

Capacity Market Cost Allocation Analysis (CCAA) Working Group Update

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Working group reviewed results from RAM re-running with bookend scenarios

Time Block	Hours	MW	MWh
Wide Peak Bookend			
On-Peak	1,242	(59.2)	(73,500)
Mid-Peak	2,742	0.0	0
Off-Peak	4,776	15.4	73,500
Total	8,760		0
Narrow Peak Bookend			
On-Peak	245	(300.0)	(73,500)
Mid-Peak	3,739	0.0	0
Off-Peak	4,776	15.4	73,500
Total	8,760		0

- *Wide on-peak: weekdays, HE15 to HE20, May to February*
- *Narrow on-peak: weekdays, HE18 to HE19, weeks 46 to 01 and HE16 to HE18, weeks 28 to 37 and 41 to 42*
- *Mid-peak: weekdays, HE08 to HE23, excluding on-peak hours*

Bookend analysis provided directional and indicative results with caveats

- Bookend scenarios resulted in moderate changes to minimum procurement volume
- Narrow peak bookend resulted in reducing minimum gross procurement volume by 37 MW
 - Bookend: 300 MW load reduction during narrow on-peak hours
 - Narrow peak bookend reduced occurrences of unserved energy in on-peak hours and did not materially affect monthly distribution
- Wide peak bookend resulted in increasing minimum gross procurement volume by 34 MW
 - Bookend: 59 MW load reduction during wide on-peak hours
 - Wide peak bookend resulted in shifting unserved energy from October and December to May without material reduction

Bookend analysis provided directional and indicative results with caveats (cont'd)

- High load factor of Alberta system results in unserved energy being distributed throughout most of year with limited opportunity for unserved energy redistribution to reduce procurement volume
- Resource adequacy model is probabilistic tool that was specified for annual aggregate results and was not intended to provide exact forecast of hourly unserved energy
- Resource adequacy model indicates higher probability that unserved energy will occur during weekdays rather than weekends and during on-peak hours rather than off-peak hours

Working group recommends on-peak time block containing about 400 hours

- Recommendation continues to be based on examination of hours that are “reasonably similar” in contribution to amount of capacity needed in obligation period
 - Examined as count of hours with unserved energy contribution greater than threshold needed to capture number of hours
- Working group also considered additional factors
 - Industrial loads can curtail in no more than 400 hours without impacting production capability
 - Daily on-peak period should be of short duration to enable loads to curtail without significant business disruption
 - Consistent daily start and end times and consecutive months in time blocks facilitate response by load

Examination of “reasonably similar” hours suggested three time blocks

HE	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Sum
Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	2	1	0	0	0	0	13
Feb	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	6	7	2	0	0	0	0	17
Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	2	2	1	0	0	0	0	0	0	8
Jun	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	3	1	0	0	0	0	0	8
Jul	0	0	0	0	0	0	0	0	0	0	0	0	7	11	12	19	18	14	2	0	0	0	0	0	83
Aug	0	0	0	0	0	0	0	0	0	0	0	1	2	1	6	8	8	6	3	0	0	0	0	0	35
Sep	0	0	0	0	0	0	0	0	0	0	0	0	4	5	3	6	6	6	2	1	0	0	0	0	33
Oct	0	0	0	0	0	0	0	1	4	5	9	9	10	8	7	9	9	9	8	10	8	3	0	0	109
Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3	2	1	0	0	0	12
Dec	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	4	13	10	5	3	0	0	0	38
Sum	0	0	0	0	0	0	0	1	4	6	12	11	24	25	29	45	51	74	38	21	12	3	0	0	356

- On-peak: weekdays, HE18 to HE19, November to February, and HE16 to HE18, July to October
- Mid-peak: weekdays, HE08 to HE23, excluding on-peak hours
- Off-peak: weekends and weekdays, excluding on-peak and mid-peak hours

Working group examined weights starting with unserved energy in each time block

- *Capacity Market Regulation* requires that one weight be assigned to each time block corresponding to the anticipated contribution that demand for and supply of electric energy in each hour has on amount of capacity needed in obligation period

Time Block	Hours	Sum of EUE	EUE per Hour	Weight
On-Peak	411	26.43%	0.064%	4
Mid-Peak	3,573	57.41%	0.016%	1
Off-Peak	4,776	16.16%	0.003%	0
Total	8,760	100.00%		

Working group provided additional considerations for weights

- Industrial loads generally curtail at about \$250/MWh delivered cost of electricity
- In hours in which industrial load has historically curtailed, pool price has typically averaged \$500-600/MWh
 - Ratio of 14:1 compared to pool price in hours that would be in mid-peak time block
- Costs should not be allocated to off-peak time block as there is minimal unserved energy in off-peak hours and abundant capacity
- Too high an on-peak rate in too few hours will encourage capacity market bypass
- Too low an on-peak rate will not encourage load to respond

Working group's initial recommendation is for weights in range of 12:1:0 to 16:1:0

- Working group supports relatively high on-peak rate and \$0 off-peak rate based on little EUE in off-peak hours

Time Block	Hours	Potential Rate Range in \$/MWh				
		4:1:0	8:1:0	12:1:0	16:1:0	20:1:0
On-peak	411	\$50-150	\$75-226	\$91-272	\$101-302	\$108-324
Mid-peak	3,573	\$12-37	\$9-28	\$8-23	\$6-19	\$5-16
Off-peak	4,776	\$0	\$0	\$0	\$0	\$0
Average	8,760	\$8-24	\$8-24	\$8-24	\$8-24	\$8-24

- Based on range of capacity market costs from \$0.5 billion to \$1.5 billion for first obligation period

Working group has identified additional considerations to be examined

- Rates in on-peak hours in some options may be higher than necessary to generate a response from load
- Rates in on-peak hours need to be high enough to generate a response that may reduce future capacity requirement
- High rates in on-peak and mid-peak hours may encourage loads to participate as demand resources in capacity market
- High rates in mid-peak hours may have effect of reducing exports that would otherwise be economic
- Unserved energy in off-peak hours is small but not zero, suggesting low rate in off-peak hours be considered
- Non-zero rate in off-peak hours may allow rate in mid-peak hours to be lower

Working group has identified additional considerations to be examined (cont'd)

- Establishing fourth time block for weekend daytime hours or for other hours could also allow rate in mid-peak hours to be lower
- Need to balance all considerations to optimize cost allocation rate
 - Don't create flat rate to avoid risk of too high an on-peak rate, which would result in no response from load
 - Don't create too high an on-peak rate that pays more than needed to generate response from load
- Need to consider alignment with other price signals from energy market and transmission tariff
- Need to examine impacts at individual consumer level

Working group will continue analysis after pause during March

- AESO will be focused on tariff proceeding during March
- Hourly unserved energy from RAM analysis for second obligation period (November 2022 to October 2023) will be provided to working group
- Further discussion of working group additional considerations
- Consideration of aggregate impact of prices from capacity market cost allocation, energy, and transmission tariff, to extent possible
- Examination of impact on individual consumer bills
- AESO will file application for capacity market cost allocation tariff methodology in late June 2019

Questions?