Running Your Natural Gas "GA Buster" Longer

2018 Union Gas industrial customer meeting

Allen Chan, P.Eng, CEM, June 5, 2018

uniongas
An Enbridge Company

Quick primer on "GA busting" or peak shaving

For Class A customers, reducing electric demand peak hours can result in substantial savings, as global adjustment "GA" can be as high as 80% of your electricity bill.

After "shaving" 2MW

Customer's demand during the top 5 peak demand hours (MW)		*Sum of total Ontario electric grid demand during top 5 peak demand hours (MW)*		*Peak demand factor*
~~3.1~~ 1.1 ~~4.4~~ 2.4 ~~3.9~~ 1.9 ~~4.1~~ 2.1 ~~4.3~~ 2.3 ~~19.8~~ 9.8	÷	115,091.061	=	~~0.00017204~~ 0.0000851

2017 global adjustment Costs		*Your peak demand factor*		*Your GA charge for the year*
$11,851 million	×	~~0.00017204~~ 0.0000851	=	~~$2.04 million~~ $1.01 million

$1.03M saved per year by shaving 2MW

Reasons for running your natural gas "GA buster" generator longer

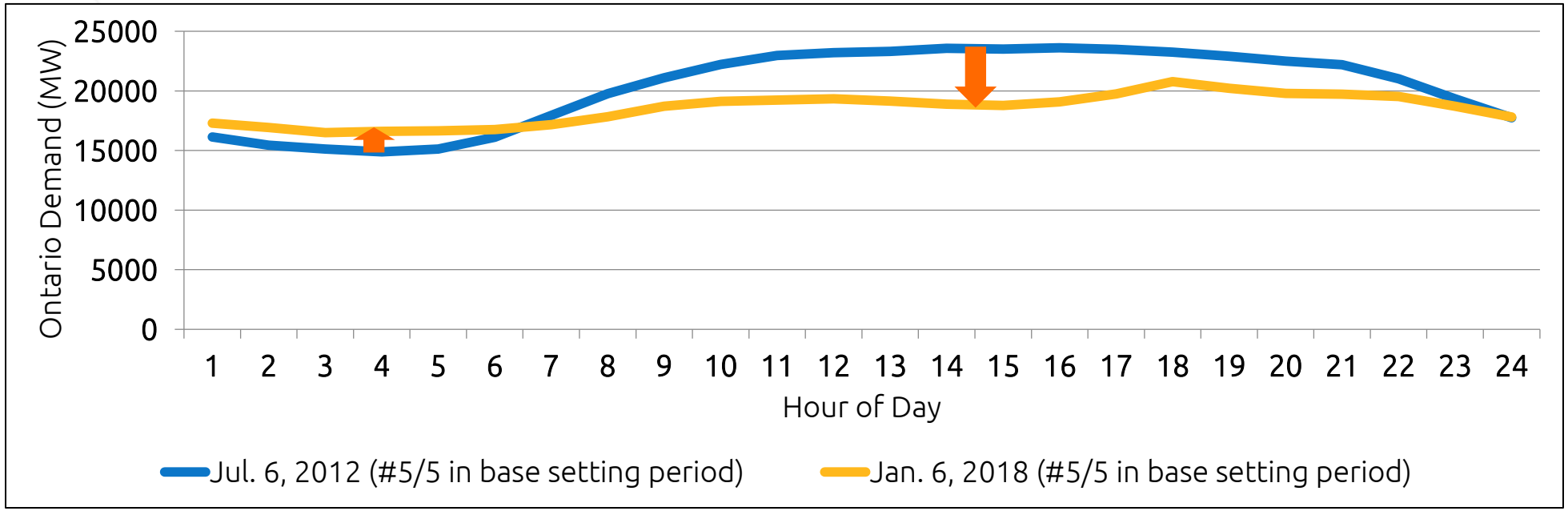
1. "GA busting" is getting more difficult.
2. Allocated Quantity of Energy Withdrawn (AQEW).
3. Rising global adjustment costs.
4. Marginal cost of running more.

Reason 1
GA busting is getting more difficult

A much larger number of customers is now eligible for “GA busting”;
The Ontario demand curve is becoming ‘flatter’ as a result.

Chart provided by CEM Engineering

	Year	Total # of Participants	Average Peak (MW)
Introduced at 5 MW_e	2010	250	27,000
Dropped to 3 MW_e	2014	350-400	23,477
Dropped to 1 MW_e	January, 2017	1,300 – 1,400	20,558
Dropped to 0.5 MW_e*	**April, 2017**	**2,000 – 2,300**	



Reason 1
GA busting is getting more difficult (cont.)

Peaks are happening year-round (not just summer anymore).

Top ten Ontario demand peaks from May 1, 2017 to April 30, 2018

Rank	Date	Hour Ending	Ontario Demand (MW)	AQEW (MW)
1	Monday, Sept. 25, 2017	17	21,786	21,171
2	Tuesday, Sept. 26, 2017	17	21,542	21,039
3	Monday, June 12, 2017	17	21,168	20,702
4	Friday, Jan. 05, 2018	18	20,906	20,238
5	Saturday, Jan. 06, 2018	18	20,768	20,046

2 fall, 2 winter days

Reason 2 Allocated Quantity of Energy Withdrawn (AQEW)

AQEW can reorder top-5 peaks, potentially moving non-qualifying ones into qualifying ones.

