

Steve Ashbaker Director Operations

NASPI Workgroup Meeting February 21, 2013 Atlanta, GA

- May 1 FERC/NERC Inquiry Report issued
 - o 27 Recommendations in 8 categories
- July 26 Received letter from Gerry Cauley
 - Identified 8 systemic or institutional concerns
- October 31 Launched September 8 webpage and Monthly Progress Dashboard

September 8, 2011 Outage Event Response

Continuing semi-monthly calls with NERC and FERC



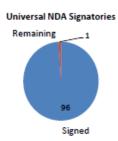
September 8 Event Recommendations Monthly Progress Dashboard

Key Accomplishments

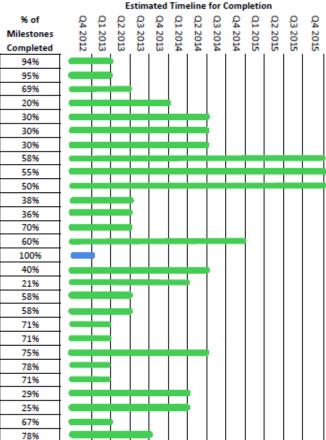
- Activity RC 17 Revise Internal Operating Procedures is complete
- ORG 5 WECC Staff met with Regional Standards Departments and NERC staff on January 18 to discuss the development of new guidelines
- WECC published the September 8 Response Addendum and Member Activity
 Dashboard to report activites completed during Q4 2012
- Completed Activity
- In-Progress Activity is on schedule
- Milestones have been missed, but Activity expected to be completed on time
- Activity has not met Completion Deadline

Identified Risks

- The OC Special meeting has been moved to February 2013. OC Approval Items for O&P9, O&P11 O&P13 are expected to be approved at that meeting.
- . O&P2 and O&P18 are expected to be approved at the May 2013 Special OC meeting
- O&P14 training is dependent on the completion of the Real-time Tools Guideline (O&P13). Guideline approval is expected February 2013 and training should be completed April 2013
- RC12 SOL Reporting Tools are complete. The notification process is expected to be developed by the end of February



Rec #	FERC/NERC Recommendations Short Description		Status of WECC Activities						
1	Share next-day studies results	RC1	CPL2	RC10	0&P1	RC2	O&P2	1	Con
2	Next-day studies reflect next-day operating conditions	RC1	RC4	CPL2	RC10	O&P1	RC2	O&P2	
3	Next-day studies	RC15	0&P1	RC3	O&P2				
4	Predicting next-day interchange	RC10	RC9			•			
5	Integration & coordination of subregions' seasonal studies	O&P3	O&P4	Ī					
6	Include internal & external sub-100-kV facilities	O&P3	O&P4	Ī					
7	Include multiple base cases	O&P3	O&P4	Ī					
8	Share relay trip settings	O&P5		•					
9	Study cases cover critical system conditions across planning horizon	O&P6	O&P4	O&P5	O&P7	O&P8]		
10	Benchmark models against actual data	O&P10	O&P5				•		
11	Real time data sharing	RC4	O&P12	RC5	RC18	O&P11	O&P22		
12	Real-time tools adequate	RC5	O&P13	O&P14	O&P22			-	
13	Post contingency plans	O&P1	O&P18	RC11		_			
14	RC Staffing Level	ORG4	ORG6	RC8	RC16				
15	Loss of real-time tools	RC13		•	•	•			1
16	Consistency between planning and real-time models	O&P15							
17	Ensure all facilities impacting BPS in studies	RC3	O&P16	O&P21					
18.1	Study & monitor IROLs	RC6	CPL1	RC12	RC7				
18.2	SOLs constitute IROLs	RC6	CPL1	RC12	RC7				
19	Review of S-Line RAS	O&P17		•	•	•			
20	SONGS coordination w/protection schemes	O&P17		_					
21	Evaluation of turbine controls	O&P20	O&P19						
22	Periodic review of RAS	CPL1	O&P17						
23	Effect of SONGS Separation Scheme (Path 44)	O&P17		_					
24	Ratings equal to most limiting equipment	RC12	O&P21						
25	Appropriate margins between settings & Emergency Ratings	O&P9	O&P21						
26	Increase relay settings to allow time for manual action	O&P9		_					
27	Tools to determine Standing Angle	O&P1	RC14						
				_					





Dashboard Notes

Activities Key

ORG - Organizational Activities

RC-Reliability Coordinator Activities

O&P Operations and Planning Activities

CPL - Compliance Activities

Recommendations 1-27 are defined in the North American Electric Reliability Coordinating Council (NERC) and the Federal Energy Regulatory Commission (FERC) Report on the Arizona-Southern California Outages on September 8, 2011.

Systemic Issues 1-8 were identified by NERC President and CEO, Gerry Cauley in a July 26, 2012 letter to WECC CEO, Mark Maher.

