

April 2024 ERCOT Monthly Operations Report

Reliability and Operations Subcommittee Meeting

June 06, 2024

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# Report Highlights

* The unofficial ERCOT peak demand was 63,997 MW for the month of April on 4/30/2024 HE 18:00; this is 3,0002 MW more than the April 2023 peak demand of 60,995 MW on 04/03/2023.
* There were 3 frequency events.
* There were 2 ERCOT Contingency Reserve Service (ECRS) events.
* There was no instance where Responsive Reserve Service (RRS) was deployed.
* There were no DC Tie curtailments.
* There were 51 HRUC commitments.
* There were 2 AAN’s Issued due to a possible future Emergency Condition of reserve capacity deficiency.
* There was 1 Advisory issued due to ERCOTs Voltage Security Assessment Tool is currently unavailable.
* There was 1 Advisory issued for a geomagnetic disturbance of [K-7] until [04/19/2024 19:00].
* There was 1 Watch due to the failure of the SCED process.

|  |  |  |
| --- | --- | --- |
|  | GTC | Days Congestion |
|  | North Edinburg to Lobo | 27 |
|  | Zapata Starr | 25 |
|  | Panhandle GTC | 24 |
|  | West Texas Export | 21 |
|  | E\_PATA | 20 |
|  | Nelson Sharpe to Rio Hondo | 19 |
|  | Valley Export | 13 |
|  | E\_PASP | 12 |
|  | North to Houston | 10 |
|  | Wharton County | 9 |
|  | Hamilton | 8 |
|  | Culberson | 5 |
|  | East Texas | 4 |
|  | I\_KALO | 2 |
|  | I\_PASP | 1 |
|  | McCamey | 1 |

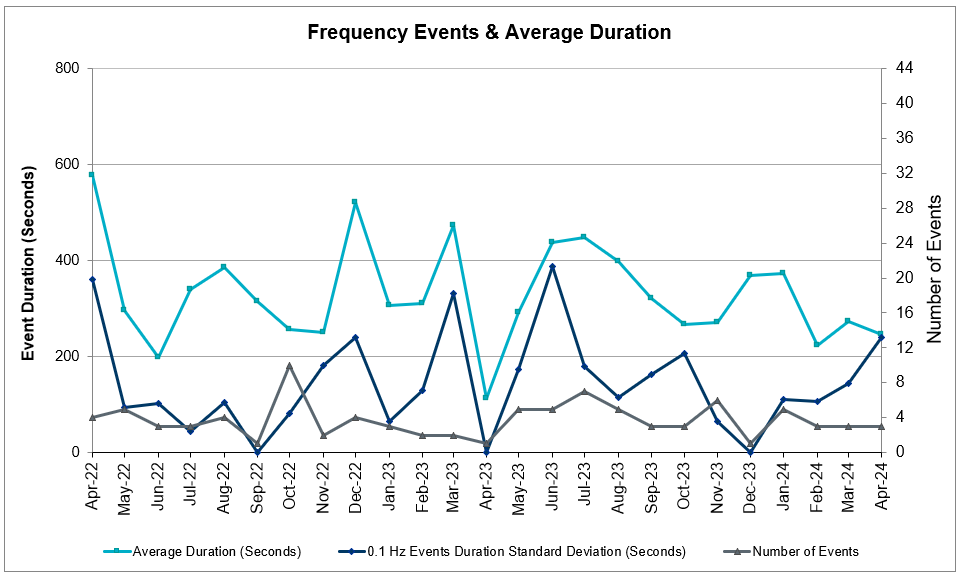
# Frequency Control

## Frequency Events

The ERCOT Interconnection experienced 3 frequency events, which resulted from units tripping. The average event duration was 00:04:06.

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)** | **%** | **(MW-s)** |
| 4/8/2024 22:29:11 | 0.082 | 59.940 | 00:01:33 | 0.68 | 10% | 472 | 49,143 | 37% | 223,554 |
| 4/10/2024 20:55:09 | 0.092 | 59.918 | 00:08:42 | 0.87 | 15% | 556 | 46,662 | 30% | 217,373 |
| 4/13/2024 18:05:09 | 0.071 | 59.931 | 00:02:03 | 0.67 | 11% | 419 | 51,347 | 65% | 180,507 |



(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 |
| 4/16/2024 19:58 | 4/16/2024 20:32 | 0:34:24 | 200 | Insufficient Capacity for projected netload ramp |
| 4/28/2024 19:47 | 4/28/2024 21:10 | 1:23:24 | 1200 | Insufficient Capacity for projected netload ramp |

## 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.

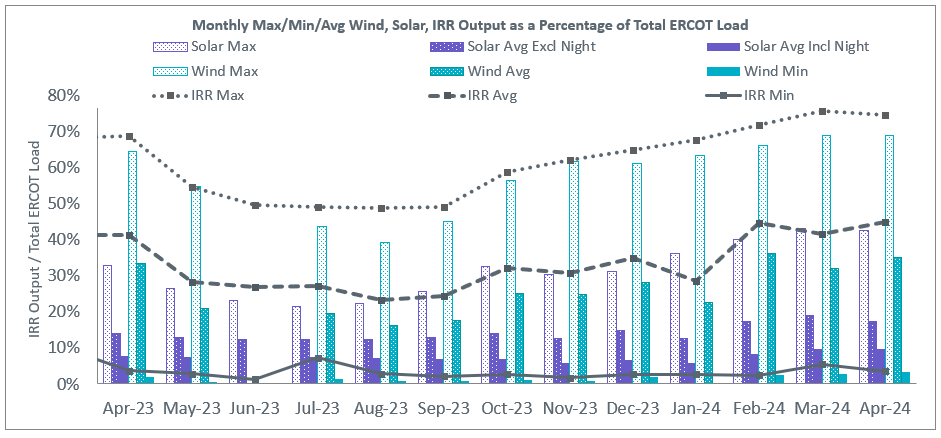
There were no DRUC commitments.

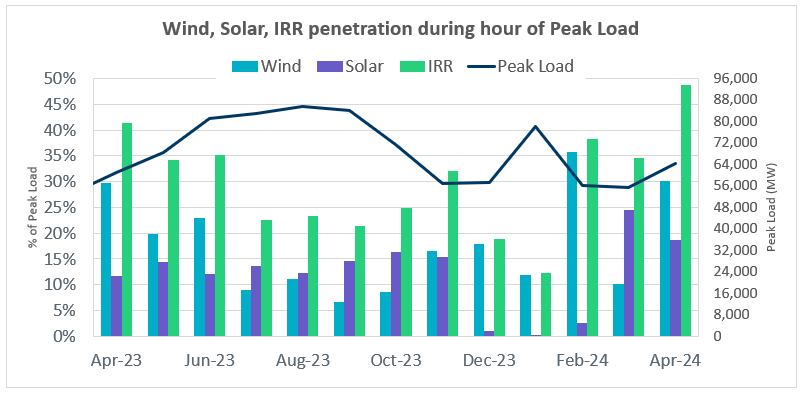
There were 56 HRUC commitments.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Resource Location** | **# of Resources** | **Operating Day** | **Total # of Hours Committed** | **Total MWhs** | **Reason for Commitment** |
| COAST, NORTH\_CENTRAL, SOUTHERN | 7 | April 3, 2024 | 36 | 4,537.0 | capacity |
| EAST, NORTH\_CENTRAL | 5 | April 4, 2024 | 12 | 4,906.0 | capacity |
| COAST, EAST, NORTH\_CENTRAL, SOUTH\_CENTRAL | 7 | April 7, 2024 | 28 | 13,971.5 | Capacity |
| COAST, EAST, NORTH\_CENTRAL, SOUTH\_CENTRAL, SOUTHERN, WEST | 8 | April 8, 2024 | 98 | 46,009.2 | Capacity, Minimum Run Time |
| COAST, NORTH\_CENTRAL | 2 | April 9, 2024 | 31 | 17,224.0 | To meet minimum runtime requirement |
| COAST | 1 | April 10, 2024 | 24 | 15,768.0 | To meet minimum runtime requirement |
| COAST, NORTH\_CENTRAL, SOUTH\_CENTRAL | 6 | April 11, 2024 | 54 | 25,486.0 | Capacity, To meet minimum runtime requirement |
| COAST, NORTH\_CENTRAL | 3 | April 12, 2024 | 57 | 27,393.0 | To meet minimum runtime requirement |
| NORTH\_CENTRAL | 1 | April 13, 2024 | 7 | 1,456.0 | To Meet Minimum Run Time |
| COAST | 8 | April 16, 2024 | 10 | 1,074.0 | OSA |
| COAST | 1 | April 17, 2024 |  |  | OSA |
| NORTH\_CENTRAL | 1 | April 26, 2024 | 3 | 1,569.0 | Capacity |
| NORTH | 1 | April 28, 2024 | 1 | 38.0 | Capacity |

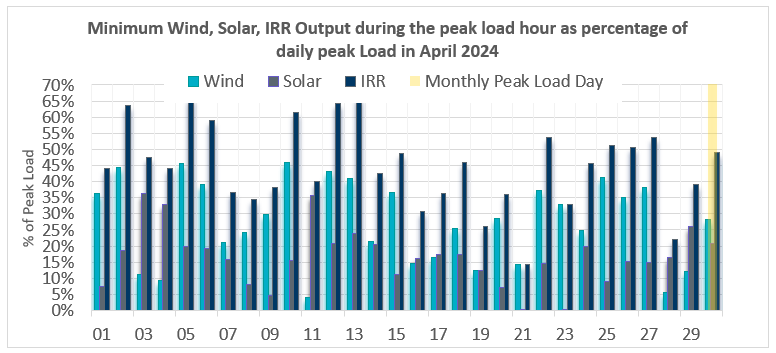
# IRR, Wind, and Solar Generation as a Percent of Load

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 74.51% on 04/05/2024 interval ending 12:50 and minimum IRR penetration for the month was 3.50% on 04/03/2024 interval ending 20:30.



