly and bring market competition to the electricity system. Although, according to the party's own confidential surveys, electricity restructuring had "virtually no support among voters" (McDonald 1996), the Harris government would yield its full power over energy policy in pursuit of this goal.

¹¹ The Progressive Conservatives took 82 of 130 seats (and 44.8% of the popular vote).

In late 1995, the Harris government convened the Advisory Committee on Competition to set out a blueprint for electricity restructuring. Part of the committee's work consisted in consulting the public to ascertain its priorities in the restructuring process. RE proponents demanded the committee "find ways to promote renewable energy technologies and other sustainable forms of energy" (ACC 1996: 117). Published in May 1996, the committee's report passed on that message to government, stating "the process of restructuring Ontario's electricity system must be accompanied by consideration of the most appropriate regulations or other instruments to secure the protection of the environment and, specifically, to support energy efficiency and the introduction of renewable energy technologies" (ACC 1996: 91). In considering how to introduce RE technologies, the committee suggested multiple policy options, such as an RPS, green pricing schemes offering consumers a choice of supporting RE, fees on more polluting energy sources matched by rebates on cleaner power, or tradeable emission permits or quotas creating incentives for power generators to shift to cleaner energy sources (ACC 1996: 89). While making mention of these options, the committee's position on RE was irresolute. It merely suggested "consideration" of pro-RE policies, and none of these were included in the report's formal recommendations on the structural, legislative, regulatory and ownership reforms required for electricity restructuring. In the end, recommendations had little to do with RE.

A handful of environmental and RE private sector groups had participated in the Advisory Committee on Competition public hearings. By voicing their support for pro-RE policy directly to committee members, these change agents ensured the committee's report included, at the very least, consideration of such policy. One of their main policy goals was the inclusion of an RPS within prevailing plans for electricity restructuring. Among the

environmental groups present at the hearings were the Green Energy Coalition (GEC) and Citizens for Renewable Energy (CFRE). The GEC is an umbrella organization comprised of large, national environmental groups – the David Suzuki Foundation, Greenpeace Canada, Sierra Club of Canada, and the Energy Action Council of Toronto.¹² The GEC wanted an RPS to reduce the electricity system’s impact, mainly in terms of air pollution, on the environment. CFRE is a local, grassroots environmental group originally founded in January 1996 by organic farmers. By the late 1990’s, its membership figured at over 1,000 individuals (Kleinau 1998). The CFRE wanted an RPS to reduce effects of the electricity system’s pollution on crops (Kleinau 2002). The Independent Power Producers Society of Ontario (IPPSO) and the Canadian Solar Industries Association (CanSIA) represented RE firms at the hearings. In the late 1990’s, the IPPSO represented about 500 small to medium-sized private electricity generators, accounting for approximately 10% of total electricity production (Barnstable 1998). A segment of IPPSO members owned small hydroelectric generating facilities and were interested in increasing this technology’s presence through an RPS, creating new business opportunities. An RPS, in fact, held the promise of new contracts for private RE generators of all stripes and the IPPSO lobbied for this policy in pursuit of growing their businesses. Founded in 1992, CanSIA is a national trade association that was created to advance the interests of Canada’s solar industry. Solar had no presence in Ontario’s electricity system at the time. Similarly to the IPPSO, CanSIA lobbied for an RPS because it would help grow member firms’ businesses.

According to Rowlands, some of the Advisory Committee on Competition’ members also supported RPS implementation (2007: 193). They apparently lacked will or influence,

¹² World Wildlife Fund Canada is a current GEC member, yet only joined in the late 2000’s.

however, as this policy was entirely left out of the committee's formal recommendations. In the end, the recommendations put forth by the Advisory Committee had much to say about privatization, and little to do with RE, although opening up the industry to market competition would eventually set the stage for advanced FITs.

The Advisory Committee on Competition's report served as the basis for the government's 1997 White Paper on electricity marketization. The Harris government abandoned all consideration of RE policy in the White Paper however. It makes no clear reference to RE or associated policy.¹³ The document alludes to RE only once, stating "a market would (...) allow consumers to choose more environmentally sound sources of supply" (Ministry of Energy 1997: 12). Following this, government promised "streamlined approvals for standardized, relatively benign electricity generation technologies" (Ministry of Energy 1997: 20). These statements show what the Harris government plan for RE was – if Ontario customers wished to purchase RE, they would be free to do so in the new electricity marketplace at a higher cost than traditional energy sources.¹⁴ The Harris government carried this view forward as it drafted its electricity restructuring legislation, called the Energy Competition Act.

In August 1998, prior to adoption of the Energy Competition Act, the Standing Committee on Resources Development held public hearings on the law. During the hearings, the GEC, CFRE and IPPSO reiterated their call for an RPS. They were joined by several other

¹³ For the 1997 White Paper and all documents examined in this fashion throughout this thesis, the search for keywords "renewable energy" was accompanied by queries for correlative terms "alternative energy," "sustainable energy," "green energy" and "clean energy." If a query for correlative terms produced results, these are mentioned in the text.

¹⁴ This is an artificial cost advantage, however, as current pricing of traditional energy sources does not reflect their true cost. It does not include expensive externalities such as present and future damage to public health and the environment. For a more complete understanding of externalities, see Pigou (1920), Arrow (1969) or Stern (2007).

environmental and RE private sector groups. These subversive change agents did not oppose the Harris government plans for electricity restructuring – the IPPSO, in fact, whole-heartedly supported it – but rather lobbied for the inclusion of an RPS within the electricity market. Christine Elwell of the GEC called for an RPS through specific amendments to the Energy Competition Act.

“To ensure a 10% renewable standard portfolio, essential emission and environmental performance requirements, as well as consumer disclosure, we would recommend that section 69 of the Ontario Energy Board Act be amended so it would roll in, would recognize, would incorporate by reference those environmental measures as a condition of OEB licensing (...)” (Elwell 1998).¹⁵

Siegfried Kleinau of CFRE also called for an RPS within the forthcoming electricity market.

“We recommend introduction of a renewable portfolio standard (...) of at least 5% from new renewable energy sources, excluding large hydroelectric, to be met by generation companies or retail power suppliers one year after introduction of this bill (the Energy Competition Act), with 1% increases each year thereafter” (Kleinau 1998).

Along with the GEC and CFRE, other environmental groups that recommended RPS adoption during the August 1998 hearings include Pollution Probe (Ogilvie 1998), the Citizens’ Environment Alliance of Southwestern Ontario (Coronado 1998), Greenest City (Moore 1998), Northwatch (Lloyd 1998), and Nuclear Awareness Project (Martin 1998). For his part, Al Barnstable of the IPPSO stated

“We’re basically recommending, in addition to emission trading, that we have a renewable energy portfolio. It doesn’t need to be a large set of numbers; 1% of the electricity demand in the province would probably represent something close to 1,000 megawatts of additional renewable resources in the province” (Barnstable 1998).

The IPPSO was joined in its call for an RPS by RE firms such as Probyn & Company (Probyn 1998) and Trigen Energy Canada (Macartney 1998).

As support for an RPS consolidated among environmentalists and RE firms in the late 1990’s, RE’s core constituency of support began to grow out of its traditional moorings. During the August 1998 hearings, environmentalists and RE firms were joined by the City of

¹⁵ The Ontario Energy Board Act Elwell refers to consists of Schedule B of the Energy Competition Act.

Toronto and the Toronto Hydro-Electric Commission in endorsing RE deployment through an RPS. Speaking on behalf of the City of Toronto, Councillor Jack Layton said “we really do believe strongly that a renewable energy portfolio standard should be a part of what you're doing” (Layton 1998). This was the first open endorsement of an RPS by any Ontario municipal government. The fact that Toronto is by far Ontario’s, and also Canada’s, largest municipal government added weight to the RPS lobby. For his part, the Chair of the Toronto Hydro-Electric Commission, Mark Anshan, expressed support for the privatization of municipal electric utilities because “this will provide a greater ability to offer our customers more services and to enter into partnerships to provide consumers with a wider range of products and increased convenience” (Anshan 1998). But, Anshan also wanted the inclusion of an RPS within the electricity market, saying

“we recommend that green energy options, including emissions cap and trade provisions and the requirement for generators to provide a percentage of renewable energy as part of new generation proposals be introduced under Bill 35 to support the reduction of CO₂ toxins and other greenhouse gas emissions” (Anshan 1998).

The Toronto Hydro-Electric Commission was Ontario’s largest municipal electricity utility. In 1998, the utility distributed approximately 25% of the electricity in Ontario, with annual revenues of approximately \$2 billion and a workforce of 1,900 employees (Anshan 1998).

The above-mentioned subversives’ common call for an RPS fell on deaf ears. Adopted in October 1998, the Energy Competition Act perfectly reflected the 1997 White Paper, making no clear reference whatsoever to RE or associated policy.¹⁶ It makes only two references to “cleaner energy,” yet curiously omits including a definition of the term. The first of these two references states that one of the law’s purposes is “to facilitate energy efficiency

¹⁶ The Energy Competition Act’s treatment of RE was extremist as most jurisdictions pursuing electricity restructuring in the 1990’s included RE deployment quotas through an RPS as part of the restructuring legislative package (e.g., Massachusetts, Texas, California, etc.).

and the use of cleaner, more environmentally benign energy sources in a manner consistent with the policies of the Government of Ontario” (LAO 1998: Schedule A, Part 1, 1.g). The second reference is identical in its wording to the first, but relates instead to the Ontario Energy Board’s objectives (LAO 1998: Schedule B, Part 1, 1.6). These references specify neither an RE deployment mechanism, RE deployment targets, or timeframes for achieving them.

While the Energy Competition Act did little to favor RE, true to its appellation, it enacted deep structural changes designed to bring market competition to Ontario’s electricity system. Before the Act, Ontario Hydro was a fully integrated, provincial government-owned corporation with a near complete monopoly over electricity. The Harris government broke this monopoly by dismembering Ontario Hydro into several entities – Ontario Power Generation, Hydro One, the Independent Electricity System Operator, the Electrical Safety Authority, and Ontario Electricity Financial Corporation. Each of these would be tasked with overseeing a circumscribed set of the former system’s assets or services within the new electricity market.¹⁷

New “market participants” were created through the transformation of over 300 municipal government-owned electric utilities into local distribution companies. Formally fully integrated into Ontario Hydro, these utilities varied greatly in size and capacity. The largest among these – the Toronto Hydro-Electric Commission – distributed roughly a quarter of Ontario’s electricity, but many smaller utilities had just a few thousand customers. Following the Energy Competition Act, all utilities were required to become business corporations, licensed under the Business Corporations Act (LAO 1998: Schedule A, Part XI, 130.1). A process of mergers and acquisitions eventually reduced their number from over 300

¹⁷ Detailed information on each entity’s mandated role in the electricity market can be found on their respective websites.

to about 80 (Ministry of Energy 2012: 6). Some municipal governments also owned small electricity generation assets. These were also required to become corporations (LAO 1998: Schedule A, Part XI, 130.1). While some municipal distribution and generation assets were sold to the private sector, most remained in the hands of municipal governments (Manning & Vince 2010: 7). The Energy Competition Act allowed municipal governments to become sole shareholders of the new corporations (LAO 1998: Schedule A, Part XI, 130.4), and they overwhelmingly exercised their right to do so. Whether publicly or privately owned, however, the newly-created corporations would act as profit-seeking entities in the electricity market.

Importantly, the Energy Competition Act ensured “non-discriminatory access” to the grid for private electricity generators (LAO 1998: Schedule A, Part III, 25.1). Ontario had started to contract electricity from private generators in 1989 (Brown & Boone 1992: 152-157). But, by the late 1990’s, they still only accounted for about 10% of total production (Barnstable 1998). By opening to door for private generators to bid on future electricity contracts, the Energy Competition Act marked a sea change in the electricity system’s *modus operandi*.

In June 1999, shortly after the Energy Competition Act became law, Mike Harris and his party were re-elected with another majority.¹⁸ He served as Premier until April 2002, stepping down from power just one month before the opening of Ontario’s electricity market. Harris was replaced by Deputy Premier Ernie Eves.

In May 2002, the Eves government opened wholesale and retail electricity markets to competition and, within a few weeks, prices began to rise to much higher levels than anticipated. From May to September 2002, customers’ average hydro climbed to nearly triple

¹⁸ The Progressive Conservatives took 59 of 103 seats (and 45.1% of the popular vote).

the amount of equivalent 2001 bills (Deweese & Reeve 2010: 7). This caused intense public outrage and the Eves government swiftly passed the Electricity Pricing, Conservation and Supply Act in December 2002. In March 2003, the Eves government also passed the Business Protection Plan for large electricity consumers. These measures imposed a four-year cap on the price of electricity for residential customers and a four-year subsidy for many large industrial users.

In imposing price caps on electricity, the Progressive Conservatives expeditiously halted their plan to create an unregulated electricity market, a project they had pursued for seven long years. As explained by Deweese, the caps scared private firms away from the marketplace.

“This price cap scheme had several unintended effects. First, it discouraged electricity retailing, since nobody could make money competing with 4.3 cents. Second, it discouraged electricity conservation, since it eliminated price as a means of restraining demand. Third, potential investors in new generation now wonder how long it will take the government to tire of subsidizing the difference between the wholesale price and 4.3 cents and cap the wholesale price as well. Only a reckless investor would put equity into Ontario generation after 11 November 2002” (2005: 144).

Ultimately, the only assets government managed to off-load into private hands were the Bruce nuclear generating stations, in a long-term lease agreement, and four hydroelectric generating stations on the Mississagi River (OPG 2003: 14).

The only RE deployment that ensued in Ontario’s hybrid, regulated electricity market was the construction of a dozen or so wind turbines in Toronto and Bruce County. As earlier warned by the Advisory Committee on Competition (ACC 1996: 88) and the IPPSO (Anshan 1998), without some form of “targeted public support”, RE deployment stagnated.

The fact that the Harris government did not include RE deployment through an RPS in its plans for electricity restructuring is testament to provincial governments’ ultimate veto power over energy policy. With a majority in the Legislative Assembly, the Harris

government could ignore RE proponents' demands, even as their ranks swelled to include major electricity system players such as the City of Toronto and the Toronto Hydro-Electric Commission. To achieve their goal of an RPS, RE proponents would need to come into coalitional alignment with groups the government could not afford to ignore. RE proponents would also need to find allies within government.

Few did more to advance the cause of RE deployment than the Ontario Medical Association (OMA) and the Ontario Clean Air Alliance (OCAA). Following the July 1997 Andognini Report, finding operations at all Ontario nuclear generating stations to be "minimally acceptable" (Ontario Hydro 1997), the Harris government had shut down seven of the province's 19 operational reactors. Most of the withdrawn nuclear power was replaced by boosting production at coal generating stations (ECSTF 2004: 23). Combined with steadily rising emissions from industry and transportation (Ministry of the Environment 2005a: Figure 2.8), the rise in coal energy production resulted in a significant increase of smog. Transboundary emissions from the U.S. aggravated the phenomenon (Ministry of the Environment 2005b). Furthermore, given coal energy's low price,¹⁹ coal stations were expected to proliferate in the forthcoming electricity market, giving way to yet more smog (OMA 1998: 3). For public health reasons, the OMA and OCAA opposed coal energy's rising emissions and started to lobby government to impose legally binding emissions caps.

The OMA has a longstanding history of public health advocacy in Ontario. Its membership, composed entirely of physicians, has lobbied government on a long list of issues over the course of the 20th century. Concerns over worsening air quality were a natural priority and catalyst of action for the organization. For its part, the OCAA was formed in August 1997

¹⁹ It is important to mention once again that the price of coal is artificially low because it does not take into account expensive externalities such as present and future damage to public health and the environment.

in anticipation of the Energy Competition Act. Originally a project of the Canadian Institute for Law and Policy (Winfield 2012: 113), the OCAA quickly grew to encompass a diverse mix of “health and environmental organizations, faith communities, municipalities, utilities, unions and corporations” (OCAA 2013a). The OCAA’s founding mission was “to ensure that electricity competition leads to cleaner air, not increased pollution” (OCAA 1999). In August 1998, OCAA membership comprised 45 organizations, representing over 3 million Ontarians (Gibbons 1998).

Public health advocates and RE proponents formed a *de facto* coalition. Rather informal in the late 1990’s, their ties would formalize over the course of the 2000’s. Although their policy objectives were not precisely the same – public health advocates primarily wanted emissions caps, RE proponents wanted an RPS – they definitely overlapped. Both movements favor a “softer,” more environmentally friendly energy path based on conservation and distributed RE instead of large, high-impact infrastructure of centralized electricity systems. Emissions caps, RE deployment, conservation and demand management and other policies all contribute to enabling a softer energy path. Consequently, from 1995 to 2003, while the OMA and OCAA focused their lobbying efforts on emissions caps, they also called for investment in RE. Inversely, RE proponents’ often called for an RPS in combination with emissions limits (Elwell 1998, Keinau 1998). RE proponent groups participated in the OCAA’s very creation and, from the late 1990’s onward, flocked *en masse* to join its ranks. Along with overlapping priorities, public health advocates and RE proponents shared similar change strategies. They both adopted subversive change strategies by attempting to implement small changes on the periphery of prevailing plans for electricity restructuring. Public health advocates and RE

proponents did not oppose Harris government plans for electricity restructuring, but rather pushed for the inclusion of emissions caps and an RPS within the electricity market.

In 1998, the OMA published the *Ground Level Ozone Position Paper*. In the paper, the association targeted Ontario's coal generating stations as "the primary source of sulphur dioxide and sulphate pollutants," adding that the stations "also produce nitrogen oxides and particles" (OMA 1998: Executive Summary). These airborne chemical agents are known to cause a variety of health problems, ranging from immunological disorders, to various respiratory diseases, and ultimately excess cardiorespiratory mortality rates (OMA 1998: Section 5). These findings led the OMA to conclude that "government must act to reduce emission levels through statute and/or regulation bolstered by non-compliance penalties" (OMA 1998: Executive Summary). More specifically, the OMA recommended implementing stringent, legally-binding emissions limits in both Canada and the US, as well as significant investment in "new end-use energy efficiency and renewable energy projects" (OMA 1998: Section 7).

In 2000, the OMA released another report, titled *The Illness Costs of Air Pollution in Ontario*. While the 1998 paper focused on the causes of air pollution, the 2000 report emphasized its negative health and economic effects. The report states "in the year 2000, Ontario is forecast to suffer in the order of 1,900 premature deaths, 9,800 hospital admissions, 13,000 emergency room visits and 46 million illnesses as a result of air pollution" (OMA 2000: iii). On the subject of air pollution's economic costs, the report said

"(...) health impacts involve about \$10 billion in annual economic damages. Loss of life and pain and suffering account for about \$4.1 and \$4.8 billion of this total. Annual health care costs of air pollution are in the order of \$600 million; lost productivity accounts for an additional \$560 million in annual damages" (OMA 2000: iii).

This emphasis on air pollution's effects in terms of human lives and the economy paid dividends, as media began to pick up the story in droves. As reported by Rowlands (2007: 191), following the 2000 OMA report, media across Ontario took up the cause of air pollution, printing dramatic headlines in reference to OMA findings.

The OCAA complemented the work of the OMA with multiple publications of its own. From 1997 to the electricity market opening in May 2002, it published a dozen reports detailing the harmful effects of Ontario's electricity system on the province's air quality.²⁰ The OCAA proved particularly effective in getting its message out by using a large network of local contacts, maintaining an active email distribution list, submitting articles to local newspapers, and participating in citizen groups' and municipal council meetings (Rowlands 2007: 191). The OCAA demanded that "the introduction of competition should be combined with regulations that establish legally binding greenhouse gas, SO₂, NO_x and air toxics emissions caps with respect to all electricity that is generated or sold in Ontario" (OCAA 1998). This demand for legally binding emission caps was expressed not only in OCAA publications, but also directly to government during hearings held by the Standing Committee on Resources Development in August 1998 (Gibbons 1998). In 1999, the OCAA specified its demands, saying that emissions caps should "reduce Ontario's total (domestic and imported) electricity-related sulphur dioxide and air toxic emissions by 83%, nitrogen oxides emissions by 64% and greenhouse gas emissions by 40%" (OCAA 1999). Along with emissions caps, the organization called for "new investments in renewable energy technologies (e.g., wind-turbines, solar photovoltaic systems) by energy utilities, non-utility investor-owned corporations and consumer co-ops" (OCAA 1998).

²⁰ For a list of all OCAA publications, see the "Publications" section of their website at <http://www.cleanairalliance.org/publications>.

The OCAA moved to a more radical stance upon seeing the Harris government's reaction to its demands. In March 2001, Environment Minister Elizabeth Whitmer announced a decision to close the Lakeview coal generating station in 2005 (CBC 2001), by all means a positive development for public health advocates. Accompanying the announcement, however, were plans for weak emissions caps on coal generating stations, outlined in a discussion paper titled *Emissions Reduction Trading System for Ontario*. Government planned to allow most types of dangerous emissions – sulphur dioxide, mercury, carbon dioxide, lead and five other carcinogens – to rise in the new electricity market, while imposing a small reduction in nitrogen oxides. As observed by the OCAA (2001a), proposed nitrogen oxide reductions did not even comply with the Ozone Annex to the 1991 Canada-U.S. Air Quality Agreement. Furthermore, emissions caps were voluntary as there was no mention of penalties to be imposed on polluters exceeding them (OCAA 2001a: 1). The Harris government emissions plan would, ultimately, have allowed Ontario Power Generation to increase its use of coal energy. All this was heading in a direction diametrically opposed to what public health advocates wished to see. In August 2001, the OCAA replaced its call for emissions caps with a call for the gradual, yet complete phase out of coal.

The *Phasing Out Coal* (2001b) report contains the first published reference calling for a complete coal phase out in Ontario. The OCAA recommended achieving the phase out through 4 pragmatic measures: 1) increased energy efficiency; 2) increased hydropower output; 3) conversion of coal power plants to natural gas; 4) a ban coal energy generation on smog-alert days (OCAA 2001b: 6). These same recommendations were expressed directly to government in August 2001, in hearings held by the Select Committee on Alternative Fuel Sources (Gibbons 2001). As we see here, although investment in new RE projects were part of

the OCAA's recommendations in 1998, it eventually took a back seat to what were considered more pragmatic demands. This mattered little, however, because OCAA advocacy in favor of clean air had aroused such public opposition to coal energy that government was left with few options other than to limit coal's presence in the electricity system and start considering pro-RE policy.