WECC Activities are defined in WECC's Response to the "Arizona-Southern California Outages on September 8, 2011" Report.

WECC's Comprehensive Response

Five WECC Focus Areas

Organizational

Operations and Planning

Reliability Coordination

Compliance

NERC



- WECC Activities and Achievements
- Operational Guidelines
 - o Real-time Tools (Recommendation 12)
 - Data Sharing Guideline (Recommendations 11)
 - Relay Loadability Guideline (Recommendation 25, 26 & 27)
 - Next-day Study Guideline (March 2013)
- RAS and Protection System Modeling
 - MSRATF & RPSOTF



- WECC Activities and Achievements
- Launched RC.org website
- Data Sharing UNDA (100% of applicable entities)
- Published next day studies to all signatories of UNDA
- SOL/IROL Methodology Phase I and Phase II
- Completed phase I of sub 100 kV analysis
- Create a CAMX RC position (2014)



WECC Activities and Achievements

- Share RTCA Results via RC.org
- Implementation of the WAV
- Enhanced SOL/IROL methodology, now working on phase II
- Published Monitoring of Real-Time SOL and IROL Exceedance procedure
- Completed phase I of sub-100-kV analysis



- •WECC Activities and Achievements
- Validation of models between operations and planning
- Increased awareness of WECC practices
 - Education related to "path" concept
 - Education related to RAS



- Tracking External Activities
 - 12 NERC activities working with NERC and chairs of NERC OC and PC
 - Quarterly dashboard for WECC membersubmitted activities





WECC Member and Registered Entity Fourth Quarter 2012

September 8 Event Recommendations Quarterly Progress Dashboard

4																	
				F)12 Miles	stones Up	pdate					r Expected			
Activity										Sta	tus	Completion date					
APS4	Acquire data for External Facilities										Complete		October 2012				
APS4	Include sub-100-kV external facilities Include external contingencies in seasonal studies										Complete		October 20				
APSS	Include ext	ternal conti	ingencies i	in seasonal	/ studies						Complete		December				
APS7	Expand Ser	esonal Stud	dies to ind	ude extern	nel facilities	4					Complete		December	2012			
APS7	Hire additi	ional staff to	o support	additional	study scen	iarlos					Complete		December	2012			
APS8	Expand ner	er- and long	g-term pla	inning stud	les						Complete		December	2012			
APS12	Ensure ade	equecy of p	ost-conting		Complete		December	2012									
APS15	Evaluate s	sensitivity of	f generato	Complete		December	2012										
APS17	PS17 Confirm Relay Settings Complete December 2012												2012				
CAISOS APS-Yuma in full network model Extended													February 2	013			
											Complete		December				
CAISO7 Review need for SONGS separation scheme with one or two units in service											Extended		March 201				
CAISO8													April 2013				
IID4		ull contingen			re seasona	4 studies					Complete		October 24				
IIDS		eneric exte					s neighbori	or facilitie	s are ident	Med	Extended		June 1, 201				
IIDS		esonel studi			-			-			Extended		June 1, 201				
IIDS	_	inderd opera						or and op/	erations		Extended		June 1, 2013				
IIDS		ley settings						5			Extended		December 31, 2014				
IIDS		otection sys			encing pro						Extended		July 1, 201	-			
IID6	-	rocess for b	-		Extended		December										
IID9		eining to Sy					acacadura				Complete		October 31				
IID13					Ace opposite	BUILDING GARAGE	processia						March 31.				
	-	nd impleme	_								Extended						
IID15		WECC to E		ith 44 and	Cosmon	A-North G					Extended		June 29, 20				
IID15		and Coordina									Extended		April 1, 201				
IID16		Line RAS wit									Complete		October 5,				
IID18		cility reting									Complete		December				
IID19		rocedures f			large phase	e angle diff	lerences				Extended		December 31, 2013				
IID19		aining on ne	_								Extended		December 31, 2013				
IIID19		ptions for pr		intingency	analysis re	elated to p	hase angle	differences	£		Extended		December 31, 2013				
PGES	Implement	t state estin	mator								Extended		December 2013				
PGES	Implement	RTCA									Extended		December 2014				
PNM3	Review Res	port									Complete		December 2012				
PNM6	Remove ov	ver current-	relay							-	Complete		September 2012				
PNM7	Acquire ICC	CP object D	Jata								Complete		December 2012				
				Estin	nated Cor	mpletion	Timeline	for Mer	mber Ac	civities							
Q1 2012	·										2013	03 2017	3 Q4 2013 2014/201				
Q1 202	2 42 -	.012		NI Z		C4 2011		-	AGES	-	2015	Q3 2011) (Q4 2015	2014/2011			
DOLDAS	1000	24505	1053	-217	1054	1 12517	1175.4.2	1000	TANKOE	10510		0.050	10510				
PNM1		CAISO6	APS2	IID17	APS4	APS17	IID13	APS9	CAISO5		IID3	PGE9	APS18	BPA4			
	APS3	IID14	BPA1	SCE1	APS5	CAISO8	IID15	APS16	CAISO7	APS11	IID8	4	BPA5	PGE3			
	APS6	PNM2	IID1	WALC1	APS7	IID4	IID16	BPA2	IID12	APS13	IID10	4	PGE1	l			
	APS14	PNM4	IID2	WALC2	APS8	IID5	IID18	BPA6	PGE2	BPA3	IID19	4	WALC4	1			

