

# Capacity Cost Allocation Analysis Work Group Meeting #2

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October 31, 2018

- Review and discussion of analysis circulated by the AESO
  - Capacity Cost Rate Estimator Tool
  - Day-HE-Month Distribution of Expected Unserved Energy in the 2022-23 Capacity Obligation Year
  - Note: All analysis is in draft form; no decisions have been made or have been endorsed by the AESO
- Recommendations for the Tariff Design Advisory Group (TDAG) meeting on November 8
- Next steps

# Capacity Cost Rate Estimator Tool

# Capacity cost rate estimator: Preliminary version

- The spreadsheet tool estimates the capacity cost rates that would apply to energy consumption based on:
  - A variety of user-provided assumptions
  - Embedded assumptions about cost allocation process
- Important disclaimers about the tool:
  - The tool is in a preliminary form and the AESO cautions against drawing conclusions based on its results.
  - The tool has not been audited for correctness.
  - The AESO does not:
    - Endorse any of the assumptions upon which the tool operates
    - Certify that these assumptions are consistent with policy decisions
    - Endorse the preliminary results that may be derived from the tool

# Assumptions built into the tool (not exhaustive)

- All weekdays that are not holidays in a calendar month are treated the same; all weekends and holidays in a calendar month are treated the same
  - i.e., all weekday, non-holiday HE 15 in July are assigned to the same time period (bin) and have the same weight
- Consumption data are 2016 hourly DTS quantity (8784 hours)
- No feedback of capacity costs on the level of hourly consumption

# User inputs: Specification of the time periods

- The user must allocate the weekday/weekend-HE-month to a time period (bin)
  - Tool allows for up to 8 time periods to be specified
  - Insert numbers 1 through 8 into the yellow matrices (next slide)
  - Time period numbers themselves are arbitrary
- Based on these inputs the tool will:
  - Add up the number of hours of the obligation year that fall into each time period (8784 hours in total since the underlying data are from 2016)
  - Calculate the average demand in each time period
- To be clear, the tool does not determine how the time periods are to be specified

# Allocation of day-HE-month periods to (capacity) time periods

WEEKDAY (Time Bin)												WEEKEND/HOLIDAY (Time Bin)													
HE	January	February	March	April	May	June	July	August	September	October	November	December	HE	January	February	March	April	May	June	July	August	September	October	November	December
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1
8	2	2	2	2	2	2	2	2	2	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1
9	2	2	2	2	2	2	2	2	2	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1
10	2	2	2	2	2	2	2	2	2	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1
11	2	2	2	2	2	2	2	2	2	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1
12	3	3	3	3	3	3	3	3	3	3	3	3	4	1	1	1	1	1	1	1	1	1	1	1	1
13	3	3	3	3	3	3	3	3	3	3	3	3	4	1	1	1	1	1	1	1	1	1	1	1	1
14	3	3	3	3	4	4	4	4	4	3	3	3	4	1	1	1	2	2	2	2	1	1	1	1	1
15	3	3	3	3	4	4	4	4	4	3	3	3	4	1	1	1	2	2	2	2	1	1	1	1	1
16	3	3	3	3	4	4	4	4	4	3	3	3	4	1	1	1	2	2	2	2	1	1	1	1	1
17	4	4	3	3	4	4	4	4	4	3	3	3	4	2	2	1	1	2	2	2	1	1	1	1	2
18	4	4	3	3	3	3	3	3	3	3	3	3	4	2	2	1	1	1	1	1	1	1	1	1	2
19	4	4	3	3	3	3	3	3	3	3	3	3	4	2	2	1	1	1	1	1	1	1	1	1	2
20	4	4	3	3	3	3	3	3	3	3	3	3	4	2	2	1	1	1	1	1	1	1	1	1	2
21	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
22	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

enter values between 1 and 8 AND associated bin weights

# User inputs: Time period (bin) weights and the capacity revenue requirement

- For each time period (bin) to which a positive number of hours are allocated, the user must specify the time period (bin) weight
  - The restrictions set out in policy are not hard-coded as constraints in the tool
  - The user must check whether the relevant constraints are satisfied
  - Insert into the yellow column (next slide)
- The user must specify the capacity revenue requirement in dollars, i.e., the amount of money that must be raised by the WEM to fund capacity payments in the obligation period



# Assumptions and estimated rates

Time Bin (from tables)	# Weekday Hours	# Weekend Hours	Total Hours in Bin	Bin Weight	Average Demand	Total Demand in Bin (TWh)	Weighted Demand	Capacity Price (\$/MWh)	Revenue from Bin (check)
1	2277	2448	4725	0	6,391	30.20	0.00	0.00	0.00
2	1518	264	1782	1	7,155	12.75	12.75	18.15	231.39
3	1685	0	1685	2	7,270	12.25	24.50	36.29	444.58
4	592	0	592	4	7,540	4.46	17.86	72.59	324.03
5	0	0	0	99999	n/a	n/a	n/a	n/a	n/a
6	0	0	0	99999	n/a	n/a	n/a	n/a	n/a
7	0	0	0	99999	n/a	n/a	n/a	n/a	n/a
8	0	0	0	99999	n/a	n/a	n/a	n/a	n/a
				enter any positive value					
<b>Total</b>	<b>6072</b>	<b>2712</b>	<b>8784</b>			<b>59.66</b>	<b>55.11</b>		<b>1000.00</b>
							<b>Capacity Revenue Requirement (\$)</b>	<b>1,000,000,000.00</b>	
							<b>Unweighted Capacity Payment (\$/MWh)</b>	<b>18.15</b>	

- WG discussion and feedback
- Usefulness and enhancements?
  - Source of user-provided inputs
    - Time periods
    - Time period weights
    - Capacity revenue requirement
  - Limitations of 2016 DTS data
    - Based on incentives and effects that were relevant in 2016
  - Feedback effect of capacity costs on consumption requires additional analysis

# Day-HE-Month Distribution of Expected Unserved Energy in the 2022-23 Capacity Obligation Year

- The table on the next slide show that fraction of Expected Unserved Energy (EUE) for the capacity obligation year 2022-23 broken down by:
  - Weekday / weekend
  - Hour-ending (HE)
  - Month
- Underlying capacity is minimum procurement volume necessary to satisfy the resource adequacy requirement
- Important caveat:
  - The minimum procurement volume and the methodology and assumptions underpinning it have not been approved by the Alberta Utilities Commission
  - Therefore, the results in the spreadsheets are subject to change



- WG discussion and feedback
- Use of data to specify WEM parameters:
  - Time periods
  - Time period weights
- Recommended extensions and additional analysis
  - Level of capacity?
- Consistency of input and potential integration with the Capacity Cost Rate Estimator Tool

**Thank you**