	APPENDIX C
	ANCILLARY SERVICES CHARGES COMPUTATION
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The ISO will allocate the Ancillary Services capacity charges, for both the Day-Ahead Market and the Hour-Ahead Market, on a Zonal basis if the Day-Ahead Ancillary Services Market is procured on a Zonal basis. The ISO will allocate the Ancillary Services capacity charges, for both the Day-Ahead Market and the Hour-Ahead Market, on an ISO Control Area wide basis if the Day-Ahead Ancillary Services Market is defined on an ISO Control Area wide basis.

C 2	Fundamental formulas
C 2.1	ISO payments to Scheduling Coordinators
C 2.1.1	Day-Ahead Market(a)Regulation. When the ISO purchases Regulation capacity in the Day-Ahead Market, Scheduling Coordinators for Generating Units that provide this capacity will receive payments for each Trading Interval of the Day-Ahead Market. The payment for a given Generating Unit which provides Regulation capacity over a given Trading Interval will be the total quantity of Regulation capacity provided times the zonal Market Clearing Price for that Trading Interval in that Zone. The required Regulation capacity is defined in the Ancillary Services Requirements Protocol. Regulation Up and Regulation Down payments shall be calculated separately. Quantities and rates for Regulation Down shall be calculated by substituting the Regulation Up quantities and prices in the relevant formulae. This payment for Scheduling Coordinator j for providing Regulation Up capacity from a resource i in Zone x for Trading Interval t is calculated as follows: $AGCUpPayDA_{ijxt} = AGCUpQDA_{ijxt} * PAGCUpDA_{xt}$
	The total Regulation Up payment to each Scheduling Coordinator for a given Trading Interval in the Day-Ahead Market for all the resources that it represents in a given Zone is calculated by summing all the payments for the resources of the Scheduling Coordinator in the Zone for the Trading Interval. This payment for Scheduling Coordinator j in Zone x for Trading Interval t is calculated as follows: $AGCUpPayTotalDA_{jxt} = \sum_{i} AGCUpPayDA_{ijxt}$
	(b) Spinning Reserve. When ISO purchases Spinning Reserve capacity in the Day-Ahead Market. Scheduling Coordinators for Generating Units that provide this capacity will receive payments for each Trading Interval of the Day-Ahead Market. The payment for a given Generating Unit which provides Spinning Reserve capacity over a given Trading Interval will be the total quantity of Spinning Reserve capacity provided times the zonal Market Clearing Price for that Trading Interval in that Zone. The required

Spinning Reserve capacity is defined in the Ancillary Services Requirements Protocol. This payment for Scheduling Coordinator j for providing Spinning Reserve capacity from a resource i in Zone x for Trading Interval t is calculated as follows:

 $SpinPayDA_{ijxt} = SpinQDA_{ijxt} * PSpinDA_{xt}$

Trading Interval in that Zone. The required Replacement Reserve capacity is defined in the Ancillary Services Requirements Protocol. This payment for Scheduling Coordinator j for providing Replacement Reserve capacity from a resource i in Zone x for Trading Interval t is calculated as follows:

$$ReplPayDA_{iixt} = ReplQDA_{iixt} * PReplDA_{xt}$$

The total Replacement Reserve payment to each Scheduling Coordinator for a given Trading Interval in the Day-Ahead Market for all the resources that it represents in a given Zone is calculated by summing all the payments for the resources of the Scheduling Coordinator in the Zone for the Trading Interval. This payment for Scheduling Coordinator j in Zone x for Trading Interval t is calculated as follows:

$$ReplPayTotalDA_{jxt} = \sum_{i} ReplPayDA_{ijxt}$$

C 2.1.2 Hour-Ahead Market

(a) Regulation. When the ISO purchases Regulation capacity in the Hour-Ahead Market, Scheduling Coordinators for Generating Units that provide this capacity will receive payment for the Trading Interval of the Hour-Ahead Market. The payment for a given Generating Unit which provides Regulation capacity over the Trading Interval will be the total quantity of Regulation capacity provided times the zonal Market Clearing Price for that Trading Interval in that Zone. The required Regulation capacity is defined in the Ancillary Services Requirements Protocol. Regulation Up and Regulation Down payments shall be calculated separately. Quantities and rates for Regulation Down shall be calculated by substitutuing the Regulation Up quantities and prices in the relevant formulae. This payment for Scheduling Coordinator j for providing Regulation Up capacity from a resource i in Zone x for Trading Interval t is calculated as follows:

AGCUpPayHA_{ijxt} = AGCUpQIHA_{ijxt} * PAGCUpHA_{xt}

When a Scheduling Coordinator buys back, in the Hour-Ahead Market, Regulation capacity which it sold to the ISO in the Day-Ahead Market, the payment which the ISO receives will be the total quantity of Regulation capacity bought back times the zonal Hour-Ahead Market Clearing Price for that Trading Interval in that Zone.