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PNM1	APS1	CAISO6	APS2	IID17	APS4	APS17	IID13	APS9	CAISO5	APS10	IID3	PGE9	APS18	BPA4
•	APS3	IID14	BPA1	SCE1	APS5	CAISO8	IID15	APS16	CAISO7	APS11	IID8		BPA5	PGE3
	APS6	PNM2	IID1	WALC1	APS7	IID4	IID16	BPA2	IID12	APS13	IID10		PGE1	
	APS14	PNM4	IID2	WALC2	APS8	IID5	IID18	BPA6	PGE2	BPA3	IID19	[WALC4	
	CAISO2	PNM5	IID11	WALCS	APS12	IID6	PNM3	CAISO1	PGE5		PGE4		WALC5	
KEY APS15							PNM6	CAISO3	PGE7				WALC6	
APS - Arizona Public Service							PNM7	CAISO4		Undefined			WALC7	
BPA - Bonneville Power Administration									·	BPA7	PGE8	l .	WALC8	
CAISO Colifornia Indonesia est Sustan Constan														

CAISO - California Independent System Operator

IID - Imperial Irrigation District

PGE - Portland General Electric

PNM - Public Service Company of New Mexico SCE - Southern California Edison Company WALC - Western Area Lower Colorado

This dashboard only contains updates to activities that were reported to WECC for inclusion in the WECC Response to the Arizona-Southern California Outages on September 8, 2011 Report and Addendum.

Completed In Progress Estimated completion date extended

- Organization Changes (Bifurcation; RCCo, RE)
- RCCo governed by and independent BOD and strong member advisory panel
- RCCo registered functions (RC & IA)
- Regional Entity NERC delegated functions including Compliance, Event Analysis, Situational Awareness and Member Services
- RCCo go live January 1, 2014



Recommended NERC Activities

- NERC1 Contingency Analysis
- NERC2 Sub-100-kV Elements
- NERC3 Parameters for Simulations
- NERC4 Adequate Real-time Tools
- NERC5 Notification of Loss of RTCA
- NERC6 Sub-100-kV Relays
- NERC7 Determination of Phase Angle Differences



Recommended NERC Activities

- NERC8 Generator Validation Standard Drafting Team
- NERC9 Review TOP-003
- NERC10 SAMS review Generator Control Issues
- NERC11 Consider De-registration Process
- NERC12 Consider Planning Coordinator Registration Gap Issues



- Modeling SPS and Relays Ad-Hoc Task Force (MSRATF)
 - Group formed under TSS
 - Finalized Scope of Work January 2013
 - o Frequent meetings
 - 3 Sub-groups
 - RAS
 - Relays
 - Contingency Definitions



- Relay Sub-group
 - Begun work examining existing transient stability models
 - Assignments given to sub-group members
 - Gather required data from relay engineers
 - Populate and test existing models
 - Come up with recommendations



- RAS Sub-group
 - Initially focusing on modeling RAS in power flow analysis
 - Intending to survey how RAS are modeled today
 - Identify best practices
 - Determine if there is a common method



- Contingency Definitions Sub-group
 - Identify how currently done in the various software programs
 - Both power flow and transient simulation
 - Determine if a common format or conversion between programs is possible
 - Strive to create a WECC-wide list of contingencies to be made available with base cases.



WECC Path Operator Issues

- Multiple owners, operators and scheduling entities on a Path
- Not just Path 49; estimated 10 others as well
- Path Operator not in Functional Model
- No specific authority defined for Path Operator to give directives to other TOPs
- Counterparties have no incentive to sign contracts



Proposed Plan

- Jan 31-Feb 1 JGC: Form Task Force
- Late Feb POTF: Review APS whitepaper and develop educational series
- Mar-May: Educational Series
- May Sept: POTF Meetings, develop recommendation
- Oct 21-24: Present recommendation to Standing Committees



Options for Discussion

- Define authority of Path Operator
- Eliminate Path Operator
- Flow-Based Methodology
- RC as Path Operator
- Coordinated Procedures and Agreements for each Path
- Split Path Operator role and define responsibilities/authority



Questions?

