

# ENERGY-MARKET PAYMENT OPTIONS FOR DEMAND RESPONSE IN ONTARIO

PREPARED FOR



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THE **Brattle** GROUP



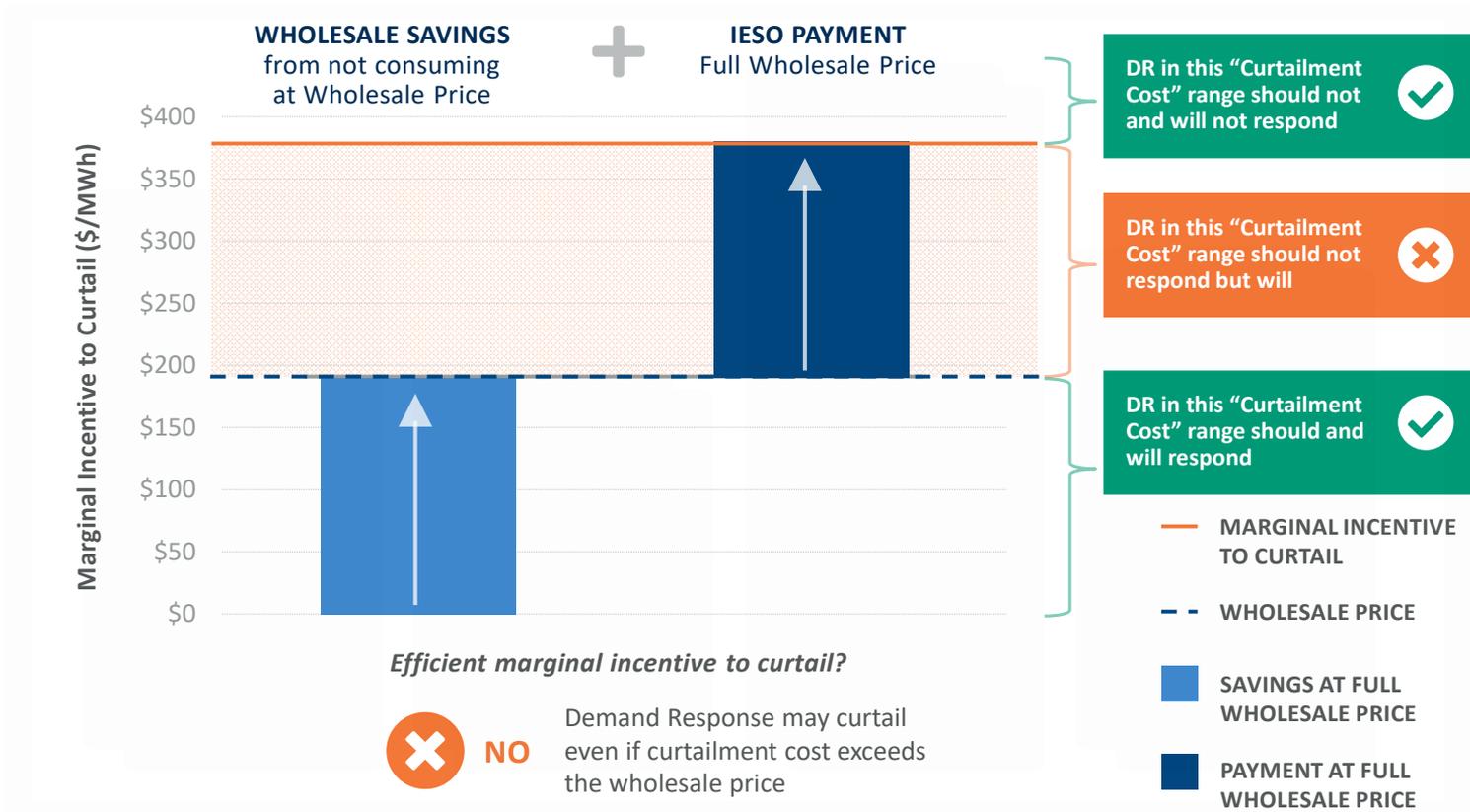
# Assessment of Status Quo “No Payments” Approach

## **Wholesale-exposed DR customers who curtail already avoid costs based on the wholesale price & marginal system cost, while RPP-exposed customers do not**

