

---

# Impact of Cap and Trade Auction Proceeds Recycling to Small Manufacturers

Working Draft

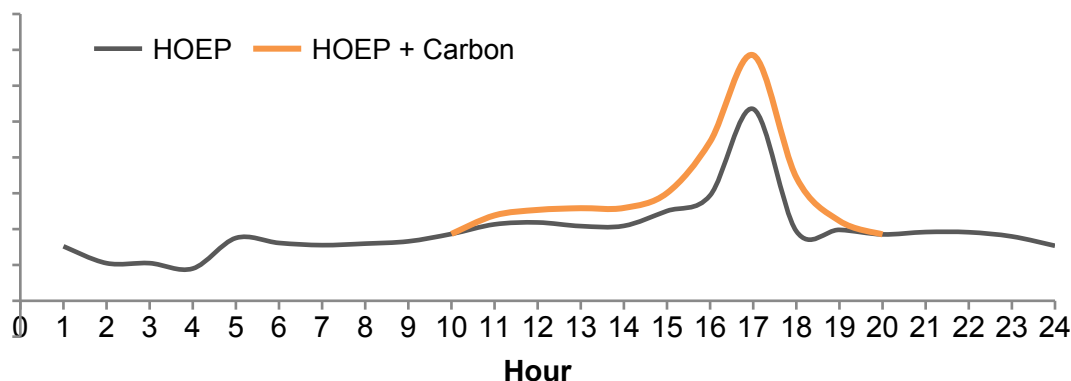
December 2016

CONFIDENTIAL DRAFT

# Context – Impact of Cap and Trade on the Electricity Price

- The Hourly Ontario Energy Price (HOEP) is the hour-by-hour market clearing price that reflects the short run cost of producing electricity in Ontario.
- The HOEP is set by the last generator dispatched to meet demand. In peak hours this is typically a natural gas-fired power plant.
- An offer into the electricity market from a natural gas-fired power plant is primarily comprised of their fuel cost and varies with natural gas commodity prices. Under cap and trade, HOEP will increase when natural gas-fired plants set the price as they will include the cost of carbon in their offers.
- The payments to gas generators through Global Adjustment (GA) will decrease a greater proportion of total system costs would be recovered through the market.
- On a net basis, these dynamics will cause the total system cost to increase as HOEP goes up, but GA goes down by a smaller amount.

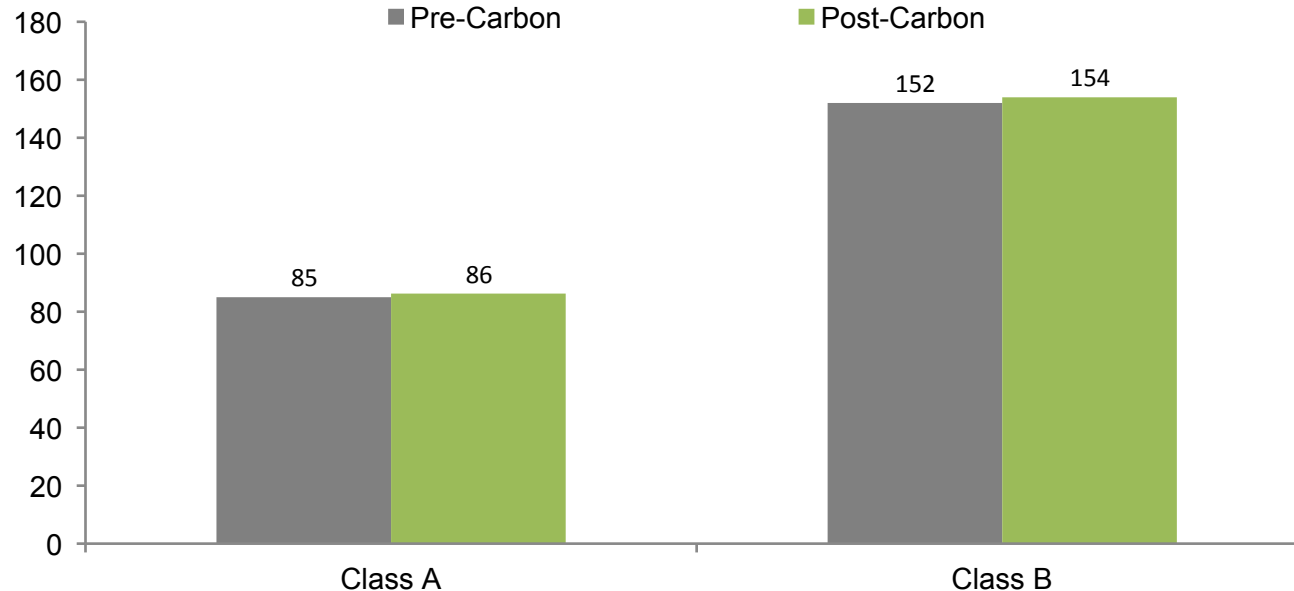
**Illustrative Hourly Ontario Energy Price (\$/MWh)**