OMA and OCAA lobbying efforts apparently succeeded, at least for a time, in reframing the question of electricity in Ontario. Until the late 1990's, government and media always framed electricity as a "cost" issue, and the challenge was to keep costs as low as possible. However, polls in 1999 and 2001 revealed that a majority of southern Ontarians not only favored a coal phase out, but were willing to pay more for electricity from other sources (OCAA 2006). As demonstrated by the polls, public health and the environment issues were gaining salience among the voting public, and more and more Ontarians wanted a cleaner electricity system.

Two time-specific outside developments greatly contributed to reframing the question of electricity in Ontario. First and foremost, the Walkerton E. coli tragedy of May 2000 – where seven residents of that small community died and 2,300 became ill – drew attention to environmental policy like never before. More specifically, as noted by Winfield, the "Walkerton disaster focused attention on the effects of spending reductions and the regulatory withdrawal of the province" (2012: 11). Blame and indeed public outrage over the tragedy eventually focused on the Harris government's mismanagement of the environment (Winfield 2012: 130). Also, the late 1990's and early 2000's saw unusually hot summer months. Excluding the summer of 2000, the number of hot summer days was well above average (Ministry of the Environment 2004: Figure 2.7a). Hot weather is known to aggravate poor air

quality. As Ontarians read about OMA findings on air pollution due to coal energy in newspapers, and listened to the Ontario Ministry of Environment's smog advisories on the radio, they could also tangibly feel the poor air quality in their lungs. To succeed in the next elections, coming in Fall 2003, the Progressive Conservatives had to take action to curb coal's air emissions.

In June 2001, the Harris government convened a multiparty Select Committee on Alternative Fuel Sources "to investigate, report and recommend ways of supporting the development and application of environmentally sustainable alternatives to our existing fossil [carbon-based] fuel sources" (LAO 2002: 1). A key part of the committee's mandate was to conduct public hearings. This gave the GEC an opportunity to, once again, call on government to implement an RPS (Poch 2002). As for the CFRE, realizing that so many others would demand RPS implementation, decided to focus its presentation on how RE deployment could benefit Ontario by launching a new green economy and creating thousands of new jobs (Kleinau 2002). The GEC and CFRE were joined in their call for pro-RE policy by other environmental groups such as the Toronto Environment Alliance (Stewart 2001a). The newly formed Toronto Renewable Energy Cooperative (Young 2001), whose founding objectives concern both the promotion of the environment as well as local economic development, also voiced support for an RPS.

The RE private sector was well represented at the Select Committee on Alternative Fuel hearings. Jake Brooks of the IPPSO repeated that organization's call for an RPS, saying

"Although we've been invited to comment on a wide range of subjects, we have chosen to focus instead on a relatively narrow focus, which is the renewable portfolio standard, perhaps the pre-eminent method we can see at the moment for improving the environmental impact of electrical generation" (Brooks 2002).

Two RE trade organizations – Wind Power Task Force (Boileau 2001) and the Water Power Association (Norris 2001) – also called for an RPS. They were joined by a slew of RE firms, including: Vestas Canadian Wind Technology Inc (Andres 2001), Canadian Renewable Energy Corporation (Gillette 2001), Vision Quest Wind Electric Inc (Edworthy 2001), Enviros RIS (Kelleher 2001), British Energy (Canada) Ltd (Morris 2001), Kinectrics (Stasko 2002), Sky Generation Inc (Estill 2002). Sky Generation founder, Glen Estill, explained RE's economic potential.

“I am the co-founder of a computer distribution company. I co-founded it 20 years ago. It's EMJ Data Systems, which is a publicly listed Toronto Stock Exchange company. I left that 18 months ago to pursue my interest in starting a wind power business because I see parallels to the computer business in 1980, when I joined the computer business. The wind business seems to me to be a very similar condition, about to take off, much like the computer business did in 1980” (Estill 2002).

Private entrepreneurs such as Estill of Sky Generation, along with the businessmen and women at the head of the other above-mentioned firms, could see the momentum of support behind RE building in Ontario. They keenly foresaw a shift in the political and economic winds and wanted to be part of it to grow their businesses, and profit from future RE deployment. Firms that allied themselves to Ontario's pro-RE network upon sensing a favorable shift in the political and economic winds exhibited opportunist behavior, according to Mahoney & Thelen's theory of gradual institutional change (2010: 30). However, in promoting new pro-RE rules on the periphery of prevailing energy policy, these opportunist RE firms adopted the pro-RE network's subversive change strategy (Mahoney & Thelen 2010: 25). Starting in the late 1990's and throughout the 2000's, more and more private sector firms joined the pro-RE network to lobby government for RE policy gains that would help grow their businesses.

Toronto Hydro Energy Services Inc, previously known as the Toronto Hydro-Electric Commission, reiterated its call for an RPS at the Select Committee on Alternative Fuel hearings (McLean 2001). Interestingly, Toronto Hydro and other RE proponents' were starting to coalesce into more formal coalitions, stretching beyond RE's core constituency of support. One such coalition was the Clean Air Renewable Energy Coalition (CARE), founded in Fall 2000. As explained by CARE president, Helen Howes, the coalition comprised a wide array of groups endorsing an RPS for different reasons.

“(CARE) was formed in the fall of 2000. The major drivers behind the coalition were Suncor Energy and Pembina Institute out of Calgary. There are, however, 17 NGO and business members. The Ontario members are noted here. They are Dofasco, Friends of the Earth, Ontario Power Generation, Toronto Environmental Alliance, Toronto Hydro and Pollution Probe. I think over the last day or so you have probably heard support for the CARE Coalition from both Toronto Hydro and Pollution Probe. The purpose of this coalition is really to kick-start renewable energy technology in Canada” (Howes 2001).

Speaking on behalf of CARE, Keith Stewart of the Toronto Environment Alliance (Stewart 2001b) voiced support for an RPS. The tide of support for this policy was rising to include large corporations involved in traditional energy (British Energy, Suncor Energy), Ontario's largest energy producer (Ontario Power Generation) and a major consumer (Dofasco).

As observed by Rowlands (2007: 195), opposition to an RPS came mostly from the Association of Major Power Consumers of Ontario (AMPCO). AMPCO represents Ontario's largest electricity consumers and, in 1998, its membership consisted of 65 firms accounting for over 15% of domestic electricity sales (Gregg 1998). Ford Motor Company of Canada, Goldcorp, and Imperial Oil are but a few of AMPCO's powerful corporate members. AMPCO has always lobbied government for electricity at the lowest possible cost for a simple reason: its members' profit margins are directly correlated to production costs, of which a principle contributor is electricity. Higher electricity prices thus cut into AMPCO members' profits. Through the RPS, government designated quotas of RE would gradually come online and

reduce coal energy's presence the electricity supply. Given coal's cost advantage over RE, the price of electricity would rise proportionately to RE expansion. The fact that RE deployment would increase the cost of electricity was well known. As demonstrated by polls in 1999 and 2001 (OCAA 2006), a majority of the population of southern Ontario was ready to bear these higher costs if it led to better air quality. AMPCO did not share this view because RE deployment would reduce its members' profits.

Although AMPCO was a key Progressive Conservative constituency (Rowlands 2007: 195), government had little choice but to reduce coal's presence in Ontario and commit to some level of RE deployment. With elections coming in Fall 2003, it had to act to curtail public anger over coal emissions and stand a fighting chance at re-election. It was looking for solutions. In June 2002, the Select Committee on Alternative Fuel Sources published its report. The report diverged from the status quo in many respects, including recommendations for an RPS and a complete coal phase out by 2015 (LAO 2002). Government would quickly pick up these recommendations in an attempt to shore up public support.

According to Rowlands, Steve Gilchrist, Chair of the Select Committee on Alternative Fuel Sources, was to a large extent responsible for the recommendation of an RPS (2007: 195). As a Progressive Conservative member of parliament and former cabinet minister, Gilchrist had privileged access to energy policy making circles. He used this access to lobby, over a number of years, for greater action on RE (Rowlands 2007: 195). After heading the Select Committee on Alternative Fuel Sources, Gilchrist was appointed Commissioner of Alternative Energy in late 2002. The rise, within government, of an influential subversive change agent dedicated to RE appears to have been essential to RPS implementation.

In the Spring 2003 Throne Speech, the Eves government announced its intention to implement an RPS as part of a promise to entirely phase out coal by 2015 (LAO 2003: 7). This marked the first time the Progressive Conservatives committed to a plan for RE deployment, including RE targets and timeframes for achieving them. The Green Power Standard, as the RPS was called, aimed to provide 1% of Ontario's electricity demand from RE sources by 2006, with a 1% rise per year to reach 8%, or 3,000MW, by 2013 (Ministry of Energy 2003).

It must be said that achieving the RPS and coal phase out was greatly facilitated by the fact that there was no coal constituency in Ontario. With no active coal mines left, the province had been importing its coal resources for decades (NRCAN 2009). In terms of workforce, coal "(had) no real constituency, except for the 1,000 or so workers employed by coal generators" (Silverstein 2003). And these workers were not concerned because government had, from the onset, stated that coal generating stations would be converted to cleaner burning natural gas. Jobs would simply switch from the exploitation of one resource to the next. Furthermore, in the process of electricity restructuring, the Harris government had been unable to privatize any of the province's coal stations. Apart from AMPCO, there were no private sector interests coming to coal's rescue. Given the potential veto role played by coal workers, the fact that there was no local constituency behind coal definitely played in the favor of RE proponents.

We would never get to see if the Green Power Standard could achieve its target of 3,000 MW of RE by 2013. In October 2003 elections, the Liberal Party of Ontario, led by Dalton McGuinty, defeated the Eves' government and chose to abandon the policy. Nonetheless, the RPS marked an important second step forward for RE. During the election campaign, the Liberals had pledged to develop 2,700 MW of RE by 2010 (Ministry of Energy

2004a), a near carbon copy of the Green Power Standard's target of 3,000 MW. The Liberals would move quickly to fulfill their electoral pledge, essentially carrying forward the Standard's target.

4.2 2003-2006: Coal Phase Out Creates Electricity Supply Shortfall, Opens Door to Limited Feed-in Tariffs

In the lead up to October 2003 elections, the Liberal Party responded to increased pressure to improve air quality and promised to, if elected, “shut down Ontario’s coal burning power plants by 2007” (Ontario Liberal Party 2002: 3). After winning a majority at elections,²¹ the McGuinty government confirmed their commitment to Ontario Power Generation (OPG) management and, as published in OPG’s 2003 annual report, the phase out became official policy (OPG 2003: 7).²² Coal accounted for approximately 7,600 MW in generating capacity (Ministry of the Environment 2001: 15). In 2003, this represented roughly a quarter of Ontario’s electricity, both in terms of capacity and actual generation (ECSTF 2004: 25, 23). The coal phase out thus created a large short- to medium-term electricity supply shortfall that had to be filled by other energy sources. Importantly, the phase out opened up room for RE deployment and presented change agents with an important opportunity to push for new pro-RE policy.

Problems with Ontario’s nuclear fleet aggravated the electricity supply shortfall. Following publication of the July 1997 Andognini Report, finding safety and operations at all Ontario nuclear generating stations to be “minimally acceptable,” government had ordered the shutdown of seven of Ontario Hydro’s 19 operational reactors, accounting for approximately

²¹ The Liberals took 72 out of 103 (and 46.5% of the popular vote).

²² Three years later, in 2007, government fully ratified its coal phase out policy by issuing Ontario Regulation 496/07 under the Environmental Protection Act. This rendered the policy legally binding.

5,100 MW of withdrawn electricity (ECSTF 2004: 23). The return to service of four reactors from 2003 to 2005 recovered about half that amount (IESO 2012), but extraordinary delays in repairing two reactors at the Bruce nuclear generating station made the coal phase out more difficult to achieve than initially thought.²³ The phase out deadline was twice extended, the first time from 2007 to 2009 and the second time from 2009 to 2014 (CBC 2006). Coal generating stations simply had to be kept online longer to compensate for problem-plagued reactors.

The McGuinty government planned to fill the electricity supply shortfall caused by the coal phase out by increasing generating capacity through a variety of measures, including RE deployment and energy conservation. The origins of this plan can be found in the Liberal Party platform for the 2003 elections. Alongside their pledge to phase out coal by 2007, the Liberals had promised to “require that Ontario electricity suppliers obtain at least 5% of their electricity from new, clean, renewable sources by 2007 and 10% by 2010” (Ontario Liberal Party 2002: 4). At the time, 5% of electricity represented 1350 MW, and 10% was 2700 MW (Ministry of Energy 2004a). The Liberals also promised to introduce conservation and demand management (CDM) programming to “help Ontario homes and businesses reduce their costs and cut their electricity consumption by at least 5% by 2007” (Ontario Liberal Party 2002: 4). The deployment of RE and CDM was part of a new policy approach seeking to repair the prior Conservative government’s record of “dirty air, tainted water and hazardous waste” (Ontario Liberal Party 2002: 3).

The Liberals moved quickly to bring online new RE. This was done through a Request for Proposals (RFP) approach, defined as “a competition scheme where the contracts to build

²³ Bruce units A1 and A2 only returned to commercial operation in, respectively, October and November 2012 (Bruce Power 2012a, 2012b).

projects with the lowest generation costs are chosen” (Rowlands 2007: 186).²⁴ In June 2004, government issued the first RFP for RE, aimed at contracting 300 MW and, in November of the same year, announced the selection of ten projects totaling 395 MW (Ministry of Energy 2004b). In April 2005, government issued a second RFP for RE projects over 20MW and, in November of the same year, approved nine projects totaling 975 MW (Ministry of Energy 2005c). In July 2005, government issued a third RFP for RE projects under 20MW, seeking up to 200 MW (Ministry of Energy 2005b). The deadline for submissions to the third RFP was indefinitely delayed, however, and the winning contracts would only be announced years later, in January 2009. The third RFP ended up contracting six RE projects totaling more than 490 MW (Ministry of Energy 2009), a considerable step up from the original objective of 200 MW in small projects. Altogether, the three RFPs are credited with bringing online 1,565 MW of new RE capacity (OPA 2012a: Table 9).²⁵ From 2004 to 2005, the Liberals pursued all RE deployment through the RFP approach, but things were about to change. A growing coalition of change agents was starting to promote a new policy.

In 2004, the Ontario Sustainable Energy Association (OSEA) launched a campaign for advanced FITs (OSEA 2013a). Formed in 1999, the OSEA is a coalition of “individuals, manufacturers, installers, developers, municipalities, First Nations, farmers, co-operatives and other community organizations” (OSEA 2013b) whose founding mission is to foster community-based RE and CDM. OSEA’s membership was mainly composed of two types of entities: groups that did not see the benefits of RE deployment through the RFPs and, for financial or environmental reasons, were motivated to seek more ambitious RE policy and

²⁴ The RFP system is also known as a bidding system. Government of Ontario publications often refer to the RFP-acquired RE contracts as Renewable Energy Supply I, II and III.

²⁵ A total of about 1,860 MW had been contracted under the three RFPs, but not all projects were built as is often the case with this policy approach.

targets; and groups that, while being able to partake in and see the benefits of the RFPs, wanted to expand RE to further its financial and environmental benefits (OSEA 2012a). Representing these interests, the OSEA took an early lead in lobbying government to move beyond the RFPs and adopt FITs.

Upon appointing California wind energy expert Paul Gipe as its interim Executive Director in February 2004, OSEA activities gained heightened prominence and vigor. Gipe's work with the OSEA, and his influence in Ontario, has been well documented by Rowlands (2007: 198, 201). Throughout 2004, the OSEA held meetings across Ontario to promote RE deployment through advanced FITs. The experience of Germany, Denmark and others shows that FITs, when they are well designed, can foster local economic development more than other RE deployment policies (OSEA 2007: 7). The OSEA meetings, some of which were attended by hundreds of people, focused on FITs' local economic benefits. As media started to report on the meetings, messages of 'rural economic revival', 'new manufacturing jobs', and 'electricity as an engine of local development' began to flow through Ontario. Gipe himself published op-eds in the Toronto Star and the Globe & Mail, attracting yet more attention to FITs. To quote Rowlands, "like a textbook political entrepreneur, Gipe looked for key allies, made connections, was persistent and advanced his case consistently" (2007: 201). Gipe successfully coupled FITs, a European policy, with the goal of RE deployment in Ontario. Just as importantly, he used economics-based argumentation to promote RE. This strategy would prove particularly effective, and spread throughout Ontario's pro-RE network. For these reasons, Gipe was one of the most important subversive leaders in the layering process that led Ontario to adopt advanced FITs.

In October 2004, the OSEA combined its resources with the David Suzuki Foundation (DSF) to host a forum on FITs in Toronto. It featured as its guest of honor renowned RE pioneer and German politician Herman Scheer, credited with establishing the world's first FIT program in the early 1990's. The event coincided with the DSF publication of *Smart Generation: Powering Ontario with Renewable Energy*, the first widely-distributed, published report calling for FITs in Ontario (2004: 10). The OSEA/DSF event and the DSF report promoted the idea of FITs as “a new and vibrant economic engine” (DSF 2004: 2).

Reflecting Gipe's key role in leading the province to consider advanced FITs, little evidence of FIT advocacy predates the work of Gipe and OSEA. Indeed, while RE firms and their representative organizations (Canadian Wind Energy Association, Wind Power Task Force, Canadian Solar Industries Association, Independent Power Producers' Society of Ontario) had long been promoting the economic benefits of RE for years, their message rarely included reference to FITs before the 2004 OSEA campaign. For example, during hearings held by the Select Committee on Alternative Fuel Sources in 2001, Jim Salmon of the Canadian Wind Energy Association argued that “investment in wind energy represents a huge opportunity (...) If Ontario embraces wind energy and an industry is created, it will create thousands of jobs” (Salmon 2001). At the same hearings, Ian MacLellan of Arise Technologies, a Waterloo-based solar company founded in 1996, suggested government provide incentives for RE deployment, such as “high purchase rates similar what they did in Germany” (MacLellan 2001). This is one of the earliest calls on record for Ontario to adopt FITs. MacLellan's suggestion of FITs was however diffuse as he also suggested other RE deployment policies on an equal footing, focusing more on California's “50% buy-down program” than on FITs. In contrast, Gipe and OSEA were the first to coherently link the two

ideas of FITs as an engine of job creation. In 2004, dozens of solar and wind companies held membership in the OSEA and, through direct financing of the organization, contributed to the campaign for advanced FITs. Thanks in no small part to Gipe and OSEA, FITs were becoming the preferred policy choice of Ontario's pro-RE network.

Solar companies had particular reason to promote FITs over the RFP approach. They were the RFPs' ultimate 'losers' as, under this policy, not a single solar energy project saw the light of day. Wind developers were by far the 'winners' as fifteen wind projects totaling 1,509 MW were constructed (OPA 2012a: Table 9). In fact, wind contracts would account for about 95% of RFP procurement (OPA 2012a: Table 9). It is important to note that solar companies outnumber wind companies in OSEA membership by a more than two-to-one margin (OSEA 2012a). As institutional 'losers' under the RFP, solar companies had greater impetus to mobilize in favor of FITs and join the OSEA. According to Gipe, well-designed FITs set separate tariffs for different RE technologies based on each technologies' generation costs (2010: 7-8). With well-designed FITs, solar technology would be guaranteed higher levels of growth.

Parallel to the work of the OSEA, public health advocacy groups maintained pressure on government to eliminate coal from the energy supply, even if the newly elected Liberals had already promised a phase out by 2007. In 2005, the OMA updated its 2000 "Illness Costs of Air Pollution" study, projecting the future health effects of smog to be vastly greater than initially anticipated. New data placed smog-related premature mortality at 5,800 deaths annually, approximately 4000 deaths over estimates made in 2000 (OMA 2005: 2). The OCAA also maintained pressure on government. Its founding mission was after all to reduce and eventually entirely eliminate coal from the energy supply. From the time the Liberals were

elected in the Fall 2003 to the Fall of 2006, the OCAA published no less than 9 reports on coal energy and its harmful health and environmental effects.²⁶ The OCAA clearly had not abandoned its focus on coal but, starting in 2004, it started to take on other energy policy issues as well. In March 2004, the OCAA teamed up with local generation and distribution companies, RE companies, environmental groups and others to publish a report called *New Energy Directions*. It called for Ontario to meet “incremental electricity demand through a least-cost combination of energy efficiency programs, new low-impact renewable supplies, and high-efficiency natural gas co-generation or combined heat and power” (OCAA 2004: 2). The report called for RE deployment through the RFP approach (OCAA 2004: 2). The OCAA was starting to take a more active pro-RE stance in a coalition composed of a wider range of electricity system actors.

At the end of 2004, the Ministry of Energy commissioned the OSEA to prepare a report examining criteria for a community-based FIT pilot program (OSEA 2005). Government’s RFP approach had been successful in launching Ontario’s first wave of RE deployment, but most of the economic benefits had gone to large wind energy developers. Following the 2004 OSEA campaign linking FITs with local economic development, government knew this policy could more evenly distribute the benefits of RE, and public pressure for a better distribution of RE’s economic benefits was building. From 2000 to 2005, the Ontario economy had shed about 100,000 well-paid manufacturing jobs (see Figure 4.3.1), and all indications showed the trend would continue. FITs offered government a means of limiting Ontario’s manufacturing decline by spurring investment and jobs throughout the province, not just in a few chosen wind developers’ realm of activity. Titled *Powering Ontario*

²⁶ For a list of all OCAA publications, see the “Publications” section of their website at <http://www.cleanairalliance.org/publications>.

Communities, the OSEA report talked about FITs' environmental and health benefits, but focused especially on the policy's numerous local economic impacts, such as

“Increased rural investment at the local level; Greater potential for attracting new manufacturing; Addition of new skilled jobs; Greater access to local and regional sources of capital; Increased tax revenue; Greater certainty for investors; Increased diversity and number of market players and investors; Simplified program administration that reduces government costs; Greater mitigation of supply risks” (OSEA 2005: 6-7).

This message of mitigating politically costly risks to secure energy supply, while achieving local economic gains, would resonate with government.

The Liberal government also appeared to be reacting to demands for FITs for other, very practical reasons. FITs' greater fairness and transparency in attributing RE contracts (OSEA 2005: 8, 44; 2007: 10) was an appealing point for government. As observed by Rowlands (2007: 199-200), media revealed in 2004 that one of the successful applicants in the first RFP round, AIM PowerGen Corporation, had close links to government. Its president, Mike Crawley, was president of the federal Liberal Party and had served as executive assistant to a former provincial Liberal leader. Once these news were made public, the Liberals faced allegations of corruption. Furthermore, as RE projects began to take form, local opposition to some of these began to coalesce. A small yet vocal NIMBYism (“not in my backyard”) movement made itself heard, forcing government to back down from at least one wind energy project near Collingwood, Ontario (Rowlands 2007: 200). The attribution of RE contracts through FITs is more transparent and fair than with RFPs. With FITs, contract selection criteria are known by all and the process operates on a first come, first served basis (OSEA 2005: 44). FITs presented the Liberals with the opportunity to appear more impartial in pursuing their RE targets.