- When activated, wholesale-exposed DR customers avoid costs based on consumption against the wholesale price (equal to the system’s marginal cost), leading to economically efficient outcome
- RPP-exposed DR customers are not fully exposed to wholesale market conditions, and they do not respond to high wholesale electricity price signals
- Under some circumstances the basis for DR activation may not match the basis of settlement due to timing, locational, and/or price formation challenges; these circumstances should be further examined

# Assessment of the U.S. FERC 745 Payments Model

The U.S. FERC 745 customer benefits approach is not appropriate for Ontario: payments at full wholesale price overcompensate demand response, leading to uneconomic curtailments



# Indicative Customer Benefits Test

**“Threshold price” above which customers earn net benefits may be approximately \$100/MWh, though GA causes a shift in Net Costs from Class A to Class B customers**

## Customer Benefits from a 1 MW DR Curtailment

Illustrative Calculation at \$110/MWh Hourly Ontario Energy Price (HOEP)

Customer Benefits	Calculation	Class A Benefit	Class B Benefit	Net Customer Benefit
<b>+ Energy Price Reduction</b>	<i>Price Reduction × Final Demand</i>	\$725	\$1,775	\$2,500
<b>– DR Payments</b>	<i>Final Wholesale Price × Quantity of DR Curtailed</i>	\$32	\$78	\$110
<b>– GA Payment Increase</b>	<i>GA Payments after DR – GA Payments before DR</i>	\$396	\$1,804	\$2,200
<b>= Net Customer Benefit</b>	<i>Price Suppression – DR Payments – GA Increase</i>	<b>\$297</b>	<b>-\$107</b>	<b>\$190</b>

**Notes:** Indicative illustrative calculation in a time interval when: price is suppressed from \$110/MWh to \$109.90/MWh. Assume 15,000 MW of fixed-contract; 7,000 MW of deeming contract supply; 3,000 MW of non-price-dependent GA contracts or supply not reliant on GA payments. Class A/Class B ratio at 29/71 for hourly load share and 18/82 for annual GA share (2019 [Report](#) average).

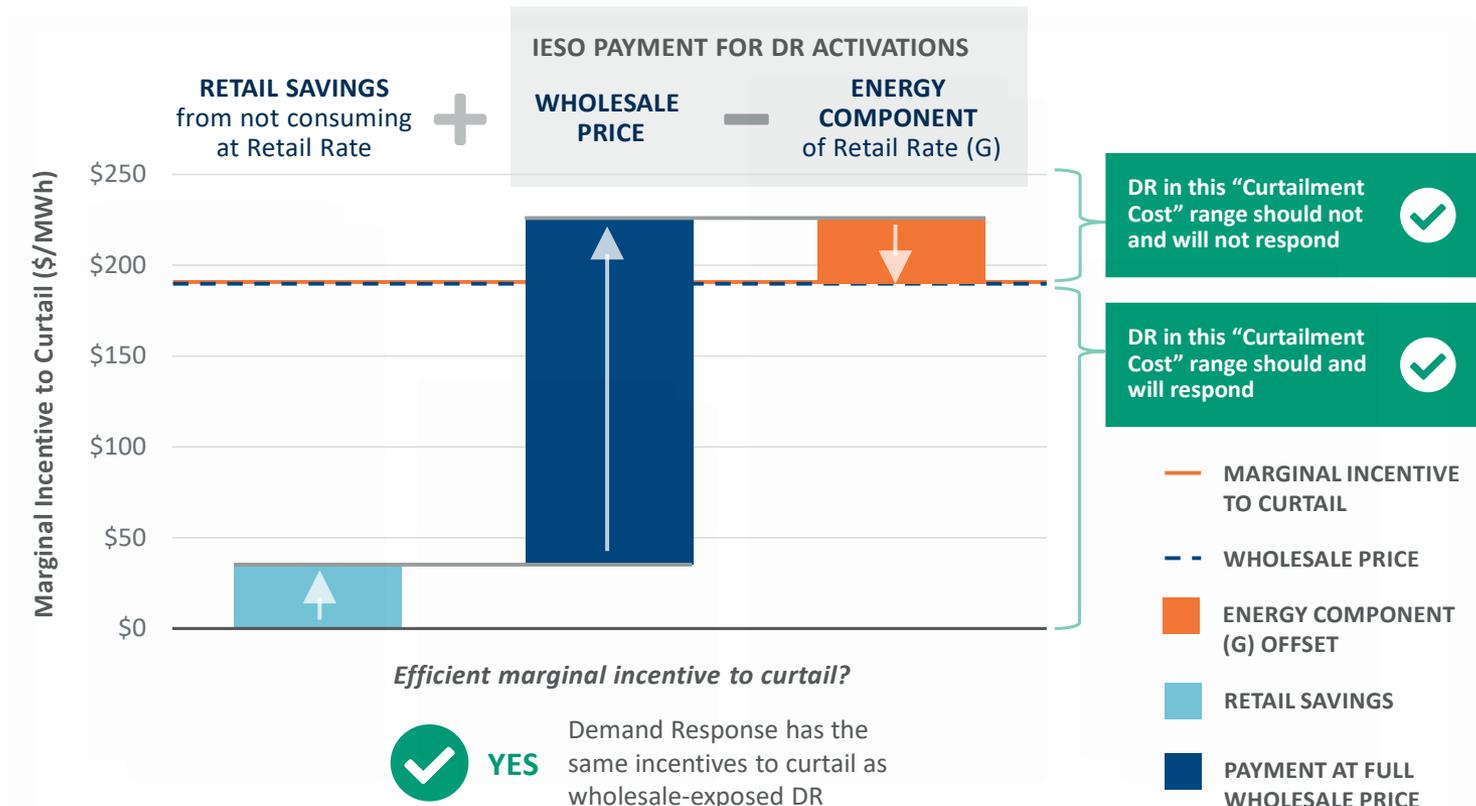
# Other Shortcomings of the U.S. FERC 745 Approach