## Context – Current Electricity Prices

- The chart below shows the all-in electricity price for Class A (large industrial) and Class B (small-medium enterprise) electricity consumers before and after the impact of cap and trade (absent of proceeds recycling).

**Current All-In Electricity Price**  
in \$/MWh



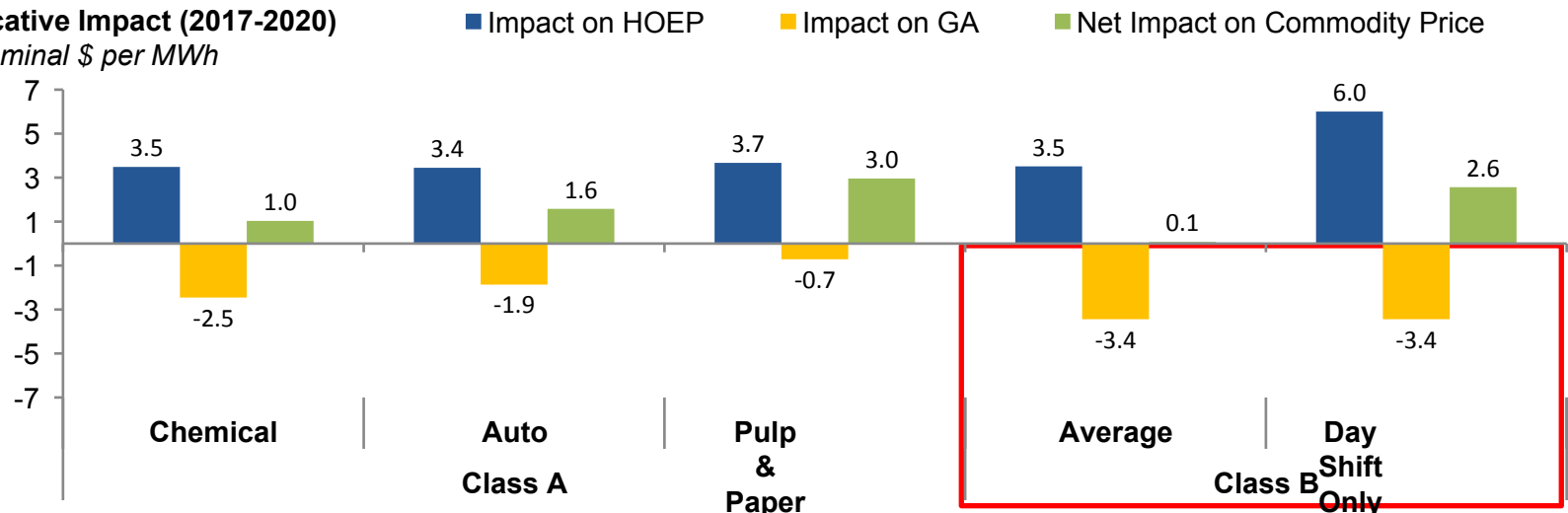
**Note:** Reflects a year-to-date September 2016 price for the average transmission-connected Class A consumer and for a 1 MW Class B load connected to Toronto Hydro. For illustrative purposes, the estimated impact of cap and trade for 2017 is included above.