There was no open and direct opposition to RE in Ontario from 2003 to 2006. Resistance to pro-RE policy came in the form of support for coal energy, due to its low cost.²⁷ In the early to mid-2000's, coal represented about a quarter of Ontario's energy supply (ECSTF 2004: 25, 23) and, if it remained at that level, there would be no room for RE to grow.

Just as it had from 1995 to 2003, AMPCO led major energy consumers' lobbying efforts to maintain coal power generation, despite the fact that both the prior Progressive Conservative and current Liberal governments had already committed to a complete coal phase out. During public consultations on the forthcoming 2007 Integrated Power System Plan (IPSP),²⁸ held from August to October 2005, AMPCO pleaded in favor of maintaining coal generation in the supply mix, saying

“The current policy to retire from service the existing coal-fired generating stations at Lambton, Nanticoke, Atikokan and Thunder Bay is the single biggest factor causing upward pressure on rates and increasing risks in Ontario's electricity market. To mitigate price risks and sustain an electricity rate environment that will encourage continued investment in Ontario's industrial sector, AMPCO strongly feels the existing coal-fired plants should be kept in operation” (AMPCO 2005a: 10).

In December 2005, AMPCO along with an impressive list of industry and private sector allies sent an open letter to Premier McGuinty demanding he “extend a government policy to head off another increase in power costs” (AMPCO 2005b). This was a letter the Premier could not ignore as its signatories represented crucial parts of the Ontario economy; they included: the Canadian Chemical Producers Association, the Canadian Federation of Independent Business, the Canadian Manufacturers & Exporters, the Cement Association of Canada, the Ontario

²⁷ RE opponents in Ontario have always argued against RE deployment by evoking the argument that it would cause electricity prices to rise dramatically, negatively impacting the economy. However, as demonstrated by Ontario Energy Board data (2011: 59), it is nuclear cost overruns and not RE that have by far been the main cause of rising electricity costs.

²⁸ In Ontario government literature, the 2007 IPSP is often referred to as “IPSP I.”

Federation of Agriculture, the Ontario Forest Industries Association, and the Ontario Mining Association (AMPCO 2005b). Apart from signing the AMPCO-led letter to the Premier, many of these groups lobbied government on their own to reconsider the coal phase out policy. The Canadian Chemical Producers Association,²⁹ whose Ontario members at the time had \$8.5 billion a year in output, led particularly active lobbying efforts (Spears 2004). In April 2006, AMPCO also released a series of studies calling for Ontario to invest in modern coal technologies. According to the studies, this “would reduce annual electricity costs to Ontario electricity consumers by more than \$5 billion per year” and “boost real GDP by 1.8 per cent” (AMPCO 2006a).

The two major unions representing Ontario energy system workers also lobbied in favor of maintaining coal energy production. During IPSP public hearings in 2005, the Power Workers’ Union (PWU) recommended the OPA “ensure coal and nuclear generation remain part of Ontario’s supply through rehabilitation” and “proceed with new coal and nuclear generation using best available technology” (PWU 2005: 9). PWU represented, at the time, about 15,000 workers from throughout the energy system (PWU 2005). The Society of Energy Professionals, which has over 7,000 members (Society of Energy Professionals 2013), also lobbied for a continued, albeit limited, use of coal, recommending “that coal assume a role of peaking generation in the supply mix for the foreseeable future” (Society of Energy Professionals 2005: 30). These recommendations from the two major unions came nearly two years after the McGuinty government had committed to the coal phase out and to transferring coal power plant jobs to natural gas.

²⁹ Now known as the Chemistry Industry Association of Canada.

In 2005, a small group of citizens based in Lambton, Ontario launched an initiative called the Clean & Affordable Energy (CAE) Alliance. Working with Toby Barrett, Progressive Conservative member of parliament for Haldimand-Norfolk, the group lobbied several arms of government against the coal phase out, arguing the policy would lead to dire economic consequences for Ontario (Barrett 2005a, 2005b). During IPSP public hearings in 2005, the CAE Alliance recommended

“keeping coal fired generation in the provincial mix, with significant upgrades in emissions technology. The 2 units at Lambton Generating Station retrofitted with clean air technology have proven effective in emissions reductions, almost within those of natural gas. The abundant supply of affordable coal, together with coal generation’s capacity to supply base, intermediate and peak load power at very short notice, ensure coal’s place as the stability in the power grid” (CAE Alliance 2005: 3).

The CAE alliance had neither the numbers nor the resources, however, to mount an effective pro-coal campaign, and Barrett’s party was no longer in power. Their actions were insufficient to reverse the McGuinty government’s commitments to phase out coal and deploy RE.

Delays in returning laid-up nuclear reactors to service ended up pushing back completion of the coal phase out, which pleased major energy consumers and the wider pro-coal lobby. Worries of AMPCO and its allies over rising energy costs were further alleviated when government extended a revenue cap on OPG’s unregulated generating stations for three years, ensuring a low price until 2008 (AMPCO 2006b). By allowing a delay in the coal phase out and maintaining artificially low electricity prices, the McGuinty government showed it was not going to sacrifice major power consumers’ interests for the sake of RE. It pursued limited RE deployment while signaling it would control electricity prices for major consumers. This posture alleviated AMPCO worries about rising costs and worked to limit its opposition to RE.

From the mid-2000's onward, the main factor constraining RE deployment would in fact be government itself. When speaking on energy matters, both before and after the 2003 elections, Premier McGuinty regularly repeated that "we're going to create a conservation culture in Ontario to temper demand, call for new investment in renewable energy production and replace our coal-fired generators with clean energy alternatives" (McGuinty 2004). Such phrasing was standard to McGuinty's public addresses. It is important to note, however, that the actual Liberal plan aimed to fill less than half of the electricity supply shortfall caused by the coal phase out with RE and CDM. In fact, Ontario Liberals hold a rather expansive definition of "clean energy." It includes not only RE, but also nuclear and natural gas.³⁰ As stated in the Liberal Party platform for the 2003 elections, RE would address 10% of Ontario's electricity needs by 2010 (Ontario Liberal Party 2002: 4). Recalling that coal accounted for approximately 25% of Ontario's electricity in 2003, the remaining 15% of replacement supply would have to come from other "clean energy" sources. Ontario's coal phase out opened the door to RE deployment, yet RE by no means took centre stage. It was only allowed to grow on the periphery of established nuclear and fossil fuel energy industries.

Government moved to procure new natural gas generation as quickly as it had with RE. In September 2004, it issued an RFP for 2,500 MW of new natural gas generation and, in April 2005, announced a first wave of 20-year contracts accounting for 1,675 MW (Ministry of Energy 2005a).³¹ The RFP approach to natural gas procurement would be maintained well beyond the initial announcement of 2,500 MW. From 2004 to early 2010, government contracted 4,480 MW in natural gas generation (OPA 2010: Appendix 1), with another 2,220

³⁰ This is a position many scientists disagree with given nuclear and natural gas' substantial negative environmental impacts (Mallia & Lewis 2013).

³¹ The RFP, as a side note, also procured small-scale demand response projects.

under development (OPA 2010: Appendix 2). About 430 MW of the new natural gas generation made use of efficient combined heat and power technology. In terms of actual electricity generation, natural gas would rise to 15% of total output by 2010 (IESO 2011). According to its Long-Term Energy Plan, government intends to maintain this threshold into the future, citing natural gas' threefold capacity to "support the intermittent supply from renewables like wind and solar; meet local and system reliability requirements; ensure adequate capacity is available as nuclear plants are being modernized" (Government of Ontario 2010: 33-34).

On the nuclear front, government announced, in July 2004, that it would return Pickering unit A1 to service, providing 515 MW of new supply (Ministry of Energy 2004c). In September 2004, government also began discussions with Bruce Power to return to service Bruce units A1 and A2, representing an additional 1,540 MW of supply (Ministry of Energy 2004d). The three reactors had been laid up since the mid-1990s. While Pickering unit A1 was successfully returned to service in September 2005 (OPG 2005), refurbishment of the two Bruce units suffered major setbacks (Bruce Power 2012a, 2012b). In parallel to refurbishment plans for existing nuclear assets, government began planning for new nuclear build. Following a June 2006 directive by the Minister of Energy, OPG began the federal approvals process for two new units at the Darlington nuclear generating station (OPG 2006: 12). The new units, to come online in 2018 and 2019, would provide Ontario with over 2000 MW of new generating capacity (OPG 2008: 8).

Returning to the subject of RE, in August 2005, the McGuinty government made public the OSEA report on community-based FITs. Energy Minister Donna Cansfield then instructed the Ontario Power Authority (OPA) to develop a FIT pricing scheme and the

Ontario Energy Board to examine what grid connection-policy changes would be required to implement the program (Hamilton 2005). Acting on the Minister's orders, the OPA conducted stakeholder discussions on FITs from 2005 to 2006 (Rowlands 2007: 197). Shortly thereafter, the Liberal government abandoned the RFP approach for RE.

On March 21, 2006, Ontario Premier Dalton McGuinty announced his government was launching the Renewable Energy Standard Offer Program (RESOP). Modeled after European feed-in laws, RESOP was a limited FIT program for producers of 10 MW or less. According to Gipe, RESOP did not constitute advanced FITs for one reason in particular: lack of tariff differentiation (OSEA 2007: 20-24). Nonetheless, RE firms immediately applauded the policy. Founded in 2001, Toronto-based wind developer and operator AIM PowerGen was able to expand its business upon receiving RESOP contracts, and quickly grow into one of Canada's largest wind energy companies. CEO Mike Crawley said, "The Standard Offer program was a ground-breaking initiative for the province and has allowed smaller projects (...) to be competitive" (CanWEA 2008). Speaking to the Washington Post, Gipe called the policy revolutionary, saying it was "the most progressive renewable energy program in 20 years in North America" (quoted in Struck 2006).

RESOP generated a lot of interest and government was flooded with more contract applications than the system could possibly handle. According to the OCAA, RESOP attracted "more projects in one year than the OPA projected would be available in 10" (2008: 2). RESOP gave RE firms the opportunity to start growing their businesses in Ontario. It served as a key stepping stone toward advanced FITs.

4.3 2006-2009, Wide-ranging Coalition Achieves Advanced Feed-in Tariffs

Despite RE proponents' initial enthusiasm for RESOP, key features of the program constrained RE deployment and left many wanting for more. From a policy design perspective, one of RESOP's main shortcomings was its lack of tariff differentiation. As reported by Gipe,³²

“One of the key features in all Advanced Renewable Tariff programs that is not found in Ontario's SOC program is tariff differentiation by technology, project size, application, or resource intensity. Currently, the only differentiation in the SOC program is the tariff for solar PV and the bonus payment for hydro and biogas if they can show delivery during peak periods” (OSEA 2007: 20).

One of the main drivers behind Europe's high rate of RE deployment were differentiated FITs, based upon respective technologies' construction and generation costs plus a reasonable profit for producers. RESOP offered 11¢/kWh for wind, hydroelectric and bioenergy, and 42¢/kWh for solar energy (OSEA 2007: 6). Such limited tariff differentiation favored deployment of lower cost RE technologies, such as onshore wind and utility scale ground mount solar, over higher cost ones, such as on-farm biogas and roof top solar.³³ In the end, over half of the total RE contracted through RESOP went to solar energy developers, over a third to wind, and a mere 6% and 3% respectively to bioenergy and small hydro (OPA 2012a: Table 23). RE firms unable to capitalize on RESOP due to limited tariff differentiation were among the program's institutional “losers” and were motivated to seek further policy change. Furthermore, although RESOP had no official RE deployment cap, Premier McGuinty had signaled it was only intended to add up to 1,000 MW of RE to the grid (Ministry of Energy 2006). RESOP's unofficial cap meant that only a limited number of developers could benefit from it. RE firms unable to receive RESOP contracts despite proposing economically viable projects to the OPA

³² In the following quote, “SOC” stands for standard offer contracts, a synonym for FITs.

³³ For a breakdown of different RE technologies' construction and generation costs, see REN21 2012: Table 2 or USEIA 2013.

were also among the program's institutional "losers." Firms unable to benefit from RESOP, due to its limited tariff differentiation or the unofficial RE deployment cap, joined Ontario's pro-RE network to more effectively lobby for advanced FITs and more ambitious RE because such policy would help grow their businesses.

RE firms that won RESOP contracts, the institutional "winners," also joined the pro-RE network in ever greater numbers in pursuit of greater profits.

From a policy outcome perspective, RESOP failed to foster the local economic development it had promised. The McGuinty government had earlier stated it wanted to create "a program offering a standard rate for electricity to small or community-based renewable power projects" (Ministry of Energy 2006). As reported by Gipe, however, "practically no community renewables (were) contracted with the exception of the orphaned WindShare turbine on the Exhibition Place grounds, two hydro contracts by First Nations, and some small solar PV systems installed by homeowners" (OSEA 2007: 7). Following RESOP, proponents of local economic development – municipal governments, LDCs, local generators, RE co-operatives, farm groups, First Nations – joined Ontario's pro-RE network en masse. Similar to the case of RE firms that were unable to capitalize on RESOP, these entities were institutional "losers" that joined the pro-RE network to push for policy change that would improve their economic situation. In contrast to RE firms however, they were largely motivated by notions of community development rather than individualist profit.

Instead of repairing RESOP's flaws, long serving Ontario energy policy advisor Marion Fraser believes the McGuinty government was "essentially shutting it down" (OSEA 2011: 8). The dramatic slowdown in RESOP contracts from early 2008 onward gives weight to Fraser's claim. From November 2006 to January 2008, the OPA contracted 1,025 MW

through RESOP (OPA 2007: Table 1.1.3). Following January 2008, less than 400 MW were contracted (OPA 2009: 7).³⁴ This slowdown should come as no surprise. By early 2008, the OPA had signed over 1,000 MW in RESOP contracts and, having reached this unofficial cap, the McGuinty government appeared to be winding down Ontario's short-lived experience with FITs.

The McGuinty government was after all well on track to achieving its global RE target of 2,700 MW by 2010 (Ontario Liberal Party 2002: 4). By August 2008, nearly 1,500 MW had been contracted under RESOP (OPA 2008b: Table 1).³⁵ The OPA was also about to finalize its third round of RFP contracts, bringing online a total of 1,565 MW of RFP-acquired RE (OPA 2012a: Table 9). Altogether, RESOP and the three RFPs represented just over 3,000 MW of new second-generation RE, a safe margin above the 2,700 MW target. As far as accountability was concerned, the McGuinty government did not need to take RE any further.

Post-2010 RE targets were outlined in the OPA's 2007 IPSP. The IPSP projected total RE output to account for approximately 15,700 MW of installed generation capacity by 2025 (OPA 2008a: 4.1). It is important to note, however, that this figure included approximately 7,500 MW of preexisting first-generation RE; the entire fleet of large hydropower dams built up by Ontario Hydro over the course of the 20th century (OPA 2008a: Table 2). The IPSP projected construction of just over 3,000 MW of new, mostly large hydropower (OPA 2008a: Table 3). This being said, more than two-thirds of the IPSP's RE target consisted of first-generation RE, the majority of which had come into operation decades ago. As far as second-generation RE was concerned, the IPSP projected 4,251 MW of wind energy, 656 MW of

³⁴ The OPA officially stopped accepting RESOP contracts at the end of third quarter 2009 (OPA 2009: 7).

³⁵ In the end, RESOP was credited with bringing online 856 MW (OPA 2012a: Table 23), as later contracts would be transferred over to the new advanced FIT program.

biomass, and 488 MW of solar by 2025 (OPA 2008a: Table 3). These figures were to be reduced if GDP growth were less than predicted in the provincial budget (OPA 2008a: 8).

The IPSP's second-generation RE targets were well below what RE proponents had hoped for. During public consultations on the IPSP in 2005, the Canadian Wind Energy Association (CanWEA) had recommended the OPA deploy 6,000 MW of wind energy by 2015, 8,000 MW by 2020 and 10,000 MW by 2025 (CanWEA 2005: 13). The Canadian Solar Industries Association (CanSIA) recommended the OPA deploy 40 MW of solar energy by 2015, and 1,200 MW by 2025 (CanSIA 2005: 20, 11). For its part, the Pembina Institute proposed meeting Ontario's energy needs with the following combination of RE and CDM, by 2020: 10% wind, 5% new hydro, 3% biomass, 1% solar, and 41% in demand reduction (Pembina 2005: 27). The Toronto Environmental Alliance reiterated Pembina's targets (TEA 2005). Pollution Probe recommended 40,000 MW of total RE, including large hydropower, by 2025 (2005: 22). Dozens of RE proponents proposed RE targets in ranges similar to those mentioned here. In the end, however, the IPSP target for wind was half of what CanWEA had requested and the target for solar was an embarrassingly low fraction of what CanSIA wanted. The IPSP target for total RE, including large hydro, was roughly 25,000 MW less than what Pollution Probe had asked for.

The IPSP was not written in stone however. Submitted by the OPA to the Ontario Energy Board in August 2007, it still required final review and approval by the McGuinty government to be enacted as energy policy. This review period, which can take anywhere from many months to several years, presented RE proponents with a major window of opportunity to lobby for more ambitious RE targets and policy. Much of Ontario's electricity infrastructure – at all levels; generation, transmission and distribution – is in need of replacement or repair.

According to recent estimates, the system's renewal will require capital investments of \$87 billion over the next 20 years (Ministry of Energy 2010: 11). Concerning electricity generation, producers involved with energy sources targeted for development in the IPSP will grow as they benefit from multi-million to multi-billion dollar contracts, and those left out will stagnate for decades. In the months following submission of the IPSP, environmentalists and public health advocates wanting to see Ontario embark on a softer energy path had to lobby government effectively if they were to ever achieve their goal. It was time to act for RE firms wanting to grow their businesses. It was also time to act for proponents of local economic development wanting their communities to benefit from future RE deployment.

The OSEA again played a leading role in the post-2006 campaign for advanced FITs. The organization had campaigned for advanced FITs starting in 2004 (OSEA 2013a) and, given that RESOP only consisted limited FITs, it logically pursued lobbying efforts. Shortly following RESOP implementation, the OSEA commissioned Paul Gipe to review the program. The report, titled *Renewables Without Limits*, was published in November 2007. It precisely detailed what steps needed to be taken to transform RESOP into advanced FITs and laid the groundwork for further RE policy change.

In May 2008, following signals that the McGuinty government was gradually shutting down RESOP, the OSEA publicly reiterated its call for advanced FITs (OSEA 2011: 8). The OSEA proposed this be done through new legislation, a Green Energy Act. As reported by Fraser, the OSEA intended for the new law to address RESOP's flaws by "including obligation to connect, streamlined environmental approvals and differentiated rates" (OSEA 2011: 8). OSEA efforts quickly matched up with those of others and snowballed into a wider campaign.

In June 2008, the Green Energy Act Alliance (the “Alliance”) was established (OSEA 2011: 4), marking the official launch of a renewed campaign for advanced FITs. Its founding members were the OSEA, Environmental Defence, the DSF, the Ontario Federation of Agriculture, First Nations Energy Alliance, the Ivey Foundation, Pembina Institute, and Community Power Fund (OSEA 2011: 4). In September 2008, the Alliance’s founding members teamed up with over 100 energy system stakeholders to define the pro-RE network’s core goals. These stakeholders included

Environmental groups (Greenpeace, World Wildlife Fund, Canadian Environmental Law Association, Green Communities, Toronto Atmospheric Fund, Clean Air Partnership, Windfall Ecology Centre), RE & CDM advocates (Community Renewable Energy Waterloo, Conservation Council of Ontario, GreenSaver), public health advocates (Ontario Clean Air Alliance, University Health Network), wind energy developers (Sky Generation, Helix Synergy, Port Albert Wind Farms), solar energy developers (SunEdison, Arise Technologies, Voltaire Power Company), energy services firms (360 Energy, Fraser & Company, Energy Profiles Limited, Carma Industries, Energy Advantage, Local Authorities Services, Jacques Whitford Ltd, the Delphi Group, Enbridge Gas Distribution), trade associations (Electricity Distributors Association, Association of Power Producers of Ontario, Canadian Wind Energy Association), municipal governments (Association of Municipalities of Ontario, City of Toronto, City of Hamilton), local distribution companies (Cornerstone Hydro Electric Concepts Association, Toronto Hydro Corporation, Enersource), RE Co-operatives (Toronto Renewable Energy Co-operative, The Renewable Energy Co-operative), farm groups (Pleasant View Farms), First Nations groups (Nipissing First Nation), education and research institutions (University of Toronto, Seneca College, St-Lawrence College, Upper Lakes Environmental Research Network, Ontario Centres of Excellence, Dearness Foundation), unions (Carpenters’ Union), investment firms (Fisker Capital), a political party (Ontario Liberal Party), and various others (OSEA 2008: 4).³⁶

Importantly, the Alliance also recruited stakeholder supporters from inside government; none other than the Ministry of Energy and the OPA (OSEA 2008: 4). The fact that government officials, the very people with their hands on the levers of energy policy, were participating in defining the Alliance’s core goals was a powerful sign that Ontario’s pro-RE network was gaining steam. The Alliance’s impressive size and the fact that its membership represented such a wide cross-section of society, from both inside and outside government, made it the primary representative of Ontario’s pro-RE network going forward.

³⁶ This list is not exhaustive.

Over the course of a “visioning session,” the Alliance’s founding members and stakeholders specified the pro-RE network’s core goals. They were to

1. “Make Ontario the leading jurisdiction in the world on green collar jobs, green energy policy and installed renewable and conservation projects.
2. Prioritize conservation, renewable energy and combined heat and power systems, in that order, over all other forms of new, procured electricity generation
3. Enable all Ontarians, farmers, First Nations, community groups, municipalities, homeowners and companies, to become electricity conservers and generators and to make a profit in doing so.
4. Change the electricity procurement process to grant priority procurement and obligatory grid access via Advanced Renewable Tariffs for renewable energy and CHP projects.
5. Ensure a continuous improvement approach to conservation programs and ensure that all conservation efforts are considered first before expenditures on new supply” (OSEA 2008: 3).

