

ELECTRICITY PRICING IN ONTARIO AND ITS EFFECT ON COMPETITIVENESS:

AN AUTOMOTIVE MANUFACTURING CASE STUDY



BACKGROUND & CONTEXT --- AUTOMOTIVE MANUFACTURING

Right Now

- 52 consecutive years of production > sales, but increasingly squeezed
- Manufacturing costs under increasing scrutiny ... languishing wages ... incentives for model changes

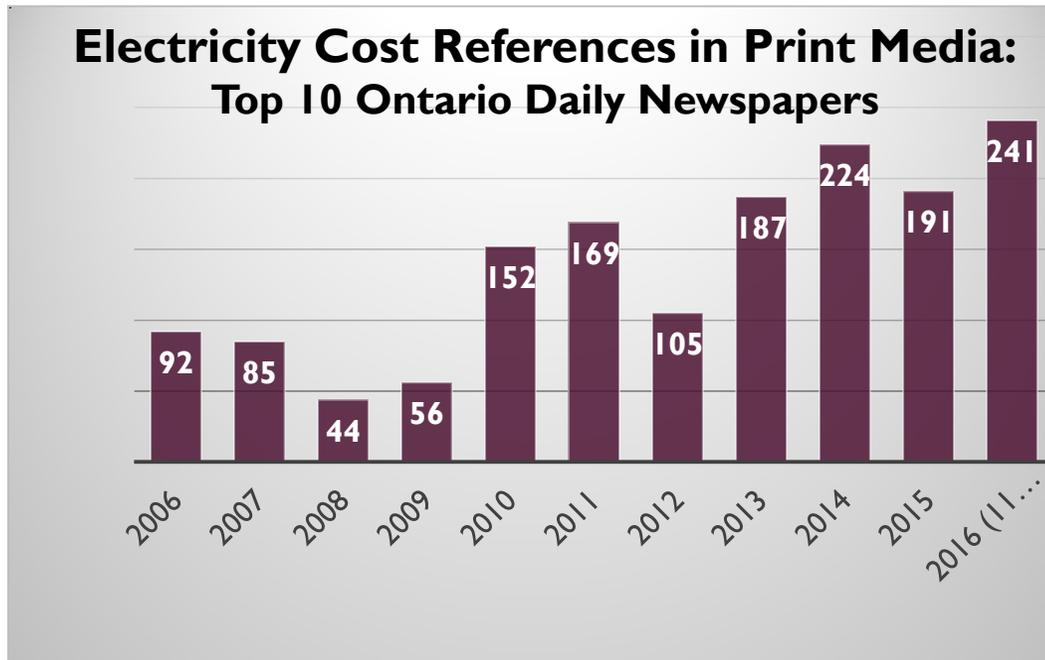
Historical

- Decades long fixation on electricity ... e.g.

1993	<i>“In Canada, we’re paying 4.4 cents per kilowatt versus 2.5 cents in Illinois and 3.7 cents in Tennessee”</i> Ford of Canada
2004	<i>“Much of our competitiveness could be eroded by climbing electricity prices”</i> Dofasco
2014	<i>“It was not many years ago that electricity costs were touted as a benefit of doing business in Canada. More recently, however, a combination of factors – not the least of which is revised policy goals – have converged to make Ontario rates higher than competing jurisdictions”</i> Canadian Automotive Partnership Council

BACKGROUND & CONTEXT --- OVERALL CONTEXT

Escalating Attention



“One in 20 operations expected to close over the next five years due to high electricity prices.”

“40 percent of business had delayed or cancelled investment decisions because of high electricity prices.”

(Ontario Chamber of Commerce)



METHODOLOGY



BUT ... WHAT IS THE REAL EFFECT ON COMPETITIVENESS?

METHODOLOGY ... "THE NUMBERS"

$$\text{Use} \times \text{Rate} = \text{Cost}$$

What's Missing in Canada?

- Tangible, measurable data



- Assembly plant level data about electricity use

A. Use

What data is available?