# Cap and Trade Impact on Electricity Consumers

- There is significant variation in the commodity cost paid by electricity consumers due to differences in their Global Adjustment (GA) costs:
  - GA paid by Class A electricity consumers varies depending on their ability to take advantage of the Industrial Conservation Initiative (ICI) and reduce consumption during peak hours. Under ICI, large electricity consumers pay GA based on their share of peak demand during the five peak hours of the year.
  - GA paid by Class B electricity consumers is a volumetric rate that is applied to every unit of electricity consumption.
- Because of this variation, the net impact of cap and trade on the Hourly Ontario Energy Price (HOEP) and GA varies.
- For example, a medium sized Class B business that predominantly operates during the day would pay higher HOEP (due to increased carbon content in on-peak electricity) but the same unit rate GA as all other Class B consumers.

## Indicative Impact (2017-2020)

in nominal \$ per MWh



# Illustrative Impact to Electricity Consumers (2017-2020)

| Option                                                                                            | GHG Reductions in 2020* (Mt) | Total (2017-2020) | Class B Commercial Impact** (\$/MWh)           |          | Class A Industrial Impact*** (\$/MWh) |                     |                     |
|---------------------------------------------------------------------------------------------------|------------------------------|-------------------|------------------------------------------------|----------|---------------------------------------|---------------------|---------------------|
|                                                                                                   |                              |                   | Day Shift Only **** (e.g., small manufacturer) | Average  | High GA (e.g., chemical)              | Medium (e.g., auto) | Low GA (e.g., pulp) |
| CCAP estimate was based on recycling via GA to offset the average industrial consumer             | 3.25                         | \$1.32 billion    | \$2.30                                         | - \$2.50 | - \$1.10                              | \$0                 | \$2.35              |
| <b>1. Volumetric recycling in “all hours”</b> (as assumed in the September 12 Cabinet submission) | 3.25                         | \$1.10 billion    | - \$0.20                                       | - \$2.70 | - \$3.25                              | - \$2.70            | - \$1.30            |
| <b>2. Volumetric recycling in “off-peak hours” *****</b>                                          | 3.27                         | \$1.10 billion    | \$0.80                                         | - \$2.70 | - \$3.15                              | - \$2.50            | - \$1.60            |

**\* Note:** The forecast amount of greenhouse gas (GHG) emissions savings is based on planned and committed electricity projects that have not yet been funded by electricity ratepayers.

**\*\* Note:** Most residential consumers pay under the Regulated Price Plan (RPP). For simplicity, all non-RPP Class B consumers are referred to as “Class B/Commercial” throughout the deck. On September 15, 2016, the government introduced legislation that would provide an 8% rebate equal to the provincial portion of the Harmonized Sales Tax (HST) to consumers eligible for the RPP, such as residential households, small businesses and farms – exceeding the 2016 Budget commitment.

