



# Manual Revisions

## PJM EMS Upgrade Manual Documentation

Adamy Garcia – EMS Technologies  
Becky Davis – NERC Compliance  
Markets & Reliability Committee  
April 26, 2023

PJM is receiving a Certification Review because:

- PJM is modifying its Energy Management System (EMS)
  - Provides reasonable assurance an already certified and operational Registered Entity will continue to support reliable operations of the Bulk-Power System (BPS) after initiating a material change.
  - NERC RoP Section 500 and Appendix 5A Govern Certifications
    - NERC RoP Section 500 pages 41-52:  
[https://www.nerc.com/AboutNERC/RulesOfProcedure/NERC%20ROP%20effective%2020220825\\_no%20appendicies.pdf](https://www.nerc.com/AboutNERC/RulesOfProcedure/NERC%20ROP%20effective%2020220825_no%20appendicies.pdf)
    - NERC Appendix 5A Organization Registration and Certification Manual:  
<https://www.nerc.com/AboutNERC/RulesOfProcedure/Appendix%205A%20effective%2020210119.pdf>

**Certification Reviews** are an effort to continue to endorse entities registered as BAs, TOPs and RCs that were previously certified by the Region and NERC following a ‘triggering’ event (i.e. Material Change).

- Evaluate the entity’s Reliability Standard based **capabilities** associated with the registered functions.
- Used to gain **reasonable assurance** that the entity has the processes, procedures, tools, training, and personnel in place to continue to reliably perform the registered functions following a ‘triggering’ event (i.e. Material Change).

*Information taken from a Texas RE/NERC Certification Best Practices and Activities Review:*  
<https://www.texasre.org/Documents/Presentations/Talk%20with%20Texas%20RE/Talk%20with%20Texas%20RE%20-Certification%20Best%20Practices%20and%20Activities%20Review.pdf>

- Most PJM Manuals include EMS references at a high level and do not include vendor specific information and/or displays.
- Three Manuals will be revised to remove specific EMS vendor information:
  - Manual-01 Control Center and Data Exchange Requirements
  - Manual-13 Emergency Operations
  - Manual-36 System Restoration



## Manual 01 Revision:

- Section 1.1 Energy Management System (EMS)
  - Four separate references to PCT, Process Control Test System to be replaced with QAS, Quality Assurance System. Functionally similar but vendor terminology difference.
  - Two separate references to CFE, Communications Front End to be replaced with FEP, Front End Processor. Functionally similar but vendor terminology difference.



## Manual 13 revision:

- Attachment E: Manual Load Dump Allocation Tables

Current Display Revision 86

LOAD DUMP ALLOCATION											
	RTO	MID-ATL	AP	AEP	DAY	DLCO	CE	DOM	FE	DEOK	EKPC
+ Net Zone Generation	101550	36200	6864	16881	2905	1479	15922	12073	5644	2166	1417
+ Load Share Ratio Gen Pseudo-Ties	2430	894	154	340	77	44	296	327	193	65	39
+ Load Share Ratio Gen Dynamic Schedules	333	-6	0	0	0	0	3	80	0	256	0
+ Active Zone Reserve Share Energy	0	0	0	0	0	0	0	0	0	0	0
+ Net Zone LSE ExSchedules	0	0	0	0	0	0	0	0	0	0	0
+ Load Share Ratio RTO Energy Schedules	10	4	1	1	0	0	1	1	1	0	0
- Net Zone Load	101086	37194	6409	14158	3210	1850	12298	13621	8019	2701	1625
= Net Zone Energy Position (A)	3236	-103	609	3065	-228	-326	3924	-1140	-2181	-215	-169
Net Zone Capacity Position (B)	-4494	-2338	1277	-3737	179	360	-2356	-3869	4290	2340	-640
Net Zone Position (A + B)	-1258	-2441	1886	-672	-49	34	1568	-5009	2109	2125	-809
Zone Positions		SHORT	EXCESS	SHORT	SHORT	EXCESS	EXCESS	SHORT	EXCESS	EXCESS	SHORT
Desired Load Dump Amount	1000										
Load Dump Allocation		272	0	75	5	0	0	558	0	0	90

New Display Revision 87

Load Dump Allocation													
Zone Energy Position								Zone Capacity Position		Zone Position		Load Dump	
Zone Name	+ Net Zone Generation	+ Load Share Ratio Gen Pseudo-Ties	+ Load Share Ratio Gen Dynamic Schedules	+ Active Zone Reserve Share Energy	+ Net Zone LSE ExSchedules	+ Load Share Ratio RTO Energy Schedules	- Net Zone Load	= Net Zone Energy Position (A)	Net Zone Capacity Position (B)	Net Zone Position (A+B)	Zone Position	Desired Load Dump	Load Dump Allocation
RTO	102144	910	86	0	71	-5351	97708	164	580	844		850	
Allegheny	6964	99	4	0	0	-347	6329	41	61	101	EXCESS	0	0
COMED	16676	108	8	0	0	-833	11563	4596	2588	7193	EXCESS	0	0
Duquesne	1794	14	1	0	0	-82	1689	439	573	1312	EXCESS	0	0
Dominion	13499	131	10	0	0	-788	14015	-1144	-4238	-5382	SHORT	0	348
AEP	20068	160	19	0	0	-879	19369	3292	-8337	-3045	SHORT	0	197
EKPC	964	16	1	0	71	-91	1965	-704	-246	-950	SHORT	0	82
First Energy	6487	81	2	0	0	-468	6021	-2464	3537	1073	EXCESS	0	0
Dayton	-21	21	2	0	0	-124	2265	-2388	2482	104	EXCESS	0	0
Mid-Atlantic	34419	384	22	0	0	-1788	32942	313	-874	-661	SHORT	0	43
Duke Energy	1437	29	2	0	0	-171	3114	-1816	2915	1099	EXCESS	0	0

## Manual 36 Revision

- Section 3.1.7 PJM Assumes Balancing Authority Role

### 3.1.7 PJM Assumes Balancing Authority Role

During a system restoration, interconnected Transmission Owners will balance their own islanded areas. This occurs by the largest area controlling frequency and the smaller areas controlling tie line flow. This section describes the operating process and criteria for transferring operations back to the PJM (Balancing Authority) in accordance with PJM's (Reliability Coordinator) criteria (per EOP-005-3 R1.9 and EOP-006-3 R1.6).

The PJM EMS has the capability of calculating and monitoring ACE for up to ~~five~~ten internal islanded areas or subsystems connected to the Eastern Interconnection. This assumes that PJM has sufficient monitoring in these subsystems (including frequency monitoring and tie line monitoring). Once PJM verifies accurate data and ACE calculation within a subsystem, PJM will coordinate with the Transmission Owners within the subsystem and when appropriate resume

*Changed from  
five to ten*





SME/Presenters:

Adamy Garcia

[Adamy.Garcia@pjm.com](mailto:Adamy.Garcia@pjm.com)

Elizabeth (Becky) Davis

[Elizabeth.Davis@pjm.com](mailto:Elizabeth.Davis@pjm.com)



Member Hotline

(610) 666 – 8980

(866) 400 – 8980

[custsvc@pjm.com](mailto:custsvc@pjm.com)

**PROTECT THE  
POWER GRID  
THINK BEFORE  
YOU CLICK!**



Be alert to  
malicious  
phishing emails.

**Report suspicious email activity to PJM.**  
(610) 666-2244 / [it\\_ops\\_ctr\\_shift@pjm.com](mailto:it_ops_ctr_shift@pjm.com)