As seen in the first goal, Alliance members argued in favor of RE deployment mainly on economic grounds. The OSEA and DSF had opted for this strategy since the mid-2000’s (DSF 2004, OSEA 2005) and yielded relative success with the implementation of RESOP. Economics-based argumentation would now be at the forefront of all RE proponents’ lobbying efforts. In the third goal, Alliance members state that distributed, local economic development should be a prime consequence of RE deployment, reflecting the growing presence and influence of municipal governments, LDCs, local generators, RE co-operatives, farm groups and First Nations in the pro-RE network. As made clear in the fourth goal, the Alliance wanted to see RE deployment through advanced FITs. This goal demonstrates the OSEA’s success in coupling the idea of RE deployment with advanced FITs, and the successful promotion of these ideas’ throughout Ontario. The Alliance’s core goals served as the basis for the *Proposal for A Green Energy Act for Ontario*, published in January 2009 (OSEA 2009).

Among Alliance members and stakeholders, the OSEA was particularly active in promoting advanced FITs directly to Ontario citizens. The OSEA’s website describes the organization’s actions:

“Working closely with its members, OSEA played a major role in this campaign taking it on the road to communities throughout Ontario to educate people about the need for such legislation and encouraging them to press their elected representatives to support a Green Energy Act. OSEA’s

members and partners rose to the challenge issuing press statements supporting a Green Energy Act, petitioning the government and providing their input on what was needed in the legislation” (OSEA 2012b).

As the OSEA and its allies disseminated the Alliance’s vision throughout Ontario, a second RE proponent coalition was created, giving yet more impetus to the campaign for advanced FITs.

The Renewable is Doable coalition acted in concert with the Alliance. In fact, all Renewable is Doable members were either founding members or stakeholders of the Alliance. Renewable is Doable members are all environmentalists; they include the Pembina Institute, World Wildlife Fund, the DSF, Greenpeace, Canadian Environmental Law Association, and Sierra Club Ontario. Renewable is Doable promoted on its website a *7-Step Action Plan for Ontario* calling on the OPA to replace aging nuclear reactors with RE; transform RESOP into advanced FITs with “prices differentiated by technologies, tiered pricing within technologies, prices set according project costs and reasonable return on investment, 20-year contracts, no caps on project size or the program, and guaranteed access to the grid;” and, use FITs as “the primary procurement mechanism for renewable energy, empowering all Ontarians to become generators” (2008a). In September 2008, Renewable is Doable representatives participated in Ontario Energy Board hearings on the IPSP, advocating in favor of greater RE deployment (Renewable is Doable 2008b: Schedule 6). Renewable is Doable’s presentation was prepared by none other than renowned German politician Herman Scheer, widely-recognized as the founder of advanced FITs. Scheer’s presentation focused on the many “macroeconomic advantages of renewable energy” such as local job creation, stabilization of small- and medium-sized businesses as well as the avoidance of infrastructure, ecological, health and security costs tied to traditional energy production (Renewable is Doable 2008b: Schedule 6).

The OCAA added yet more ammunition to the campaign for advanced FITs. In October 2008, it published a report called *Ontario's Green Future*, focusing on the cost advantage of CDM and RE over new investments in nuclear energy. The report opened by saying the OPA's "decision to maintain the status quo will be costly for Ontario" (OCAA 2008: 1). Instead of pursuing costly nuclear energy, it recommended Ontario save tens of billions of dollars by vastly expanding CDM initiatives and RE. In regards to RESOP, the report recommended amending the program in four ways:

1. "The 10 MW cap should be eliminated. That is, RESOP should be open to all renewable electricity projects regardless of size.
2. The standard offer price should be raised. Ontario's minimum price for renewable electricity supplies should be at least as great as the cost of electricity from a new nuclear reactor, i.e., at least 15.7 cents per kWh.
3. Renewable electricity projects that are located in the regions of Ontario that are experiencing rapid population growth (GTA, Kitchener, Waterloo, Guelph & Cambridge) can also help to reduce the need for new electricity transmission and distribution infrastructure. Therefore a price premium should be established for projects that also provide transmission and distribution cost savings for the Province of Ontario.
4. The geographic boundaries for RESOP should be expanded. Specifically, RESOP should also be open to renewable electricity supplies from the Province of Quebec" (OCAA 2008: 17-18).

The OCAA ultimately called for CDM and advanced FITs to lead Ontario to a "100% renewable electricity grid by 2027" (2008: cover page).

Prior to *Ontario's Green Future*, the OCAA had never recommended FITs in any of its publications. From 1999, the year the organization was formed, to 2008, it consistently recommended RE deployment through the RFP approach (OCAA 2004). One need not look very far to understand why the OCAA switched from RFP to advanced FIT promotion. Dozens of OCAA members were also Alliance stakeholders (OCAA 2008: 29; OSEA 2008: 4). OCAA member Environmental Defence was even one of the Alliance's founding members. The inclusion of advanced FITs as a central component in *Ontario's Green Future* demonstrates how thoroughly the goal of advanced FITs had permeated Ontario's pro-RE network by 2008. Interestingly, the OCAA report also demonstrates how certain RE

proponents were no longer exhibiting subversive behavior. In calling for an end to nuclear energy by 2027, the OCAA was no longer attempting to achieve its policy goals on the periphery of prevailing energy policy. It was now attempting to outright replace Ontario's established reliance on nuclear energy with a sweeping new energy policy mix of CDM and RE. It was exhibiting insurrectionary behavior.

As evidenced in RE proponents' publications and presentations to government, all saw RE deployment and CDM as part of the same equation. From an environmental perspective, RE and CDM have the shared effect of softening the energy system's impact on our air, water and land. From a techno-industrial perspective, as explained by Scheer (Renewable is Doable 2008: Schedule 6), RE and CDM have the shared effect of displacing traditional fuel-based electricity generation by substituting fossil fuel and uranium costs with technology. RE and CDM are complimentary and synergistic. RE proponents thus unanimously demanded ambitious CDM measures in combination with advanced FITs.

Following the 1998 Energy Competition Act, Mike Harris' Progressive Conservative government had cut all funding for CDM in Ontario. Since the early 1990's, local utilities had been responsible for delivering the bulk of CDM programming and, with the swift removal of funding, saw their range of activities restricted to "power delivery and billing mechanisms" (EDA 2008b: 9). This was contrary to what they wanted. Local utilities wanted to not only maintain CDM programming, but also have access to new business opportunities in the electricity system. They wanted to play a bigger role in the system. In August 1998, during hearings on the Energy Competition Act held by the Standing Committee on Resources Development, local utilities voiced this opinion, saying

"local utilities must be able to pursue the same activities that other competitors and Ontario Hydro's successor companies can pursue. Right now, under the provisions of Bill 35 (the Energy

Competition Act), this is not the case. Local utilities should certainly be allowed to enter all forms of energy and telecommunications businesses. By imposing restrictions on local utilities, this bill restricts the benefits that local ratepayers, taxpayers and local municipalities can derive” (Storks 1998).

After failure of the Progressive Conservatives’ electricity market and their ensuing electoral defeat, talk of local utilities taking on greater responsibility started to re-emerge.

Dalton McGuinty’s Liberal government moved quickly to reinstate CDM, and take it to new heights. By virtue of the 2004 Electricity Restructuring Act, the Liberals reinstated CDM by asking Ontario’s local utilities, now called local distribution companies (LDCs), to reach objectives specifically tailored to their area. From 2005-2008, LDCs delivered over 500 CDM programs across the province (EDA 2008a: 4), and continue to do so. In 2006, the Liberals adopted the Electricity Conservation Act, mandating the establishment of North America’s first smart grid with time-of-use pricing. Through their representative organization the Electricity Distributors Association (EDA), LDCs had been “fully engaged in important discussions on implementation of the (smart meter) plan” (EDA 2004: 14). In 2008, 11 LDCs ran smart meter pilot programs that would establish the model for province-wide implementation (EDA 2008a: 4). LDCs across Ontario will own and operate smart meters (EDA 2008b: 9), giving them significant new responsibilities in the electricity system.

The new focus on CDM along with the March 2006 adoption of RESOP signaled the McGuinty government was considering new energy trajectories. LDCs did not intend to simply follow the wave of change, but rather wanted to engage in it. This willingness to engage had already been made apparent in 2004, when a number of LDCs (Collingwood Utility Services, Energy Ottawa, Grimsby Power, Hamilton Utilities Corporation, Oakville Hydro, Veridian Corporation, Whitby Hydro Energy Services Corporation) and local generators (Bracebridge Generation, Mississippi River Power, Ste. Catherines Hydro

Generation) partnered with other OCAA members to publish *New Energy Directions*. The report requested government

“Diversify the pool of power producers by facilitating the entry of power co-ops (e.g., Windshare), municipal utilities (e.g., St. Catharines Hydro Generation), district energy companies (e.g., Enwave District Energy), shopping centres, hospitals, manufacturing companies (e.g., Dofasco) and investor-owned power companies (e.g., Northland Power, Calpine) into the generation market. Ontario Power Generation can continue to operate its existing fleet of power stations (where appropriate) and invest in new, low environmental-impact facilities (e.g., expand the output of the Adam Beck Generating Station at Niagara Falls) if necessary to meet overall demand” (OCAA 2004: 2).

The report advocated moving to a more decentralized approach to electricity generation because it is more “cost-effective” and “environmentally positive.” Some LDCs and local generators, understood in the above citation as municipal utilities, wanted room to grow in the electricity generation sector.

In Spring 2008, the EDA launched a “Vision” exercise that would serve to “define and promote a long-term vision for the future role of Ontario’s electricity distributors” (EDA 2008a: 3). A Vision Committee, composed of 8 representatives from a cross-section of LDCs, was assembled to lead the project.³⁷ The committee consulted with global energy experts, key stakeholders, private investors and provincial policy-makers to identify LDCs’ roles and responsibilities in a changing energy policy context. The product of these consultations was a draft Vision that was subsequently presented to all Ontario LDCs in a round of cross-province discussions. All LDCs had the opportunity to see where the Vision was headed and, most importantly, offer valuable feedback based on real world experiences. After consideration of LDCs’ input, the Vision Committee submitted a final revised version of the Vision to the EDA Board for review and final approval in Summer 2008. This consensus-based process produced

³⁷ The Vision Committee was composed of EDA Chair, Bryan Boyce of Halton Hills Hydro; Vice Chair John Loucks of Brantford Power; Burlington Hydro’s David Collie; Veridian’s Michael Angemeer; Max Cananzi from Horizon Utilities; Jim Huntingdon from Niagara-on-the-Lake Hydro; Geoff Ogram from Hydro One; and EDA CEO Charlie Macaluso (EDA 2008b: 8).

a document that sees LDCs as leaders in building the sustainable communities of tomorrow.

As summarized in the EDA's 2008 Annual Report, the Vision's main points are

- “Embracing change and new technologies, Ontario’s electricity distributors are ready to lead and partner with municipalities and industry stakeholders to build the sustainable communities of the future
- Enabling clean and renewable energy, distributed generation, effective conservation and demand management, and greater customer choice
- Owning, operating and managing intelligent local distribution networks (smart grids)
- Helping to advance state-of-the-art technologies, drive innovation and engage the work force of the future by participating in research and development with universities, colleges and other partners
- Electricity distributors can, and want to do more, by expanding their businesses and partnering with municipalities and industry stakeholders to create the sustainable communities of tomorrow” (EDA 2008c: 12).

As they had during hearings on the Energy Competition Act in 1998, LDCs again sought to take on a broader set of responsibilities in the electricity system, especially in regards to CDM activities. However, differing from their demands in 1998, LDCs now also demanded a greater role in RE deployment. In its monthly *Distributor* magazine, the EDA stated that, as part of their Vision, LDCs wished to “promote the development, and own and manage a portfolio of clean, renewable, small-scale distributed power generation to optimize the operation of the local distribution network” (2008b: 14).

In demanding to play a role in RE, the EDA expressed a dual concern, both environmental and economic. LDCs are not corporations hiding away from the population. Despite going through a vast process of mergers and acquisitions after the 1998 Energy Competition Act, the majority of LDCs remain in the hands of municipal governments to this day (Manning & Vince 2010: 7). LDCs exhibit “incredibly strong ties and a sense of service commitment to their local communities” (EDA 2008b: 9). More than most electricity system actors, LDCs are highly-sensitive to the communities they serve and, as these communities’ views on the environment evolved, so did they. From an economic point of view, LDCs are businesses whose very survival depends on generating profits. Similarly to private power

producers and RE technology manufacturers, LDCs see the potential to grow their business through advanced FITs. In an article published in the *Distributor*, the EDA stated that “public policy emphasizing a ‘greener’ approach to energy sustainability and facilitating the emergence of new technologies within a ‘hybrid’ market structure has the potential - if continued – to open doors to new business possibilities for distributors” (EDA 2008b: 9). Furthermore, Etcheverry et al report that, under RESOP, LDCs were required to finance the application process for new RE projects, but lacked means to recover associated costs (2009: 18). Potentially accruing revenues through advanced FIT contracts thus presented LDCs with an attractive opportunity. The economic benefits of RE were a top of mind concern for the EDA when it joined in the Green Energy Act Alliance.

The Green Energy Act Alliance encompassed groups and individuals from just about every sector of Ontario society. Apart from a few exceptions,³⁸ these groups did not demand reversal of prevailing energy policy. Rather, they lobbied for the inclusion of more ambitious RE targets and advanced FITs on the periphery and on top of the growing tapestry of pro-RE policies now beginning to accumulate within the provincial government. They formed a massive tide of support in favor of RE and advanced FITs. Former OSEA executive director, Deborah Doncaster, describes Ontario’s pro-RE network as “a massive grassroots initiative by a whole bunch of Ontario residents and citizens’ groups, from First Nations, farm organizations, rural organizations, local economic development groups, local community power organizations, churches, faith groups ...” (Doncaster 2011). The wave of support behind RE and advanced FITs was clear for government to see. In early 2009, Minister of

³⁸ In its 2008 report, *Ontario’s Green Future*, the OCAA called for a “100% renewable electricity grid” (OCAA 2008: cover page), exhibiting insurrectionary behavior.

Energy George Smitherman was quoted as saying, “everywhere I go in Ontario, people tell me they want us to build a greener province” (quoted in EDA 2009: 9).

In fact, polls conducted by Pollara in June 2008 found “there (was) widespread general support for a Green Energy Act in principle, without discussing any specific targets or electricity bill impact. Over six in ten Ontarians (62%) strongly support the concept, with an additional three in ten (31%) somewhat in support.” Inversely, only 3% were ‘somewhat opposed’ and 1% ‘opposed’ to a Green Energy Act (Pollara 2008: 5). On the subject of RE specifically, Pollara observed that “when asked to select a 2018 renewable energy target for the GEA, the median response was 50% renewables” (Pollara 2008: 3).

Minister Smitherman did not lay idle while Ontario’s pro-RE network expanded and its ideas gained popularity. He instead took an active part in furthering RE deployment. Appointed Minister of Energy & Infrastructure in June 2008 by Premier McGuinty, Smitherman demonstrated from the onset his interest in pushing RE deployment further than it had ever gone in Ontario, by adopting advanced FITs and revising RE targets upward. Over the course of Summer 2008, Smitherman even traveled to Germany and Spain to witness advanced FITs and distributed generation in action (Hamilton 2008). These countries, widely-recognized as global RE and FIT pioneers, clearly inspired Smitherman. In a later interview with the EDA, he said his ministry would strive for the

“promotion of smaller scale projects emanating from entities that are operating at a localized level. We’ll be looking for opportunities to enhance small scale community development, which is initiated by local distribution companies, municipalities, clusters of individual land owners and energy cooperatives” (EDA 2009: 8).

In September 2008, Smitherman sent a Supply Mix Directive to the OPA, requiring it revisit the IPSP. In the historic directive, Smitherman asked the OPA to establish new, enhanced targets in the following areas:

- “The amount and diversity of renewable energy sources in the supply mix;
- The improvement of transmission capacity (...) that is limiting the development of new renewable energy supply;
- The potential of existing coal-fired assets to be converted to biomass;
- The availability of distributed generation;
- The potential for pumped storage to contribute to the energy supply during peak times; and
- The viability of accelerating the achievement of stated conservation targets, including a review of the deployment and utilization of Smart Meters” (Ministry of Energy 2008).

In late 2008, Minister Smitherman fully suspended the IPSP process as his government moved to implement advanced FITs and revise RE targets upward. Smitherman could see that the tide of public support behind RE had risen and he wanted to be part of it. The fact that Smitherman began to advocate in favor of RE after the political and economic winds surrounding this matter had already begun to shift demonstrates opportunist behavior, according to Mahoney & Thelen’s theory of gradual institutional change (2010: 30). However, in promoting RE on the periphery of prevailing energy policy commitments, Smitherman shows that he had adopted the pro-RE network’s subversive change strategy (Mahoney & Thelen 2010: 25).

Along with Smitherman, Premier McGuinty was another crucial government ally to Ontario’s pro-RE network. Under McGuinty, all Speeches from the Throne confirmed government’s commitment to replace coal with cleaner forms of energy, including RE (Bartleman 2003, Bartleman 2005, Onley 2007). Speeches from the Throne are newly-elected governments’ blueprint of action. They indicate government priorities, and the fact that all Speeches from the Throne under McGuinty openly declared his government’s pro-RE policy commitments demonstrated the Premier was dedicated to RE deployment and that he was indeed at the helm of these policies. When given the chance, Premier McGuinty personally promoted RE deployment, both at home and abroad. In a June 2004 speech to the Canadian American Business Council in Washington, the Premier endorsed pro-RE policy loud and clear, saying “we’re going to (...) replace our coal-fired generators with clean energy

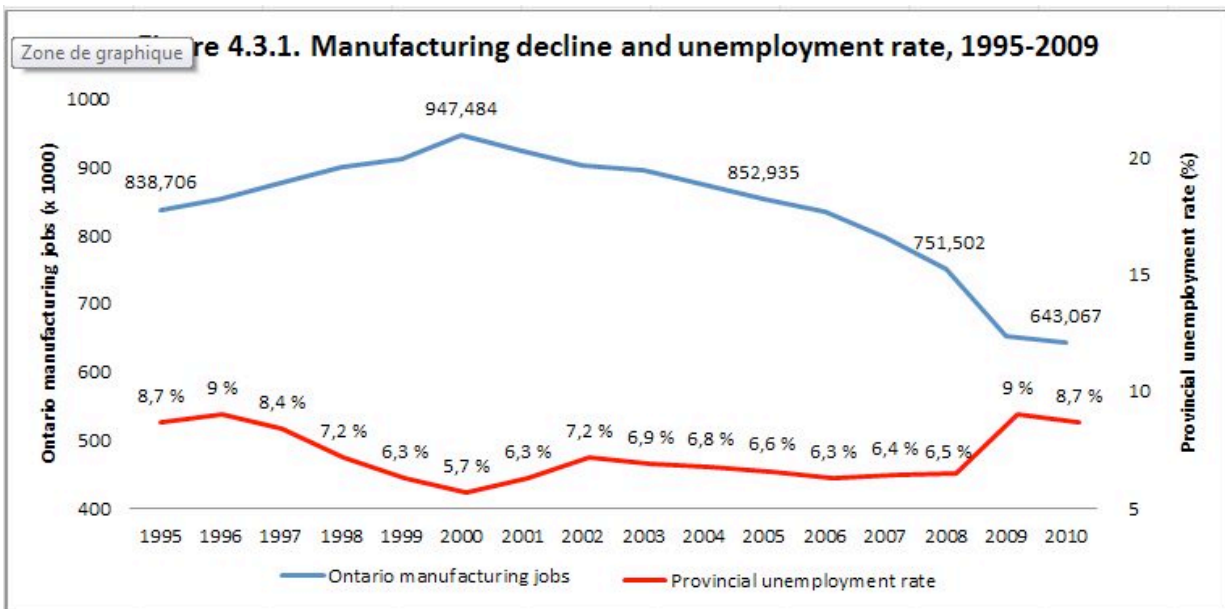
alternatives” (McGuinty 2004). In March 2006, McGuinty himself announced the launch of RESOP. This differed from established practice, whereby the Energy Minister usually makes major energy policy announcements. The fact that McGuinty personally announced the launch of RESOP again demonstrated that he was dedicated to RE deployment and that he was steering pro-RE policy. Premier McGuinty’s commitment to RE, and a host of other environmental issues for that matter, inspired a Toronto Star journalist to call him “Canada’s greenest Premier ever” (Blinch 2013).

In August 2007, the McGuinty government adopted a Climate Change Action Plan. The plan encompassed the coal phase out policy and a host of greenhouse gas-reducing measures across other major emitting sectors – electricity, transportation, industry, buildings, agriculture and waste. The plan aimed to reduce Ontario’s emissions to 6% below 1990 levels by 2014, 15% by 2020, and 80% by 2050 (Ministry of the Environment 2009: 5). These ambitious targets gave Ontario a leadership role, in North America and even internationally, in curbing greenhouse gas emissions and combating climate change.³⁹

This being said, Premier McGuinty cannot be considered a subversive change agent. As observed by Winfield, the McGuinty government formed policy with “an issue-by-issue political management approach, as opposed to being the expression of a larger vision for where the province should be going” (2012: 183). As earlier mentioned, accusations of collusion against his government were a primary motivation for moving from the RFP approach to the more transparent RESOP. As reported by Fraser (OSEA 2011: 8) and

³⁹ It should be said that, aside from fulfilling the coal phase out, the Ontario government has backed down from many key greenhouse gas-reducing measures, making it essentially impossible to achieve targets of the 2007 Climate Change Action Plan. As reported by Ontario’s Environmental Commissioner “by the government’s own admission, the current policy framework will only get Ontario just over half way toward the government’s 2020 target, leaving a projected ‘ambition gap’ of 30 megatonnes” (ECO 2012).

Winfield (2012: 169), RESOP was actually an end unto itself and was not intended as a stepping stone to advanced FITs. Nonetheless, when faced with the choice of moving forward or backward on RE, McGuinty always chose to move forward. Premier McGuinty was above all responsive to change. As Ontario's pro-RE network expanded and the chorus of voices in favor of RE grew louder, McGuinty directed his government to adopt more sophisticated RE policy and more ambitious RE targets. Premier McGuinty could be considered a pro-RE opportunist as his policy moves reflected the pro-RE network's expansion in numbers and resources. McGuinty was also reactive to time-specific challenges, seeking to counteract the decrease in Ontario's manufacturing base with the job creation potential of advanced FITs.



* Manufacturing jobs data from Statistics Canada: Table 282-0087. Unemployment rate data from Statistics Canada: Table 281-0024.