- US Annual Survey of Manufactures (ASM)
- Aggregate data on electricity consumption at the 5 digit NAICS level (33611 – Automobile and Light-Duty Motor Vehicle Manufacturing)

Why this Works

Comparable uses for electricity in assembly plants: conveyors, robots, welding & stamping lines and lighting

B. Rate

What data is available?

For US: US Energy Information Administration (US EIA)

For Ontario: Independent Electricity System Operator (IESO)

The Challenge

- Some US markets are open
- Posted rates and actual rates may vary

BUT ... WHAT IS THE REAL EFFECT ON COMPETITIVENESS?

METHODOLOGY ... "THE NUANCE"

A series of interviews with:

- Industry Professionals
- Policy Makers
- Automotive OEM Executives
- Suppliers

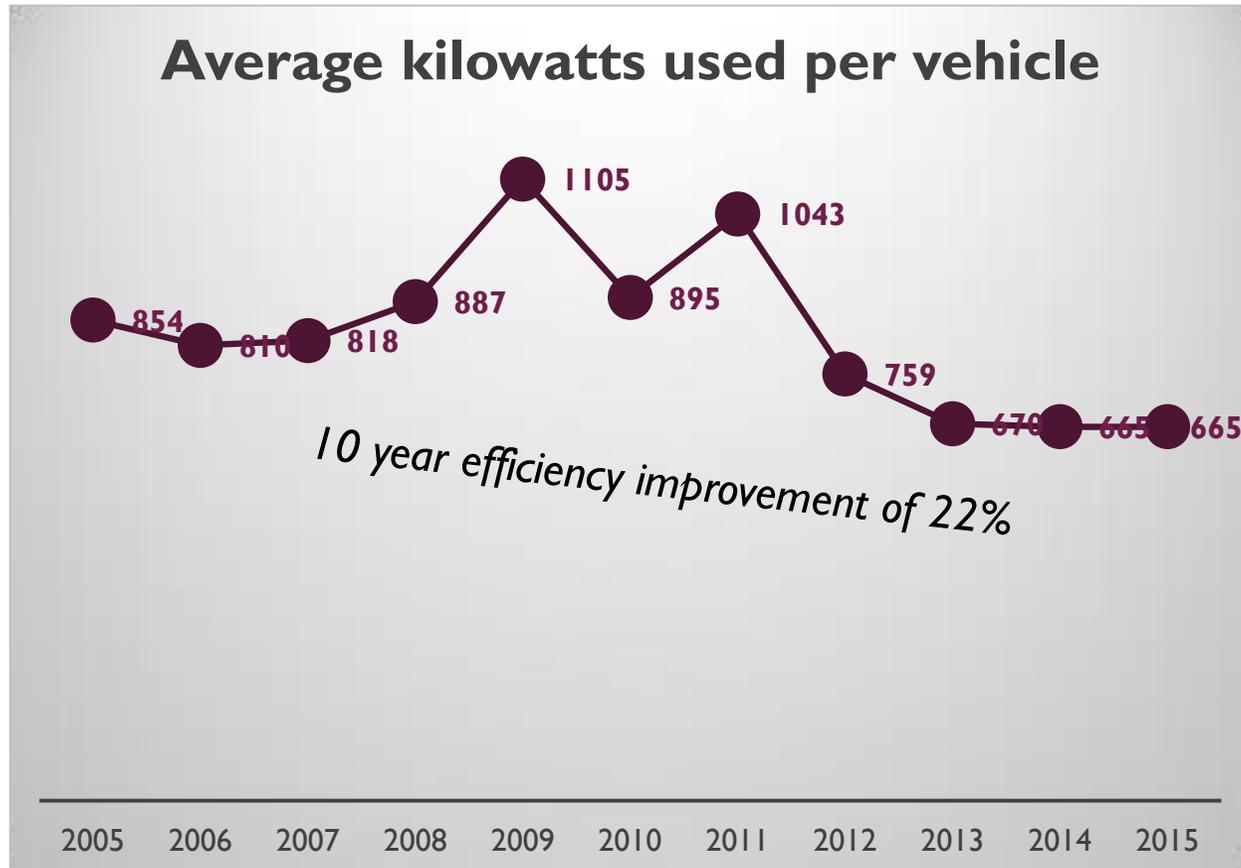
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FINDINGS