During the hour of peak load for the month, hourly integrated wind generation was 19,398 MW and solar generation was 11,992 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 April 2024 was 1,418 MW, 2,720 MW, 3,640 MW, 6,769 MW, and 12,282 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** |
| Apr-14 | 796 MW | 1,358 MW | 1,868 MW | 3,445 MW | 6,274 MW |
| Apr-15 | 835 MW | 1,482 MW | 1,985 MW | 3,216 MW | 5,330 MW |
| Apr-16 | 1,183 MW | 1,666 MW | 2,394 MW | 3,804 MW | 5,101 MW |
| Apr-17 | 914 MW | 1,492 MW | 2,315 MW | 3,779 MW | 6,385 MW |
| Apr-18 | 947 MW | 1,366 MW | 1,710 MW | 3,303 MW | 5,030 MW |
| Apr-19 | 1,147 MW | 1,778 MW | 1,866 MW | 2,866 MW | 4,856 MW |
| Apr-20 | 1,189 MW | 1,655 MW | 1,578 MW | 2,773 MW | 4,948 MW |
| Apr-21 | 1,414 MW | 1,664 MW | 1,967 MW | 2,874 MW | 4,860 MW |
| Apr-22 | 1,218 MW | 1,594 MW | 2,179 MW | 4,191 MW | 7,851 MW |
| Apr-23 | 1,282 MW | 2,452 MW | 3,583 MW | 6,640 MW | 12,352 MW |
| Apr-24 | 1,418 MW | 2,720 MW | 3,640 MW | 6,769 MW | 12,282 MW |
| 4/8/2024 | 4/8/2024 | 4/8/2024 | 4/3/2024 | 4/3/2024 |
| (IE 13:09) | (IE 13:10) | (IE 13:14) | (IE 19:06) | (IE 19:17) |
| All Months in 2014-2024 | 1,722 MW | 3,107 MW | 4,588 MW | 8,901 MW | 16,522 MW |
| 1/29/2024 | 1/29/2024 | 1/29/2024 | 1/29/2024 | 1/29/2024 |
| (IE 17:02) | (IE 17:05) | (IE 17:10) | (IE 17:11) | (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** | **Contingency Name** | **Overloaded Element** | **# of Days Constraint Binding** | **Congestion Rent** | **Transmission Project** |
|  |
| BASE CASE | WESTEX | Basecase | WESTEX GTC | 17 | $15,852,605.84 |  |  |
| DMGSBTR5 | 6036\_\_A | MGSES TO CCRSW 345 AND BTRCK TO MGSES 345 DBLCKT | Tonkawa Switch - Morgan Creek Ses 345kV | 9 | $12,867,942.18 |  |  |
| DSALKLN5 | 630\_\_B | SALSW TO KLNSW 345 DBLCKT | Harker Heights South - Killeen Switch 138kV | 15 | $9,836,734.81 |  |  |
| BASE CASE | NE\_LOB | Basecase | NE\_LOB GTC | 23 | $7,406,838.39 | The Lower Rio Grande Valley (LRGV) System Enhancement Project (21RPG017) will improve the NorthEd\_Lobo GTC to support up to 80% of total wind and solar generation capacity in the LRGV area. |  |
| BASE CASE | PNHNDL | Basecase | PNHNDL GTC | 20 | $6,517,505.69 |  |  |
| SBWDDBM5 | LPLNW\_LPLMD\_1 | BLACKWATER DRAW SWITCH to DOUBLE MOUNTAIN SWITCH LIN 1 | Northwest Substation - Mcdonald Substation 115kV | 10 | $5,990,870.88 |  |  |
| XFOW58 | LARDVN\_LASCRU1\_1 | FOWLERTON TRX FOWLRTON\_AUTO1 345/138 | Laredo Vft North - Las Cruces 138kV | 22 | $5,989,549.87 |  |  |
| MDTMBEL5 | PRY\_PRY1 | MANUAL DOUBLE TMPCR - THSES AND TMPSW - BLFSW 345 KV DBCKT | Perry 138kV | 8 | $5,823,941.65 |  |  |
| XNED89 | BURNS\_RIOHONDO\_1 | NORTH EDINBURG TRX 69A1 138/69 | Burns Sub - Rio Hondo 138kV | 7 | $5,798,112.02 |  |  |
| MXWHI89 | HECKER\_WHITE\_2\_1 | WHITEPOINT TRX 69A1 138/69 | Hecker - Whitepoint 138kV | 20 | $3,649,351.15 |  |  |
| XBOM58 | 6558\_\_B | BOWMAN SWITCH TRX BOMSW\_3\_1 345/138 | Fisher Road Switch - Wichita Falls 138kV | 4 | $3,242,918.66 |  |  |
| BASE CASE | E\_PATA | Basecase | E\_PATA GTC | 15 | $2,914,048.66 |  |  |
| DMGSBIT5 | 6036\_\_A | CCRSW TO SWESW 345 AND BTRCK TO MGSES 345 DBLCKT | Tonkawa Switch - Morgan Creek Ses 345kV | 6 | $2,760,309.80 | Oncor\_FW\_Rockhound - Connell 345 kV Double-Circuit Line (24RPG002, 73436) |  |
| DBIGSCH5 | BAKRFLD\_CEDCAN\_1 | Big Hill - Schneeman Draw & Big Hill - Schneeman Draw 2 | Cedar Canyon - Bakersfield 345kV | 12 | $2,637,692.57 | STEC\_63497\_BakersfieldToCedarCanyon (21RPG001, 63497) |  |
| DCC3\_NED | BURNS\_RIOHONDO\_1 | Loss of NEDIN train | Burns Sub - Rio Hondo 138kV | 6 | $2,450,547.48 | STEC\_71930\_RioHondo\_Burns\_Upgrade (71930), STEC\_71926\_Burns\_Heidelberg\_Upgrade (71926), STEC\_71928\_Heidelberg\_AEPWeslaco\_Upgrade (71928) |  |
| DCONLNG5 | 6046\_\_A | CONSW-MGSES\_and\_CONSW-LNGSW\_345kV\_DBLCKT | Falcon Seaboard - Morgan Creek Ses 345kV | 11 | $2,418,448.93 |  |  |
| MHARNED5 | BURNS\_RIOHONDO\_1 | Manual dbl ckt for NEDIN-BONILLA 345kV & RIOH-PRIM138kV | Burns Sub - Rio Hondo 138kV | 21 | $2,413,381.91 | STEC\_71930\_RioHondo\_Burns\_Upgrade (71930), STEC\_71926\_Burns\_Heidelberg\_Upgrade (71926), STEC\_71928\_Heidelberg\_AEPWeslaco\_Upgrade (71928) |  |
| SBAKCED5 | 6056\_\_A | BAKERSFIELD SWITCHYARD to CEDAR CANYON LIN 1 | Longshore Switch - Consavvy Switch 345kV | 11 | $2,127,653.44 | Oncor\_FW\_81268\_Longshore – Consavvy 345 kV Double-Circuit Line Rebuild (23RPG029, 81268) |  |
| SN\_SLON5 | N\_SHARPE\_XF1 | LON HILL to NELSON SHARPE LIN 1 | Nelson Sharpe 345kV | 17 | $1,881,841.07 |  |  |
| SNEDSTE5 | BURNS\_RIOHONDO\_1 | NORTH EDINBURG to NORTH EDINBURG LIN 1 | Burns Sub - Rio Hondo 138kV | 1 | $1,750,665.39 |  |  |
| SSASSA28 | SAPOWER\_69T1 | SAN ANGELO SOUTHLAND HILLS to SAN ANGELO COLLEGE HILLS LIN 1 | San Angelo Power Station 138kV | 3 | $1,474,687.14 |  |  |
