

January 2024 ERCOT Monthly Operations Report Public

Reliability and Operations Subcommittee Meeting

March 07, 2024

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# Report Highlights

* The unofficial ERCOT peak demand was 78,314 MW for the month of January on 01/16/2024 HE 8:00; this is 12,682 MW more than the January 2023 demand of 65,632 MW on 01/31/2023 HE 19:00. This is also a new all-time winter peak, exceeding the previous winter peak of 74,427 MW set on 12/23/2022 HE 8:00.
* A WGR Generation Record of 27,548 MW was set on 01/07/2024 at 18:42
* A PVGR Generation Record of 15,222 MW was set on 01/28/2024 at 10:09
* A PVGR Penetration Record of 36.11% was set on 01/28/2024 at 15:10
* 1 Emergency Notice for frozen precipitation in the San Angelo area
* 2 Watches for reserve capacity shortage
* 1 Watch for extreme cold weather
* 1 Advisory for VSAT
* 1 Advisory for extreme cold weather
* 2 OCNs for extreme cold weather
* 2 Conservation Appeals
* 1 DC Tie Curtailment Notice for DC\_E due to DC-E was over scheduled and SPP not curtailing the Tie in a timely manner.
* There were 19 HRUC commitments.
* There were 28 days congestion on Valley Export GTC, 20 days on North Edinburg to Lobo GTC, 16 days on Panhandle GTC, 13 days on West Texas Export GTC, 12 days on Nelson Sharpe to Rio Hondo GTC, 1 day on Hamilton GTC, 14 days on Zapata Starr GTC, 2 days on the McCamey GTC, and 5 days on Treadwell GTC. There was no activity on the remaining GTCs during the month.

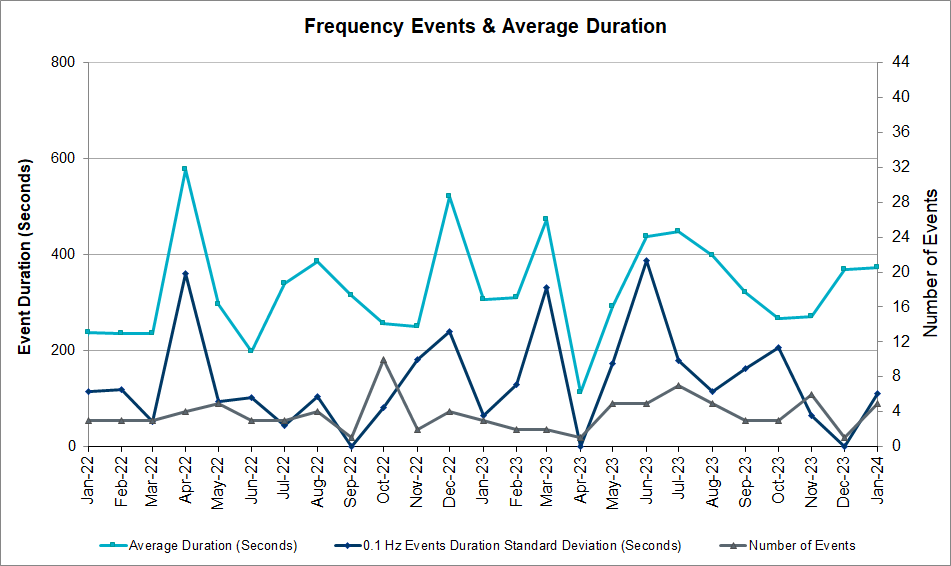
# Frequency Control

## Frequency Events

The ERCOT Interconnection experienced 5 frequency events, which resulted from units tripping. The average event duration was 00:06:12.

A summary of the frequency events is provided below. The reported frequency events meet one of the following criteria: Delta Frequency is 60 mHz or greater; the MW loss is 350 MW or greater; resource trip event triggered ECRS deployment. Frequency events that have been identified as Frequency Measurable Events (FME) for purposes of BAL-001-TRE-2 analysis are highlighted in blue. When analyzing frequency events, ERCOT evaluates PMU data according to industry standards. Events with an oscillating frequency of less than 1 Hz are inter-area, while higher frequencies indicate local events. Industry standards specify that damping ratio for inter-area oscillations should be 3.0% or greater. For the frequency events listed below, the ERCOT system met these standards and transitioned well after each disturbance. In the case of negative delta frequency, the MW Loss column could refer to load loss.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Date and Time** | **Delta Frequency** | **Max/Min Frequency** | **Duration of Event** | **PMU Data** | | **MW Loss** | **Load** | **IRR** | **Inertia** |
| **(Hz)** | **(Hz)** | **Oscillation Mode (Hz)** | **Damping Ratio** | **(MW)** | **%** | **(GW-s)** |
| 1/1/2024 20:13:25 | 0.073 | 59.890 | 00:06:09 | 0.79 | 6% | 565 | 47,499 | 36% | 239,607 |
| 1/9/2024 17:51:13 | 0.079 | 59.936 | 00:05:30 | 0.3 | 15% | 445 | 52,267 | 8% | 294,925 |
| 1/14/2024 9:15:58 | 0.078 | 59.922 | 00:06:44 | 0.6 | 11% | 685 | 64,760 | 19% | 347,910 |
| 1/18/2024 17:28:30 | 0.074 | 59.933 | 00:08:28 | 0.76 | 12% | 399 | 45,476 | 15% | 279,186 |
| 1/21/2024 5:26:03 | 0.056 | 59.930 | 00:03:30 | 0.95 | 13% | 475 | 56,316 | 27% | 275,477 |



(Note: All data on this graph encompasses frequency event analysis based on BAL-001-TRE-2.)

## ERCOT Contingency Reserve Events

There were 2 events where ERCOT Contingency Reserve MWs were released to SCED. The events highlighted in blue were related to frequency events reported in Section 2.1 above.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date and Time Released to SCED** | **Date and Time Recalled** | **Duration of Event** | **Maximum MWs Released** | **Comments** |
| 1/1/2024 20:13 | 1/1/2024 20:19 | 0:06:16 | 548.9 | Unit Trip |
| 1/16/2024 18:25 | 1/16/2024 19:07 | 0:42:04 | 400 | Insufficient capability for forecasted 10min Ahead Net Load |

## Responsive Reserve Events

There were 0 events where Responsive Reserve MWs were released to SCED.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date and Time Released to SCED** | **Date and Time Recalled** | **Duration of Event** | **Maximum MWs Released** | **Comments** |
| N/A | N/A | N/A | N/A | N/A |

## Load Resource Events

None.

# Reliability Unit Commitment

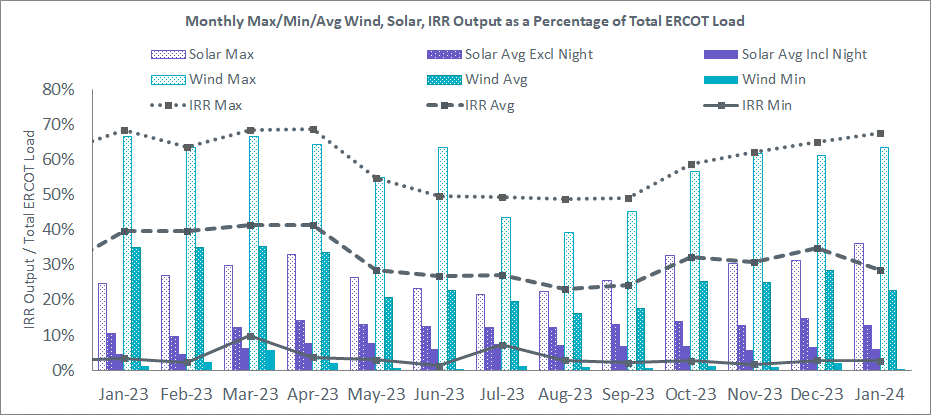
ERCOT reports on Reliability Unit Commitments (RUC) monthly. Commitments are reported grouped by operating day and weather zone. The total number of hours committed is the sum of the hours for all the units in the specified region. Additional information on RUC commitments can be found on the MIS secure site at Grid 🡪 Generation 🡪 Reliability Unit Commitment.

There were no DRUC commitments.

There were 19 HRUC commitments.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Resource Location** | **# of Resources** | **Operating Day** | **Total # of Hours Committed** | **Total MWhs** | **Reason for Commitment** |
| SOUTH\_CENTRAL | 1 | 1/9/2024 | 2 | 1,046 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/16/2024 | 12 | 204 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/16/2024 | 4 | 100 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/17/2024 | 9 | 225 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/17/2024 | 9 | 153 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/19/2024 | 9 | 2,456 | DMGSBTR5 |
| NORTH\_CENTRAL | 1 | 1/20/2024 | 4 | 1,776 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/20/2024 | 4 | 1,028 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/20/2024 | 8 | 944 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/20/2024 | 4 | 2,015 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/20/2024 | 8 | 4,914 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/22/2024 | 14 | 5,740 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/22/2024 | 14 | 3,220 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/22/2024 | 6 | 2,664 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/22/2024 | 6 | 1,491 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/22/2024 | 5 | 1,633 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/22/2024 | 3 | 1,185 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/22/2024 | 10 | 4,001 | SYSTEM CAPACITY |
| NORTH\_CENTRAL | 1 | 1/22/2024 | 9 | 2,151 | SYSTEM CAPACITY |

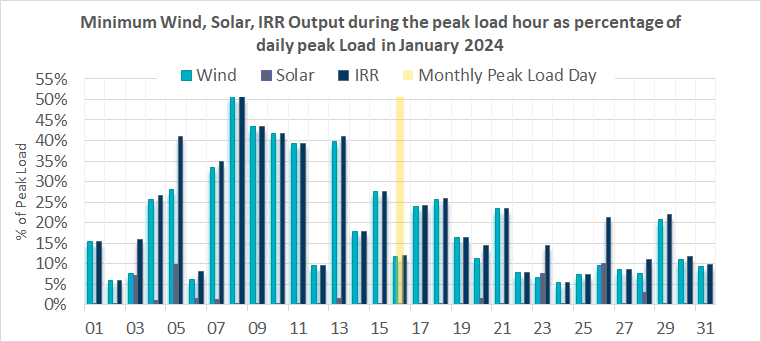
# IRR, Wind, and Solar Generation as a Percent of Load

The graph below shows the maximum, minimum and average aggregate solar, wind and IRR output as a percentage of total ERCOT load when evaluated as 10-minute averaged intervals, over the past 13 months. Current wind and solar generation and penetration records are listed in the footnote below[[1]](#footnote-2). Maximum IRR penetration for the month was 67.65% on 01/07/2024 interval ending 13:10 and minimum IRR penetration for the month was 2.67% on 01/30/2024 interval ending 18:20.

