ISO Settlement Charge Matrix - Automated Charge Types

REF	Chrg ID	Charge Name	KEY PARAMETERS				Due ISO	Due SC	Charge	Effective Trade Period	
			Billable Quantity	Units	Price	Units	Positive	Negative	Granularity	Start	End
Ancillary Service Capacity Reservation Settlements (Amount Due = -Billable Quantity * Price)											
1	0001	Day Ahead Spinning Reserve due SC	Spinning Reserve Accepted Bid Quantity [per SC, per location]	MW-hr	Non-FERC Locations: Zonal Spinning Reserve Capacity Market Clearing Price for Trading Interval / FERC Locations: Spinning Reserve Capacity Price for generation unit	$/MW-hr	N/A	Capacity bought by ISO	Hourly	04/01/98	Open
2	0051	Hour Ahead Spinning Reserve due SC	Hour-Ahead additional Spinning Reserve accepted bid quantity [per SC, per location]	MW-hr	Non-FERC Locations: Zonal Spinning Reserve Capacity Market Clearing Price for Trading Interval / FERC Locations: Spinning Reserve Capacity Price for generation unit	$/MW-hr	A/S buy back	Capacity bought by ISO	Hourly	04/01/98	Open
3	0111	Spinning Reserve due ISO	Net Reserve Obligation [per SC, per zone]	MW-hr	Average of DA and HA Rational Buyer MCPs weighted by MW requirements from the initial DA and HA auctions	$/MW-hr	SC has net positive obligation	SC has a negative obligation due to surplus self provision	Hourly	08/18/99	Open
			Net Zonal Obligation = Net Regional obligation * (Zonal SC Metered Demand / Regional SC Metered Demand)								
Ret	0101	Day Ahead Spinning Reserve due ISO	Non Self-Provided Spinning Reserve Requirement [per SC, per zone]	MW / trading interval	average MCP = {∑ [(MCP * Billable QuantityNon-FERC) + (Bid Price * Billable QuantityFERC)]} / ∑ (Non Self-Provided Spinning Reserve Requirement)	$/MW	SC requirement due to NSP	N/A	Hourly	04/01/98	08/17/99
Ret	0151	Hour Ahead Spinning Reserve due ISO	Hour-Ahead additional Non-Self Provided Spinning Reserve requirement [per SC, per zone]	MW / trading interval	average MCP = {∑ [(MCP * Billable QuantityNon-FERC) + (Bid Price * Billable QuantityFERC)]} / ∑ (Hour-Ahead additional Non Self-Provided Spinning Reserve Requirement)	$/MW	Increase in SC's DA requirement	Decrease in SC's DA requirement	Hourly	04/01/98	08/17/99
4	0002	Day Ahead Non-Spinning Reserve due SC	Non-Spinning Reserve Accepted Bid Quantity [per SC, per location]	MW-hr	Non-FERC Locations: Zonal Non-Spinning Reserve Capacity Market Clearing Price for Trading Interval / FERC Locations: Non-Spinning Reserve Capacity Price for generation unit	$/MW-hr	N/A	Capacity bought by ISO	Hourly	04/01/98	Open
5	0052	Hour Ahead Non-Spinning Reserve due SC	Hour-Ahead additional Non-Spinning Reserve accepted bid quantity [per SC, per location]	MW-hr	Non-FERC Locations: Zonal AGC/Regulation Capacity Market Clearing Price for Trading Interval / FERC Locations: AGC/Regulation Capacity Price for generation unit	$/MW-hr	A/S buy back	Capacity bought by ISO	Hourly	04/01/98	Open
6	0112	Non-Spinning Reserve due ISO	Net Reserve Obligation [per SC, per zone]	MW-hr	Average of DA and HA Rational Buyer MCPs weighted by MW requirements from the initial DA and HA auctions	$/MW-hr	SC has net positive obligation	SC has a negative obligation due to surplus self provision	Hourly	08/18/99	Open
			Net Zonal Obligation = Net Regional obligation * (Zonal SC Metered Demand / Regional SC Metered Demand)								
Ret	0102	Day Ahead Non-Spinning Reserve due ISO	Non Self-Provided Non-Spinning Reserve Requirement [per SC, per zone]	MW / trading interval	average MCP = {∑ [(MCP * Billable QuantityNon-FERC) + (Bid Price * Billable QuantityFERC)]} / ∑ (Non Self-Provided Non-Spinning Reserve Requirement)	$/MW	SC requirement due to NSP	N/A	Hourly	04/01/98	08/17/99
Ret	0152	Hour Ahead Non-Spinning Reserve due ISO	Hour-Ahead additional Non-Self Provided Non-Spinning Reserve requirement [per SC, per zone]	MW / trading interval	average MCP = {∑ [(MCP * Billable QuantityNon-FERC) + (Bid Price * Billable QuantityFERC)]} / ∑ (Hour-Ahead additional Non-Self Provided AGC/Regulation requirement)	$/MW	Increase in SC's DA requirement	Decrease in SC's DA requirement	Hourly	04/01/98	08/17/99

