

Ontario's Coal Phase-Out

A major climate accomplishment within our grasp



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Introduction

Thanks to the strong leadership of Premier Dalton McGuinty, Ontario will be able to achieve a virtually complete coal phase-out by January 1, 2010. Ontario's coal phase-out is the single largest greenhouse gas reduction initiative in North America – equivalent to taking almost seven million cars off the roads.¹

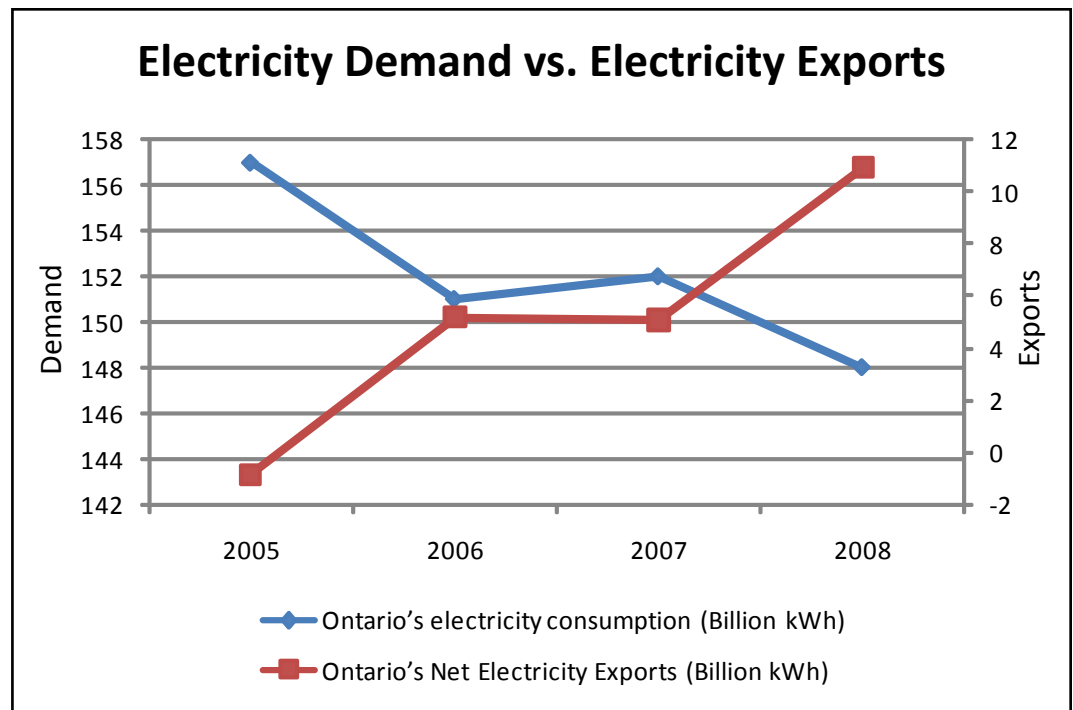
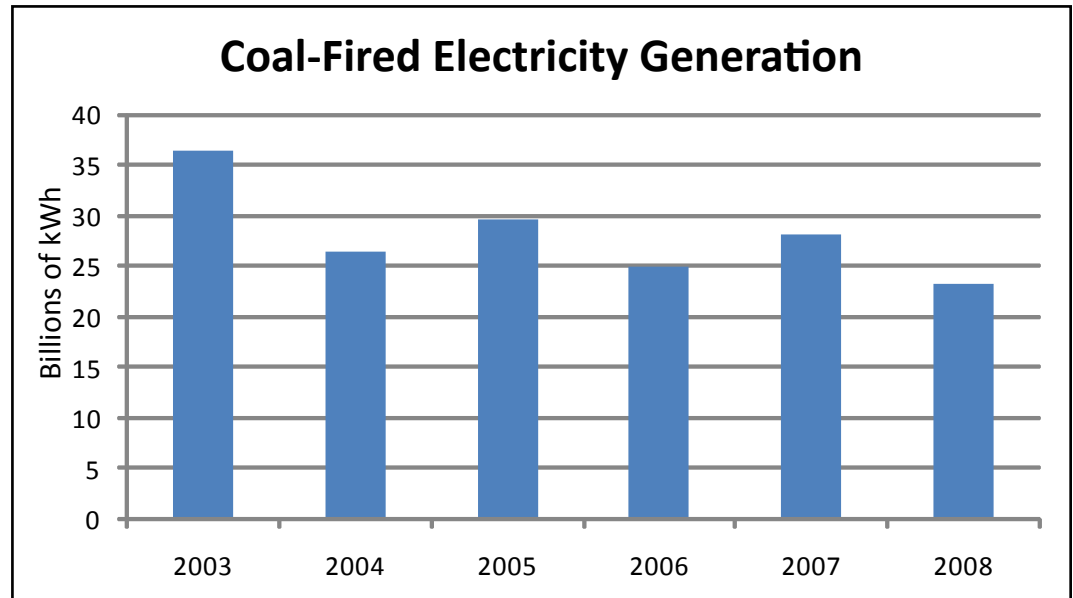
In this report we will review the coal phase-out's progress to date and outline additional actions that can be taken to ensure a complete coal phase-out as soon as possible and at the lowest possible cost.

