

A Market in Transition

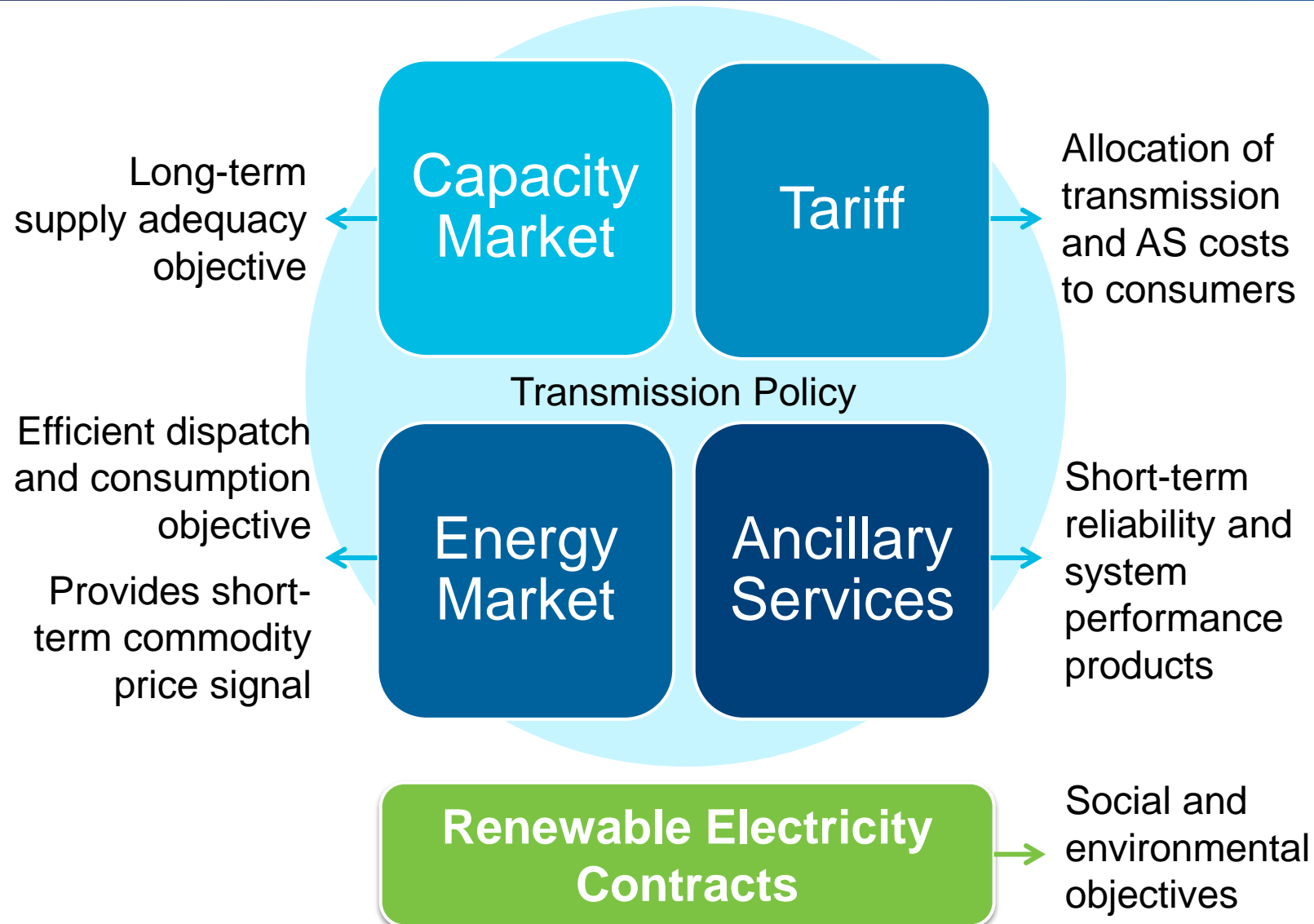
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- Where are we going?
- Process
- Understanding the tradeoffs
- Comprehensive Market Design (CMD) highlights
- The path forward

- AESO began market assessment in 2013 due to:
 - Considerable uncertainty whether Alberta's energy-only market would encourage sufficient investment in non-renewable generation
 - PPA expiry and federal coal retirement schedules
 - Global trend toward greener generation
 - Increased adoption of capacity markets across North America
- Change in provincial policy direction in 2015 accelerated the assessment and solidified AESO's position
- AESO provided recommendation to GoA in 2016 that Alberta's electricity market structure needs to evolve and include a capacity market

Our future market



- The final capacity market design will achieve sufficient investment to maintain supply adequacy and reliability, drive competition to minimize costs for consumers, and work efficiently with the energy and ancillary service markets.