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REF	Chrg ID	Charge Name	KEY PARAMETERS				Due ISO	Due SC	Charge	Effective Trade Period	
			Billable Quantity	Units	Price	Units	Positive	Negative	Granularity	Start	End
Ret	0003	Day Ahead AGC/Regulation due SC	AGC/Regulation Accepted Bid Quantity [per SC, per location] (Sum of Absolute Positive & Negative Bid Qty)	MW / trading interval	Non-FERC Locations: Zonal AGC/Regulation Capacity Market Clearing Price for Trading Interval / FERC Locations: AGC/Regulation Capacity Price for generation unit	$/MW	N/A	Capacity bought by ISO	Hourly	04/01/98	08/17/99
Ret	0053	Hour Ahead AGC/Regulation due SC	Hour-Ahead additional AGC/Regulation accepted bid quantity [per SC, per location] (Sum of Absolute Positive & Negative Bid Qty)	MW / trading interval	Non-FERC Locations: Zonal AGC/Regulation Capacity Market Clearing Price for Trading Interval / FERC Locations: AGC/Regulation Capacity Price for generation unit	$/MW	A/S buy back	Capacity bought by ISO	Hourly	04/01/98	08/17/99
Ret	0103	Day Ahead AGC/Regulation due ISO	Non-Self Provided AGC/Regulation requirement [per SC, per zone] (Sum of Absolute Positive & Negative Bid Qty)	MW / trading interval	average MCP = {∑ [(MCP * Billable QuantityNon-FERC) + (Bid Price * Billable QuantityFERC)]} / ∑ (Non-Self Provided AGC/Regulation requirement)	$/MW	SC requirement due to NSP	N/A	Hourly	04/01/98	08/17/99
Ret	0153	Hour Ahead AGC/Regulation due ISO	Hour-Ahead Non-Self Provided additional AGC/Regulation requirement [per SC, per zone]	MW / trading interval	average MCP = {∑ [(MCP * Billable QuantityNon-FERC) + (Bid Price * Billable QuantityFERC)]} / ∑ (Hour-Ahead additional Non-Self Provided AGC/Regulation requirement)	$/MW	Increase in SC's DA requirement	Decrease in SC's DA requirement	Hourly	04/01/98	08/17/99
7	0004	Day Ahead Replacement Reserve due SC	Replacement Reserve Accepted Bid Quantity [per SC, per location]	MW-hr	Non-FERC Locations: Zonal Replacement Reserve Capacity Market Clearing Price for Trading Interval / FERC Locations: Replacement Reserve Capacity Price for generation unit	$/MW-hr	N/A	Capacity bought by ISO	Hourly	04/01/98	Open
8	0054	Hour Ahead Replacement Reserve due SC	Hour-Ahead additional Replacement Reserve accepted Bid Quantity [per SC, per location]	MW-hr	Non-FERC Locations: Zonal Replacement Reserve Capacity Market Clearing Price for Trading Interval / FERC Locations: Replacement Reserve Capacity Price for generation unit	$/MW-hr	A/S buy back	Capacity bought by ISO	Hourly	04/01/98	Open
9	0114	Replacement Reserve due ISO	Net Reserve Obligation [per SC, per zone]	MW-hr	Average of DA and HA Rational Buyer MCPs weighted by MW requirements from the initial DA and HA auctions	$/MW-hr	SC has net positive obligation	SC has a negative obligation due to surplus self provision	Hourly	08/18/99	Open
			Net Zonal Obligation = Net Regional obligation * (Zonal SC Metered Load / Regional SC Metered Load) Net Regional Obligation = Base Obligation + Remaining Obligation + Inter SC Trades - Effective Self Provision Base Obligation = Min (Deviation Requirement, Prorata share based on SCs' Deviation Requirements of Reserve Available to ISO) Deviation Requirement = Overscheduled Generation + Underscheduled Load Remaining Obligation = (Reserve Available to ISO - ΣBase Obligation) * (SC Regional Metered Load / Total Regional Metered Load)								
Ret	0303	Replacement Reserve due ISO (Dispatched)	$R.R._{dispatched}$	MW / trading interval	average MCP = {∑ [(Capacity MCP * Capacity Billable QuantityNon-FERC) + (Capacity Bid Price * Capacity Billable QuantityFERC)]} / ∑ (Capacity Billable QuantityNon-FERC + Capacity Billable QuantityFERC)	$/MW	SC requirement due to NSP	N/A	Hourly	04/01/98	08/17/99
			$R.R._{dispatched}$ = Dispatched Qty * {SC[MAX(0,imbalance)] * [SC Non-Self Provided Replacement Reserve Req/ ∑ (SC Non-Self Provided Replacement Reserve Req)] / ∑[Total SC[MAX(0,imbalance)] * (SC Non-Self Provided Req/∑(SC Non Self Provided Replacement Res. Req))]}								
Ret	0304	Replacement Reserve due ISO (Undispatched)	$R.R._{undispatched}$	MW / trading interval	average MCP = {∑ [(Capacity MCP * Capacity Billable QuantityNon-FERC) + (Capacity Bid Price * Capacity Billable QuantityFERC)]} / ∑ (Capacity Billable QuantityNon-FERC + Capacity Billable QuantityFERC)	$/MW	SC requirement due to NSP	N/A	Hourly	04/01/98	08/17/99
			$R.R._{undispatched}$ = Undispatched Qty * [SC scheduled nonself provided Replacement Reserve Requirement / Total SC scheduled non-self provided Replacement Reserve Requirement]								

ISO Settlement Charge Matrix - Automated Charge Types

REF	Chrg ID	Charge Name	KEY PARAMETERS				Due ISO	Due SC	Charge	Effective Trade Period	
			Billable Quantity	Units	Price	Units	Positive	Negative	Granularity	Start	End
10	0005	Day Ahead Regulation Up due SC	Day Ahead Regulation Up Accepted Bid Quantity [per SC, per location]	MW-hr	Zonal Regulation Up Capacity MCP for Trading Interval	$/MW-hr	N/A	Capacity bought by ISO	Hourly	08/18/99	Open
11	0055	Hour Ahead Regulation Up due SC	Hour Ahead Regulation Up Accepted Bid Quantity [per SC, per location]	MW-hr	Zonal Regulation Up Capacity MCP for Trading Interval	$/MW-hr	A/S buy back	Capacity bought by ISO	Hourly	08/18/99	Open
12	0115	Regulation Up Due ISO	Net Reserve Obligation [per SC, per zone]	MW-hr	Average of DA and HA Rational Buyer MCPs weighted by MW requirements from the initial DA and HA auctions	$/MW-hr	SC has net positive obligation	SC has a negative obligation due to surplus self provision	Hourly	08/18/99	Open
			Net Zonal Obligation = Net Regional obligation * (Zonal SC Metered Load / Regional SC Metered Load)								
13	0006	Day Ahead Regulation Down due SC	Day Ahead Regulation Down Accepted Bid Quantity [per SC, per location]	MW-hr	Zonal Regulation Down Capacity MCP for Trading Interval	$/MW-hr	N/A	Capacity bought by ISO	Hourly	08/18/99	Open
14	0056	Hour Ahead Regulation Down due SC	Hour Ahead Regulation Down Accepted Bid Quantity [per SC, per location]	MW-hr	Zonal Regulation Down Capacity MCP for Trading Interval	$/MW-hr	A/S buy back	Capacity bought by ISO	Hourly	08/18/99	Open
15	0116	Regulation Down Due ISO	Net Reserve Obligation [per SC, per zone]	MW-hr	Average of DA and HA Rational Buyer MCPs weighted by MW requirements from the initial DA and HA auctions	$/MW-hr	SC has net positive obligation	SC has a negative obligation due to surplus self provision	Hourly	08/18/99	Open
			Net Zonal Obligation = Net Regional obligation * (Zonal SC Metered Load / Regional SC Metered Load)								
Rational Buyer Settlement											
16	1011	Ancillary Service Rational Buyer Adjustment	SC's user payment for Ancillary Services [per control area]	$	Per Unit Price = Total overcollected or undercollected revenue / Total collected user payments for Ancillary Services.	$/$	ISO undercollects A/S costs	ISO overcollects A/S cots	Hourly	08/18/99	Open
RMR Preempted Ancillary Service Capacity Settlements (Amount Due = -Billable Quantity * Price)											
17	0061	Hour Ahead RMR Preemption of Spinning Reserve (HA Price)	Amount of Spinning Reserve Pre-empted before close of HA Market [per SC, per location]	MW-hr	Zonal Spinning Reserve Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly	01/01/00	Open
18	0062	Hour Ahead RMR Preemption of Non-Spinning Reserve (HA Price)	Amount of Non-Spinning Reserve Pre-empted before close of HA Market [per SC, per location]	MW-hr	Zonal Non Spinning Reserve Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly	01/01/00	Open