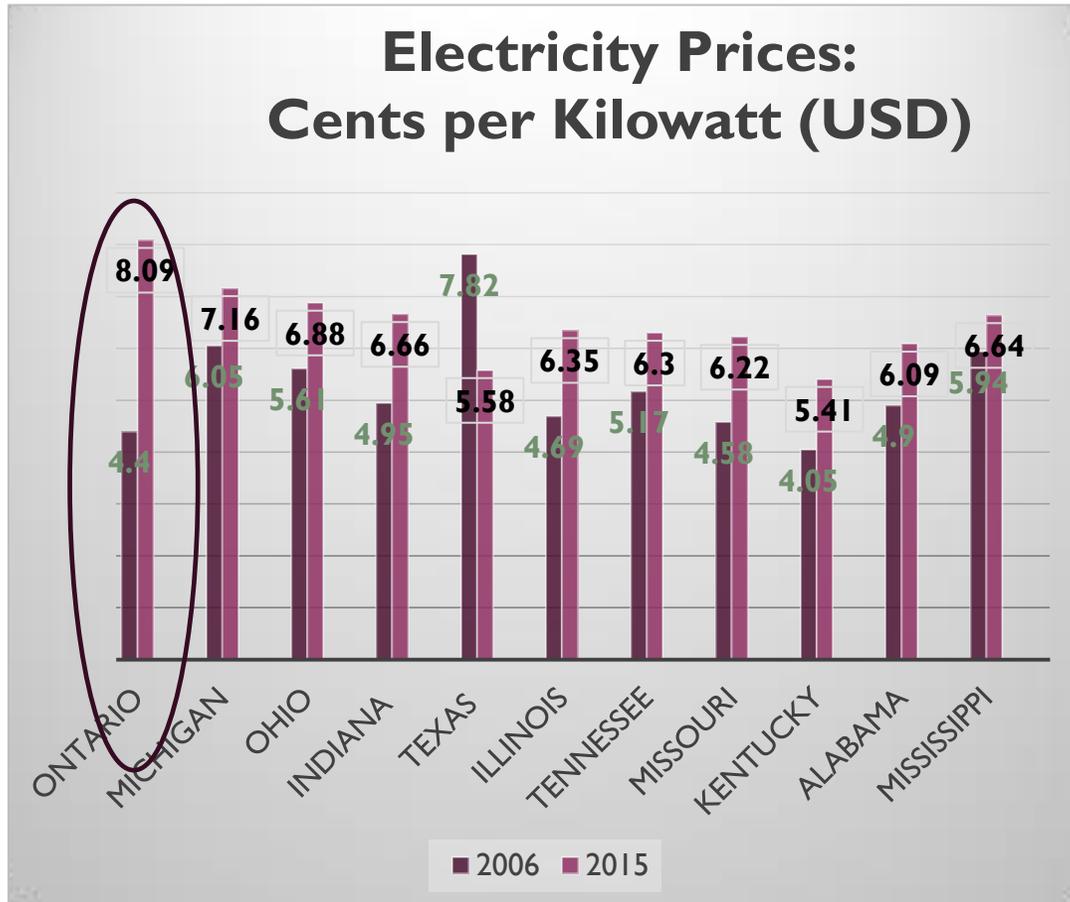
FINDINGS: THE NUMBERS



“We benchmark against the other plants ... Everyone is looking at everyone’s data, and everyone is looking at everything everyone is doing.”

