



Manual 28 Operating Agreement Accounting - Description of Changes

Item Number	Section	Page	Description of Change
1	Section 2: Locational Marginal Price	7 - 19	Moved Manual 28, Section 2 to Manual 11, Section 2 Overview of the PJM Energy Markets for better alignment of subject matter
2	Section 4: Regulation Accounting	24 – 28	Replaced “Regulation at the direction of PJM” with “pool-scheduled Regulation” for consistent terminology between Manual 11 and Manual 28
3	Section 4.2: Regulation Credits	25	Clarified use of hourly-integrated regulation MW in the RMCP credit calculation
4	Section 4.2: Regulation Credits	25	Incorporated text from Manual 11, Section 3 to clarify the use of the price or cost schedule for regulation lost opportunity cost credit calculations
5	Section 4.2: Regulation Credits	25	Clarified that CT and hydro generators are not eligible for shoulder hour lost opportunity costs due to the operational characteristics of these types of units
6	Section 4.2: Regulation Credits	26	Cleaned up bullet describing the regulation revenue offset to Balancing Operating Reserves as approved by FERC in docket no. ER09-13 and implemented on 12/01/2008
7	Section 4.3: Regulation Charges	27	Clarified regulation lost opportunity costs as the costs that are included in the Regulation charges for units operating for PJM solely for regulation
8	Section 5.2: Regional Balancing Operating Reserve Cost Analysis (BORCA)	30-31	Moved Regional Balancing Operating Reserve Cost Analysis (BORCA) Section to Manual 11, Section 2 Overview of the PJM Energy Markets for better alignment of subject matter
9	Section 6: Synchronized Reserve Accounting	45 – 49	Replaced “sold synchronized reserve into the market” with “assigned self-schedule or pool-scheduled synchronized reserve” for consistent terminology between Manual 11 and Manual 28
10	Section 6: Synchronized Reserve Accounting	46 - 49	Corrected use of PJM region, synchronized reserve zone, and sub-zone



11	Section 6.1: Synchronized Reserve Accounting Overview	46	Clarified settlements description for self-scheduled Tier 2 resources due to the settlements mechanics of calculating a Tier 2 SRMCP credit for self-scheduled Tier 2 resources versus an offset to the synchronized reserve obligations
12	Section 6.2: Credits for Synchronized Reserve	47	Clean-up: Removed DSR settlement language where LMP is less than \$75
13	Section 6.2: Credits for Synchronized Reserve	47	Added details on the response calculation when a synchronized reserve event spans 2 or more hours and referenced Manual 11 for additional details
14	Section 6.2: Credits for Synchronized Reserve	47	Added detailed shortfall language that was previously only discussed in Manual 11, Section 6
15	Section 6.3: Charges for Synchronized Reserve	48 – 49	Moved settlements details from Manual 11, Section 6 to Manual 28, Section 6 for better alignment of subject matter
16	Section 10: PJM Load Response Programs Accounting	69- 70	Cleaned-up description of Energy and Emergency Load Response programs including reference to new RPM compliance settlements
17	Section 10: PJM Load Response Programs Accounting	70-76	Replaced “de-rated for transmission losses and adjustment with losses” with actual equation (Actual MWh relief provided * (1- EDC loss de-ration factor) * Energy loss factor) for clarity
18	Section 10: PJM Load Response Programs Accounting	71-76	Removed reference to different calculations based on LMP being <= \$75 as well as the program cap of \$17.5 million. There are no longer different calculations for these scenarios.
19	Section 19: Day Ahead Scheduling Reserve Accounting - NEW	93 - 96	Moved detailed DASR settlements Section from Manual 11, Section 11 and created new Day-ahead Scheduling Reserve Accounting Section 19 in Manual 28



Manual 11 Scheduling Operations - Description of Changes

	Section	Page	Description of Change
1	All	All	Renamed eMarket and Two Settlement Market User Interface to eMKT System
2	All	All	Renamed Manual 11, Scheduling Operations to Manual 11, Energy & Ancillary Services Market Operations to more accurately reflect the manual content
3	All	All	Renamed Non-Capacity Resource to Energy Resource for consistency between other manuals and tariff
4	All	All	Cleaned up hyperlink to the Markets Database Dictionary
5	All	All	Updated exhibits and diagrams for user friendliness
6	Section 1: Overview of Energy & Ancillary Services Market Operations	11	Renamed from Overview of Scheduling Operations to Overview of Energy & Ancillary Services Market Operations to more accurately reflect section content.
7	Section 1.2.1: Market Buyers	15	Clarified responsibilities as those of a Metered Market Buyer.
8	Section 2: Overview of PJM Energy Markets	18	Renamed from Overview of Two-Settlement System to Overview of PJM Energy Markets to more accurately reflect section content. Changed term Two-Settlement to PJM Energy Markets throughout section.
9	Section 2.2: Definition of Locational Marginal Price	19	Moved Definition of Locational Marginal Price Section from Manual 28 to Manual 11 for better alignment of subject matter
10	Section 2.3.1: Bidding and Operations Timeline	21	Clarified units that are self-scheduled in the Day-ahead market cannot change their unit status to economic during the rebid period
11	Section 2.3.3: Market Sellers	23	Added clarifying details for Intermittent Generation resources. Recommendation from IRWG in 1/2009.
12	Section 2.3.3: Market Sellers	23	Added clarifying statement that capacity resources must submit a Price Based Parameter Limited Schedule if the unit is listed as one of the types in the PJM Unit Parameter matrix



