

Fixing Ontario's Electricity System

Niagara-on-the-Lake Hydro

May 4, 2017



Niagara-on-the-Lake Hydro

Niagara-on-the-Lake
Hydro

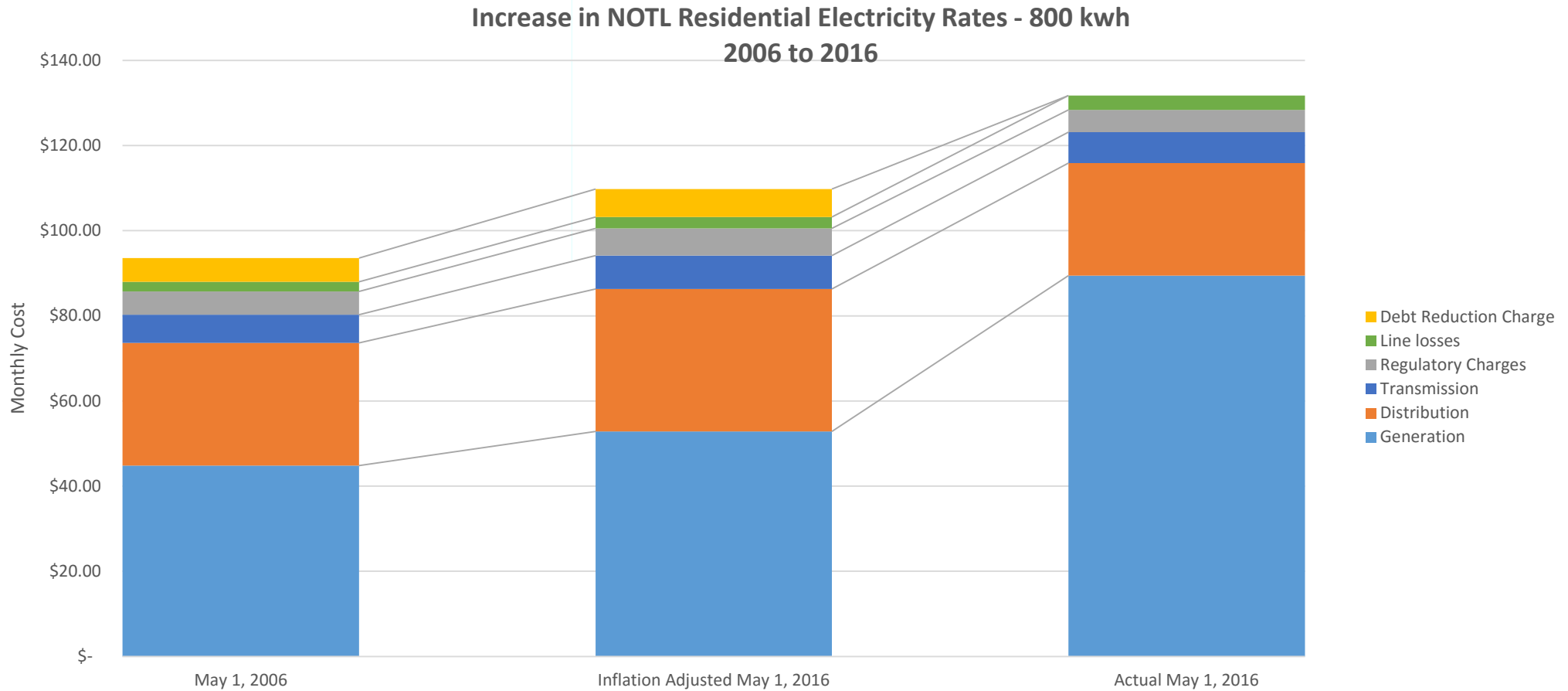
- Over 100 years of distributing electricity in Niagara-on-the-Lake
- NOTL Hydro is one of the smaller LDC's in Ontario
 - 9,000 Customers
 - 133km² operating territory
 - Over 400km underground and overhead distribution lines
- Summer peak is 50MW
- 16 full time employees
- Winner of National Research Canada Regional Utility of the Year award 2015
- Lowest Delivery Charge in the Niagara Region

