ONTARIO
ELECTRICAL ENERGY ASSISTANCE PROGRAMS
CASE STUDY:
TIM CLUTTERBUCK
PRESIDENT ASW STEEL INC.
MARCH 28, 2018

Canadian Manufacturers & Exporters

Manufacturiers et Exportateurs du Canada

ASW…THE ONLY STAINLESS PRODUCER IN CANADA

A wholly owned Subsidiary of AMPCO Pittsburgh (AP)
Located in Welland Ontario

Products
- Specialty Steel Primary Products
  - Ingots, Forged Blooms and Bars
  - Cast Billets and Blooms
- Stainless, Alloy and Carbon grades

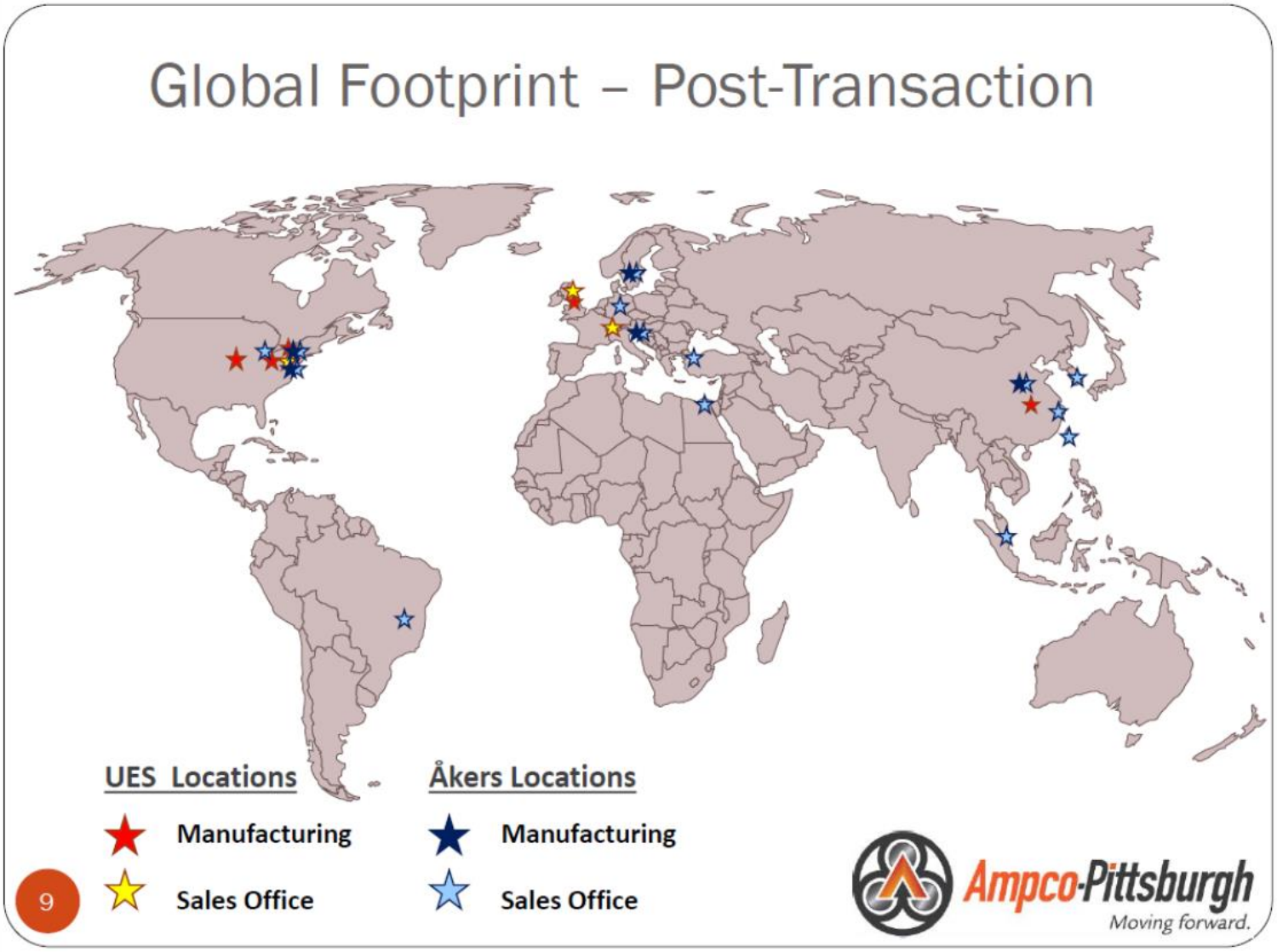
Customers
- Open Die Forgers
- Closed Die Forgers
- Re-rollers
- Distributors

Sales Reach
- U.S., Canada and Mexico

Quality Level Capabilities
- Aircraft Quality
- Premium, Para-Premium Quality
- Bearing Quality
- ISO9001:2015 (BSI)
- Nuclear Certifications
  - ISO17025:2005 (A2LA)
  - CSA N285.0 (TSSA)
    - NCA3800, Z299.3

End Markets
- Oil/Gas
- Power Generation
- Aerospace
- Transportation/Construction
- Nuclear

AQUIRED BY AMPCO PITTSBURGH IN NOV. 2016



EXISTING ONTARIO INITIATIVES

Current Ontario Industrial Electricity Incentive Programs are very good for Rewarding Conservation and New Investment but they can be difficult to participate in without significant loss of efficiency.