- Customer benefits perspective implies a preference for transfer payments from suppliers to consumers, which is not consistent with competitive wholesale markets
- The “customer benefits” test does not readily translate to the Ontario context. Increases in Global Adjustments (GA) offset benefits from price reduction (especially at low and medium prices), shifting costs from Class A to Class B customers

**We recommend considering alternative supply-side participation models for DR such as U.S. pre-FERC 745 (*Wholesale minus G*) or Australia’s proposed approach (*Retail Purchase & Wholesale Sellback*)**

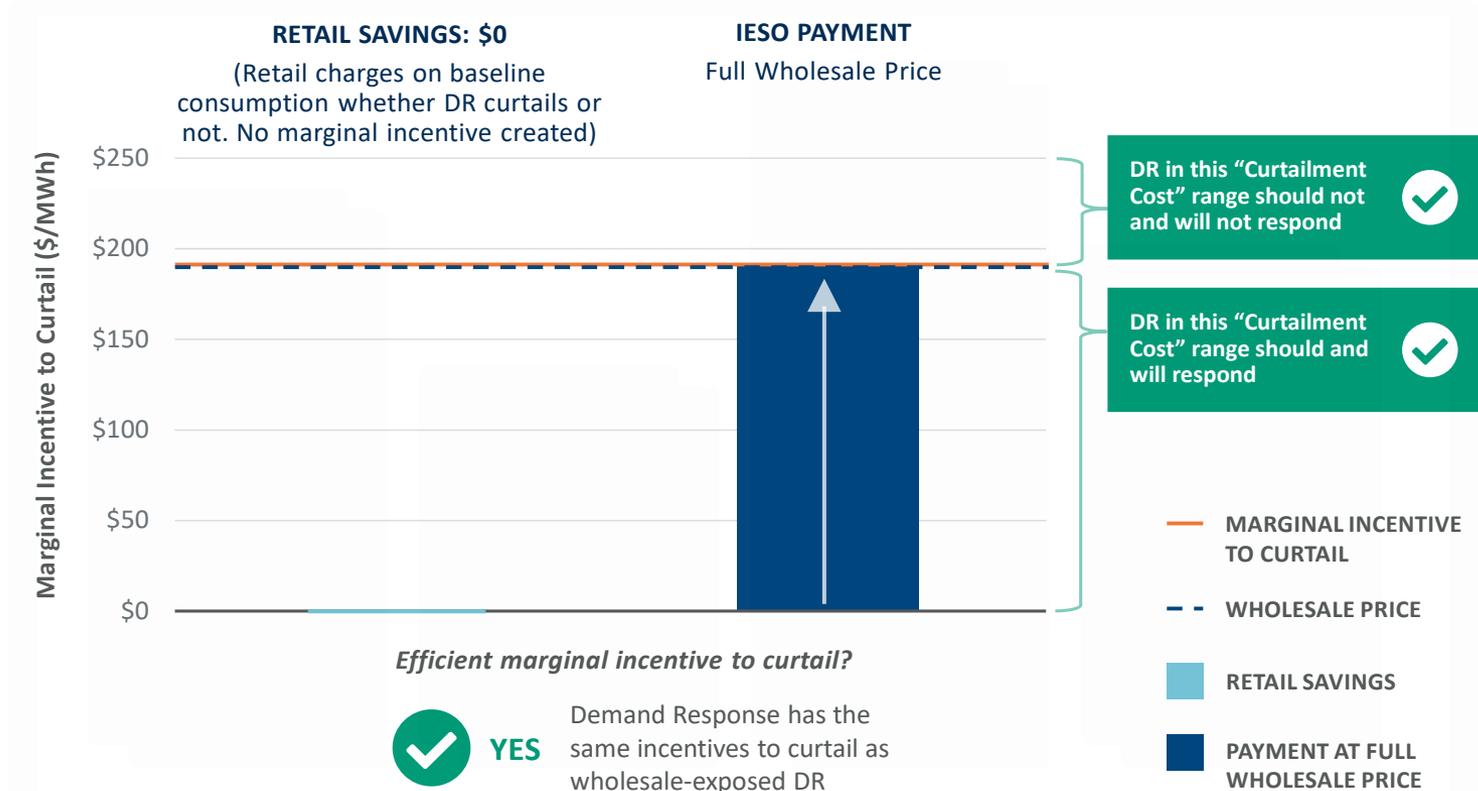
# U.S. Pre-FERC 745: Wholesale minus G

Payments at *Wholesale minus G* to RPP-exposed customers for activation result in economically-efficient signals to curtail



# Retail Purchase & Wholesale Sellback

**Demand response is compensated at full wholesale price for curtailment of already-purchased MWh, resulting in economically-efficient signals to curtail**



# Other Opportunities to Enhance Energy Market Participation for DR

- Consider a mechanism to factor in shutdown costs that may not be reflected in \$/MWh offer prices
  - Recommendation: two-part DR bid with a variable component (in \$/MWh) and a shutdown cost component (in \$/MW)
- Even for HOEP-exposed customers, there are circumstances of dispatch when settlement prices may not exceed the energy offer price (e.g. location-driven dispatch and pre-dispatch)
  - Make-whole payments (short-term) or improved pricing/dispatch (long-term) can help ensure the basis for dispatch and settlement is aligned
- Increase energy market price cap and adjust ancillary service shortage pricing consistent with the value of lost load for involuntary curtailments

