

**Decrement formulas for the BGS-RSCP Auction****January 21, 2020**

*As noted in Section IX.C.8 of the Final BGS-RSCP Auction Rules (dated December 6, 2019), the formulas that will be used in the BGS-RSCP Auction are released to all bidders no later than three days after bidder registration. These decrement formulas, which depend on the EDC load caps and the number of registered bidders, are provided below.*

**IX.G.2 Decrements**

The calculation of the size of the decrement,  $\Delta$ , is based on the oversupply ratio,  $\gamma$ , which is the ratio of the excess supply on an EDC to an estimate of the maximum excess supply:

$$\gamma = \frac{B - TT}{\min(\overline{RES}, n \cdot LC - TT)}$$

The numerator is the excess supply on an EDC, which is the number of tranches bid at the going price ( $B$ ) minus the tranche target ( $TT$ ). The denominator is a measure of maximum possible excess supply for that EDC. The excess supply on an EDC must be less than or equal to the total excess supply in the Auction.  $\overline{RES}$  is the upper bound of the range of total excess supply reported to bidders or 30 tranches, whichever is larger, and it serves as a measure of total excess supply in the Auction. The excess supply on an EDC must also be less than or equal to the excess supply that would result from all bidders bidding the load cap on the EDC. This is represented by  $n \cdot LC - TT$ , namely the number of registered bidders ( $n$ ) times the load cap ( $LC$ ) minus the tranche target ( $TT$ ). The estimate of maximum possible excess supply for the EDC used for the decrement rules is  $\overline{RES}$ , or the measure based on the number of registered bidders and the load cap  $n \cdot LC - TT$ , whichever is smaller.

***Regime 1***

The Auction starts in Regime 1. In Regime 1, the following decrement formulas will be used.

If an EDC's tranche target is 25 tranches or more, the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 0.5% (and the amount of the

decrease in price would be rounded off to the nearest cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 5% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.0050 & \text{if } \gamma \leq 0.095 \\ 0.0150 & \text{if } 0.095 < \gamma \leq 0.19 \\ 0.0300 & \text{if } 0.19 < \gamma \leq 0.37 \\ 0.0425 & \text{if } 0.37 < \gamma \leq 0.45 \\ 0.0500 & \text{if } \gamma > 0.45 \end{cases}$$

When the oversupply ratio is at or below a value of 0.0950 (but above 0), which means that the excess supply on the EDC is at or below 9.50% of its maximum, the decrement is set at 0.50%. When the oversupply ratio is at or below a value of 0.1900 (but above 0.0950), the decrement is set at 1.5%. When the oversupply ratio is at or below a value of 0.3700 (but above 0.1900), the decrement is set at 3%. When the oversupply ratio is at or below a value of 0.4500 (but above 0.3700), the decrement is set at 4.25%. When the oversupply ratio is above 0.4500, which means that the excess supply on the EDC exceeds 45.00% of its maximum, the decrement is set at 5%.

If an EDC's tranche target is between 10 and 24 tranches (inclusive), the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 0.5% (and the amount of the decrease in price would be rounded off to the nearest cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 5% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.0050 & \text{if } \gamma \leq 0.1 \\ 0.0150 & \text{if } 0.1 < \gamma \leq 0.2 \\ 0.0300 & \text{if } 0.2 < \gamma \leq 0.4 \\ 0.0425 & \text{if } 0.4 < \gamma \leq 0.5 \\ 0.0500 & \text{if } \gamma > 0.5 \end{cases}$$

When the oversupply ratio is at or below a value of 0.1000 (but above 0), which means that the excess supply on the EDC is at or below 10.00% of its maximum, the decrement is set at 0.50%. When the oversupply ratio is at or below a value of 0.2000 (but above 0.1000), the decrement is set at 1.5%. When the oversupply ratio is at or below a value of 0.4000 (but above 0.2000), the decrement is set at 3%. When the oversupply ratio is at or below a value of 0.5000 (but above 0.4000), the decrement is set at 4.25%. When the oversupply ratio is above 0.5000, which means that the excess supply on the EDC exceeds 50.00% of its maximum, the decrement is set at 5%.

If an EDC's tranche target is between 5 and 9 tranches (inclusive), the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 1.5% (and the amount of the decrease in price would be rounded off to the nearest cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 5% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.0150 & \text{if } \gamma \leq 0.15 \\ 0.0300 & \text{if } 0.15 < \gamma \leq 0.3 \\ 0.0425 & \text{if } 0.3 < \gamma \leq 0.42 \\ 0.0500 & \text{if } \gamma > 0.42 \end{cases}$$

When the oversupply ratio is at or below a value of 0.1500 (but above 0), the decrement is set at 1.50%. When the oversupply ratio is at or below a value of 0.3000 (but above 0.1500), the

decrement is set at 3%. When the oversupply ratio is at or below a value of 0.4200 (but above 0.3000), the decrement is set at 4.25%. When the oversupply ratio is above 0.4200, which means that the excess supply on the EDC exceeds 42.00% of its maximum, the decrement is set at 5%.

