Information Document
Obligation Performance Period Assessment
ID #[xxxx-xx]

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1 Purpose

This Information Document relates to the following Authoritative Document:

(a) Section 206.8 of the ISO rules, *Obligation Performance Period Assessment* ("Section 206.8").

The purpose of this Information Document is to provide additional information in relation to Section 206.8. Specifically:

(a) firm consumption level baseline;

(b) guaranteed load reduction baseline;

(c) information related to the selection of the default penalty rate;

(d) assessment with ancillary services;

(e) assessment with asset substitution; and

(f) assessment with volume reallocation.

2 Look back baseline for a load asset providing a firm consumption level

The purpose of providing a look-back baseline, as required pursuant to subsection 4 of Section 206.8, is for the AESO to determine if the uniform capacity value from the load asset was actually available. The look back baseline estimates the average, typical consumption of a load asset providing a firm consumption level during the obligation period. Pursuant to subsection 4(c)(i) of Section 206.8, the AESO removes settlement intervals from the calculation of the look-back baseline which reflect that price responsive loads may have historically reduced consumption as pool prices increase, which typically occurs during periods of tight supply.

The AESO uses the applicable hours from the obligation period (November – October) to determine the 250 tightest supply cushion hours (hours in the historical dataset). For each of the hours in the historical data set, the AESO calculates the look-back baseline to determine the availability of the firm consumption level asset by performing the steps set out in subsection 4 of Section 206.8.

The AESO then uses the look-back baseline to determine the availability volumes for a load asset providing a firm consumption level by performing the steps set out in subsection 7(1)(d) of Section 206.8.

The following example illustrates the approach the AESO uses to determine the look-back baseline of a load asset providing a firm consumption level after the obligation period.

Illustrative Example 1: Establishing the look back baseline for a load asset providing a firm consumption level after the obligation period

For each of the availability hours (generally 250 hours) from the previous obligation period established for an asset pursuant to subsection 2(1) of Section 206.8, the AESO examines the 15 most recent business days prior to the day with the supply cushion hour if the hour falls on a business day, and the 10 most recent weekend days or holidays if the supply cushion hour falls on a non-business day. The AESO modifies the load asset's consumption for the supply cushion hour to reflect the "normal" consumption of the load.

The following example examines a subset of two availability hours (an on peak and off peak hour) from

[1] "Authoritative Documents" is the general name given by the AESO to categories of documents made by the AESO under the authority of the *Electric Utilities Act* and associated regulations, and that contain binding legal requirements for either market participants or the AESO, or both. AESO Authoritative Documents include: the ISO rules, the Alberta reliability standards, and the ISO tariff.

the entire set of (generally 250 hours) availability hours established for an obligation period. Table 1 contains an hour occurring on a business day, and an hour occurring on the weekend:

Table 1 – Supply cushion hours

Day/Date		1-2 p.m	2-3 p.m	3-4 p.m	4-5 p.m	5-6 p.m	6-7 p.m	7-8 p.m
27-Apr	Friday	**18.8**	**19.0**	**18.6**	**18.0**	**18.3**	**19.7**	**18.6**
6-May	Saturday	**23.1**	**23.7**	**23.8**	**23.2**	**22.1**	**20.7**	**19.8**

In this example on April 27th from 5 - 6 pm during the obligation period, the AESO looks back to the same hour on the 15 most recent business days before the day with the supply cushion hour. Table 2 below displays the metered volumes for the previous 15 business days:

Table 2 - Determination of look-back baseline for a load asset providing a firm consumption level on a business day

Date/Day			1-2 p.m	2-3 p.m	3-4 p.m	4-5 p.m	5-6 p.m	6-7 p.m	7-8 p.m
03-Apr	Tuesday	Day 1	22.3	23.1	23.9	23.1	22.3	19.9	19.1
04-Apr	Wednesday	Day 2	20.0	19.5	11.6	10.2	19.8	23.5	17.6
05-Apr	Thursday	Day 3	24.6	25.4	24.6	24.6	23.9	20.7	20.7
06-Apr	Friday	Day 4	12	13	13.5	11.7	12	22	19
07-Apr	Saturday	Weekend	23.55	23.85	24.3	23.85	23.25	22.5	21.75
08-Apr	Sunday	Weekend	23.25	25.2	24.6	23.25	21	19.5	18
09-Apr	Monday	Availability hour	15.75	15	16.05	15.9	15.9	16.05	15.9
10-Apr	Tuesday	Day 5	15.6	15.9	15.75	15	15.15	15.75	15
11-Apr	Wednesday	Day 6	21	21.75	22.5	21.75	21	18.75	18
12-Apr	Thursday	Day 7	23.25	24	23.25	23.25	22.5	19.5	19.5
13-Apr	Friday	Day 8	12	11.25	12	11.7	12	21.75	21
14-Apr	Saturday	Weekend	23.55	23.85	24.3	23.85	23.25	22.5	21.75
15-Apr	Sunday	Weekend	23.25	25.2	24.6	23.25	21	19.5	18
16-Apr	Monday	Delivery Event	15	15.75	15	16.05	15.9	15.6	15
17-Apr	Tuesday	Day 9	15.75	16.2	15.6	15.9	15.75	15	15.15
18-Apr	Wednesday	Delivery Event	21.75	22.5	21.75	21.75	21	20.25	19.5
19-Apr	Thursday	Day 10	12	11.4	11.7	11.25	11.7	22.5	21.45
20-Apr	Friday	Day 11	25.2	23.85	25.2	24	23.7	23.25	21.75
21-Apr	Saturday	Weekend	24.6	24.3	24.6	23.85	23.25	20.7	20.25
22-Apr	Sunday	Weekend	24	23.85	23.25	23.25	21	20.25	18.75
23-Apr	Monday	Day 12	15.75	15	16.05	15.9	15.9	16.05	15.9
24-Apr	Tuesday	Day 13	15.6	15.9	15.75	15	15.15	15.75	15
25-Apr	Wednesday	Day 14	23.25	25.2	24.6	23.25	21	19.5	18
26-Apr	Thursday	Day 15	23.25	23.55	23.25	23.25	22.5	22.2	21.45
Tight Supply Cushion Hour			**18.8**	**19.0**	**18.6**	**18.0**	**18.3**	**19.7**	**18.6**

