Integrating Conservation & Demand Management into Distribution Operations

Tuesday, October 15th, 2013

TORONTO HYDRO

Agenda

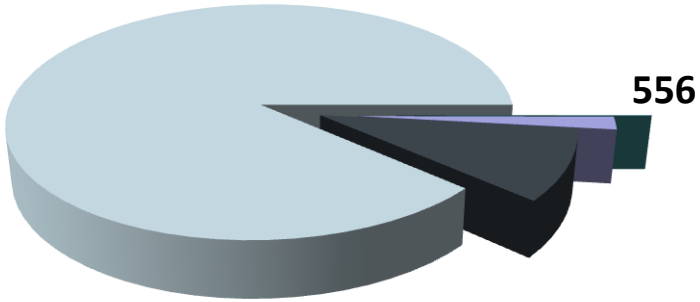
1) THESL at a Glance
2) Regulatory and Asset Management Environment
3) CDM Evolution
4) CDM Integration Strategy
5) Policy Environment

Toronto Hydro at a Glance

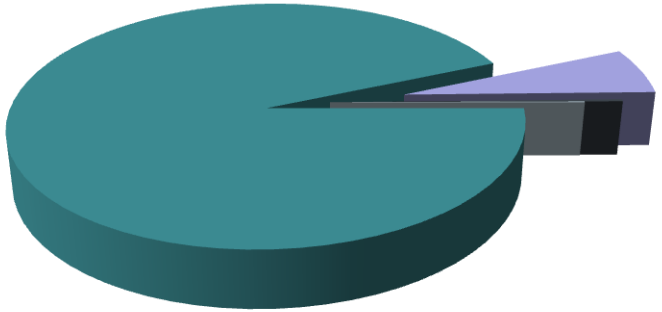
- Largest municipal electricity distribution company in Canada serving a city of 2.5 million people.
- Distributes approximately 18% of the electricity consumed in Ontario
- Approximately 719,000 accounts servicing 934,000 customers
- Peak Load of 5,000 MW

64% of Revenue paid by 1.8% of Customers

Customers



Revenue per Customer



Customer Segment	Revenue ($M)	Customers	Revenue Per Customer
Large Business >1,000 kW	$705	556	$1,268,562
Medium Business 50-1,000 kW	$1,089	12,225	$89,057
Small Business <50 kW	$298	67,970	$4,377
Residential <50 kW	$710	637,910	$1,113
Total	$2,801	718,661	