ISO Settlement Charge Matrix - Automated Charge Types

REF	Chrg ID	Charge Name	KEY PARAMETERS				Due ISO Positive	Due SC Negative	Charge Granularity	Effective Trade Period	
			Billable Quantity	Units	Price	Units				Start	End
19	0064	Hour Ahead RMR Preemption of Replacement Reserve (HA Price)	Amount of Replacement Reserve Pre-empted before close of HA Market [per SC, per location]	MW-hr	Zonal Replacement Reserve Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly	01/01/00	Open
20	0065	Hour Ahead RMR Preemption of Regulation Up (HA Price)	Amount of Regulation Up Pre-empted before close of HA Market [per SC, per location]	MW-hr	Zonal Regulation Up Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly	01/01/00	Open
21	0066	Hour Ahead RMR Preemption of Regulation Down (HA Price)	Amount of Regulation Down Pre-empted before close of HA Market [per SC, per location]	MW-hr	Zonal Regulation Down Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly	01/01/00	Open
22	0071	Real Time RMR Preemption of Spinning Reserve (DA Price)	Amount of Spinning Reserve Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	MW-hr	Zonal Spinning Reserve Capacity Day Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open
23	0072	Real Time RMR Preemption of Non-Spinning Reserve (DA Price)	Amount of Non-Spinning Reserve Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	MW-hr	Zonal Non-Spinning Reserve Capacity Day Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open
24	0074	Real Time RMR Preemption of Replacement Reserve (DA Price)	Amount of Replacement Reserve Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	MW-hr	Zonal Replacement Reserve Capacity Day Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open
25	0075	Real Time RMR Preemption of Regulation Up (DA Price)	Amount of Regulation Up Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	MW-hr	Zonal Regulation Up Capacity Day Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open
26	0076	Real Time RMR Preemption of Regulation Down (DA Price)	Amount of Regulation Down Pre-empted after close of Hour Ahead Market at Day Ahead Price [per SC, per location]	MW-hr	Zonal Regulation Down Capacity Day Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open
27	0081	Real Time RMR Preemption of Spinning Reserve (HA Price)	Amount of Spinning Reserve Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	MW-hr	Zonal Spinning Reserve Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open
28	0082	Real Time RMR Preemption of Non-Spinning Reserve (HA Price)	Amount of Non-Spinning Reserve Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	MW-hr	Zonal Non-Spinning Reserve Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open

ISO Settlement Charge Matrix - Automated Charge Types

REF	Chrg ID	Charge Name	KEY PARAMETERS				Due ISO Positive	Due SC Negative	Charge Granularity	Effective Trade Period	
			Billable Quantity	Units	Price	Units				Start	End
29	0084	Real Time RMR Preemption of Replacement Reserve (HA Price)	Amount of Replacement Reserve Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	MW-hr	Zonal Replacement Reserve Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open
30	0085	Real Time RMR Preemption of Regulation Up (HA Price)	Amount of Regulation Up Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	MW-hr	Zonal Regulation Up Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open
31	0086	Real Time RMR Preemption of Regulation Down (HA Price)	Amount of Regulation Down Pre-empted after close of Hour Ahead Market at Hour Ahead Price [per SC, per location]	MW-hr	Zonal Regulation Down Capacity Hour Ahead Market Clearing Price for Trading Interval	$/MW-hr	A/S Preempted	N/A	Hourly 10-Minute	1/1/2000 6/1/2000	5/31/2000 Open
32	1061	Distribution of Preempted Spinning Reserve	Total Load + Export [per SC, per Zone]	MWh	Total Spinning Reserve Preemption Revenue / (Total Load + Export) [per A/S Region, per Trading Interval]	$/MWh	N/A	Distribution of A/S Preemption Revenue	Hourly	06/01/00	Open
33	1062	Distribution of Preempted Non-Spinning Reserve	Total Load + Export [per SC, per Zone]	MWh	Total Non Spinning Reserve Preemption Revenue / (Total Load + Export) [per A/S Region, per Trading Interval]	$/MWh	N/A	Distribution of A/S Preemption Revenue	Hourly	06/01/00	Open
34	1064	Distribution of Preempted Replacement Reserve	Total Load + Export [per SC, per Zone]	MWh	Total Replacement Reserve Preemption Revenue / (Total Load + Export) [per A/S Region, per Trading Interval]	$/MWh	N/A	Distribution of A/S Preemption Revenue	Hourly	06/01/00	Open
35	1065	Distribution of Preempted Regulation Up	Total Load + Export [per SC, per Zone]	MWh	Total Regulation Up Preemption Revenue / (Total Load + Export) [per A/S Region, per Trading Interval]	$/MWh	N/A	Distribution of A/S Preemption Revenue	Hourly	06/01/00	Open
36	1066	Distribution of Preempted Regulation Down	Total Load + Export [per SC, per Zone]	MWh	Total Regulation Down Preemption Revenue / (Total Load + Export) [per A/S Region, per Trading Interval]	$/MWh	N/A	Distribution of A/S Preemption Revenue	Hourly	06/01/00	Open
RMR Imbalance Energy Payment Withhold											
37	0410	Unscheduled RMR Energy	Energy generated in excess of scheduled energy, up to RMR dispatched amount [per SC, per location, per Interval]	MWh	Price = Withhold Amount / Billable Quantity Withhold Amount is first taken from the Instructed Energy payment (at the Average Price for the instructed energy in the trading interval) and then from the Uninstructed Energy (at the Decremental MCP of the interval) of the unit.	$/MWh	Final schedule less than RMR dispatch	N/A	Hourly 10-Minute	6/1/00 9/1/00	8/31/00 Open
Day-Ahead Zonal Congestion Settlements (Amount Due = Billable Quantity * Price)											