The AESO averages the load's metered volumes during the previous 15 business days before the day with the supply cushion hour, using the same hour ending (6 pm) as the supply cushion hour.

Pursuant to subsection 4, of Section 206.8, the AESO excludes any days from the calculation of the look-back baseline if one of the following has occurred:

(a) delivery hour (see subsection 4(b)(ii) – supply shortfalls occurred on April 16th and 18th as highlighted in the orange rows in Table 2 above;

(b) availability hours (see subsection 4(b)(i) – an availability hour occurred on April 9th (3 - 4pm) as highlighted in dark green in Table 2 above; and

(c) weekend days and holidays (see subsection 4(a)(ii), as the supply cushion hour occurred on a business day. Weekends are highlighted by the grey rows in Table 2 above.

The AESO calculates the hourly look-back baseline for that hour as the average of the un-highlighted rows in Table 2, being the 15 previous business days, same hour ending, excluding the delivery hour, availability hours, weekends and holidays. This calculation results in an hourly baseline of 18.3 MW, as shown in Table 2 above in the “tight supply cushion hour” cell highlighted in yellow.

For the second hour in this example, the hour occurring on the weekend, the AESO establishes the look-back baseline for that hour by examining the 10 most recent weekend or holiday days prior to the day with that hour. The following is an illustrative example of how the AESO establishes a look-back baseline for a load asset providing a firm consumption level if the hour in the historical data set falls on a weekend:

Table 3 – Determination of look-back baseline for a load asset providing a firm consumption level on a weekend

Date/Day			1-2 p.m	2-3 p.m	3-4 p.m	4-5 p.m	5-6 p.m	6-7 p.m	7-8 p.m
25-Mar	Sunday	Day 1	23.55	23.85	24.3	23.85	23.25	22.5	21.75
26-Mar	Monday	Weekday	15.5	16.0	18.0	22.3	10.0	22.0	21.0
27-Mar	Tuesday	Weekday	20.0	20.0	21.0	22.5	19.0	18.6	19.0
28-Mar	Wednesday	Weekday	17.5	19.0	18.9	18.2	16.0	16.5	17.0
29-Mar	Thursday	Weekday	18.0	16.3	16.7	18.0	17.8	17.5	17.5
30-Mar	Friday	Weekday	20.0	21.2	23.0	22.1	19.0	20.0	19.5
31-Mar	Saturday	Availability hour	23.55	23.85	24.3	23.85	23.25	22.5	21.75
01-Apr	Sunday	Delivery Event	16	18.7	19.5	12.6	22.1	19.4	19.08
02-Apr	Monday	Weekday	20.0	19.5	11.6	10.2	19.8	23.5	17.6
03-Apr	Tuesday	Weekday	22.3	23.1	23.9	23.1	22.3	19.9	19.1
04-Apr	Wednesday	Weekday	20.0	19.5	11.6	10.2	19.8	23.5	17.6
05-Apr	Thursday	Weekday	24.6	25.4	24.6	24.6	23.9	20.7	20.7
06-Apr	Friday	Weekday	12	13	13.5	11.7	12	22	19
07-Apr	Saturday	Day 2	23.55	23.85	24.3	23.85	23.25	22.5	21.75
08-Apr	Sunday	Day 3	23.25	25.2	24.6	23.25	21	19.5	18
09-Apr	Monday	Availability hour	15.75	15	16.05	15.9	15.9	16.05	15.9
10-Apr	Tuesday	Weekday	15.6	15.9	15.75	15	15.15	15.75	15
11-Apr	Wednesday	Weekday	21	21.75	22.5	21.75	21	18.75	18
12-Apr	Thursday	Weekday	23.25	24	23.25	23.25	22.5	19.5	19.5
13-Apr	Friday	Weekday	12	11.25	12	11.7	12	21.75	21
14-Apr	Saturday	Day 4	23.55	23.85	24.3	23.85	23.25	22.5	21.75
15-Apr	Sunday	Day 5	23.25	25.2	24.6	23.25	21	19.5	18
16-Apr	Monday	Delivery Event	15	15.75	15	16.05	15.9	15.6	15
17-Apr	Tuesday	Weekday	15.75	16.2	15.6	15.9	15.75	15	15.15
18-Apr	Wednesday	Delivery Event	21.75	22.5	21.75	21.75	21	20.25	19.5
19-Apr	Thursday	Weekday	12	11.4	11.7	11.25	11.7	22.5	21.45
20-Apr	Friday	Weekday	25.2	23.85	25.2	24	23.7	23.25	21.75
21-Apr	Saturday	Day 6	24.6	24.3	24.6	23.85	23.25	20.7	20.25
22-Apr	Sunday	Day 7	24	23.85	23.25	23.25	21	20.25	18.75
23-Apr	Monday	Weekday	15.75	15	16.05	15.9	15.9	16.05	15.9
24-Apr	Tuesday	Weekday	15.6	15.9	15.75	15	15.15	15.75	15
25-Apr	Wednesday	Weekday	23.25	25.2	24.6	23.25	21	19.5	18
26-Apr	Thursday	Weekday	15.6	15.9	15.75	15	15.15	15.75	15
27-Apr	Friday	Weekday	23.25	23.55	23.25	23.25	22.5	22.2	21.45
28-Apr	Saturday	Day 8	21	21.75	22.5	21.75	21	18.75	18
29-Apr	Sunday	Day 9	23.25	23.55	23.25	23.25	22.5	22.2	21.45
30-Apr	Monday	Weekday	23.25	15.6	14.5	14.8	23.4	23.7	21.45
01-May	Tuesday	Weekday	21	21.75	22.5	21.75	21	18.75	18
02-May	Wednesday	Weekday	23.25	24	23.25	23.25	22.5	19.5	19.5
03-May	Thursday	Weekday	22.3	23.1	23.9	23.1	22.3	19.9	19.1
04-May	Friday	Weekday	20.0	19.5	11.6	10.2	19.8	23.5	17.6
05-May	Saturday	Day 10	21	21.75	22.5	21.75	21	18.75	18
Tight Supply Cushion Hour			**23.1**	**23.7**	**23.8**	**23.2**	**22.1**	**20.7**	**19.8**