| MFOWLOB5 | LARDVN\_LASCRU1\_1 | manual FOWL RTON to LOBO 345 KV | Laredo Vft North - Las Cruces 138kV | 9 | $1,445,605.56 |  |  |
| SBWDDBM5 | LPLMK\_LPLNE\_1 | BLACKWATER DRAW SWITCH to DOUBLE MOUNTAIN SWITCH LIN 1 | Mackenzie Substation - Northeast Substation 115kV | 6 | $1,388,575.03 |  |  |
| DSALHUT5 | 1710\_\_C | SALSW - HUTTO 345KV | Bell County - Salado Switch 138kV | 2 | $1,316,296.62 |  |  |
| DLWSRNK5 | 587\_\_A | LWSSW TO RNKSW AND LWSSW TO KRWSW 345 DBLCKT | Argyle - Highlands Tnp 138kV | 8 | $1,229,820.41 |  |  |
| SDELLAR8 | LARDVN\_LASCRU1\_1 | DEL MAR to DEL MAR LIN 1 | Laredo Vft North - Las Cruces 138kV | 4 | $1,183,649.91 |  |  |
| BASE CASE | WHARTN | Basecase | WHARTN GTC | 9 | $1,126,693.69 |  |  |
| SMGPBRN8 | 670\_\_A | BROWNWOOD SWITCH to MERCERS GAP SW LIN \_A | Brownwood - Brownwood South 138kV | 3 | $1,115,458.87 |  |  |
| MFOWLOB5 | CATARI\_PILONC1\_1 | manual FOWL RTON to LOBO 345 KV | Catarina - Piloncillo 138kV | 5 | $1,109,207.68 | AEP\_TCC\_AshertontoPiloncillo138kVLine\_rebuild (73100) |  |
| BASE CASE | ZAPSTR | Basecase | ZAPSTR GTC | 24 | $1,105,241.59 |  |  |
| MHARNED5 | HAINE\_\_LA\_PAL1\_1 | Manual dbl ckt for NEDIN-BONILLA 345kV & RIOH-PRIM138kV | Haine Drive - La Palma 138kV | 18 | $895,882.90 |  |  |
| BASE CASE | N\_TO\_H | Basecase | N\_TO\_H GTC | 7 | $838,224.49 |  |  |
| MPEAMOO8 | PEARSALL\_69\_4 | manual PEARSALL to MOORE 138 KV (PRIOR TO PEARSALL\_HORIZ.1 LINE ENERGIZATION) | Pearsall Switching Station 138kV | 27 | $772,287.44 |  |  |
| SMDOPHR5 | G138\_10B\_1 | MEADOW to PH ROBINSON LIN A | Magnolia Tnp - Seminole Tnp 138kV | 6 | $754,559.32 |  |  |
| BASE CASE | E\_PASP | Basecase | E\_PASP GTC | 5 | $638,602.20 |  |  |
| DSALHUT5 | 270\_\_A | SALSW - HUTTO 345KV | Temple Switch - Knob Creek Switch 345kV | 8 | $543,424.34 |  |  |
| SSHKCRI8 | 940\_\_A | ENNIS to ENNIS LIN 1 | Ennis West Switch - Templeton 138kV | 6 | $532,384.93 | Oncor\_ME\_71156\_Ennis West Switch-Waxahachie Switch 138 kV Line (71156) |  |
| SECRDMT8 | 6215\_\_A | Dermott Switch to Dermott Switch LIN \_A | Bluff Creek Switch - China Grove Switch 138kV | 4 | $469,076.24 |  |  |
| SFORYEL8 | HEXT\_YELWJC1\_1 | FORT MASON to FORT MASON LIN 1 | Yellow Jacket - Hext Lcra 69kV | 15 | $467,732.95 |  |  |
| DMTSCOS5 | 6235\_\_A | DMTSW TO SCOSW 345 DBLCKT | China Grove Switch - Snyder 138kV | 3 | $460,359.90 |  |  |
| SMV\_RI28 | CP\_MVCNT\_1 | EAST RIO HONDO SUB to EAST RIO HONDO SUB LIN 1 | Coffeeport - Central Avenue Sub 138kV | 16 | $454,839.63 |  |  |
| SBAKCED5 | HARGRO\_TWINBU1\_1 | BAKERSFIELD SWITCHYARD to CEDAR CANYON LIN 1 | Hargrove - Twin Buttes 138kV | 5 | $425,865.06 |  |  |
| SBTPBNT8 | MYRA\_VAL\_1 | BENNETT ROAD SWITCH to WISE COUNTY LIN \_B | Myra - Valley View Bepc 138kV | 6 | $421,140.47 | BEPC\_TPIT4645\_MYRA\_SPRING (4645) |  |
| SSAMTH35 | 505\_\_B | SAM SWITCH to SAM SWITCH LIN \_A | Tradinghouse Ses - Four Brothers Switch 345kV | 5 | $398,816.09 |  |  |
| SAIRNCA8 | REFUG\_VICTO\_1C\_1 | NORTH CARBIDE to AIRCO AEP LIN 1 | Oconnor - Victoria 69kV | 5 | $372,450.18 |  |  |
| SWHILON5 | BLESSI\_LOLITA1\_1 | LON HILL to WHITEPOINT LIN 1 | Blessing - Lolita 138kV | 8 | $348,052.09 |  |  |
| DWLFMOS5 | 6520\_\_E | WLFSW-MOSSW 345&WLFSW-ODEHV 345\_\_\_\_TRPLCKT-1of3 | Odessa Ehv Switch - Yarbrough Sub 138kV | 4 | $347,993.40 |  |  |
| DCONLNG5 | RKYROAD\_STILES\_1 | CONSW-MGSES\_and\_CONSW-LNGSW\_345kV\_DBLCKT | Rocky Road - Stiles 138kV | 3 | $316,289.80 |  |  |
| SWIRJOH8 | 55T207\_1 | WIRTZ to JOHNSON CITY LIN 1 | Gillespie - Wolf Creek 138kV | 4 | $279,030.69 |  |  |
| SBCESN35 | 431\_\_A | BELL COUNTY EAST SWITCH to BELL COUNTY EAST SWITCH LIN \_A | Sandow Switch - Bell County East Switch 345kV | 3 | $272,576.72 |  |  |
| DFOWSMG5 | CATARI\_PILONC1\_1 | FOWLRTON TO SAN MIGUEL DOUBLE CIRCUIT CONTINGENCY | Catarina - Piloncillo 138kV | 3 | $217,321.58 | AEP\_TCC\_AshertontoPiloncillo138kVLine\_rebuild (73100) |  |
| DSCOTKW5 | 6215\_\_A | SCOSW TO TKWSW 345 DBLCKT | Bluff Creek Switch - China Grove Switch 138kV | 3 | $211,279.11 |  |  |
| DBIGKEN5 | HAMILT\_MAXWEL1\_1 | Bighil-Kendal 345kV | Hamilton Road - Maxwell 138kV | 14 | $202,541.16 |  |  |
| DAUSDUN8 | MCN\_MCN\_1 | Austro-Daffin&Dunlap-Decker 138kV | Mcneil - Mcneil Aen 138kV | 4 | $198,986.02 |  |  |
| SBRAPIN8 | HAMILT\_MAVERI1\_1 | BRACKETTVILLE to BRACKETTVILLE LIN 1 | Hamilton Road - Maverick 138kV | 18 | $197,811.18 | AEP\_TCC\_Ganso - Hamilton Road 138 kV Line Rebuild (22RPG044, 55626) |  |
| DCC1\_VIC | COLETO\_VICTOR2\_1 | VICTORIA CC1 Train | Coleto Creek - Victoria 138kV | 6 | $193,716.68 |  |  |
| SWILJA28 | JACKCNTY\_BLSRA\_1 | JACK COUNTY to WILLOW LIN 1 | Jack County - Balsora 138kV | 5 | $172,006.69 |  |  |
| MMDOOAS5 | MSNPET04\_A | MANUAL MEADOW to OASIS CKT 99 LIN A | Monsan Cogen - Petson 138kV | 5 | $169,955.93 |  |  |
