



Hello World: Alberta's Capacity Market

Features Requiring Policy Tradeoffs

PREPARED FOR

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THE **Brattle** GROUP

Content

Achieving Alberta Policy Goals

Capacity Market Design Components that Require Tradeoffs

- Shape and Parameters of the Demand Curve
- Price Lock-In for New Resources
- Market Power Mitigation in Capacity Market
- Performance Assessment and Payment Adjustment
- Alberta-specific Cost of New Entry (CONE)
- Participation from Industrial Customers either Gross or Net Load to Grid

Unique Features of the Alberta Power Market

Capacity market design elements and tradeoffs need to consider the unique circumstances in Alberta relative to other markets:

- Different starting point than most other markets:
 - Largely unmitigated energy-only market
 - Large share of expected retirements over next decade
 - Unconstrained transmission policy
- Smaller size of Alberta market
- High load factor and large industrial customer base
- High share of co-generation
- Different economic conditions, labor pool, fuel supplies
- Alberta-specific policy objectives

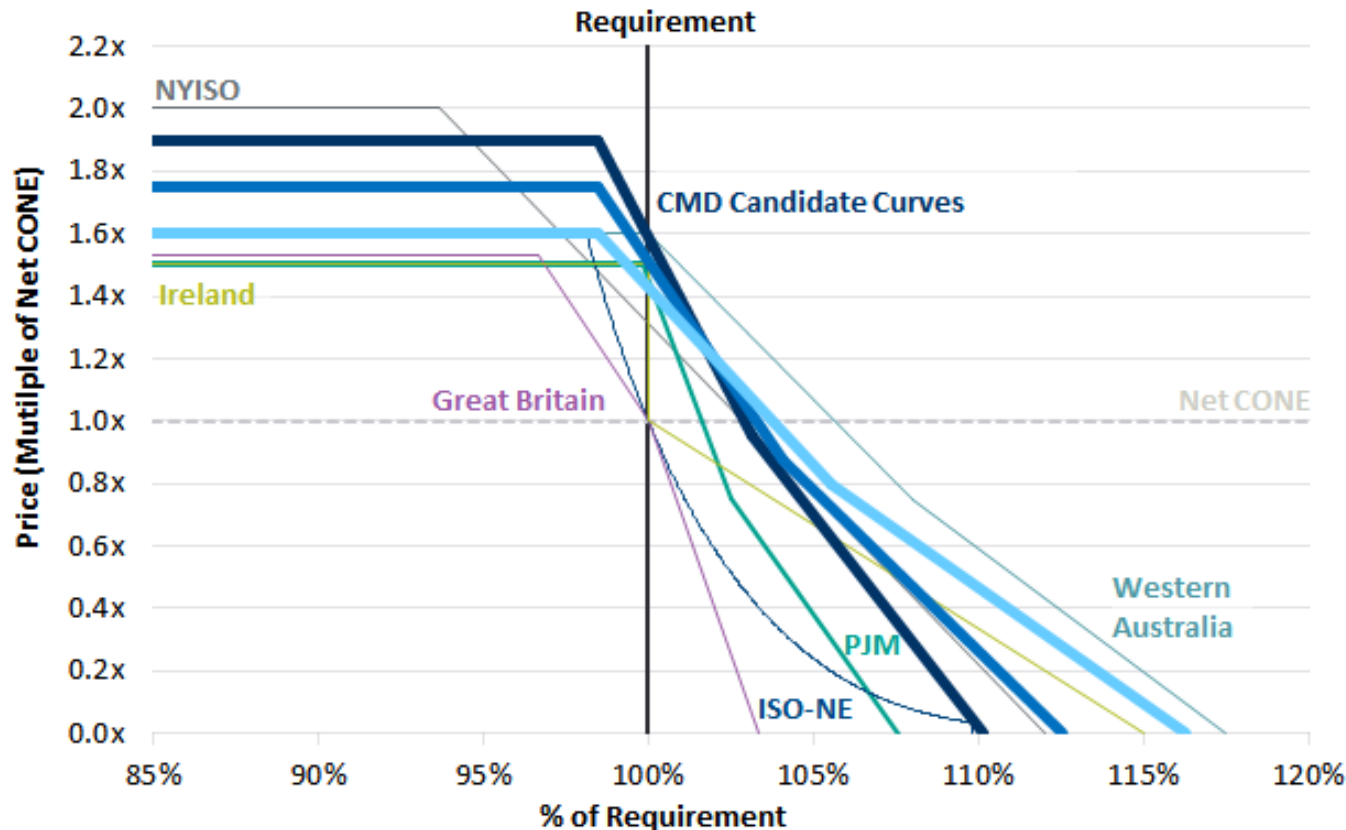
Alberta Policy Goals

Achieving Alberta policy goals requires tradeoffs across choices:

- Among other goals, the capacity market design strives to achieve:
 - Fair, efficient, openly competitive (FEOC)
 - Investment risks continue to be largely borne by investors
 - Attract private investment
 - Effective balance of capacity cost and supply adequacy
 - On-time implementation for 2021 delivery year
- Tradeoffs that have been the primary challenge of the design team include:
 - Cost versus reliability
 - Price certainty that would help encourage investments versus increased risks to consumers
 - Efficiency and fairness of market power mitigation measures

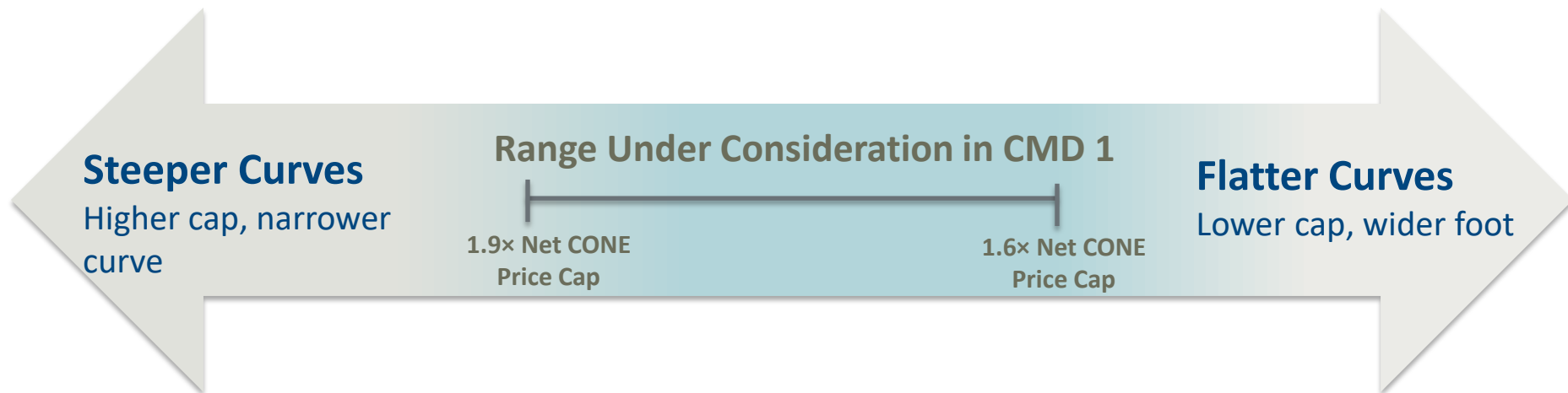
Shape and Parameters of Demand Curve

- Higher price cap than many other markets due to net CONE uncertainties
- Relatively wide demand curve to address larger supply and demand uncertainties relative to market size to achieve Alberta's reliability needs while mitigating price volatility



Tradeoffs on the Shape and Parameters of the Demand Curve

Choosing the parameters of the demand curve requires understanding the tradeoffs:



Advantages:

- Less reliability risk from underestimated Net CONE
- Less risk of excess capacity above the reliability requirement

Advantages:

- Lower price volatility
- Less exposure to exercise of market power & need for strict mitigation

Price Lock-in for New Resources

Tradeoffs for Price Lock-in for New Resources and Major Upgrades:



Advantages:

- Provides more revenue certainty to new investments
- Possibly reduces cost of capital for new resources
- Possibly more reliability

Advantages:

- Avoid risks of high customer cost from locking-in high-costs
- Maintain level playing field between all existing and new resources