In this example, a supply cushion hour falls on May 6 between 2 - 3 p.m. In order to establish the look-back baseline of the load asset providing a firm consumption level, the AESO performs the following steps:

(a) identify the metered energy for the settlement intervals with the same hour ending as the hour in the historical data set in the 10 most recent weekend days or holidays prior to the day with the hour in the historical data set (see subsection 4(a)(ii) of Section 206.8); and

(b) exclude any days from the calculation of the look-back baseline if one of the following has occurred:

(i) delivery hour – a supply shortfall occurred on one of the weekend days on April 1st as shown by the orange highlighted row in Table 3 above; and

(ii) availability hours – an availability hour occurred on March 31st as shown by the green highlighted row in Table 3 above; and

(c) calculate the hourly look-back baseline for that hour as the average of the 10 previous weekend days or holidays, same hour ending, excluding the delivery events and availability hours.

This calculation results in an hourly look-back baseline of 23.7 MW, as shown in Table 3 above in the supply cushion hour cell highlighted in yellow.

Illustrative Example 2: Determination of under-availability or over-availability

To determine if an asset is eligible for an under-availability adjustment or an over-availability adjustment, the AESO identifies the asset's availability volume during each of the (generally 250) availability hours for the obligation period pursuant to subsection 7(1) of Section 206.8. The AESO compares the hourly availability volume to the energy associated with the capacity commitment of the load asset for a specified time period to get the assessment volume pursuant to subsection 7(2) of Section 206.8.

If the availability assessment volume is negative, the AESO assesses the capacity market participant an under-availability adjustment. If the availability assessment volume is positive, the AESO assesses the capacity market participant an over-availability adjustment.

As a continuation of Example 1, this example will examine a load asset providing firm consumption level that has only two availability hours remaining from the initial 250 supply cushion hours (in the rare scenario that 248 supply cushion hours were removed for that asset per subsection 2(2) of Section 206.8). Assume that the load asset declared a firm consumption level of 10MW and its capacity commitment for the obligation period is 15MW. The two availability hours and the respective look-back baselines for those hours are in Table 1 above.

For this load asset, the availability volumes for the two availability hours determined pursuant to subsection 7(1)(d) are:

- April 27th 5 – 6 pm: 18.3 MWh – 10 MWh = 8.3 MWh
- May 6th 2 – 3 pm: 23.7 MWh – 10MWh = 13.7 MWh

For this load asset, the assessment volume determined pursuant to subsection 7(2) is equal to -8 MWh (as shown below) therefore, the load asset will be subject to an under-availability assessment.

assessment volume = (8.3 MWh + 13.7 MWh) – 15MW x 2 hours = - 8 MWh

3 Delivery baseline for a load asset providing guaranteed load reduction

For a load asset providing guaranteed load reduction, after each supply shortfall, the AESO creates a delivery baseline to determine if the capacity committed from the load was delivered during the delivery hour. The AESO determines the delivery assessment volumes for a load asset providing guaranteed load reduction as the difference between the actual delivery volumes during a delivery hour and the capacity commitment of the asset (adjusted by the balancing ratio).

To determine the actual delivery volumes of a load asset providing guaranteed load reduction during a delivery hour, the AESO calculates the difference between the delivery baseline and the actual consumption of the load asset during the delivery hour pursuant to subsection 11(1)(b) of Section 206.8.