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REF	Chrg ID	Charge Name	KEY PARAMETERS				Due ISO Positive	Due SC Negative	Charge Granularity	Effective Trade Period	
			Billable Quantity	Units	Price	Units				Start	End
39	0201	Day-Ahead Intra-Zonal Congestion Incs/Decs Settlement	Accepted Day-Ahead Incremental / Decremental Bid Quantity	MWh / trading interval	Bid Price	$/MWh	Dec Bid	Inc Bid	Hourly	Future	Open
40	0202	Day-Ahead Intra-Zonal Congestion Charge/Refund (DA Grid Operations Charge)	Sum of SC Scheduled Load & Export for Zone for Trading Interval	MWh / trading interval	Intra-Zonal Congestion Charge Price = Sum All SC's Day-Ahead Intra-Zonal Congestion Settlements (inc/decs) for Zone for Trading Interval / Total MW Load + Exports Energy in the Zone for Trading Interval	$/MWh	Inc Settlements + Dec Settlements is negative = ISO Cost which must be collected	Inc Settlements + Dec Settlements is positive = ISO revenues which must be distributed	Hourly	Future	Open
41	0203	Day-Ahead Inter-Zonal Congestion Settlement	SC Scheduled Energy Quantity [per SC] (Sum of Net Import into the Zone) = (L - G + Transfer)	MWh / trading interval	Zonal MCP (Reference Price, λ)	$/MWh	SC's MW flow is in the direction of the congestion	SC's MW flow relieves congestion	Hourly	04/01/98	Open
42	0204	Day-Ahead Inter-Zonal Congestion Refund due TO	TO Percentage Ownership on Interface X Interface Loading [per SC, per Branch Group Location]	MW / trading interval	Day-Ahead Congestion Price of the branch group location (Shadow Price, μ)	$/MW	N/A	ISO revenue from Day-Ahead Inter-zonal Congestion Settlement	Hourly	04/01/98	Open
Hour-Ahead Zonal Congestion Settlements (Amount Due = Billable Quantity * Price)											
43	0251	Hour-Ahead Intra-Zonal Congestion Incs/Decs Settlement	Accepted Revised Hour-Ahead Incremental/Decremental Bid Quantity	MWh / trading interval	Bid Price	$/MWh	Dec Bid	Inc Bid	Hourly	Future	Open
44	0252	Hour-Ahead Intra-Zonal Congestion Charge/Refund (HA Grid Operations Charge)	Absolute difference between [(the Sum of Hour-Ahead Scheduled Load & Export) minus (the sum of Day-Ahead Scheduled Load & Export)]	MWh / trading interval	Intra-Zonal Congestion Charge Price = Sum All SC's Hour-Ahead Intra-Zonal Congestion Incs/Decs Settlements for Zone for Trading Interval / The Sum of all SC's billable quantity (absolute differences)	$/MWh	Inc Settlements + Dec Settlements is negative = ISO Cost which must be collected	Inc Settlements + Dec Settlements is positive = ISO revenues which must be distributed	Hourly	Future	Open
45	0253	Hour-Ahead Inter-Zonal Congestion	Hour-Ahead revised scheduled Quantity minus Day-Ahead scheduled quantity [per SC] (Sum of Net Import into the Zone) = (L - G + Transfer)	MWh / trading interval	Zonal MCP (Reference Price, λ)	$/MWh	SC's MW flow is in the direction of the congestion	SC's MW flow relieves congestion	Hourly	04/01/98	Open
46	0254	Hour-Ahead Inter-Zonal Congestion Refund due TO	TO Percentage Ownership on Interface * Increase in Interface Loading From Dayahead to Hourahead [per TO, per Branch Group Location]	MW / trading interval	Hour-Ahead Congestion Price of the branch group location (Shadow Price, μ)	$/MW	N/A	ISO revenue to be refunded	Hourly	04/01/98	Open

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REF	Chrg ID	Charge Name	KEY PARAMETERS				Due ISO	Due SC	Charge	Effective Trade Period	
			Billable Quantity	Units	Price	Units	Positive	Negative	Granularity	Start	End
47	0255	Hour-Ahead Inter-Zonal Congestion Debit to TOs	Business Associate's Percentage Entitlement of the Path * Decrease in Path Loading From Dayahead to Hourahead [per BA, per Branch Group Location]	MW / trading interval	Day-Ahead Congestion Price of the branch group location (Shadow Price, m)	$/MW	ISO revenue to be collected	N/A	Hourly	03/18/99	Open
48	0256	Hour-Ahead Inter-Zonal Congestion Debit to SCs	SC's Dayahead Path Utilization in the Congested Direction [per SC, per Branch Group Location]	MW / trading interval	{[DA Path Loading - HA Path Loading] * HA Congestion Price - TO Debit Amount for Path} / Total DA Path Flow in the Congested Direction	$/MW	ISO revenue to be collected	ISO revenue to be refunded	Hourly	03/18/99	Open
ISO Administrative Charge (Amount Due = Billable Quantity * Price)											
Ret	0351	Monthly Grid Management Charge due ISO	SC Measured Load plus Gross Export in the Control Area for the Month	MWh / Month	ISO Administrative Charge Price	$/MWh	ISO Costs to be collected	ISO revenue to be refunded	Monthly	04/01/98	12/31/00
49	0521	Control Area Services Grid Management Charge	SC metered Gross Load and Export [per BA, per month]	MWh / Month	Control Area Service Charge Price	$/MWh	ISO Costs to be collected	ISO revenue to be refunded	Monthly	01/01/01	Open
50	0522	Interzonal Scheduling Grid Management Charge	Aggregate of the absolute values of the hourly net scheduled inter-zonal New Firm Use flows [per BA, per month]	MWh / Month	Inter-Zonal Scheduling Charge Price	$/MWh	ISO Costs to be collected	ISO revenue to be refunded	Monthly	01/01/01	Open
51	0523	Market Operations Grid Management Charge	Aggregate of the absolute values of the hourly purchases/sales of Ancillary Services and 10-Minute Imbalance Energy [per BA, per month]	MW-hr / Month	Market Operations Charge Price	$/MW-hr	ISO Costs to be collected	ISO revenue to be refunded	Monthly	01/01/01	Open
Wheeling (Amount Due = Billable Quantity * Price)											
52	0352	Wheeling Out / Wheeling Through due ISO	Expost Gross Export Schedule at an Exit Point	MWh / Month	TO Tariff at Exit Point or TO Weighted Tariff Rate at the Point (if Multiple Owners exist)	$/MW	SC usage of TOs' transmiss'n line	N/A	Hourly	04/01/98	Open
53	0354	Wheeling Charge Refund due TO	Expost Gross Export at the Exit Point for all BA * TO Percentage Revenue Requirement	MWh / Month	Individual TO Tariff Rate at the Exit Point	$/MW	N/A	ISO revenue to be refunded	Hourly	04/01/98	Open
Per Unit Charges											
54	1010	Neutrality Adjustments	SC Demand Quantity (load & export) for the Control Area [Per SC, Per Interval]	MWh	Per Unit Price = Total Amount / Total load & Export in the Control Area	$/MWh	ISO costs to be collected	ISO revenue to be refunded	Hourly 10-Minute	4/1/98 9/1/00	8/31/00 Open
55	1101	Black Start Capacity due ISO	SC's Metered Load in the Control Area	MWh / Month	Per Unit Price = Total Amount / Total Metered Load in the Control Area	$/MWh	ISO costs to be collected	N/A	Hourly	04/01/98	Open