During the hour of peak load for the month, hourly integrated wind generation was 9,360 MW and solar generation was 182 MW. The graph below shows the wind and solar penetration percentage during the hour of the peak load in the last 13 months.



Lastly, the graph below shows the minimum wind, solar, and IRR output during the peak load hour as a percentage of the daily peak load for every day in the month.



# Largest Net-Load Ramps

The net-load ramp is defined as the change in net-load (load minus wind and PVGR generation) during the defined time horizon. Such a variation in net-load needs to be accommodated in grid operations to ensure that the reliability of the grid is satisfactorily maintained. The largest net-load ramp during 5-min, 10-min, 15-min, 30-min and 60-min in January 2024 is 1,722 MW, 3,107 MW, 4,588 MW, 8,901 MW, and 16,522 MW, respectively. The comparison with respect to the historical values is given in the table below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Month and Year** | **5 min** | **10 min** | **15 min** | **30 min** | **60 min** |
| January 2015 | 1,025 MW | 1,609 MW | 2,150 MW | 3,737 MW | 6,496 MW |
| January 2016 | 950 MW | 1,547 MW | 2,076 MW | 3,736 MW | 6,213 MW |
| January 2017 | 959 MW | 1,680 MW | 2,160 MW | 3,511 MW | 6,181 MW |
| January 2018 | 1,091 MW | 1,824 MW | 2,497 MW | 3,901 MW | 6,824 MW |
| January 2019 | 1,087 MW | 1,718 MW | 2,308 MW | 4,033 MW | 7,786 MW |
| January 2020 | 1,009 MW | 1,610 MW | 2,124 MW | 3,700 MW | 6,100 MW |
| January 2021 | 966 MW | 1,744 MW | 2,359 MW | 4,458 MW | 7,842 MW |
| January 2022 | 1,049 MW | 1,879 MW | 2,834 MW | 5,455 MW | 10,333 MW |
| January 2023 | 1,296 MW | 2,506 MW | 3,431 MW | 6,468 MW | 11,133 MW |
| January 2024 | 1,722 MW 1/29/2024  (IE 17:02) | 3,107 MW 1/29/2024  (IE 17:05) | 4,588 MW 1/29/2024  (IE 17:10) | 8,901 MW 1/29/2024  (IE 17:11) | 16,522 MW  1/29/2024  (IE 17:17) |
| All Months in 2015-2024 | 1,722 MW 1/29/2024  (IE 17:02) | 3,107 MW 1/29/2024  (IE 17:05) | 4,588 MW 1/29/2024  (IE 17:10) | 8,901 MW 1/29/2024  (IE 17:11) | 16,522 MW  1/29/2024  (IE 17:17) |

# Congestion Analysis

## Notable Constraints

Nodal protocol section 3.20 specifies that ERCOT shall identify transmission constraints that are binding in Real-Time three or more Operating Days within a calendar month. As part of this process, ERCOT reports congestion that meets this criterion to ROS. In addition, ERCOT also highlights notable constraints that have an estimated congestion rent exceeding $1,000,000 for a calendar month. These constraints are detailed in the table below, including approved transmission upgrades from TPIT that may provide some congestion relief based on ERCOT’s engineering judgement. Rows highlighted in blue indicate the congestion was affected by one or more outages. For a list of all constraints activated in SCED, please see Appendix A at the end of this report.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Contingency Name** | **Overloaded Element** | **# of Days Constraint Binding** | **Congestion Rent** | **Transmission Project** |
| BASE CASE | WESTEX | 11 | $13,526,410.17 |  |
| SBAKCED5 | HARGRO\_TWINBU1\_1 | 18 | $13,237,031.81 |  |
| DHCKRNK5 | EMSES\_AX2H | 3 | $11,753,026.97 |  |
| XEV158 | EVRSW\_MR3H | 1 | $11,447,643.03 |  |
| SCOMKEN8 | 115T123\_1 | 4 | $8,721,663.50 |  |
| SHENCO28 | 97T205\_1 | 2 | $8,348,025.83 |  |
| DKENNO89 | COLETO\_ROSATA1\_1 | 2 | $6,071,941.17 |  |
| SMVRLA\_8 | STEWAR\_VERTRE1\_1 | 2 | $5,900,076.10 |  |
| DCONLNG5 | 14040\_\_A | 12 | $5,822,181.97 | Oncor\_FW\_45640\_Spraberry - Polecat Creek 138 kV Line (23RPG009, 45640) |
| MXGEO289 | ORNGROV\_69\_1 | 2 | $5,671,797.70 |  |
| SCIBMAR8 | 705T705\_1 | 3 | $5,649,150.65 |  |
| DFOWSMG5 | CATARI\_PILONC1\_1 | 9 | $5,407,698.75 | AEP\_TCC\_AshertontoPiloncillo138kVLine\_rebuild (73100) |
| SCEDHI\_5 | HARGRO\_TWINBU1\_1 | 10 | $3,603,596.86 |  |
| DMGSBTR5 | 6036\_\_A | 16 | $3,046,739.91 |  |
| XCRD58 | CRD\_CRD2 | 1 | $3,026,485.56 |  |
| SROBLON9 | CALALS\_LON\_HI1\_1 | 3 | $2,694,267.96 |  |
| SSANFER8 | CORONA\_AT4 | 5 | $2,520,419.98 |  |
| DCONLNG5 | 6095\_\_D | 11 | $2,505,869.25 |  |
| XFOW58 | LARDVN\_LASCRU1\_1 | 6 | $2,319,756.45 |  |
| DSNG\_TB5 | STLTB\_66\_A | 2 | $2,235,524.50 |  |
| SDELLAR8 | LARDVN\_LASCRU1\_1 | 1 | $2,075,454.01 |  |
| MSGTSCH5 | HARGRO\_TWINBU1\_1 | 5 | $1,998,525.42 |  |
| DCONLNG5 | 6046\_\_A | 1 | $1,938,249.28 |  |
| DKG\_RTW5 | DQ\_NB\_67\_A | 1 | $1,888,508.93 |  |
| SGEOORN8 | ORNGROV\_69\_1 | 2 | $1,885,668.48 |  |
| SSGVTRC5 | 175\_\_A | 3 | $1,820,298.13 |  |
| SBWDDBM5 | LPLMK\_LPLNE\_1 | 3 | $1,745,142.85 |  |
| UIN2CTG1 | I\_DUPP\_I\_DUPS1\_1 | 1 | $1,737,071.78 |  |
| DBIGKEN5 | TREADW\_YELWJC1\_1 | 8 | $1,677,799.72 |  |
| DLONWEI8 | CALALS\_LON\_HI1\_1 | 2 | $1,647,605.36 |  |
| SBAKCED5 | 6056\_\_A | 6 | $1,643,944.77 |  |
| XBA2N89 | BANDER\_AT2 | 2 | $1,536,624.73 |  |
| DELMTEX5 | CKT\_3123\_1 | 1 | $1,505,656.40 |  |
| BASE CASE | PNHNDL | 12 | $1,489,729.15 |  |
| SCRDJON5 | 915\_\_E | 1 | $1,441,192.11 |  |
| BASE CASE | VALEXP | 25 | $1,385,434.12 | The Lower Rio Grande Valley (LRGV) System Enhancement Project (21RPG017) will improve the VALEXP GTC |
| XSEA89 | BELCNTY\_XFMR | 2 | $1,380,529.37 |  |
| XFOW58 | CATARI\_PILONC1\_1 | 8 | $1,365,993.08 | AEP\_TCC\_AshertontoPiloncillo138kVLine\_rebuild (73100) |
| BASE CASE | NE\_LOB | 15 | $1,327,250.94 | The Lower Rio Grande Valley (LRGV) System Enhancement Project (21RPG017) will improve the NE\_LOB GTC |
| SCO2EUL8 | COLETO\_ROSATA1\_1 | 1 | $1,290,730.11 |  |
| DMGSBIT5 | 6036\_\_A | 6 | $1,252,305.30 |  |
| DBIGKEN5 | HAMILT\_MAXWEL1\_1 | 11 | $1,220,825.09 |  |
| DBIGKEN5 | MADDUX\_TREADW1\_1 | 3 | $1,173,527.38 |  |
| SEL\_ARR8 | BLESSI\_PAVLOV1\_1 | 2 | $1,122,740.08 |  |
| MRESMCM8 | WHITE\_PT\_69A1 | 1 | $1,076,448.16 | AEP\_TCC\_UpdateWhitepoint138-69Auto (73166) |
| DNAVOUT5 | 40\_\_A | 1 | $1,062,487.51 |  |
| DMLSTYG5 | 960\_\_D | 2 | $1,034,462.93 |  |
| MFOWLOB5 | CATARI\_PILONC1\_1 | 9 | $919,451.90 | AEP\_TCC\_AshertontoPiloncillo138kVLine\_rebuild (73100) |
| SILLFTL8 | CARVER\_TINSLE1\_1 | 4 | $879,556.45 |  |
| SREVDIL8 | CATARI\_PILONC1\_1 | 5 | $804,849.19 | AEP\_TCC\_AshertontoPiloncillo138kVLine\_rebuild (73100) |
| DHUGWR\_8 | LANCTY\_LAN\_CT1\_1 | 3 | $760,975.83 |  |
| SNOECED5 | HARGRO\_TWINBU1\_1 | 4 | $742,968.58 |  |
| SBWDDBM5 | LPLNW\_LPLMD\_1 | 4 | $680,677.03 |  |
| MNEDPOM5 | FREER\_LOBO1\_1 | 6 | $630,462.11 |  |
| XBAL89 | CONCHO\_VRBS1\_1 | 8 | $527,833.87 |  |
| SILLFTL8 | HAMILT\_MAXWEL1\_1 | 4 | $508,271.17 |  |
| MHARNED5 | BURNS\_RIOHONDO\_1 | 8 | $499,246.31 | STEC\_71930\_RioHondo\_Burns\_Upgrade (71930), STEC\_71926\_Burns\_Heidelberg\_Upgrade (71926), STEC\_71928\_Heidelberg\_AEPWeslaco\_Upgrade (71928) |
| DBIGSCH5 | BAKRFLD\_CEDCAN\_1 | 5 | $496,572.28 |  |
| DNOECED5 | HARGRO\_TWINBU1\_1 | 4 | $427,866.54 |  |
| SCMNCPS5 | 651\_\_B | 5 | $365,205.98 |  |
| SBISMI5 | BI\_WAP50\_A | 6 | $349,636.24 |  |
| DBIGKEN5 | GANSO\_MAVERI1\_1 | 3 | $346,818.38 |  |
| SMADSAP8 | MADDUX\_SAPOWE2\_1 | 3 | $300,054.82 |  |
| DCONLNG5 | 6471\_\_C | 4 | $289,442.38 |  |
| MNOESGT5 | HARGRO\_TWINBU1\_1 | 6 | $283,129.71 |  |
| SBAKCED5 | CEDRHI\_SILT1\_1 | 4 | $254,763.77 |  |
| SOXYIN28 | I\_DUPP\_I\_DUPS1\_1 | 7 | $238,896.22 |  |
| SNWEWES8 | BURNS\_RIOHONDO\_1 | 3 | $236,059.21 | STEC\_71930\_RioHondo\_Burns\_Upgrade (71930), STEC\_71926\_Burns\_Heidelberg\_Upgrade (71926), STEC\_71928\_Heidelberg\_AEPWeslaco\_Upgrade (71928) |
| DSWECCR5 | 6036\_\_A | 3 | $231,962.85 |  |
| SFREGIL8 | FREDER\_AT2 | 5 | $229,003.78 |  |
| SPEBTRU8 | 940\_\_A | 3 | $215,739.84 |  |
| MFOWLOB5 | LARDVN\_LASCRU1\_1 | 3 | $204,398.17 |  |
| SKLELOY8 | LOYOLA\_69\_1 | 7 | $177,522.85 | STEC\_76816\_upgradeLoyolaAuto (76186) |
| SN\_SLON5 | N\_SHARPE\_XF1 | 7 | $161,683.28 |  |
| DELMSAN5 | BEEVIL\_NORMAN1\_1 | 3 | $159,940.43 |  |
| MNEDPM25 | DEL\_MA\_LAREDO1\_1 | 4 | $156,614.13 |  |
| SBRAPIN8 | HAMILT\_MAVERI1\_1 | 3 | $151,214.95 |  |
| XALM689 | ALMC\_T2 | 4 | $143,609.06 |  |
| SN\_SAJO5 | LASPUL\_RAYMND1\_1 | 3 | $142,319.30 |  |
| DCONLNG5 | 15060\_\_B | 5 | $138,765.45 |  |
| SBENS\_M8 | BENTS\_FRTER\_1C\_1 | 6 | $131,759.18 |  |
| BASE CASE | ZAPSTR | 9 | $128,800.12 |  |
| BASE CASE | NELRIO | 6 | $101,443.43 | The Lower Rio Grande Valley (LRGV) System Enhancement Project (21RPG017) will improve the NELRIO GTC |
| SDAFAUS8 | CKT\_1027\_1 | 3 | $95,289.71 |  |
| DFRIILL8 | HAMILT\_MAXWEL1\_1 | 3 | $80,444.86 |  |
| SMV\_RI28 | SCARBI\_STILLM1\_1 | 5 | $76,157.14 |  |
| SCRMSAR8 | CONCHO\_VRBS1\_1 | 4 | $69,109.94 |  |
| BASE CASE | TRDWEL | 4 | $48,871.08 |  |
| SREVDIL8 | ASHERT\_CATARI1\_1 | 3 | $40,872.15 |  |
| SVICCO28 | COLETO\_VICTOR2\_1 | 3 | $36,848.62 |  |
| SOAKNIC8 | NICOLE\_TENNYS1\_1 | 4 | $34,925.48 |  |
| MNEDPOM5 | DEL\_MA\_LAREDO1\_1 | 3 | $33,163.18 |  |
| DMTSCOS5 | 6437\_\_F | 5 | $27,265.45 |  |
| SMV\_RI28 | CP\_MVCNT\_1 | 3 | $6,311.81 |  |
| BASE CASE | RANDAD\_ZAPATA1\_1 | 3 | $298.20 |  |