Doug Yates
Director of Environment and Energy
General Motors of Canada

FINDINGS: THE NUMBERS



In US dollar terms, Ontario electricity, at 8.09 cents per kilowatt, is the most expensive among major auto producing jurisdictions in Canada and the US

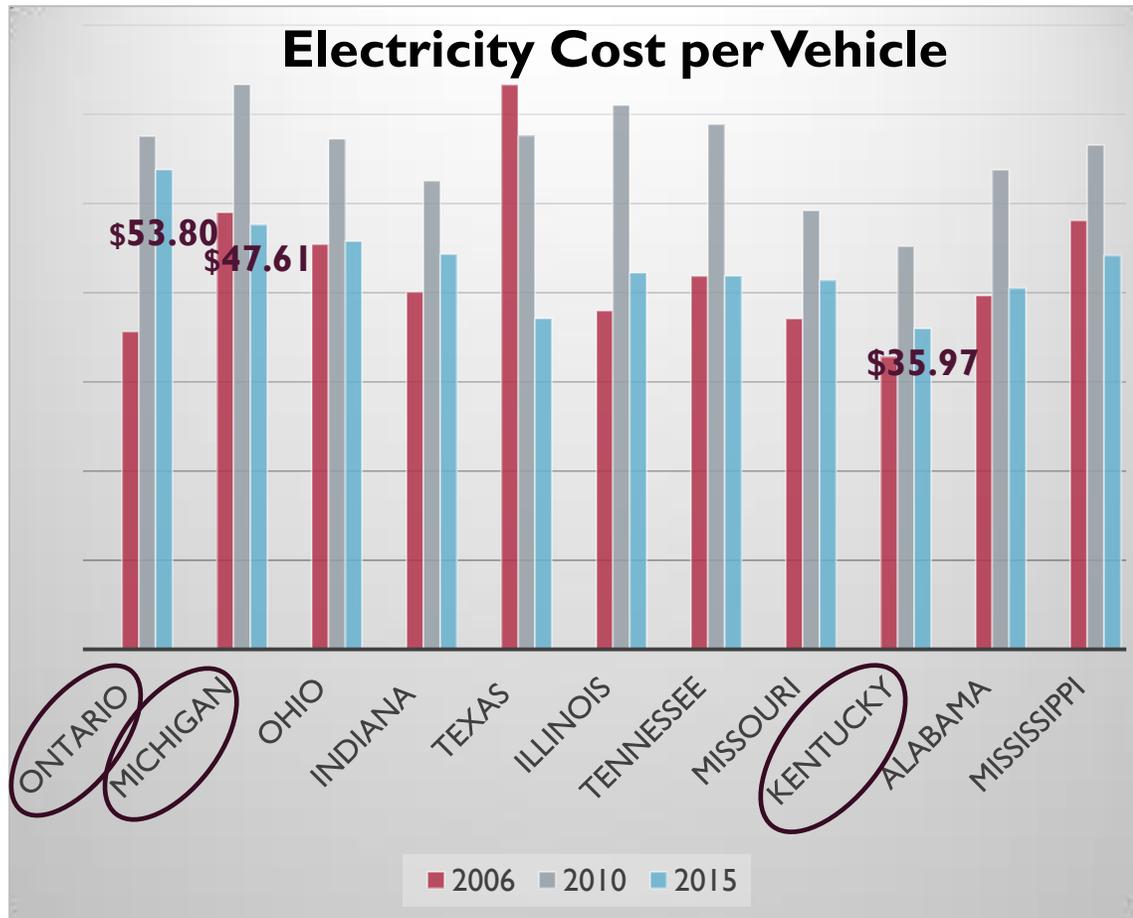
But ...



Is the gap meaningful?

Do the gaps justify the anxiety?

FINDINGS: THE NUMBERS



- At 53.80 per vehicle, Ontario is the most expensive
- Michigan is second most expensive (\$6.18 less than Ontario)
- Kentucky is cheapest (\$17.82 less than Ontario)

But still ...



Is the gap meaningful?

Do the gaps justify the anxiety?

THE NUMBERS IN CONTEXT

In the context of a \$30,000 vehicle

...

- \$36 - \$54 US
= 0.2 percent

If electricity was free, would it matter?

Further...

“The reality is that cost is largely the same ... The process of competing for mandates occurs around the margins.”