The delivery baseline for a load asset providing guaranteed load reduction is made up of 2 components - the standard day baseline and the adjustment factor.

The standard day baseline is meant to estimate the load asset's most recent, typical consumption patterns, or the average "business as usual" consumption on a typical day. The AESO removes settlement intervals from the calculation of the delivery baseline that consist of any days in which the load

asset's consumption was not typical or representative of "business as usual" levels.

The AESO includes the adjustment factor to align the standard day baseline calculated from recent "business as usual" days with the conditions of the supply shortfall day, in order to establish a more accurate consumption level for the load asset providing guaranteed load reduction. The adjustment shifts, or scales, the standard day baseline by a fixed amount so that it matches the actual load during a period before the supply shortfall. This adjustment can help correct for load changes due to weather, as well as for variable operations.

In determining the delivery obligation of a load asset providing guaranteed load reduction, the AESO establishes the delivery baseline by examining the load asset's consumption after every delivery assessment period during the obligation period (November – October).

For example, if a supply shortfall occurred in February, for the applicable obligation period, the AESO would:

(a) perform the steps set out in subsection 5(1) of Section 206.8 to determine the standard day baseline of the load asset providing guaranteed load reduction;

(b) then calculate the adjustment factor (see subsection 5(2) of Section 206.8) which is limited +/- 20% of the standard day baseline (see subsection 5(3) of Section 206.8); and

(c) then calculate the delivery baseline in accordance with subsection 5(4) of Section 206.8.

The AESO calculates the difference between the delivery baseline, as determined above, and the load asset's consumption during the delivery hour to determine the actual delivery volume of the load asset providing guaranteed load reduction (see subsection 11(1)(b) of Section 206.8). The AESO compares this value to the energy associated with the capacity commitment of the load asset for the delivery hour (or portion thereof) to get the assessment volume. If the delivery assessment volume is negative, the AESO assesses the capacity market participant an under-delivery adjustment (see subsection 12(1) of Section 206.8).

The following example illustrates the approach for how the AESO determines the delivery baseline of a load asset providing guaranteed load reduction after a supply shortfall.

Illustrative Example 3: Establishing the delivery baseline for a load asset providing guaranteed load reduction after a supply shortfall

In the following example, as shown in Table 4, the delivery hour occurred on April 30, between 3 - 4 p.m.

Monday is a business day, and therefore, the AESO determines the delivery baseline using the historical 10 business days.

Table 4: Delivery hour

Day/Date		1-2 p.m	2-3 p.m	3-4 p.m	4-5 p.m	5-6 p.m	6-7 p.m	7-8 p.m
30-Apr	Monday	18.49	18.64	18.42	18.40	17.95	18.33	17.79

The AESO looks back to the same hour ending on the 10 most recent business days prior to the day with the delivery hour (hour ending 4). Table 5 below displays the metered volumes for the previous 10 business days.

Table 5- Determination of a standard day baseline for a load asset providing guaranteed load reduction

Date/Day			1-2 p.m.	2-3 p.m.	3-4 p.m.	4-5 p.m.	5-6 p.m.	6-7 p.m.	7-8 p.m.
11-Apr	Wednesday	Day 1	16.70	17.17	16.54	16.85	16.70	15.90	16.06
12-Apr	Thursday	Day 2	23.71	24.53	23.71	23.71	22.89	22.07	21.26
13-Apr	Friday	Day 3	12	11.25	12	11.7	12	21.75	21
14-Apr	Saturday	Weekend	15.86	16.31	15.71	16.01	15.86	15.11	15.26
15-Apr	Sunday	Weekend	11.69	12.02	11.58	11.80	11.69	11.13	11.24
16-Apr	Monday	Load dispatched	16	18.3	12.51	12.52	12.56	16.56	16.89
17-Apr	Tuesday	Day 4	15	15.75	15	16.05	15.9	15.6	15
18-Apr	Wednesday	Day 5	15.75	16.2	15.6	15.9	15.75	15	15.15
19-Apr	Thursday	Day 6	21.75	22.5	21.75	21.75	21	20.25	19.5
20-Apr	Friday	Delivery assessment	15.75	16.2	8.2	8.1	11	10	15.15
21-Apr	Saturday	Weekend	12	11.4	11.7	11.25	11.7	22.5	21.45
22-Apr	Sunday	Weekend	25.2	23.85	25.2	24	23.7	23.25	21.75
23-Apr	Monday	Day 7	24.6	24.3	24.6	23.85	23.25	20.7	20.25
24-Apr	Tuesday	Day 8	24	23.85	23.25	23.25	21	20.25	18.75
25-Apr	Wednesday	Load forced outage	12	17	0	0	0	0	0
26-Apr	Thursday	Day 9	15.75	15	16.05	15.9	15.9	16.05	15.9
27-Apr	Friday	Day 10	15.6	15.9	15.75	15	15.15	15.75	15
28-Apr	Saturday	Weekend	23.25	25.2	24.6	23.25	21	19.5	18
29-Apr	Sunday	Weekend	9.36	9.54	9.45	9	9.09	9.45	9
Standard Day Baseline			**18.49**	**18.64**	**18.42**	**18.40**	**17.95**	**18.33**	**17.79**

The AESO averages the load metered volumes (see subsection 5(1)(d)) during the previous 10 business days prior to the day with the delivery hour (see subsection 5(1)(a)), using the same hour ending as the delivery hour (hour ending 4).