| MNEDPOM5 | LARDVN\_LASCRU1\_1 | Double Manual NORTH EDINBURG TO POMELO LIN 1&2 345 kV | Laredo Vft North - Las Cruces 138kV | 6 | $151,309.80 |  |  |
| SCMNCPS5 | 651\_\_B | COMANCHE SWITCH (Oncor) to COMANCHE PEAK SES LIN \_A | Comanche Tap - Comanche Switch (Oncor) 138kV | 3 | $139,819.44 |  |  |
| SFORYEL8 | HEXT\_MASONS1\_1 | FORT MASON to FORT MASON LIN 1 | Mason Switching Station - Hext Lcra 69kV | 3 | $138,626.26 |  |  |
| SLAQLOB8 | BRUNI\_69\_1 | LAQUINTA to LOBO LIN 1 | Bruni Sub 138kV | 6 | $123,158.40 |  |  |
| SENWTMP8 | TRU\_UAT1 | ENNIS WEST SWITCH to TEMPLETON LIN \_B | Trumbull 138kV | 3 | $123,139.06 |  |  |
| MPEAMOO8 | POT\_PEAR\_1 | manual PEARSALL to MOORE 138 KV (PRIOR TO PEARSALL\_HORIZ.1 LINE ENERGIZATION) | Poteet Sub - Pearsall Switching Station 69kV | 5 | $114,307.68 |  |  |
| DFOWSMG5 | LARDVN\_LASCRU1\_1 | FOWLRTON TO SAN MIGUEL DOUBLE CIRCUIT CONTINGENCY | Laredo Vft North - Las Cruces 138kV | 4 | $103,222.75 |  |  |
| DMTSCOS5 | 6437\_\_F | DMTSW TO SCOSW 345 DBLCKT | Knapp - Scurry Chevron 138kV | 5 | $103,024.42 |  |  |
| DCAGCO58 | 656T656\_1 | Cagnon-Kendal 345 & Cico-Comfor 138 | Bergheim - Kendall 345kV | 3 | $99,846.55 |  |  |
| SLCSTH25 | 505\_\_B | LAKE CREEK SES to LAKE CREEK SES LIN \_A | Tradinghouse Ses - Four Brothers Switch 345kV | 3 | $99,544.59 |  |  |
| DBIGSCH5 | PALOUS\_WOLFCA1\_1 | Big Hill - Schneeman Draw & Big Hill - Schneeman Draw 2 | Palouse - Wolfcamp 138kV | 9 | $97,904.97 |  |  |
| DALVWIS8 | MYRA\_VAL\_1 | ALVRD TO WSIECNTY 138 AND CHICW TO BNTSW 138 DBLCKT | Myra - Valley View Bepc 138kV | 3 | $90,445.88 | BEPC\_TPIT4645\_MYRA\_SPRING (4645) |  |
| SN\_SAJO5 | LASPUL\_RAYMND1\_1 | AJO to AJO LIN 1 | Las Pulgas - Raymondville 2 138kV | 10 | $90,324.41 |  |  |
| DWLDSCO5 | 15060\_\_B | LONG DRAW-FARADAY& SCOSW 345kV | Koch Tap - Vealmoor 138kV | 5 | $89,403.88 |  |  |
| BASE CASE | CULBSN | Basecase | CULBSN GTC | 4 | $89,040.86 |  |  |
| DJACALV8 | MYRA\_VAL\_1 | JACKCNTY TO BOW 138 AND WISECNTY TO ALVRD 138 DBLCKT | Myra - Valley View Bepc 138kV | 3 | $88,572.93 | BEPC\_TPIT4645\_MYRA\_SPRING (4645) |  |
| SHAYZO25 | 6T227\_1 | HAYS ENERGY to ZORN LIN 1 | Zorn - Hays Energy 345kV | 4 | $81,660.37 |  |  |
| DDILCOT8 | DILLEYSW\_69A1 | Dilleysw-Sanmgsw&Cotulas 138kV | Dilley Switch Aep 138kV | 5 | $54,685.31 |  |  |
| BASE CASE | NELRIO | Basecase | NELRIO GTC | 12 | $49,824.90 | The Lower Rio Grande Valley (LRGV) System Enhancement Project (21RPG017) will improve the NELRIO GTC to support up to 80% of total wind and solar generation capacity in the LRGV area. |  |
| XFOW58 | CATARI\_PILONC1\_1 | FOWLERTON TRX FOWLRTON\_AUTO1 345/138 | Catarina - Piloncillo 138kV | 4 | $47,324.62 | AEP\_TCC\_AshertontoPiloncillo138kVLine\_rebuild (73100) |  |
| SCARFRI8 | ATSO\_SONR1\_1 | Carver to Carver LIN 1 | Atlantic Sonora - Sonora 69kV | 4 | $36,329.81 |  |  |
| BASE CASE | VALEXP | Basecase | VALEXP GTC | 11 | $34,458.99 | The Lower Rio Grande Valley (LRGV) System Enhancement Project (21RPG017) will improve but not eliminate the need for this GTC. |  |
| BASE CASE | T-315\_1 | Basecase | Mhos - Jade Solar 345kV | 5 | $29,003.47 |  |  |
| SWIRJOH8 | 57T207\_1 | WIRTZ to JOHNSON CITY LIN 1 | Kerrville Stadium - Wolf Creek 138kV | 3 | $28,527.73 |  |  |
| MANGWHP5 | BLESSI\_LOLITA1\_1 | Manual from ANGSTROM to WHITE\_PT 345 kv Update | Blessing - Lolita 138kV | 3 | $24,488.06 |  |  |
| BASE CASE | HMLTN | Basecase | HMLTN GTC | 7 | $22,613.76 |  |  |
| SBCESND5 | 421\_\_A | BELL COUNTY EAST SWITCH to BELL COUNTY EAST SWITCH LIN \_A | Sandow Switch - Bell County East Switch 345kV | 3 | $21,043.49 |  |  |
| XFTS89 | ALPINE\_BRONCO1\_1 | FORT STOCKTON PLANT TRX 69T1 138/69 | Alpine - Bronco 69kV | 8 | $17,691.97 |  |  |
| XFOW58 | ASHERT\_CATARI1\_1 | FOWLERTON TRX FOWLRTON\_AUTO1 345/138 | Asherton - Catarina 138kV | 3 | $16,790.06 | AEP\_TCC\_AshertontoPiloncillo138kVLine\_rebuild (73100) |  |
| DCONLNG5 | 15060\_\_B | CONSW-MGSES\_and\_CONSW-LNGSW\_345kV\_DBLCKT | Koch Tap - Vealmoor 138kV | 3 | $13,035.40 |  |  |
| SMV\_PAR8 | RIOHND\_ERIOHND\_1 | CENTRAL AVENUE SUB to CENTRAL AVENUE SUB LIN 1 | Rio Hondo - East Rio Hondo Sub 138kV | 5 | $9,474.30 | STEC\_6687\_RebuildRioHondo-ERioHondo (6687) |  |
| SMADSAP8 | MADDUX\_SAPOWE2\_1 | MADDUX to SAN ANGELO POWER STATION LIN 1 | Maddux - San Angelo Power Station 138kV | 5 | $8,203.41 |  |  |
| SODLBRA8 | MAXWEL\_WHITIN1\_1 | BRACKETTVILLE to BRACKETTVILLE LIN 1 | Maxwell - Whiting 138kV | 5 | $6,918.64 | AEP\_TCC\_RebuildCarver-Maxwell (22RPG042, 52070) |  |
| SBRAUVA8 | BRACKE\_ESCOND1\_1 | ODLAW SWITCH to ASPHALT MINES LIN 1 | Brackettville - Escondido 138kV | 3 | $5,957.99 |  |  |
| SBONNED5 | BURNS\_RIOHONDO\_1 | Bonilla to Bonilla LIN 1 | Burns Sub - Rio Hondo 138kV | 3 | $4,916.97 |  |  |
| DMCEBUT8 | MKLT\_TRNT1\_1 | McElmurray - Eskota Sw & Butman 138kV | Merkel Tap - Trent 69kV | 3 | $857.33 |  |  |