This payment to the ISO from Scheduling Coordinator j to buy back Regulation Up capacity from a resource i in Zone x for Trading Interval t is calculated as follows:

AGCUpReceiveHA_{ijxt} = AGCUpQDHA_{ijxt} * PAGCUpHA_{xt}

The total Regulation payment for the Trading Interval of the Hour-Ahead Market to each Scheduling Coordinator for all the resources that it represents in a given Zone is calculated by summing all the payments for the resources of the Scheduling Coordinator in the Zone for the Trading Interval and then deducting therefrom any amount payable by the Scheduling Coordinator to the ISO for Regulation bought back by the Scheduling Coordinator from the ISO in the Hour-Ahead Market for the Trading Interval on behalf of resources located in the Zone. This payment for Scheduling Coordinator j in Zone x for Trading Interval t is calculated as follows:

$$AGCUpPayTotalHA_{jxt} = \sum_{i} AGCUpPayHA_{ijxt} - \sum_{i} AGCUpReceiveHA_{ijxt}$$

(b) Spinning Reserve. When the ISO purchases Spinning Reserve capacity in the Hour-Ahead Market, Scheduling Coordinators for Generating Units that provide this capacity will receive payments for the Trading Interval of the Hour-Ahead Market. The payment for a given Generating Unit which provides Spinning Reserve capacity over the Trading Interval will be the total quantity of Spinning Reserve capacity provided times the zonal Market Clearing Price for that Trading Interval in that Zone. This payment for Scheduling Coordinator j for providing Spinning Reserve capacity from a resource i in Zone x for Trading Interval t is calculated as follows:

SpinPayHA_{ijxt} = SpinQIHA_{ijxt} * PSpinHA_{xt}

When a Scheduling Coordinator buys back in the Hour-Ahead Market Spinning Reserve capacity which it sold to the ISO in the Day-Ahead Market, the payment which the ISO receives will be the total quantity of Spinning Reserve capacity bought back times the zonal Hour-Ahead Market Clearing Price for that Trading Interval in that Zone.

This payment to the ISO from Scheduling Coordinator j to buy back Spinning Reserve capacity from a resource i in Zone x for Trading Interval t is calculated as follows:

 $SpinReceiveHA_{ijxt} = SpinQDHA_{ijxt} * PSpinHA_{xt}$

The total Spinning Reserve payment to each Scheduling Coordinator for the Trading Interval of the Hour-Ahead Market for all the resources that it represents in a given Zone is calculated by summing all the payments for the resources of the Scheduling Coordinator in the Zone for the Trading Interval and then deducting therefrom any amount

C 2.1.3 **Real Time Market**

Each Scheduling Coordinator will be paid for the real time instructed Energy output from Dispatched Spinning Reserve, Non-Spinning Reserve, and Replacement Reserve¹ resources which it represents at the real time Hourly Ex Post Price. Each Scheduling Coordinator will also be paid for Supplemental Energy Dispatched from resources which it represents at the same Hourly Ex Post Price. This payment for Scheduling Coordinator j for providing Energy output from a resource i in Zone x for Trading Interval t is calculated as follows:

 $EnQPay_{iixt} = EnQ_{iixt} * P_{xt}$

The total payment to each Scheduling Coordinator for real time Energy output from all resources which it represents for a given Trading Interval in a given Zone is calculated by summing all the payments for the resources of the Scheduling Coordinator in the Zone for the Trading Interval. This payment for Scheduling Coordinator j in Zone x for Trading Interval t is calculated as follows:

$$EnQPayTotal_{ijxt} = \sum_{i} EnQPay_{ijxt}$$

C 2.2 ISO allocation of charges to Scheduling Coordinators

C 2.2.1 **Day-Ahead Market**

(a) *Regulation.* The ISO will charge the zonal cost of providing Regulation capacity that is not self provided by Scheduling Coordinators, in the Day-Ahead Market, through the application of a charge to each Scheduling Coordinator for each Trading Interval. This charge will be computed by multiplying the Regulation user rate for the Trading Interval by the Scheduling Coordinator's Regulation obligation, for which it has not self provided, for the same period.