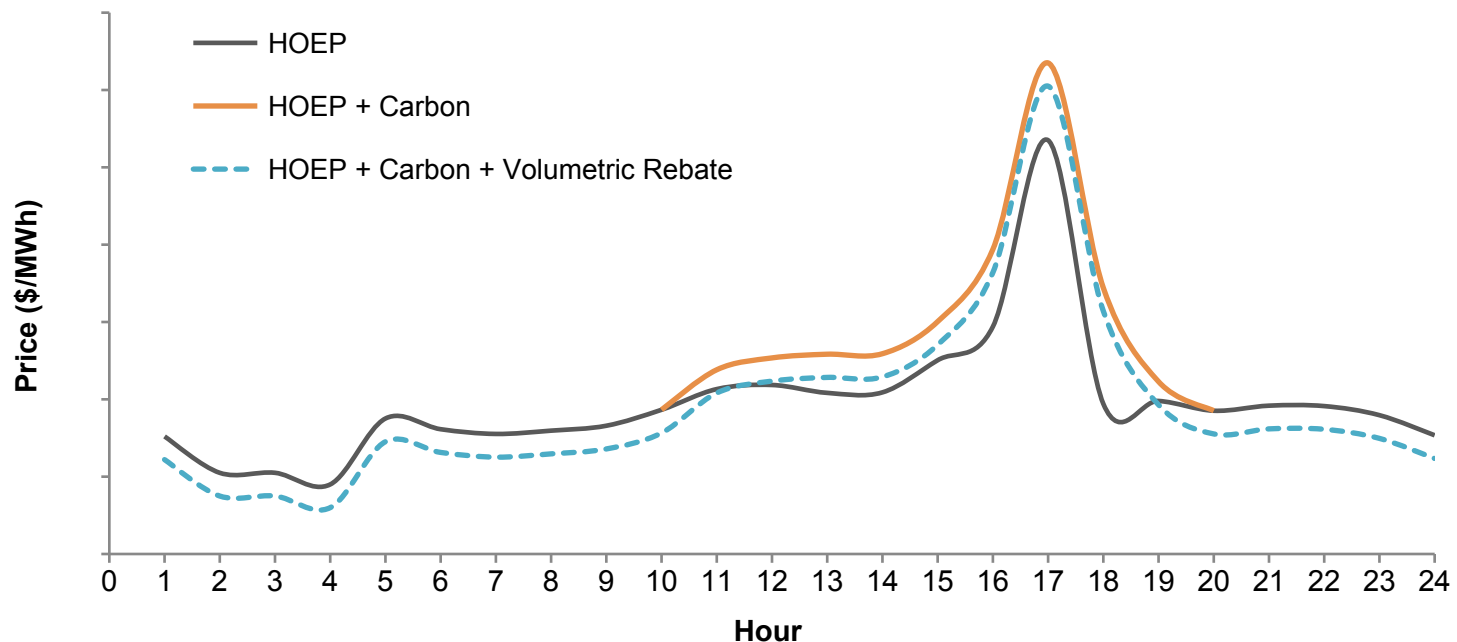
**\*\*\* Note:** The above benefits do not include the cost of ICI expansion (impact of about \$1/MWh) and the RRRP update (impact of about \$0.76/MWh). Proceeds recycling is net of the cost of carbon and represents an estimated average of the proceeds required over the first compliance period (2017-2020).

**\*\*\*\* Note:** The amount recycled to Class B is based on offsetting the impact of carbon, along with providing a small benefit to offset the cost of ICI expansion and RRRP. In order to offset the impact based on a 70% on-peak Class B consumer, an additional annual average of \$85 million would be required under volumetric “all hours” and an additional annual average of \$220 million would be required under volumetric “off-peak hours”.

**\*\*\*\*\* Note:** Based on IESO’s definition of on peak (hours 8 to 23 Monday to Friday ) and off-peak (all remaining hours in the week) for informal purposes; the wholesale market does not use a formal definition of “on-peak” and “off-peak” hours.