Market Power Mitigation for Capacity Market

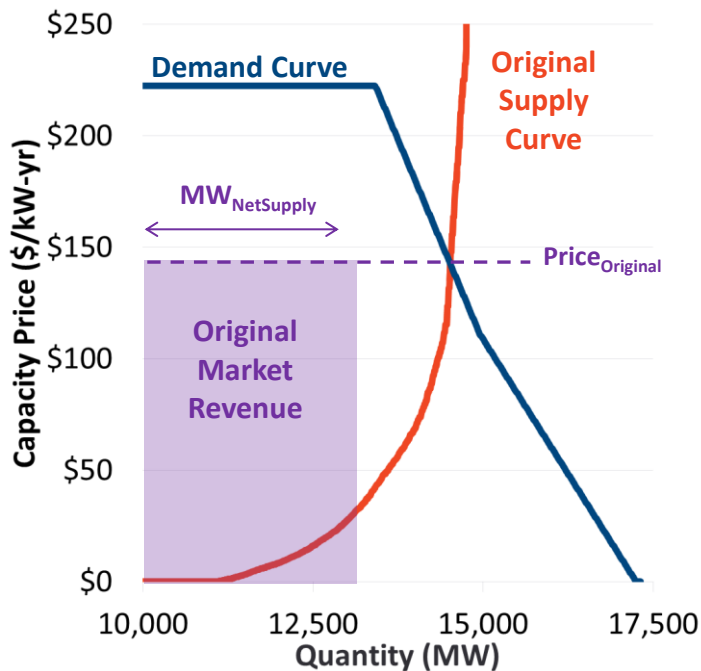
The mitigation portion of the CMD is evolving to answer the following questions:

- Who to mitigate?
 - Which participants have the ability to withhold?
 - Which participants also have the incentive to withhold?
- Which resource types should be exempt from mitigation?
- How to mitigate physical withholding?
 - How to design capacity-must-offer obligation?
 - How to review retirement and mothball decisions?
- How to mitigate economic withholding?
 - How to balance interest in setting the no-look offer thresholds, if any?
 - How to manage unit-specific offer mitigation?

Market Power Mitigation for Capacity Market

Market power mitigation is a concern for capacity markets because some suppliers have the ability and incentives to increase capacity market prices by withholding

