

Incidence and allocation of electricity capacity costs in Alberta

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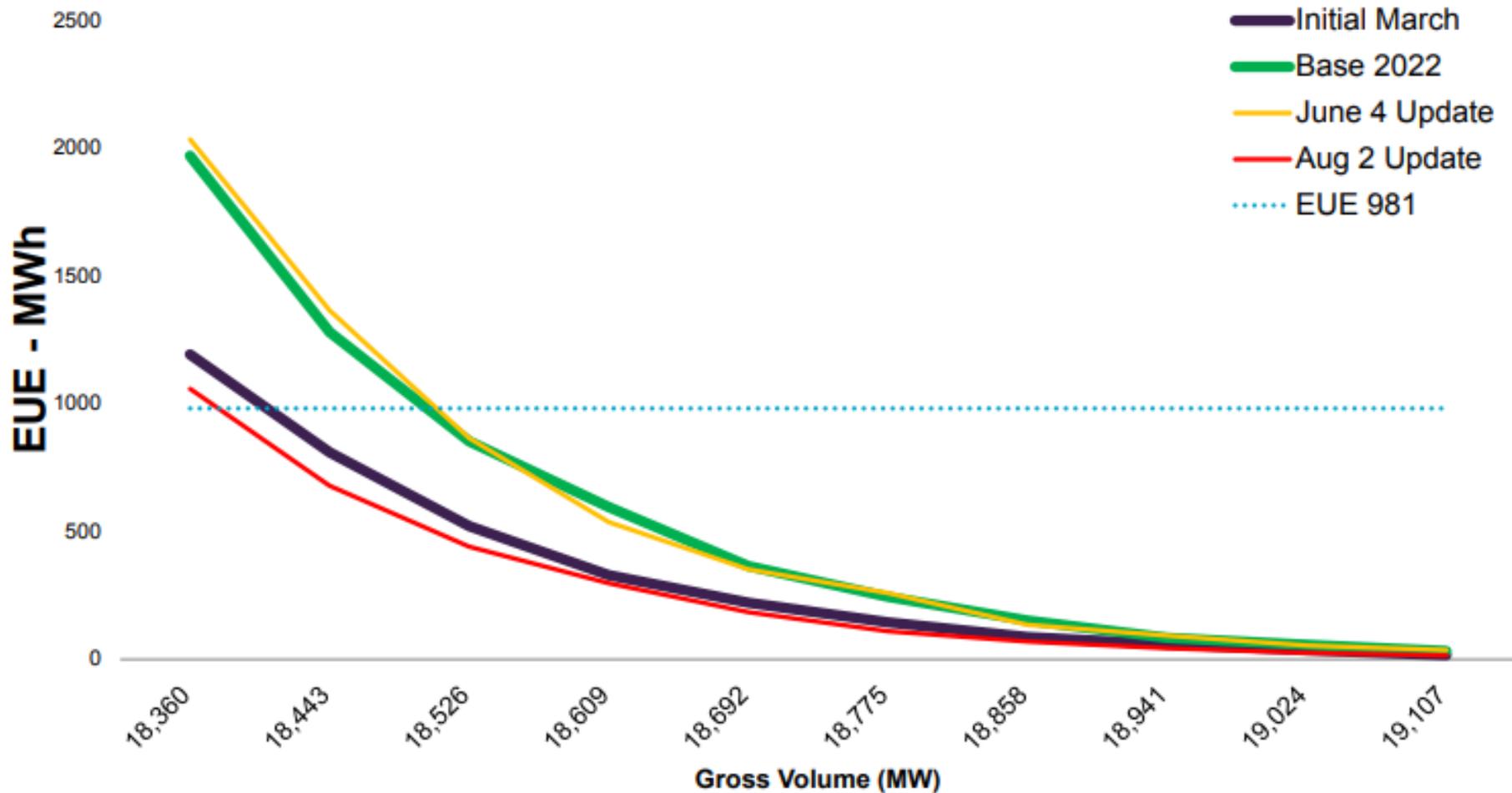
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- Incidence of capacity costs
 - Resource adequacy standard
 - Distribution of expected unserved energy
 - Capacity demand curve
- Allocation of capacity costs
 - Weighted Energy Method
 - Pricing incentives