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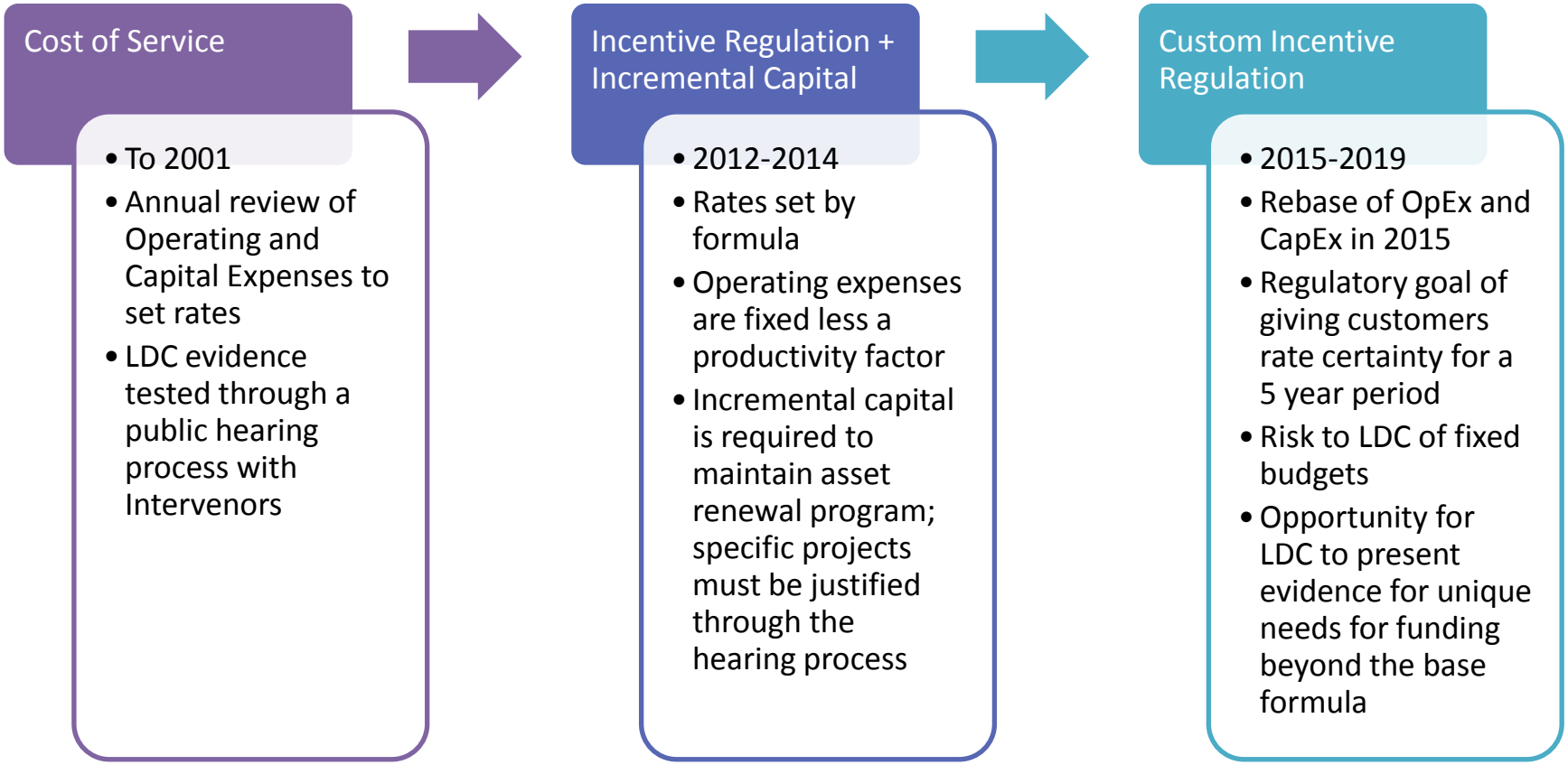
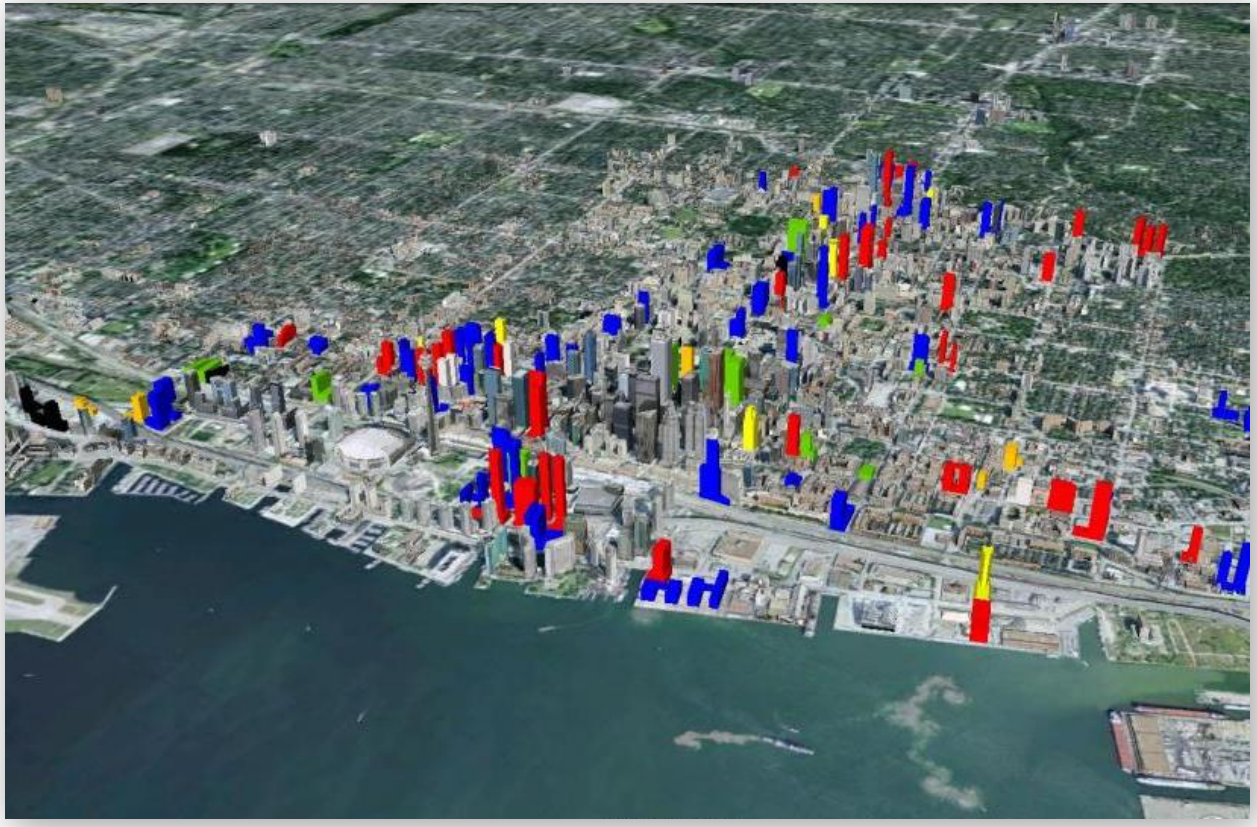
Regulatory Environment