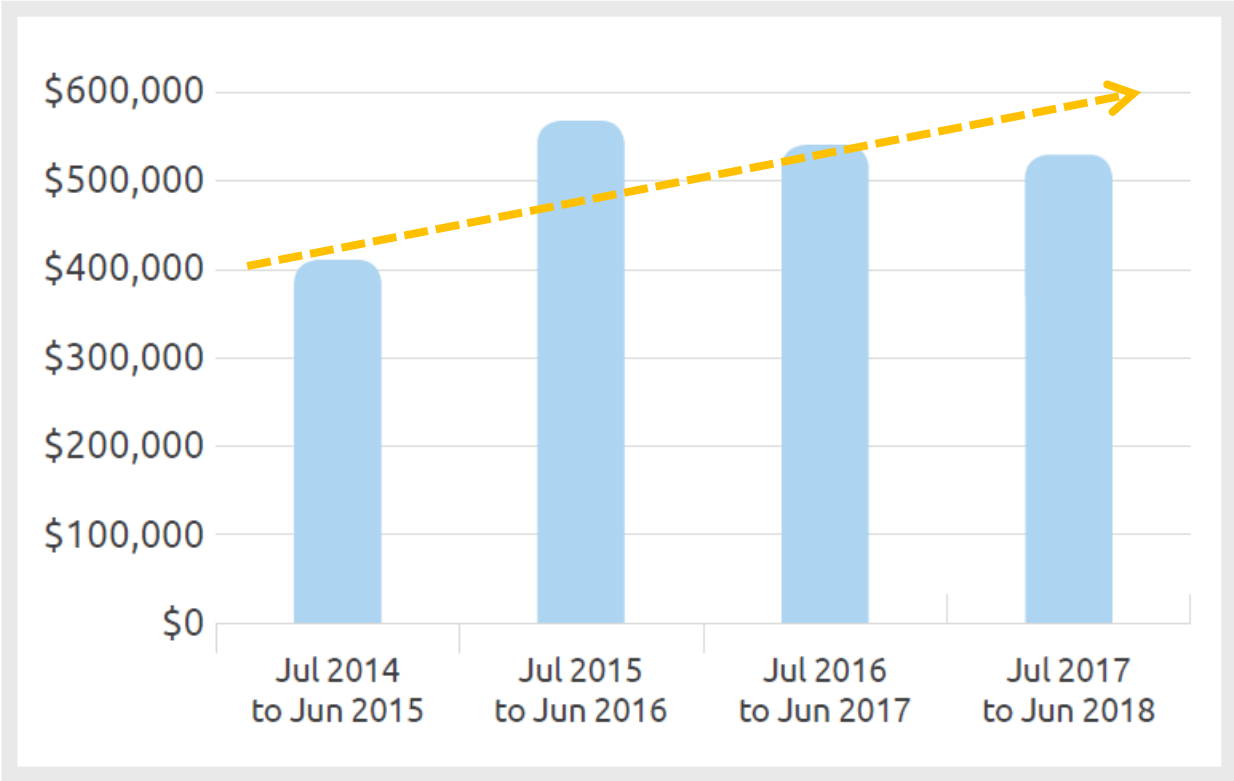
Top Ten Ontario Demand Peaks from May 1, 2015 to April 30, 2016

ON Demand Ranking	AQEW Ranking	Date	Hour Ending	Ontario Demand (MW)	AQEW (MW)
1	1	Tuesday, July 28, 2015	17	22,516	22,016
2	2	Wednesday, July 29, 2015	17	22,472	21,900
3	3	Monday, August 17, 2015	17	22,383	21,882
6	4	Monday, July 27, 2015	18	21,920	21,562
4	5	Wednesday, September 02, 2015	17	22,063	21,394
7	6	Thursday, September 03, 2015	13	21,889	21,348
5	7	Tuesday, September 08, 2015	18	21,923	21,227
8	8	Monday, September 07, 2015	17	21,883	21,206
9	9	Wednesday, August 19, 2015	17	21,629	21,158
10	10	Tuesday, September 01, 2015	20	21,366	20,815

Final AQEW measurement caused this 1PM peak to move up in ranking

Reason 3
Rising GA costs

Cost of GA today at $500,000+ annually per MW, and rising.



[1]Global adjustment chart assumptions: Dollars per MW for each adjustment (billing) period. Historical data from IESO used for calculations. Total actual GA from the July to June billing period divided by the average Allocated Quantity of Energy Withdrawn (AQEW) during the base-setting period of May to April. For the July 2017 to June 2018 billing period, Total forecasted GA was used.

uniongas
An Enbridge Company

Reason 4
Marginal cost of running more

Cost of missing a peak >> Cost of running your generator more.

Cost to run 1MW peak shaving generator → ~$100 per hour

Cost of missing a 1MW demand peak → >$100k per miss

Compelling reasons to use natural gas to perform “GA busting”

Robust, permanent natural gas infrastructure
RUN AS LONG AS YOU NEED

Lower emission control requirements compared to diesel
REDUCED COSTS

Low stable price of natural gas
ASSET THAT GENERATES FOR LESS $/KWH


Q&A
uniongas
An Enbridge Company