> The zonal Regulation user rate for the Day-Ahead Market is calculated by dividing the total cost to ISO of purchasing Regulation Capacity within the Zone, for the Trading Interval, by the total ISO Regulation obligation for the Trading Interval within the Zone. Regulation Up and Regulation Down payments shall be calculated seperately.

For Regulation, differences between instructed and metered Energy shall be settled as Imbalance Energy in accordance with Appendix G2.1.

Quantities and rates for Regulation Down shall be calculated by substituting the Regulation Up quantities and prices in the relevant formulae. The Day-Ahead Regulation Up user rate in Zone x for Trading Interval t is calculated as follows:

 $AGCUpRateDA_{xt} = \frac{\sum_{j} AGCUpPayTotalDA_{jxt}}{AGCUpObligTotal_{xt}}$ where. AGCUpPayTotalDA_{ixt} = Total Regulation Up payments for the Settlement Period t in the Day-Ahead market for the Zone x. The Regulation capacity charge for Scheduling Coordinator j in the Day-Ahead Market in Zone x for Trading Interval t is calculated as follows: $AGCUpChgDA_{ixt} = AGCUpOblig_{ixt} * AGCUpRateDA_{xt}$ If the ISO procures Ancillary Services in accordance with Section 2.5.3.6, then this payment will be calculated by multiplying the total non self-provided Regulation up requirement by the price as it would have been, had the ISO purchased Ancillary Services without any substitution of one Ancillary Service for another. <u>(b</u>) Spinning Reserve. The ISO will charge the zonal cost of providing Spinning Reserve capacity that is not self provided by Scheduling Coordinators, in the Day-Ahead Market, through the application of a charge to each Scheduling Coordinator for each Trading Interval. This charge will be computed by multiplying the Spinning Reserve capacity user rate for the Trading Interval by the Scheduling Coordinator's Spinning Reserve obligation, for which it has not self provided, for the same period. The zonal Spinning Reserve capacity user rate for the Day-Ahead Market is calculated by dividing the total cost to ISO of purchasing Spinning Reserve capacity within the Zone, for the Trading Interval, by the total ISO Spinning Reserve obligation for the Trading Interval within the Zone. The Day-Ahead Spinning Reserve capacity user rate in Zone x for Trading Interval t is calculated as follows: $SpinRateDA_{xt} = \frac{\sum_{j} SpinPayTotalDA_{jxt}}{SpinObligTotal_{xt}}$

The Spinning Reserve capacity charge for Scheduling Coordinator j in the Day-Ahead Market in Zone x for Trading Interval t is calculated as follows:

 $SpinChgDA_{ixt} = SpinOblig_{ixt} * SpinRateDA_{xt}$

(c) Non-Spinning Reserve. The ISO will charge the zonal cost of providing Non-Spinning Reserve capacity that is not self provided by Scheduling Coordinators, in the Day-Ahead Market, through the application of a charge to each Scheduling Coordinator for each Trading Interval. This charge will be computed by multiplying the Non-Spinning Reserve capacity user rate for the Trading Interval by the Scheduling Coordinator's Non-Spinning Reserve obligation, for which it has not self provided, for the same period.

> The zonal Non-Spinning Reserve capacity user rate for the Day-Ahead Market is calculated by dividing the total cost to ISO of purchasing Non-Spinning Reserve capacity within the Zone, for the Trading Interval, by the total ISO Non-Spinning Reserve obligation for the Trading Interval within the Zone. The Day-Ahead Non-Spinning Reserve capacity user rate in Zone x for Trading Interval t is calculated as follows:

 $NonSpinRateDA_{xt} = \frac{\sum_{j} NonSpinPayTotalDA_{jxt}}{NonSpinObligTotal_{xt}}$

The Non-Spinning Reserve capacity charge for Scheduling Coordinator j in the Day-Ahead Market in Zone x for Trading Interval t is calculated as follows:

 $NonSpinChgDA_{ixt} = NonSpinOblig_{ixt} * NonSpinRateDA_{xt}$

C 2.2.2 Hour-Ahead Market

(a) <u>Regulation</u>. The ISO will charge the zonal net cost of providing Regulation capacity that is not self provided by Scheduling Coordinators, in the Hour-Ahead Market through the application of a charge to each Scheduling Coordinator for the Trading Interval concerned. This charge will be computed by multiplying the Regulation user rate for the Trading Interval by the Scheduling Coordinator's Regulation obligation, for which it has not self provided, for the same period.