From 2006 to 2009, RE proponents pushing for advanced FITs were greatly aided by the 2008 financial and economic crisis. Before Minister Smitherman suspended the IPSP and moved to adopt advanced FITs, key indicators showed the world economy was on the verge of crisis. No one knew quite how bad it would be, yet it was clear Ontario's ailing manufacturing

sector would be hit hard. As illustrated in above Figure 4.3.1, Ontario had already shed approximately 200,000 manufacturing jobs from 2000 to 2008. In the year following the start of the crisis, approximately 100,000 manufacturing jobs were lost. Losses in manufacturing accounted for the majority of the nearly 250,000 jobs, all sectors confounded, lost in Ontario from Fall 2008 to Spring 2009 (Ministry of Finance 2010: Chap 2, Chart 2). Accordingly, the unemployment rate soared from 6.5%, before the crisis, to 9% one year later. As the McGuinty government sought ways to stem job losses, advanced FITs offered a clear means of creating new “green collar” jobs. The timing of the 2008 financial and economic crisis aided RE proponents by creating a strong need for job creation. With the private sector unable to fulfill this role, government had to step in and take decisive action on job creation, or face the wrath of voters in the next election.

Advanced FITs offered a tried and tested remedy to limit fallout of the 2008 financial and economic crisis. According to the German government statistics, 280,000 jobs in RE supply and service were created from 1990 to 2008, with approximately two-thirds of these attributable to the Renewable Energy Sources Act of 2004, Germany’s advanced FIT law (BMU 2009). RE-related job growth in Germany is expected to continue until 2020, at which time it will plateau at 400,000 (BMU 2009). Having traveled to Germany in Summer 2008, Minister Smitherman had seen green collar job creation for himself. He had personal knowledge that RE deployment through advanced FITs could help stem the crippling job losses in his province.

In the lead up to adoption of the Green Energy and Green Economy Act (GEGEA), the McGuinty government convened the Standing Committee on General Government to review and hold public hearings on the law. RE proponents flocked to these hearings to voice support

for the GEGEA directly to government. Groups that clearly voiced support for the GEGEA and advanced FITs included

Local, provincial and national environmental groups [Sierra Club Ontario (McDermott 2009), Conservation Council of Ontario (Winter 2009), World Wildlife Fund of Canada (Stewart 2009), Greenpeace Canada (Stensil 2009), Friends of the Earth Canada (Olivastri 2009), Pembina Institute (Weis 2009), Windfall Ecology Centre (Kopperson 2009), Toronto Environmental Alliance (Hartmann 2009)]; **RE advocates** [Citizens for Renewable Energy (Kleinau 2009), World Alliance for Decentralized Energy (Bujik 2009), Canadian Renewable Energy Alliance (Peters 2009), Ontario Sustainable Energy Association (Stevens 2009), Switch (Hsu, 2009), Centre for Applied Renewable Energy (Blaney 2009), Blue Green Alliance Canada (Neumann 2009)]; **public health advocates** [Ontario Clean Air Alliance (Adams 2009)]; **wind energy developers** [Renewable Energy Systems (Muszynski: 2009), Aim Powergen Corporatin (Timm 2009)]; **solar energy developers** [Sky Generation (Estill 2009), ECO Alternative Energy (Kortekoas 2009)]; **bioenergy developers** [Stormfisher Biogas (Little 2009), Plasco Energy Group (Bryden 2009)]; **other energy firms** [Energy services firms (Enbridge Gas Distribution (Boukydis 2009), Northern Lights Energy Systems (McKay 2009), Summerhill Group (Thorson 2009), Better Place (Harrington 2009)]; **other types of firms** [St. Mary's Cement (Vroegh 2009)]; **RE co-operatives** [Windshare (Ferrari 2009), Toronto Renewable Energy Co-operative (Lipp 2009), Sustainable Energy Resource Group Co-operative (Goedhard 2009), Superior Renewable Energy Co-operative (Garcia 2009), Countryside Energy Co-operative (Fyfe 2009), Local Initiative for Future Energy Co-operative (Laeppele 2009), Bluewater Agriwind Co-op (Van Kessel 2009)]; **investment groups** [VCI Green Funds (Rand 2009), Community Power Fund (Iler 2009), Social Investment Organization (Ellmen 2009)]; **municipal governments** [Association of Municipalities of Ontario (Hume 2009), Township of South Algonquin (Bresnahan 2009), City of London (Hopcroft 2009), Municipality of Chatham-Kent (Hope 2009)]; **local distribution companies** [PUC Distribution (Curran 2009), Five Nations Energy (Chilton 2009), Utilities Kingston (Taylor 2009), Toronto-Hydro Corporation (O'Brien 2009), **local power generators** [Renfrew Power Generation (Jamieson 2009)]; **education and research institutions** [Humber College's Sustainable Energy and Building Technology Program (Bird 2009), Upper Lakes Environmental Research Network (DeYoe 2009)]; **First Nations groups** [First Nations Energy Alliance (LeClair 2009, White 2009), Walpole Island First Nation (Big Bull 2009), Chippewas of Georgina Island (Kopperson 2009)]; **trade associations** [Ontario Waterpower Association (Norris 2009), Canadian Wind Energy Association (Hornung 2009), Upper Ottawa Valley Forest Industry Alliance (Hall 2009), Cement Association of Canada (McSweeney 2009), NAIMA Canada (Koch 2009), Canadian Solar Industries Association (McDonald 2009), Association of Power Producers of Ontario (Butters 2009), Electricity Distributors Association (Loucks 2009)]; **unions** [Ontario Society of Professional Engineers (Shama 2009), United Steel Workers (Pettalia 2009)]; **farm groups** [Farmers for Economic Opportunity (Lechowicz 2009), Stanton Farms (Fortune 2009), Ontario Federation of Agriculture (McCabe 2009), Renfrew County Federation of Agriculture (Heinzle 2009), Lanark Federation of Agriculture (McCoy-Naperstkw 2009), Arnprior Region Federation of Agriculture (Pretty-Straathof 2009)]; **various others** [Ontario Federation of Anglers and Hunters (Quinney 2009), Fraser Consulting and Associates (Fraser 2009), Low-Income Energy Network (McClenaghan 2009), Federation of Rental-Housing Providers of Ontario (Chopowick 2009)].⁴⁰

Minister Smitherman personally participated in the GEGEA hearings held by the Standing Committee on General Government. He pleaded in favor of the law using

⁴⁰ This list is not exhaustive.

economics-based argumentation. This strategy echoed the Green Energy Act Alliance's first core goal of stimulating the Ontario economy through investment in green energy.

Smitherman said

“In these times of uncertainty, the Green Energy Act offers much promise. Few sectors offer so much hope of economic growth. We know that certainty is an important part of any economic growth formula. In order to stimulate greater implementation of renewables, certainty is provided: certainty that green power will be purchased at a good price through an innovative feed-in tariff program and backed up with a long-term contract; certainty that projects will be connected to the grid; certainty that government will issue necessary permits in a guaranteed time frame” (2009).

Smitherman went on to echo the Alliance's third core goal of promoting local economic development, saying

“(…) we really want to encourage not just big developers that can invest \$50 million or \$100 million or \$200 million, but mom and pop on the top of the variety store or their local home, clusters of individuals living in the same neighbourhood, school boards and local distribution companies and municipalities working together” (2009).

These lines of argument are testament to the coalitional alignment occurring at the time between Smitherman and Ontario's pro-RE network.

In the past, the lion's share of opposition to RE came from Ontario's large industrial energy consumers. Fearing RE deployment would cause electricity prices to rise – by extension increasing production costs and cutting into profits – the province's largest industrial energy consumers consistently lobbied government to maintain the energy policy status quo. AMPCO traditionally led large energy consumers' lobbying efforts for low cost electricity. In the lead-up to GEGEA adoption, however, AMPCO backed away from its traditional stance of opposition to RE. In April 2009, during public hearings on the GEGEA held by the Standing Committee on General Government, AMPCO President Adam White expressed overall support for the law, saying “the Green Energy and Green Economy Act, 2009, marks a significant milestone in the ongoing evolution of electricity policy in Ontario. The act raises the bar on renewable energy by removing impediments, reducing risks and

improving prospects for investments in renewable energy” (White 2009). White was especially pleased with the GEGEA’s CDM component, stating

“Industrial customers offer the quickest, cheapest, most cost-effective opportunities to reduce demand during peak times, which benefits all customers through lower prices and reduced strain on the grid. AMPCO strongly supports the introduction of programs that are designed to unlock the substantial conservation and demand management potential that exists in industry” (2009).

AMPCO had good reason to change its position. In December 2004, the McGuinty government passed the Electricity Restructuring Act. This law, along with related regulation, extended the prior Eves government’s price cap on electricity, alleviating large energy consumers’ fear of rising electricity prices. Also, in October 2007, the McGuinty government was re-elected with a second consecutive majority in the Legislative Assembly, extending its ultimate veto power over energy policy for another four years. This gave it both the power and time required to carry out its coal phase out commitment. Even if completion of the coal phase out would eventually be pushed back, most of Ontario’s coal generating stations would be transferred to natural gas or bioenergy production by the time of next elections in 2011. There was no stopping this now, making it both necessary and inevitable for RE and other forms of generation to expand in the place of coal. Realizing the inevitability of RE growth, and comforted by the McGuinty government’s price cap on electricity, AMPCO reversed its age-old opposition to RE. By shifting its position on RE in accordance with prevailing political winds, AMPCO clearly exhibited opportunist behavior.

In the new post-coal phase out reality, electricity prices will gradually increase as natural gas and RE to expand and fill the void left by cheap coal power. In this context, the new best hope of keeping electricity prices as low as possible is CDM. This will likely be the case for the foreseeable future, with or without the GEGEA. AMPCO keenly realized this and, in pursuit of low cost electricity, abandoned its traditional support for coal in exchange for CDM.

AMPCO's President clearly articulated the organization's new, progressive energy policy stance, saying

“the cheapest power, as Minister Duncan has said and as Minister Smitherman has said—the cheapest and best kilowatt hour is the one you don't use. But over a number of years I think we've come to terms with the reality that energy costs are increasing, and I think that the best way to manage exposure to those costs is to find ways to reduce consumption” (White 2009).

These comments were a far cry from AMPCO's traditional opposition to pro-RE policy.

Similarly to AMPCO, most now realized and accepted the post-coal phase out reality whereby electricity prices would gradually increase as RE and other forms of generation expand. GEGEA opponents clamoured the law would cause electricity prices to rise, but few actually placed this inevitable fact at the centre of their anti-GEGEA argumentation. The Automotive Parts Manufacturers Association nonetheless opted for this approach. Hard hit by the 2008 financial and economic crisis, auto parts manufacturers feared higher electricity rates would further contribute to Ontario's manufacturing decline (Fedchun 2009). The association's President, Gerry Fedchun, said

“it appears that energy prices will rise substantially in Ontario as a result of the Green Energy Act. If that is the case, we fear that a number of automotive parts suppliers will face closure and/or relocation to jurisdictions with lower energy costs (...) Although we support the introduction of renewable energy sources, we're concerned that these options, especially as we perceive them to be proposed in the Green Energy Act, carry a much higher abatement cost” (Fedchun 2009).

Judith Andrew of the Canadian Federation of Independent Business, echoed the words of auto parts manufacturers, saying

“we really think what we're seeing here is the system moving from what was a least-cost proposal to a whatever-it-costs proposition. With affordability not being a criterion for provincial energy policy, that will certainly worsen our members' concerns with that particular input cost to their business, at a time when they can hardly afford to have anything else deteriorate for them” (Andrew 2009).

The Clean & Affordable Energy (CAE) Alliance also argued against the GEGEA based on cost considerations (Chudy 2009). The CAE, a small group of Ontario citizens, had originally been created to oppose the McGuinty government's coal phase out policy. During public

hearings on the GEGEA, CAE Alliance co-chair Carol Chudy not only opposed RE deployment but stood as the lone voice demanding Ontario's coal phase out be postponed.

“I believe that the best source of generation is what we've had in the past, which is a portfolio of resources to balance and support. I do not deny that renewable energy is a good thing for our province, and I believe that nuclear also is. However, we have to consider the intermediate load—the load following the load balancing—that is required by a thermal component at this time. In a sense, the more renewable energy we include, the more backup resources are required to shadow that. So if we're going to consider a thermal component, I believe, from a public perspective, we are better off to clean up the coal plants and keep them while we add the renewables, to remain stable rather than including huge amounts of natural gas” (Chudy 2009).

Most GEGEA opponents, however, realized increased electricity prices and the coal phase out were now inevitable, and argued against the law for more other reasons.

The majority of opposition to the GEGEA came from small, rural citizens' groups concerned mainly with wind energy's potential negative health and environmental effects. During public hearings on the GEGEA held by the Standing Committee on General Government, Lou Eyamie of Renfrew County-based Save Our Skyline summarized anti-wind groups' general perspective. He said, “I can assure you that I and my neighbours are not speaking out to save a view but rather to ensure that the industrial wind turbines proposed in our area do not harm the environment, do not increase risk to threatened species and pose no risk or health threat to the people and animals that live near proposed sites” (Eyamie 2009). Anti-wind groups based their opinions on anecdotal evidence from sites in Ontario where wind farms were already operational, as well as chosen scientific research. For example, Micheal Schnare of the Township of Dawn-Eupemia opposed wind energy deployment through the GEGEA due to

“emerging health issues from other areas of the province, particularly the Ripley area in Bruce county, and we believe more recently in the Shelburne area, those areas where wind turbines are presently operating, as well as some recent research that is being done in the disciplines of infrasound and electromagnetic fields by Dr. Nina Pierpont and Dr. Magda Havas” (Schnare 2009).

During public hearings on the GEGEA, an extensive list of negative health effects due to wind turbines was described by Sandy MacLeod of the Ripley Group. These include

“Sleep deprivation; sleep disturbances; poor-quality sleep; humming in the head by the ears; edginess; a feeling as if you’ve had five cups of coffee; bad temper; heart palpitations; heaviness in the chest; pains in the chest like needles; increased blood pressure, 217 over 124; uncontrollable ringing in the ears; earaches; sore eyes, like you have sand in them; digestive problems which continued for months; headaches which caused you to be bedridden; the sensation of your skin crawling or being bitten by bugs; sore joints; nosebleeds; sores on feet that would not heal until you moved out of your home; inability to concentrate or form words; a severe feeling of being unwell; bedridden for days; depression; tiredness; anxiety; stress—these are the signs and symptoms we have experienced over the past 17 months. Note that the above all start to subside when you leave the polluted environment of your home. The health changes are individual. Even the pets are affected while in the home—losing hair, sore ears—but not when away from the home. The long-term health effects have also started to show. There’s an increased sensitivity to certain sounds and high-frequency lighting, such as in the local stores, and in this room as well. You feel ill upon entering the building. Hearing difficulty has occurred. What other effects will occur?” (MacLeod 2009).

Although MacLeod’s experience was uncharacteristically extreme, and remains unsubstantiated by science, the majority of wind energy opponents alluded to such anecdotal evidence as proof of wind energy’s negative health effects. Along with Save Our Skyline, the Township of Dawn-Eupemia and the Ripley Group, groups that at least partly opted for this line of argumentation included Oxford Wind Action Group (Morris 2009), Wind Farm Action Group (Hutton 2009), Tri-Lea-Em (Palmer 2009), Essex County Wind Action Group (McLean 2009), Wind Concerns Ontario (Stelling 2009). Alongside health and environmental concerns related to wind power, most anti-wind groups also opposed the GEGEA because it would streamline RE projects and reduce municipal governments’ authority over land-use planning (Schnare 2009, Morris 2009, Hutton 2009, Eyamie 2009, Stelling 2009).

A large number of Ontario municipalities, as well as their representative organization, the Association of Municipalities of Ontario (AMO), were concerned about losing authority over land-use planning. Unlike the anti-wind groups, most municipal governments supported RE deployment. However, they did not want the GEGEA to block them out of the land-use

planning process. During public hearings on the GEGEA, City of Mississauga representative, Mary Ellen Bench, exemplified this view. She said

“Mississauga supports the concept of facilitating the development of renewable energy projects and the creation of efficiencies in the permitting process. Having said this, Mississauga shares the concerns expressed by others (...) about the reduced role that the municipal planning process will have in approving these projects” (Bench 2009).

Representing the Municipality of Grey Highlands, Ellen Anderson echoed this view, saying “the Blue Mountains believes in the Green Energy Act. We also believe that municipal government has a real role to play, and we’re very concerned that we will lose that” (Anderson 2009). AMO President Peter Hume expressed the majority opinion of Ontario municipalities, stating

“Generally, AMO is quite pleased with the green intent of Bill 150. It would encourage renewable energy projects and help reduce energy use. We also appreciate its intent to create jobs, fight climate change and establish Ontario as a leader in the new green economy. AMO does have a concern, however, with the proposed amendments to planning approvals” (Hume 2009).

Other local groups that expressed concerns over losing local power over land-use planning included the Alliance to Protect Prince Edward County (Garand 2009), the Glengarry Federation of Agriculture (Beswick 2009) and the Canadian Owners and Pilots Association (Psutka 2009).

Only a minority of municipal governments outright opposed the GEGEA. This view was exemplified by Bob Peltzer of the Township of Bonnechere Valley. He said the people in his community “think that Bill 150 needlessly throws away this heritage by removing the decision-making powers from those who live most closely to those decisions” (Peltzer 2009). For Peltzer, the GEGEA would go too far in reducing municipal government’s decision making power. Opponents of the GEGEA could however not match the swell of support behind RE in Ontario.

May 14, 2009 was a historic day for RE proponents. It marked the passing of the GEGEA in the Ontario Legislative Assembly, the founding law of North America's first advanced FIT program. Offering 20-year contracts for biomass, biogas, waterpower, landfill gas, solar photovoltaics and wind energy production, the program gave RE developers the guaranteed return on investment needed to kick start Ontario's green economy. A so-called made-in-Ontario clause contained within the GEGEA allowed the provincial government to set varying domestic content requirement for different RE technologies (LAO 2009: Schedule B, 7(3)). While wind energy projects under 10 kW had no domestic requirements, projects over 10 kW were initially required to have 25% domestic content, and 50% after January 2012 (OPA 2010). Solar energy projects under 10 kW were initially required to have 40% domestic content, and 60% after January 2011 (OPA 2010). Solar energy projects over 10 kW were initially required to have 50% domestic content, and 60% after January 2011 (OPA 2010). The domestic content requirements ensured a majority portion of RE investments accrue to the province's manufacturing sector, creating local jobs.⁴¹ The program started taking applications in October 2009. Two years later, it was credited with attracting \$27 billion dollars in private sector investment (OPA 2012b: 2). Less than four years later, it was credited with creating 31,000 new green collar jobs (Ministry of Energy 2013).⁴²

From a policy design perspective, Ontario's advanced FIT program addressed many of RESOP's flaws. The new program offered differentiated tariffs for biomass, biogas, waterpower, landfill gas, solar photovoltaics and wind, giving all of these technologies an

⁴¹ In May 2013, the World Trade Organization ruled in favor of the European Union and Japan, finding the GEGEA's domestic content rules discriminatory. Ontario has since repelled the domestic content requirements (Canadian Press 2013). After being in effect for over three years, however, the requirements were in place long enough to achieve much of their intended purpose.

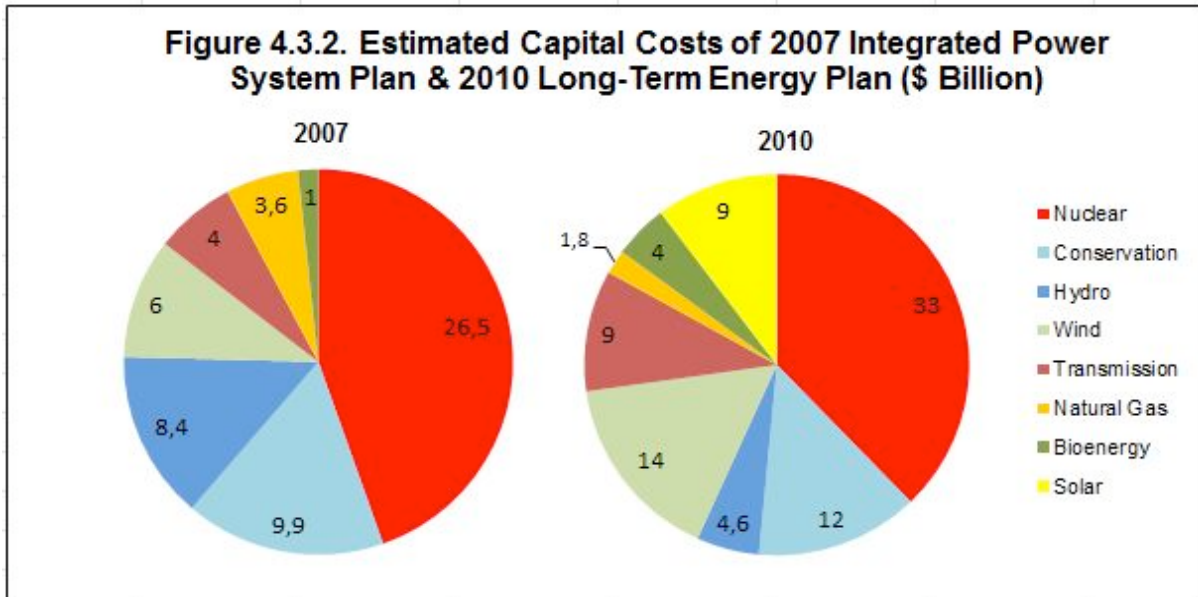
⁴² While they were definitely successful in attracting investment and creating jobs, it should be noted that advanced FITs fell short of Premier McGuinty's initial promise of 50,000 jobs in three years (Ministry of Energy 2009).

opportunity to grow. Tariffs were further differentiated according to size, with higher tariffs being offered for projects of 10 KW or less given their higher setup costs. Ontario's advanced FIT program also offered added revenue for community-based and aboriginal projects, with the intention of more evenly distributing profits derived from RE deployment.⁴³

In parallel to the evolution of RE deployment policy, the McGuinty government revised its RE targets upward. After suspending the IPSP process, Minister Smitherman required the OPA to raise RE targets. The target for second-generation RE went from 5,395 MW by 2025 in the 2007 IPSP (OPA 2008a: Table 3) to 10,700 MW by 2018 (Ministry of Energy 2010: 10). The revised RE target was confirmed in a subsequent Supply Mix Directive, issued in February 2011 by Minister of Energy Brad Duguid (Ministry of Energy 2011: 3).

As we see in Figure 4.3.2, the new 2010 RE target has significantly impacted energy investment projections. Solar, wind and bioenergy producers got a drastically better deal in 2010 than they did in 2007. Whereas spending on solar energy did not even register in 2007, it is projected to receive \$9 billion in funding from 2010 onward. Bioenergy funding quadruples from \$1 to \$4 billion. And wind more than doubles, going from \$6 to \$14 billion in funding. RE proponents lobbying efforts have had a significant impact on energy-related resource allocation in Ontario.