Progress to Date

- In April 2005, the Lakeview coal-fired power plant in Mississauga was closed.
- In August 2007, the Government of Ontario issued a legally-binding regulation requiring the cessation of coal burning at Ontario's four remaining coal-fired power plants by December 31, 2014.²
- In May 2008, the Government of Ontario directed Ontario Power Generation (OPG) to cap, on a best efforts basis, its total coal-fired electricity generation at approximately 20 billion kWh in 2009

and 15.9 billion kWh in 2010. OPG can exceed these caps only if there is no other option to keep the lights on in Ontario.³

- In May 2008, the Government of Ontario posted a draft regulation on the Environmental Bill of Rights Registry to establish a legally-binding cap of approximately 11.7 billion kWh with respect to the total annual output of OPG's coal-fired power plants for each year from 2010 to 2014 inclusive.⁴ (A final regulation has not yet been issued.)



- Ontario's coal-fired electricity generation has fallen by 36% between 2003 and 2008. Specifically, our coal-fired electricity generation has declined from 36.3 billion kWh in 2003 to 23.2 billion kWh in 2008.⁵
- In 2008, coal was responsible for 14.6% of Ontario's total electricity generation. However, approximately 10.9 billion kWh of our coal-fired generation was exported. Therefore, in 2008, coal-fired electricity generation was used to meet only about 8.3% of our actual domestic electricity needs.⁶
- According to Ontario's Independent Electricity System Operator (IESO), as of December 12, 2008, Ontario's existing coal-free generation capacity is 7% greater than Ontario's forecast peak demand during the summer of 2009.⁷
- Furthermore, according to the IESO, an additional 3,913 MW of coal-free generation capacity will be added to Ontario's electricity grid by June 2010.⁸

In short, Ontario has the capacity to achieve a virtually complete coal phase-out by January 1, 2010 –five years ahead of the government's current schedule.

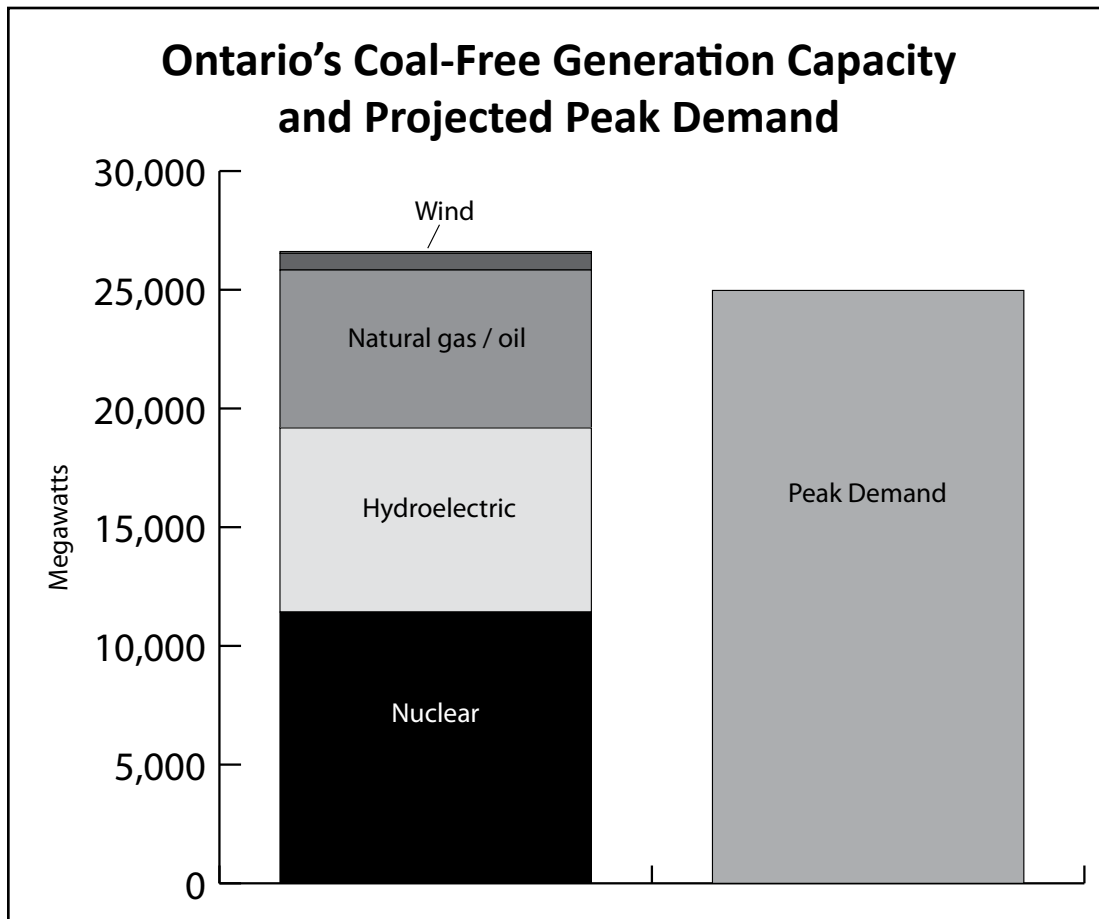
Proposed Additional Actions to Achieve a Complete Coal Phase-Out as Quickly and Cost-Effectively as Possible

