

Capacity Auction Reference Price and Maximum Auction Clearing Price Revision

January 2020

Purpose

This document summarizes the need for, and results of, a study to revisit the appropriate Reference Price and MACP that will be used in future auctions.

Introduction

The update to the Capacity Auction Demand Curve is needed because the Demand Response Auction pricing parameters have not been reviewed for validity given the change in focus as the IESO evolves the Demand Response Auction towards a more broad and competitive capacity product. The prior Demand Response Auction was intended for the limited purpose of securing a certain quantity of a single resource type (demand response) within the Ontario market and found its grounding in a former contract based program. The DRA was not a primary mechanism for ensuring system reliability, its focus was on developing demand based resources to be a competitive and reliable capacity product with the longer term goal of it participating in the same auction space as other resources.

The role of the new Capacity Auction will be expanded to attract and retain not only demand response, but also to open competition across an expanded set of resource types, including existing generation, storage and imports. Further, the Capacity Auction may need to acquire much larger quantities of capacity and will become an increasingly important tool for the IESO to maintain resource adequacy.

To develop updated pricing parameters within the Capacity Auction implementation timeline, the IESO initiated a study that was not intended to have the same level of rigor as a comprehensive bottom-up “traditional” Net Cost of New Entry (CONE) study typically used in other, more mature, capacity markets. Instead, it is intended to offer a higher-level consideration for the Reference Price and MACP over the short term and develop a proposed set of reasonable parameters for use beginning with the December 2020 Auction. Further auction evolution work is expected in the future to develop a more robust process to review, engage and update demand curve parameters on a regular schedule (i.e., every 2-3 years)

Reference Resource Approach

In arriving at the proposed Reference Price value for December 2020, several different conceptual approaches were considered in the absence of a bottom-up study and available data was evaluated that could be used to set such a price under each alternative. The cost of existing resource life-extensions, uprates, imports, demand response, and new resources all provide some indication of an appropriate Reference Price for the Capacity Auction because each of these resource types are among those that may be attracted or retained in the Capacity Auction (or any separate mechanism the IESO may develop to attract new generation). However, the implications of using each alternative resource type as the basis for the Reference Price are quite different. Setting the Reference Price based on a new resource through an indicative estimate of Net CONE was determined to be the most robust methodology because: (a) the Net CONE is the theoretical long run marginal cost of supply that Capacity Auction prices should eventually

converge to; (b) the Net CONE can be estimated with more accuracy than can the costs of other infra-marginal and existing resource types; and (c) enabling market-based capacity prices to rise up to and above Net CONE will allow the auction to provide discipline to the contract pricing for new resources (if any such contracts should eventually be pursued). Many existing resources, uprates, imports¹, and demand response resources are expected to have net costs below the Net CONE of new resources and should therefore be attracted into the Capacity Auction as long as the Reference Price is set consistent with an appropriate Net CONE value. Setting the Reference Price based on something other (and likely lower) than Net CONE could limit the Capacity Auction's usefulness for its intended purpose of supporting reliability in the most cost effective manner.

It is important to note that using a Net CONE value as the basis for setting the Reference Price of the demand curve does not mean the pricing outcomes of the auction would be biased toward the cost of new resources.

Rather, the market clearing prices will simply be set by the cost of the marginal resource that is needed to meet the reliability requirement. If this resource is a lower-cost existing resource, the clearing price will reflect these lower costs. If, however, lower-cost resources are not sufficient to meet the reliability requirement, the market price can rise to levels sufficient to attract the entry of incremental resources (including incremental resources available at the same cost as new generation).

While the auction design planned to be in place for December 2020 will not allow participation from new build (i.e.- not existing at time of auction) or uprated resources, this may change for future auctions pending further discussions including outcome from the Resource Adequacy Engagement (e.g., potentially enabling small new build resources). In the near term, new entrants will include imports and additional demand response resources. Regardless, establishing a suitable Reference Price enables an efficient outcome for the Capacity Auction and any alternative mechanisms that are used to acquire unbundled capacity services for Ontario.

The Reference Price will therefore be set at the estimated Net CONE of the anticipated lowest-cost marginal resource in Ontario that would be developed when new generation is needed. Based on analysis of available data from the Ontario market, this is anticipated to be a new frame gas combustion turbine (CT) plant. That cost is estimated to be approximately \$570/MW-day UCAP (business days) in 2021/22, which will be updated with inflation thereafter and reassessed every 2-3 years. As such, Reference Price for the December 2020 auction (2022/23 delivery) will be adjusted for inflation by one year to \$580/MW-day.

¹ Capacity is traded regionally and Reference Price should accommodate pricing of neighboring capacity up to the level of Net CONE to get access to imports from those markets.

