



Base Case Building 101

August 10, 2022

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Outline

- Base Case Compilation Schedule
- Area Coordinator and WECC responsibilities
- Late data log/procedure

BCCS Continued

- Most current version posted to wecc.org on SRS page
- Case description:
 - Purpose
 - Starting case and dynamics
 - Loads
 - Time
 - Generation targets
 - Interchange targets

Base Case Compilation Schedule

Case	Date Data Request Mailed	Date Data Due to Sub-Coordinate L&R Info	Date Data Due to Area Coordinator	Date Area Coordinator Due to WECC Staff	WECC Staff Send Case for Review	Date Comments Due to Area Coordinator	Date Area Coordinator Comments Due to WECC Staff	WECC Staff Finalize Date
2032-33 HW1*	4/15/22	5/6/22	5/13/22	6/10/22	7/1/22	7/22/22	8/12/22	9/2/22
2033 HS1*								
2024 LSP2S	9/16/22	9/30/22	10/7/22	10/28/22	11/18/22	12/9/22	1/6/23	1/27/23
2023-24 HW3-OP	10/14/22	11/4/22	11/11/22	12/9/22	1/6/23	2/3/23	2/24/23	3/24/23
2023-24 LW1-OP								
2024 HSP1-OP	11/11/22	12/2/22	12/9/22	1/6/23	2/3/23	2/24/23	3/17/23	4/7/23
2028-29 HW2	12/9/22	12/30/22	1/6/23	2/3/23	2/24/23	3/17/23	4/7/23	5/5/23
2029 HS2								
2024 HS3-OP	3/17/23	4/7/23	4/14/23	5/12/23	6/9/23	6/30/23	7/21/23	8/11/23
2024 LS1-OP								
2033-34 HW1	4/14/23	5/5/23	5/12/23	6/9/23	6/30/23	7/21/23	8/11/23	9/1/23
2034 HS1								
2024 HSP1S	5/12/23	6/2/23	6/9/23	6/30/23	7/21/23	8/11/23	9/8/23	9/29/23

Data Preparation Manual

- Most current version posted to wecc.org on SRS page
- Contains steady-state and dynamic data requirements
- Bus number conventions
- Late data procedure

Area Coordinator Prerun Submissions

- Area Specific power flow data
- L&R spreadsheet
- Any Dynamics model changes/updates
- Any tie line changes (must be coordinated!)
- List of significant changes for ASMAT
- Any additional info that will help with base case compilation

Area Interchange Schedules

- Important to coordinate before submitting case data
- Fill out L&R spreadsheet on SRS team site and coordinate differences
- If the L&R sheet is not filled out , WECC staff will use submitted L&R data

Area Interchange Spreadsheet

	A	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC			
3		14-APS	50-B.C.HYDRO	11-ELPASO	60-IDAHO	21-HID	26-LADWP	20-MEXICO-CFE	62-MONTANA	18-NEVADA	10-NEW MEXICO	40-NORTHWEST	65-PACE	30-PG AND E	70-PSCO	22-SAN DIEGO	64-SIERRA	24-SOCALIF	52-FORTISBC	73-WAPA R.M.	63-WAPA U.W.	19-WAPA L.C.	17-AEPCO	15-SRP	16-TEP				KEY		
4	54-ALBERTA																													CORRECT	✓
5	14-APS	0.00																												ROUNDED	1MW or less
6	50-B.C.HYDRO		0.00																											WRONG	please coordinate typical interchange
7	11-ELPASO			0.00																										outlined box	
8	60-IDAHO				0.00																										
9	21-HID					0.00																									
10	26-LADWP						0.00																								
11	20-MEXICO-CFE							0.00																							
12	62-MONTANA								0.00																						
13	18-NEVADA									0.00																					
14	10-NEW MEXICO										0.00																				
15	40-NORTHWEST											0.00																			
16	65-PACE												0.00																		
17	30-PG AND E													0.00																	
18	70-PSCOLORADO														0.00																
19	22-SAN DIEGO															0.00															
20	64-SIERRA																0.00														
21	24-SOCALIF																	0.00													
22	52-FORTISBC																		0.00												
23	73-WAPA R.M.																			0.00											

NOTE: If your transaction does not have a highlighted box around it, check to make sure there is a physical tie between areas. If not, you will have to coordinate with the intermediate area.

Master Tie-Line File (MTLF)

- Contains data for the following:
 - Branches
 - Transformers
 - Line connected shunts
 - Transformer impedance tables
 - Interface data (Paths)
 - Branch interface data
 - Zones
 - Owners
 - BAs
 - Area Interchanges

WECC's Process

- Solve each area submission and export area data to EPC
- Append each EPC and Master Tie-Line File (MTLF) to form the full base case, and perform tie check
- Solve the base case
- Data checks
- Dynamic data checks
- Conversions

Patchwork Analogy

- Each area is like a patch in a quilt
- WECC receives all the patches and cleans them up
- MTLF = the stitches between patches