The AESO excludes any days from the calculation of the standard day baseline a day on which any of the following occurred:

(a) a delivery hour (see subsection 5(b)(i) of Section 206.8 – a supply shortfall occurred on April 20th (4 - 7 pm) as highlighted in the red row in Table 5 above;

(b) a load outage (see subsection 5(b)(iii) of Section 206.8) – a load outage occurred on April 25th (3 - 8pm) as highlighted in blue in Figure 5 above;

(c) a dispatch (see subsection 5(b)(i) of Section 206.8) - the load received a dispatch on April 16 between 3 - 4 p.m. as highlighted in green in Figure 5 above; or

(d) a weekend or holiday. Weekends are highlighted by the grey rows in Table 5 above.

The AESO then calculates the hourly standard day baseline for that delivery hour as the average of the un-highlighted rows in Table 5, the 10 previous business days, and same hour ending, excluding the delivery hours, dispatches, load outages weekends and holidays.

This calculation results in an hourly standard day baseline of 18.42 MWh, as shown in Table 5 in the cell highlighted in yellow.

Table 6: Adjustment of the standard day baseline

	First 3 of 4 hours prior Delivery Start Time				Delivery Assesment period
	11-12 p.m	12-1 p.m	1- 2 p.m	Average Load	3-4 p.m
Standard Baseline	12.2	17	18.49	15.90	18.42
Day-of Event	18	18.6	19.7	18.77	X
Adjustment Factor					Adjusted Baseline
Adjustment Factor	**Avg load day-of /Avg load baseline**				3-4 p.m
Calculation	**18.77/15.9 = 1.18**				18.42
					*1.18
Adjusted delivery baseline					**21.74**

*All figures are in MWh

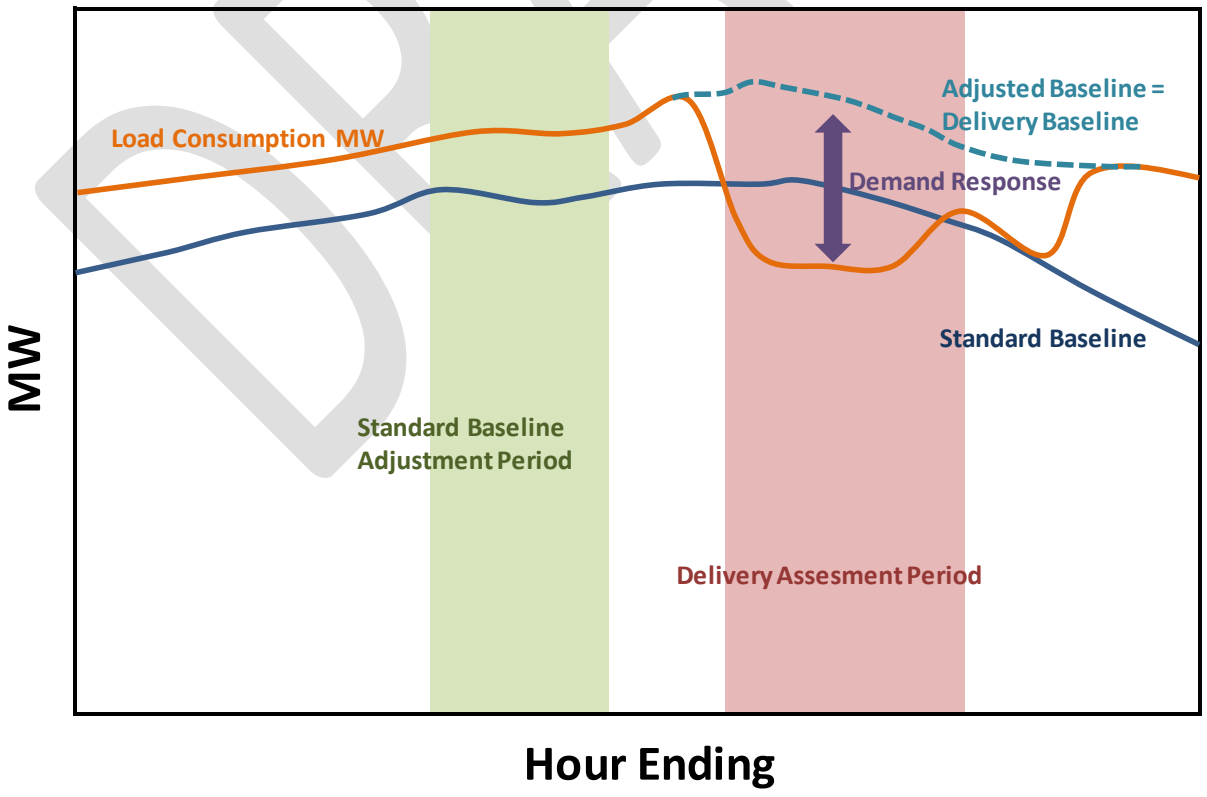
As show in Table 6, the adjustment factor is the ratio of the average consumption of the load asset during the 3 hours, 1 hour before the delivery assessment hour (18.77 MWh) and the consumption of the load from the standard day baseline in the 3 hours, 1 hour before the delivery assessment hour (15.9 MWh).