Blake Smith
Ford

“We are constantly competing with our sister plants. We look for pennies ... so if someone was going to give me an option to reduce costs by a few pennies I would jump at it.”

Gilles Madore
Honda

But ...

“We probably control a tenth here in the factory.”

Gilles Madore
Honda

Main buckets are:

- Labour
- Depreciation
- Materials
- Utilities

However ...

Even in the context of \$3,000 of local costs, electricity:

= < 5% of labour

= < 2% of total local costs

However...

Ontario is \$6.18 per car /
13% more than Michigan

“No one in Michigan is talking about electricity.”

The data suggests...

The cost of electricity is immaterial:

- Absolute cost
- Cost compared to competitors
- Relative to other line items

So ...

Why is the Canadian auto industry preoccupied with electricity prices?



WHY THE PREOCCUPATION



WHY THE PREOCCUPATION?

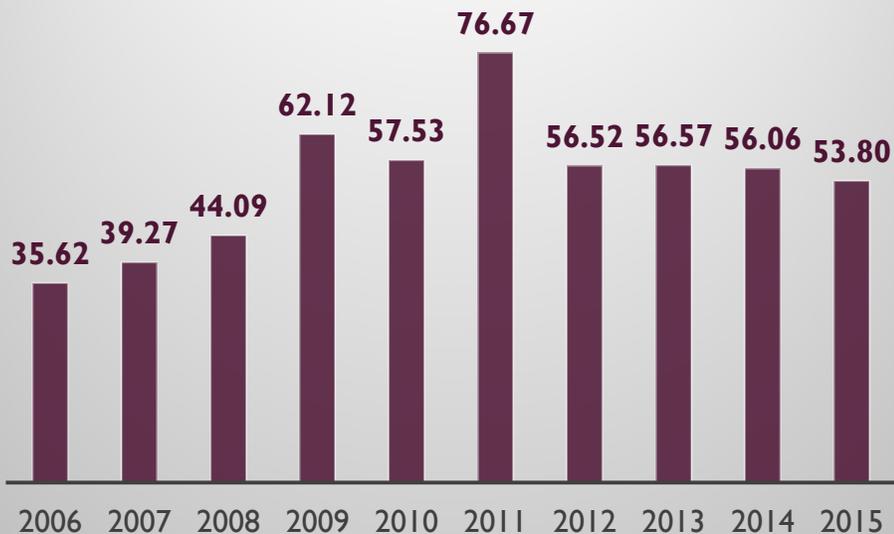
1. In US dollar terms, Ontario rates are higher than any US competitor
2. In US dollar terms, Ontario rates are increasing more rapidly than US competitors
3. The gap appears set to grow
4. Local media is preoccupied
5. Ontario rates are increasing rapidly
6. Ontario's industrial electricity pricing scheme is creating unintended effects ... effects that will exacerbate

Interjurisdictional

Intrajurisdictional

WHY THE PREOCCUPATION?

Ontario Electricity Cost per Vehicle (USD)



Ontario demonstrating a downward trend (2010 – 2015)

Huh?

Currency & Efficiency > Climbing Rates

But ...

- Ontario result is worse than any US competitor
 - ✓ Indiana (worse US performer) costs down by 15.7 percent
 - ✓ Texas (best US performer) costs down by 35.6 percent

WHY THE PREOCCUPATION?