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			Billable Quantity	Units	Price	Units				Start	End
56	1302	Long Term Voltage Support due ISO	SC Demand Quantity (load & export) for the Zone	MWh / trading interval	Per Unit Price = Total Amount / Total load & Export in the Zone	$/MWh	ISO costs to be collected	N/A	Hourly	04/01/98	Open
57	1303	Supplemental Reactive Energy due ISO	SC Demand Quantity (load & export) for the Zone	MWh / Month	Per Unit Price = Total Amount / Total load & Export in the Zone	$/MWh	ISO costs to be collected	N/A	Hourly	04/01/98	Open
58	1353	Black Start Energy due ISO	SC Demand Quantity (load & export) for the Control Area	MWh / trading interval	Per Unit Price = Total Amount / Total load & Export in the Control Area	$/MWh	ISO costs to be collected	N/A	Hourly	04/01/98	Open
59	1999	Rounding Adjustment	SC Demand Quantity (load & export) for the Control Area	MWh / Adjustment interval	Per Unit Price = Total Amount / Total load & Export in the Control Area	$/MWh	ISO costs to be collected	ISO revenue to be refunded	Hourly	04/01/98	Open
Instructed Energy Settlements											
Ret	0301	A/S Energy And Supplemental Energy due SC	Ex-Post A/S (Bid in and self provided) Energy and Supplemental Energy Quantity [per SC, per location]	MWh / trading interval	Effective Price = Settlement Amount / Billable Quantity	$/MWh	Energy sold by ISO to reduce excess reserve	Energy bought by ISO to increase reserve	Hourly	04/01/98	08/31/00
60	0401	Instructed Energy	Energy delivered in excess of schedule in accordance with ISO instructions [per SC, Per Location/Interchange]. Instructed energy is settled in the following sequence: 1) Ramping Energy; 2) Negative Out of stack and Supplemental Energy; 3) Out of stack Energy in chronological order (first-come, first-settled); 4) Supplemental Energy; 5) Energy out of Replacement Reserve; 6) Energy out of Non-Spinning Reserve; 7) Energy out of Spinning Reserve; 8) Residual Imbalance Energy.	MWh / trading interval	Price = Settlement Amount/Billable Quantity. Settlement Amount = (Ramping Energy * 0) + (+ve Suppl. Imbal. Energy * Incremental MCP) + (-ve Suppl. Imbal. Energy * Decremental MCP) + ((Imbal. Energy from Spin + Imbal. Energy from Non Spin + Imbal. Energy from Rplc.Rsrv.) * Incremental MCP) + (Out of stack Energy * Energy Price) + (Positive Residual Imbal Energy * Incremental MCP_r) + (Negative Residual Imbal. Energy * Decremental MCP_r) MCPr is the Market Clearing Price of the Price Reference Interval.	$/MWh	Energy sold by ISO to reduce excess reserve	Energy bought by ISO to increase reserve	10-Minute	09/01/00	Open

The following notations are used in the equations below.

$_i$ = Resource, $_h$ = Hour, $_k$ = Interval in an hour, $_l$ = Instruction sequence index $_r$ = Congestion Region

$^+$ = Incremental, $^-$ = Decremental, $'$ = Delivered,

$S_{i,h,k}$ = Scheduled Energy; $M_{i,h,k}$ = Metered Quantity;

$RE_{i,h,k}$ = Ramping Energy; Ramping energy is only calculated for ISO Metered Entities. $RE_{i,h,k}$ = 0 for Non Metered Entities.

$GMM_{a,i,h}$ = Actual Generator Meter Multiplier; $GMM_{f,i,h}$ = Forecast Generator Meter Multiplier;

$ESE^+_{i,h,k}$ = Acknowledged Incremental Supplemental Energy; $ESE^-_{i,h,k}$ = Acknowledged Decremental Supplemental Energy;

$ESE'^+_{i,h,k}$ = Delivered Incremental Supplemental Energy; $ESE'^-_{i,h,k}$ = Delivered Decremental Supplemental Energy;

REF	Chrg ID	Charge Name	KEY PARAMETERS: Billable Quantity	Units	Price	Units	Due ISO Positive	Due SC Negative	Charge Granularity	Effective Trade Period: Start	End

$ESR_{i,h,k}$ = Acknowledged Energy from Spin Reserve; $ESR'_{i,h,k}$ = Delivered Energy from Spin Reserve;

$ENS_{i,h,k}$ = Acknowledged Energy from Non Spin Reserve; $ENS'_{i,h,k}$ = Delivered Energy from Non Spin Reserve;

$ERR_{i,h,k}$ = Acknowledged Energy from Repl. Reserve; $ERR'_{i,h,k}$ = Delivered Energy from Repl. Reserve;

$RIE_{i,h,k}$ = Residual Imbalance Energy of Resource; $RIE'_{i,h,k}$ = Produced or Consumed Residual Imbalance Energy;

$OOS^{+}_{i,h,k,l}$ = Acknowledged Positive Out of Stack Energy; $OOS'^{+}_{i,h,k,l}$ = Delivered Positive Out of Stack Energy;

$OOS^{-}_{i,h,k,l}$ = Acknowledged Negative Out of Stack Energy; $OOS'^{-}_{i,h,k,l}$ = Delivered Negative Out of Stack Energy;

For Generator, the total generation deviation is:

$$E_{i,h,k} = M_{i,h,k} * GMM_{a,i,h} - S_{i,h,k} * GMM_{f,i,h}$$

For Load, the total load deviation is:

$$E_{i,h,k} = S_{i,h,k} - M_{i,h,k}$$

$GMM_{aih} = 1$, $ESR_{i,h,k} = 0$, $ESR'_{i,h,k} = 0$

For Import, $OOS'^{+}_{i,h,k}$, $OOS'^{-}_{i,h,k}$, $ESE'^{+}_{i,h,k}$, $ESE'^{-}_{i,h,k}$, $ERR'_{i,h,k}$, $ENS'_{i,h,k}$ and $ESR'_{i,h,k}$ will be determined directly based on communications with the SC and the neighbor Control Areas.