If an EDC's tranche target is 4 tranches or fewer, the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 3.00% (and the amount of the price decrease would be rounded off to the nearest thousandth of a cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 5% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.03 & \text{if } \gamma \leq 0.10 \\ 0.05 & \text{if } \gamma > 0.10 \end{cases}$$

When the oversupply ratio is at or below a value of 0.1000 (but above 0), the decrement is set at 3.00%. When the oversupply ratio is above 0.1000, which means that the excess supply on the EDC exceeds 10.00% of its maximum, the decrement is set at 5%.

### ***Change from Regime 1 to Regime 2 or to Regime 3***

The decrement formulas of Regime 1 are always used in rounds 1, 2, and 3 to calculate the going prices for rounds 2, 3, and 4 respectively. After the going prices for round 4 are calculated, the decrement formulas of Regime 1 cease to be used, and will never again be used, in the first round in which the upper bound of the total excess supply range ( $\overline{RES}$ ) reported to bidders is at least 15 tranches fewer than the upper bound of the total excess supply range reported to bidders in round 1. In such a round:

- If the upper bound of the total excess supply range reported to bidders is greater than 30 tranches, then the decrement formulas of Regime 2 will be used to calculate the going prices in the next round; and

- If the upper bound of the total excess supply range reported to bidders is 30 or fewer tranches, then the decrement formulas of Regime 3 will be used to calculate the going prices in the next round and for the remainder of the Auction.

### *Regime 2*

In Regime 2, the following decrement formulas will be used.

If an EDC's tranche target is 25 tranches or more, the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 0.375% (and the amount of the decrease in price would be rounded off to the nearest cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 3.75% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.003750 & \text{if } \gamma \leq 0.08 \\ 0.011250 & \text{if } 0.08 < \gamma \leq 0.19 \\ 0.022500 & \text{if } 0.19 < \gamma \leq 0.32 \\ 0.031875 & \text{if } 0.32 < \gamma \leq 0.43 \\ 0.037500 & \text{if } \gamma > 0.43 \end{cases}$$

When the oversupply ratio is at or below a value of 0.0800 (but above 0), which means that the excess supply on the EDC is at or below 8.00% of its maximum, the decrement is set at 0.375%. When the oversupply ratio is at or below a value of 0.1900 (but above 0.0800), the decrement is set at 1.125%. When the oversupply ratio is at or below a value of 0.3200 (but above 0.1900), the decrement is set at 2.25%. When the oversupply ratio is at or below a value of 0.4300 (but above 0.3200), the decrement is set at 3.1875%. When the oversupply ratio is above 0.4300, which means that the excess supply on the EDC exceeds 43.00% of its maximum, the decrement is set at 3.75%.

If an EDC's tranche target is between 10 and 24 tranches (inclusive), the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 0.375%

(and the amount of the decrease in price would be rounded off to the nearest cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 3.75% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.003750 & \text{if } \gamma \leq 0.07 \\ 0.011250 & \text{if } 0.07 < \gamma \leq 0.14 \\ 0.022500 & \text{if } 0.14 < \gamma \leq 0.28 \\ 0.031875 & \text{if } 0.28 < \gamma \leq 0.36 \\ 0.037500 & \text{if } \gamma > 0.36 \end{cases}$$

When the oversupply ratio is at or below a value of 0.0700 (but above 0), which means that the excess supply on the EDC is at or below 7.00% of its maximum, the decrement is set at 0.375%. When the oversupply ratio is at or below a value of 0.1400 (but above 0.0700), the decrement is set at 1.125%. When the oversupply ratio is at or below a value of 0.2800 (but above 0.1400), the decrement is set at 2.25%. When the oversupply ratio is at or below a value of 0.3600 (but above 0.2800), the decrement is set at 3.1875%. When the oversupply ratio is above 0.3600, which means that the excess supply on the EDC exceeds 36.00% of its maximum, the decrement is set at 3.75%.

If an EDC's tranche target is between 5 and 9 tranches (inclusive), the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 1.125% (and the amount of the decrease in price would be rounded off to the nearest cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 3.75% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.011250 & \text{if } \gamma \leq 0.1 \\ 0.022500 & \text{if } 0.1 < \gamma \leq 0.22 \\ 0.031875 & \text{if } 0.22 < \gamma \leq 0.33 \\ 0.037500 & \text{if } \gamma > 0.33 \end{cases}$$

When the oversupply ratio is at or below a value of 0.1000 (but above 0), the decrement is set at 1.125%. When the oversupply ratio is at or below a value of 0.2200 (but above 0.1000), the decrement is set at 2.25%. When the oversupply ratio is at or below a value of 0.3300 (but above 0.2200), the decrement is set at 3.1875%. When the oversupply ratio is above 0.3300, which means that the excess supply on the EDC exceeds 33.00% of its maximum, the decrement is set at 3.75%.

If an EDC's tranche target is 4 tranches or fewer, the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 2.25% (and the amount of the price decrease would be rounded off to the nearest thousandth of a cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 3.75% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.0225 & \text{if } \gamma \leq 0.10 \\ 0.0375 & \text{if } \gamma > 0.10 \end{cases}$$

When the oversupply ratio is at or below a value of 0.1000 (but above 0), the decrement is set at 2.25%. When the oversupply ratio is above 0.1000, which means that the excess supply on the EDC exceeds 10.00% of its maximum, the decrement is set at 3.75%.