Incidence of capacity costs: Resource adequacy standard set by government policy

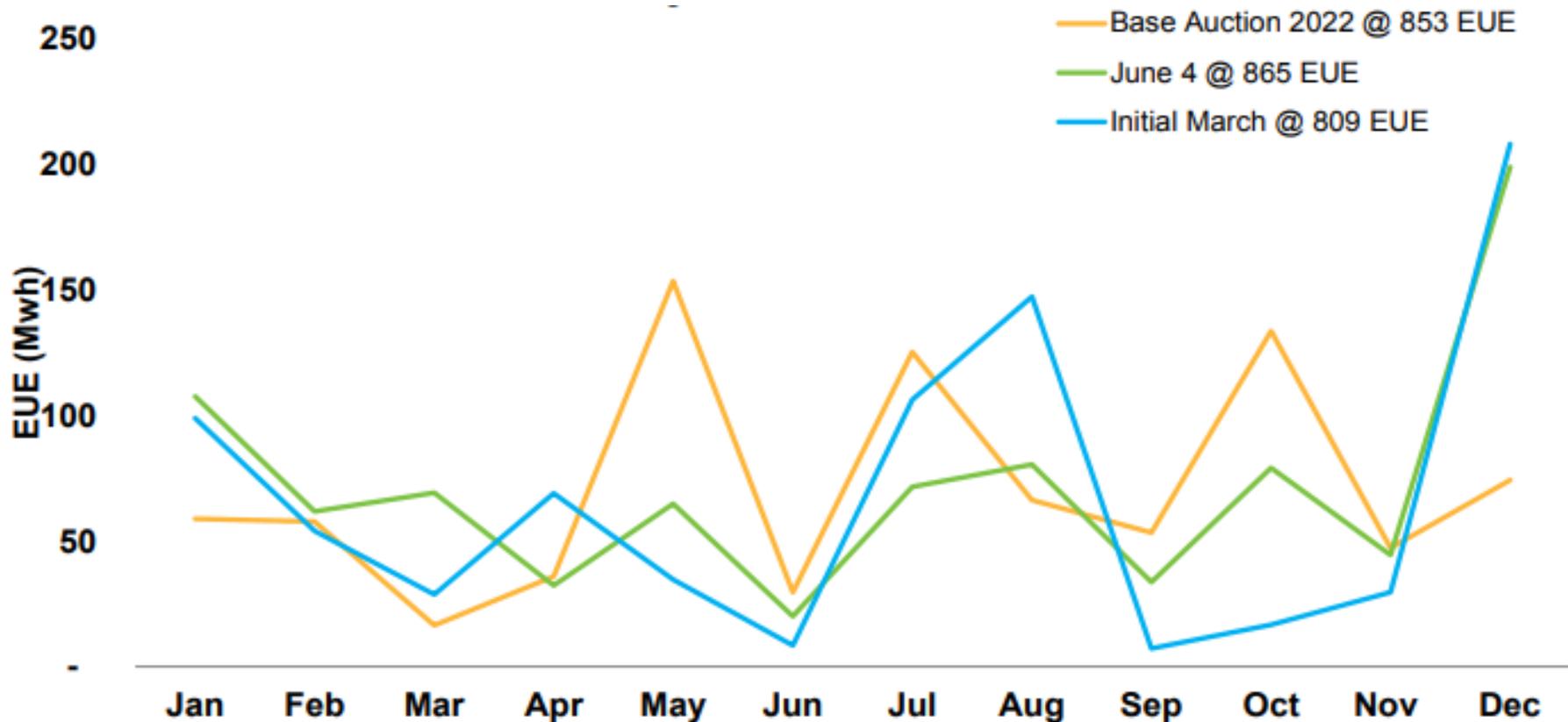
- Government policy sets out a minimum resource adequacy level based on an expected unserved energy (EUE) standard
 - Maximum of 0.0011% of expected energy to be unserved
 - Roughly equivalent to ISO Rule 202.6 – *Adequacy of Supply*
 - Minimum procurement volume \neq Target procurement volume
- Resource Adequacy Model (RAM)
 - Monte Carlo simulation of EUE outcomes
 - Uncertainty of demand, generator availability, energy-limited intermittent resources, and intertie outages
 - Demand based on historical profiles
 - Generator availability is largely based on historical behaviour (as these comprise the bulk of expected medium-term supply)