Load Intensification



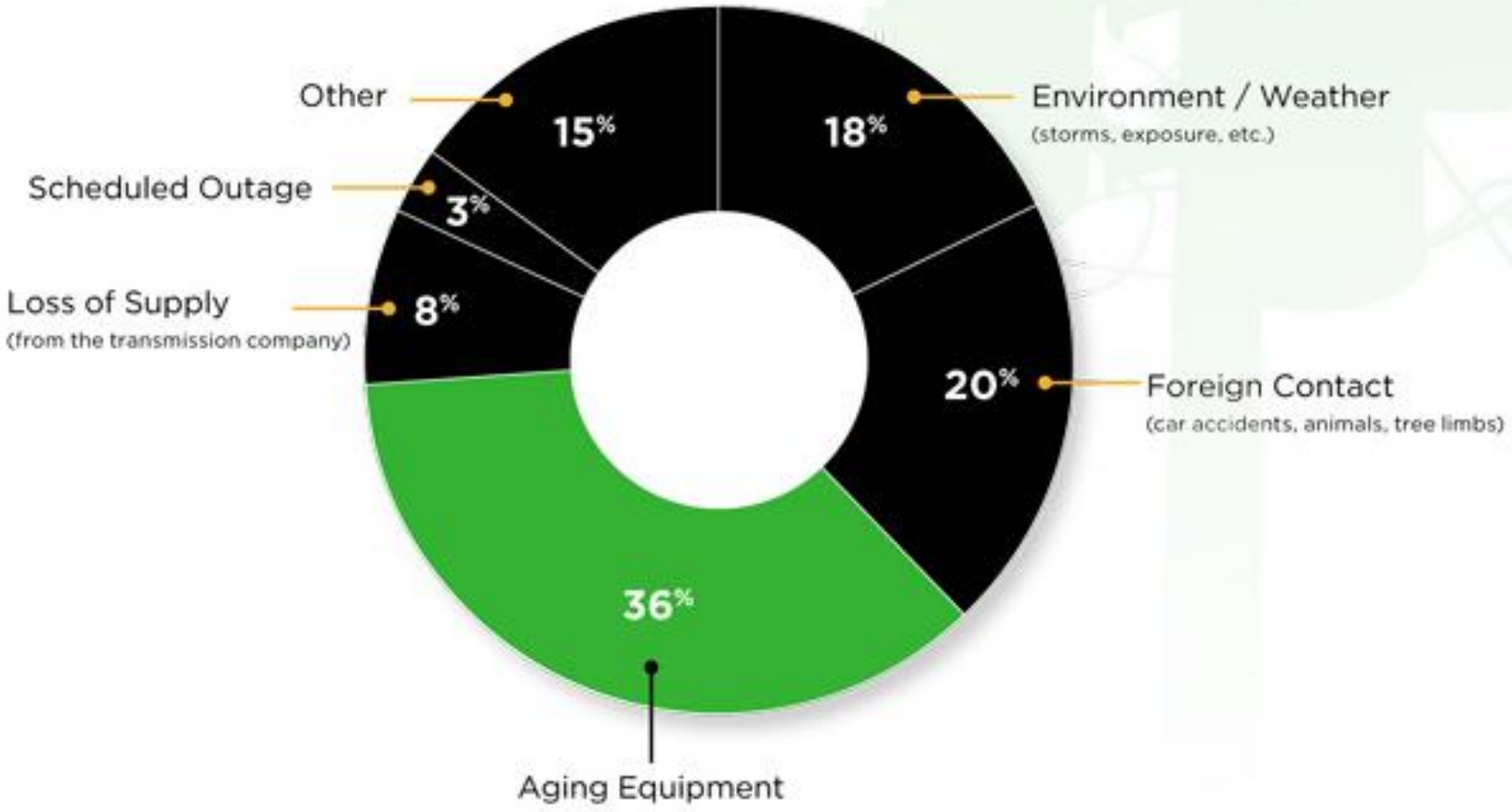
Highrises Under Construction		
1	Toronto*	189
2	Mexico City	88
3	New York City	82
4	Chicago	24
5	Houston	22

The pace of growth is anticipated to continue in Toronto.