ICI - Industrial Conservation Initiative

- Applies to Class A Consumers
- Requires ability to significantly shed or shift load
- Requires systems to predict peaks
- AQEW adjustments can have significant impact on GA for Year

DR - Demand Response

- Requires ability to significantly shed load

CDM - Conservation Demand Manager

- Funding available for embedded energy managers to reduce consumption

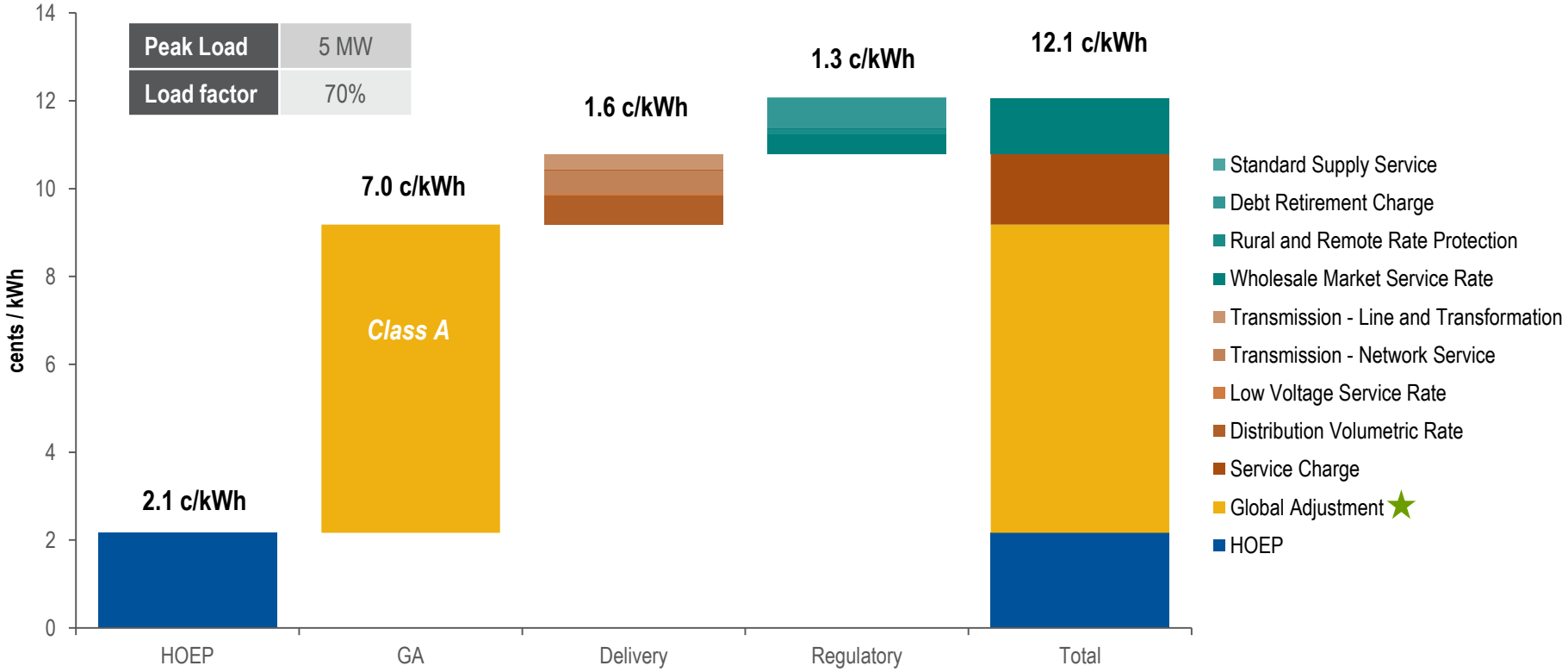
IEI - Industrial Electricity Initiative

- Applies to New/Growth Loads
- Windows of opportunity (Streams I, II, III)

LET'S LOOK AT THE BILL FOR OPPORTUNITY

Industrial electricity bills are largely driven by HOEP and GA costs . . .