## 

## Generic Transmission Constraint Congestion

There were 28 days congestion on Valley Export GTC, 20 days on North Edinburg to Lobo GTC, 16 days on Panhandle GTC, 13 days on West Texas Export GTC, 12 days on Nelson Sharpe to Rio Hondo GTC, 1 day on Hamilton GTC, 14 days on Zapata Starr GTC, 2 days on the McCamey GTC, and 5 days on Treadwell GTC. There was no activity on the remaining GTCs during the month.

Note: This is how many times a constraint has been activated to avoid exceeding a GTC limit, it does not imply an exceedance of the GTC occurred or that the GTC was binding.

## Manual Overrides

There were no overrides for the month of January.

## Congestion Costs for Calendar Year 2024

The following table represents the top twenty active constraints for the calendar year based on the estimated congestion rent attributed to the congestion. ERCOT updates this list on a monthly basis.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Contingency** | **Overloaded Element** | **# of 5-min SCED** | **Estimated Congestion Rent (2023)** | |
| Basecase | WESTEX GTC | 2003 | $13,526,410.17 |
| BAKERSFIELD SWITCHYARD to CEDAR CANYON LIN 1 | Hargrove - Twin Buttes 138kV | 2143 | $13,237,031.81 |
| HCKSW TO ALLNC 345 AND HCKSW TO RNKSW 345 DBLCKT | Eagle Mountain Ses 345kV | 439 | $11,753,026.97 |
| EVERMAN SWITCH TRX EVRSW\_4\_1 345/138 | Everman Switch 345kV | 386 | $11,447,643.03 |
| KENDALL to COMFORT LIN 1 | Kerrville Stadium - Kendall 138kV | 402 | $8,721,663.50 |
| COMAL to HENNE LIN 1 | Mccarty Lane - Zorn 138kV | 211 | $8,348,025.83 |
| KENEDSW - TULETA (138) & PETTUS - NORMANNA (69) | Coleto Creek - Rosata Tap 138kV | 513 | $6,071,941.17 |
| MVEC (RANGERVILLE) to LA PALMA LIN 1 | Stewart Road - Vertrees 138kV | 260 | $5,900,076.10 |
| CONSW-MGSES\_and\_CONSW-LNGSW\_345kV\_DBLCKT | Polecat Creek Switch - Dewey Lake Tap 138kV | 1854 | $5,822,181.97 |
| manual George West Switching Station TRX 69\_1 138/69 (outage on bkr 14164) | Orange Grove Switching Station 138kV | 392 | $5,671,797.70 |
| CIBOLO to MARION LIN 1 | Cibolo - Marion 138kV | 411 | $5,649,150.65 |
| FOWLRTON TO SAN MIGUEL DOUBLE CIRCUIT CONTINGENCY | Catarina - Piloncillo 138kV | 1077 | $5,407,698.75 |
| CEDAR CAYON to HIGH LONESOME LIN 1 | Hargrove - Twin Buttes 138kV | 1546 | $3,603,596.86 |
| MGSES TO CCRSW 345 AND BTRCK TO MGSES 345 DBLCKT | Tonkawa Switch - Morgan Creek Ses 345kV | 1288 | $3,046,739.91 |
| CONCORD TRX CRD1 345/138 | Concord 345kV | 107 | $3,026,485.56 |
| LON HILL to CALALLEN SUB LIN 1 | Calallen Sub - Lon Hill 69kV | 380 | $2,694,267.96 |
| FERGUSON to FERGUSON LIN 1 | Coronado 138kV | 468 | $2,520,419.98 |
| CONSW-MGSES\_and\_CONSW-LNGSW\_345kV\_DBLCKT | Lamesa - Jim Payne Poi 138kV | 1744 | $2,505,869.25 |
| FOWLERTON TRX FOWLRTON\_AUTO1 345/138 | Laredo Vft North - Las Cruces 138kV | 922 | $2,319,756.45 |
| Sng-Tb&Rns 345kV | Stone Lake - Tomball 138kV | 213 | $2,235,524.50 |

# System Events

## ERCOT Peak Load

The unofficial ERCOT peak load for the month was 78,314 MW and occurred on 01/16/2024, during hour ending 08:00.

## Load Shed Events

None.

## Stability Events

None.

## Notable PMU Events

ERCOT analyzes PMU data for any significant system disturbances that do not fall into the Frequency Events category reported in section 2.1. The results are summarized in this section once the analysis has been completed.

There were no PMU events outside of those reported in section 2.1.

## DC Tie Curtailment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Date** | **DC Tie** | **Curtailing Period** | **# of Tags Curtailed** | **Initiating Event** | **Curtailment Reason[[2]](#footnote-3),[[3]](#footnote-4)** |
| 1/12/2024 | DC\_E | 10:18 – 11:15: | 1 | Transmission Security Violation | DC-E was over scheduled and SPP not curtailing the Tie in a timely manner |

## TRE/DOE Reportable Events

* ERCOT Submitted a DOE-417 on 01/15/2024 for Emergency Event-Media Appeal
* ERCOT Submitted a DOE-417 on 01/16/2023 for Emergency Event-Media Appeal
* LCRA Submitted a DOE-417 on 01/23/2024 for Physical threat to its facility

## New/Updated Constraint Management Plans

There were two modified CMPs: MP\_2022\_02 Rev3 and MP\_2024\_01 Rev 1

There was one removed CMP: MP\_2023\_02

There was one new CMP: MP\_2024\_03

## New/Modified/Removed RAS

None.

## New Procedures/Forms/Operating Bulletins

None.

# Emergency Conditions

## OCNs

|  |  |
| --- | --- |
| **Date and Time** | **Message** |
| Jan 08, 2024 15:30 CPT | ERCOT issued an OCN for the predicted extreme cold weather event for the ERCOT Region Monday, January 15,2024 through Wednesday, January 17, 2024 |
| Jan 17, 2024 12:00 CPT | ERCOT issued an OCN for the predicted extreme cold weather event for the ERCOT Region Friday, January 19, 2024 through Sunday, January 21, 2024. |

## Advisories

|  |  |
| --- | --- |
| **Date and Time** | **Message** |
| Jan 11, 2024 09:30 CPT | ERCOT issued an Advisory for the predicted extreme cold weather event for the ERCOT Region Sunday, January 14, 2024 through Wednesday, January 17, 2024. |
| Jan 19, 2024 13:25 CPT | ERCOT issued an Advisory due to ERCOT’s Voltage Security Assessment Tool is currently unavailable. |

## Watches

|  |  |
| --- | --- |
| **Date and Time** | **Message** |
| Jan 13, 2024 12:00 CPT | At 12:00, ERCOT is issuing a Watch for the extreme cold weather system approaching the ERCOT Region with temperatures are expected to remain below freezing from Sunday, January 14, 2024 through Wednesday, January 17, 2024 |
| Jan 14, 2024 18:00 CPT | ERCOT issued a Watch for a projected reserve capacity shortage with no market solution available for Monday, January 15, 2024 HE 08 and HE 09, which causes a risk for an EEA event. |
| Jan 15, 2024 19:30 CPT | ERCOT issued a Watch for a projected reserve capacity shortage with no market solution available for Tuesday, January 16, 2024 For HE 08, which causes a risk for an EEA event. |

## Emergency Notices

|  |  |
| --- | --- |
| **Date and Time** | **Message** |
| Jan 15, 2024 02:30 CPT | ERCOT is issuing an Emergency Notice, the extreme cold weather system is beginning to have an adverse impact on the system such as frozen precipitation near the San Angelo area impacting generation resources. |

# Application Performance

## TSAT/VSAT Performance Issues

None

## Communication Issues

None.