*Includes highrise and other equivalent large construction projects

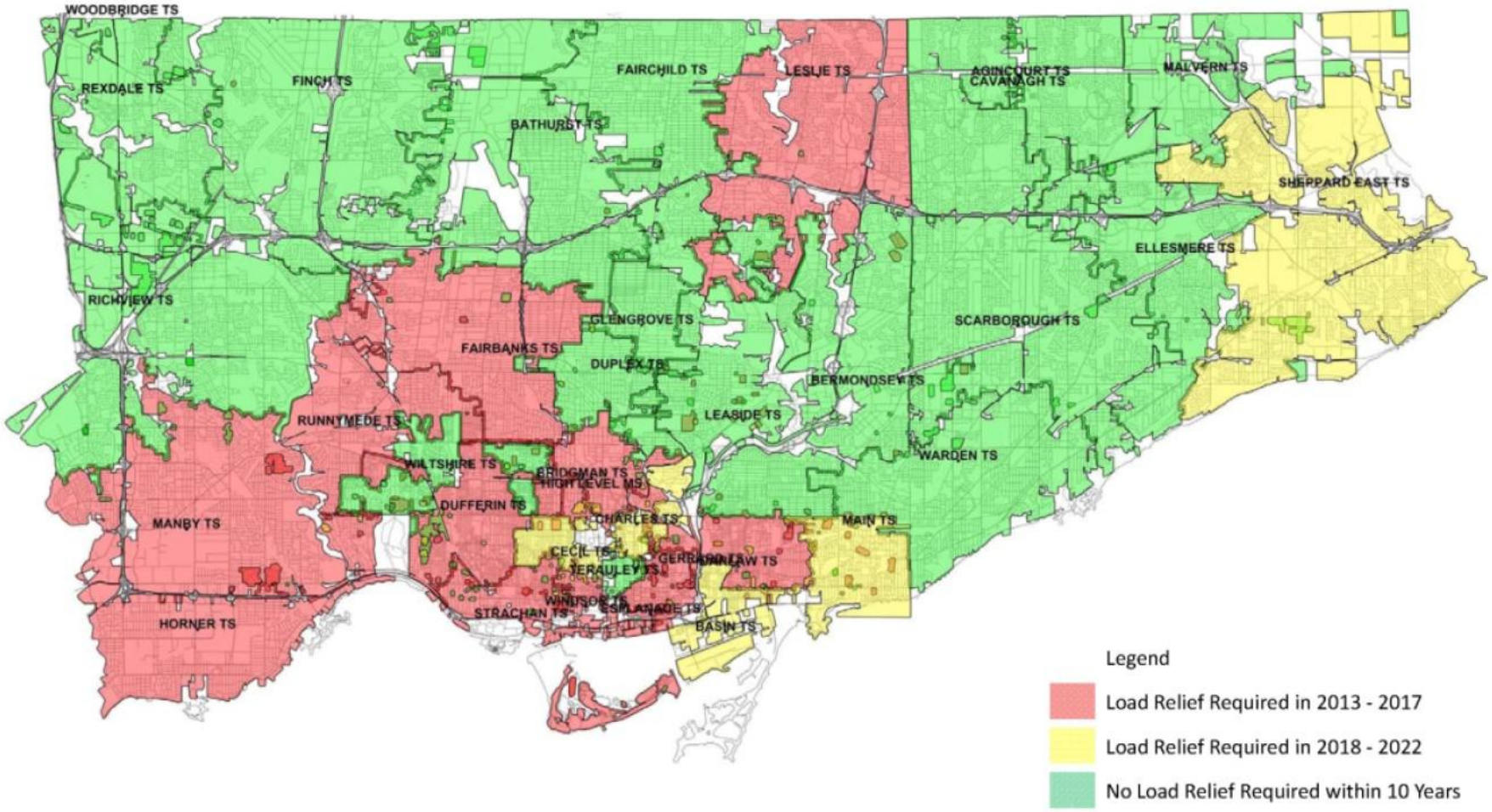
Almost 40% of outages in Toronto are due to aging equipment.

Thanks to our capital investment in infrastructure, equipment-related outages are down 10% since 2009.