1. Ban non-emergency coal-fired electricity exports

Ontario has been a net electricity exporter for the last three years. In 2008, Ontario's net electricity exports equaled 10.9 billion kWh. That is, our net exports were equivalent to 47% of our total coal-fired electricity generation.⁹ Therefore, by simply banning non-emergency electricity exports, we could have reduced our coal-fired electricity generation by approximately 47% in 2008.

These coal-fired exports are often displacing cleaner but financially higher cost generation sources (e.g., oil and natural gas-fired generation) in the United States. They are not required to keep our neighbours' lights on and they add to air quality problems on both sides of the border.

Recommendation #1: Energy Minister George Smitherman should direct the Independent Electricity System Operator to cease making non-emergency coal-fired electricity exports.



2. Direct OPG to strive to cap its coal-fired generation at zero kwh in 2010

As noted above, according to the IESO's most recent reliability report, under normal operating conditions, Ontario now has sufficient domestic coal-free generation capacity to meet all of its electricity needs. Therefore, Ontario now has the ability to achieve a virtually complete coal phase-out five years ahead of schedule.

This would be a major achievement in terms of responding to the urgent need for action on climate change and improving air quality in Ontario.

Recommendation #2: Energy Minister Smitherman should direct Ontario Power Generation, that effective January 1, 2010, it should only generate coal-fired electricity when there is insufficient domestic coal-free generation capacity to meet our electricity needs.

3. Direct the IESO to ban non-emergency coal-fired electricity imports

The IESO has a policy of importing coal-fired electricity whenever its "financial" cost (excluding public health and environmental costs) is less than the "financial" cost of the next unit of domestic electricity generation. Therefore, everything else being equal, as Ontario ramps down its domestic coal-fired generation, the IESO will import more coal-fired electricity from the United States. This undermines the whole purpose of Ontario's groundbreaking coal phase out. We should only import coal-fired electricity if there is no other option to keep the lights on in Ontario.

In this context it is worth noting that the Western Climate Initiative's draft rules require Ontario to report the greenhouse gas emissions associated with its electricity imports.¹⁰

Recommendation #3: Energy Minister Smitherman should direct the IESO to ban non-emergency coal-fired electricity imports.

4. Sign up one million peaksaver participants

As the coal plants are phased-out, the Ontario Power Authority (OPA) is proposing to contract for the construction of 1,350 MW of simple-cycle natural gas-fired generation to meet the province's peak day demands. As a result of their very low energy efficiency (36%) and very low annual capacity (usage) factors, the cost of peaking gas-fired generation is approximately \$1.35 per kWh.¹¹ Ontario's peak day electricity needs can be met at a much lower cost with the OPA's *peaksaver* program which raises the temperatures of residential and small-business central air-conditioners by up to 2 degrees Celsius on hot summer days (never on weekends or holidays). Customers don't even feel the difference.