- Example of typical 5 MW load shows contributions to power costs by the multiple elements of a monthly industrial electricity bill. (2016)



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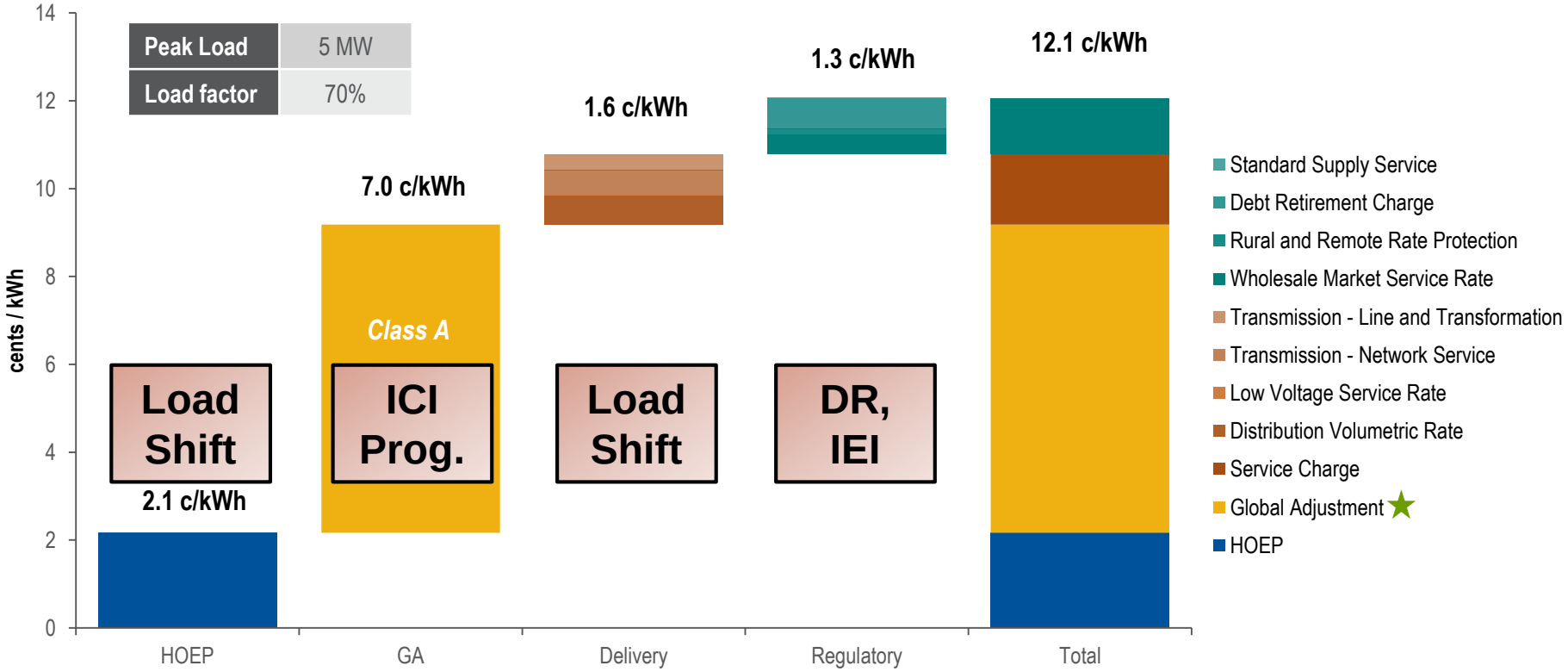


ASW STRATEGIES TO REDUCE POWER COSTS

HOEP - Load Shifting to off peak periods for major power consuming units

- Weekends and 19:00 to 07:00 (EST) are the off peak weekday hours
- Focus is on major power consuming units.

Global Adjustment - Participate in ICI program

- For Class A consumers (0.5 MW Peak Load)
- Opt in between May 1 and June 15
- Avoid high consumption during 5 Hi Annual Power Peaks (EST)

Delivery Charges - Load Shifting to off peak for major power consuming units

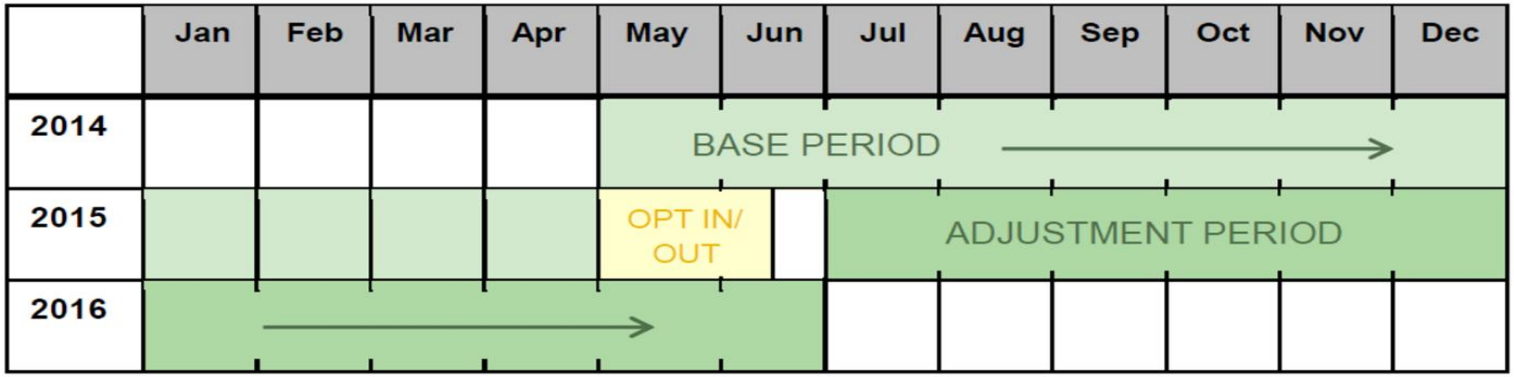
- Weekends and 19:00 to 07:00 (DST) are the off peak weekday hours
- Avoid high consumption during each Monthly Power Peak (DST)

Other Charges - Participate in DR, CDM and IEI programs

- DR - Must shed committed load during Prescribed High Demand periods
- CDM – Embedded Energy Manager funding
- IEI – Windows are currently closed for participation

HOW DOES ICI WORK?