> The zonal Regulation capacity user rate for the Hour-Ahead Market is calculated by dividing the total cost to the ISO of purchasing Regulation capacity within the Zone less any amounts payable to the ISO by Scheduling Coordinators for Regulation bought back from the ISO in the Hour-Ahead Market on behalf of resources located in the Zone, for the Trading Interval, by the total ISO Regulation capacity obligation for the Trading Interval within the Zone. Regulation Up and Down payments shall be calculated separately. Quantities and rates for Regulation Down shall be calculated by substituting the Regulation Up quantities and prices in the relevant formulae. The Hour-Ahead Regulation Up capacity user rate in Zone x for Trading Interval t is calculated as follows:

$$AGCUpRateHA_{xt} = \frac{\sum_{j} AGCUpPayTotalHA_{jxt}}{AGCUpObligTotal_{xt}}$$

where,

 $AGCUpPayTotalHa_{jxt}$ = Totlal Regulation Up payments for the Settlement Period t in the Hour-Ahead Market for Zone x.

The Regulation capacity charge for Scheduling Coordinator j in the Hour-Ahead Market in Zone x for Trading Interval t is calculated as follows:

 $AGCUpChgHA_{ixt} = (AGCUpOblig_{ixt} * AGCUpRateHA_{xt})$

(b) Spinning Reserve. The ISO will charge the zonal net cost of providing Spinning Reserve capacity that is not self provided by Scheduling Coordinators, in the Hour-Ahead Market, through the application of a charge to each Scheduling Coordinator for the Trading Interval. This charge will be computed by multiplying the Spinning Reserve capacity user rate for the Trading Interval by the Scheduling Coordinator's Spinning Reserve obligation, for which it has not self provided, for the same period.

> The zonal Spinning Reserve capacity user rate for the Hour-Ahead Market is calculated by dividing the total cost to ISO of purchasing Spinning Reserve capacity within the Zone less any amounts payable to the ISO by Scheduling Coordinators for Spinning Reserve bought back from the ISO in the Hour-Ahead Market on behalf of resources located in the Zone, for the Trading Interval, by the total ISO Spinning Reserve obligation for the Trading Interval within the Zone. The Hour-Ahead Spinning Reserve capacity user rate in Zone x for Trading Interval t is calculated as follows:

$$SpinRateHA_{xt} = \frac{\sum_{j} SpinPayTotalHA_{jxt}}{SpinObligTotal_{xt}}$$

The Spinning Reserve capacity charge for Scheduling Coordinator j in the Hour-Ahead Market in Zone x for Trading Interval t is calculated as follows:

 $SpinChgHA_{jxt} = (SpinOblig_{jxt} * SpinRateHA_{xt})$

(c) Non-Spinning Reserve. The ISO will charge the zonal net cost of providing Non-Spinning Reserve capacity that is not self provided by Scheduling Coordinators, in the Hour-Ahead Market, through the application of a charge to each Scheduling Coordinator for the Trading Interval. This charge will be computed by multiplying the Non-Spinning Reserve capacity user rate for the concerned Trading Interval by the Scheduling Coordinator's Non-Spinning Reserve obligation, for which it has not self provided, for the same period. The zonal Non-Spinning Reserve capacity user rate for the Hour-Ahead Market is calculated by dividing the total cost to ISO of purchasing Non-Spinning Reserve capacity within the Zone less any amounts payable to the ISO by Scheduling Coordinators for Non-Spinning Reserve bought back from the ISO in the Hour-Ahead Market on behalf of resources in the Zone, for the Trading Interval, by the total ISO Non-Spinning Reserve obligation for the Trading Interval within the Zone. The Hour-Ahead Non-Spinning Reserve capacity user rate in Zone x for Trading Interval t is calculated as follows:

 $NonSpinRateHA_{xt} = \frac{\sum_{j} NonSpinPayTotalHA_{jxt}}{NonSpinObligTotal_{xt}}$

The Non-Spinning Reserve capacity charge for Scheduling Coordinator j in the Hour-Ahead Market in Zone x for Trading Interval t is calculated as follows:

NonSpinChgHA_{ixt} = (*NonSpinOblig_{ixt}* * *NonSpinRateHA_{xt}*)

C 2.2.3 Replacement Reserve

The user rate per unit of purchased Replacement Reserve for each Settlement Period t for each Zone x shall be as follows:

 $ReplRate_{xt} = \frac{ReplPayTotalDA_{xt} + ReplPayTotalHA_{xt} + ReplBuyBackTotal_{xt}}{ReplObligTotal_{xt}}$

where:

 $ReplPayTotalDA_{xt}$ = Total Replacement Reserve payments for the Settlement Period t in the Day-Ahead Market for the Zone x.