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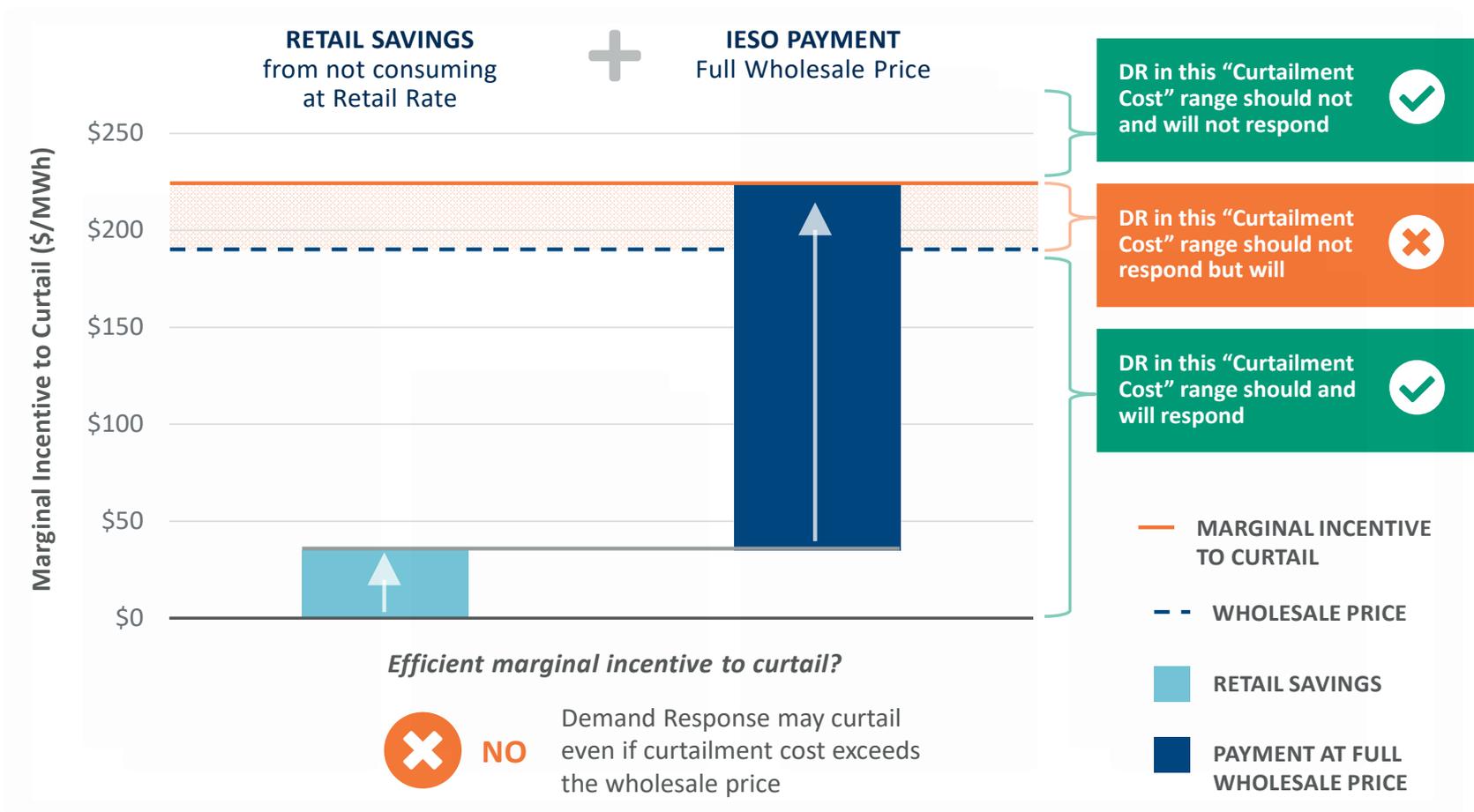