To-date Ontario's electric utilities have signed up only 6% of Ontario's 2,000,000 potential *peaksaver* participants.¹²

Recommendation #4: Energy Minister Smitherman should direct the OPA to pay Ontario's electric utilities (e.g., PowerStream, Toronto Hydro) to hire students to go door to door to sign up one million peaksaver participants this summer.

5. Put energy efficiency on a level playing field with new nuclear

The OPA's Electricity Retrofit Incentive Program pays industrial consumers \$150 per kW for energy efficiency investments that reduce their electricity consumption. On the other hand, the OPA estimates that new nuclear reactors will cost \$2,900 per kW.¹³ Moreover, according to Moody's Investors Service, the cost of new nuclear reactors is more likely to equal \$7,500 per kW.¹⁴ This means that the OPA's incentives for saving electricity are equal to only 2-5% of the expected cost of new nuclear supply.

It just doesn't make sense to pay less to save a kW than to create a kW with new generation. In addition, energy efficiency investments can create jobs now and make Ontario's industries more competitive.

Recommendation #5: Energy Minister Smitherman should direct the OPA to pay industrial electricity consumers up to \$2,900 per kW for their energy efficiency investments.

6. Establish a combined heat and power standard offer program

Virtually every building in Ontario uses natural gas to provide just one service, namely, heating. It is much more efficient to use this natural gas to simultaneously produce two services, i.e., heat and power. Natural gas combined heat and power plants can have an energy efficiency of 80 to 90% versus the 33% energy efficiency of a nuclear reactor.¹⁵

On June 14, 2007 Ontario's then Minister of Energy, Dwight Duncan, directed the OPA to establish a natural gas-fired combined heat and power standard offer program -- a program that would pay a fixed price for each kWh of electricity produced by combined heat and power plants. According to Minister Duncan's directive the goal was to have the standard offer program in place by December 2007.¹⁶ Unfortunately, the standard offer program has still not been implemented.

Recommendation #6: Energy Minister Smitherman should direct the OPA to implement a combined heat and power standard offer program immediately.

Conclusion

Action on climate change can't wait. We must seize any opportunity for major progress on reducing emissions in the face of mounting evidence that climate change is happening faster than expected and that impacts could be far more severe than originally projected. Ontario is providing global leadership with its coal phase out commitment. Reaching our coal phase out target by 2010 would be an achievement all Ontarians can take pride in and would put the province in an excellent position to compete in a North American environment where carbon emissions are going to be increasingly costly and green energy is the way of the future.

Endnotes

- 1 Independent Electricity System Operator, *The Ontario Electricity Reliability Outlook*, (December 2008), p. 5.
- 2 Ontario Regulation 496/07, *Ontario Regulation made under the Environmental Protection Act: Cessation of Coal Use – Atikokan, Lambton, Nanticoke and Thunder Bay Generating Stations*.
- 3 On May 16, 2008 Ontario's then Minister of Energy, Gerry Phillips, issued a shareholder resolution directing OPG, on a best efforts basis, to cap its CO₂ emissions from the use of coal and 19.6 and 15.6 million metric tonnes in 2009 and 2010 respectively. According to OPG, 19.6 million metric tonnes is the amount of CO₂ produced by approximately 20 billion kWh of coal-fired electricity generation. Letter from James Hankinson, CEO, OPG to the Honourable George Smitherman, Minister of Energy and Infrastructure, (November 28, 2008).
- 4 Ontario Ministry of Energy, *News Release*, "Moving Forward On Coal Replacement: McGuinty Government Cuts Harmful Greenhouse Gases Further By 2011", (May 16, 2008); and Letter from James Hankinson, CEO, OPG to the Honourable George Smitherman, Minister of Energy and Infrastructure, (November 28, 2008).
- 5 Ontario Power Generation, *Sustainable Development 2005 Report*, p. 36; and Independent Electricity System Operator, *News Releases*, "IESO Releases 2006 Generation and Consumption Figures", (January 16, 2007), "IESO Releases 2007 Generation and Consumption Figures", (January 10, 2008) and "IESO Releases 2008 Electricity Figures Show Record Levels of Hydroelectric Power", (January 12, 2009).
- 6 IESO, *News Release*, "IESO Releases 2008 Electricity Figures Show Record Levels of Hydroelectric Power", (January 12, 2009).
- 7 Independent Electricity System Operator (IESO), *18-Month Outlook: An Assessment of the Reliability of the Ontario Electricity System: From January 2009 to June 2010*, (December 22, 2008), pp. iii & 11.
- 8 *18-Month Outlook*, p. 12.
- 9 IESO, *News Release*, "IESO 2008 Electricity Figures Show Record Levels of Hydroelectric Power", (January 12, 2009).
- 10 Western Climate Initiative, *Background Document and Progress Report for Essential Requirements of Mandatory Reporting for the Western Climate Initiative, Third Draft*, (January 6, 2009), pp. 1-2 & 1-3.
- 11 According to the OPA, the Northern York Region peaker plant will have a capital cost of \$928 per kW. Amortizing this cost over 20 years at a 10% cost of capital and assuming that it operates for 100 hours per year yields a capital cost of \$1.09 per kWh. According to the OPA, the fuel and operating costs of a peaker plant are 26 cents per kWh. OPA, *News Release*, "Contract Awarded for Northern York Region Power Plant", (December 11, 2008); and OPA, *Integrated Power System Plan*, Exhibit I, Tab 31, Schedule 6.
- 12 Telephone conversation with Paul Shervill, Vice President, OPA (January 19, 2009) and OPA, *Integrated Power System Plan*, Exhibit I, Tab 31, Schedule 8.
- 13 OPA, *Integrated Power System Plan*, Exhibit G, Tab 2, Schedule 1, page 7.
- 14 Moody's Investors Service, *Special Comment: Moody's Corporate Finance*, "New Nuclear Generating Capacity: Potential Credit Implications for U.S. Investor Owned Utilities", (May 2008), p. 15.
- 15 Danny Harvey, "Clean building: contribution from cogeneration, trigeneration and district energy", *Cogeneration and On Site Power Production*, (September-October 2006), pp. 108 & 110; OPA, *Supply Mix Analysis Report*, Volume 2, (December 2005), pp. 210 & 212; and OPA, *Integrated Power System Plan*, Exhibit G, Tab 2, Schedule 1, p. 7.
- 16 Letter from the Honourable Dwight Duncan, Minister of Energy to Dr. Jan Carr, CEO, OPA (June 14, 2007).