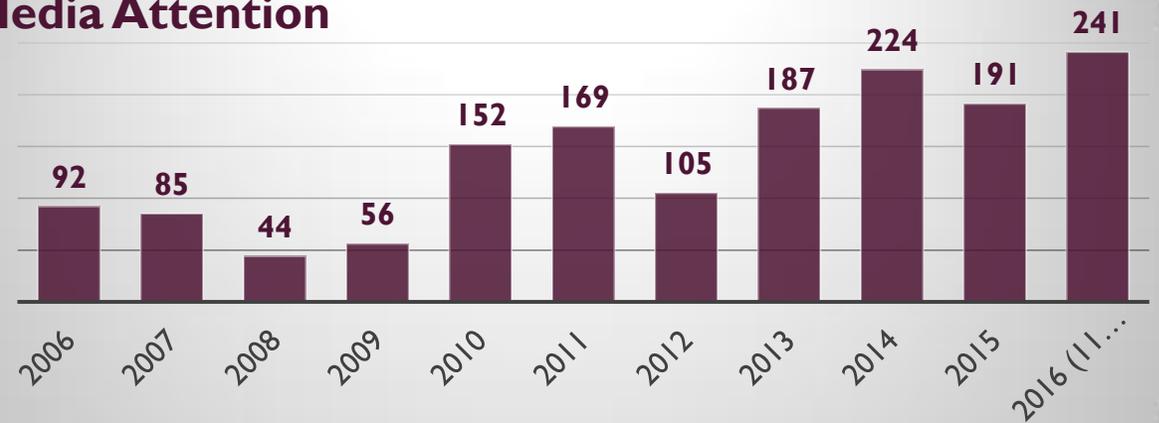
More Important ...

- Even though Canadian plants compete with US plants for mandates ...
- Even though Canadian plants are benchmarked against US plants in US dollar terms ...

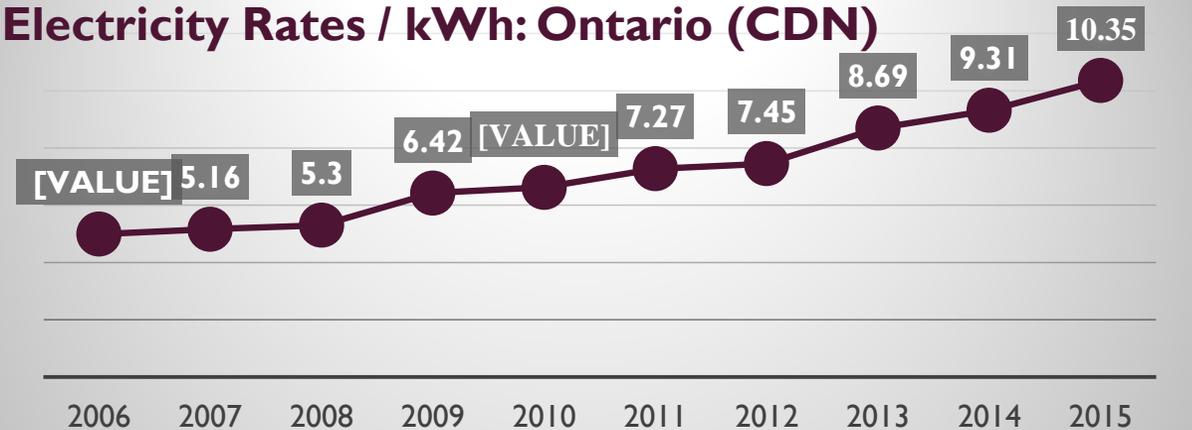
The realities are:

1. The plants are in Canada
2. Executives are influenced by Canadian media
3. Electricity bills are incurred in Canadian dollars
4. Rates in Canada are up ... way up

Media Attention



Electricity Rates / kWh: Ontario (CDN)



WHY THE PREOCCUPATION?

But in Canada ...

no one is optimistic about future trends

“We have made the investments that are needed to assure availability for the next thirty years. ~~Other jurisdictions~~ haven’t made the investments they’ll need for the reduced carbon economy”

