



# SRS Chair RAC Report

March 2023

Tracy Rolstad  
Grant County PUD #2

# Discussion Items

- Lossless devices **My little PUD is an offender!**
  - 23HS4a case
    - ~1328 transformers are lossless (out of 9193)
      - ~15% of transformers (excludes 3 winding)
      - Many lossless transformers have ratings of 9999 MVA
        - Ironically, this would be correct!
- Plague of demonstrably bad data continues
  - 23HS4a has 17,906 SADD suspect data
  - Some of these are administrative-ish
    - Lack of BA for example
  - Some are ridiculous and physically impossible
    - Zero resistance xfmers, PSS's without exciters, etc



# 23HS4A SADD

## Steady-State and Dynamics Dashboard

Case under current study: 23HS4a

| Area Number | Area Name  | 17HS2a | 17LS1a | Current Case Total | Trend | Case Errors | Exceeded Limits | NERC Quality Metric | Powerflow Metrics | Dynamics Metrics |
|-------------|------------|--------|--------|--------------------|-------|-------------|-----------------|---------------------|-------------------|------------------|
| 15          | SRP        |        |        | 54                 |       | 3           | 2               | 19                  | 30                |                  |
| 16          | TEP        |        |        | 37                 |       | 1           | 10              | 18                  | 7                 | 1                |
| 17          | AEP        |        |        | 2                  |       |             |                 | 1                   |                   |                  |
| 18          | NEVADA     |        |        | 38                 |       | 4           | 4               | 20                  | 10                |                  |
| 19          | WAPA L.C.  |        |        | 13                 |       | 1           |                 | 12                  |                   |                  |
| 20          | MEXICO-CFE |        |        | 30                 |       |             |                 | 9                   | 21                |                  |
| 21          | IID        |        |        | 9                  |       | 1           |                 | 7                   | 1                 |                  |
| 22          | SANDIEGO   |        |        | 180                |       | 133         |                 | 42                  | 5                 |                  |
| 24          | SOCALIF    |        |        | 410                |       | 76          |                 | 219                 | 69                | 23               |
| 26          | LADWP      |        |        | 113                |       | 13          | 68              | 20                  | 10                | 2                |
| 30          | PG AND E   |        |        | 8529               |       | 7462        | 86              | 385                 | 572               | 24               |
| 40          | NORTHWEST  |        |        | 616                |       | 104         | 37              | 304                 | 154               | 17               |
| 50          | B.C.HYDRO  |        |        | 157                |       | 4           | 5               | 121                 | 27                |                  |
| 52          | FORTISBC   |        |        | 6                  |       |             |                 | 4                   | 1                 | 1                |
| 54          | ALBERTA    |        |        | 729                |       | 50          | 54              | 246                 | 287               | 92               |
| 60          | IDAHO      |        |        | 78                 |       | 26          | 3               | 32                  | 16                | 1                |
| 62          | MONTANA    |        |        | 81                 |       |             | 4               | 44                  | 24                | 9                |
| 63          | WAPA U.W.  |        |        | 2                  |       | 1           |                 | 1                   |                   |                  |
| 64          | SIERRA     |        |        | 105                |       | 9           | 13              | 62                  | 12                | 9                |
| 65          | PACE       |        |        | 78                 |       | 8           | 3               | 59                  | 4                 | 4                |
| 70          | PSCOLORADO |        |        | 179                |       | 61          | 6               | 104                 | 8                 |                  |
| 73          | WAPA R.M.  |        |        | 157                |       | 37          | 14              | 47                  | 59                |                  |
| Total       |            |        |        | 11679              |       | 8030        | 339             | 1784                | 1338              | 188              |

### Section 1: Case Errors

- (1-1) Missing Ratings: Missing any ratings A-H
- (1-2) Unapproved Dynamic Models
- (1-3) Load Long ID Missing
- (1-4) Pgen < MWCap
- (1-5) Pmin > Pmax & Qmin > Qmax

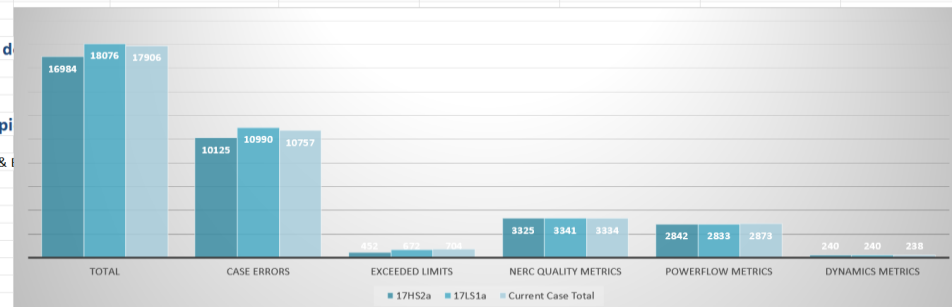
### Section 2: Exceeded Limits - Elements in the case that exceed d