 $ReplPayTotalHA_{xt}$ = Total Replacement Reserve payments for the Settlement Period t in the Hour-Ahead Market for the Zone x.

ReplBuyBackTotal = payments from Scheduling Coordinators buying back Ancillary Service capacity sold in the Day-Ahead Market or replacing capacity that was self-provided in the Day-Ahead Market.

 $ReplObligTotal_{xt}$ = the total ISO Replacement Reserve requirement procured in the Day-Ahead market and the Hour-Ahead Market for the Settlement Period t for the Zone x less that which has been self-provided by Scheduling Coordinators. For each Settlement Period, each Scheduling Coordinator shall pay to the ISO a sum calculated as follows for each Zone: *ReplRate * ReplOblig* where *ReplOblig = DevReplOblig + RemRepl - SelfProv*

DevReplOblig is the Scheduling Coordinator's obligation for deviation Replacement Reserve in the Zone in the Settlement Period and *RemRepl* is the Scheduling Coordinator's obligation for remaining Replacement Reserve.

Deviation Replacement Reserve for Scheduling Coordinator i in Zone x for Settlement Period t is calculated as follows:

If *ReplObligTotal_{xt} > DevReplOblig_{xt}* then:

$$DevReplOblig_{xjt} = \left[Max\left(0, \sum_{i} GenDev_{ixt}\right) - Min\left(0, \sum_{i} LoadDev_{ixt}\right)\right]$$

If *ReplObligTotal_{xt} < DevReplOblig_{xt}* then:

$$DevReplOblig_{xjt} = \frac{Re\ plObligTotal_{xt}}{DevRe\ plOblig_{xt}} * \left[Max \left(0, \sum_{i} GenDev_{ixt} \right) - Min \left(0, \sum_{i} LoadDev \right)_{ixt} \right]$$

where,

 $GenDev_{ixt}$ = The deviation between scheduled and actual Energy generation for Generator i represented by Scheduling Coordinator I in Zone x during Settlement Period t as referenced in Section 11.2.4.1.

 $LoadDev_{ixt}$ = The deviation between scheduled and actual Load consumption for resource I represented by Scheduling Coordinator i

in Zone x during Settlement Period t as referenced in Section 11.2.4.1.

 $DevReplOblig_{xt}$ is total deviation Replacement Reserve in Zone x for Settlement Period t.

Remaining Replacement Reserve for Scheduling Coordinator i in Zone x for Settlement Period t is calculated as follows:

$$RemRepl_{xjt} = \frac{MeteredDemand_{xt}}{TotalMeteredDemand_{xt}} * TotalRemRepl_{xt}$$

where:

MeteredDemand is the Scheduling Coordinator's total metered Demand in Zone x for Settlement Period t.

TotalMeteredDemand is total metered Demand in Zone x for Settlement Period t.

 $TotalRemRepl_{xt} = Max[0, ReplObligTotal_{xt} - DevReplOblig_{xt}]$

C 2.2.4 Rational Buyer Adjustment

When Market Clearing Prices for Ancillary Services differ, substituting Demand for one Ancillary Service with Demand for another pursuant to Section 2.5.3.6 may cause an imbalance to arise between the total payments to suppliers and the total payments to users. For each Settlement Period, this imbalance is equal to the sum of payments for Regulation, Spinning Reserve, Non-Spinning Reserve and Replacement Reserve pursuant to section 2.5.27 for the Day-Ahead and Hour-Ahead Markets summed across all Zones in each Settlement Period, less the sum of corresponding charges for such Ancillary Services pursuant to Section 2.5.28. Charges or credits associated with such imbalance shall be assigned to each Scheduling Coordinator in proportion to its share of such corresponding charges.

C 2.2.5 Real-Time Market

The ISO will charge the costs of purchasing real time instructed Energy output from Dispatched Regulation, Spinning Reserve, Non-Spinning Reserve, Replacement Reserve and Supplemental Energy resources through the Imbalance Energy settlement process.