Base period consumption determines following 12 month GA



Factored on Pant's consumption during the 5 high provincial consumption hrs

Peak	Day	Hour (HE) EST	Hour (HE) DST	Company Consumption (MWh/h)	Peak System Consumption (MWH/h)	
1	Monday, September 25, 2017	1700	1800	5.000	21,171	
2	Tuesday, September 26, 2017	1700	1800	5.000	21,039	
3	Monday, June 12, 2017	1700	1800	5.000	20,702	
4	Friday, January 5, 2018	1800	1800	5.000	20,238	
5	Saturday, January 6, 2018	1800	1800	5.000	20,046	PDF
			Total	25.000	103,196.000	0.00024225745
					Prov. G.A.	$ 1,000,000,000
					Monthly G.A.	$ 242,257
					Annual G.A	$ 2,907,089.42

Company Consumption (MWh/h)	Peak System Consumption (MWH/h)	
1.0000	21,171	
1.0000	21,039	
1.0000	20,702	
1.0000	20,238	
1.0000	20,046	PDF
5.0000	103,196.000	0.00004845149
	Prov. G.A.	$ 1,000,000,000
	Monthly G.A.	$ 48,451
	Annual G.A	$ 581,417.88

ICI CHALLENGES

Difficulty Predicting Peaks:

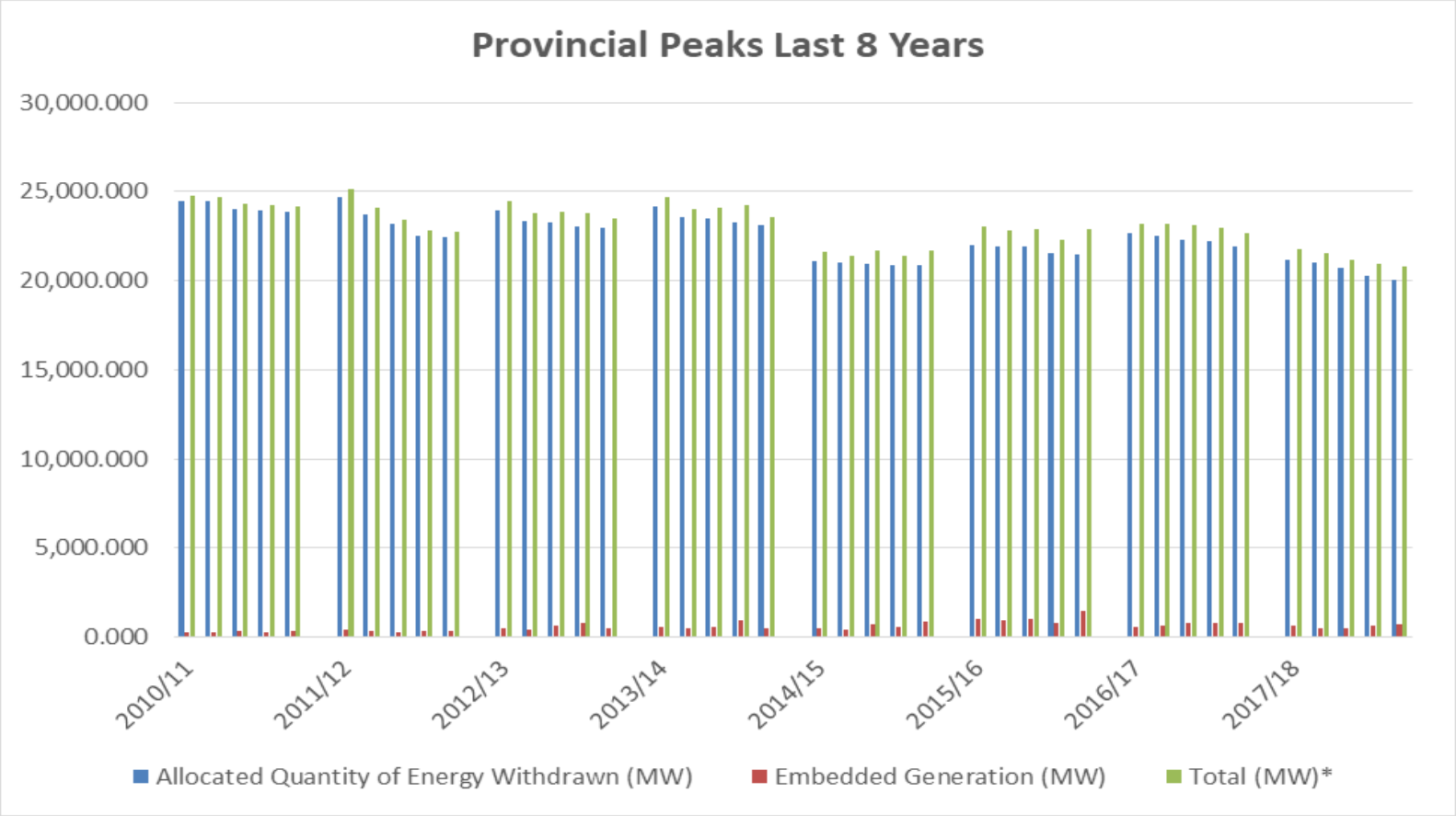
- Program Success and Inclusion to 0.5 MW has smoothed the Peaks
  - AQEW adjustment is inconsistent and 4 to 6 weeks after the fact
  - Peaks can now be summer or winter; weekday or weekend
  - EST vs DST can be very confusing
- Prediction tools are difficult to attain in-house
  - ASW uses:
    - IESO Site for Forecast and 5 minute tracker
    - Weather forecasts for Toronto
  - Missed February 19, 2015 – heavy penalty (+$3M/Yr)