## Generic Transmission Constraint Congestion

|  |  |
| --- | --- |
| GTC | Days Congestion |
| North Edinburg to Lobo | 27 |
| Zapata Starr | 25 |
| Panhandle GTC | 24 |
| West Texas Export | 21 |
| E\_PATA | 20 |
| Nelson Sharpe to Rio Hondo | 19 |
| Valley Export | 13 |
| E\_PASP | 12 |
| North to Houston | 10 |
| Wharton County | 9 |
| Hamilton | 8 |
| Culberson | 5 |
| East Texas | 4 |
| I\_KALO | 2 |
| I\_PASP | 1 |
| McCamey | 1 |

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

On 4/8/2024 11:31 ERCOT issued manual LDL override for congestion management and the override was removed on 4/8/2024 13:36.

## 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 (2024)** |
| MGSES TO CCRSW 345 AND BTRCK TO MGSES 345 DBLCKT | Tonkawa Switch - Morgan Creek Ses 345kV | 7442 | $87,576,954.87 |
| Basecase | WESTEX GTC | 11632 | $49,908,442.96 |
| BAKERSFIELD SWITCHYARD to CEDAR CANYON LIN 1 | Hargrove - Twin Buttes 138kV | 5216 | $38,322,041.41 |
| BLACKWATER DRAW SWITCH to DOUBLE MOUNTAIN SWITCH LIN 1 | Northwest Substation - Mcdonald Substation 115kV | 4363 | $23,553,847.83 |
| Basecase | PNHNDL GTC | 13781 | $19,640,481.03 |
| Basecase | NE\_LOB GTC | 13790 | $13,984,743.6 |
| FOWLERTON TRX FOWLRTON\_AUTO1 345/138 | Laredo Vft North - Las Cruces 138kV | 6265 | $13,110,290.05 |
| SALSW TO KLNSW 345 DBLCKT | Harker Heights South - Killeen Switch 138kV | 4671 | $11,714,203.54 |
| CONSW-MGSES\_and\_CONSW-LNGSW\_345kV\_DBLCKT | Falcon Seaboard - Morgan Creek Ses 345kV | 5718 | $11,621,469.16 |
| EVERMAN SWITCH TRX EVRSW\_4\_1 345/138 | Everman Switch 345kV | 386 | $11,447,643.03 |
| CCRSW TO SWESW 345 AND BTRCK TO MGSES 345 DBLCKT | Tonkawa Switch - Morgan Creek Ses 345kV | 6234 | $10,452,257.39 |
| Basecase | EASTEX GTC | 171 | $9,488,365.35 |
| KENDALL to COMFORT LIN 1 | Kerrville Stadium - Kendall 138kV | 485 | $9,016,114.71 |
| HCKSW TO ALLNC 345 AND HCKSW TO RNKSW 345 DBLCKT | Eagle Mountain Ses 345kV | 439 | $8,536,955.64 |
| COMAL to HENNE LIN 1 | Mccarty Lane - Zorn 138kV | 211 | $8,348,025.83 |
| Big Hill - Schneeman Draw & Big Hill - Schneeman Draw 2 | Cedar Canyon - Bakersfield 345kV | 6240 | $8,018,775.39 |
| TWR(138) BOG - DER 85 & EAB - PIR 88 | Baytown - Miller 138kV | 361 | $7,566,947.31 |
| BAKERSFIELD SWITCHYARD to CEDAR CANYON LIN 1 | Longshore Switch - Consavvy Switch 345kV | 6050 | $7,054,424.29 |
| FOWLRTON TO SAN MIGUEL DOUBLE CIRCUIT CONTINGENCY | Catarina - Piloncillo 138kV | 1621 | $6,747,549.89 |
| WHITEPOINT TRX 69A1 138/69 | Hecker - Whitepoint 138kV | 6355 | $6,453,917.27 |

# System Events

## ERCOT Peak Load

The unofficial ERCOT peak load for the month was 63,997 MW and occurred on 04/30/2024, during hour ending 18:00

## 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

None.

## TRE/DOE Reportable Events

CenterPoint Submitted a DOE-417 for 04/10/2024 – System Report - Loss of electric service to more than 50,000 customers for 1 hour or more.

RWE Submitted a EOP-004-4 04/16/2024 - Damage or destruction of a Facility

Oncor Submitted a EOP-004-4 for 04/18/2024 - Damage or destruction of a Facility.

Oncor Submitted a DOE-417 for 04/18/2024 - Damage or destruction of a Facility.

## New/Updated Constraint Management Plans

None.

## New/Modified/Removed RAS

None.

## New Procedures/Forms/Operating Bulletins

|  |  |  |
| --- | --- | --- |
| **Date** | **Subject** | **Bulletin No.** |
| 04/30/2024 | Real Time Desk V1 Rev 95 | 1136 |
| 04/30/2024 | Shift Supervisor Desk V1 Rev 96 | 1137 |
| 04/30/2024 | Transmission and Security Desk V1 Rev 109 | 1138 |

# Emergency Conditions

## OCNs

|  |  |
| --- | --- |
| **Date and Time** | **Message** |
| Apr 11, 2024 10:00:14 CST | At 10:00, ERCOT issued an AAN due to a possible future Emergency Condition of reserve capacity deficiency beginning Tuesday, April 16, 2024 at HE 1400 through Wednesday, April 17, 2024 at HE 2300. ERCOT may Delay/Withdraw Approved or Accepted Resource Outages. ERCOT may seek 9,950 MW from an OAE and then make the OSA. On Friday, April 12, 2024 at 10:00 ERCOT will execute an OAE if deemed necessary. Please notify ERCOT by email at aan@ercot.com if a specific resource cannot be considered in the OAE. |
| Apr 26, 2024 14:30:01 CST | At 14:30, ERCOT issued an AAN due to a possible future Emergency Condition of reserve capacity deficiency beginning Monday April 29, 2024, HE 2000 through Wednesday May 1, 2024, HE 2100. ERCOT may Delay/Withdraw Approved or Accepted Resource Outages. ERCOT may seek up to 2,832 MW from an OAE and then make the OSA. On Saturday April 27, 2024, at 14:30 ERCOT will execute an OAE if deemed necessary. Please notify ERCOT by email aan@ercot.com if a specific resource cannot be considered in the OAE. |

## Advisories

|  |  |
| --- | --- |
| **Date and Time** | **Message** |
| Apr 18, 2024 17:00:13 CST | Advisory issued due to ERCOTs Voltage Security Assessment Tool is currently unavailable. |
| Apr 19, 2024 16:02:38 CST | Advisory issued for a geomagnetic disturbance of [K-7] until [04/19/2024 19:00]. |

## Watches

|  |  |
| --- | --- |
| **Date and Time** | **Message** |
| Apr 2, 2024 11:22:50 | ERCOT has declared a Watch due to the failure of the SCED process, starting at 11:22 |

## Emergency Notices

|  |  |
| --- | --- |
| **Date and Time** | **Message** |
| N/A | N/A |

# Application Performance

## TSAT/VSAT Performance Issues

None

## Communication Issues

None.