***Change from Regime 1 or from Regime 2 to Regime 3***

The decrement formulas of Regime 1 are always used in rounds 1, 2, and 3 to calculate the going prices for rounds 2, 3, and 4 respectively. After the going prices for round 4 are calculated, in the first round in which the upper bound of the total excess supply range reported to bidders is 30 or fewer tranches, then the decrement formulas of Regime 3 will be used to calculate the going prices in the next round and for the remainder of the Auction.

***Regime 3***

In Regime 3, the following decrement formulas will be used.

If an EDC's tranche target is 25 tranches or more, the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 0.25% (and the amount of the decrease in price would be rounded off to the nearest cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 2.5% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.002500 & \text{if } \gamma \leq 0.15 \\ 0.007500 & \text{if } 0.15 < \gamma \leq 0.31 \\ 0.015000 & \text{if } 0.31 < \gamma \leq 0.47 \\ 0.021250 & \text{if } 0.47 < \gamma \leq 0.62 \\ 0.025000 & \text{if } \gamma > 0.62 \end{cases}$$

When the oversupply ratio is at or below a value of 0.1500 (but above 0), which means that the excess supply on the EDC is at or below 15.00% of its maximum, the decrement is set at 0.25%. When the oversupply ratio is at or below a value of 0.3100 (but above 0.1500), the decrement is set at 0.75%. When the oversupply ratio is at or below a value of 0.4700 (but above 0.3100), the decrement is set at 1.5%. When the oversupply ratio is at or below a value of 0.6200 (but above 0.4700), the decrement is set at 2.125%. When the oversupply ratio is above 0.6200, which means that the excess supply on the EDC exceeds 62.00% of its maximum, the decrement is set at 2.5%.



If an EDC's tranche target is between 10 and 24 tranches (inclusive), the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 0.25% (and the amount of the decrease in price would be rounded off to the nearest cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 2.5% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.002500 & \text{if } \gamma \leq 0.12 \\ 0.007500 & \text{if } 0.12 < \gamma \leq 0.22 \\ 0.015000 & \text{if } 0.22 < \gamma \leq 0.36 \\ 0.021250 & \text{if } 0.36 < \gamma \leq 0.48 \\ 0.025000 & \text{if } \gamma > 0.48 \end{cases}$$

When the oversupply ratio is at or below a value of 0.1200 (but above 0), which means that the excess supply on the EDC is at or below 12.00% of its maximum, the decrement is set at 0.25%. When the oversupply ratio is at or below a value of 0.2200 (but above 0.1200), the decrement is set at 0.75%. When the oversupply ratio is at or below a value of 0.3600 (but above 0.2200), the decrement is set at 1.5%. When the oversupply ratio is at or below a value of 0.4800 (but above 0.3600), the decrement is set at 2.125%. When the oversupply ratio is above 0.4800, which means that the excess supply on the EDC exceeds 48.00% of its maximum, the decrement is set at 2.5%.

If an EDC's tranche target is between 5 and 9 tranches (inclusive), the decrement for that EDC is set as a series of steps. Using this rule, the smallest decrement would be 0.75% (and the amount of the decrease in price would be rounded off to the nearest cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 2.5% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined maximum value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.00750 & \text{if } \gamma \leq 0.11 \\ 0.01500 & \text{if } 0.11 < \gamma \leq 0.21 \\ 0.02125 & \text{if } 0.21 < \gamma \leq 0.31 \\ 0.02500 & \text{if } \gamma > 0.31 \end{cases}$$

When the oversupply ratio is at or below a value of 0.1100 (but above 0), which means that the excess supply on the EDC is at or below 11.00% of its maximum, the decrement is set at 0.75%. When the oversupply ratio is at or below a value of 0.2100 (but above 0.1100), the decrement is set at 1.5%. When the oversupply ratio is at or below a value of 0.3100 (but above 0.2100), the decrement is set at 2.125%. When the oversupply ratio is above 0.3100, which means that the excess supply on the EDC exceeds 31.00% of its maximum, the decrement is set at 2.5%.

If an EDC's tranche target is 4 tranches or fewer, the decrement for that EDC is set as a series of steps.

Using this rule, the smallest decrement would be 1.50% (and the amount of the decrease in price would be rounded off to the nearest thousandth of a cent). The smallest decrement would be in effect when the oversupply ratio is at or below a pre-determined value (but above 0). The decrement is never more than 2.5% (subject to rounding off). The largest decrement would be in effect when the oversupply ratio is above that pre-determined value.

The following series of steps will be used:

$$\Delta = \begin{cases} 0.015 & \text{if } \gamma \leq 0.10 \\ 0.025 & \text{if } \gamma > 0.10 \end{cases}$$

When the oversupply ratio is at or below a value of 0.1000 (but above 0), the decrement is set at 1.50%. When the oversupply ratio is above 0.1000, which means that the excess supply on the EDC exceeds 10.00% of its maximum, the decrement is set at 2.5%.