The adjustment factor is calculated as 18.77 MWh/15.9 MWh = 1.18 which is equivalent to a positive 18 % adjustment factor to the standard day baseline.

To determine the delivery baseline for the delivery hour, the AESO adjusts the standard day baseline by the adjustment factor of 18%. The standard day baseline pre-adjustment is 18.42 MWh and after an 18% positive adjustment factor is 21.74 MWh.

The adjustment factor adjusts the standard day baseline to account for the fact that the consumption of the load was higher than normal in the hours proceeding the delivery hour.

Figure 1: Delivery of a load asset providing guaranteed load response during a delivery assessment period



Illustrative Example 4: Determination of under-delivery or over-delivery

The next step is to calculate the consumption of the load on April 30th, between 3 - 4 pm and reduce this number from the delivery baseline as per subsection 11(1)(b) of Section 206.8.

Delivery Baseline= 21.74 MWh

Consumption observed during the delivery hour = 10 MWh

Delivery volume of a load asset providing guaranteed load reduction 21.74 MWh – 10 MWh = 11.74 MWh

Finally, assume the capacity commitment of the load asset providing guaranteed load reduction is 5 MW, the supply shortfall lasts the entire hour from 3 – 4 pm, and the balancing ratio is 1 during the delivery hour.

The assessment volume of the load asset providing guaranteed load reduction calculated pursuant to subsection 11(3) of Section 206.8 is

11.74 MWh - (5 MW * 1 hour * 1) = 6.74 MWh

and the asset is eligible for an over-delivery adjustment.

4 Information related to the selection of the default penalty rate

Pursuant to subsection 6 and 10 of Section 206.8, the asset-specific penalty rates for availability and delivery are based on the capacity award price and capacity commitment for each asset. However, an asset may be in a situation where the asset-specific capacity payments are low or a negative value.

In order to maintain the proper incentives for asset performance when asset-specific capacity payments are low or negative, the AESO has made the following adjustment to the penalty rate as provided in the Rule.

(a) the AESO set the under delivery adjustment rate at $1000/MWh, prior to the 1.3 multiplier. This penalty rate aligns with the opportunity cost of not delivering in the energy market;

(b) the delivery adjustment makes up 60% of the payment adjustment structure (subsection 12(2) of Section 206.8) which leads to an asset-specific adjusted delivery penalty rate of $1667/MWh;

under delivery adjustment rate / delivery adjustment percentage = $1000/MWh ÷ 60%

(c) the AESO set the energy shortfall hours at a minimum of 20 hours (subsection 10(1)(c) of Section 206.8) which implies a $33/kW-year value for the default rate for the annual capacity payment amount; and

asset-specific adjustment delivery penalty rate * energy shortfall hours = $1666.66/MWh * 20 hours ÷ 1000kW/MW

(d) availability performance is measured over 250 hours (subsection 2(1) of Section 206.8) which yields an asset-specific availability penalty rate of $133/MWh.

default rate for the annual capacity / availability performance hours = $33,333/MW ÷ 250 hours

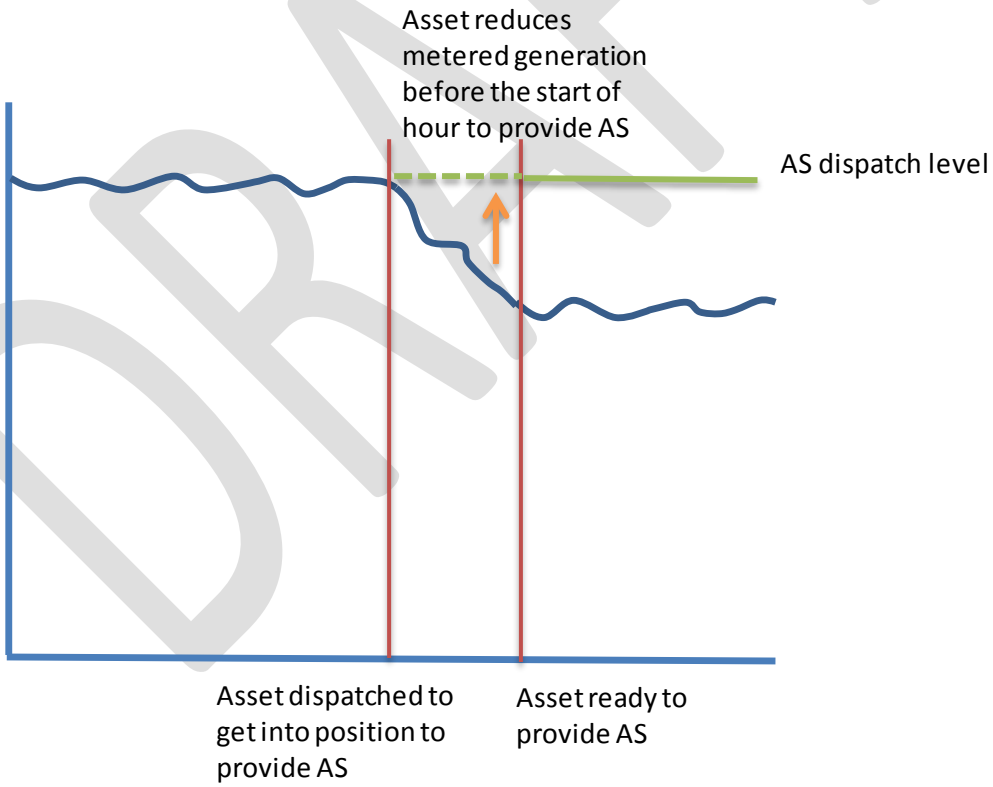
For assets with a negative or low asset specific capacity payment, the default rate as per Table 7 applies.