	Section 2.3.3: Market Sellers	23	Removed reference to eMKT combined cycle model
13	Section 2.3.3: Market Sellers	24	Clarified operating limits priority through the use of numerical notations
14	Section 2.3.3: Market Sellers	25, 26	Removed OR deviations of RT eMTR MW – DA Scheduled MW and referenced Balancing Operating Reserve settlements details in Manual 28 Operating Agreement Accounting. Added “UDS LMP” Desired MWh to be consistent with settlements terminology.
15	Section 2.3.4: Minimum Generator Operating Parameters – Parameter Limited Schedules	31	Added reference to eMKT system use max gen flag for method to denote available parameter limited schedule
16	Section 2.3.9: Day-ahead LMP Calculation	36 - 37	Added reference to Manual 28 and removed list of settlement data requirements for better alignment of subject matter
17	Section 2.4 – 2.12: Real-time LMP	37 - 50	Moved sections from Manual 28 to Manual 11, Section 2 for better alignment of subject matter.
18	Section 2.8: Locational Pricing Algorithm	45-46	Incorporated additional details on the determination of LMPs for de-energized buses
19	Section 2.10: Price Bounding Violations	47	Incorporated additional details on Price Bounding Violations.
20	Section 2.12.1 Day-ahead Settlement and Section 2.12.2 Balancing Settlement	50 - 52	Added reference to Manual 28 and removed detailed settlements calculations for better alignment of subject matter
21	Section 2.13: Balancing Operating Reserve Cost Analysis	52 - 55	Moved BORCA Operating Reserves details from Manual 28 to Manual 11 for better alignment of subject matter
22	Section 3.1: Overview of the PJM Regulation Market	57	Removed 3 rd paragraph of overview which repeated information covered in the 2 nd paragraph
23	Section 3.1: Overview of the PJM	58	Removed “over and above the RMCP and any unrecovered costs of resources called on by PJM to



	Regulation Market		provide Regulation” since this is included in definition of opportunity cost credits
24	Section 3.2.1: Regulation Market Eligibility	58	Clarified Manual 12 Balancing Operations reference for minimum performance standards
25	Section 3.2.1: Regulation Market Eligibility	58	Clarified minimum regulation capability eligibility requirements for both generation and demand resources
26	Section 3.2.1: Regulation Market Eligibility	58 & 61	Moved Demand resource training requirement statement from Regulation Market Data Timeline Section to the Regulation Market Eligibility Section and removed incorrect reference to Manual 1 Control Center and Data Exchange Requirements
27	Section 3.2.1: Regulation Market Eligibility	59	Added pjm.com reference for cost-based regulation offer price example
28	Section 3.2.2: Regulation Market Data Timeline	59,60	Created new section for Regulation Market Data Timeline and added information on how not to participate in the regulation market for a given hour. Clarified how information is submitted or changed.
29	Section 3.2.2: Regulation Bilateral Transactions	61, 62	Moved bilateral transaction information from Regulation Offer Period Section to a new Regulation Bilateral Transaction Section
30	Section 3.2.7: Regulation Market Clearing	64	Clarified recovery of costs as regulation lost opportunity costs and added reference to settlements details in Manual 28
31	Section 3.2.7: Regulation Market Clearing	64,65	Added reference to preliminary billing determinant information available on pjm.com
32	Section 3.2.8: Hydro Units	65	Explicitly stated on-peak and off-peak hours
33	Section 3.2.8: Hydro Units	65	Added pjm.com reference for regulation hydro lost opportunity cost calculations
34	Section 3.2.10: Settlements	66,67	Moved settlements details from Manual 11 to Manual 28 for better alignment of subject matter.