THESL Distribution Capacity Pressures

Upgrades are in-progress or planned to address station bus capacity in specific areas over the next 10 years



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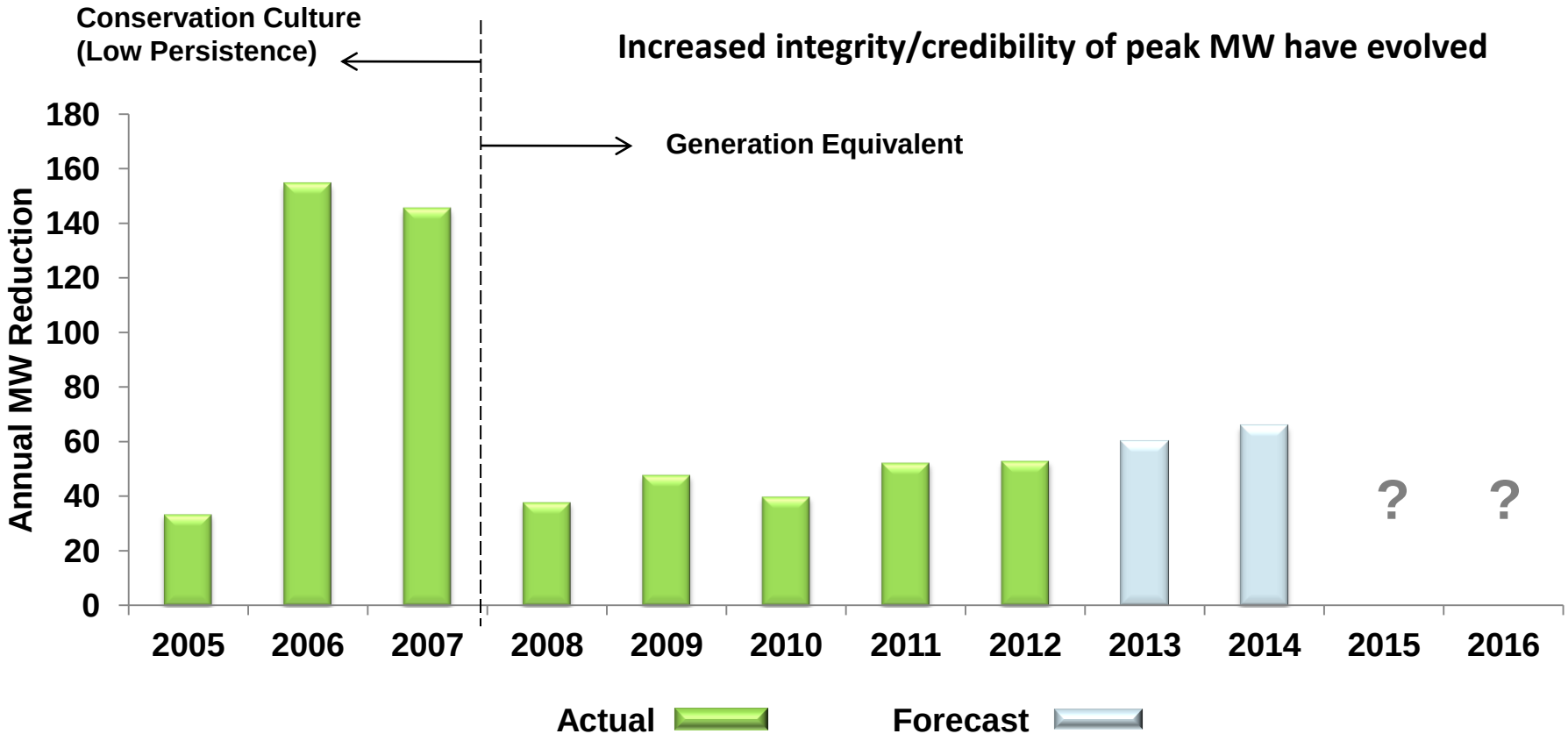
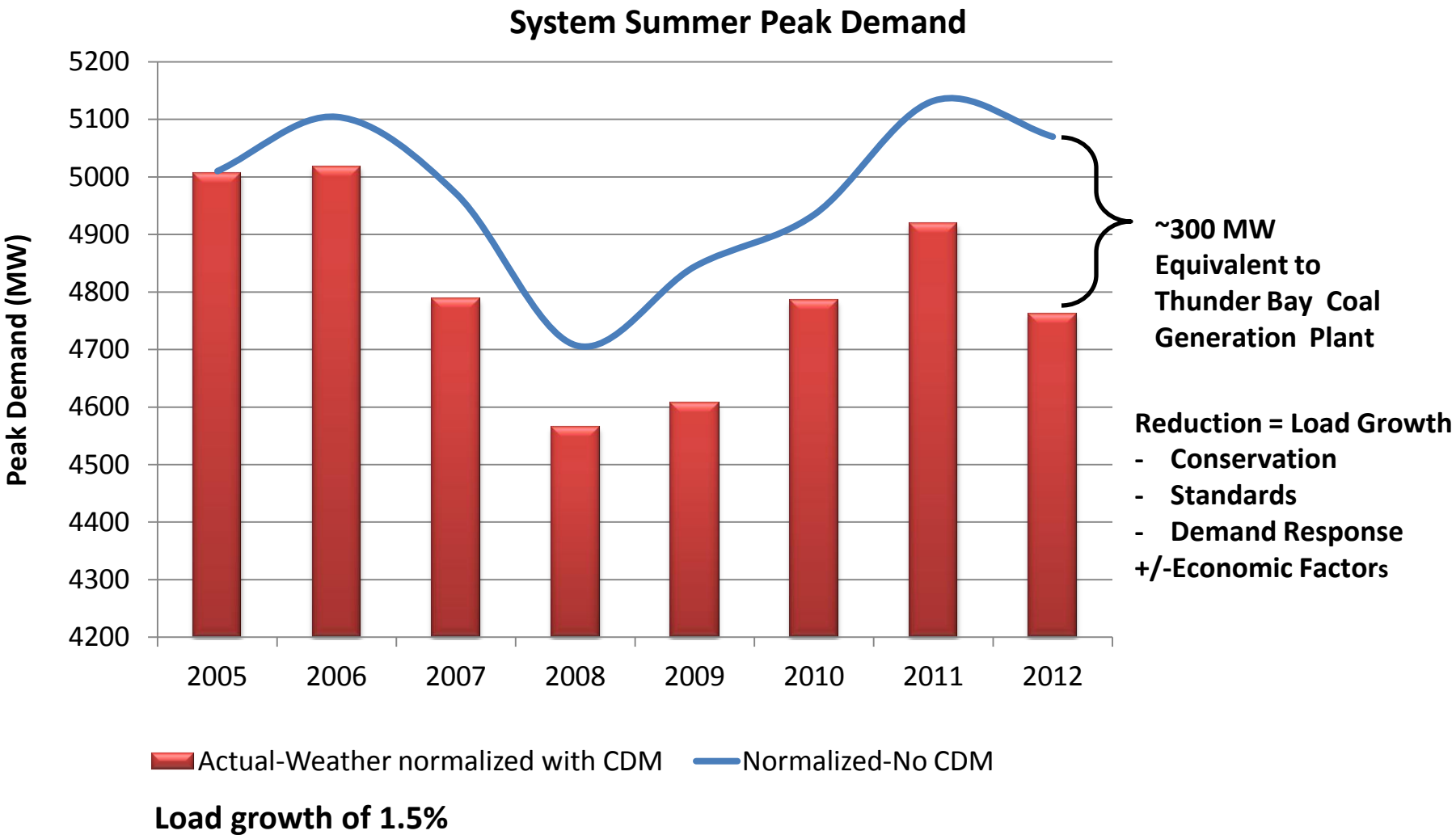
2005 - 2014 CDM – Demand Savings (MW)