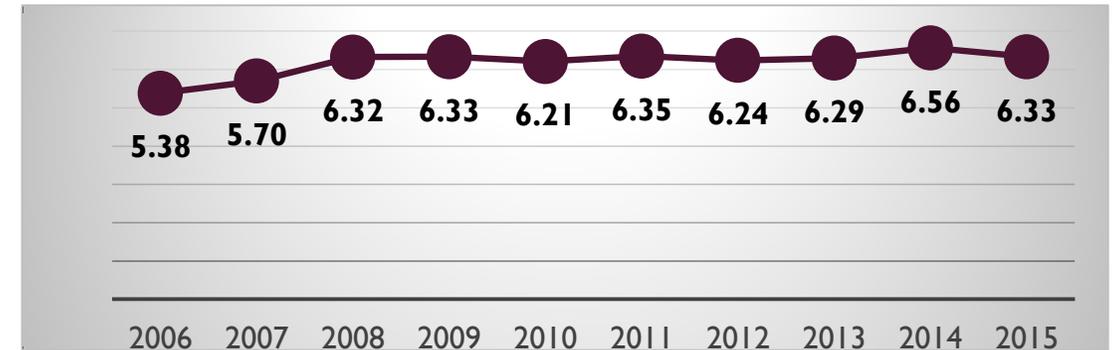
*Ray Tanguay
Auto Advisor to
Federal and Ontario Governments*

“It just seems that like we’re on an exponential increase curve. The slope is very steep and I don’t when that’s going to slow down ... They’re committing to a lot of projects that are ultimately adding to the cost of electricity here. History will say whether it was a success or not, but right now we’re only worried about what is going on.”

*Brian Dotzert
Toyota*

Meanwhile ...

US Rates are flat



And are expected to stay that way ...

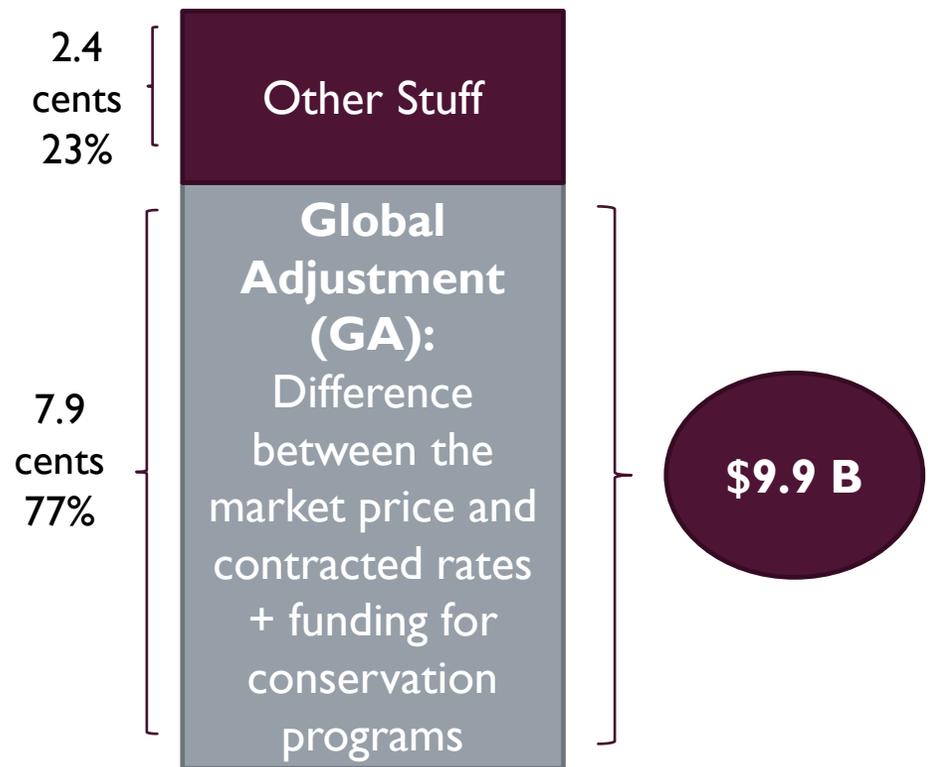
“On energy, I will cancel job-killing restrictions on the production of American energy - including shale energy and clean coal - creating many millions of high-paying jobs. That's what we want, that's what we've been waiting for.”

Donald Trump

WHY THE PREOCCUPATION?