35	Section 4: Overview of the PJM Synchronized Reserve Market	All	Replaced “resources selected by PJM” with “pool-scheduled resources” for consistent terminology between Manual 11 and Manual 28
36	Section 4: Overview of the PJM Synchronized Reserve Market	All	Corrected use of PJM region, synchronized reserve zone, ancillary service area, market area, and sub-zone and incorporated details on the composition of the Mid-Atlantic sub-zone
37	Section 4.1: Overview of the PJM Synchronized Reserve Market	69	Cleaned up summary of Synchronized Reserve Charges. Added share of Tier 1 credits, and removed “over and above the SRMCP and any unrecovered costs of resources called on by PJM to provide Synchronized Reserve” since this is included in definition of opportunity cost credits
38	Section 4.2.1: Synchronized Reserve Market Eligibility	70	Added information on how not to participate in the synchronized reserve market for a given hour
39	Section 4.2.3: Synchronized Reserve Requirement Determination	72	Incorporated details on carrying additional Synchronized Reserve Requirements
40	Section 4.2.5: Synchronized Reserve Offer Period	73	Clarified how and when synchronized reserve information can be submitted and/or changed
41	Section 4.2.6: Bilateral Synchronized Reserve Transactions	74	Cleaned up reference to preliminary billing data on pjm.com
42	Section 4.2.7: Synchronized Reserve Market Clearing	74	Clarified that Tier 2 self-scheduled resources are committed and obligated to respond to a synchronized reserve event
43	Section 4.2.7: Synchronized Reserve Market Clearing	75	Clarified recovery of costs as synchronized reserve lost opportunity costs and added reference to settlements details in Manual 28



44	Section 4.2.7: Synchronized Reserve Market Clearing	76	Added reference to pjm.com Mid-Atlantic sub-zone bus list
45	Section 4.2.8: Hydro Units	76	Corrected references to previous sections and added explicit on-peak and off-peak hours
46	Section 4.2.8: Hydro Units	76	Cleaned up hydro opportunity cost calculations when hydro unit is held off-line or reduced when scheduled day-ahead (manual reference rule number not found in manuals).
47	Section 4.2.9: Demand Resources	77	Corrected data submittal requirements for demand resources
48	Section 4.2.9: Demand Resources	77	Incorporated batch load demand resource market rule (Market Rule Revision in OA 1.51.8 approved by FERC in Order ER08-780 on 6/3/08)
49	Section 4.2.9: Demand Resources	77	Removed incorrect demand resource training requirement reference to Manual 01 Control Center and Data Exchange Requirements
50	Section 4.2.11: Settlements	78	Moved settlements details from Manual 11 to Manual 28 for better alignment of subject matter
51	Section 4.2.11: Settlements	80	Cleaned up bullet describing daily make whole as approved by FERC in docket no. ER09-13 and implemented on 12/01/2008
52	Section 4.2.11: Settlements	81	Clarified Tier 2 and Tier 1 exemption from operating reserve deviations language to be consistent with language in Manual 28
53	Section 5: Market Clearing Processes and Tools	83	Section renamed Market Clearing Processes and Tools to more accurately describe content (was previously called Scheduling Philosophy and Tools)
54	Section 5: Market Clearing Processes and Tools	All	Updated diagrams for user friendliness
55	Section 6: Reserve Requirements in PJM Energy Markets	100	Renamed "Reserve Requirements in PJM Energy Markets" to more accurately describe content (was previously called "Scheduling Strategy and Method")
56	Section 6: Reserve Requirements in PJM	All	Updated diagrams for user friendliness



	Energy Markets		
57	Section 6.3.5: Credits for Cancellation of Pool Scheduled Resources Energy Markets	111	Corrected Market Settlements contact information and timeline to send cancellation credit information to PJM
58	Section 7: External Transaction Scheduling	115	Removed Section 7. Information is covered in Manual 41 Managing Interchange
59	Section 8: Posting OASIS Information	127	Removed Section 8. Information is covered in Manual 4 PJM OASIS Operation
60	Section 10.1: Overview of Demand Resource Participation	132, 133	Moved description of day-ahead option and real-time option from Economic Load Response Participant Review Process Section to Overview of Demand Response Participation Section
61	Section 10: Overview of Demand Resource Participation	ALL	Clarified participation in energy, synchronized reserve, regulation, and day-ahead scheduling reserve markets
62	Section 10.2: Demand Resource Registration Requirements	134-136	Removed list of data requirements in Demand Resource Registration Requirements and added reference to new eLRS User Guide
63	Section 10.2: Demand Resource Registration Requirements	136	Removed rule concerning switches between Economic and Emergency Load Response
64	Section 10.2: Demand Resource Registration Requirements	137	Clarified DR intending to run an On-Site Generator in support of local load need to submit this information through the registration process rather than in writing
65	Section 10.2.2: PJM Activities	141	Clarified PJM verifies transmission and generation (retail rate) charges with the appropriate LSE
66	Section 10.2.2: PJM Activities	142	Removed requirement to resubmit registrations every year
67	Section 10.3: Economic Energy Market Participation	142	Renamed section Economic Energy Market Participation for better alignment of subject matter (previously titled Demand Resource Energy Market Participation)