Reference Price Build-up

Estimates of Gross CONE, E&AS revenue offsets, and Net CONE were compiled based on a range of publicly available data points and appropriate adjustments made to ensure consistency with the Ontario market. To arrive at the Ontario-adjusted estimates for each technology, gross CONE estimates from PJM, New York, and Alberta (for gas plants), as well as various other studies (for batteries) were used as a basis. Regional construction cost adjustments were then applied to translate costs from U.S. jurisdictions to Ontario before considering further capital cost differentiation and gas delivery and management (GD&M) adders that vary across zones within Ontario. The CONE is annualized with a discount rate represented by the after-tax weighted average cost of capital in a consensus range of 7.5-8.5% over a 20-year life. The E&AS offset estimates were derived from a combination of historical market data (both real and simulated), as well as forecasted net revenues by resource type across a range of simulations conducted for the IESO Non-Emitting Resources Subcommittee (NERSC). For both gross CONE and E&AS, an approximate midpoint estimate was selected that is likely to apply in Ontario (along with a range that represents the variability across locations in the province).

New Facilities’ Cost of Entry (2021\$/MW-day UCAP, Business Days)

	Gas CT Aero	Gas CT Frame	Gas CC	Battery
Net CONE	828	570	781	893

Maximum Auction Clearing Price

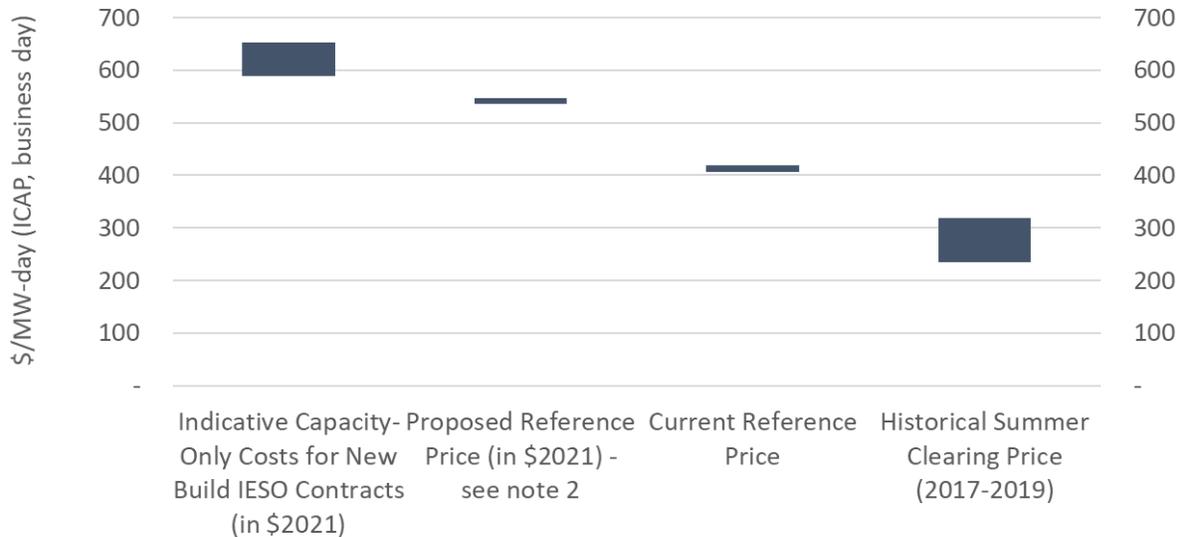
It is proposed to adopt an MACP at 2 × the Reference Price for both the summer and winter seasons. Based on more detailed modeling and experience from other jurisdictions, a range of 1.5 to 2 × Reference Price is expected to be needed in an annual capacity auction to support reliability requirements and account for potential error in estimating the Net CONE value. An additional multiple on the high end of that range will also be required due to the unique circumstances faced in Ontario including: (a) somewhat greater uncertainty in the cost of incremental supply given the lack of experience with merchant generation entry and the lack of a detailed Net CONE study by electrical zone and (b) the potential need to set the MACP at a level that will allow prices to rise sufficiently in the tighter summer season to be able to cover most of the costs of an annual resource in just one season.

Parameter Summary

The following table summarizes the proposed value for Reference Price and MACP for Capacity Auctions beginning in December 2020:

Parameter	Proposed Value
Reference Price	<p>\$570/MW-day UCAP in 2021/22</p> <p>Based on indicative Net CONE value (gas CT plant), based on summer UCAP ratings across 252 business days</p> <p>Updated with inflation for 2022/23+</p> <p>Same Reference Price in summer and winter seasons</p>
Maximum Auction Clearing Price	<p>2 × Reference Price</p> <p>Same MACP in summer and winter seasons</p>

By way of comparison, the summer system clearing price in the Demand Response Auction has been in a range of \$235-318/MW-day. Also, the proposed Reference Price is below the level of capacity cost implied by current “new build” IESO contracted gas facilities:



notes -

1. Price levels shown are in ICAP basis and are expected to be higher under enhanced qualification and performance assessment framework
2. Reference Price shown is \$542/MW-day in ICAP basis and \$2021. For the December 2020 auction (2022/23 delivery) this will be adjusted for inflation by one year and expressed in UCAP basis.