There is no Instructed Energy for Export resources.

$$E^{(1)}_{i,h,k} = E_{i,h,k} - RE_{i,h,k}$$

If ($\Sigma OOS^{+}_{i,h,k,l} + ESE^{+}_{i,h,k} + ESR_{i,h,k} + ENS_{i,h,k} + ERR_{i,h,k} > 0$) and ($\Sigma OOS^{-}_{i,h,k,l} + ESE^{-}_{i,h,k} < 0$) Then

$$OOS'^{-}_{i,h,k,l} = OOS^{-}_{i,h,k,l}$$

$$ESE'^{-}_{i,h,k} = ESE^{-}_{i,h,k}$$

$$E^{(2)}_{i,h,k} = E^{(1)}_{i,h,k} - \Sigma OOS'^{-}_{i,h,k,l} * GMM_{a,i,h} - ESE'^{-}_{i,h,k}$$

$$E^{(2,0)}_{i,h,k} = E^{(2)}_{i,h,k}$$

$$OOS'^{+}_{i,h,k,l} = \{\min[OOS^{+}_{i,h,k,l} * GMM_{a,i,h}, \max(0, E^{(2,l-1)}_{i,h,k})]\} / GMM_{a,i,h}$$ for all OOS Instructions Sequence 1 through L

$$E^{(2,l)}_{i,h,k} = E^{(2,l-1)}_{i,h,k} - OOS'^{+}_{i,h,k,l} * GMM_{a,i,h}$$ for all OOS Instructions Sequence 1 through L

$$E^{(3)}_{i,h,k} = E^{(2,L)}_{i,h,k}$$

Otherwise

$$E^{(1,0)}_{i,h,k} = E^{(1)}_{i,h,k}$$

$$OOS'^{+}_{i,h,k,l} = \{\min[OOS^{+}_{i,h,k,l} * GMM_{a,i,h}, \max(0, E^{(1,l-1)}_{i,h,k})]\} / GMM_{a,i,h}$$ for all OOS Instructions Sequence 1 through L

$$OOS'^{-}_{i,h,k,l} = \{\max[OOS^{-}_{i,h,k,l} * GMM_{a,i,h}, \min(0, E^{(1,l-1)}_{i,h,k})]\} / GMM_{a,i,h}$$ for all OOS Instructions Sequence 1 through L

$$E^{(1,l)}_{i,h,k} = E^{(1,l-1)}_{i,h,k} - OOS'^{+}_{i,h,k,l} * GMM_{a,i,h} - OOS'^{-}_{i,h,k,l} * GMM_{a,i,h}$$ for all OOS Instrcutions Sequence 1 Through L

$$E^{(2)}_{i,h,k} = E^{(1,L)}_{i,h,k}$$

$$ESE'^{-}_{i,h,k} = \max[ESE^{-}_{i,h,k}, \min(0, E^{(2)}_{i,h,k})]$$ Instructed decremental Supplement Energy

$$E^{(3)}_{i,h,k} = E^{(2)}_{i,h,k} - ESE'^{-}_{i,h,k}$$

$$ESE'^{+}_{i,h,k} = \min[ESE^{+}_{i,h,k}, \max(0, E^{(3)}_{i,h,k})]$$ Instructed incremental Supplement Energy

$$E^{(4)}_{i,h,k} = E^{(3)}_{i,h,k} - ESE'^{+}_{i,h,k}$$

$$ERR'_{i,h,k} = \min[ERR_{i,h,k}, \max(0, E^{(4)}_{i,h,k})]$$ Instructed Energy from Replacement Reserve

$$E^{(5)}_{i,h,k} = E^{(4)}_{i,h,k} - ERR'^{+}_{i,h,k}$$

$$ENS'_{i,h,k} = \min[ENS_{i,h,k}, \max(0, E^{(5)}_{i,h,k})]$$ Instructed Energy from Non Spin reserve

$$E^{(6)}_{i,h,k} = E^{(5)}_{i,h,k} - ENS'_{i,h,k}$$

$$ESR'_{i,h,k} = \min[ESR_{i,h,k}, \max(0, E^{(6)}_{i,h,k})]$$ Instructed Energy from Spin Reserve

$$E^{(7)}_{i,h,k} = E^{(6)}_{i,h,k} - ESR'_{i,h,k}$$

$$RIE'_{i,h,k} = \min[RIE_{i,h,k}, \max(0, E^{(7)}_{i,h,k})]$$ if $RIE_{i,h,k} >= 0$ Instructed Residual Imbalance Energy

$$RIE'_{i,h,k} = \max[RIE_{i,h,k}, \min(0, E^{(7)}_{i,h,k})]$$ if $RIE_{i,h,k} < 0$