68	Section 10.3: Economic Energy Market Participation	143,150	Removed lesser of shut down cost in eMKT system or Load Response Application since shut down costs are no longer entered in Load Response application
69	Section 10.3.2: Real-Time Operations	145	Clarified Curtailment Service Provider may submit an incremental offer curve, or self-schedule in the Real-Time energy market
70	Section 10.3.2: Real-Time Operations	145	Clarified what information PJM uses to dispatch demand resources not accepted in the Day-ahead Market when the CSP wishes the demand resource be dispatchable in real-time
71	Section 10.5.1: Registration for Aggregation	151	Removed old registration for aggregation requirements
72	10.5.1 Calculations for the weighted average retail rate and line loss factor	152	Changed "Master Account" to "Registration"
73	Section 11.2.2: Day-Ahead Scheduling Reserve Market Eligibility	157	Corrected reference to Batch load demand resources definition
74	Section 11.2.2: Day-Ahead Scheduling Reserve Market Eligibility	158 & 166	Moved Demand Resources Section to Day-ahead Scheduling Reserve Market Eligibility Section for better alignment of subject matter
75	Section 11.2.3: Day-Ahead Scheduling Reserve Market Rules	158	Reorganized Day-ahead Scheduling Reserve Market Rules Section to clarify what information is submitted via eMKT and the must offer and voluntary requirements
76	Section 11.2.3: Day-Ahead Scheduling Reserve Market Rules	158	Moved valid offer information from DASR Market Offer Period Section to DASR Market Rules Section
77	Section 11.2.5: Day-Ahead Scheduling Reserve Market Clearing	160	Clarified DASR hourly clearing price description
78	Section 11.2.5: Day-Ahead Scheduling	160,	Moved DASR clearing price being fixed statement from DASR Market Operations Section to DASR Market

	Reserve Market Clearing	161	Clearing Section
79	Section 11.2.5: Day-Ahead Scheduling Reserve Market Clearing	160	Clarified opportunity costs for demand resources are currently zero (same as Synchronized Reserve market)
80	Section 11.2.6: Day-Ahead Scheduling Reserve Market Operations	169	Removed bullets from Day-Ahead Scheduling Reserve Market Operations Section that do not apply to Day-Ahead Scheduling Reserve
81	Section 11.2.7: Day-Ahead Scheduling Reserve Performance	161,165	Moved information in Non-Performance Section to new Day-ahead Scheduling Reserve Performance Section
82	Section 11.2.9: Day-Ahead Scheduling Reserve Bilateral Transactions	163	Removed bilateral transaction option of percentage of the purchaser's obligation since this is currently not an option in eMKT
83	Section 11.2.9: Day-Ahead Scheduling Reserve Bilateral Transactions	163	Cleaned up reference to preliminary billing data on pjw website
84	Section 11.2.10: Day-Ahead Scheduling Reserve Market Settlements	163	Moved settlements details from Manual 11 to Manual 28 for better alignment of subject matter
85	Attachment B: Pumped Storage Modeling	170	New attachment that describes a pumped storage prototype developed for PJM that could be used by participants to schedule their pumped storage plants in an optimal way
86	Attachment C: PJM Procedure for Cost Reimbursement	172	New attachment describing the procedure to enable units that are requested to remain online by PJM System Operations past their initial, day-ahead commitment and in order to do so are forced to procure fuel at a higher cost than that on which their day-ahead or the Reliability Assessment (Rebid Period) offer was based, to better manage the risk associated with the additional costs associated with that operation.



Manual 9 PJM eSchedules - Description of Changes

	Section	Page	Description of Change
1	All	All	This manual will be retired. All information in this manual will be included in new eSchedules User Guide.
2	All	All	Added reference to new MSRS reporting tool which replaced the eSchedules reporting functionality in August 2008
3	Section 1.3: Rules and Guidelines	7	Added information on requesting new aggregates in eSchedules and other eTools
4	Section 1.3: Rules and Guidelines	8	Added pjw.com reference for approved holiday deadline extensions and contact for technical difficulties
5	Section 1.4: Contracts	9	Changed bus aggregate to aggregate pnode for consistency between manuals
6	Section 1.4: Contracts	9, 13	Clarified use of GEN type eSchedules and advance communication with PJM
7	Section 1.5.7: Daylight Savings Time	18	Corrected Daylight Savings Time dates and file transfer pjw.com reference
8	Section 1.6.3: Energy Reconciliation	23 - 24	Added deadline for submitting energy reconciliation data and corrected file transfer pjw.com reference
9	Section 1.6.7: File Transfers	25	Added information on browserless transfer program
10	Section 1.7: eSchedules Reports	25 - 26	Clarified which reporting information is still available in the eSchedules reporting application and corrected file transfer pjw.com reference