2005 - 2007	2007 - 2010	2011 - 2014	2015 onward
OEB 3rd Tranche • on/off peak, "gross" results	**OPA Standard Programs** • on/off peak, "gross" results • Growing market focus on Commercial & Industrial	**OPA Province-Wide Programs** • Summer peak, "net" results • All market sectors	??



Estimated CDM Impact on System Peak

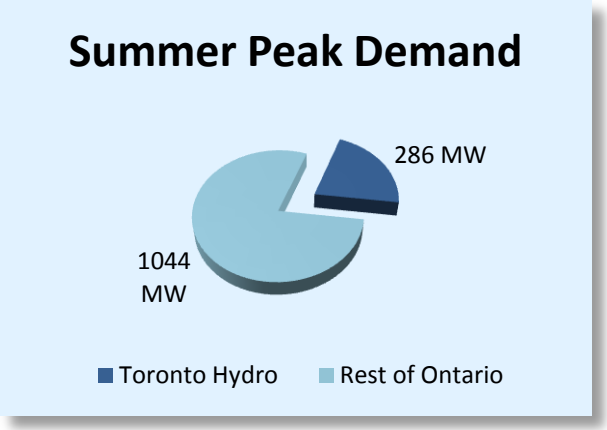


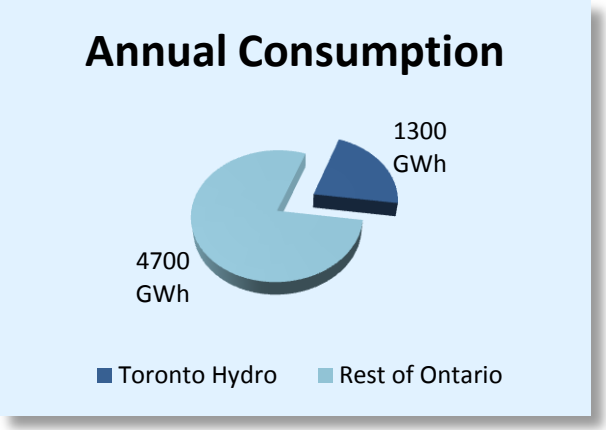
Current CDM Program (2011 – 2014)