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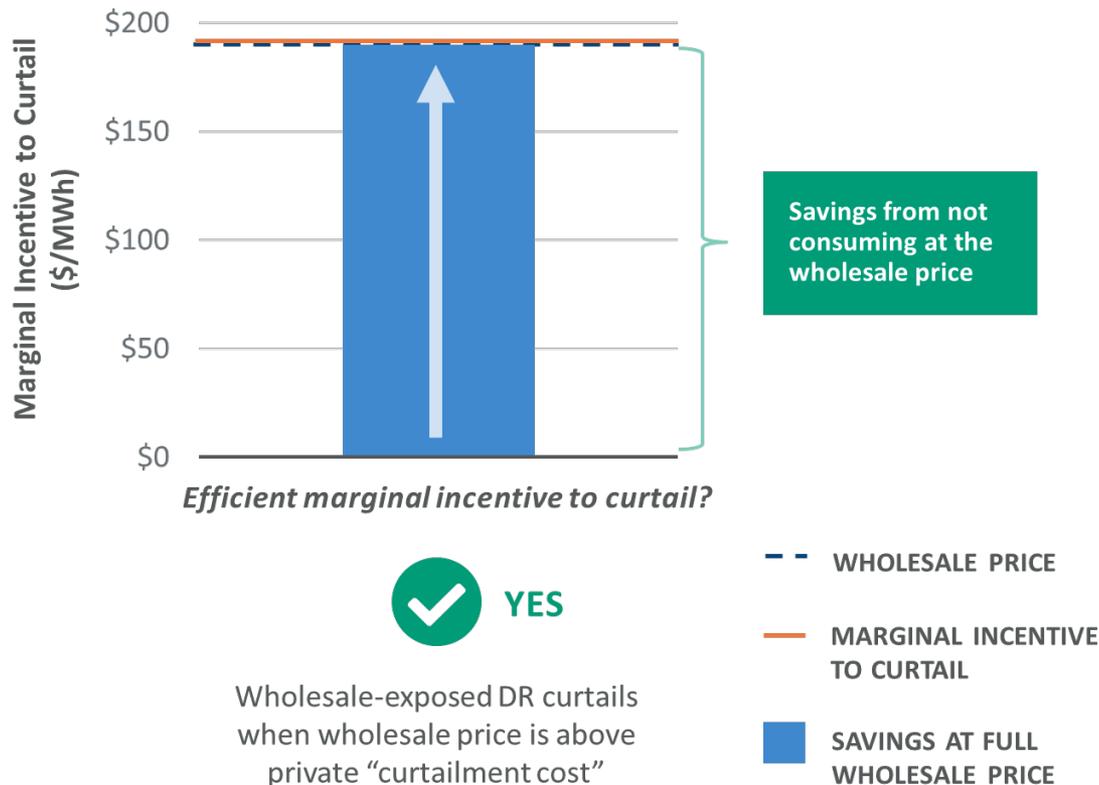
# Appendix