⁴³ These added tariffs would have mitigated success however and required further modification in the future.



* Data for 2007 from OPA data quoted in OCAA 2008: 3. Data for 2010 from Ministry of Energy 2010: 55.

** While the 2007 plan had total capital costs of \$59.4 billion, the 2010 plan figures in at \$87 billion.

Looking forward, the main factor constraining RE deployment appears to be government itself. The McGuinty government has always made it clear that it never intended for RE to displace the established energy policy commitment to nuclear energy. As reported by Hamilton, “to the dismay of some environmentalists, (Minister Smitherman) also emphasizes his commitment to stay the course with nuclear, which combined with hydroelectricity from Niagara Falls gives the province the strong foundation – and confidence – it needs to eliminate coal” (2008). As the Ministry of Energy was developing the Green Energy Act in early 2009, Minister Smitherman stated RE deployment and CDM would take place in parallel to established energy policy commitments to nuclear energy. Smitherman said,

“I think that the energy renaissance happens on a variety of levels. One thing is obvious, we have a lot of change that occurs as we eliminate coal, and a big part of that renaissance is in that context - [with] the emergence of more opportunities for renewables and certainly the substantial investments which have been leveraged in the development of gas-fired plants and the renewal [being] undertaken with respect to our fleet of nuclear plants. I think that the renaissance also happens on a cultural level, along the lines of the subject that we just spoke about. This is maybe the next wave of it - that is, encouragement for the smart grid and for distributed generation” (EDA 2009: 8).

As seen in the above Figure 4.3.2, projected investment in nuclear energy actually expanded from \$26.5 billion, in the 2007 IPSP, to \$33 billion, in the 2010 Long-Term Energy Plan.

As noted by Pierson (2001), the development of core constituencies with concentrated interests in the status quo strengthens PD processes. In Ontario, the largest constituency in the energy policy arena is, by far, the nuclear industry. According to a 2008 study commissioned by the Canadian Nuclear Association, operation of Canada's nuclear fleet provides 66,694 full-time jobs, directly and indirectly (CERI 2008: 55).⁴⁴ Starting in the 1950's, Canadian-made CANDU nuclear technology was developed in Ontario, at the Chalk River Laboratories, and the province is now home to 20 of Canada's 21 commercial-scale reactors. The only part of Canada's nuclear industry not based in Ontario are the uranium mines. As stated by Thomas, "the CANDU is very much the product of Ontario province" (1988: 258), and the overwhelming majority of the nuclear industry is located in Ontario. Ontario's nuclear constituency encompasses two large firms charged with building and operating reactors (Ontario Power Generation, Bruce Power), two well-resourced unions (Power Workers' Union, Society of Energy Professionals), well over 100 private sector supply and service firms (Babcock & Wilcox Canada, GE-Hitachi Nuclear Canada, SNC-Lavalin Nuclear, etc.), research and design organizations (Atomic Energy Canada Ltd, Candu Energy Inc), and the industry regulator (Canadian Nuclear Safety Commission). This interdependent network of organizations, spanning public and private sectors, forms a powerful constituency of support for nuclear power and, through all imaginable means, lobbies government to maintain its privileged position at the center of the energy supply mix.

⁴⁴ In 2012, the Canadian Nuclear Association commissioned the Canadian Manufacturers & Exporters to perform an updated study on the economic impacts of Canada's nuclear industry. The study's employment figures are however based on so many assumptions as to render them hypothetical rather than empirical (CAN/CME 2012: 7) and, for this reason, have been omitted from this thesis.

History demonstrates successive Ontario governments' deep commitment to the nuclear industry. Ontario's first full-scale nuclear generating station, the 200 MW Douglas Point station, started feeding power onto the grid in 1967. By 1980, nuclear accounted for 38% of the province's energy (The Canadian Encyclopedia 2012). Since 1993, when the most recently built Darlington units 3 and 4 came online (Hampton 2003: 135), nuclear has provided approximately half of Ontario's power supply. The shutdown of seven reactors following the 1997 Andognini report caused a short dip in nuclear energy supply but, since 2004, nuclear's share of total energy supply has remained at between 50% - 60% (See Figure 1.1). In 2012, nuclear accounted for 56% of Ontario's energy (IESO 2013) and, in the 2010 Long-Term Energy Plan, the McGuinty government "committed to continuing to use nuclear for about 50 per cent of (...) energy supply" (Ministry of Energy 2010: 23). This commitment was made well before receiving detailed cost estimates on two new 1,000 MW reactors at Darlington (OPG 2012), due in June 2013.

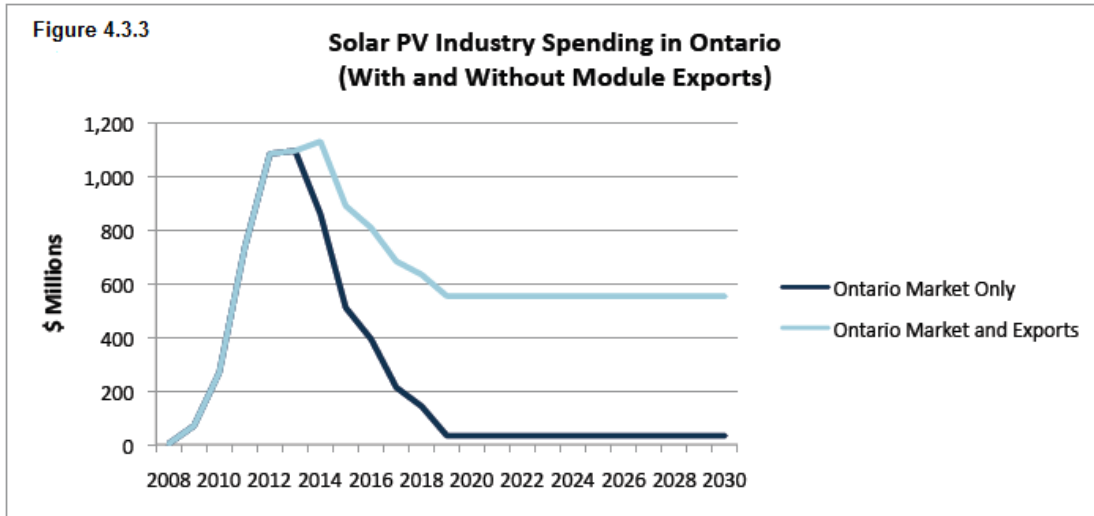
The commitment to nuclear has held strong despite massive construction and refurbishment cost overruns for all Ontario reactors, as well as chronic underperformance across most of the fleet. A 2010 OCAA study crunched the numbers on cost overruns and found that, from the time of construction of the Douglas Point station until the recent refurbishments of Bruce A units 1 and 2, construction and refurbishment cost overruns have exceeded \$20 billion (OCAA 2010: Appendix A).⁴⁵ On average, construction and refurbishment of Ontario nuclear generating stations have come in at about 2.5 times over

⁴⁵ The high cost of nuclear power is, however, not openly reflected in the price of electricity. Rather, it is, and will be for decades to come, borne by Ontario taxpayers in three indirect ways: a "stranded debt" managed by the Ontario Electricity Financial Corporation since 1999 (Auditor General 2011: 12), a "residual stranded debt" funded through the Debt Retirement Charge appearing on consumers' bills since 2002 (Auditor General 2011: 12), and "global adjustment" payments of which 45% has been dedicated to nuclear since 2006 (OEB 2011: 59).

original estimates. An independent 2009 study conducted by Scott Madden compared performance of OPG's reactor fleet to other major operators in North America. The results were devastating. OPG's overall reactor performance was at the bottom of the pack, ranking 17 out of 20 major operators (ScottMadden 2009: 6). This poor performance has direct repercussions on the cost of electricity. Scott Madden found total generating costs for OPG's nuclear fleet to be the absolute highest among their study sample (ScottMadden 2009: 7). Despite a history of massive construction and refurbishment cost overruns and poor reactor performance, successive Ontario governments have steadfastly maintained their commitment nuclear, pushing Ontario electricity prices to the top in North America.

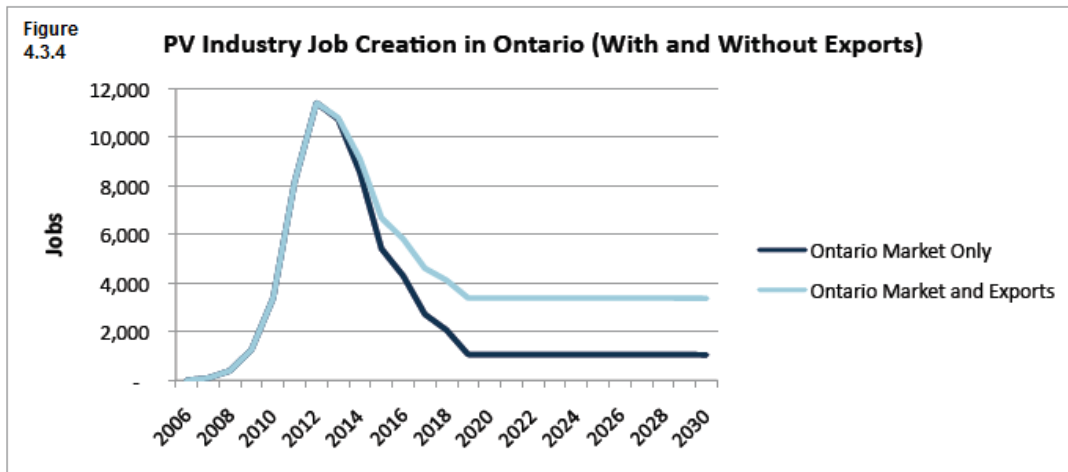
Although the nuclear constituency is dominant in Ontario, the development of RE policy has enabled growth of a new RE constituency to challenge the former's hegemony in the provincial energy policy arena. If the pro-RE policy layering process continues, the RE constituency will continue to expand and could, gradually yet inevitably, displace nuclear energy. For example, due to implementation of the GEGEA and RE targets outlined in the 2010 Long-Term Energy Plan, wind energy development in Ontario is expected to generate over 80,000 person-years of employment, attract \$16.4 billion in private investment and contribute over \$ 1.1 billion to municipal governments and landowners in the form of taxes and lease payments (Clearsky Advisors 2011a: 3). For its part, solar energy development is expected to generate 74,000 person-years of employment and attract \$12.9 billion in private investment (Clearsky Advisors 2011b: 3). By 2018, however, current RE targets will be achieved and, if they are not revised upward, both private investment and job creation in Ontario's new RE supply and service chain will drop steeply.

Figure 4.3.3 illustrates the post-2018 drop in private solar industry investment.



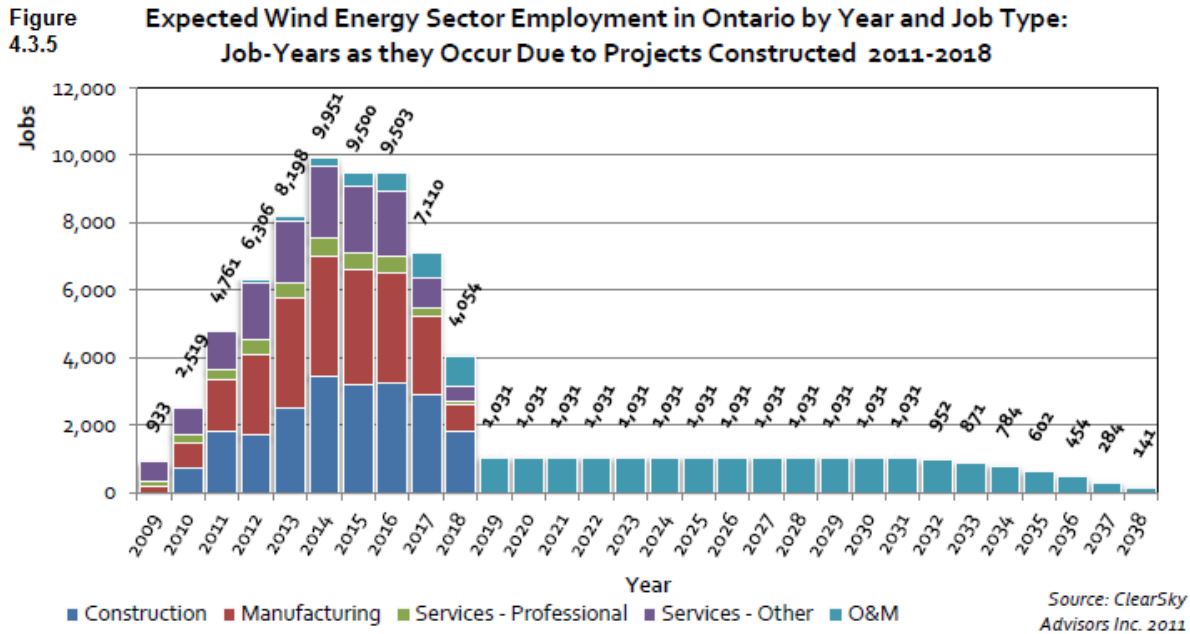
*Source: Clearsky Advisors 2011b: 14

As seen in figure 4.3.4, job creation in the solar industry drops in the parallel to private investment.



*Source: Clearsky Advisors 2011b: 19

Figure 4.3.5 illustrates the predicted drop in wind industry employment following 2018.



Leading up to 2018, green collar workers will be motivated to lobby government to pursue RE deployment in order to maintain their jobs and livelihoods. RE firms that received FIT contracts will want to keep growing their businesses. To do so, they will also need to lobby government to maintain advanced FITs and revise RE targets upward. We can thus expect RE firms and their representative organizations, along with the growing number of green collar workers, to lobby for more RE as we approach 2018. Such actions will challenge Ontario’s nuclear constituency and nuclear energy’s dominance in the energy supply.

The recent drop in RE generation costs will greatly aid RE proponents’ lobbying efforts. According to the most recent U.S. government data (USEAI 2013: Table1; Table 2), the total system levelized cost of new nuclear generation today averages \$108/MWh. In comparison, new onshore wind generation averages \$87/MWh, yet can be as cheap as \$74/MWh in favorable areas. Wind is thus already cheaper than nuclear power. New solar

generation averages \$144/MWh, but can reach \$113/MWh in favorable areas. Bioenergy averages \$111/MWh, yet can be as cheap as \$98/MWh in favorable areas. Considering that generation costs for all RE technologies are on an accelerated downward slope while that of nuclear appears to have hit a plateau in recent years, all RE sources are poised to gain the cost advantage over nuclear in coming years. Wind energy already has. RE technologies' rising cost advantage over nuclear will give all governments a strong incentive to develop more RE. But only time will tell if RE technologies' growing cost advantage, coupled with RE proponents' ongoing lobbying efforts, will be enough for the Ontario government to rethink its commitment to nuclear energy and expand the share of renewables.

CONCLUSION

Ontario's first wind farm began feeding power onto the grid in late 2002 (Huron Wind 2012). Comprising five 1.8 MW Vestas turbines, the farm did not register a blip on the province's 2003 energy output of 148 TWh (Ministry of Energy 2010: 19). A decade later, in late 2012, dozens of wind farms stretching from Lake Superior, through the South of the province to Lake Ontario, accounted for 1,511 MW in generating capacity (IESO 2012a).⁴⁶ With another 674 MW to come online by Summer 2013 (IESO 2012b), wind energy is now set to continue growing until it reaches 5,791 MW in installed generation capacity by 2018 (OPA 2012a: Table 1). Combined with solar and bioenergy, wind energy will account for approximately 10,700 MW in generating capacity by 2018, or approximately 10-15% of total generation (Ministry of Energy 2011: 3). This is the highest target for the deployment of

⁴⁶ For a geographic breakdown of wind energy projects in Ontario, see the 'Wind Farm Map' available on the Independent Electricity System Operator's *Wind Power in Ontario* page (IESO 2012b).

second-generation renewable energy (RE) in Canada. It represents a massive change to Ontario's energy supply in a very short time period.

This change is surprising given energy policy's high susceptibility to path dependence. Arthur observes that key features of energy technology – namely, high setup or fixed costs, efficiencies gained through cumulative knowledge, the costly buildup of linked infrastructure, and projections about future aggregate use (1994: 112) – work to lock-in energy policy choices once they are made. Pierson argues that the development of core constituencies with concentrated interests in the status quo – for example, industry groups such as the Canadian Nuclear Association or the Association of Major Power Consumers in Ontario, and unions such as the Power Workers' Union – further entrench processes of path dependence.

However, the case of Ontario demonstrates that energy policy is not always subject to path-dependent stasis intermittently interrupted by periods of punctuated equilibria. Certain energy policy contexts can in fact trigger less obvious, yet dynamic change processes that, over time, accumulate into significant transformation. These are processes of gradual institutional change. In 2003, following seven years of Harris government resistance to pro-RE policy, the Eves government implemented a renewable portfolio standard that would have required RE to reach a level of 3,000 MW by 2014 (Ministry of Energy 2003). Upon defeating the Eves government in October 2003 elections, the McGuinty government essentially carried their target forward by pledging to obtain 2,700 MW of RE by 2010 (Ontario Liberal Party 2002: 4; Ministry of Energy 2004a). Following the rapid expansion and active mobilization of Ontario's pro-RE network, the McGuinty government reviewed the province's RE target upward. Adopted in 2010, Ontario's Long-term Energy Plan mandates the Ontario Power Authority to procure 10,700 MW of second-generation RE by 2018 (Ministry of Energy

2010). Importantly, instead of pursuing RE deployment through the renewable portfolio standard approach, as is widely the case in North America, Ontario opted for limited feed-in tariffs (FITs) in 2006 and, since May 2009, advanced FITs. The dual processes of gradually raising RE deployment targets and gradually moving toward more sophisticated RE policy begs the question of why and how this happened in Ontario?

Mahoney & Thelen's theory of gradual institutional change offers valuable insight into the sources, modes and effects of energy policy development recently seen in Ontario. Mahoney & Thelen state that a context such as that of Ontario energy policy, characterized by a low level of discretion in the interpretation of rules while affording defenders of the status quo strong veto possibilities, is most susceptible to a layering pattern of change, whereby new rules are introduced "on top or alongside existing ones" eventually "leading to a big change over the long run" (2010:15, 17). This proposition comprises this thesis' first hypothesis. In Ontario, both RE targets as well as RE deployment mechanisms have gradually evolved from modest to more ambitious ranges. This policy evolution has furthermore occurred on the periphery of successive governments' prevailing energy policy commitment to nuclear energy. Since the early 1990's, nuclear energy has supplied roughly half of Ontario's electricity and, according to the 2010 Long-Term Energy Plan, is set to indefinitely maintain this dominant position in the energy supply mix (Ministry of Energy 2010: 23). The fact that RE policy in Ontario has evolved through incremental shifts, while not in the least disturbing entrenched plans for nuclear energy, is consistent with Mahoney & Thelen's expectations regarding layering, and this thesis' first hypothesis.

Furthermore, Mahoney & Thelen expect subversive change agents to be the catalysts of layering. Subversives achieve incremental change without directly challenging the status

quo, but rather by “promoting new rules on the edge of old ones, thus siphoning off support for the previous arrangements” (2010: 25). The keys to their success are coalition building and biding their time until opportunities for change arise, at which time they take decisive action. These propositions comprise this thesis’ second hypothesis. In Ontario, the earliest RE proponents were national and local environmental groups, such as the Green Energy Coalition and Citizens for Renewable Energy, as well as the first private RE developers of the 1990’s, represented by such organizations as the Independent Power Producers Society of Ontario and the Canadian Solar Industries Association. These entities were subversive because they never challenged dominant energy policy, but rather lobbied for small amounts of RE to be gradually brought online through a renewable portfolio standard. Having been implemented in Massachusetts, Texas, California and other places, renewable portfolio standards were common policy at the time. Despite adopting a subversive change strategy, however, environmentalists’ and early RE developers’ recurrent call throughout the 1990’s for a renewable portfolio standard amounted to nothing.

Early subversives’ demands only began to gain traction in government circles when they were joined by public health advocates, mainly the Ontario Medical Association and the Ontario Clean Air Alliance, and municipal governments, such as the City of Toronto, to form a wide-ranging, multi-stakeholder coalition. Prominent manifestations of this coalition include the Ontario Sustainable Energy Association, founded in 1999, the Clean Air Renewable Energy Coalition, founded in Fall 2000, and the Green Energy Act Alliance, founded in 2008. Whenever government convened public hearings to get input into future energy supply choices, RE proponents took the opportunity to call for pro-RE policy en masse. Outside these hearings, RE proponents maintained continuous pressure on government for RE policy

through coordinated action – meeting with elected officials and bureaucrats, studies, press releases, media interviews, community information sessions, and maintaining email distribution lists. Following a 2004 campaign by the Ontario Sustainable Energy Association and the David Suzuki Foundation, RE and advanced FITs started to be seen as an instrument of local economic development. This was an efficient framing strategy that helped garner more support for RE. Lobbying for RE from a united front, as a solution not only to climate change but a combination of other immediately pressing health and economic challenges, helped RE gain traction as a political issue and was essential for pro-RE policy change to occur. The fact that coalition building was key to subversives' success partly substantiates Mahoney & Thelen's expectations concerning layering. However, although subversives were responsible for building and expanding most of Ontario's wide-ranging coalition of support for RE, the participation of opportunist change agents was essential to RE policy development.

Opportunists are defined by Mahoney & Thelen as “available for all kinds of alliances (...) depending on the political winds” (2010: 30). In the late 1990's and early 2000's, a cohort of private businesses – prominent examples include British Energy Canada (Morris 2001), Sky Generation (Estill 2002), as well as Suncor Energy and Dofasco (Howes 2001) – foresaw a shift in the political and economic winds concerning RE in Ontario, and wanted to be part of it to grow their businesses and profit from future RE deployment. Firms that allied themselves to Ontario's pro-RE network upon sensing a favorable shift in the political and economic winds exhibited opportunist behavior but, they adopted the pro-RE network's subversive change strategy by lobbying for incremental RE policy gains on the periphery of prevailing energy policy. Ontario's pro-RE network was enlarged and strengthened by the participation of opportunist private firms.