Data Checks

- Tiecheck.p
- Fixislds.p
- Checkazo.p
- Mustfix.p
- Checks.p
- Pathmoni.p
- BAforAreas.p
- Power flow corrections:
 - FixbadgenownerV2.p
 - Fixgenxform.p
 - Fix owner – no participation.p
 - Qtab correction.p
 - Fixvmaxvmin.p
 - CheckPF.p
 - Emergency voltage fixer.p
 - Svdsnap.p
 - Vband.p

Data Checks continued

- Dchk
- Baseloader.p
- InsertTURBINE.p
- insertLID.p
- InsertSubstationv6.p
- Insertlatlongv2.p
- InsertBA.p
- InsertFuel.p
- GMD
- MATL flow
- Climate zones
- DCINTMT.p

Master Dynamics File (MDF)

- Compilation of dynamic models used in base cases
- Generators without a gen model are load netted
- When submitting new models, check the MVS page for the latest approved model list (biggest offender is reec_b)

Initializing Dynamics Data

- Reading in the MDF
 - Missing data (updated ID or netted)
 - Duplicate models
- Initialization
 - Pump check
 - Governor errors (check real power limits)
 - Exciter errors (bad voltage profiles)
 - Other messages, e.g., SVDs, load shed models, plant controllers

Composite Load Models

- Based on climate zone
- Created based on specific season and time
- Refer to case summary sheet

Running Dynamic Simulations

- No disturbance for 30 seconds
 - Pg spread < 1.00
 - Efd spread < 0.063
 - Spd spread < 0.000
- Other quantities: qg, qstc, qsvc
- Growing oscillations
- DC line data, e.g., alpha/gamma large changes

Dynamic Simulations Continued

- Chief Jo Brake (Ringdown)
- Double Palo Verde (N-S) or Loss of PDCI (S-N)
- Post-transient solution
- Other Standard Disturbances:
 - Colorado River – Red Bluff #1 & 2
 - Gates – Midway #1 & Diablo – Midway #2 500 kV
 - Brownlee – Hells Canyon 230 kV
 - Daniel Park – Comanche #1 & #2 345 kV
 - North Gila – Imperial Valley #1 500 kV
- Everything aside from no disturbance is run for 35 seconds

Plotting

- PSLF creates a .chf file to store results
- WECC staff looks at largest spreads beginning at 27 seconds for pg, efd, spd, qg, qstc, qsvc
- If there is an issue, WECC staff attempts to adjust dispatch or voltage schedule before commenting out model or netting unit

Conversions

- PSSE conversion
 - WECCLF converter
 - Python scripts, IDV, .raw files provided for information only in case files
 - Power flow compare for voltage changes, swing machine movement, area interchanges
 - No dynamics conversion – Siemens occasionally provides dynamic conversions

Conversions Continued

- PowerWorld
 - Power flow and dynamic conversions
 - Import the EPC and solve
 - Compare bus voltages, DC line flow, area interchange, swing movement
 - Run no disturbance and Standard Disturbances again and document issues

RAS Data

- RAS data required by DPM for all operating cases
- WECC staff ensures the RAS load
- If there are issues loading the RAS, WECC contacts Area Coordinator to resolve

Review Comments

- Area coordinators review the case and make needed changes
- ONLY changes that apply to each specific area will be kept, e.g., if Area 40 changes something in Area 50, that change will not be applied
- Submitted in EPCL, EPC, .m, IDV, AUX, or by list
 - Some formats are more difficult than others for WECC staff to append
- Tie-line changes must be coordinated
- Type 1, 2, 3, or 4 comment provided on signoff sheet
- WECC staff applies changes and performs data checks, dynamics, and conversions again

Associated Materials

- Called ASMAT for short
- Contains:
 - Signoff sheets if prerun
 - Significant changes to existing system
 - Percent compensation on HVAC lines
 - Supplemental line flow summary
 - Interchange diagram
 - Phase shifter transformer summary
 - Case summary sheet
 - Area reserve factor summary
 - Area loads and resources
 - PSS in-service

ZIP Files

- Contains power flow case
 - Dynamics if applicable
 - WECC staff power flow and dynamics adjustments
 - ASMAT
 - Each Area L&R
 - PTI supplemental data
 - Signoff sheets
 - Approved base case modifications
 - SADD
- ABBCDC

Area Coordinator Checklist

- Interchanges match
- Tie-lines are coordinated
- Case solves
- Swing below max and above 0 MW
- Case initializes for your Area
- Climate zones are valid

Late Data Log

- Mismatched interchanges or late submission are documented in late data log
- Late data puts much strain on WECC staff to get the case sent out on time
- Submit what you have on the due date with an explanation if necessary. WECC staff can work for a while using a case that at least has the correct topology

Late Data Procedure

- WECC staff can backfit data from the last case per the DPM if deemed necessary
- The late data procedure has not been utilized often in the past
- We are beginning to see an increase in the amount of late data
- For 2023 schedule, WECC staff plans to utilize the late data procedure for data not received by Wednesday morning after data due

Base Case Modifications

- If a case is posted and changes are required after the fact, WECC can post base case modifications
- Change files, if possible, and readme explaining the reason for the base case modification
- ZIP files are re-posted and the modification is posted to the base case modification discussion board
- Per DPM, base case modifications are intended for large changes that will affect other areas
 - If the change will not have much of an impact on other areas, make the change locally and communicate to those necessary on your end



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