- Green Energy Act
- OEB CDM Code
- Mandatory Reduction Targets

Jobs

Coal plant phase out





- Consolidation of Delivery Channels "LDC Prime"

Lakeview: 1050 MW

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CDM Integration Strategy

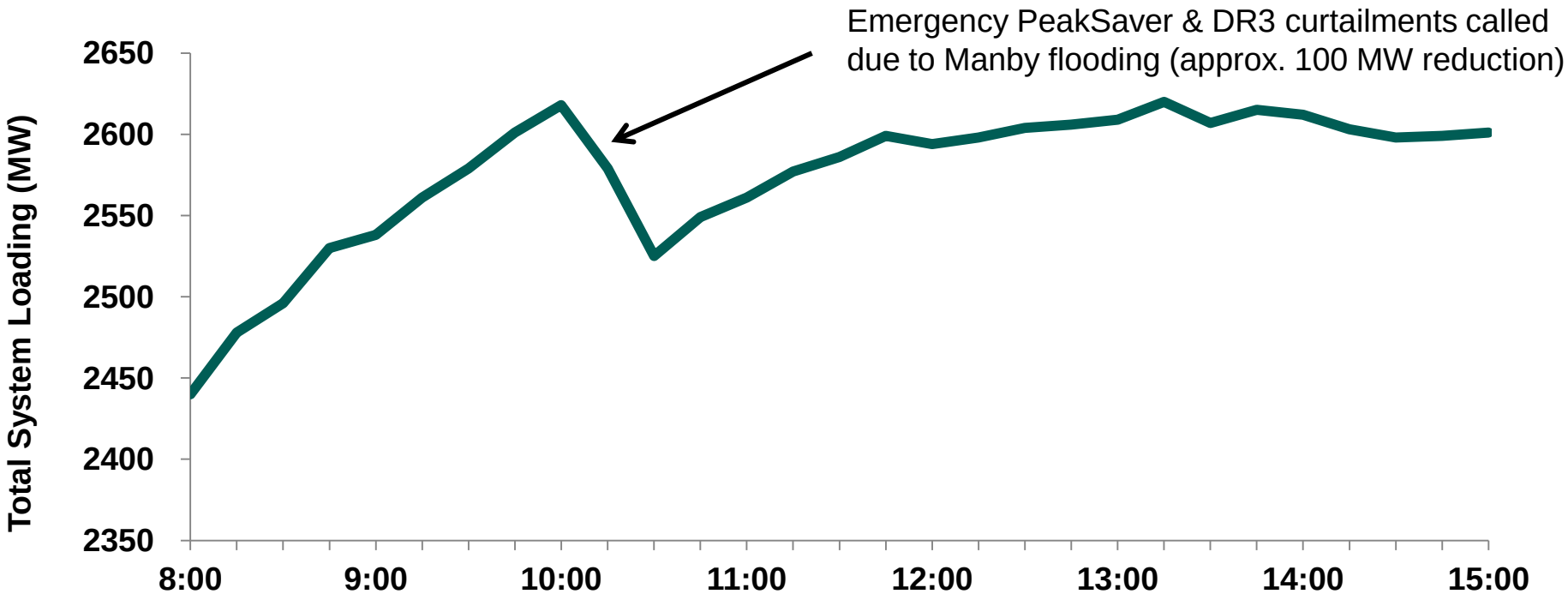
The future of CDM needs to be designed to:

- leverage and enhanced customer relationships that will evolve into a long term partnership
- reduce electricity use and help customers manage rising rate pressure and maintain competitiveness
- provide data and tools for analysis, investment decisions and reporting
- used to add new customer load while managing system peak demand and load constraints
- provide effective programs to help defer traditional investment in asset expansions and ease the pace of rate increases
- harness customer energy assets to used for DM and DR to improve operational flexibility during peak and major outage