Most Important (or at least most interesting): Global Adjustment (GA) and the Industrial Conservation Initiative (ICI)

How ICI Works (2015)



- ICI applies to GA portion only
- ICI applies to “large” power users only

Year implemented	Who Qualifies?	How Many Qualify?
2010	> 5 MW	80
2014	> 3 MW	280
2016	> 1 MW	1000
2017	> .5 MW	TBD

WHY THE PREOCCUPATION

An Example of ICI

Basic Assumptions

- 8760 hours per year (24x365)
- ICI isolates the top 5 peak draw hours on electricity system
- 2015 GA = \$9.9 Billion

Example a: Company XYZ

Large Company XYZ draws 0.6% of total electricity during top 5 periods in 2014

2015 GA costs

= 2014 Company Draw x 2015 GA Costs

= 0.6% x \$9.9 Billion

= \$59.4 million

Example b: Company XYZ

Large Company XYZ draws 0.3% of total electricity during top 5 periods in 2014

2015 GA costs

= 2014 Company Draw x 2015 GA Costs

= 0.3% x \$9.9 Billion

= \$29.7 million

In other words ...

Most of a company's Year 2 electricity bill is based on the electricity they use during about 1/17th of 1 percent of Year 1

THE ICI'S UNINTENDED CONSEQUENCES

1. *It's Hard to Explain ... Forces Decisions that Defy Core Mandates*

“It’s an odd concept to be incentivized to stop producing. That’s not what you think an economy would incentivize you to do.”

Doug Yates, GM

“I don’t get this. I fundamentally don’t understand. You’re telling me that we’re going to do better on a holistic basis if we don’t make the product that we’re in business to make?”

Ian Shaw, AMD
(recounting a conversation with his CEO)

THE ICI'S UNINTENDED CONSEQUENCES

2. *It's Getting Harder and Harder to Get it Right*

(Participation has jumped ... from 80 ... to 280 ... to 1,000 ... to ~1500)

“It enables those additional participants to participate, which is maybe good, but it makes it a whole lot harder to predict.”

Ian Shaw, AMD

“You think it's going to be this hour, but sometimes you get to that hour and at the last minute everyone else shuts off; everyone does the same thing as us and all of a sudden, boom, what we thought going to be the peak isn't the peak after all. Then, we find out that the peak wasn't that hour; that it was actually the previous hour when everyone was still going strong.”

Pete Leonard, Toyota

THE ICI'S UNINTENDED CONSEQUENCES

3. *It has Created a Growing Community of Engaged Opinion Leaders*

“We bring in people from Finance and they validate the numbers and they go, ‘here are the puts and the takes and here’s what it looks like.’ And then we bring in the commercial people and they’re going, ‘hang on a second here, I promised delivery to Ford, to GM, to BMW to Toyota.’ And then you get the operating people saying, ‘hang on, I’m going full bore, a hundred miles an hour and you’re going to give me two hours notice to shut everything down?’ And we’re going to do that 10-15 times ... So yeah, we get a lot of love.”

Ian Shaw, AMD



SUMMARY & IMPLICATIONS



SUMMARY & IMPLICATIONS – FOR THE AUTO INDUSTRY

1. Electricity in Ontario is more expensive than any other competing jurisdiction in the US or Canada
2. The gap is inconsequential
3. Many factors have converged to make electricity costs more consequential than the data alone would suggest ...
 - Media exposure
 - Rapidly escalating rates in Canada
 - Expectation of a widening gap
 - A pricing system that generates anxiety

IMPLICATIONS – THE BIGGER LESSONS LEARNED

1. Cost competitiveness is quantifiable, but perceptions of it are influenced by factors extraneous to hard, tangible, quantifiable data
2. Cost competitiveness must be considered in the context of the segment of the supply chain in which marginal costs are incurred (i.e. not the costs accumulated up to and including the segment under examination)
3. Seemingly insignificant cost items become magnified when the number of differentiated costs is limited
4. Constant exposure and forced decision making related to a specific item or issue has the effect of elevating the importance of that item
5. Policy makers, when absorbed in a task (in this case, reducing costs), must be cautious to not lose sight of what they are ultimately trying to achieve (mitigating opposition to their pricing policy)

And

6. None of this becomes evident without a hybrid methodology

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