OCAA Members

The Ontario Clean Air Alliance is a coalition of health and environmental organizations, faith communities, municipalities, utilities, unions, corporations and individuals working for cleaner air through a coal phase-out and the shift to a renewable electricity future. Our partner organizations represent more than six million Ontarians.

Municipalities

City of Guelph
City of Hamilton
City of Kitchener
Town of Markham
City of Peterborough
City of Stratford
City of Toronto
City of Windsor
Regional Municipality of Durham
Regional Municipality of Peel
Regional Municipality of Waterloo

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Bullfrog Power
Energent Incorporated
Enviro-Energy Technologies Inc.
Enwave Energy Corporation
Hydro 2000
Indigo Wind Energy Systems
MCW Custom Energy Solution
Mississippi River Power Corporation
morEnergy Services Inc
Oshawa Power and Utilities Corporation
Sky Generation
Sudbury Hydro
Toronto Hydro

Organizations and Associations

Algoma Manitoulin Environmental Awareness
Algoma Manitoulin Nuclear Awareness
Allergy/Asthma Information Association
Association of Local Public Health Agencies
Canadian Association of Physicians for the Environment
Canadian Institute of Child Health
Canadian Institute for Environmental Law and Policy
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Conservator Society of Hamilton and District, Hamilton Chapter
Earth Day Canada
EarthWorks
Echo Lake Association
Energy Action Council of Toronto (EnerACT)
Environment North
Environmental Defence Canada
The Evergreen Foundation
GASP (Good Air, Safe Power)
Glanbrook Conservation Committee
Globespotter.com
Greenest City
Hearthmakers Energy Cooperative
The Humane Society of Canada
Lakeshore Area Multi Services Project
The Lakewatch Society (Canada)
Learning Disabilities Association of Ontario
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One Change - Project Porchlight
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Ontario English Catholic Teachers' Association
Ontario Forestry Association
Ontario Highlands Friends of Wind Power
Ontario Lung Association
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Ontario Public Interest Research Group - University of Guelph
Ontario Public Interest Research Group - McMaster University
Ontario Public Interest Research Group - Queen's University
Ontario Public Interest Research Group - University of Toronto
Ontario Society for Environmental Education
Peel Environment Network
Pesticide Action Group/Waterloo
Pollution Probe
South Riverdale Community Health Centre
Thames Region Ecological Association
Toronto Green Community
Tree Canada
Unitarian Fellowship of Sarnia-Port Huron
Unitarian Congregation of South Peel
The United Church of Canada
Wastewise
Wildlands League
Women's Healthy Environments Network
World Wildlife Fund of Canada
York Region Environmental Alliance

Ontario Clean Air Alliance

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