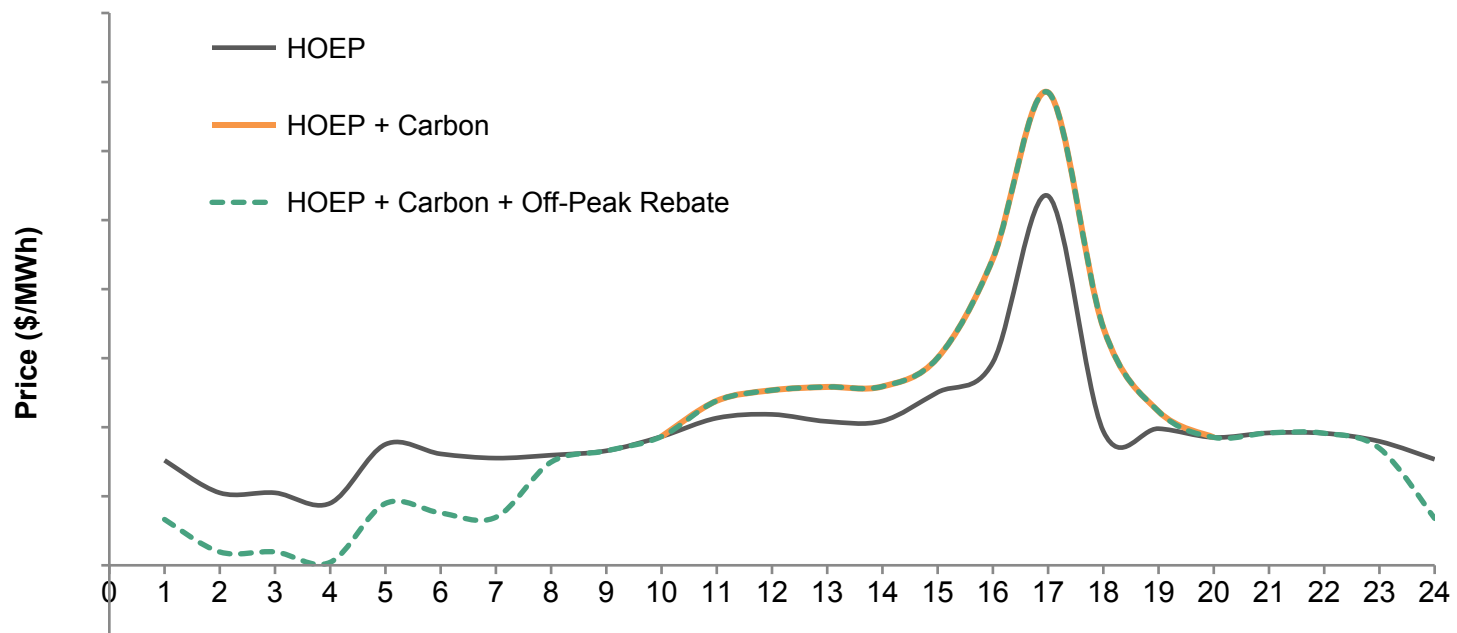
# Volumetric Recycling in “All Hours” – Illustrative Example

- Cap and trade will result in an increase in on-peak electricity prices. Redistributing auction proceeds volumetrically across “all hours” would maintain the incentive for off-peak electricity usage.



# Volumetric Recycling in “Off-Peak” Hours – Illustrative Example

- To further incent “off-peak” consumption, proceeds could be redistributed to off-peak hours only.



**Note:** Based on IESO's definition of on peak (hours 8 to 23 Monday to Friday ) and off-peak (all remaining hours in the week) for informal purposes; the wholesale market does not use a formal definition of “on-peak” and “off-peak” hours.

# Summary

- Companies with a load profile in which they predominantly operate during the day would receive less proceeds recycling under the volumetric “off-peak” option.
  - The commitment that no industrial/commercial electricity consumer would be worse off as a result of cap and trade would not be met under this option for those SMEs with a load profile in which they predominantly operate during the day.
- Under the volumetric “all hours” option, an SME that operates a “day shift” is expected to receive a small benefit of about \$0.20/MWh. An average 1 MW Class B consumer with a flatter load profile is expected to receive a larger benefit of about \$2.70/MWh, or about \$10,000 per year.
- The volumetric “all hours” option preserves the price differentials between on/off-peak while lowering the overall cost impact on industrial/commercial electricity consumers.
  - The volumetric “off-peak” option increases the price differential. Recycling proceeds to off-peak hours provides an incentive for electricity consumers to load shift.
  - The commitment that no industrial/commercial electricity consumer would be worse off as a result of cap and trade would be met for most SMEs under this option.