- (2-1) Branch Overloads
- (2-2) Bus Voltage Outside TPL-001-WECC-CRT-3
- (2-3) Gen Pgen & Qgen Limit Violations












### Section 3: NERC Quality Metrics - Data checks that identify typi

- (3-1) Rating A>B, C>D, E>F, G>H (Note: NERC only checks ratings A & B)
- (3-2) Rating B>(3\*A), D>(3\*C), F>(3\*E), H>(3\*G) (Note: NERC only checks ratings A & B)
- (3-3) Conflicting voltage control setpoints (TBD)
- (3-4) Voltage bandwidth/Ratio tap step < 2
- (3-5) Generator power factor < 0.85 lagging or < 0.8 leading
- (3-6) Load power factor < 0.5
- (3-7) Parallel transformers with circulating current (TBD)
- (3-8) Generator Rsource/Xsource > 1
- (3-9) Inconsistent Reactances
- (3-10) Inconsistent Time Constants
- (3-11) Unreasonable Inertia Constant
- (3-12) Unreasonable Saturation Factors
- (3-13) PSS but no Excitation

| Case            | Total | Case Errors | Exceeded Limits | NERC Quality Metric | Powerflow Metrics | Dynamics Metrics |
|-----------------|-------|-------------|-----------------|---------------------|-------------------|------------------|
| 17HS2a          | 16984 | 10125       | 452             | 3325                | 2842              | 240              |
| 17LS1a          | 18076 | 10990       | 672             | 3341                | 2833              | 240              |
| Current Case To | 17906 | 10757       | 704             | 3334                | 2873              | 238              |