RAM: EUE and gross procurement volumes for obligation period 2021/22

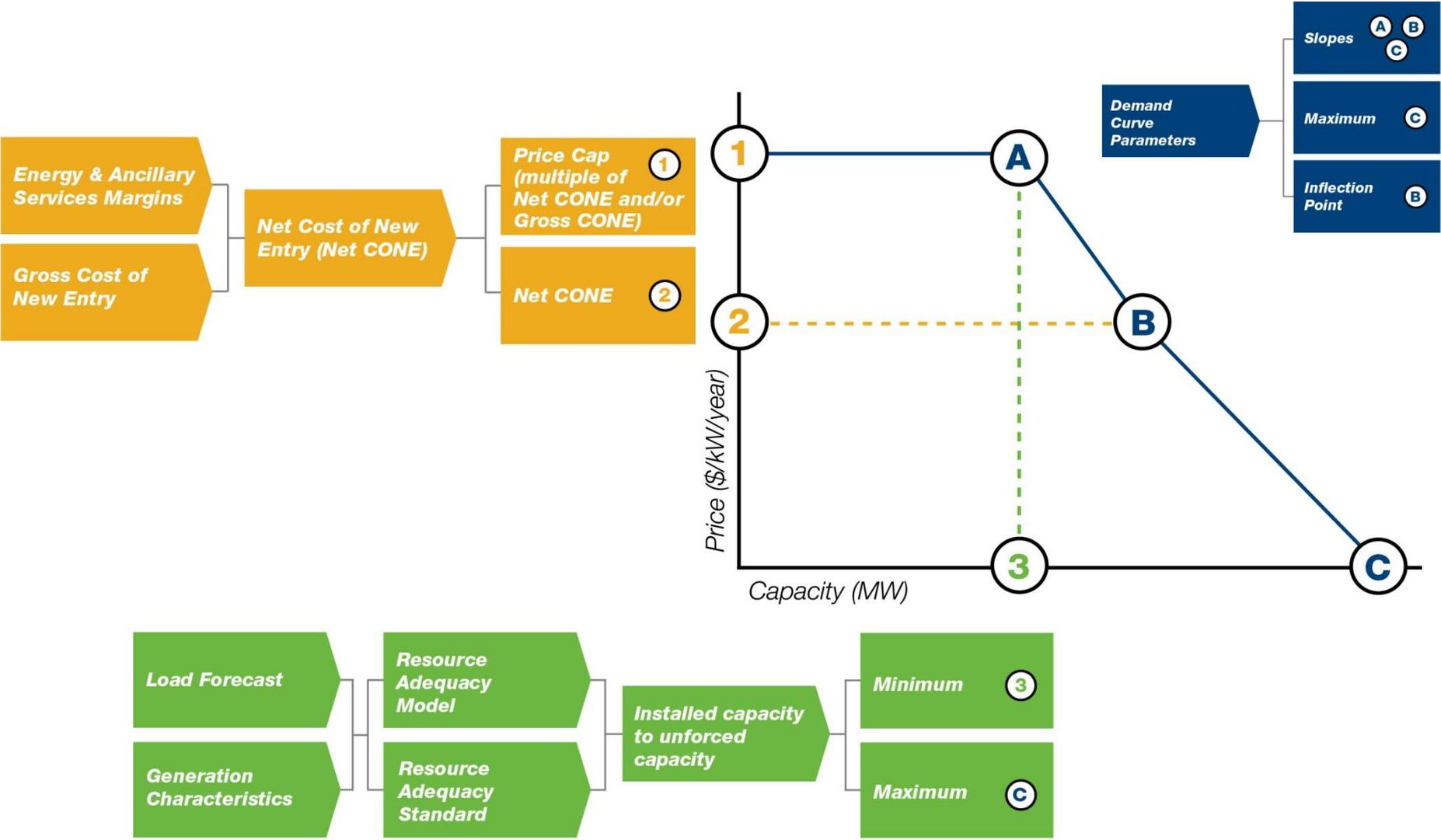


RAM: Monthly distribution of EUE for obligation period 2021/22

- Output from the RAM indicates which hours, days, months, etc. have the most/least EUE to inform cost allocation blocks



Capacity demand curve



Allocation of capacity costs: General approach set by government policy

- Capacity costs will be allocated to distribution facility operators (DFOs) or direct connects via ISO tariff
- A “Weighted Energy Method” will be used to allocate costs
 - A time-of-use framework: bins and weights set in advance
 - “to be allocated to all entities which have contributed to the need for the amount of capacity procured for the obligation period”
 - “time blocks must group together hours with consumption that has similar impact on the need for capacity in the obligation period”
 - “each weight must reflect the impact that consumption in the associated time block has on the need for capacity in the obligation period.”
 - Each bin must contain a minimum of 200 hours; a zero-weight bin is permitted but no more than 4,800 hours may be allocated to it
 - Different from the coincident peak methodology used to allocate transmission costs (under review by AESO)

Pricing incentives for efficient capacity investment over time

- Incentives to reduce need for capacity over time?
 - Procurement volumes for first two obligation periods (2021/22 and 2022/23) have been set using historical data
 - Future data will become historical
- Incentives for the prevention of free riding by capacity self-suppliers?
- Effect of changes to energy market, specifically the proposed implementation of a formal energy market power mitigation framework?
- Effect of allocation to DFOs rather than retailers?

Thank you