ISO Settlement Charge Matrix - Automated Charge Types

REF	Chrg ID	Charge Name	KEY PARAMETERS: Billable Quantity	Units	Price	Units	Due ISO Positive	Due SC Negative	Charge Granularity	Effective Trade Period: Start	End
Imbalance Energy (Non Instructed Deviations) Settlements											
Ret	0402	Generation Deviation	Zonal Generation Deviation Quantity [per SC, per Zone]	MWh / trading interval	Ex-Post Zonal MCP	$/MWh	Positive Generation Deviation	Negative Generation Deviation	Hourly	04/01/98	08/31/00
			Generation Deviation Quantity = $(G_s * GMM_f) - [(G_a - G_{adj}) * GMM_a - G_{a/s + Suppl. Energy}]$								
Ret	0403	Load Deviation	Load Deviation [per SC, per zone]	MWh / trading interval	Ex-Post Zonal MCP	$/MWh	Positive Load Deviation	Negative Load Deviation	Hourly	04/01/98	08/31/00
			Load Deviation Quantity = $-1 * \{Ls - [(La - Ladj) + L_{a/s + Suppl. Energy}]\}$								
Ret	0405	Import Deviation	Import Deviation Quantity [per SC, per zone]	MWh / trading interval	Ex-Post Zonal MCP	$/MWh	Positive Import Deviation	Negative Import Deviation	Hourly	04/01/98	08/31/00
			Import Deviation Quantity = $(I_s * GMM_f) - [(I_a + I_{a/s + Suppl. Energy} - I_{adj}) * GMM_a] + I_{a/s + Suppl. Energy}$								
Ret	0404	Export Deviation	Export Deviation Quantity [per SC, per zone]	MWh / trading interval	Ex-Post Zonal MCP	$/MWh	Positive Export Deviation	Negative Export Deviation	Hourly	04/01/98	08/31/00
			Export Deviation Quantity = $-1 * \{E_s - [E_a + E_{adj}]\}$								
61	0406	SC Unaccounted for Energy ($UFE_{logical}$)	UFE Quantity [per SC, per Zone, per Interval]	MWh / trading interval	Price = Settlement Amount / Billable Qty	$/MWh	Positive SC UFE	Negative SC UFE	Hourly 10-Minute	4/1/1998 9/1/2000	8/31/2000 Open
			$SC\ UFE_{(Zone)}$ =	Σ [$SC\ UFE_{(Demand\ Point)}$]							
			$SC\ UFE_{(Demand\ Point)}$ =	[SC Demand / (Total LoadUDC + Total ExportUDC)] * UDC UFE							
			UDC UFE =	[(ImportsUDC - ExportsUDC) + GenerationUDC] - RTM LoadUDC - CM LoadUDC - ATL UDC							
			ATL UDC =	Σ[Total TLRC*(UDC Branch Losses/Control Area Branch Losses)]							
			Control Area Branch Losses=	$\Sigma_{Control\ Area}$ [UDC Branch Losses]							
			Total TLRC =	$\Sigma_{Control\ Area}$ [Ga * (1 - GMMa)] + Σ[ImportIntertie * (1-TMMa)]							
			Settlement Amount =	Σ_{Zone} [$SC\ UFE_{(Demand\ Point)}$ * $Price_{(Demand\ Point)}$]							
			$Price_{(Demand\ Point)}$ =	Interval INC Price when UFE > 0; Interval DEC Price when UFE < 0.							
62	0407	Uninstructed Energy	Sum of Uninstructed Energy [Per SC, per Congestion Region, per Interval])	MWh / trading interval	Decremental MCP if billable quantity > 0 Incremental MCP if Billable quantity < 0	$/MWh	Negative Uninstructed Energy	Positive Uninstructed Energy	10-Minute	09/01/00	Open
			$UE_{h,k,r}$ = Sum of Uninstructed Energy of all resources in congestion region 'r'								
			$MCP^{-}_{h,k,r}$ = Decremental Energy Price in region 'r'								
			Uninstructed Deviation, $UD_{i,h,k} = E^{(7)}_{i,h,k} - RIE'_{i,h,k}$ (For $E^{(7)}$ and $RIE'_{i,h,k}$ refer to charge type 0401)								
			For Generator: $UE_{i,h,k} = UD_{i,h,k} - UCSR_{i,h,k} - UCNS_{i,h,k} - UCRR_{i,h,k}$ if $MCP^{-}_{h,k,r} > 0$								
			$UE_{i,h,k} = UD_{i,h,k}$ if $MCP^{-}_{h,k,r} <= 0$								
			For Load: $UE_{i,h,k} = UD_{i,h,k} - UCNS_{i,h,k} - UCRR_{i,h,k}$ if $MCP^{-}_{h,k,r} > 0$								
			$UE_{i,h,k} = UD_{i,h,k}$ if $MCP^{-}_{h,k,r} <= 0$								
			For Import: $UE_{i,h,k} = S_{i,h,k} * (GMM_{a,i,h} - GMM_{f,i,h}) + OA_{i,h,k} * GMM_{a,i,h} - (ESE'+_{i,h,k} + ESE'-_{i,h,k} + ESR'_{i,h,k} + ENS'_{i,h,k} + ERR'_{i,h,k}) * (1 - GMM_{a,i,h})$								
			For Export: $UE_{i,h,k} = OA_{i,h,k}$								
			Where $UE_{i,h,k}$ = Uninstructed Energy; $UD_{i,h,k}$ = Uninstructed Deviation; $UCSR_{i,h,k}$ = Unavailable Spin Reserve								
			$UCNS_{i,h,k}$ = Unavailable Non Spin Reserve; $UCRR_{i,h,k}$ = Unavailable Repl. Reserve;								
			$ESR'_{i,h,k}$ = Delivered Energy from Spin Capacity;								
			$ENS'_{i,h,k}$ = Delivered Energy from Non Spin Capacity;								
			$ERR'_{i,h,k}$ = Delivered Energy from Repl. Reserve;								

ISO Settlement Charge Matrix - Automated Charge Types

REF	Chrg ID	Charge Name	KEY PARAMETERS: Billable Quantity	Units	Price	Units	Due ISO Positive	Due SC Negative	Charge Granularity	Effective Trade Period: Start	End
			$OA_{i,h,k}$ = Operational Adjustment (made by SC). To derive Total Unavailable Capacity, $UC_{i,h,k}$: For Generator, $UC_{i,h,k} = \max\{0, \min\{UD_{i,h,k}, M_{i,h,k} * GMM_{a,i,h} - [P_{max\ i} / 6 * GMM_{a,i,h} - \max(0, CSR_{i,h,k} - ESR'_{i,h,k}) - \max(0, CNS_{i,h,k} - ENS'_{i,h,k}) - \max(0, CRR_{i,h,k} - ERR'_{i,h,k})]\}\}$ For Load, $UC_{i,h,k} = \max[0, \min(UD_{i,h,k}, \max(0, CNS_{i,h,k} - ENS'_{i,h,k}) + \max(0, CRR_{i,h,k} - ERR'_{i,h,k}) - M_{i,h,k})]$ where $CSR_{i,h,k}$ = Scheduled Spin capacity for the hour 'h' / 6 $CNS_{i,h,k}$ = Scheduled Non Spin Capacity for the hour 'h' / 6 $CRR_{i,h,k}$ = Scheduled Repl. Reserve for the hour 'h' / 6 $UCSR_{i,h,k} = \min\{UC_{i,h,k}, \max(0, CSR_{i,h,k} - ESR'_{i,h,k})\}$ $UCNS_{i,h,k} = \min\{UC_{i,h,k} - UCSR_{i,h,k}, \max(0, CNS_{i,h,k} - ENS'_{i,h,k})\}$ $UCRR_{i,h,k} = \min\{UC_{i,h,k} - UCSR_{i,h,k} - UCNS_{i,h,k}, \max(0, CRR_{i,h,k} - ERR'_{i,h,k})\}$								
No-Pay Provision Settlements											
Ret	0130	Insufficient Energy in Response to ISO Instructions	Unavailable A/S Capacity [per SC, per location]	MW-hr	Pseudo Price = Settlement Amount / Billable Quantity	$/MW-hr	Unit output is below dispatched instruction	N/A	Hourly	Not Used	Not Used
			Calculated only when Metered Output < Instructed Quantity. Unavailable A/S Capacity = Bid-in or Self Provided Capacity for resource - Metered Output Settlement Amount = Spin Adjustment + Non-Spin Adjustment + Replacement Reserve Adjustment Spin Adjustment = Unavailable Spin Capacity * SC DA & HA Weighted Average Spin Rate Non-Spin Adjustment = Unavailable Non-Spin Capacity * SC DA & HA Weighted Average Non-Spin Rate Replacement Adjustment = Unavailable Replacement Capacity * SC DA & HA Weighted Average Replacement Rate								
Ret	0131	Reduction in Available Capacity Due to Uninstructed Deviation	Unavailable A/S Capacity [per SC, per location]	MW-hr	Pseudo Price = Settlement Amount / Billable Quantity	$/MW-hr	Actual unloaded capacity is less than required	N/A	Hourly	Not Used	Not Used
			Calculated only when actual unloaded capacity is less than required. Unavailable A/S Capacity = Required Unloaded Capacity - Actual Unloaded Capacity Required Unloaded Capacity = Committed Capacity - Instructed Quantity For generator, Actual Unloaded Capacity = Max Unit Capacity - Metered Output For load, Actual Unloaded Capacity = Metered Output Settlement Amount = Spin Adjustment + Non-Spin Adjustment + Replacement Reserve Adjustment + Energy Adjustment Spin Adjustment = Unavailable Spin Capacity * SC DA & HA Weighted Average Spin Rate Non-Spin Adjustment = Unavailable Non-Spin Capacity * SC DA & HA Weighted Average Non-Spin Rate Replacement Adjustment = Unavailable Replacement Capacity * SC DA & HA Weighted Average Replacement Rate Energy Adjustment = Total Unavailable Capacity * Zonal Energy MCP								
63	0141	No Pay Charge - Spinning Reserve	No Pay Spin Qty = $\max[NPSR(1)_{i,h,k}, NPSR(2)_{i,h,k}, NPSR(3)_{i,h,k}]$ [per SC, Per Location, per Interval]	MW-hr	Pseudo Price = Settlement Amount / Billable Quantity. Settlement amount is calculated by prorating the billable quantity between DA and HA markets and multiplying with the corresponding MCP for the Spin Reserve.	$/MW-hr	No Pay violation	N/A	10-Minute	09/10/00	Open
			$NPSR_{i,h,k} = \max[NPSR^{(1)}_{i,h,k}, NPSR^{(2)}_{i,h,k}, NPSR^{(3)}_{i,h,k}]$ Where $NPSR^{(1)}_{i,h,k} = UCSR_{i,h,k}$ (For definition of $UCSR_{i,h,k}$, refer to Charge Type 407.)								