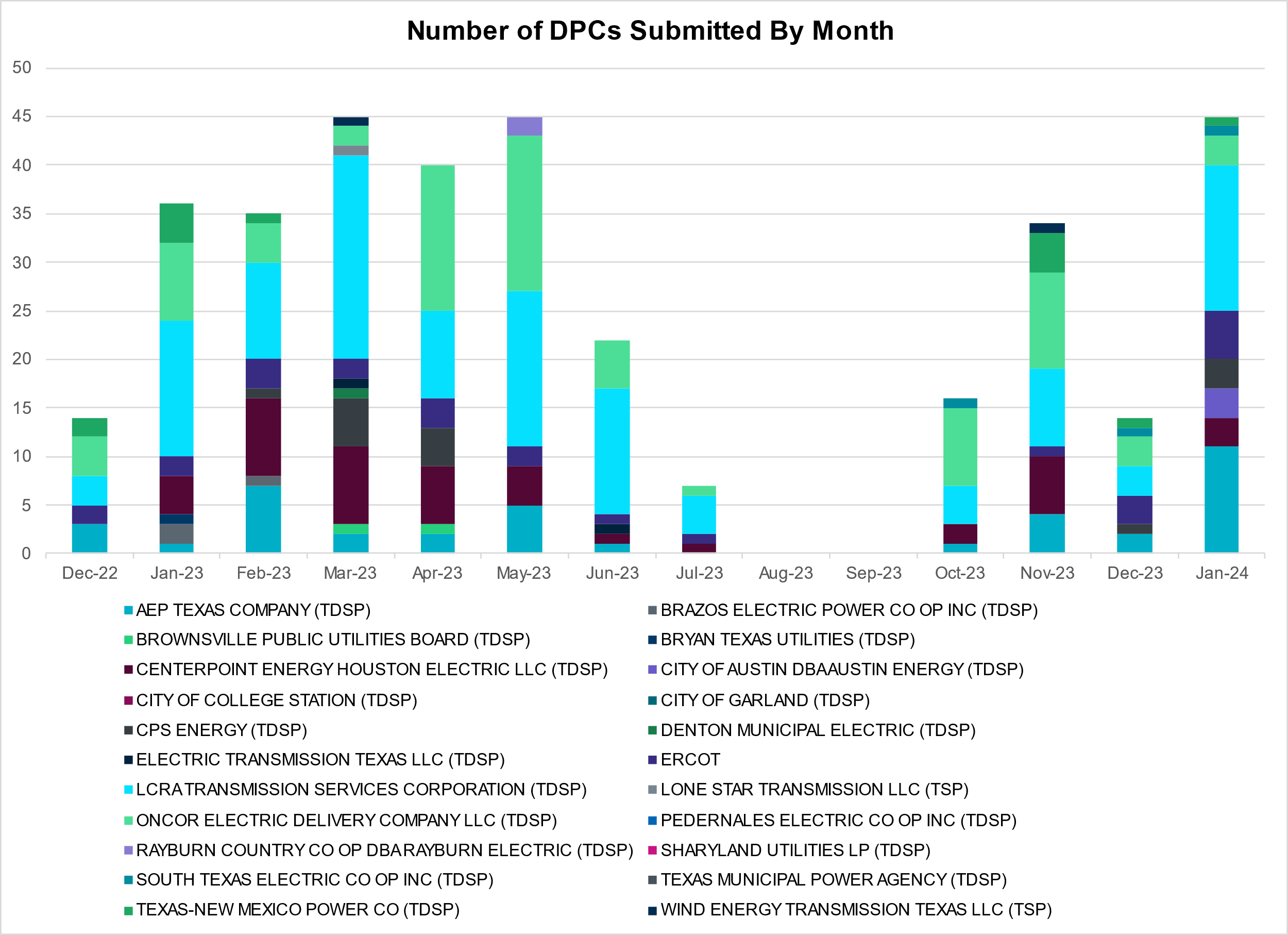
## Market System Issues

None.

# Model Updates

The Downstream Production Change (DPC) process allows ERCOT to make changes in the one-line Network Operations Model without loading a completely new model. The purpose of this process is to allow for reliable grid operations as system conditions change between designated Network Operations Model database loads. The DPC process is limited in scope to just those items listed below, with equipment ratings updates being the most common. ERCOT has seen a rise in the use of the DPC process to make on-line updates to the Network Operations Model in recent years, instead of through the standard Network Operations Model Change Request process.

* Static Line ratings (Interim Update)
* Dynamic Line ratings (non-Interim Update)
* Autotransformer ratings (non-Interim Update)
* Breaker and Switch Normal status (Interim Update)
* Contingency Definitions (Interim Update)
* RAP and RAS changes or additions (Interim Update)
* Net Dependable and Reactive Capability (NDCRC) values (Interim Update)
* Impedance Updates (non-Interim)



|  |  |
| --- | --- |
| **Transmission Operator** | **Number of DPCs** |
| AEP TEXAS COMPANY (TDSP) | 11 |
| BRAZOS ELECTRIC POWER CO OP INC (TDSP) | 0 |
| BROWNSVILLE PUBLIC UTILITIES BOARD (TDSP) | 0 |
| BRYAN TEXAS UTILITIES (TDSP) | 0 |
| CENTERPOINT ENERGY HOUSTON ELECTRIC LLC (TDSP) | 3 |
| CITY OF AUSTIN DBA AUSTIN ENERGY (TDSP) | 3 |
| CITY OF COLLEGE STATION (TDSP) | 0 |
| CITY OF GARLAND (TDSP) | 0 |
| CPS ENERGY (TDSP) | 3 |
| DENTON MUNICIPAL ELECTRIC (TDSP) | 0 |
| ELECTRIC TRANSMISSION TEXAS LLC (TDSP) | 0 |
| ERCOT | 5 |
| LCRA TRANSMISSION SERVICES CORPORATION (TDSP) | 15 |
| LONE STAR TRANSMISSION LLC (TSP) | 0 |
| ONCOR ELECTRIC DELIVERY COMPANY LLC (TDSP) | 3 |
| PEDERNALES ELECTRIC CO OP INC (TDSP) | 0 |
| RAYBURN COUNTRY CO OP DBA RAYBURN ELECTRIC (TDSP) | 0 |
| SHARYLAND UTILITIES LP (TDSP) | 0 |
| SOUTH TEXAS ELECTRIC CO OP INC (TDSP) | 1 |
| TEXAS MUNICIPAL POWER AGENCY (TDSP) | 0 |
| TEXAS-NEW MEXICO POWER CO (TDSP) | 1 |
| WIND ENERGY TRANSMISSION TEXAS LLC (TSP) | 0 |