Opportunists at the top echelons of government would, however, be most crucial to RE policy development in Ontario. Canada's Constitution Act grants provincial governments control over their electricity systems (United Kingdom 1985). In Ontario, the provincial government holds ultimate veto power over energy policy and it is only by influencing its choices that RE policy gains can be achieved. After winning elections in October 2003, Premier Dalton McGuinty spearheaded efforts to completely phase out Ontario's coal-fired power plants. He was also instrumental in the 2006 implementation of limited FITs and the 2009 adoption of advanced FITs. McGuinty was above all reactive to change, and took on these policy courses upon seeing the rise of public support behind them. Also, the story of RE in Ontario would not be complete without George Smitherman. Appointed Minister of Energy in 2008, Smitherman played a leading role in coordinating advanced FIT adoption. Just as importantly, he signed the September 2008 Supply Mix Directive requiring the OPA to review RE deployment targets upward. Similarly to McGuinty, Smitherman allied himself to the pro-RE network upon seeing its support base rapidly expand. The fact that McGuinty and Smitherman allied themselves to the pro-RE movement once the tide of public support behind RE had risen demonstrates opportunist behavior according to Mahoney & Thelen (2010: 30). By promoting RE on the periphery of government's entrenched policy commitment to nuclear energy, however, McGuinty and Smitherman adopted the pro-RE network's subversive change strategy (Mahoney & Thelen 2010: 25). Given the ultimate level of control Canadian provincial governments hold over energy policy, the presence of these opportunist change agents was crucial to achieving pro-RE policy.

These findings somewhat impair Mahoney & Thelen's proposition that subversives are the main catalyst of layering, and this thesis' second hypothesis. Subversives were certainly

crucial for RE policy development to occur, but opportunists were equally as crucial. In this regard, opportunists from within government were especially important. Therefore, in contexts where a single entity holds ultimate veto power, as in the case of Canadian provincial governments' and the energy policy arena, the experience of Ontario shows that the presence of opportunist change agents within the governing/administrative/power structure is absolutely crucial to achieving policy change. As seen with Mike Harris from 1995 to 2002, a determined Premier can hold off pro-RE policy for a long time if he or she wants to, even as support for such policy swells outside government. Inversely, as seen with Dalton McGuinty from 2003 onward, pro-RE policy shifts can steadily succeed each other under an opportunist Premier open to change. In the Canadian energy policy context, subversives from outside government and opportunists from within government form two equally crucial parts of a unified equation that explains RE policy evolution from modest to more ambitious RE deployment mechanisms and targets. Over reliance on Mahoney & Thelen's framework can thus obscure key pieces of the Ontario story.

Once formed, Ontario's pro-RE network was aided in its lobbying efforts by a series of time-specific developments. The 1998 Energy Competition Act unleashed droves of profit-seeking entities – private RE producers, as well as municipal electric utilities and generators formally constrained by the Ontario Hydro monopoly – that would be motivated to join the pro-RE network and lobby for RE policy gains. Such gains held the promise of increasing their revenues by allowing them sell more RE onto the grid. Following the 1997 Andognini report, the shutdown of seven of Ontario's 19 operational nuclear reactors led to a 6% rise in coal energy production and accompanying smog levels (ECSTF 2004: 23; OMA 1998, 2000). Exceedingly hot summer months in the late 1990's and early 2000's aggravated poor air

quality and helped turn RE into an electoral issues no political party could afford to ignore. Simultaneously, government reports published in the late 1990's and early 2000's (Ontario Hydro 1997, ECSTF 2004) revealed that most of Ontario's nuclear fleet would need to be entirely renewed or replaced by 2020. Energy supply issues concerning nuclear energy were illustrated by the Northeast blackout of August 2003. Government had little choice but to start considering new, cleaner energy supply options. The loss of over 300,000 manufacturing jobs from 2000 to 2010 (Statistics Canada: Table 281-0024), roughly a third of which occurred as a result of the 2008 financial and economic crisis, further helped set the table for advanced FITs. Following the Ontario Sustainable Energy Association-led campaign for advanced FITs, started in 2004, government knew of this policy tool's job creation potential. Advanced FITs were a well-known, tried and tested means of stemming the loss of manufacturing jobs.

But where do layering change processes lead? Do they forever remain on the periphery of dominant policy or can they eventually accumulate into wholesale change? As of yet, the experience of Ontario does not offer evidence that layering can siphon away enough support to compromise dominant policy. While the 2010 Long-Term Energy Plan revised RE targets upward, it also clearly reiterated government's commitment to continue generating half its power from nuclear. This means that the RE policy evolution seen to date in Ontario could be just a flash in the pan. During public hearings on the GEGEA in early 2009, Shawn-Patrick Stensil of Greenpeace keenly observed that "while we're talking about the promotion of green energy, we may in fact foreclose on the future development of green energy by making decisions to build nuclear plants today that will come online in 2020" (Stensil 2009). As of the time of writing, it appears Ontario's nuclear commitment might very well act as a wall, keeping the layering processes we've seen to date on the periphery and constraining further

RE growth. On the other hand, pro-RE policy development to date has enabled a new RE constituency of support to grow in Ontario. In parallel to this, RE generation costs have continued to fall – wind energy in fact already holds a significant cost advantage over nuclear. But whether the establishment of an RE constituency and falling RE generation costs, combined with RE proponents ongoing lobbying efforts, will be enough to reduce the Ontario government's nuclear commitment remains to be seen. In the context of Canadian energy policy, provincial governments are the ultimate gatekeeper. And it is only by pushing the gatekeeper hard, through lobbying in all its forms, that RE proponents stand a chance at furthering the pro-RE layering process seen to date.

BIBLIOGRAPHY

ACC. 1996. *A Framework for Competition: The Report on the Advisory Committee in Ontario's Electricity System to the Ontario Minister of Environment and Energy*. Toronto: Advisory Committee on Competition.

Adams, J. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

AMPCO. 2005a. *AMPCO - Supply Mix Submissions*. 24 August 2005. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan/volume-5-submissions-and-presentations-received>> 28 June 2013.

AMPCO. 2005b. Media release: "Business, Industry and Farm Associations Come Together Seeking to Avoid another Electricity Price Increase in Ontario." December 21. Retrieved from: <<http://ampco.org/details.php?sID=81>> 24 January 2013.

AMPCO. 2006a. Media release: "New research finds Ontario becoming increasingly uncompetitive because of higher electricity rates." April 10. Retrieved from: <<http://ampco.org/details.php?sID=56>> 24 January 2013.

AMPCO. 2006b. Media release: "Power Consumers Applaud Decision to Extend Cost-based Pricing." February 9. Retrieved from: <<http://ampco.org/details.php?sID=82>> 31 January 2013.

AMPCO. 2013. *About AMPCO*. Retrieved from: <http://www.ampco.org/index.cfm?pagepath=About_AMPCO/Members&id=36576> 6 May 2013.

Andres, P. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 28 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Andrew, J. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 22 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Anshan, M. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 14 August. Retrieved from: <<http://www.ontla.on.ca/web/committee->

[committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841](http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841)> 24 March 2013.

Arrow, K. J. 1969. "The Organization of Economic Activity: Issues Pertinent to the Choice of Market versus Non-market Allocations" in *Analysis and Evaluation of Public Expenditures: The PPP System*, pp. 1-16. Washington, D.C.: Joint Economic Committee of Congress.

Arthur, W. B. 1994. *Increasing Returns and Path Dependence in the Economy*. Ann Arbor: University of Michigan Press.

Auditor General. 2012. *Annual Report*. Toronto: Queen`s Printer.

Barett, T. 2005a. Blog entry: "Ontario's Coal Closure Follies Continue." Retrieved from: <<http://www.tobybarrett.com/publication/nr/coalnov3.htm>> 31 January 2013.

Barett, T. 2005b. Blog entry: "Five Reasons for Clean Air Technology." Retrieved from: <<http://www.tobybarrett.com/publication/nr/Five%20reasons%20for%20clean-air%20technology.html>> 31 January 2013.

Barnstable, A. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 20 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24 March 2013.

Bartleman, J. K. 2003. *Speech from the Throne*. 20 November. Retrieved from : <http://www.ontla.on.ca/web/house-proceedings/house_detail.do?Date=2003-11-20&Parl=38&Sess=1&locale=en> 10 May 2013.

Bartleman, J. K. 2005. *Speech from the Throne*. 12 October. Retrieved from : <http://www.ontla.on.ca/web/house-proceedings/house_detail.do?locale=en&Sess=2&Parl=38&Date=2005-10-12> 10 May 2013.

Bench, M. E. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 22 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Beswick, W. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Big Bull, W. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Bird, M. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 8 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Blaney, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Blinch, M. 2013. "Dalton McGuinty: Canada's greenest premier ever." *The Toronto Star*. Feb 25. Retrieved from: <http://www.thestar.com/opinion/editorialopinion/2013/02/25/dalton_mcguinty_canadas_greenest_premier_ever.html> 12 April 2013.

BMU. 2009. *Renewable Energy Sources in Figures*. June. Retrieved from: <<http://www.germany.info/contentblob/2626726/Daten/699088/>> 2 July 2013.

Boileau, D. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 30 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Boukydis, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 22 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Boutin, G. 2009. "Solar Incentives: Could Ontario Be The Next Germany?" *Renewable Energy World*. 13 April. Retrieved from: <<http://www.renewableenergyworld.com/rea/news/article/2009/04/solar-incentives-could-ontario-be-the-next-germany>> 18 January 2013.

Bresnahan, P. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

[proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856](http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856)> 24 June 2013.

Brooks, J. 2002. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 19 February. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Browne, K. & Boone, C. 1992. “Non-Utility Generation in Canada.” *Energy Studies Review* 4(2): Article 2.

Bruce Power. 2012a. Press release: “Bruce Power’s Unit 1 achieves commercial operation.” 23 October. Retrieved from: <<http://www.brucepower.com/media-centre/page/4/>> 12 June 2013.

Bruce Power. 2012b. Press release: “Unit 2 achieves commercial operation.” 1 November. Retrieved from: <<http://www.brucepower.com/media-centre/page/4/>> 12 June 2013.

Bryden, R. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Bujik, J. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Burer, M. J. & Wustenhagen, R. 2009. “Which renewable energy policy is a venture capitalist’s best friend? Empirical evidence from a survey of international cleantech investors.” *Energy Policy* 37(12): 4997-5006.

Butters, B. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 22 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

CAE Alliance. 2005. *CAE Alliance - Supply Mix Submissions*. 25 August 2005. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan/volume-5-submissions-and-presentations-received>> 28 June 2013.

CanSIA. 2005. *IPSP Supply Mix Presentation*. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan/supply-mix-presentations>> 1 April 2013.

CanWEA. 2005. *IPSP Supply Mix Presentation*. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan/supply-mix-presentations>> 1 April 2013.

CanWEA. 2008. Media Centre: “AIM PowerGen Commissions Projects Under Ontario’s Renewable Energy Standard Offer Program.” June 18. Retrieved from: <http://www.canwea.ca/media/release/release_e.php?newsId=28> 30 January 2013.

CBC. 2001. “Coal burning in Mississauga to end by 2005.” 27 March. Retrieved from: <http://www.cbc.ca/news/story/2001/03/27/lakeview_close010326.html> 28 March 2013.

CBC. 2003. *Indepth: Power Outage*. 15 August. Retrieved from: <<http://www.cbc.ca/news/background/poweroutage/>> 23 January 2013.

CBC. 2006. “Liberals will delay closing two plants past 2009.” 9 June. Retrieved from: <<http://www.cbc.ca/news/canada/toronto/story/2006/06/09/topower20060609.html>> 6 June 2013.

CERI. 2008. *The Canadian Nuclear Industry: Contributions to the Canadian Economy*. Retrieved from: <http://www.cna.ca/studies_reports/canadian_studies/> 22 October 2012.

Chilton, E. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 14 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Chopowick, M. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 22 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Chudy, C. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 8 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Clearsky Advisors Inc. 2011a. *The Economic Impacts of the Wind Energy Sector in Ontario 2011-2018*. July. Retrieved from: <http://www.canwea.ca/wind-energy/talkingaboutwind_e.php> 3 July 2013.

Clearsky Advisors Inc. 2011b. *The Economic Impacts of the Solar PV Sector in Ontario 2008-2018*. July. Retrieved from: <<http://www.cansia.ca/market-intelligence/ontario-solar-pv-sector>> 3 July 2013.

CNA/CME. 2012. *Nuclear Technology: A Canadian Strategy for Energy, Jobs and Innovation*. Retrieved from: <http://www.cna.ca/studies_reports/canadian_studies/> 25 June 2013.

Collier, D. 2011. "Understanding Process Tracing." *Political Science and Politics* 44(4): 823-30.

Collier, D. & Collier, R. B. 1991. *Shaping the Political Arena: Critical Junctures, the Labor Movement, and Regime Dynamics in Latin America*. Princeton: Princeton University Press.

Coronado, R. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 18 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24 March 2013.

Curran, B. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 14 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Deweese, D. N. 2005. "Electricity Restructuring in Canada" in Doern, B. (ed.), *Canadian Energy Policy and the Struggle for Sustainable Development*. Toronto: University of Toronto Press, 128-150.

Deweese, D. N. & Reeve, D. 2010. "The Evolution of Ontario Electricity Policy" in Reeve, D; Deweese, D. N. & Karney, B. W. (eds.), *Current Affairs: Perspectives on Electricity Policy for Ontario*. Toronto: University of Toronto Press, 3-9.

DeYoe, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 14 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Doncaster, D. 2011. "Ontario's Green Energy Blues." TV program. Available from: <<http://www.tv.o.org/TVO/WebObjects/TVO.woa?videoid?836496184001>> 21 April 2011.

DSF. 2004. *Smart Generation: Powering Ontario with Renewable Energy*. Vancouver: David Suzuki Foundation.

- ECSTF. 2004. *Tough Choices: Addressing Ontario's Power Needs: Final Report to the Minister*. Toronto: Electricity Supply and Conservation Task Force.
- ECO. 2012. *Annual Greenhouse Gas Progress Report 2012*. December. Retrieved from: <<http://www.eco.on.ca/blog/2012/12/04/ontario-government-retreats-on-climate-change/>> 16 May 2013.
- EDA. 2004. *Annual Report*. Vaughn, ON: Electricity Distributors Association.
- EDA. 2008a. *The Distributor*. April/May. Vaughn, ON: Electricity Distributors Association.
- EDA. 2008b. *The Distributor*. December. Vaughn, ON: Electricity Distributors Association.
- EDA. 2008c. *Annual Report*. Vaughn, ON: Electricity Distributors Association.
- EDA. 2009. *The Distributor*. February. Vaughn, ON: Electricity Distributors Association.
- Edworthy, J. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 30 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.
- Ellmen, E. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 22 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.
- Elwell, C. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 14 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24 March 2013.
- Ernst & Young. 2012. *Renewable Energy Country Attractiveness Indices*. Issue 33. Retrieved from: <<http://www.ey.com/GL/en/Industries/Power---Utilities/Renewable-energy-country-attractiveness-indices>> 28 January 2013.
- Ertman, T. 1997. *Birth of the Leviathan: Building States and Regimes in Medieval and Early Modern Europe*. Cambridge: Cambridge University Press.
- Estill, G. 2002. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 29 January. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Estill, G. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Etcheverry, J., O'Malley, L & Taylor, J. 2009. *Ontario's Road Map to Prosperity : Developing Renewable Energy to its Full Potential*. February. Retrieved from : <<http://trca.on.ca/the-living-city/programs-of-the-living-city/the-renewable-energy-program/the-renewable-energy-roadmap.dot>> 5 February 2013.

Eyamie, L. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Fedchun, G. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 8 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Ferrari, E. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 28 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Fortune, G. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Fraser, B. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Fyfe, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>

[proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856](http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856)>
24 June 2013.

Garand, H. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 20 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

Garcia, R. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 14 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

George, A. L. & Bennett, A. 2005. *Case Studies and Theory Development in the Social Sciences*. Cambridge: MIT Press.

Gibbons, J. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 20 August. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24
March 2013.

Gibbons, J. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 29 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27
March 2013.

Gillette, P. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 30 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27
March 2013.

Gipe, P. 2010. *Grading North American Feed-in Tariffs*. World Future Council: Washington, DC.

Goedhard, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 14 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

Gorrie, P. 2011. "For Solar, `Ontario is the California of Canada`." *The Globe and Mail*. 26 April. Retrieved from: <<http://www.theglobeandmail.com/report-on-business/careers/top-employers/for-solar-ontario-is-the-california-of-canada/article577698/>> 18 January 2013.

Gregg, L. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 20 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24 March 2013.

Hacker, J. S. 1999. *The Road to Nowhere: The Genesis of President Clinton's Plan for Health Security*. Princeton: Princeton University Press.

Hall, 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Hamilton, T. 2008. "The Wind at his Back." *The Toronto Star*. September 27. Retrieved from: <<http://www.thestar.com/business/article/507373--the-wind-at-his-back>> 14 December 2012.

Hampton, H. & Reno, B. 2003. *Public Power: The Fight for Public Owned Electricity*. Toronto: Insomniac Press.

Harrington, S. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Hartmann, F. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 22 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Heinzle, G. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Hopcroft, G. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Hope, R. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Hornung, R. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Howes, H. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 30 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Hsu, T. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Huber, E. & Stephens, J. D. 2001. *Development and Crisis of the Welfare State: Parties and Policies in Global Markets*. Chicago: University of Chicago Press.

Hume, P. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Huron Wind. 2012. *Homepage*. Retrieved from: <<http://www.huronwind.com/>> 7 November 2012.

Hutton, P. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

IEA. 2012. *Energy Technology Perspectives 2012*. Paris: IEA.

IEA/OECD. 2007. *Renewables in Global Energy Supply: An IEA Factsheet*. Retrieved from: <<http://www.iea.org/publications/freepublications/publication/name,3636,en.html>> 18 December 2012.

IEA/OECD. 2008. *Deploying Renewables: Principles for Effective Policies*. 7 October. Retrieved from: <<http://www.iea.org/publications/freepublications/publication/name,15746,en.html>> 18 December 2012.

IESO. 2005a. “10-Year Outlook Report.” Retrieved from: <<http://www.ieso.ca/imoweb/monthsYears/previous.asp#18Month>> 25 September 2012.

IESO. 2005b. News Release: “IESO Releases Generation and Consumption Figures.” 25 January. Retrieved from: <http://www.ieso.ca/imoweb/media/md_news.asp> 25 September 2012.

IESO. 2006. News Release: “IESO Releases 2005 Generation and Consumption Figures.” 26 January. Retrieved from: <http://www.ieso.ca/imoweb/media/md_news.asp> 25 September 2012.

IESO. 2007. News Release: “IESO Releases 2006 Generation and Consumption Figures.” 16 January. Retrieved from: <http://www.ieso.ca/imoweb/media/md_news.asp> 25 September 2012.

IESO. 2008. News Release: “IESO Releases 2007 Generation and Consumption Figures.” 10 January. Retrieved from: <http://www.ieso.ca/imoweb/media/md_news.asp> 25 September 2012.

IESO. 2009. News Release: “IESO 2008 Electricity Figures Show Record Levels of Hydroelectric Power.” 12 January. Retrieved from: <http://www.ieso.ca/imoweb/media/md_news.asp> 25 September 2012.

IESO. 2010. News Release: “Wind Power in Ontario Generates a New Record in 2009.” 8 January. Retrieved from: <http://www.ieso.ca/imoweb/media/md_news.asp> 25 September 2012.

IESO. 2011. News Release: “Diverse Supply Mix Provides Flexibility in Operating Ontario’s Power System – Integration of Renewable Resources Well Under Way.” 7 January. Retrieved from: <http://www.ieso.ca/imoweb/media/md_news.asp> 25 September 2012.

IESO. 2012a. *Supply Overview*. Retrieved from: <http://www.ieso.ca/imoweb/media/md_supply.asp> 7 November 2012.

IESO. 2012b. *Wind Power in Ontario*. Retrieved from: <<http://www.ieso.ca/imoweb/marketdata/windpower.asp>> 7 November 2012.

IESO. 2012c. News Release: “Composition of Ontario’s Energy Supply Mix Continues to Change: Consumer Response Supports Reliability.” 6 January. Retrieved from: <http://www.ieso.ca/imoweb/media/md_news.asp> 25 September 2012.

IESO. 2013. News Release: "Ontario's Independent Electricity System Operator Releases 2012 Electricity Production, Consumption and Price Data." 11 January. Retrieved from: <http://www.ieso.ca/imoweb/media/md_newsitem.asp?newsID=6323> 22 January 2013.

Iler, B, 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

IPCC. 2007. *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Pachauri, R. K. & Reisinger, A. (eds.) Cambridge: Cambridge University Press.

IPCC. 2011. *Special Report on Renewable Energy Sources and Climate Change Mitigation*. Retrieved from: <<http://srren.ipcc-wg3.de/>> 18 December 2012.

Jamieson, C. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Kelleher, M. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 30 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Kleinau, S. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 19 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24 March 2013.

Kleinau, S. 2002. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 29 January. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Kleinau, S. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Koch, S. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Kopperson, B. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 20 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Kortekoas, R. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Krasner, S. D. 1984. "Approaches to the State: Alternative Conceptions and Historical Dynamics." *Comparative Politics* 16(2): 223-46.

Laepfle, L. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

LAO. 1998. *Bill 35, Energy Competition Act*. Toronto: Legislative Assembly of Ontario.

LAO. 2002. *Select Committee on Alternative Fuel Sources – Final Report*. Toronto: Legislative Assembly of Ontario.

LAO. 2003. *Speech from the Throne*. Retrieved from: <<http://govdocs.ourontario.ca/results?fsu=Speech+from+the+Throne>> 29 March 2013.

LAO. 2009. *Bill 150, Green Energy and Green Economy Act*. Toronto: Legislative Assembly of Ontario.

Layton, J. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 11 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24 March 2013.

Lechowicz, J. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from:

<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

LeClair, B. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 14 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

Lipp, J. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 8 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

Little, 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 8 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

Lloyd, B. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 13 August. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24
March 2013.

Loucks, J. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 20 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

Macartney, D. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 18 August. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24
March 2013.

MacLellan, I. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 28 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27
March 2013.

MacLeod, S. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856 24 June 2013.

Mahoney, J. 2001. *The Legacies of Liberalism: Path Dependence and Political Regimes in Central America*. Baltimore: Johns Hopkins University Press.

Mahoney, J. & Thelen, K. (eds.) 2010. *Explaining Institutional Change: Ambiguity, Agency, and Power*. Cambridge: Cambridge University Press.

Mallia, E. & Lewis, G. 2013. "Life cycle greenhouse gas emissions of electricity generation in the province of Ontario, Canada." *International Journal of Life Cycle Assessment* 18(2): 377-391.

Manning, P. & Vince, J. 2010. "Municipalities and the Green Energy Act: Benefits, Burdens, and Loss of Power." *Municipal World*. January.