Lost Productivity:

- Non-starter for some businesses
- Shedding Load during potential peak periods is costly
- Duration is longer than one hour – Impact was over 40 hrs in 2017

ICI: ONTARIO PEAK HOURS ANALYSIS

Flatter and lower provincial load profiles have increased the challenge in predicting the top 5 peak hours when considering AQEW adjustments



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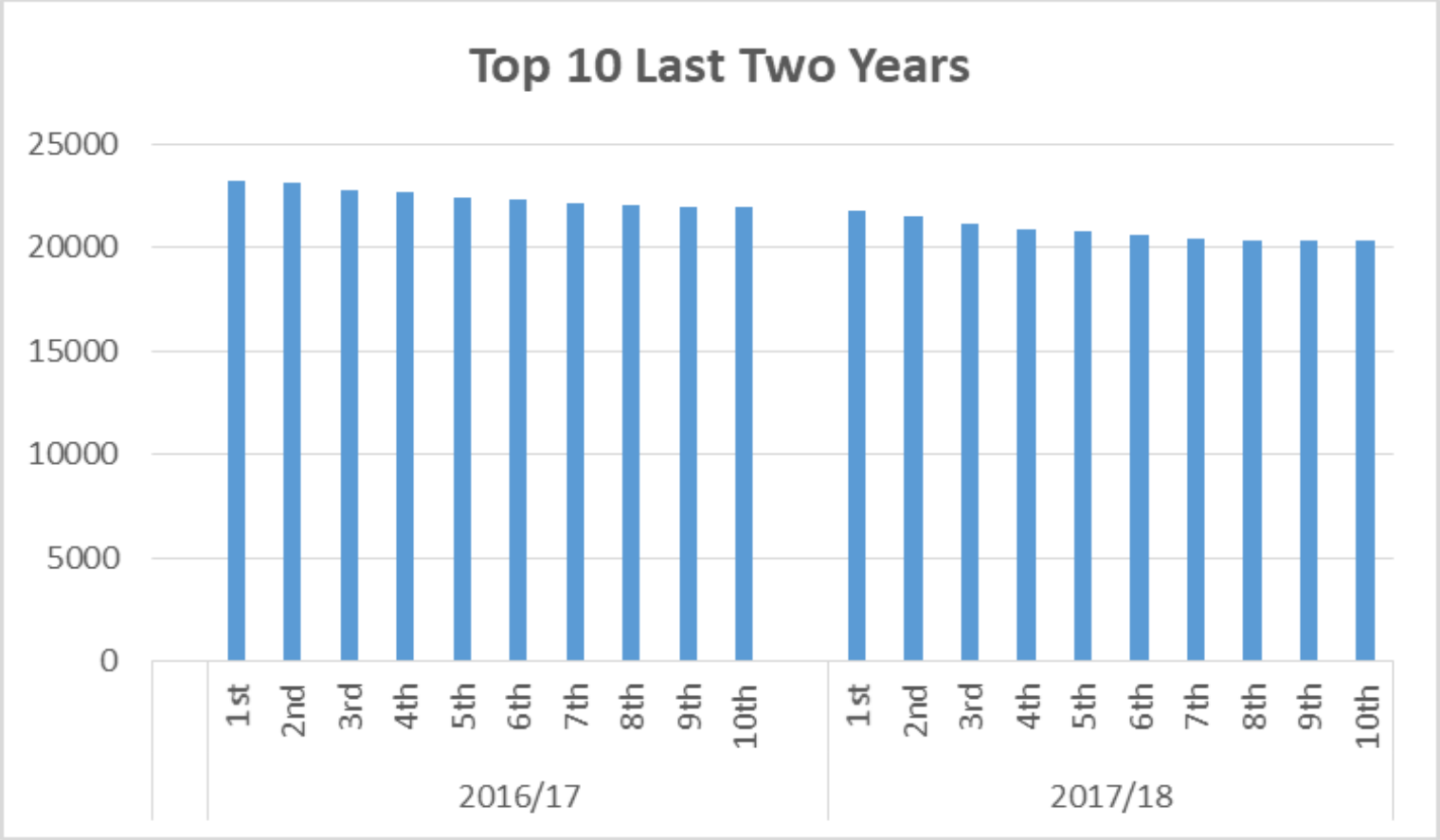
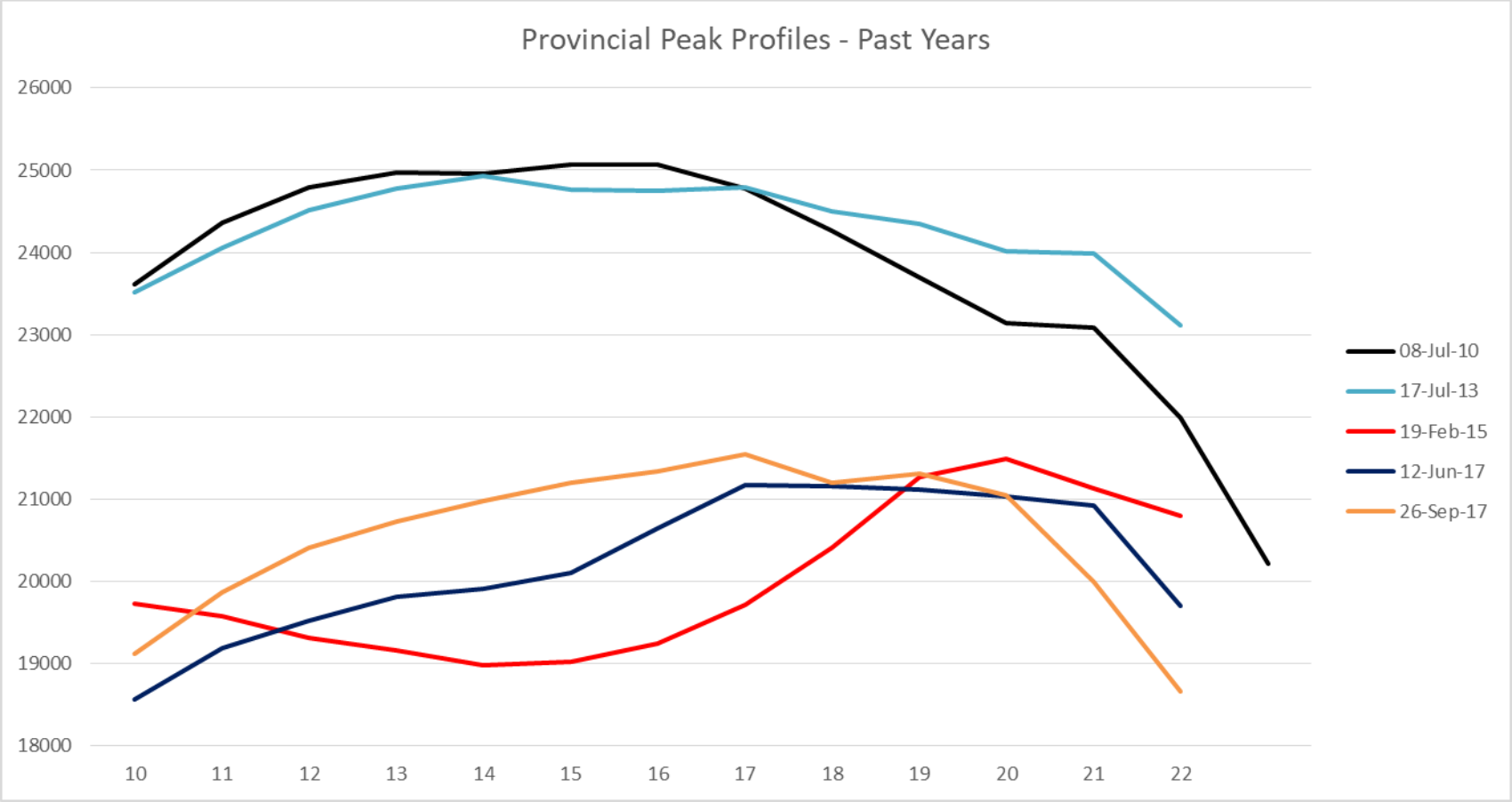