ISO Settlement Charge Matrix - Automated Charge Types

REF	Chrg ID	Charge Name	KEY PARAMETERS				Due ISO	Due SC	Charge	Effective Trade Period	
			Billable Quantity	Units	Price	Units	Positive	Negative	Granularity	Start	End
			$NPSR^{(2)}_{i,h,k} = (CSR_{i,h} - ASR_{i,h,k}) / 6$ if $ASR_{i,h,k} < ISR_{i,h,k}$; $NPSR^{(2)}_{i,h,k} = 0$ if $ASR_{i,h,k} = ISR_{i,h,k}$; $NPSR^{(3)}_{i,h,k} = [(CSR_{i,h} - (ESR'_{i,h,k} / ESR_{i,h,k}) * ASR_{i,h,k})] / 6$ if $(ESR_{i,h,k} > 0$ and $ESR'_{i,h,k} < f * ESR_{i,h,k})$; $NPSR^{(3)}_{i,h,k} = 0$ otherwise. $ASR_{i,h,k}$ = Acknowledged Spinning Reserve dispatch target $ISR_{i,h,k}$ = Instructed Spinning Reserve dispatch target $ESR_{i,h,k}$ = Acknowledged Energy from Spinning Reserve $ESR'_{i,h,k}$ = Delivered Energy from Spinning Reserve f = No Pay Relative Tolerance Factor								
64	0142	No Pay Charge - Non Spinning Reserve	No Pay Non Spin Qty = $max[NPNS^{(1)}_{i,h,k}, NPNS^{(2)}_{i,h,k}, NPNS^{(3)}_{i,h,k}]$ [per SC, Per Location, per Interval]	MW-hr	Pseudo Price = Settlement Amount / Billable Quantity. Settlement amount is calculated by prorating the billable quantity between DA and HA markets and multiplying with the corresponding MCP for the Non Spin Reserve.	$/MW-hr	No Pay violation	N/A	10-Minute	09/10/00	Open
			The No Pay Non Spin billable quantity is calculated in a similar way as in Charge Type 0141.								
65	0144	No Pay Charge - Replacement Reserve	No Pay Repl. Reserve Qty = $max[NPRR^{(1)}_{i,h,k}, NPRR^{(2)}_{i,h,k}, NPRR^{(3)}_{i,h,k}]$ [per SC, Per Location, per Interval]	MW-hr	Pseudo Price = Settlement Amount / Billable Quantity. Settlement amount is calculated by prorating the billable quantity between DA and HA markets and multiplying with the corresponding MCP for the Replacement Reserve capacity.	$/MW-hr	No Pay violation	N/A	10-Minute	09/10/00	Open
			The No Pay Replacement Reserve billable quantity is calculated in a similar way as in Charge Type 0141.								
66	1030	No Pay Provision Market Refund	SC's Metered Demand (Load & Export in Control Area) [Per SC, Per Interval]	MWh/trading interval	Per Unit Price = Total No Pay Revenue / Total Load & Export in the Control Area.	$/MWh	N/A	ISO Revenue to be distributed	10-Minute	09/10/00	Open
Effective Price Settlements											
Ret	0502	Generation Deviation from Instructed Energy	Undelivered Instructed Energy (Inc. or Dec.)	MWh/Trade Interval	The difference between the resource's Effective Price and the Hourly Expost Price.	$/MWh	Qty * Price	N/A	Hourly	08/18/99	08/31/00
Ret	0503	Load Deviation from Instructed Energy	Undelivered Instructed Energy (Inc. or Dec.)	MWh/Trade Interval	The difference between the resource's Effective Price and the Hourly Expost Price.	$/MWh	Qty * Price	N/A	Hourly	08/18/99	08/31/00
Ret	0505	Import Deviation from Instructed Deviation	Undelivered Instructed Energy (Inc. or Dec.)	MWh/Trade Interval	The difference between the resource's Effective Price and the Hourly Expost Price.	$/MWh	Qty * Price	N/A	Hourly	08/18/99	08/31/00

NOTES:

1 This list contains only Charge Types that are generated automatically by the ISO Settlement System. Manual Charge Types are not included here.
2 Automated Charge Types may also be used in Manual Line Item Entries. Charge Types 351, 352, 354, 451 and 452 are currently created as Manual Line Items.
3 indicates charge types that have been retired or marked for retirement.
4 shaded areas are future Charge Types that are inactive.
5 indicates charge types that are created/modified in this revision.
6 Location may refer to a Generator, Load, Control Area Intertie, or Branch Group.
7 Capacity service is measured in MW-hr. MW-hr is different from MWh which is an unit for energy.
8 The charge types 3030, 3040, 3510, and 4001 through 4099 are currently reserved for internal use and won't appear in Settlement Statements.