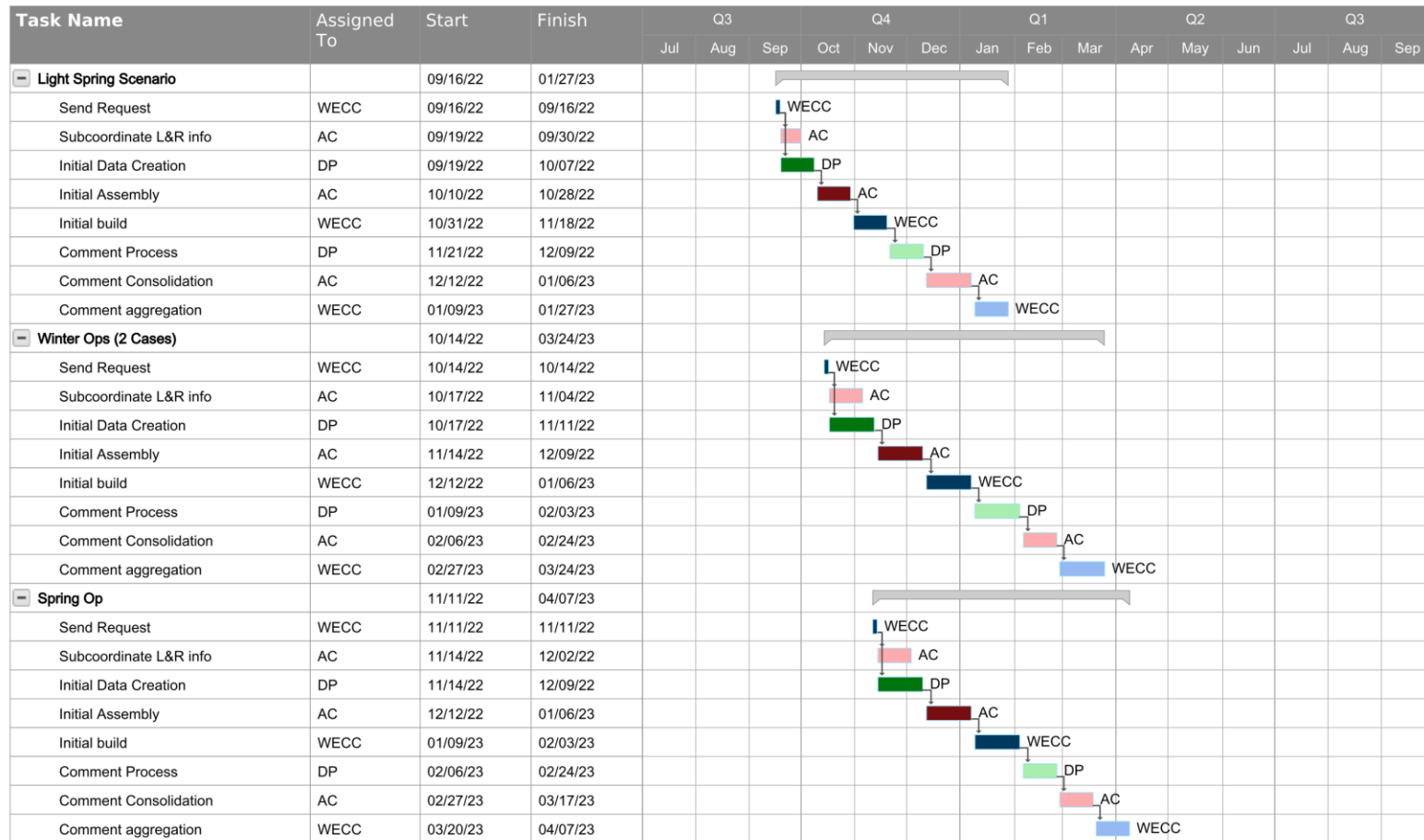


# Instruct your folks to READ!

-  23HS4a - ASMAT.pdf
-  23HS4a - GMD.gmd
-  23HS4a - Power Flow Data adjustments.txt
-  23HS4a - Supplemental.zip
-  23HS4a1 - Annual Base Case Compilation and Data Check Log.xlsx
-  23HS4a1 - PW dynamics data adjustments.txt
-  23HS4a1 - Steadystate and Dynamics Dashboard.xlsx
-  23HS4a1.PWB
-  23HS41 - Dynamics Data adjustments.txt
-  pss\_exempt.dat
-  readme-PW.txt



# However, cases are on time



# Case 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*                      |                          |  |                                   |   |                                 |                                       |  |                          |
| <a href="#">2024 LSP2S</a>     | 9/16/22                  | 9/30/22                                  | 10/7/22                           | 10/28/22                                | 11/18/22                        | 12/9/22                               | 1/6/23   | 1/27/23                  |
| <a href="#">2023-24 HW3-OP</a> | 10/14/22                 | 11/4/22                                  | 11/11/22                          | 12/9/22                                 | 1/6/23                          | 2/3/23                                | 2/24/23  | 3/24/23                  |
| <a href="#">2023-24 LW1-OP</a> |                          |  |                                   |   |                                 |                                       |  |                          |
| <a href="#">2024 HSP1-OP</a>   | 11/11/22                 | 12/2/22                                  | 12/9/22                           | 1/6/23                                  | 2/3/23                          | 2/24/23                               | 3/17/23  | 4/7/23                   |
| <a href="#">2028-29 HW2</a>    | 12/9/22                  | 12/30/22                                 | 1/6/23                            | 2/3/23                                  | 2/24/23                         | 3/17/23                               | 4/7/23   | 5/5/23                   |
| <a href="#">2029 HS2</a>       |                          |  |                                   |   |                                 |                                       |  |                          |
| <a href="#">2024 HS3-OP</a>    | 3/17/23                  | 4/7/23                                   | 4/14/23                           | 5/12/23                                 | 6/9/23                          | 6/30/23                               | 7/21/23  | 8/11/23                  |
| <a href="#">2024 LS1-OP</a>    |                          |  |                                   |   |                                 |                                       |  |                          |
| <a href="#">2033-34 HW1</a>    | 4/14/23                  | 5/5/23                                   | 5/12/23                           | 6/9/23                                  | 6/30/23                         | 7/21/23                               | 8/11/23  | 9/1/23                   |
| <a href="#">2034 HS1</a>       |                          |  |                                   |   |                                 |                                       |  |                          |
| <a href="#">2024 HSP2S</a>     | 5/12/23                  | 6/2/23                                   | 6/9/23                            | 6/30/23                                 | 7/21/23                         | 8/11/23                               | 9/8/23   | 9/29/23                  |



# High Temperatures in the West

## Record summer temps (www.extremeweatherwatch.com)

- Billings, MT
  - **112 F**, 31 July 1901
- Las Vegas, NV
  - **118 F**, 26 July 1931
- Lewiston, ID
  - **117 F**, 28 June 1939
- Moses Lake, WA
  - **115 F**, 29 June 2021
- Phoenix, AZ
  - **122 F**, 26 June 1990
- Portland, OR
  - **116 F**, 28 June 2021
- Richland, WA
  - **115 F**, 27 June 2021
- Seattle, WA
  - **108 F**, 28 June 2021
- Spokane, WA
  - **109 F**, 29 June 2021
- Walla Walla, WA
  - **116 F**, 29 June 2021
- Wenatchee, WA
  - **113 F**, 30 June 2021

*Why worry about +20 years?  
How about now?*



Y20 Extreme Heat Advisory Group  
Virtual  
10:00-11:00 a.m. Mountain Time, Wednesday, January 25, 2023  
The Y20 Extreme Heat Advisory Group will meet to continue work on scope of work to study impact on reliability of an extreme hot weather event in 20-year future in Western Interconnection.