# Appendix A: Real-Time Constraints

The following is a complete list of constraints activated in SCED. Full contingency descriptions can be found in the Standard Contingencies List located on the MIS secure site at Grid 🡪 Generation 🡪 Reliability Unit Commitment.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Year | Month of the Year | Contingency Name | Overloaded Element | From Station | To Station | Count of Days |  |
| 2024 | 1 | BASE CASE | VALEXP | n/a | n/a | 27 |  |
| 2024 | 1 | DMGSBTR5 | 6036\_\_A | TKWSW | MGSES | 21 |  |
| 2024 | 1 | SBAKCED5 | HARGRO\_TWINBU1\_1 | TWINBU | HARGROVE | 19 |  |
| 2024 | 1 | DMGSBIT5 | 6036\_\_A | TKWSW | MGSES | 19 |  |
| 2024 | 1 | BASE CASE | NE\_LOB | n/a | n/a | 19 |  |
| 2024 | 1 | SCEDHI\_5 | HARGRO\_TWINBU1\_1 | TWINBU | HARGROVE | 16 |  |
| 2024 | 1 | BASE CASE | PNHNDL | n/a | n/a | 15 |  |
| 2024 | 1 | DCONLNG5 | 14040\_\_A | PCTSW | DEWTP | 14 |  |
| 2024 | 1 | DCONLNG5 | 6095\_\_D | LMESA | JPPOI | 13 |  |
| 2024 | 1 | BASE CASE | ZAPSTR | n/a | n/a | 13 |  |
| 2024 | 1 | BASE CASE | WESTEX | n/a | n/a | 13 |  |
| 2024 | 1 | DSWECCR5 | 6036\_\_A | TKWSW | MGSES | 13 |  |
| 2024 | 1 | SKLELOY8 | LOYOLA\_69\_1 | LOYOLA | LOYOLA | 12 |  |
| 2024 | 1 | BASE CASE | NELRIO | n/a | n/a | 12 |  |
| 2024 | 1 | DBIGKEN5 | HAMILT\_MAXWEL1\_1 | MAXWELL | HAMILTON | 11 |  |
| 2024 | 1 | MFOWLOB5 | CATARI\_PILONC1\_1 | PILONCIL | CATARINA | 10 |  |
| 2024 | 1 | XFOW58 | CATARI\_PILONC1\_1 | PILONCIL | CATARINA | 10 |  |
| 2024 | 1 | MHARNED5 | BURNS\_RIOHONDO\_1 | RIOHONDO | MV\_BURNS | 10 |  |
| 2024 | 1 | SBAKCED5 | 6056\_\_A | LNGSW | CONSW | 10 |  |
| 2024 | 1 | MNOESGT5 | HARGRO\_TWINBU1\_1 | TWINBU | HARGROVE | 9 |  |
| 2024 | 1 | SBISMI5 | BI\_WAP50\_A | WAP | BI | 9 |  |
| 2024 | 1 | DBIGKEN5 | TREADW\_YELWJC1\_1 | TREADWEL | YELWJCKT | 9 |  |
| 2024 | 1 | MSGTSCH5 | HARGRO\_TWINBU1\_1 | TWINBU | HARGROVE | 9 |  |
| 2024 | 1 | DFOWSMG5 | CATARI\_PILONC1\_1 | PILONCIL | CATARINA | 9 |  |
| 2024 | 1 | DBIGSCH5 | BAKRFLD\_CEDCAN\_1 | CEDACA | BAKESW | 8 |  |
| 2024 | 1 | SN\_SAJO5 | LASPUL\_RAYMND1\_1 | LASPULGA | RAYMND2 | 8 |  |
| 2024 | 1 | SN\_SLON5 | N\_SHARPE\_XF1 | N\_SHARPE | N\_SHARPE | 8 |  |
| 2024 | 1 | SBENS\_M8 | BENTS\_FRTER\_1C\_1 | S\_MISSIN | RAILROAD | 8 |  |
| 2024 | 1 | XBAL89 | CONCHO\_VRBS1\_1 | CONCHO | VRBS | 8 |  |
| 2024 | 1 | SMV\_RI28 | SCARBI\_STILLM1\_1 | STILLMAN | SCARBIDE | 7 |  |
| 2024 | 1 | SOXYIN28 | I\_DUPP\_I\_DUPS1\_1 | I\_DUPP1 | I\_DUPSW | 7 |  |
| 2024 | 1 | SW\_GODE5 | 15060\_\_B | VEALMOOR | KOCHTAP | 7 |  |
| 2024 | 1 | DFRIILL8 | HAMILT\_MAXWEL1\_1 | MAXWELL | HAMILTON | 7 |  |
| 2024 | 1 | SMV\_RI28 | SCARBI\_STILLM1\_1 | SCARBIDE | STILLMAN | 7 |  |
| 2024 | 1 | DCONLNG5 | 6471\_\_C | MGSES | NAVIG | 7 |  |
| 2024 | 1 | DCONLNG5 | 15060\_\_B | VEALMOOR | KOCHTAP | 7 |  |
| 2024 | 1 | SFREGIL8 | FREDER\_AT2 | FREDER | FREDER | 7 |  |
| 2024 | 1 | MNEDPOM5 | FREER\_LOBO1\_1 | LOBO | FREER | 7 |  |
| 2024 | 1 | SBWDDBM5 | LPLNW\_LPLMD\_1 | LPLNW | LPLMD | 7 |  |
| 2024 | 1 | SCEDHI\_5 | 6056\_\_A | LNGSW | CONSW | 6 |  |
| 2024 | 1 | XFOW58 | LARDVN\_LASCRU1\_1 | LARDVNTH | LASCRUCE | 6 |  |
| 2024 | 1 | BASE CASE | RANDAD\_ZAPATA1\_1 | ZAPATA | RANDADO | 6 |  |
| 2024 | 1 | SSANFER8 | CORONA\_AT4 | CORONA | CORONA | 6 |  |
| 2024 | 1 | DNOECED5 | HARGRO\_TWINBU1\_1 | TWINBU | HARGROVE | 6 |  |
| 2024 | 1 | SCONMGS5 | 6056\_\_A | LNGSW | CONSW | 6 |  |
| 2024 | 1 | SILLFTL8 | HAMILT\_MAXWEL1\_1 | MAXWELL | HAMILTON | 6 |  |
| 2024 | 1 | SCMNCPS5 | 651\_\_B | CMNSW | CMNTP | 6 |  |
| 2024 | 1 | SNATBEA8 | 6144\_\_A | BSPRW | STASW | 6 |  |
| 2024 | 1 | DMTSCOS5 | 6437\_\_F | SCRCV | KNAPP | 6 |  |
| 2024 | 1 | SBAKCED5 | CEDRHI\_SILT1\_1 | CEDRHILL | SILT | 6 |  |
| 2024 | 1 | DELMSAN5 | BEEVIL\_NORMAN1\_1 | BEEVILLE | NORMANNA | 6 |  |
| 2024 | 1 | BASE CASE | RANDAD\_ZAPATA1\_1 | RANDADO | ZAPATA | 6 |  |
| 2024 | 1 | DBIGKEN5 | CARVER\_TINSLE1\_1 | CARVER | TINSLEY | 5 |  |
| 2024 | 1 | SMV\_PAR8 | RIOHND\_ERIOHND\_1 | MV\_RIOHO | RIOHONDO | 5 |  |
| 2024 | 1 | BASE CASE | TRDWEL | n/a | n/a | 5 |  |
| 2024 | 1 | SCOMKEN8 | 115T123\_1 | KENDAL | KERRST | 5 |  |
| 2024 | 1 | SBRAPIN8 | HAMILT\_MAVERI1\_1 | MAVERICK | HAMILTON | 5 |  |
| 2024 | 1 | MFOWLOB5 | LARDVN\_LASCRU1\_1 | LARDVNTH | LASCRUCE | 5 |  |
| 2024 | 1 | SCRMSAR8 | CONCHO\_VRBS1\_1 | CONCHO | VRBS | 5 |  |
| 2024 | 1 | MNEDPM25 | DEL\_MA\_LAREDO1\_1 | LAREDO | DEL\_MAR | 5 |  |
| 2024 | 1 | SBRAHAM8 | GANSO\_MAVERI1\_1 | GANSO | MAVERICK | 5 |  |
| 2024 | 1 | SFORYEL8 | HEXT\_YELWJC1\_1 | YELWJCKT | HEXT | 5 |  |
| 2024 | 1 | MRESMCM8 | RINCON\_WHITE\_2\_1 | RINCON | WHITE\_PT | 5 |  |
| 2024 | 1 | SBRAPIN8 | HAMILT\_MAVERI1\_1 | HAMILTON | MAVERICK | 5 |  |
| 2024 | 1 | SNOECED5 | HARGRO\_TWINBU1\_1 | TWINBU | HARGROVE | 5 |  |
| 2024 | 1 | SREVDIL8 | CATARI\_PILONC1\_1 | PILONCIL | CATARINA | 5 |  |
| 2024 | 1 | DKENNO89 | COLETO\_ROSATA1\_1 | COLETO | ROSATA | 5 |  |
| 2024 | 1 | SFORYEL8 | HEXT\_YELWJC1\_1 | HEXT | YELWJCKT | 5 |  |
| 2024 | 1 | MRESMCM8 | RINCON\_WHITE\_2\_1 | WHITE\_PT | RINCON | 5 |  |
| 2024 | 1 | SILLFTL8 | CARVER\_TINSLE1\_1 | CARVER | TINSLEY | 5 |  |
| 2024 | 1 | SBWDDBM5 | LPLMK\_LPLNE\_1 | LPLMK | LPLNE | 5 |  |
| 2024 | 1 | SOAKNIC8 | NICOLE\_TENNYS1\_1 | NICOLE | TENNYSON | 5 |  |
| 2024 | 1 | SBRAPIN8 | GANSO\_MAVERI1\_1 | GANSO | MAVERICK | 4 |  |
| 2024 | 1 | SFORYEL8 | HEXT\_MASONS1\_1 | HEXT | MASONSW | 4 |  |
| 2024 | 1 | XCAG158 | CAGNON\_MR4H | CAGNON | CAGNON | 4 |  |
| 2024 | 1 | SFORYEL8 | HEXT\_MASONS1\_1 | MASONSW | HEXT | 4 |  |
| 2024 | 1 | SSGVTRC5 | 175\_\_A | TRCNR | FORSW | 4 |  |
| 2024 | 1 | SREVDIL8 | ASHERT\_CATARI1\_1 | CATARINA | ASHERTON | 4 |  |
| 2024 | 1 | SMV\_RI28 | CP\_MVCNT\_1 | MV\_CNTRA | COFFPORT | 4 |  |
| 2024 | 1 | DFRIILL8 | CARVER\_TINSLE1\_1 | CARVER | TINSLEY | 4 |  |
| 2024 | 1 | SSTAPYO8 | 138\_IH2\_COT\_1 | IH20 | TNCOLIET | 4 |  |
| 2024 | 1 | SCARFRI8 | ATSO\_SONR1\_1 | SONR | ATSO | 4 |  |
| 2024 | 1 | SN\_SLON5 | LASPUL\_RAYMND1\_1 | LASPULGA | RAYMND2 | 4 |  |