Table 7

Base auction clearing price	Asset-specific delivery rate – through auction activity	Asset-specific delivery rate – adjusted rate	Asset-specific availability rate – adjusted rate
Greater than $33/kW-year	Less than $1667/MWh	$1667/ MWh	$133/MWh
Less than or equal to $33/kW-year	Less than $0/kW-year	$0/ MWh	$0/ MWh
		For all other scenarios, the penalty rate is the asset-specific rate through asset's auction activities	For all other scenarios, the penalty rate is the asset-specific rate through the asset's auction activities

5 Assessment with ancillary services

Figure 2: Delivery and Availability assessment with ancillary services dispatch



The AESO accounts for ancillary services volumes from capacity assets that the capacity market participant repositions in order to respond to the next hour's ancillary services dispatch in accordance with subsections 7(1), 11(1), and 11(2) of Section 206.8. In the example in Figure 2 above, the delivery/availability assessment volume is the dashed green line. The ancillary services dispatched

volume plus the metered volume, indicated in blue, equals the dashed green line.

6 Assessment with delivery volume substitution

The AESO allows ex ante delivery volume substitution where the original capacity committed asset can substitute all or a portion of its delivery volumes (i.e. receive delivery volumes) from another qualified capacity asset that can provide substitute delivery volumes.

The excess delivery volume of the asset providing substitute delivery volumes is utilized for purposes of calculating the delivery assessment volume of the asset receiving the substitute delivery volumes, in addition to its own delivery volumes.

Depending on the start date/time and end date/time of the delivery volume substitution and the timing of the supply shortfall, the substitution may cover all or a portion of the delivery hour.

The AESO allocates the delivery volume of the asset providing substitute delivery volumes according to the following priorities:

(a) the asset's own delivery volumes by determining the excess delivery volumes available to be distributed in accordance with subsection 4(1) of Section 206.9 of the ISO rules, *Asset Substitution* ("Section 206.9"); followed by

(b) any approved substitutions sorted by the earliest registration date pursuant to subsection 4(3) of Section 206.9; and

(c) any excess delivery volume, after account for the above, will be used to increase the delivery volume (and therefore provide an over-delivery adjustment) of the asset providing substitute delivery volumes.

For an asset approved to receive substitute delivery volumes, the AESO deems any deficiency in meeting that assets own capacity commitment via any combination of the assets own delivery volumes and any substituted delivery volumes, to be a negative delivery volume. That asset would accordingly be assessed an under-delivery adjustment.

Illustrative Example 5: Delivery assessment for partial and full hour

Full Hour / Partial Hour in Delivery Hour	**Jan 15 22:10 to 23:00**	**Jan 15 23:00 to 24:00**	**Jan 16 00:00 to 00:43**
Capacity associated with substitute delivery volume	100 MW	100 MW	0 MW
Duration of supply shortfall in the delivery hour	50 mins	60 mins	43 mins
Balancing ratio	0.9884	1.0000	0.9281
Substituted delivery volume	100 x 50 / 60 x 0.9884 = 82.37 MWh	100 x 1.0000 = 100 MWh	0 x 43 / 60 x 0.9281 = 0 MWh

Illustrative Example 6: Performance assessment with delivery volume substitutions

	Asset A	Asset B	Asset C
Capacity Commitment	10 MW	80 MW	50 MW
Total Uniform Capacity Value	100 MW	80 MW	50 MW
Capacity Substitution Requests	**Asset A**	**Asset B**	**Asset C**
A provides delivery volumes to B (registered first)	-25 MW	+25MW	
A provides delivery volumes to C (registered second)	-50 MW		+50 MW

Illustrative Example 6A: Delivery volume of substituted asset is insufficient to cover all substitutions*

		Asset A	Asset B	Asset C
1	**Capacity commitment translated to energy for one settlement interval**	10 MWh	80 MWh	50 MWh
2	**Energy Delivered**	70 MWh	60 MWh	0 MWh
3	**Substitute delivery volumes provided from A**	A fulfills its own obligation first so the excess delivery volume is: 70 MWh – 10 MWh = 60 MWh	B delivered 60 MWh therefore it's delivery assessment volume without adjusting for substitutions is: 60 MWh – 80 MWh = -20 MWh A provides delivery volumes to B as it was the first registered A provides only 20 MWh out of the approved 25 MWh substitute delivery volume needed to for B's assessment volume to be 0 (i.e. B cannot use substitute delivery volumes to obtain an over-delivery adjustment)	C delivered 0 MWh therefore its delivery assessment volume without adjust for substitutions is: 0 MWh – 50 MWh = - 50 MWh A provides delivery volumes to C last as it registered after B A has 40 MWh of excess delivery volume after providing substitute delivery volumes to B, therefore A provides C with 40 MWh out of the approved 50 MWh