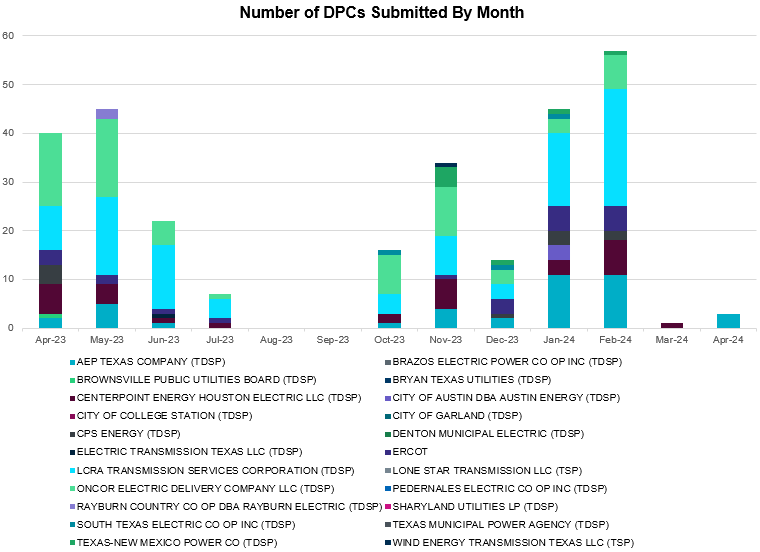
## Market System Issues

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) | 1 |
| 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) | 0 |
| CITY OF AUSTIN DBA AUSTIN ENERGY (TDSP) | 0 |
| CITY OF COLLEGE STATION (TDSP) | 0 |
| CITY OF GARLAND (TDSP) | 0 |
| CPS ENERGY (TDSP) | 0 |
| DENTON MUNICIPAL ELECTRIC (TDSP) | 0 |
| ELECTRIC TRANSMISSION TEXAS LLC (TDSP) | 0 |
| ERCOT | 0 |
| LCRA TRANSMISSION SERVICES CORPORATION (TDSP) | 0 |
| LONE STAR TRANSMISSION LLC (TSP) | 0 |
| ONCOR ELECTRIC DELIVERY COMPANY LLC (TDSP) | 0 |
| 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) | 0 |
| TEXAS MUNICIPAL POWER AGENCY (TDSP) | 0 |
| TEXAS-NEW MEXICO POWER CO (TDSP) | 0 |
| 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 | 4 | | MPEAMOO8 | PEARSALL\_69\_4 | | PEARSALL | | PEARSALL | 29 | |
| 2024 | 4 | | BASE CASE | NE\_LOB | | n/a | | n/a | 27 | |
| 2024 | 4 | | BASE CASE | ZAPSTR | | n/a | | n/a | 25 | |
| 2024 | 4 | | BASE CASE | PNHNDL | | n/a | | n/a | 24 | |
| 2024 | 4 | | MHARNED5 | BURNS\_RIOHONDO\_1 | | RIOHONDO | | MV\_BURNS | 24 | |
| 2024 | 4 | | MXWHI89 | HECKER\_WHITE\_2\_1 | | WHITE\_PT | | HECKER | 23 | |
| 2024 | 4 | | XFOW58 | LARDVN\_LASCRU1\_1 | | LARDVNTH | | LASCRUCE | 22 | |
| 2024 | 4 | | MHARNED5 | HAINE\_\_LA\_PAL1\_1 | | LA\_PALMA | | HAINE\_DR | 21 | |
| 2024 | 4 | | SN\_SLON5 | N\_SHARPE\_XF1 | | N\_SHARPE | | N\_SHARPE | 21 | |
| 2024 | 4 | | BASE CASE | WESTEX | | n/a | | n/a | 21 | |
| 2024 | 4 | | BASE CASE | E\_PATA | | n/a | | n/a | 20 | |
| 2024 | 4 | | BASE CASE | NELRIO | | n/a | | n/a | 19 | |
| 2024 | 4 | | SBRAPIN8 | HAMILT\_MAVERI1\_1 | | HAMILTON | | MAVERICK | 18 | |
| 2024 | 4 | | DCONLNG5 | 6046\_\_A | | MGSES | | FLCNS | 18 | |
| 2024 | 4 | | SMV\_RI28 | CP\_MVCNT\_1 | | MV\_CNTRA | | COFFPORT | 18 | |
| 2024 | 4 | | SFORYEL8 | HEXT\_YELWJC1\_1 | | YELWJCKT | | HEXT | 18 | |
| 2024 | 4 | | SFORYEL8 | HEXT\_YELWJC1\_1 | | HEXT | | YELWJCKT | 18 | |
| 2024 | 4 | | SMV\_RI28 | CP\_MVCNT\_1 | | COFFPORT | | MV\_CNTRA | 18 | |
| 2024 | 4 | | MFOWLOB5 | LARDVN\_LASCRU1\_1 | | LARDVNTH | | LASCRUCE | 17 | |
| 2024 | 4 | | DSALKLN5 | 630\_\_B | | KLNSW | | HHSTH | 17 | |
| 2024 | 4 | | DMGSBIT5 | 6036\_\_A | | TKWSW | | MGSES | 16 | |
| 2024 | 4 | | DMGSBTR5 | 6036\_\_A | | TKWSW | | MGSES | 16 | |
| 2024 | 4 | | DBIGSCH5 | BAKRFLD\_CEDCAN\_1 | | CEDACA | | BAKESW | 15 | |
| 2024 | 4 | | DBIGKEN5 | HAMILT\_MAXWEL1\_1 | | HAMILTON | | MAXWELL | 15 | |
| 2024 | 4 | | DBIGKEN5 | HAMILT\_MAXWEL1\_1 | | MAXWELL | | HAMILTON | 15 | |
| 2024 | 4 | | SBONNED5 | BURNS\_RIOHONDO\_1 | | RIOHONDO | | MV\_BURNS | 15 | |
| 2024 | 4 | | SBAKCED5 | 6056\_\_A | | LNGSW | | CONSW | 14 | |
| 2024 | 4 | | DSALHUT5 | 270\_\_A | | KNBSW | | TMPSW | 14 | |
| 2024 | 4 | | DFOWSMG5 | LARDVN\_LASCRU1\_1 | | LARDVNTH | | LASCRUCE | 14 | |
| 2024 | 4 | | MNEDPOM5 | LARDVN\_LASCRU1\_1 | | LARDVNTH | | LASCRUCE | 13 | |
| 2024 | 4 | | SN\_SAJO5 | LASPUL\_RAYMND1\_1 | | LASPULGA | | RAYMND2 | 13 | |
| 2024 | 4 | | BASE CASE | VALEXP | | n/a | | n/a | 13 | |
| 2024 | 4 | | XFTS89 | ALPINE\_BRONCO1\_1 | | ALPINE | | BRONCO | 12 | |
| 2024 | 4 | | BASE CASE | E\_PASP | | n/a | | n/a | 12 | |
| 2024 | 4 | | XFTS89 | ALPINE\_BRONCO1\_1 | | BRONCO | | ALPINE | 12 | |
| 2024 | 4 | | DBIGSCH5 | PALOUS\_WOLFCA1\_1 | | PALOUSE | | WOLFCAMP | 12 | |
| 2024 | 4 | | SWHILON5 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 11 | |
| 2024 | 4 | | DLWSRNK5 | 587\_\_A | | ARGYL | | LWSVH | 11 | |
| 2024 | 4 | | SBWDDBM5 | LPLNW\_LPLMD\_1 | | LPLNW | | LPLMD | 11 | |
| 2024 | 4 | | SFORYEL8 | HEXT\_MASONS1\_1 | | MASONSW | | HEXT | 10 | |
| 2024 | 4 | | BASE CASE | N\_TO\_H | | n/a | | n/a | 10 | |
| 2024 | 4 | | SFORYEL8 | HEXT\_MASONS1\_1 | | HEXT | | MASONSW | 10 | |
| 2024 | 4 | | SBWDDBM5 | LPLMK\_LPLNE\_1 | | LPLNE | | LPLMK | 9 | |
| 2024 | 4 | | SHAYZO25 | 6T227\_1 | | HAYSEN | | ZORN | 9 | |
| 2024 | 4 | | MDTMBEL5 | PRY\_PRY1 | | PRY | | PRY | 9 | |
| 2024 | 4 | | BASE CASE | WHARTN | | n/a | | n/a | 9 | |
| 2024 | 4 | | SBWDDBM5 | LPLMK\_LPLNE\_1 | | LPLMK | | LPLNE | 9 | |
| 2024 | 4 | | DBIGKEN5 | TREADW\_YELWJC1\_1 | | TREADWEL | | YELWJCKT | 9 | |
| 2024 | 4 | | DWLFMOS5 | 6520\_\_E | | ODEHV | | YARBR | 9 | |
| 2024 | 4 | | SBTPBNT8 | MYRA\_VAL\_1 | | MYRA | | VALYVIEW | 8 | |
| 2024 | 4 | | BASE CASE | HMLTN | | n/a | | n/a | 8 | |
| 2024 | 4 | | XNED89 | BURNS\_RIOHONDO\_1 | | RIOHONDO | | MV\_BURNS | 7 | |
| 2024 | 4 | | XFOW58 | CATARI\_PILONC1\_1 | | CATARINA | | PILONCIL | 7 | |
| 2024 | 4 | | XFOW58 | CATARI\_PILONC1\_1 | | PILONCIL | | CATARINA | 7 | |
| 2024 | 4 | | SCARFRI8 | ATSO\_SONR1\_1 | | SONR | | ATSO | 7 | |
| 2024 | 4 | | MPEAMOO8 | POT\_PEAR\_1 | | PEARSALL | | POTEETS | 7 | |
| 2024 | 4 | | SSHKCRI8 | 940\_\_A | | ENWSW | | TMPTN | 7 | |
| 2024 | 4 | | DMTSCOS5 | 6437\_\_F | | SCRCV | | KNAPP | 7 | |
| 2024 | 4 | | SBRAUVA8 | BRACKE\_ESCOND1\_1 | | BRACKETT | | ESCONDID | 7 | |
| 2024 | 4 | | DCC1\_VIC | COLETO\_VICTOR2\_1 | | COLETO | | VICTORIA | 7 | |
| 2024 | 4 | | SAIRNCA8 | REFUG\_VICTO\_1C\_1 | | VICTORIA | | OCONNOR | 6 | |
| 2024 | 4 | | SMV\_PAR8 | RIOHND\_ERIOHND\_1 | | MV\_RIOHO | | RIOHONDO | 6 | |
| 2024 | 4 | | SMADSAP8 | MADDUX\_SAPOWE2\_1 | | MADDUX | | SAPOWER | 6 | |
| 2024 | 4 | | SBAKCED5 | HARGRO\_TWINBU1\_1 | | TWINBU | | HARGROVE | 6 | |
| 2024 | 4 | | DCC3\_NED | BURNS\_RIOHONDO\_1 | | RIOHONDO | | MV\_BURNS | 6 | |