*Heaving sidewalks due to high temps*

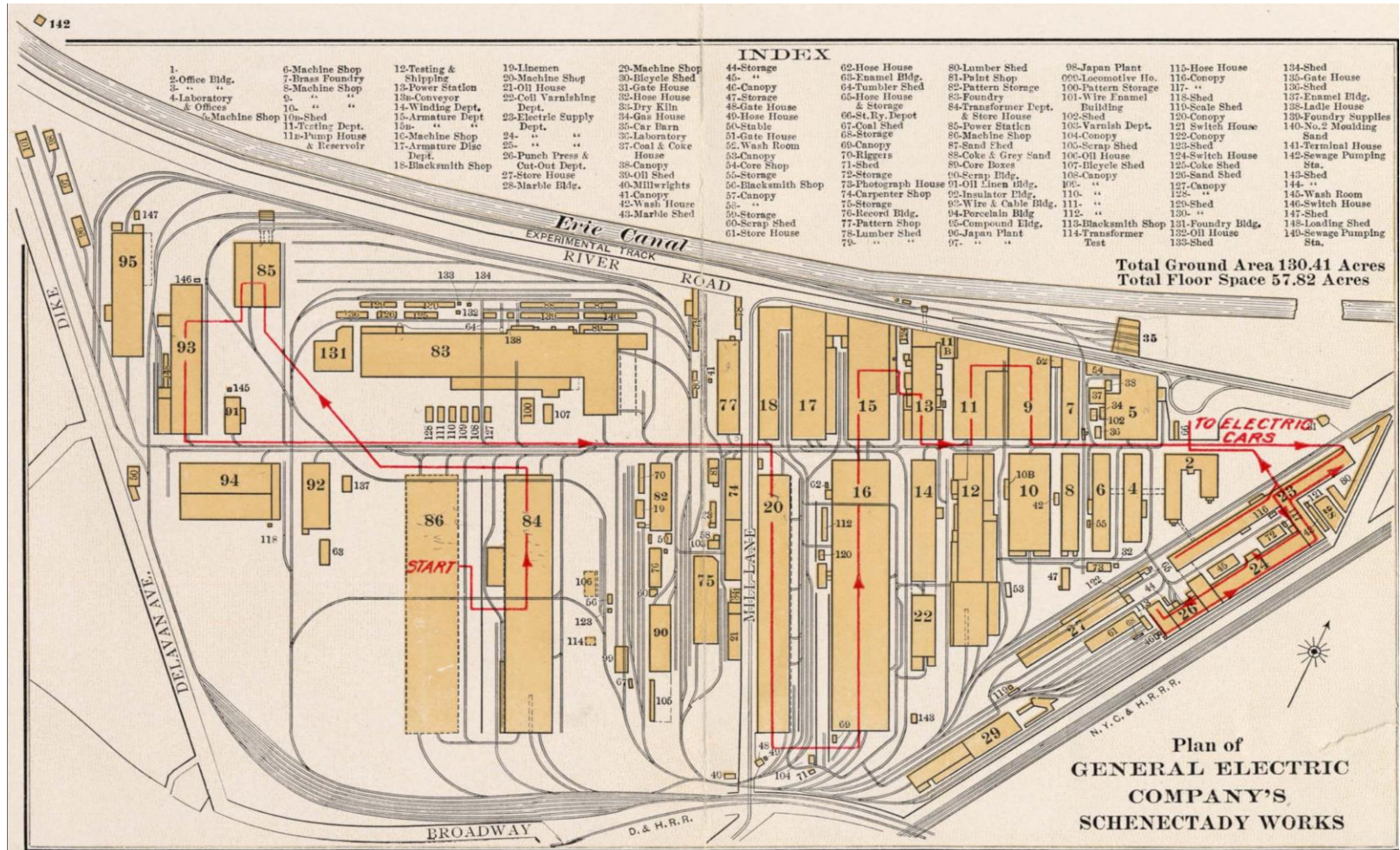
**30C (86 F)**  
**40C (104 F)**  
**45C (113 F)**  
**50C (122 F)**

2 ft/sec→1.4 miles/hr  
7.3 ft/sec→5 miles/hr  
14.7 ft/sec→10 miles/hr  
11.7 ft/sec, 8 mph cut in speed





# Push for better ratings



2 ft/sec, between bldgs. 4 & 5





# Guess who measured the 2 ft/sec





WECC

Electric Reliability and Security for the West

## Contact:

Tracy Rolstad

[tlrolstad@gcpud.org](mailto:tlrolstad@gcpud.org)