www.notlhydro.com



**Niagara
On-The-Lake
HYDRO**

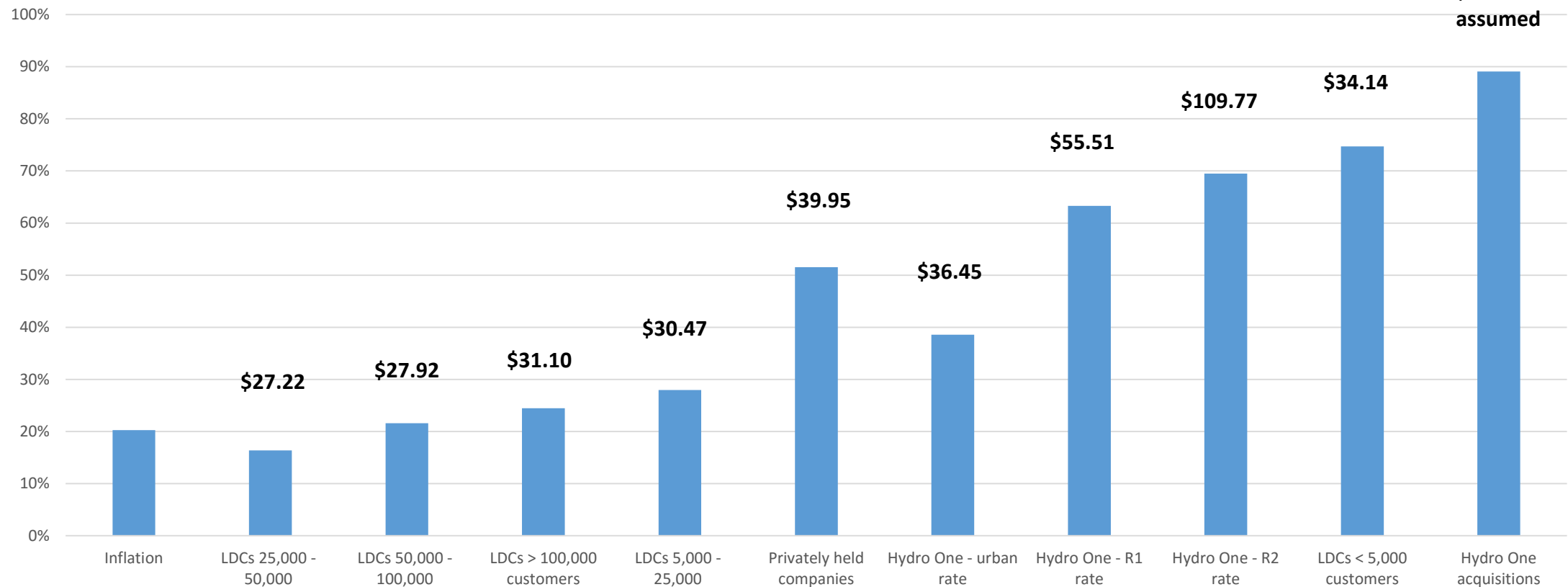
Rising Electricity Costs



Distribution Rates

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Hydro

Average Distribution Rate Increase 2005-2016



Cost of Electricity – 2015

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Technology	Cost (\$MM)	Production (TWh)	Production (%)	Price (\$/MWh)
Nuclear	5,864	92.3	64%	\$63.6
Hydro	2,159	37.2	26%	\$58.1
Gas/Oil	2,183	15.5	11%	\$140.8
Wind	1,346	10.2	7%	\$132.5
Solar	1,386	3.0	2%	\$461.1
Bioenergy	194	0.6	0.4%	\$306.7
Coal	-	-	0%	\$-
Other	60	1.4	1%	\$43.8
Imports	169	5.8	4%	\$29.4
Exports	(606)	(22.6)	(16%)	\$26.8
Total	\$12,753	143.2	Average	\$89.1