Total Revenue if Offering All Supply

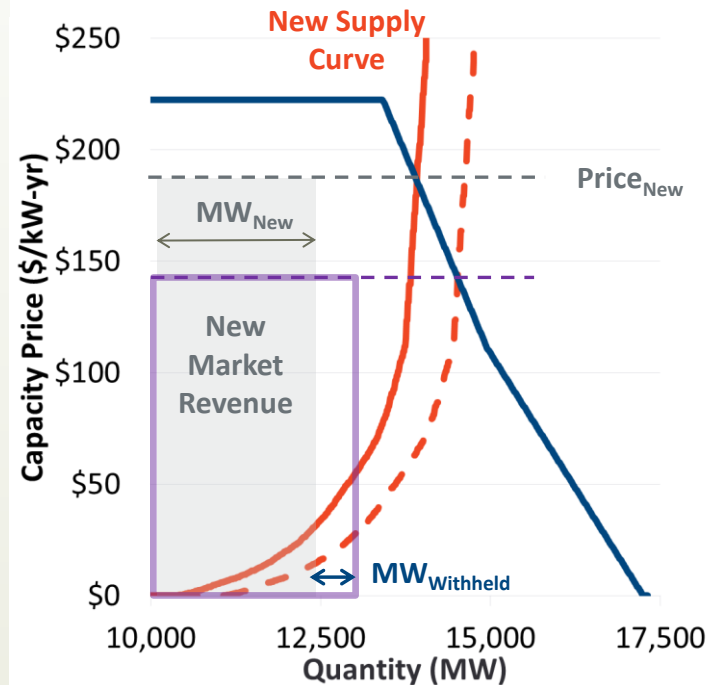


Original Market Revenue

$$MW_{NetSupply} \times Price_{Original}$$

VS

Total Revenue if Withholding



New Market Revenue

$$Price_{New} \times MW_{New}$$

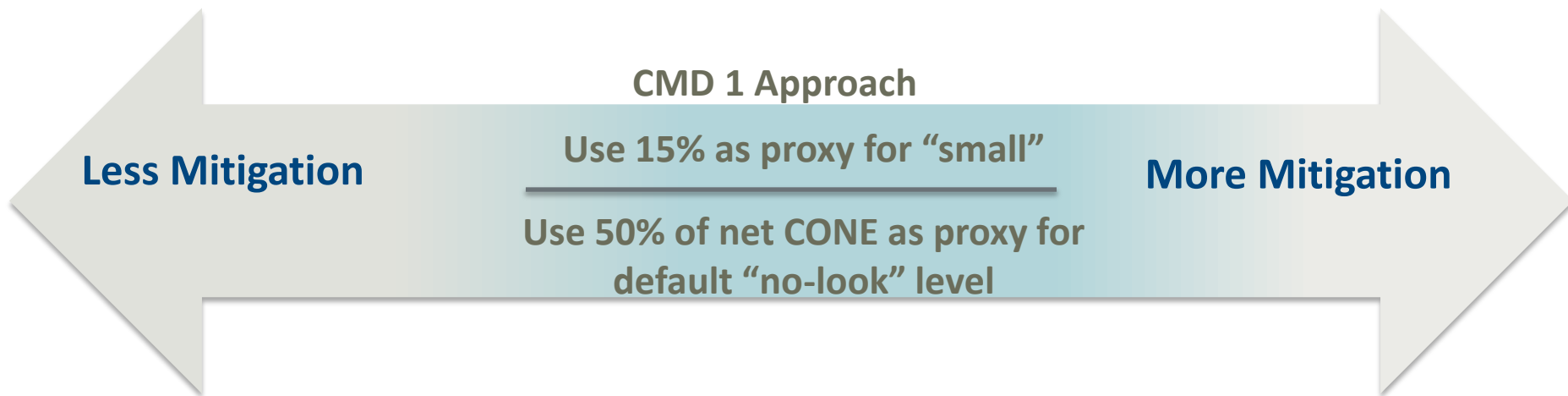
Market Power Mitigation for Capacity Market

CMD 1 suggests that certain supplier parameters will need to be reassessed continually. For example:

- Some suppliers may have the ability and incentive to withhold
 - Physical withholding via uneconomic retirement or mothball of supply
 - Economic withholding by offering supply above net going forward cost
- Suppliers with UCAP portfolio above 15% of total UCAP in the market would be mitigated; but the level will be monitored and re-evaluated
 - No-look default threshold of bids below 50% of Net CONE
 - Resource specific bid caps possible above default threshold
- The degree of monitoring and mitigation will also depend on the shape of the demand curve
 - Flatter demand curve shape reduces incentives for withholding as compared to steeper demand curves

Market Power Mitigation for Capacity Market

Mitigation approaches must consider tradeoffs between administrative burden versus risks of high prices for consumers:



Advantages:

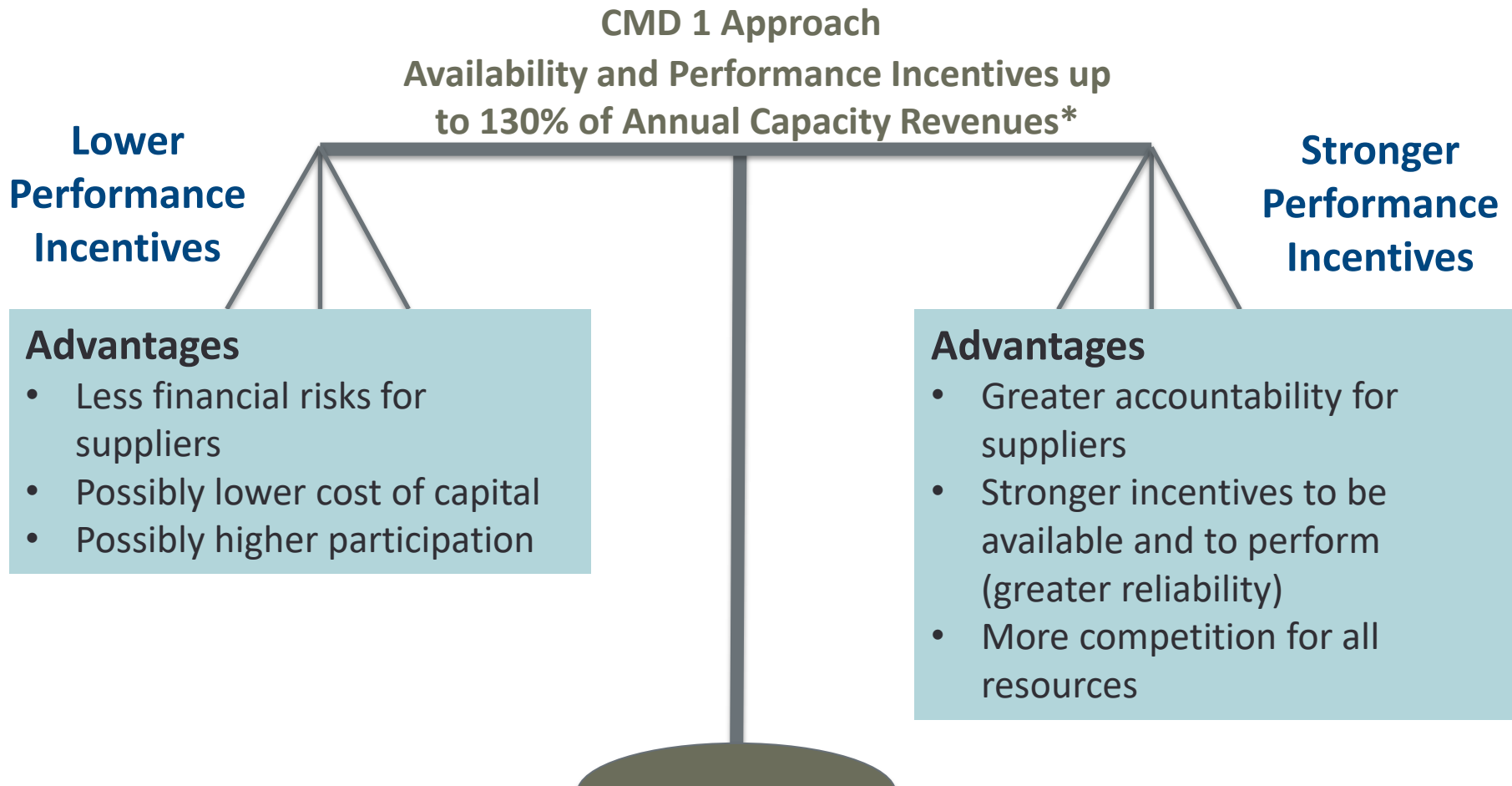
- Less administrative burden
- Less risk of "over-mitigation"

Advantages:

- Reduces risks and costs for customers
- Ensures level playing field for suppliers with large and small portfolios

Performance Payment Adjustments

Performance payment adjustments trade off generator risk and performance during reliability events:



*based on 1.3xMAX(base and last rebalancing auctions)

Alberta-Specific Net-CONE Estimate

The current CONE study will be Alberta-specific, focusing on:

- Alberta preferred technologies
 - Smaller units due to smaller market size
- Alberta-specific construction cost
 - Examine historical and forecast of labor and materials costs
 - Considerations for climate, altitude, and land costs
- Alberta-specific fuel supply conditions
 - For example: firm pipeline or dual fuel capabilities
- Financing costs for generation investments in Alberta
 - Estimates will consider the risks Alberta merchant generation investments versus the risks of sample companies (such as Canadian generation companies with different contract portfolios)

Self-Supply Industrial Customers

Unique for Alberta: High level of co-generation

Self-supplied customers have the option to participate on a “net” or “gross” basis in the capacity market

- Tradeoff of how to allocate resource adequacy responsibilities and costs will depend on where to place the risks of non-performance of customers' own supplies
- Considerations for how much capacity to procure for self-supplied load include how customers use electricity during capacity performance periods
 - Accounting for net generation available and net load
 - Curtailments of load not self supplied?

Take Aways

- Capacity market design requires careful balancing act of risks, costs, and reliability
- For the wholesale market to meet the short and long term policy and efficiency objectives will necessarily require compromises across design elements, striking a balance between:
 - Costs and risks to suppliers versus customers
 - Cost and supply adequacy
 - Under versus over-mitigation of markets
- The capacity market will continue to rely on market-based incentives and competition for achieving reliability needs
 - While limiting boom-bust cycles in investments and retirement – particularly during coal plant retirement and conversions

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