| 2024 | 4 | | SLAQLOB8 | BRUNI\_69\_1 | | BRUNI | | BRUNI | 6 | |
| 2024 | 4 | | MANGWHP5 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 6 | |
| 2024 | 4 | | SMDOPHR5 | G138\_10B\_1 | | SEMINOLE | | MAGNO\_TN | 6 | |
| 2024 | 4 | | SWIRJOH8 | 55T207\_1 | | GILLES | | WOLFCR | 6 | |
| 2024 | 4 | | SWILJA28 | JACKCNTY\_BLSRA\_1 | | JACKCNTY | | BLSRA | 6 | |
| 2024 | 4 | | SODLBRA8 | MAXWEL\_WHITIN1\_1 | | MAXWELL | | WHITING | 6 | |
| 2024 | 4 | | SMOUJOH8 | 55T207\_1 | | GILLES | | WOLFCR | 6 | |
| 2024 | 4 | | SMOUJOH8 | 57T207\_1 | | WOLFCR | | KERRST | 5 | |
| 2024 | 4 | | DALVWIS8 | MYRA\_VAL\_1 | | MYRA | | VALYVIEW | 5 | |
| 2024 | 4 | | XFTS89 | ALMC\_PAIS1\_1 | | ALMC | | PAIS | 5 | |
| 2024 | 4 | | SCOCBAR9 | ALPINE\_BRONCO1\_1 | | ALPINE | | BRONCO | 5 | |
| 2024 | 4 | | MMDOOAS5 | MSNPET04\_A | | PET | | MSN | 5 | |
| 2024 | 4 | | DWLDSCO5 | 15060\_\_B | | VEALMOOR | | KOCHTAP | 5 | |
| 2024 | 4 | | BASE CASE | T-315\_1 | | JADE\_SLR | | MHOS | 5 | |
| 2024 | 4 | | BASE CASE | CULBSN | | n/a | | n/a | 5 | |
| 2024 | 4 | | SBRAPIN8 | ESCOND\_GANSO1\_1 | | GANSO | | ESCONDID | 5 | |
| 2024 | 4 | | SCMNCPS5 | 651\_\_B | | CMNSW | | CMNTP | 5 | |
| 2024 | 4 | | DNOESGT5 | HARGRO\_TWINBU1\_1 | | TWINBU | | HARGROVE | 5 | |
| 2024 | 4 | | MDTPLCS5 | PRY\_PRY1 | | PRY | | PRY | 5 | |
| 2024 | 4 | | SSAMTH35 | 505\_\_B | | FBRSW | | THSES | 5 | |
| 2024 | 4 | | XFTS89 | ALMC\_PAIS1\_1 | | PAIS | | ALMC | 5 | |
| 2024 | 4 | | MFOWLOB5 | CATARI\_PILONC1\_1 | | PILONCIL | | CATARINA | 5 | |
| 2024 | 4 | | DCONLNG5 | RKYROAD\_STILES\_1 | | RCKYROAD | | STILES | 5 | |
| 2024 | 4 | | DNOECED5 | HARGRO\_TWINBU1\_1 | | TWINBU | | HARGROVE | 5 | |
| 2024 | 4 | | SCOCBAR9 | ALPINE\_BRONCO1\_1 | | BRONCO | | ALPINE | 5 | |
| 2024 | 4 | | DDILCOT8 | DILLEYSW\_69A1 | | DILLEYSW | | DILLEYSW | 5 | |
| 2024 | 4 | | SDELLAR8 | LARDVN\_LASCRU1\_1 | | LARDVNTH | | LASCRUCE | 5 | |
| 2024 | 4 | | MHARNED5 | LASPUL\_RAYMND1\_1 | | LASPULGA | | RAYMND2 | 5 | |
| 2024 | 4 | | DAUSDUN8 | MCN\_MCN\_1 | | MCNEIL\_ | | MCNEIL | 5 | |
| 2024 | 4 | | DSALKLN5 | 630\_\_C | | HHSTH | | BLTSW | 4 | |
| 2024 | 4 | | SBRAHAM8 | HAMILT\_MAVERI1\_1 | | HAMILTON | | MAVERICK | 4 | |
| 2024 | 4 | | DALNREN8 | 845\_\_B | | RENSW | | PLHWY | 4 | |
| 2024 | 4 | | SHOLNLA8 | ASHERT\_CATARI1\_1 | | CATARINA | | ASHERTON | 4 | |
| 2024 | 4 | | SDBMFID5 | LPLHY\_LPLDB\_1 | | LPLDB | | LPLHY | 4 | |
| 2024 | 4 | | DBIGKEN5 | MADDUX\_TREADW1\_1 | | MADDUX | | TREADWEL | 4 | |
| 2024 | 4 | | SBLSJAC8 | WSTBRK\_JCKCNTY\_1 | | JACKCNTY | | WSTBROOK | 4 | |
| 2024 | 4 | | SHOLNLA8 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 4 | |
| 2024 | 4 | | BASE CASE | EASTEX | | n/a | | n/a | 4 | |
| 2024 | 4 | | SMCEESK8 | MKLT\_TRNT1\_1 | | TRNT | | MKLT | 4 | |
| 2024 | 4 | | DJACALV8 | MYRA\_VAL\_1 | | MYRA | | VALYVIEW | 4 | |
| 2024 | 4 | | DSWECCR5 | 6036\_\_A | | TKWSW | | MGSES | 4 | |
| 2024 | 4 | | SECRDMT8 | 6215\_\_A | | BCKSW | | CGRSW | 4 | |
| 2024 | 4 | | DMTSCOS5 | 6235\_\_A | | SNYDR | | CGRSW | 4 | |
| 2024 | 4 | | XBOM58 | 6558\_\_B | | FSHSW | | WFALS | 4 | |
| 2024 | 4 | | SLCSTH25 | 505\_\_B | | FBRSW | | THSES | 4 | |
| 2024 | 4 | | SWIRJOH8 | 57T207\_1 | | WOLFCR | | KERRST | 4 | |
| 2024 | 4 | | DFOWSMG5 | CATARI\_PILONC1\_1 | | PILONCIL | | CATARINA | 4 | |
| 2024 | 4 | | MTIDERA5 | LARDVN\_LASCRU1\_1 | | LARDVNTH | | LASCRUCE | 4 | |
| 2024 | 4 | | DMCEBUT8 | MKLT\_TRNT1\_1 | | TRNT | | MKLT | 4 | |
| 2024 | 4 | | DSCOTKW5 | 6215\_\_A | | BCKSW | | CGRSW | 4 | |
| 2024 | 4 | | SCOLPAW5 | COLETO\_VICTOR2\_1 | | COLETO | | VICTORIA | 4 | |
| 2024 | 4 | | SSPUASP8 | GIRA\_T\_SPUR1\_1 | | SPUR | | GIRA\_TAP | 4 | |
| 2024 | 4 | | SMGPBRN8 | 670\_\_A | | BRNWD | | BRNSO | 4 | |
| 2024 | 4 | | SFBRTHS5 | 280\_\_A | | THSES | | LCSES | 3 | |
| 2024 | 4 | | BASE CASE | RANDAD\_ZAPATA1\_1 | | RANDADO | | ZAPATA | 3 | |
| 2024 | 4 | | SBROBUZ8 | 6135\_\_F | | GUNSW | | HPPOD | 3 | |
| 2024 | 4 | | DMGSBTR5 | 6215\_\_A | | BCKSW | | CGRSW | 3 | |
| 2024 | 4 | | DSWETKW5 | 6215\_\_A | | BCKSW | | CGRSW | 3 | |
| 2024 | 4 | | SLP2LPL0 | LPLNW\_LPLMD\_1 | | LPLNW | | LPLMD | 3 | |
| 2024 | 4 | | SENWTMP8 | TRU\_UAT1 | | TRU | | TRU | 3 | |
| 2024 | 4 | | SBCESN35 | 431\_\_A | | BCESW | | SNDSW | 3 | |
| 2024 | 4 | | DMGSBIT5 | 6215\_\_A | | BCKSW | | CGRSW | 3 | |
| 2024 | 4 | | XBAR89 | ALMC\_PAIS1\_1 | | ALMC | | PAIS | 3 | |
| 2024 | 4 | | DZORHAY5 | BERGHE\_AT1L | | BERGHE | | BERGHE | 3 | |
| 2024 | 4 | | DMK\_YH95 | LPLNW\_LPLMD\_1 | | LPLNW | | LPLMD | 3 | |
| 2024 | 4 | | DCONLNG5 | 15060\_\_B | | VEALMOOR | | KOCHTAP | 3 | |
| 2024 | 4 | | XFOW58 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 3 | |
| 2024 | 4 | | DSTEXP12 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 3 | |
| 2024 | 4 | | DFRIILL8 | HAMILT\_MAXWEL1\_1 | | MAXWELL | | HAMILTON | 3 | |
| 2024 | 4 | | SILLFTL8 | HAMILT\_MAXWEL1\_1 | | MAXWELL | | HAMILTON | 3 | |
| 2024 | 4 | | DLEGOUT5 | 50\_\_A | | BBSES | | JEWET | 3 | |
| 2024 | 4 | | DDILCOT8 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 3 | |
| 2024 | 4 | | DFOWSMG5 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 3 | |
| 2024 | 4 | | XFOW58 | ASHERT\_CATARI1\_1 | | CATARINA | | ASHERTON | 3 | |
| 2024 | 4 | | SSASSA28 | SAPOWER\_69T1 | | SAPOWER | | SAPOWER | 3 | |
| 2024 | 4 | | DMTSCOS5 | 6240\_\_C | | SACRC | | DPCRK | 3 | |
| 2024 | 4 | | MFOWLOB5 | ASHERT\_CATARI1\_1 | | CATARINA | | ASHERTON | 3 | |