Ontario Supply Mix 2007-2015

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- 2014 was the last year of any electricity generation from coal in Ontario
- Demand for electricity has declined by 6%
- Cost of electricity has grown by 65% in eight years
- Inflation in this time period was 14%

Technology	Production 2007 (TWh)	Production 2015 (TWh)	Change in Production (TWh)
Nuclear	80.8	92.3	11.5
Hydro	33.0	37.2	4.2
Gas/Oil	12.2	15.5	3.3
Wind	1.1	10.2	9.1
Solar	-	3.0	3.0
Coal	28.4	0.0	(28.4)
Other	1.9	2.0	0.1
Imports	7.2	5.8	(1.4)
Exports	(12.3)	(22.6)	(10.3)
Total	152.2	143.2	(9.0)
Total Cost (\$B)	\$8.2	\$12.8	+\$4.6
Cost per MWh	\$54.1	\$89.1	+\$35.0

Cost of Electricity – Coal

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2007 Coal production (TWh)	28.4
2007 avg. generation cost	\$ 54.1
2007 Coal cost	\$ 53.1

Increase in costs	\$ 1.0
Increased costs by removing Coal (millions)	\$ 28.4
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- Coal was 19% of total supply in 2007

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Cost of Electricity – Nuclear

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2015 Nuclear production (TWh) 92.3

2015 avg. cost \$ 63.6

2007 avg. cost \$ 50.4

Increase in costs \$ 13.2

Increased costs of nuclear

\$ 1,218

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- Nuclear production grew by 14% from 2007-2015

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Cost of Electricity – Wind/Solar

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Cost of Wind/Solar - 2015	\$ 2,732
Wind/Solar production (TWh)	13.2
Average price (2006)	\$ 54.1

Value of Wind/Solar	\$ 714
Excess cost	\$ 2,018
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Cost of Electricity – Capacity

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2015

Cost of Gas/Oil \$ 2,183

Value of Gas/Oil \$ 476

Cost of capacity payments \$ 1,707

2007

Cost of Gas/Oil \$ 1,147

Value of Gas/Oil \$ 688

Cost of capacity payments \$ 459

Increase in capacity costs \$ 1,248

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- Gas production increased 27% from 12.2 TWh to 15.5 TWh

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Increase in Cost of Electricity 2007-2015

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Breakdown of the increase in the cost of electricity from 2007-2015:

Nuclear	\$1.2	- cost per unit increase of 26%
Wind/solar contracts	2.0	- combined avg. price over 20¢ per kWh
Capacity Costs	1.2	- driven by intermittent wind/solar
Other	<u>0.2</u>	
Total	\$4.6	

Cost of Electricity – Exports

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2015

Proceeds from Exports \$ 606

Exports (TWh) 22.6

Average price (excl. exports) \$ 80.6

Cost of Exports \$ 1,821

Loss on Exports \$ 1,215

2007

Proceeds from Exports \$ 594

Exports (TWh) 12.3

Average price (excl. exports) \$ 53.7

Cost of Exports \$ 660

Loss on Exports \$ 66

Increase in Loss on Exports \$ 1,149

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Cost of Electricity - Recommendations

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Recommendation	Status
1. Stop signing high priced green energy contracts	Largely done other than FIT 5 What contracts can be reasonably cancelled?
2. Write-off excess cost of green energy contracts	Effectively been done under Fair Hydro Plan Expect this cost to move to debt eventually.
3. Remove costs from system where possible	Nothing has been done
4. Independent regulator	OEB has been made less independent IESO needs mandate improved
5. Break-up Hydro One	30% sold, break-up highly unlikely
6. Prepare for future	Good work in Province High price is an impediment