Martin, D. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 11 August. Retrieved from: http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841 24 March 2013.

McCabe, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856 24 June 2013.

McClenaghan, T. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 20 April. Retrieved from: http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856 24 June 2013.

McCoy-Naperstkw, A. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856 24 June 2013.

McDermott, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from: http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856

[proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856](http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856)>
24 June 2013.

McDonald, E. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

McDonald, M. 1996. "Ontario Hydro to be Privatized." *Maclean's*. 12 February. Retrieved from: <<http://www.thecanadianencyclopedia.com/articles/macleans/ontario-hydro-to-be-privatized>>
15 March 2012.

McGuinty, D. 2004. *Remarks By Dalton McGuinty, Premier of Ontario, To The Canadian American Business Council In Washington*. June 16. Retrieved from: <<http://www.premier.gov.on.ca/news/event.php?ItemID=5370&Lang=EN>> 5 November 2012.

McKay, L. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 14 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

McKay, P. 1983. *Electric Empire: The Inside Story of Ontario Hydro*. Toronto: Between the Lines.

McLean, C. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

McLean, J. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 29 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

McSweeney, M. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

Mendonça, M. 2007. "FIT for Purpose: 21st Century Policy." *Renewable Energy Focus*. July/August: 60-62.

Mendonça, M. 2009. *Feed-in Tariffs: Accelerating the Deployment of Renewable Energy*. London: Earthscan.

Ministry of Energy. 1997. *Direction for Change: Charting a Course for Competitive Electricity and Jobs in Ontario*. Toronto: Ministry of Energy.

Ministry of Energy. 2003. News release: "Ernie Eves Government Introduces Standard to Increase Green Energy." 3 July.

Ministry of Energy. 2004a. News release: "McGuinty government to increase supply of renewable energy." 28 April. Retrieved from: <<http://news.ontario.ca/archive/en/2004/04/28/McGuinty-government-to-increase-supply-of-renewable-energy.html>> 19 September 2012.

Ministry of Energy. 2004b. News release: "McGuinty government gives green light to renewable energy projects." 24 November. Retrieved from: <<http://news.ontario.ca/archive/en/2004/11/24/McGuinty-Government-Gives-Green-Light-To-Renewable-Energy-Projects.html>> 6 June 2012.

Ministry of Energy. 2004c. News release: "Ontario government restarts Pickering unit to increase electricity supply." 7 July. Retrieved from: <<http://news.ontario.ca/archive/en/2004/07/07/Ontario-government-restarts-Pickering-unit-to-increase-electricity-supply.html>> 12 June 2013.

Ministry of Energy. 2004d. News release: "McGuinty government to begin negotiations to restart two units at Bruce Power. 8 September. Retrieved from: <<http://news.ontario.ca/archive/en/2004/09/08/McGuinty-government-to-begin-negotiations-to-restart-two-units-at-Bruce-Power.html>> 12 June 2013.

Ministry of Energy. 2005a. Newsroom: "1,675 Megawatts of New, Clean Electricity Projects." April 13. Retrieved from: <<http://news.ontario.ca/archive/en/2005/04/13/McGuinty-Government-Boosting-Electricity-Supply.html>> September 25, 2012.

Ministry of Energy. 2005b. Newsroom: "McGuinty Government Opens The Door To More Green Power." July 12. Retrieved from: <<http://news.ontario.ca/archive/en/2005/07/12/McGuinty-Government-Opens-The-Door-To-More-Green-Power.html>> 19 September 2012.

Ministry of Energy. 2005c. Newsroom: "McGuinty Government Approves New Green Power Projects." November 21. Retrieved from: <<http://news.ontario.ca/archive/en/2005/11/21/McGuinty-Government-Approves-New-Green-Power-Projects.html>> 19 September 2012.

Ministry of Energy. 2006. Newsroom: “Expanding Opportunities For Renewable Energy in Ontario.” 21 March. Retrieved from: <<http://news.ontario.ca/opo/en/2006/03/expanding-opportunities-for-renewable-energy-in-ontario.html>> 23 June 2013.

Ministry of Energy. 2008. *Supply Mix Directive*. September 17. Retrieved from: <<http://www.powerauthority.on.ca/about-us/directives-opa-minister-energy-and-infrastructure>> 6 February 2013.

Ministry of Energy. 2009. Newsroom: “New Green Energy Projects Generate More Green Jobs.” January 23. Retrieved from: <<http://news.ontario.ca/mei/en/2009/01/new-green-energy-projects-generate-more-green-jobs.html>> 28 January 2013.

Ministry of Energy. 2010. *Long-term Energy Plan*. Retrieved from: <<http://www.energy.gov.on.ca/en/ltep/>> 19 January 2013.

Ministry of Energy. 2011. *Supply Mix Directive*. 17 February. Retrieved from: <<http://www.powerauthority.on.ca/about-us/directives-opa-minister-energy-and-infrastructure>> 7 November 2012.

Ministry of Energy. 2013. News release: “Ontario Working With Communities to Secure Clean Energy Future.” 30 May. Retrieved from: <<http://news.ontario.ca/mei/en/2013/05/ontario-working-with-communities-to-secure-clean-energy-future.html>> 17 June 2013.

Ministry of the Environment. 2001. *Coal-Fired Electricity Generation in Ontario*. March. Retrieved from: <http://www.ene.gov.on.ca/environment/fr/resources/STD01_077365.html> 6 June 2013.

Ministry of the Environment. 2004. *Air Quality in Ontario*. Retrieved from: <<http://www.airqualityontario.com/press/publications.php>> 26 March 2013.

Ministry of the Environment. 2005a. *Air Quality in Ontario*. Retrieved from: <<http://www.airqualityontario.com/press/publications.php>> 26 March 2013.

Ministry of the Environment. 2005b. *Transboundary Air Pollution in Ontario*. Retrieved from: <<http://www.airqualityontario.com/press/publications.php>> 26 March 2013.

Ministry of the Environment. 2009. *Ontario’s Climate Change Action Plan, Annual Report 2008-2009*. December. Retrieved from: <http://www.ene.gov.on.ca/environment/en/resources/STD01_076569.html> 16 May 2013.

Ministry of Finance. 2010. *Ontario Budget*. Retrieved from: <<http://www.fin.gov.on.ca/en/budget/ontariobudgets/2010/>> 24 June 2013.

Moore, S. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 14 August. Retrieved from:

<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24 March 2013.

Morris, J. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Morris, T. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 30 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Muszynski, N. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Neumann, K. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 20 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Norris, P. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 30 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Norris, P. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

North, D. C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

NRCAN. 2009. *Canadian Minerals Yearbook*. Retrieved from: <<http://www.nrcan-nrcan.gc.ca/mms-smm/busi-indu/cmy-amc/2009revu/coa-cha-eng.htm>> 20 April 2011.

O'Brien, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 20 April. Retrieved from:

<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

OCAA. 1998. *Electricity Competition and Clean Air*. Available from:
<<http://www.cleanairalliance.org/node/452>> 14 February 2012.

OCAA. 1999. *Trading Our Health: Ontario Power Generation's Plan to Violate its Air Pollution Commitment*. Available from: <<http://www.cleanairalliance.org/node/454>> 14 February 2012.

OCAA. 2001a. *Weak Emissions Limits*. Retrieved from :
<<http://www.cleanairalliance.org/node/375>> 24 February 2012.

OCAA. 2001b. *Phasing Out Coal: How Ontario can reduce fossil fuel use by eliminating coal-fired power production*. Retrieved from: < <http://www.cleanairalliance.org/node/374>> 24 February 2012.

OCAA. 2004. *New Energy Directions: A low-cost, low-risk electricity supply strategy for Ontario*. Available from: <<http://www.cleanairalliance.org/node/365>> 24 February 2012.

OCAA. 2006. *Public Opinion Surveys*. Ontario Clean Air Alliance Website. Retrieved from:
<<http://www.cleanair.web.ca/resource/res04.html>> 29 August 2006.

OCAA. 2008. *Ontario's Green Future*. Toronto: Ontario Clean Air Alliance.

OCAA. 2010. *Darlington Rebuilt Could Cost \$21 to \$35 Billion*. Retrieved from:
<http://www.cleanairalliance.org/node/881>> 29 June 2013.

OCAA. 2012a. *The Brenner Transformation Station vs. Energy Conservation and Distributed Generation*. 18 December. Retrieved from: <<http://www.cleanairalliance.org/>> 29 May 2013.

OCAA. 2012b. *The Guelph Transmission Line: Pulling Guelph back to the 1950s*. November. Retrieved from: <<http://www.cleanairalliance.org/>> 29 May 2013.

OCAA. 2013a. *About the OCAA: Working together to move Ontario towards a renewable electricity future*. Retrieved from: <<http://www.cleanairalliance.org/about>> 27 March 2013.

OEB. 2011. *Monitoring Report on the IESO-Administered Electricity Markets*. May - October. Retrieved from:
<<http://www.ontarioenergyboard.ca/OEB/Industry/About+the+OEB/Electricity+Market+Surveillance/Market+Surveillance+Panel+Reports>> 23 January 2013.

Ogilvie, K. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 14 August. Retrieved from:
<<http://www.ontla.on.ca/web/committee->

[committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841](http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841)> 24 March 2013.

Olivastri, B. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

OMA. 1998. *OMA Ground Level Ozone Position Paper*. Toronto: Ontario Medical Association.

OMA. 2000. *The Illness Costs of Air Pollution in Ontario: A Summary of Findings*. Toronto: Ontario Medical Association.

OMA. 2005. *The Illness Costs of Air Pollution in Ontario: 2005-2026 Health and Economic Damage Estimates*. June. Toronto: Ontario Medical Association.

Onley, D. C. 2007. *Speech from the Throne*. 29 November. Retrieved from: <http://www.ontla.on.ca/web/house-proceedings/house_detail.do?Date=2007-11-29&Parl=39&Sess=1&locale=en> 10 May 2013.

Ontario Hydro. 1997. *Report to Management: IIPA/SSFI Evaluation Findings and Recommendations*. Toronto: Ontario Hydro.

Ontario Liberal Party. 2002. *Growing Strong Communities, The Ontario Liberal Plan for Clean, Safe Communities that Work*. Toronto: Ontario Liberal Party.

OPA. 2007. *Progress Report on Electricity Supply (Q4 2007)*. Retrieved from: <<http://www.powerauthority.on.ca/quarterly-progress-reports-electricity-supply>> 5 February 2013.

OPA. 2008a. *Integrated Power System Plan I – B*. 29 August. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan>> 24 June 2013.

OPA. 2008b. *Progress Report on Renewable Energy Standard Offer Program*. August. Toronto: Ontario Power Authority.

OPA. 2009. *Progress Report on Electricity Supply (Q3 2009)*. Retrieved from: <<http://www.powerauthority.on.ca/quarterly-progress-reports-electricity-supply>> 5 February 2013

OPA. 2010. *Progress Report on Electricity Supply (Q1 2010)*. Retrieved from: <<http://www.powerauthority.on.ca/quarterly-progress-reports-electricity-supply>> 4 February 2013.

OPA. 2012a. *A Progress Report on Contracted Electricity Supply – 2012 Fourth Quarter*. Retrieved from: <<http://www.powerauthority.on.ca/quarterly-progress-reports-electricity-supply>> 7 November 2012.

OPA. 2012b. *Ontario's Feed-in Tariff Program: Two-Year Review Report*. 19 March. Retrieved from: <<http://www.energy.gov.on.ca/docs/en/FIT-Review-Report.pdf>> 17 June 2013.

OPG. 2003. *Annual Report*. Toronto: Ontario Power Generation.

OPG. 2005. News Release: "Ontario Power Generation's Refurbished Pickering A Unit 1 Sends First Electricity Into the Ontario Grid." September 27. Retrieved from: <http://www.opg.com/news/releases/NewsSept27_05.asp> 5 November 2012.

OPG. 2006. *Annual Report*. Toronto: Ontario Power Generation.

OPG. 2008. *Annual Report*. Toronto: Ontario Power Generation.

OPG. 2012. Media release: "OPG Signs Services Agreements for New Nuclear." 22 June. Retrieved from: <<http://www.opg.com/nb/index3.asp>> 25 June 2013.

OSEA. 2005. *Powering Ontario Communities: Proposed Policy for Projects up to 10 MW*. Toronto: Ontario Sustainable Energy Association.

OSEA. 2007. *Renewables Without Limits*. Toronto: Ontario Sustainable Energy Association.

OSEA. 2008. *GEA Briefing Note*. October 26. Retrieved from: <<http://www.ontario-sea.org/Page.asp?PageID=924&ContentID=1141>> 6 February 2013.

OSEA. 2009. *Proposal for A Green Energy Act for Ontario*. January 10. Retrieved from: <<http://www.ontario-sea.org/Page.asp?PageID=1225&SiteNodeID=283>> 7 February 2013.

OSEA. 2011. *Getting it Right – Not Quite – Ontario's Green Energy Act*. Retrieved from: <<http://www.ontario-sea.org/Page.asp?PageID=122&ContentID=3451>> 5 February 2013.

OSEA. 2012a. *Our Members*. Retrieved from: <<http://www.ontario-sea.org/Page.asp?PageID=861&SiteNodeID=206>> 20 December 2012.

OSEA. 2012b. *The Green Energy Act*. Retrieved from: <<http://www.ontario-sea.org/Page.asp?PageID=924&ContentID=1141>> 7 February 2013.

OSEA. 2013a. Archives: "Renewable Energy Standard Offer Program." Retrieved from: <http://www.ontario-sea.org/Page.asp?PageID=1226&SiteNodeID=284&BL_ExpandID=140> 29 January 2013.

- OSEA. 2013b. Homepage: "About Us." Retrieved from: <http://www.ontario-sea.org/Page.asp?PageID=1224&SiteNodeID=205&BL_ExpandID=50> 29 January 2013.
- Palmer, W. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.
- Peltzer, B. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.
- Pembina Institute. 2005. *IPSP Supply Mix Presentation*. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan/supply-mix-presentations>> 1 April 2013.
- Pembina Institute. 2008. *Feeding the grid renewably: Using feed-in tariffs to capitalize on renewable energy*. February. Retrieved from: <<http://www.pembina.org/pubs/5?topics=renewable-energy>> 23 June 2013.
- Pempel, T. J. 1998. *Regime Shift: Comparative Dynamics of the Japanese Political Economy*. Ithaca, NY: Cornell University Press.
- Peters, 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.
- Pettalia, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 14 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.
- Pierson, P. 2000. "Increasing Returns, Path Dependence, and the Study of Politics." *The American Political Science Review* 94(2): 251-267.
- Pierson, P. 2001. *The New Politics of the Welfare State*. Oxford: Oxford University Press.
- Pierson, P. 2004. *Politics in Time: History, Institutions, and Social Analysis*. Princeton: Princeton University Press.

Pigou, A. C. 1920. *The Economics of Welfare*. London, UK: Macmillan.

Poch, D. 2002. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 29 January. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Pollara. 2008. *Public Perceptions of a Possible Green Energy Act*. Retrieved from: <<http://www.ontario-sea.org/Page.asp?PageID=924&ContentID=1141>> 8 February 2013.

Pollution Probe. 2005. *IPSP Supply Mix Presentation*. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan/supply-mix-presentations>> 1 April 2013.

Pretty-Straathof, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Probyn, S. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 11 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24 March 2013.

Progressive Conservative Party of Ontario. 1994. *The Common Sense Revolution*. Retrieved from: <<http://www.scribd.com/doc/57099326/Common-Sense-Revolution>> 2 February 2012.

Psutka, K. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

PWU. 2005. *IPSP Supply Mix Presentation*. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan/supply-mix-presentations>> 1 April 2013.

PWU. 2013. "About us – History." Retrieved from: <<http://www.pwu.ca/history.php>> 16 June 2013.

Quinney, T. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from: <<http://www.ontla.on.ca/web/committee->

[proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856](http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856)>
24 June 2013.

Rand, T. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

REN21. 2012. *Renewables 2012: Global Status Report*. Retrieved from:
<<http://www.ren21.net/REN21Activities/Publications/GlobalStatusReport/tabid/5434/Default.aspx>> 8 November 2012.

Renewable is Doable. 2008a. *7-Step Action Plan for Ontario*. Retrieved from:
<<http://www.renewableisdoable.com/action-plan>> 7 February 2013.

Renewable is Doable. 2008b. *Evidence in Support of a Greener Alternative to Ontario's Proposed Integrated Power System Plan*. September. Retrieved from:
<<http://www.renewableisdoable.com/oeb-hearings>> 7 February 2013.

Rowlands, I. H. 2007. "The Development of Renewable Electricity Policy in the Province of Ontario: The Influence of Ideas and Timing." *Review of Policy Research* 24(3): 185-207.

Salmon, J. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 28 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Schnare, M. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

Scott Madden. 2009. *OPG Benchmarking Report*. Raleigh, NC: Scott Madden.

Shama, A. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 14 April. Retrieved from:
<http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856>
24 June 2013.

Shefter, M. 1977. *Patronage and its Opponents: A Theory and Some European Cases*. Ithaca, NY: Cornell University Press.

Silverstein, K. 2003. "Ontario Fuels Green Energy Debate." *IssueAlert*. 8 June. Retrieved from: <<http://www.utilipoint.com/issuealert/article.asp?id=1781>> April 20, 2011.

Smitherman, G. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 8 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Society of Energy Professionals. 2005. *Society of Energy Professionals - Supply Mix Submissions*. 26 August 2005. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan/volume-5-submissions-and-presentations-received>> 28 June 2013.

Society of Energy Professionals. 2013. "About us." Retrieved from: <<http://www.thesociety.ca/aboutus/index.html>> 28 June 2013.

Solomon, L. 1982. *Breaking Up Ontario Hydro's Monopoly*. Toronto: Energy Probe.

Spears, J. 2004. "Coal plant closings worry chemical sector." *The Toronto Star*. Retrieved from: <<http://www.ontariotenants.ca/electricity/articles/2004/ts-04c23.phtml>> 31 January 2013.

Stasko, R. 2002. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 29 January. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Steinmo, S., Thelen, K. & Longstreth, F. (eds.) 1992. *Structuring Politics: Historical Institutionalism in Comparative Perspective*. Cambridge: Cambridge University Press.

Stelling, K. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 20 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Stensil, S.-P. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 8 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Stern, N. 2006. *The Economics of Climate Change: Stern Review on the Economics of Climate Change*. Norwich: The Stationary Office.

Stern, N. 2007. *The Economics of Climate Change: The Stern Review*. Cambridge: Cambridge University Press.

Stevens, K. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Stewart, K. 2001a. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 29 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Stewart, K. 2001b. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 30 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.

Stewart, K. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 8 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Storks, P. 1998. Energy Competition Act (Bill 35). *Committee Transcripts: Standing Committee on Resources Development*. 11 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=841&locale=en#TparlCommID841> 24 March 2013.

Streeck, W. & Thelen, T. (eds.) 2005. *Beyond Continuity: Institutional Change in Advanced Political Economies*. Oxford: Oxford University Press.

Struck, D. 2006. "In Ontario, Making 'Clean Energy' Pay." *The Washington Post*. October 12. Retrieved from: <<http://www.washingtonpost.com/wp-dyn/content/article/2006/10/11/AR2006101101846.html>> 30 January 2013.

Swift, J. & Stewart, K. 2004. *Hydro: The Decline and Fall of Ontario's Electric Empire*. Between the Lines: Toronto.

Statistics Canada. *Table 282-0087 - Labour force survey estimates (LFS), by sex and age group, seasonally adjusted and unadjusted, monthly (persons unless otherwise noted)*, CANSIM (database).

Statistics Canada. *Table 281-0024 - Employment (SEPH), unadjusted for seasonal variation, by type of employee for selected industries classified using the North American Industry Classification System (NAICS), annual (persons)*, CANSIM (database).

Taylor, N. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

The Canadian Encyclopedia. 2012. *Energy Policy*. Retrieved from: <<http://www.thecanadianencyclopedia.com/articles/energy-policy>> 29 June 2013.

Thelen, K. 1999. "Historical Institutionalism in Comparative Politics." *Annual Review of Political Science* 2: 369-404.

Thelen, K. 2003. "How Institutions Evolve: Insights from Comparative-Historical Analysis" in Mahoney, J. & Rueschemeyer, D. (eds.), *Comparative Historical Analysis in the Social Sciences*, pp. 208-240. Cambridge: Cambridge University Press.

Thelen, K. 2004. *How Institutions Evolve*. Cambridge: Cambridge University Press.

Thomas, S. D. 1988. *The realities of nuclear power: international economic and regulatory experience*. Cambridge: Cambridge University Press.

Thorson, S. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 22 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Timm, D. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

TEA. 2005. *IPSP Supply Mix Presentation*. Retrieved from: <<http://www.powerauthority.on.ca/integrated-power-system-plan/supply-mix-presentations>> 1 April 2013.

UNEP. 2011. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. Retrieved from: <<http://www.unep.org/greeneconomy/greeneconomyreport/tabid/29846/default.aspx>> 18 December 2012.

UNFCCC. 2013. *Kyoto Protocol*. Retrieved from: <http://unfccc.int/kyoto_protocol/items/2830.php> 19 January 2013.

United Kingdom. 1985. *Constitution Act, 1867*. 30 & 31 Vict, c 3, reprinted in RSC 1985, App II, No 5.

USEIA. 2000. *The Changing Structure of the Electric Power Industry 2000: An Update*. Retrieved from: <http://www.eia.gov/cneaf/electricity/chg_stru_update/update2000.html> 23 January 2013.

USEIA. 2010. "Updated Capital Cost Estimates for Electricity Generation Plants." November. Retrieved from: <http://www.eia.gov/oiaf/beck_plantcosts/> 22 January 2013.

USEIA. 2013. *Levelized Cost of New Generation Resources in the Annual Energy Outlook 2013*. 28 January. Retrieved from: <http://www.eia.gov/forecasts/aeo/er/electricity_generation.cfm> 30 June 2013.

Van Kessel, J. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 15 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Vroegh, M. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Weis, T. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 16 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

White, A. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 22 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Winfield, M. 2012. *Blue-Green Province: The Environment and Political Economy of Ontario*. Vancouver: University of British Columbia Press.

Winter, C. 2009. Green Energy and Green Economy Act (Bill 150). *Committee Transcripts: Standing Committee on General Government*. 6 April. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=8856&locale=en#TparlCommID8856> 24 June 2013.

Young, B. 2001. *Committee Transcripts: Select Committee on Alternative Fuel Sources*. 29 August. Retrieved from: <http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts.do?ParlCommID=19&locale=en#TparlCommID19> 27 March 2013.