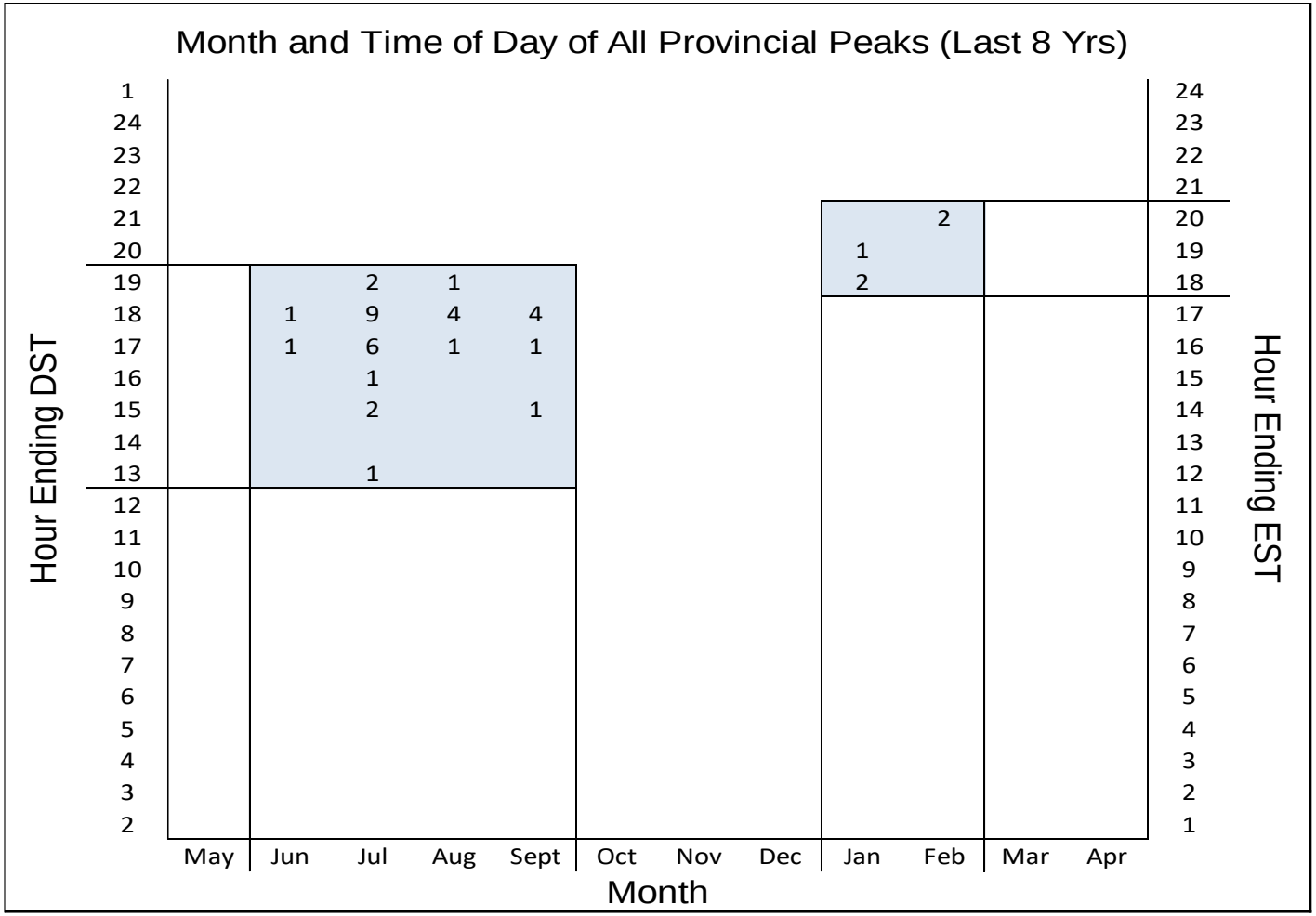
ICI: ONTARIO PEAK HOURS ANALYSIS

Peak Profiles are lower and have changed shape leading to longer periods of uncertainty relative to the actual peaks then AQEW must be considered.



ICI: ONTARIO PEAK HOURS ANALYSIS

Peaks have typically been concentrated to hot weather periods in the afternoons of weekdays but winter peaks and weekends are starting to creep in.



IMPACT OF ASW STRATEGIES TO REDUCE POWER COSTS

HOEP - Load Shifting to off peak periods for major power consuming units

- Work Melt Shop in Off Peak Hours – On Peak Load Reduction of 30 MW
- Impact = $0.01 per KWH

Delivery Charges - Load Shifting to off peak for major power consuming units

- Watch DST vs EST for Network Service Charge Off Peak Hours
- Impact = $0.01 per KWH