Working groups and the Comprehensive Market Design

Working groups considered a range of possibilities to provide recommendations.

Credit
Reporting
Offer format
TX constraints
Buyer-side market power
Detailed UCAP calculations
Rebalancing auction mechanism
New resource qualification milestones
Settlement and billing
Further implementation detail on areas covered in SAM 3.0

Final CMD will be informed by working group recommendations and broad industry feedback.



Market design tradeoffs



- CMD 1 (*details are in draft and subject to change*) highlights:
 - AESO is the single buyer
 - Three-year forward period
 - Proposed one-year delivery market term running Nov.–Oct.
 - Alberta will clear as a single capacity region with one capacity price
 - Uniform price, sealed bid, single round auction
 - Broad eligibility; REP resources will continue to be ineligible as long as payment mechanisms stay the same; no energy efficiency in first auction
 - Demand-curve parameters will be set to create a downward-sloping, convex demand curve
 - Two rebalancing auctions will be held and completed 18 months and three months before the delivery period
 - Capacity resources will be required to deliver on obligations or face adjustments to payments
- Many more details to work through as we move towards finalizing the CMD

Demand side of the equation

- How do we ensure we are buying the right amount of capacity to have a reliable power system for Alberta?



Supply side of the equation

- What types of supply can compete in this market?
- How do we ensure capacity is of equivalent value so consumers get what they pay for?



Mechanisms for running the market

- How will the capacity market work?



Energy delivery

- How will the markets work together?



How do we ensure we are buying the right amount of capacity to have a reliable power system for Alberta?

- AESO is the single buyer
- Resource adequacy standard (set by government)
- Downward-sloping, convex demand curve
- Self-supply
- Cost allocation



What types of supply can compete in this market?

How do we ensure capacity is of equivalent value so consumers get what they pay for?

- Eligibility
- Unforced capacity (UCAP)
- Contract obligation
- Performance
- Capacity resources will be required to deliver on obligations or face adjustments to payments



How will the capacity market work?

- Three-year forward period
- Proposed one-year delivery market term running Nov.–Oct.
- Alberta will clear as a single capacity region with one capacity price
- Uniform price, sealed bid, single round auction
- Two rebalancing auctions will be held and completed 18 months and three months before the delivery period



How will the markets work together?

- *Ex-ante* mitigation reflecting capacity contract revenue
- Delivery obligations aligned with capacity contract
- Dispatch and scheduling changes (i.e., priced imports)
- Settlement changes (i.e., shorter settlements)
- Alignment with ancillary services market



Plan for implementation



Stakeholder engagement

■ Policy engagement ■ Regulatory processes ■

2016	2017	2018	2019	2020	2021
<p>GoA announces CM November</p>	<p>SAM 1.0 May</p> <p>SAM 2.0 August</p> <p>DoE policy direction August</p> <p>Stakeholder policy engagement November + December</p> <p>SAM 3.0 December</p>	<p>CMD 1 January</p> <p>Implement Reliability Modelling software tool Q1</p> <p>CMD 2 April</p> <p>CMD 3 early June</p> <p>Final CMD late June</p> <p>Draft market rules Q2-Q4</p> <p>Gross-CONE / Net-CONE estimation Q3</p> <p>Demand Curve regulatory filing Q4</p>	<p>Rules filed Q1</p> <p>Regulatory proceeding</p> <p>Implement IT system(s) for auction</p> <p>Create load forecast for first auction Q3</p> <p>First auction begins Q4</p>	<p>Implement IT systems for CM: settlement, clearance, performance</p> <p>Auction closes and initial obligations established</p>	<p>First delivery starting Q3/Q4</p>

■ AESO

■ DOE

■ AUC

Thank you