C 3	Meaning of terms of formulae
C 3.1	AGCUpPayDA _{ijxt} - \$
	The payment for Scheduling Coordinator j for providing Regulation Up capacity in the Day-Ahead Market from a resource i in Zone x for Trading Interval t.
C 3.2	AGCUpQDA _{ijxt} – MW
	The total quantity of Regulation Up capacity provided in the ISO Day- Ahead Market from resource i by Scheduling Coordinator j in Zone x for Trading Interval t.
C 3.3	PAGCUpDA _{xt} - \$/MW
	The Market Clearing Price for units exempt from FERC Ancillary Service rate caps or the bid price for those Units subject to the cap for Regulation Up capacity in the Day-Ahead Market for Trading Interval t in Zone x.
C 3.4	AGCUpPayTotaIDA _{jxt} - \$
	The total payment for Regulation Up capacity to Scheduling Coordinator j in the Day-Ahead Market in Zone x for Trading Interval t.

C 3.5	AGCUpPayHA _{ijxt} - \$
	The payment for Scheduling Coordinator j for providing incremental (additional to Day-Ahead) Regulation Up capacity in the Hour-Ahead Market from a resource i in Zone x for Trading Interval t.
C 3.5.1	AGCUpReceiveHA _{ijxt} - \$
	The payment from Scheduling Coordinator j for buying back from the ISO in the Hour-Ahead Regulation Up capacity which the ISO had purchased from Scheduling Coordinator j in the Day-Ahead Market from a resource i in Zone x for Trading Interval t.

C 3.6	AGCUPQIHA _{ijxt} – MW
	The total quantity of incremental (additional to Day-Ahead) Regulation Up capacity provided in the ISO Hour-Ahead Market from resource i by Scheduling Coordinator j in Zone x for Trading Interval t.
C 3.7	AGCUpQDHA _{ijxt} – MW
	The total quantity of decremental (less than Day-Ahead) Regulation Up capacity provided in the ISO Hour-Ahead Market from resource i by Scheduling Coordinator j in Zone x for Trading Interval t.
C 3.7.1	PAGCUpHA _{xt} - \$/MW
	The Market Clearing Price for units exempt from FERC Ancillary Service rate caps or the bid price for those units subject to the cap for incremental (additional to Day-Ahead) Regulation Up capacity in the Hour-Ahead Market for Trading Interval t in Zone x. On buyback condition, MCP applies.
C 3.8	AGCUpPayTotalHA _{jxt} - \$
	The total payment for incremental (additional to Day-Ahead) Regulation Up capacity to Scheduling Coordinator j in the Hour-Ahead Market in Zone x for Trading Interval t, after deduction of payments from Scheduling Coordinator j for buying back from the ISO in the Hour-Ahead, Regulation Up capacity which the ISO had purchased from Scheduling Coordinator j in the Day-Ahead Market in Zone x for Trading Interval t.
C 3.9	AGCUpRateDA _{xt} - \$/MW
	The Day-Ahead Regulation Up capacity user rate charged to Scheduling Coordinators by the ISO in Zone x for Trading Interval t.
C 3.10	AGCUpObligTotal _{xt} – MW
	The net total Regulation Up obligation in Zone x for Trading Interval t as defined in the Ancillary Services Requirements Protocol. This net total equals the total obligation minus that self-provided.
C 3.11	AGCUpChgDA _{jxt} - \$
	The Regulation Up charge for Scheduling Coordinator j in the Day-

C 3.12	AGCUpOblig_{jxt} – MW The net Regulation Up obligation for Scheduling Coordinator j in Zone
	x for Trading Interval t as defined in the Ancillary Services Requirements Protocol. This net obligation equals the obligation minus that self-provided.
C 3.13	AGCUpRateHA _{xt} - \$/MW
	The Hour-Ahead incremental (additional to Day-Ahead) Regulation Up capacity user rate charged to Scheduling Coordinators by the ISO in Zone x for Trading Interval t.
C 3.14	AGCUpChgHA _{jxt} - \$
	The incremental (additional to Day-Ahead) Regulation Up charge for Scheduling Coordinator j in the Hour-Ahead Market in Zone x for Trading Interval t.
C 3.15	EnQPay _{ijxt} - \$
	The payment for Scheduling Coordinator j for Instructed Imbalance Energy output from a resource i in the Real Time Market in Zone x for Trading Interval t.