| 2024 | 1 | SMADSAP8 | MADDUX\_SAPOWE2\_1 | SAPOWER | MADDUX | 4 |  |
| 2024 | 1 | SNOECED5 | 6056\_\_A | LNGSW | CONSW | 4 |  |
| 2024 | 1 | SDAFAUS8 | CKT\_1027\_1 | DUNLAP | DECKER | 4 |  |
| 2024 | 1 | SVICCO28 | COLETO\_VICTOR2\_1 | COLETO | VICTORIA | 4 |  |
| 2024 | 1 | DHCKRNK5 | EMSES\_AX2H | EMSES | EMSES | 4 |  |
| 2024 | 1 | DBIGKEN5 | MADDUX\_TREADW1\_1 | MADDUX | TREADWEL | 4 |  |
| 2024 | 1 | SMADSAP8 | MADDUX\_SAPOWE2\_1 | MADDUX | SAPOWER | 4 |  |
| 2024 | 1 | XALM689 | ALMC\_T2 | ALMC | ALMC | 4 |  |
| 2024 | 1 | SPEBTRU8 | 940\_\_A | ENWSW | TMPTN | 3 |  |
| 2024 | 1 | SBTPBNT8 | MYRA\_VAL\_1 | MYRA | VALYVIEW | 3 |  |
| 2024 | 1 | SCO2EUL8 | COLETO\_ROSATA1\_1 | COLETO | ROSATA | 3 |  |
| 2024 | 1 | SCOMHA38 | HAMILT\_MAXWEL1\_1 | MAXWELL | HAMILTON | 3 |  |
| 2024 | 1 | DFOWSMG5 | ASHERT\_CATARI1\_1 | ASHERTON | CATARINA | 3 |  |
| 2024 | 1 | DVICVI89 | COLETO\_VICTOR2\_1 | COLETO | VICTORIA | 3 |  |
| 2024 | 1 | MNEDPOM5 | DEL\_MA\_LAREDO1\_1 | LAREDO | DEL\_MAR | 3 |  |
| 2024 | 1 | SBENRAI8 | BENTS\_FRTER\_1C\_1 | S\_MISSIN | RAILROAD | 3 |  |
| 2024 | 1 | SNWEWES8 | BURNS\_RIOHONDO\_1 | RIOHONDO | MV\_BURNS | 3 |  |
| 2024 | 1 | DCONLNG5 | 6046\_\_A | MGSES | FLCNS | 3 |  |
| 2024 | 1 | SLANARR8 | BLESSI\_PAVLOV1\_1 | BLESSING | PAVLOV | 3 |  |
| 2024 | 1 | SROBLON9 | CALALS\_LON\_HI1\_1 | LON\_HILL | CALALS | 3 |  |
| 2024 | 1 | DCONLNG5 | RKYROAD\_STILES\_1 | RCKYROAD | STILES | 3 |  |
| 2024 | 1 | BASE CASE | T-103\_1 | NVAP\_138 | NVAP\_345 | 3 |  |
| 2024 | 1 | SCOCBAR9 | ALPINE\_BRONCO1\_1 | ALPINE | BRONCO | 3 |  |
| 2024 | 1 | SCOCBAR9 | ALPINE\_BRONCO1\_1 | BRONCO | ALPINE | 3 |  |
| 2024 | 1 | DSTPRED5 | BLESSI\_PAVLOV1\_1 | BLESSING | PAVLOV | 3 |  |
| 2024 | 1 | SEL\_ARR8 | BLESSI\_PAVLOV1\_1 | BLESSING | PAVLOV | 3 |  |
| 2024 | 1 | DCC3\_NED | BURNS\_RIOHONDO\_1 | RIOHONDO | MV\_BURNS | 3 |  |
| 2024 | 1 | XEV158 | EVRSW\_MR3H | EVRSW | EVRSW | 3 |  |
| 2024 | 1 | DHUGWR\_8 | LANCTY\_LAN\_CT1\_1 | LAN\_CTY | LANCTYPM | 3 |  |
| 2024 | 1 | SEL\_ARR8 | LAN\_CT\_PAVLOV1\_1 | PAVLOV | LAN\_CTY | 3 |  |
| 2024 | 1 | DSNG\_TB5 | STLTB\_66\_A | TB | STL | 3 |  |
| 2024 | 1 | BASE CASE | T-103\_1 | NVAP\_345 | NVAP\_138 | 3 |  |
| 2024 | 1 | DFOWSMG5 | ASHERT\_CATARI1\_1 | CATARINA | ASHERTON | 3 |  |
| 2024 | 1 | SBENRAI8 | BENTS\_FRTER\_1C\_1 | RAILROAD | S\_MISSIN | 3 |  |
| 2024 | 1 | DBIGKEN5 | GANSO\_MAVERI1\_1 | GANSO | MAVERICK | 3 |  |
| 2024 | 1 | SEBHUG8 | NAD\_ELCM\_1 | ELCMPOS | NADAS | 3 |  |
| 2024 | 1 | DSALTM58 | SEA\_AAT1 | SEA | SEA | 3 |  |
| 2024 | 1 | SCIBMAR8 | 705T705\_1 | MARION | CIBOLO | 3 |  |
| 2024 | 1 | SLANARR8 | LAN\_CT\_PAVLOV1\_1 | PAVLOV | LAN\_CTY | 3 |  |
| 2024 | 1 | SCO2EUL8 | BEEVIL\_NORMAN1\_1 | BEEVILLE | NORMANNA | 3 |  |
| 2024 | 1 | DMGSCON5 | 6471\_\_C | MGSES | NAVIG | 2 |  |
| 2024 | 1 | SBUNLON8 | CALALS\_LON\_HI1\_1 | LON\_HILL | CALALS | 2 |  |
| 2024 | 1 | DBIGKEN5 | ESCOND\_GANSO1\_1 | GANSO | ESCONDID | 2 |  |
| 2024 | 1 | SBAKCED5 | LVOK\_SANTIA1\_1 | SANTIAGO | LVOK | 2 |  |
| 2024 | 1 | SGEOORN8 | ORNGROV\_69\_1 | ORNGROV | ORNGROV | 2 |  |
| 2024 | 1 | SCOLBAL8 | SANA\_FMR1 | SANA | SANA | 2 |  |
| 2024 | 1 | SDESRDO8 | TRU\_UAT1 | TRU | TRU | 2 |  |
| 2024 | 1 | SFORYEL8 | YELWJCKT\_69T1 | YELWJCKT | YELWJCKT | 2 |  |
| 2024 | 1 | DNAVOUT5 | 40\_\_A | JEWET | BBSES | 2 |  |
| 2024 | 1 | DLEGOUT5 | 50\_\_A | JEWET | BBSES | 2 |  |
| 2024 | 1 | DZORHAY5 | BERGHE\_AT1H | BERGHE | BERGHE | 2 |  |
| 2024 | 1 | DCC1\_NED | BURNS\_RIOHONDO\_1 | RIOHONDO | MV\_BURNS | 2 |  |
| 2024 | 1 | SCEDHI\_5 | CEDRHI\_SILT1\_1 | CEDRHILL | SILT | 2 |  |
| 2024 | 1 | MPOMPRO5 | DEL\_MA\_LAREDO1\_1 | LAREDO | DEL\_MAR | 2 |  |
| 2024 | 1 | DVANEDN8 | LAN\_CT\_PAVLOV1\_1 | PAVLOV | LAN\_CTY | 2 |  |
| 2024 | 1 | DVICEDN8 | LOOP\_VICTORIA\_1 | VICTORIA | L\_463S | 2 |  |
| 2024 | 1 | SOBWAP5 | OB\_WAP98\_A | WAP | OB | 2 |  |
| 2024 | 1 | SHENCO28 | 97T205\_1 | ZORN | MCCALA | 2 |  |
| 2024 | 1 | DSTEXP12 | BLESSI\_LOLITA1\_1 | LOLITA | BLESSING | 2 |  |
| 2024 | 1 | XFOW58 | BRUNI\_69\_1 | BRUNI | BRUNI | 2 |  |
| 2024 | 1 | MWHILON5 | PAWNEE\_TANGO1\_1 | TANGO | PAWNEE | 2 |  |
| 2024 | 1 | SSTAWIC8 | 138\_IH2\_COT\_1 | IH20 | TNCOLIET | 2 |  |
| 2024 | 1 | DSCOTKW5 | 15060\_\_B | VEALMOOR | KOCHTAP | 2 |  |
| 2024 | 1 | DSGVTRC5 | 175\_\_A | TRCNR | FORSW | 2 |  |
| 2024 | 1 | DMLSTYG5 | 960\_\_D | JKSVL | BUPOI | 2 |  |
| 2024 | 1 | XSEA89 | BELCNTY\_XFMR | BELCNTY | BELCNTY | 2 |  |
| 2024 | 1 | DBUNTER8 | CALALS\_LON\_HI1\_1 | LON\_HILL | CALALS | 2 |  |
| 2024 | 1 | DLYTTUR8 | CKT\_943\_1 | LYTTON\_S | PILOT | 2 |  |
| 2024 | 1 | DKG\_RTW5 | DQ\_NB\_67\_A | NB | DQ | 2 |  |
| 2024 | 1 | DBIGKEN5 | ESCOND\_GANSO1\_1 | ESCONDID | GANSO | 2 |  |
| 2024 | 1 | SFORGIL8 | FRPHIL\_GILLES1\_1 | GILLES | FRPHILLT | 2 |  |
| 2024 | 1 | DCC3\_NED | WESLCO\_HIDLBRG\_1 | MV\_HBRG4 | MV\_WESL4 | 2 |  |
| 2024 | 1 | XARA89 | WHITE\_PT\_69A1 | WHITE\_PT | WHITE\_PT | 2 |  |
| 2024 | 1 | DTRSRCH5 | 1240\_\_E | FRFWS | FFD | 2 |  |
| 2024 | 1 | SLEABAN9 | BONDRO\_SONR1\_1 | SONR | BONDROAD | 2 |  |
| 2024 | 1 | SCOLBAL8 | CONAN\_SANA1\_1 | SANA\_TAP | CONAN | 2 |  |
| 2024 | 1 | DBIGSCH5 | HARGRO\_TWINBU1\_1 | TWINBU | HARGROVE | 2 |  |
| 2024 | 1 | DFOWSMG5 | LASCRU\_MILO1\_1 | LASCRUCE | MILO | 2 |  |
| 2024 | 1 | XFOW58 | LASCRU\_MILO1\_1 | LASCRUCE | MILO | 2 |  |
| 2024 | 1 | XTHO88 | NAD\_ELCM\_1 | ELCMPOS | NADAS | 2 |  |
| 2024 | 1 | MXGEO289 | ORNGROV\_69\_1 | ORNGROV | ORNGROV | 2 |  |
| 2024 | 1 | SWHILON5 | PAWNEE\_TANGO1\_1 | TANGO | PAWNEE | 2 |  |
| 2024 | 1 | SMVRLA\_8 | STEWAR\_VERTRE1\_1 | STEWART | VERTREES | 2 |  |
| 2024 | 1 | DFL\_MAR8 | STLTB\_66\_A | TB | STL | 2 |  |
| 2024 | 1 | MPEAMOO8 | UVALDE\_W\_BATE1\_1 | W\_BATESV | UVALDE | 2 |  |
| 2024 | 1 | SDIMBEV8 | UVALDE\_W\_BATE1\_1 | W\_BATESV | UVALDE | 2 |  |
| 2024 | 1 | XOLS89 | WNTSP\_FMR2 | WNTSP | WNTSP | 2 |  |
| 2024 | 1 | SFREGIL8 | 226T287\_1 | LIVEOA | GOEHTA | 2 |  |
| 2024 | 1 | DNAVOUT5 | 50\_\_A | JEWET | BBSES | 2 |  |
| 2024 | 1 | MSTPANS5 | BLESSI\_LOLITA1\_1 | BLESSING | LOLITA | 2 |  |