		Asset A	Asset B	Asset C
4	**Excess delivery volume**	A has 60 MWh of excess delivery volume to provide to other assets	After providing substitute delivery volumes to B, A's excess delivery volume is now: 60 MWh – 20 MWh = 40 MWh	After providing substitute delivery volumes to B and C, A has 0 MWh of excess delivery volume remaining
5	**Post substitution delivery volume**	Row 1 + Row 4 10 MWh + 0 MWh = 10 MWh	Row 2 + Row 3 60 MWh + 20 MWh = 80 MWh	Row 2 + Row 3 0 MWh + 40 MWh = 40MWh
6	**Over/Under assessment (Row 5 – Row 1)**	10 MWh – 10 MWh = 0 MWh	80 MWh – 80 MWh = 0 MWh	40 MWh – 50 MWh = -10 MWh

***Assuming a balancing ratio of 1 for a supply shortfall with a duration of exactly one settlement interval

Illustrative Example 6B: Delivery volume of substituted asset is sufficient to cover all substitutions

		Asset A	Asset B	Asset C
1	**Capacity commitment translated to energy for one settlement interval**	10 MWh	80 MWh	50 MWh
2	**Energy Delivered**	100 MWh	60 MWh	0 MWh
3	**Substitute delivery volumes provided from A**	A fulfills its own obligation first so the excess delivery volume is: 100 MWh – 10 MWh = 90 MWh	B delivered 60 MWh therefore it's delivery assessment volume without adjusting for substitutions is: 60 MWh – 80 MWh = -20 MWh A provides delivery volumes to B as it was the first registered A provides only 20 MWh out of the approved 25 MWh substitute delivery volume needed to for B's assessment volume to be 0 (i.e. B cannot use substitute delivery volumes to obtain an over-delivery adjustment)	C delivered 0 MWh therefore its delivery assessment volume without adjust for substitutions is: 0 MWh – 50 MWh = - 50 MWh A provides delivery volumes to C last as it registered after B A has 70 MWh of excess delivery volume after providing substitute delivery volumes to B, therefore A provides C with 50 MWh out of the approved 50 MWh

		Asset A	Asset B	Asset C
4	**Excess delivery volume**	A has 90 MWh of excess delivery volume to provide to other assets	After providing substitute delivery volumes to B, A's excess delivery volume is now: 90 MWh – 20 MWh = 70 MWh	After providing substitute delivery volumes to B and C, A has 20 MWh of excess delivery volume remaining which is allocated back to asset A
5	**Post substitution delivery volume**	Row 1 + Row 4 10 MWh + 20 MWh = 30 MWh	Row 2 + Row 3 60 MWh + 20 MWh = 80 MWh	Row 2 + Row 3 0 MWh + 50 MWh = 50 MWh
6	**Over/Under assessment (Row 5 – Row 1)**	30 MWh – 20 MWh = +10 MWh	80 MWh – 80 MWh = 0 MWh	50 MWh – 50 MWh = 0 MWh

7 Assessment with volume reallocation

After the issuance of the delivery assessment results for the previous month, the AESO allows capacity market participants the ability to submit a volume reallocation request to the AESO for five business days (as set out in subsection 3(1) in Section 206.10 of the ISO rules, *Volume Reallocation*).

The AESO validates the request to ensure that the volume reallocation transferor asset (i.e. the asset providing the reallocation volume) has sufficient over-delivery assessment volume for the requested reallocation amount, and that the reallocation will not result in an over-delivery assessment volume for the transferee asset (i.e. the asset receiving the reallocation volume), for each respective settlement interval.

If validated, the reallocation volume is deducted from the delivery assessment volume of the transferor asset and added to the transferee asset, for the respective settlement intervals.

Illustrative Example 7: Assessment with volume reallocation

A supply shortfall started at 14:10 and ended at 16:43, and a capacity market participant can make the following requests to the AESO:

Full Hour / Partial Hour in Delivery Hour	**14:10 to 15:00**	**15:00 to 16:00**	**16:00 to 16:43**
Asset A assessment volume	+5,200 MWh (Over-delivery)	+8,500 MWh (Over-delivery)	+5,500 MWh (Over-delivery)
Asset B assessment volume	-1,200 MWh	-1,200 MWh	-1,500 MWh
Asset C assessment volume	-2,000 MWh	-3,000 MWh	-2,000 MWh
Asset A request to reallocate to Asset B	1,000 MWh	1,500 MWh	1,000 MWh
Asset A request to reallocate to Asset C	2,000 MWh	2,500 MWh	2,000 MWh
Actual reallocated volume from asset A to asset B	1,000 MWh	1,200 MWh (the requested volume is reduced to 1,200 MWh such that it will not result in Asset B having an over-delivery assessment volume)	1,000 MWh
Actual reallocated volume from asset A to	2,000 MWh	2,500 MWh	2,000 MWh

Full Hour / Partial Hour in Delivery Hour	14:10 to 15:00	15:00 to 16:00	16:00 to 16:43
asset C			
Asset A post-allocation delivery assessment volume	2,200 MWh (Over-delivery)	4,800 MWh (Over-delivery)	2,500 MWh (Over-delivery)
Asset B post-allocation delivery volume	- 200 MWh (Under-delivery)	0 MWh	-500 MWh (Under-delivery)
Asset C post-allocation delivery volume	0 MWh	-500 MWh (Under-delivery)	0 MWh

Revision History

Posting Date	Description of Changes
	Initial release