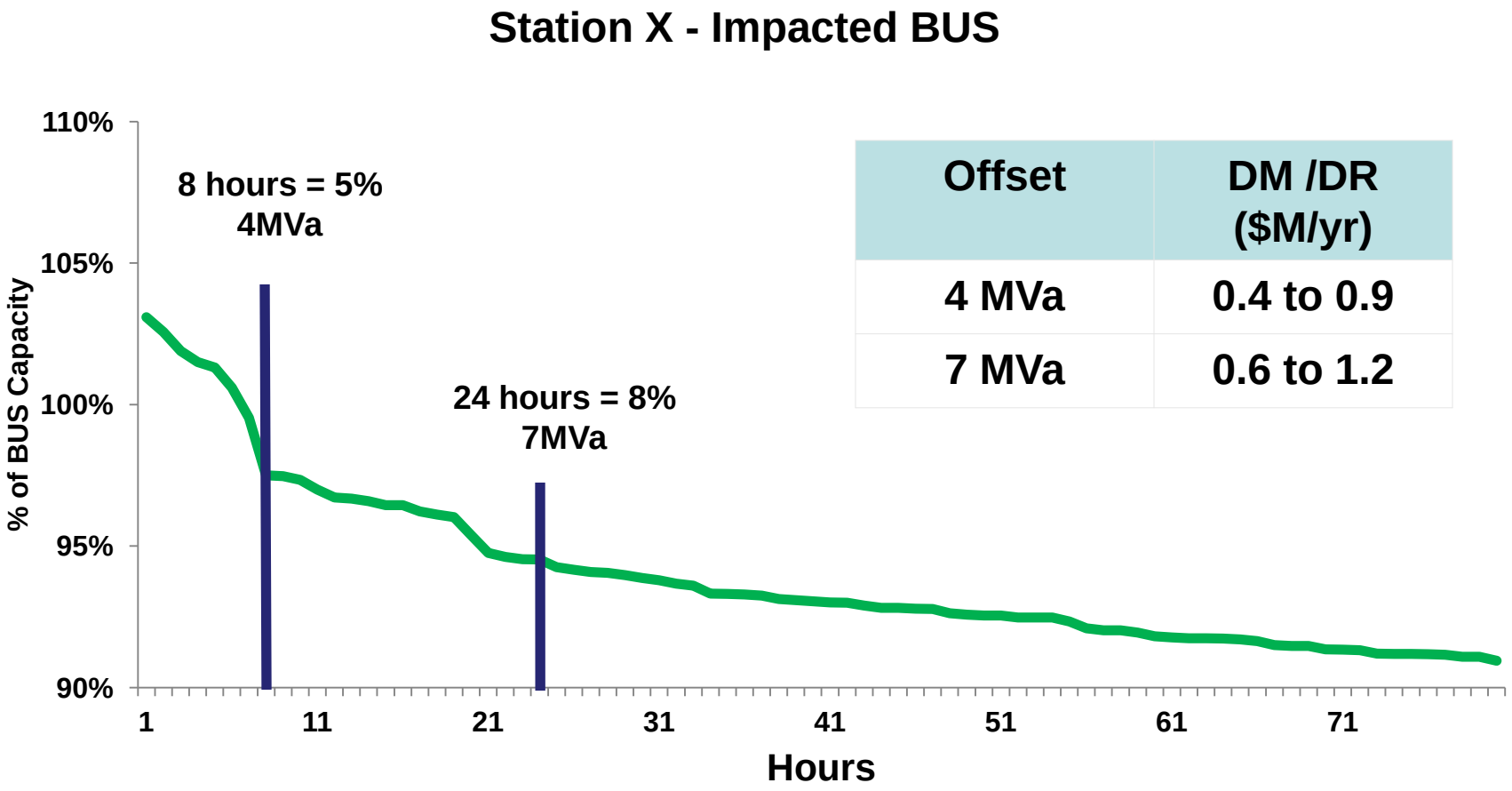
Demand Management & Response

On July 9th, 2013, 300,000 customers experienced outages when record rainfall caused flooding at Mandy Transformer Station. Toronto Hydro effectively relieved resulting stresses on the grid with Demand Response programs.

Total System Loading – July 9, 2013



Integration Illustration Example



Offset	DM /DR ($M/yr)
4 MVa	0.4 to 0.9
7 MVa	0.6 to 1.2

Station X	-4 MVa	103% Capacity	Cost $80M
	Rate Benefit	Positive	

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Policy Environment and Need for Change

- LDC investment in smart grid can be further leveraged for improved system operation and customer integration
- Large Customers need both high reliability and price predictability to remain competitive
- Adapt current framework to allow the distributor to target customer segments or sections of a distribution network, to realize benefits at a local level

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