| 2024 | 1 | DBIGKEN5 | BONDRO\_SONR1\_1 | SONR | BONDROAD | 2 |  |
| 2024 | 1 | SBONNED5 | BURNS\_RIOHONDO\_1 | RIOHONDO | MV\_BURNS | 2 |  |
| 2024 | 1 | SBUNLON8 | CAL\_ROBS\_1 | CALALS | ROBSTOS | 2 |  |
| 2024 | 1 | SSONCAR9 | FDR\_OZNC\_1 | FRIEND\_R | OZNC | 2 |  |
| 2024 | 1 | DBIGKEN5 | HAMILT\_MAVERI1\_1 | MAVERICK | HAMILTON | 2 |  |
| 2024 | 1 | XSPU89 | HAMLIN\_PLST1\_1 | HAMLIN | PLST | 2 |  |
| 2024 | 1 | SBAKCED5 | HARGRO\_PUMPJA1\_1 | HARGROVE | PUMPJACK | 2 |  |
| 2024 | 1 | DFOWSMG5 | LARDVN\_LASCRU1\_1 | LARDVNTH | LASCRUCE | 2 |  |
| 2024 | 1 | DHWIND89 | MORRIS\_NUECES1\_1 | NUECES\_B | MORRIS | 2 |  |
| 2024 | 1 | SFREGIL8 | 226T287\_1 | GOEHTA | LIVEOA | 2 |  |
| 2024 | 1 | DLEGOUT5 | 40\_\_A | JEWET | BBSES | 2 |  |
| 2024 | 1 | DNOECED5 | 6056\_\_A | LNGSW | CONSW | 2 |  |
| 2024 | 1 | DCONLNG5 | BAKRFLD\_CEDCAN\_1 | CEDACA | BAKESW | 2 |  |
| 2024 | 1 | XBA2N89 | BANDER\_AT2 | BANDER | BANDER | 2 |  |
| 2024 | 1 | XNED258 | BURNS\_RIOHONDO\_1 | RIOHONDO | MV\_BURNS | 2 |  |
| 2024 | 1 | DLONWEI8 | CALALS\_LON\_HI1\_1 | LON\_HILL | CALALS | 2 |  |
| 2024 | 1 | MPOMPRO5 | FREER\_LOBO1\_1 | LOBO | FREER | 2 |  |
| 2024 | 1 | DBIGKEN5 | HAMILT\_MAVERI1\_1 | HAMILTON | MAVERICK | 2 |  |
| 2024 | 1 | BASE CASE | HAMILT\_MAXWEL1\_1 | MAXWELL | HAMILTON | 2 |  |
| 2024 | 1 | DNOECED5 | HARGRO\_PUMPJA1\_1 | HARGROVE | PUMPJACK | 2 |  |
| 2024 | 1 | SN\_SLON5 | HOLLY4\_SERDEV1\_1 | HOLLY4 | HOLLY4 | 2 |  |
| 2024 | 1 | DNORCAS8 | LCRANE\_RIOPEC1\_1 | RIOPECOS | LCRANE | 2 |  |
| 2024 | 1 | XVIC89 | MAGRUD\_VICTOR2\_1 | VICTORIA | MAGRUDER | 2 |  |
| 2024 | 1 | BASE CASE | MCCAMY | n/a | n/a | 2 |  |
| 2024 | 1 | DLOBCEN5 | PAWNEE\_TANGO1\_1 | TANGO | PAWNEE | 2 |  |
| 2024 | 1 | XBLE58 | SAR\_FRAN\_1 | FRANKC | SARGNTS | 2 |  |
| 2024 | 1 | DSALHUT5 | 1710\_\_C | BELCNTY | SALSW | 2 |  |
| 2024 | 1 | SBEEPOE9 | BEEVIL\_POESTA1\_1 | POESTA | BEEVILLE | 2 |  |
| 2024 | 1 | DZORHAY5 | BERGHE\_AT1L | BERGHE | BERGHE | 2 |  |
| 2024 | 1 | SVICCOL8 | COLETO\_VICTOR1\_1 | COLETO | VICTORIA | 2 |  |
| 2024 | 1 | SDI2DIL9 | DILLEYSW\_69A1 | DILLEYSW | DILLEYSW | 2 |  |
| 2024 | 1 | DCONLNG5 | HARGRO\_TWINBU1\_1 | TWINBU | HARGROVE | 2 |  |
| 2024 | 1 | DSTPRED5 | LAN\_CT\_PAVLOV1\_1 | PAVLOV | LAN\_CTY | 2 |  |
| 2024 | 1 | SDBMFID5 | LPLHY\_LPLDB\_1 | LPLDB | LPLHY | 2 |  |
| 2024 | 1 | SFORYEL8 | MASNPH\_MASN1\_1 | MASN | MASNPHT | 2 |  |
| 2024 | 1 | DCHBJO25 | CBY\_AT3 | CBY | CBY | 1 |  |
| 2024 | 1 | SHLJSTP5 | CKT\_3124\_1 | STP | HLJ | 1 |  |
| 2024 | 1 | SBRAHAM8 | HAMILT\_MAVERI1\_1 | HAMILTON | MAVERICK | 1 |  |
| 2024 | 1 | MNEDPM25 | LASCRU\_MILO1\_1 | LASCRUCE | MILO | 1 |  |
| 2024 | 1 | MNEDPOM5 | LASCRU\_MILO1\_1 | LASCRUCE | MILO | 1 |  |
| 2024 | 1 | SBWDDBM5 | LPLNE\_LPLDB\_1 | LPLNE | LPLDB | 1 |  |
| 2024 | 1 | MNEDPM25 | MINES\_\_NLARSW1\_1 | MINES\_RD | NLARSW | 1 |  |
| 2024 | 1 | SJMCW\_D8 | WD\_RDWELLS\_1 | W\_DENT | RDWELLS | 1 |  |
| 2024 | 1 | MNEDPM25 | NLARSW\_PILONC1\_1 | NLARSW | PILONCIL | 1 |  |
| 2024 | 1 | SNWEWES8 | WES\_MV\_W\_1 | WESLACO | MV\_WESL4 | 1 |  |
| 2024 | 1 | SCRDJON5 | 915\_\_E | CMBSW | DCDAM | 1 |  |
| 2024 | 1 | XALM589 | ALMC\_69T1 | ALMC | ALMC | 1 |  |
| 2024 | 1 | XFTS89 | ALPINE\_BRONCO1\_1 | BRONCO | ALPINE | 1 |  |
| 2024 | 1 | SS\_MRAI8 | BENTSE\_S\_MCAL1\_1 | S\_MCALLN | BENTSEN | 1 |  |
| 2024 | 1 | DKOCNUE8 | CHAMPL\_WEIL\_T1\_1 | WEIL\_TRC | CHAMPLIN | 1 |  |
| 2024 | 1 | XUVA189 | CHAPAR\_LAPRYO1\_1 | CHAPARRO | LAPRYOR | 1 |  |
| 2024 | 1 | SBRAPIN8 | ESCOND\_GANSO1\_1 | GANSO | ESCONDID | 1 |  |
| 2024 | 1 | SBIGV\_D8 | GREENL\_WEAVER1\_1 | WEAVERRD | GREENLK | 1 |  |
| 2024 | 1 | DTWIDIV5 | HARGRO\_TWINBU1\_1 | TWINBU | HARGROVE | 1 |  |
| 2024 | 1 | SCABWES8 | HOLLY4\_WESTSI1\_1 | HOLLY4 | WESTSIDE | 1 |  |
| 2024 | 1 | MNEDPM25 | LARDVN\_LASCRU1\_1 | LARDVNTH | LASCRUCE | 1 |  |
| 2024 | 1 | SKELLA\_8 | LASPUL\_RAYMND1\_1 | LASPULGA | RAYMND2 | 1 |  |
| 2024 | 1 | BASE CASE | LV1ABL\_1 | LV1 | RIOHONDO | 1 |  |
| 2024 | 1 | BASE CASE | LV2L\_1 | LV2 | LV1 | 1 |  |
| 2024 | 1 | SFIRWY28 | NAAMA\_WALNU\_1 | WALNUT1 | NAAMAN | 1 |  |
| 2024 | 1 | DELMSAN5 | PAWNEE\_SPRUCE\_1 | PAWNEE | CALAVERS | 1 |  |
| 2024 | 1 | XFOW58 | PAWNEE\_TANGO1\_1 | TANGO | PAWNEE | 1 |  |
| 2024 | 1 | SFORYEL8 | YELWJCKT\_69T2 | YELWJCKT | YELWJCKT | 1 |  |
| 2024 | 1 | DHUTGEA8 | 1710\_\_C | BELCNTY | SALSW | 1 |  |
| 2024 | 1 | SRRDLCS5 | 235\_\_A | SJNSW | JEWET | 1 |  |
| 2024 | 1 | SBCESND5 | 421\_\_A | BCESW | SNDSW | 1 |  |
| 2024 | 1 | SFREKEN8 | 635T635\_1 | SHERSH | BUBORA | 1 |  |
| 2024 | 1 | SL\_4VIC8 | ALO\_WAR\_1 | WARBURTN | ALOES | 1 |  |
| 2024 | 1 | XCAR89 | ATSO\_SONR1\_1 | ATSO | SONR | 1 |  |
| 2024 | 1 | MANGWHI5 | BLESSI\_LOLITA1\_1 | LOLITA | BLESSING | 1 |  |
| 2024 | 1 | MNEDPM15 | CATARI\_PILONC1\_1 | PILONCIL | CATARINA | 1 |  |
| 2024 | 1 | SDIMBEV8 | CHAPAR\_TURTLC1\_1 | TURTLCRK | CHAPARRO | 1 |  |
| 2024 | 1 | SLAQLOB8 | FALFUR\_PREMON1\_1 | FALFUR | PREMONT | 1 |  |
| 2024 | 1 | DCABRO58 | GARZA\_69A1 | GARZA | GARZA | 1 |  |
| 2024 | 1 | SI\_DI\_48 | I\_DUPP\_I\_DUPS2\_1 | I\_DUPP1 | I\_DUPSW | 1 |  |
| 2024 | 1 | DBLHJWF5 | JCKREF27\_A | REF | JCK | 1 |  |
| 2024 | 1 | DBIGSCH5 | PALOUS\_WOLFCA1\_1 | PALOUSE | WOLFCAMP | 1 |  |
| 2024 | 1 | MANGWHI5 | PAWNEE\_TANGO1\_1 | TANGO | PAWNEE | 1 |  |
| 2024 | 1 | MRESMCM8 | WHITE\_PT\_69A1 | WHITE\_PT | WHITE\_PT | 1 |  |
| 2024 | 1 | SOLSBOS8 | WNTSP\_FMR2 | WNTSP | WNTSP | 1 |  |
| 2024 | 1 | DFER\_WI8 | 37T187\_1 | FERGUS | SHERSH | 1 |  |
| 2024 | 1 | DGILFR89 | 37T187\_1 | FERGUS | SHERSH | 1 |  |
| 2024 | 1 | SFERSHE8 | 72T120\_1 | HOLLMI | KENDAL | 1 |  |
| 2024 | 1 | XCAR89 | ATSO\_OZNC1\_1 | OZNC | ATSO | 1 |  |
| 2024 | 1 | DMCOPHA8 | AZTECA\_HEC1\_1 | HEC | AZTECA | 1 |  |
| 2024 | 1 | DVICDUP8 | BIGTRE\_V\_DUPS1\_1 | V\_DUPSW | BIGTRE | 1 |  |
| 2024 | 1 | BASE CASE | BURNS\_RIOHONDO\_1 | RIOHONDO | MV\_BURNS | 1 |  |
| 2024 | 1 | SCALPL8 | CAL\_PL\_5\_1 | PL | PL | 1 |  |
| 2024 | 1 | SCOMHA38 | CARVER\_TINSLE1\_1 | CARVER | TINSLEY | 1 |  |