# Assessment of the FERC 745 Payments Model for Retail-Exposed Customers



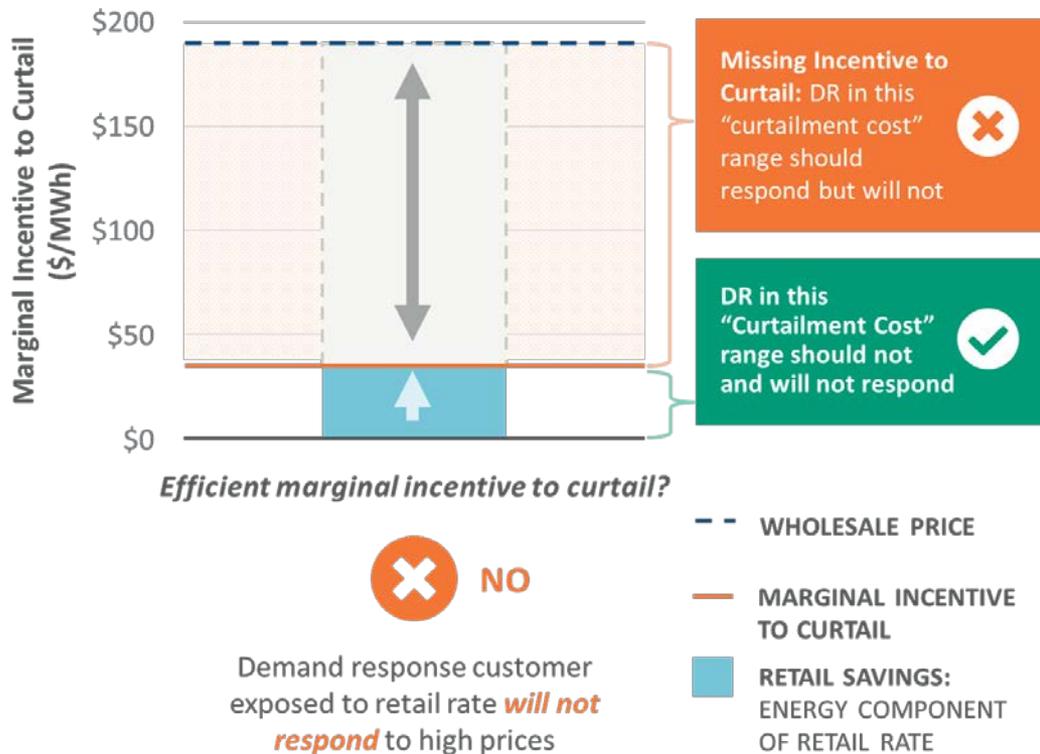
# Wholesale-Exposed Customers: Efficient Economic Incentive

**When activated, wholesale-exposed DR customers already avoid costs based on the wholesale price & marginal system cost, so the economic incentive to curtail is efficient**



# RPP-Exposed Customers: Missing Incentives to Respond

Customers who are *not* exposed to wholesale price (e.g. Regulated Price Plan, or RPP customers) do not respond when wholesale prices are high



# Retail Purchase & Wholesale Sellback Payment Flow