Global Adjustment - Participate in ICI program

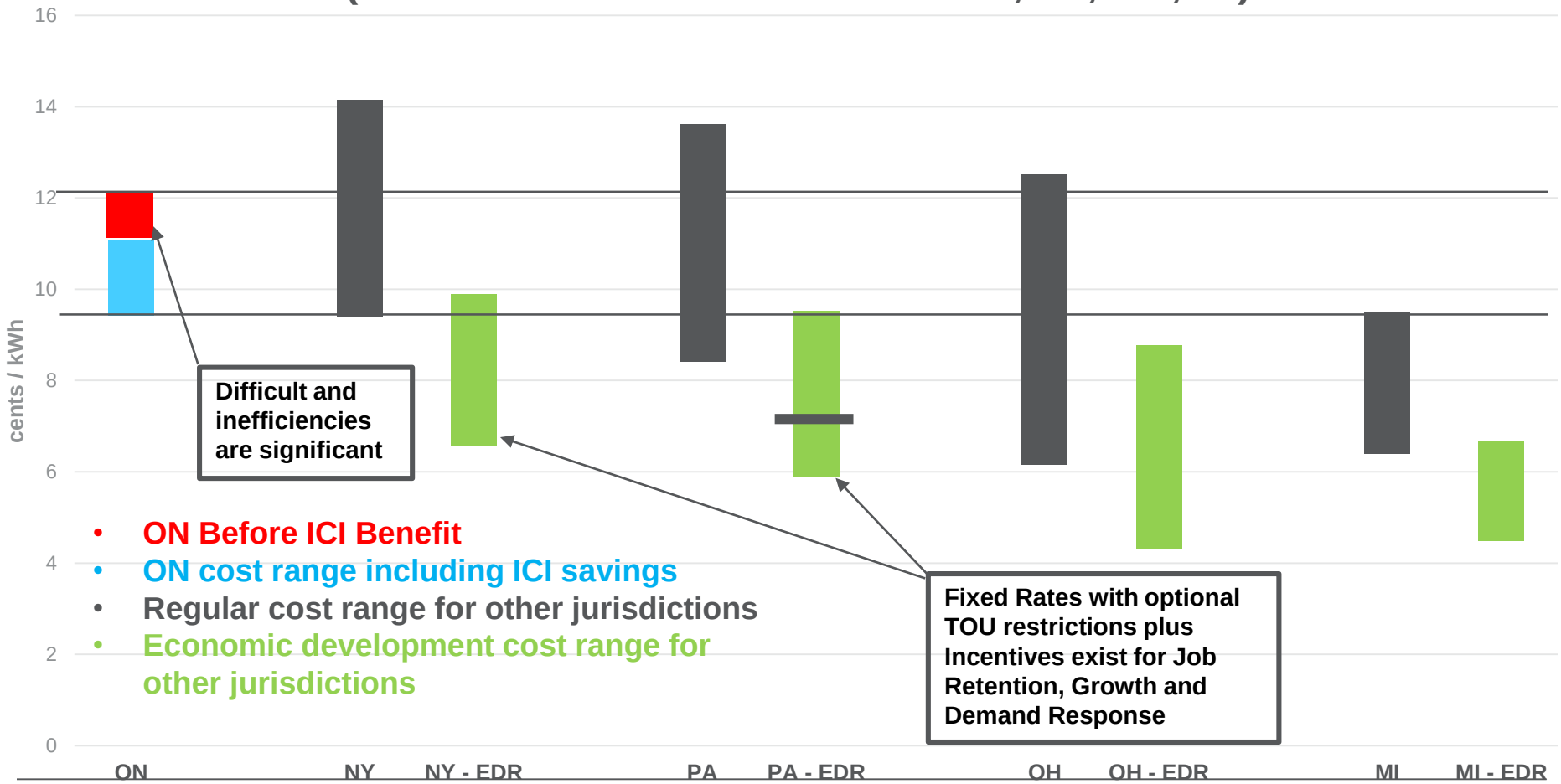
- Most Significant Program available – critical to ASW
- Hi Power with Low Consumption Potential GA of + $15M per Year
- Impact of missing one peak = $0.04 per KWH

Other Charges - Participate in DR, CDM and IEI programs

- DR – Committed 1 MW – Approximately $50K
- CDM – EEM funding - $50K + $0.04 per KWH Conserved (2,000 MWH)
- IEI – Designed for Growth from Baseline – Impact = $0.02 per KWH

COMPETIVENESS:
RANGE OF INDUSTRIAL ELECTRICITY COSTS
5 YEAR AVERAGE EXCHANGE RATE (1 CAD = 0.92 USD)

Industrial Power Rates in Ontario are not Competitive with Neighbouring Jurisdictions. (15% - 30% discounts offered in NY, PA, OH, MI)



LTEP SUBMISSION

Restructure the ICI program. Key changes recommended:

- Allow a “Mulligan Program”
  - For example 5 of the 7 highest peaks to determine PDF In lieu of meeting the 5 peaks;
- Remove the AQEW from determining the 5 peaks
  - Or provide real time AQEW updating on IESO’s website;
- Require the IESO to predict the peak period ranges with no penalty not accurately predicted.
  - For example if the peak is estimated from 2-4 pm and it comes in at 1 or at 5. The customer should have its PDF based on the IESO predicted timing.
  - Third parties currently offer a service that better predicts peaks than IESO without performance guarantees, however IESO should be able to provide this service as part of their mandate to all industry in Ontario.
- IESO must ensure reliability and accuracy for their online data.
  - This is a key tool used by all ICI participants to determine when to curtail production and if it is not reliable and accurate can have a significant impact on a company by either causing it to miss a peak or curtail production unnecessarily thus incurring considerable additional costs.