| 2024 | 1 | MNEDPM25 | CATARI\_PILONC1\_1 | PILONCIL | CATARINA | 1 |  |
| 2024 | 1 | SCOLPAW5 | COLETO\_ROSATA1\_1 | COLETO | ROSATA | 1 |  |
| 2024 | 1 | SPAWCAL5 | COLETO\_ROSATA1\_1 | COLETO | ROSATA | 1 |  |
| 2024 | 1 | DBIGKEN5 | FRIR\_ROCKSP1\_1 | FRIR | ROCKSPRS | 1 |  |
| 2024 | 1 | SGAFGRN8 | G138\_14\_1 | FRWYPARK | DICKNSON | 1 |  |
| 2024 | 1 | BASE CASE | HAMILTON\_PS2 | HAMILTON | HAMILTON | 1 |  |
| 2024 | 1 | MFOWLOB5 | LASCRU\_MILO1\_1 | LASCRUCE | MILO | 1 |  |
| 2024 | 1 | SN\_SAJO5 | LOYOLA\_69\_1 | LOYOLA | LOYOLA | 1 |  |
| 2024 | 1 | SNOECED5 | LVOK\_SANTIA1\_1 | SANTIAGO | LVOK | 1 |  |
| 2024 | 1 | BASE CASE | RIOHND\_ERIOHND\_1 | MV\_RIOHO | RIOHONDO | 1 |  |
| 2024 | 1 | SBUNLON8 | SND\_ORAN\_1 | ORNGROV | SNDIEGS | 1 |  |
| 2024 | 1 | XPEA89 | UVALDE\_W\_BATE1\_1 | W\_BATESV | UVALDE | 1 |  |
| 2024 | 1 | DGILFR89 | 27T635\_1 | BUBORA | CORONA | 1 |  |
| 2024 | 1 | DSALKLN5 | 630\_\_B | KLNSW | HHSTH | 1 |  |
| 2024 | 1 | XBAR89 | ALMC\_T2 | ALMC | ALMC | 1 |  |
| 2024 | 1 | MFOWLOB5 | ASHERT\_CATARI1\_1 | CATARINA | ASHERTON | 1 |  |
| 2024 | 1 | MRESMCM8 | BIGTRE\_V\_DUPS1\_1 | V\_DUPSW | BIGTRE | 1 |  |
| 2024 | 1 | SLAQLOB8 | BRUNI\_69\_1 | BRUNI | BRUNI | 1 |  |
| 2024 | 1 | SARYYUC8 | 6573\_\_A | ARYSW | WINKS | 1 |  |
| 2024 | 1 | SSCLWF18 | 6840\_\_B | NVKSW | ANARN | 1 |  |
| 2024 | 1 | DFERGRM8 | 72T120\_1 | HOLLMI | KENDAL | 1 |  |
| 2024 | 1 | MNEDPM15 | ASHERT\_CATARI1\_1 | CATARINA | ASHERTON | 1 |  |
| 2024 | 1 | XFOW58 | ASHERT\_CATARI1\_1 | ASHERTON | CATARINA | 1 |  |
| 2024 | 1 | SSONCAR9 | ATSO\_SONR1\_1 | ATSO | SONR | 1 |  |
| 2024 | 1 | SBROALP9 | BELD\_BRONCO1\_1 | BRONCO | BELD | 1 |  |
| 2024 | 1 | DSWELNC5 | BLUF\_C\_MULBER1\_1 | BLUF\_CRK | MULBERRY | 1 |  |
| 2024 | 1 | DHCKRNK5 | EMSES\_AX2L | EMSES | EMSES | 1 |  |
| 2024 | 1 | DBLBYWF5 | JCKREF27\_A | REF | JCK | 1 |  |
| 2024 | 1 | DMYKPA\_8 | JFSSC\_06\_A | JFS | SC | 1 |  |
| 2024 | 1 | SOLSBOS8 | LKWHITNY\_IAT1 | LKWHITNY | LKWHITNY | 1 |  |
| 2024 | 1 | XFOW58 | NLARSW\_PILONC1\_1 | NLARSW | PILONCIL | 1 |  |
| 2024 | 1 | DSKYCAL5 | R5\_U3\_1 | BRAUNIG | CAGNON | 1 |  |
| 2024 | 1 | XSPU89 | ROBY\_ROTN1\_1 | ROBY | ROTN | 1 |  |
| 2024 | 1 | DBIGKEN5 | YELWJCKT\_PS\_1 | YELWJCKT | YELWJCKT | 1 |  |
| 2024 | 1 | DFORCN85 | 200\_\_A | FORSW | RYSSW | 1 |  |
| 2024 | 1 | DFERGRM8 | 73T120\_1 | FREDER | HOLLMI | 1 |  |
| 2024 | 1 | SMARALM9 | ALMC\_PAIS1\_1 | PAIS | ALMC | 1 |  |
| 2024 | 1 | SDANBLE8 | BLESSING\_69A1 | BLESSING | BLESSING | 1 |  |
| 2024 | 1 | DVANEDN8 | BLESSI\_PAVLOV1\_1 | BLESSING | PAVLOV | 1 |  |
| 2024 | 1 | SCBEDYN8 | BLESSI\_PAVLOV1\_1 | BLESSING | PAVLOV | 1 |  |
| 2024 | 1 | DBIGKEN5 | BONDRO\_FRIR1\_1 | BONDROAD | FRIR | 1 |  |
| 2024 | 1 | DELMTEX5 | CKT\_3123\_1 | HLJ | HOLMAN | 1 |  |
| 2024 | 1 | SKINFAL8 | FALFUR\_PREMON1\_1 | FALFUR | PREMONT | 1 |  |
| 2024 | 1 | MJOSPO89 | FORMOS\_LOLITA1\_1 | FORMOSA | LOLITA | 1 |  |
| 2024 | 1 | SRAYRI38 | HAINE\_\_LA\_PAL1\_1 | LA\_PALMA | HAINE\_DR | 1 |  |
| 2024 | 1 | MRESMCM8 | INGLES\_I\_DUPS1\_1 | I\_DUPSW | INGLESID | 1 |  |
| 2024 | 1 | SSPJFS8 | JFSSC\_06\_A | JFS | SC | 1 |  |
| 2024 | 1 | SEBHUG8 | LANCTY\_LAN\_CT1\_1 | LAN\_CTY | LANCTYPM | 1 |  |
| 2024 | 1 | MNEDPOM5 | LARDVN\_LASCRU1\_1 | LARDVNTH | LASCRUCE | 1 |  |
| 2024 | 1 | SCEDHI\_5 | LVOK\_SANTIA1\_1 | SANTIAGO | LVOK | 1 |  |
| 2024 | 1 | SPLUMUL8 | MAGRUD\_VICTOR2\_1 | VICTORIA | MAGRUDER | 1 |  |
| 2024 | 1 | SHOLHLJ5 | NAD\_ELCM\_1 | ELCMPOS | NADAS | 1 |  |
| 2024 | 1 | DMCCHIL8 | 106T200\_1 | REDWOO | SANMAR | 1 |  |
| 2024 | 1 | DAUSDUN8 | 211T147\_1 | GILLCR | MCNEIL\_ | 1 |  |
| 2024 | 1 | DFERHOR8 | 37T187\_1 | FERGUS | SHERSH | 1 |  |
| 2024 | 1 | DCONLNG5 | 6045\_\_A | FLCNS | MDLNE | 1 |  |
| 2024 | 1 | DSALKLN5 | 610\_\_B | TMPSW | TMPSE | 1 |  |
| 2024 | 1 | SBARSOL8 | ALMC\_T2 | ALMC | ALMC | 1 |  |
| 2024 | 1 | MSTPANS5 | BLESSI\_PALACI1\_1 | BLESSING | PALACIOS | 1 |  |
| 2024 | 1 | MNEDPOM5 | CATARI\_PILONC1\_1 | PILONCIL | CATARINA | 1 |  |
| 2024 | 1 | DSTPHLJ5 | CKT\_3124\_1 | STP | HLJ | 1 |  |
| 2024 | 1 | SSPUASP8 | DKEC\_GIRA\_T1\_1 | DKEC | GIRA\_TAP | 1 |  |
| 2024 | 1 | UIN2CTG1 | I\_DUPP\_I\_DUPS1\_1 | I\_DUPSW | I\_DUPP1 | 1 |  |
| 2024 | 1 | MHARNED5 | LASPUL\_RAYMND1\_1 | LASPULGA | RAYMND2 | 1 |  |
| 2024 | 1 | MWHILON5 | NCARBI\_SEADRF1\_1 | NCARBIDE | SEADRFTC | 1 |  |
| 2024 | 1 | SBLESTP5 | SAR\_FRAN\_1 | FRANKC | SARGNTS | 1 |  |
| 2024 | 1 | SBTPBNT8 | SPR\_VALY\_1 | VALYVIEW | SPR | 1 |  |
| 2024 | 1 | MWHILON5 | BLESSI\_LOLITA1\_1 | LOLITA | BLESSING | 1 |  |
| 2024 | 1 | DCC4\_NED | BURNS\_RIOHONDO\_1 | RIOHONDO | MV\_BURNS | 1 |  |
| 2024 | 1 | XCRD58 | CRD\_CRD2 | CRD | CRD | 1 |  |
| 2024 | 1 | DCONLNG5 | CRTVLE\_EINSTEN\_1 | EINSTEIN | CRTRVLLE | 1 |  |
| 2024 | 1 | SBAKCED5 | ESCOND\_GANSO1\_1 | ESCONDID | GANSO | 1 |  |
| 2024 | 1 | XEV158 | EVRSW\_MR3L | EVRSW | EVRSW | 1 |  |
| 2024 | 1 | XBLE58 | FRANKC\_69\_1 | FRANKC | FRANKC | 1 |  |
| 2024 | 1 | MNEDPM25 | FREER\_LOBO1\_1 | LOBO | FREER | 1 |  |
| 2024 | 1 | MRARGA58 | GARZA\_69A1 | GARZA | GARZA | 1 |  |
| 2024 | 1 | SADALA28 | HLD\_FMR1 | HLD | HLD | 1 |  |
| 2024 | 1 | BASE CASE | HMLTN | n/a | n/a | 1 |  |
| 2024 | 1 | BASE CASE | I\_DUPP\_I\_DUPS2\_1 | I\_DUPP1 | I\_DUPSW | 1 |  |
| 2024 | 1 | SDELLAR8 | LARDVN\_LASCRU1\_1 | LARDVNTH | LASCRUCE | 1 |  |
| 2024 | 1 | SMULFLA8 | MAGRUD\_VICTOR2\_1 | VICTORIA | MAGRUDER | 1 |  |
| 2024 | 1 | SODLBRA8 | MAXWEL\_WHITIN1\_1 | MAXWELL | WHITING | 1 |  |

1. Current Wind Generation Record: 27,548 MW on 01/07/2024 at 18:42 | Current Wind Penetration Record: 69.15% on 04/10/2022 at 01:43

   Current Solar Generation Record: 15,222 MW on 01/28/2024 at 10:09 | Current Solar Penetration Record: 36.11% on 01/28/2024 at 15:10 [↑](#footnote-ref-2)
2. All DC Tie Curtailments are posted publicly on the ERCOT Market Information System. See that posting for additional details for the event(s) in question. [↑](#footnote-ref-3)
3. See DC Tie Operating Procedure (<http://www.ercot.com/mktrules/guides/procedures>) for more details. [↑](#footnote-ref-4)