| 2024 | 4 | | SN\_SAJO5 | CELANE\_KLEBER1\_1 | | KLEBERG | | CELANEBI | 3 | |
| 2024 | 4 | | SKLELOY8 | LOYOLA\_69\_1 | | LOYOLA | | LOYOLA | 3 | |
| 2024 | 4 | | BASE CASE | RANDAD\_ZAPATA1\_1 | | ZAPATA | | RANDADO | 3 | |
| 2024 | 4 | | DCAGCI58 | 255T279\_1 | | PIPECR | | MEDILA | 3 | |
| 2024 | 4 | | DCAGCI58 | 656T656\_1 | | KENDAL | | BERGHE | 3 | |
| 2024 | 4 | | DFOWSMG5 | ASHERT\_CATARI1\_1 | | CATARINA | | ASHERTON | 3 | |
| 2024 | 4 | | MFOWLOB5 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 3 | |
| 2024 | 4 | | DBIGKEN5 | FORTMA\_YELWJC1\_1 | | YELWJCKT | | FORTMA | 3 | |
| 2024 | 4 | | SWRDYN8 | LAN\_CT\_PAVLOV1\_1 | | LAN\_CTY | | PAVLOV | 3 | |
| 2024 | 4 | | SLUTVEA8 | 6135\_\_F | | GUNSW | | HPPOD | 3 | |
| 2024 | 4 | | MWHPLON5 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 3 | |
| 2024 | 4 | | DCAGCO58 | 656T656\_1 | | KENDAL | | BERGHE | 3 | |
| 2024 | 4 | | SSPUSLT8 | ASPM\_CONA1\_1 | | ASPM | | CONA | 3 | |
| 2024 | 4 | | XST155 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 3 | |
| 2024 | 4 | | SBROALP9 | COCS\_FTST1\_1 | | COCS | | FTST | 3 | |
| 2024 | 4 | | SBROALP9 | COCS\_FTST1\_1 | | FTST | | COCS | 3 | |
| 2024 | 4 | | SWHILON5 | COLETO\_VICTOR2\_1 | | COLETO | | VICTORIA | 3 | |
| 2024 | 4 | | SNLAGAT8 | LARDVN\_LASCRU1\_1 | | LARDVNTH | | LASCRUCE | 3 | |
| 2024 | 4 | | SBCESND5 | 421\_\_A | | BCESW | | SNDSW | 3 | |
| 2024 | 4 | | DWHICOT5 | LPLMK\_LPLNE\_1 | | LPLMK | | LPLNE | 2 | |
| 2024 | 4 | | SW\_LFAR5 | LPLNE\_LPLDB\_1 | | LPLDB | | LPLNE | 2 | |
| 2024 | 4 | | SVANRAY8 | RAYBURN\_69\_2 | | RAYBURN | | RAYBURN | 2 | |
| 2024 | 4 | | MPRSPA25 | 1561\_\_A | | DPREA | | RCSES | 2 | |
| 2024 | 4 | | SSUNMGS8 | 6240\_\_C | | SACRC | | DPCRK | 2 | |
| 2024 | 4 | | SHOLNLA8 | CATARI\_PILONC1\_1 | | PILONCIL | | CATARINA | 2 | |
| 2024 | 4 | | SCOLBAL8 | COLJ\_SANA1\_1 | | SANA | | COLJ | 2 | |
| 2024 | 4 | | DSGTSCH5 | HARGRO\_TWINBU1\_1 | | TWINBU | | HARGROVE | 2 | |
| 2024 | 4 | | BASE CASE | I\_KALO | | n/a | | n/a | 2 | |
| 2024 | 4 | | SWILJA28 | KEE\_COTN\_1 | | COTNDALE | | KEETER | 2 | |
| 2024 | 4 | | SWILJA28 | REN\_KEET\_1 | | KEETER | | REN | 2 | |
| 2024 | 4 | | DSALHUT5 | 431\_\_A | | BCESW | | SNDSW | 2 | |
| 2024 | 4 | | SWRDYN8 | 589T589\_1 | | EL\_CAMPO | | RICEBI | 2 | |
| 2024 | 4 | | SECRENC8 | 6215\_\_A | | BCKSW | | CGRSW | 2 | |
| 2024 | 4 | | DCMNCMN8 | 660\_\_B | | MGPSW | | ZEPHYR | 2 | |
| 2024 | 4 | | DZORHAY5 | 85T329\_1 | | BERGHE | | DEVIHI | 2 | |
| 2024 | 4 | | MSTPANG5 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 2 | |
| 2024 | 4 | | SCRMSAR8 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 2 | |
| 2024 | 4 | | SBRAHAM8 | GANSO\_MAVERI1\_1 | | GANSO | | MAVERICK | 2 | |
| 2024 | 4 | | DBIGSCH5 | HARGRO\_TWINBU1\_1 | | TWINBU | | HARGROVE | 2 | |
| 2024 | 4 | | SCOMKEN8 | 115T123\_1 | | KENDAL | | KERRST | 2 | |
| 2024 | 4 | | SCONMGS5 | 6056\_\_A | | LNGSW | | CONSW | 2 | |
| 2024 | 4 | | SENSENW8 | 940\_\_A | | ENWSW | | TMPTN | 2 | |
| 2024 | 4 | | DCONLNG5 | BAKRFLD\_CEDCAN\_1 | | CEDACA | | BAKESW | 2 | |
| 2024 | 4 | | USTPSTP1 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 2 | |
| 2024 | 4 | | DDILCOT8 | CATARI\_PILONC1\_1 | | CATARINA | | PILONCIL | 2 | |
| 2024 | 4 | | SWILJA28 | COTN\_BLSRA\_1 | | BLSRA | | COTNDALE | 2 | |
| 2024 | 4 | | DFOWSMG5 | LASCRU\_MILO1\_1 | | LASCRUCE | | MILO | 2 | |
| 2024 | 4 | | MFOWLOB5 | LASCRU\_MILO1\_1 | | LASCRUCE | | MILO | 2 | |
| 2024 | 4 | | SBWDDBM5 | LPLNE\_LPLDB\_1 | | LPLNE | | LPLDB | 2 | |
| 2024 | 4 | | SGEOSIG8 | NORMAN\_PETTUS1\_1 | | PETTUS | | NORMANNA | 2 | |
| 2024 | 4 | | DSALHUT5 | 1710\_\_C | | BELCNTY | | SALSW | 2 | |
| 2024 | 4 | | SMGPBRN8 | 650\_\_A | | CMNSW | | PNKNY | 2 | |
| 2024 | 4 | | DELMSAN5 | BEEVIL\_NORMAN1\_1 | | BEEVILLE | | NORMANNA | 2 | |
| 2024 | 4 | | SNEDSTE5 | BURNS\_RIOHONDO\_1 | | RIOHONDO | | MV\_BURNS | 2 | |
| 2024 | 4 | | SHOLNLA8 | CATARI\_PILONC1\_1 | | CATARINA | | PILONCIL | 2 | |
| 2024 | 4 | | DSTPRED5 | CKT\_3124\_1 | | STP | | HLJ | 2 | |
| 2024 | 4 | | DBCETMP5 | PRY\_PRY1 | | PRY | | PRY | 2 | |
| 2024 | 4 | | DJACALV8 | SPR\_VALY\_1 | | VALYVIEW | | SPR | 2 | |
| 2024 | 4 | | DFORCN85 | 200\_\_A | | FORSW | | RYSSW | 2 | |
| 2024 | 4 | | DCAGCI58 | 415T415\_1 | | MILLER | | HENLY | 2 | |
| 2024 | 4 | | DNAVOUT5 | 50\_\_A | | BBSES | | JEWET | 2 | |
| 2024 | 4 | | XFL2C58 | 6056\_\_A | | LNGSW | | CONSW | 2 | |
| 2024 | 4 | | SSANFOW5 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 2 | |
| 2024 | 4 | | MSTPANG5 | BLESSI\_LOLITA1\_1 | | BLESSING | | LOLITA | 2 | |
| 2024 | 4 | | DBIGKEN5 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 2 | |
| 2024 | 4 | | SW\_BLNG5 | CRTVLE\_EINSTEN\_1 | | EINSTEIN | | CRTRVLLE | 2 | |
| 2024 | 4 | | DBWNAMO5 | SAPOWE\_SAST1\_1 | | SAST | | SAPOWER | 2 | |
| 2024 | 4 | | SMV\_RI28 | SCARBI\_STILLM1\_1 | | SCARBIDE | | STILLMAN | 2 | |
| 2024 | 4 | | DZORHAY5 | 415T415\_1 | | MILLER | | HENLY | 2 | |
| 2024 | 4 | | DCONLNG5 | 6045\_\_A | | FLCNS | | MDLNE | 2 | |
| 2024 | 4 | | DCC3\_NED | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 2 | |
| 2024 | 4 | | MSTPANG5 | COLETO\_VICTOR2\_1 | | COLETO | | VICTORIA | 2 | |
| 2024 | 4 | | SOAKNIC8 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 2 | |
| 2024 | 4 | | DGABGEA8 | GABRIE\_AT1 | | GABRIE | | GABRIE | 2 | |
| 2024 | 4 | | SEBHUG8 | LAN\_CT\_PAVLOV1\_1 | | LAN\_CTY | | PAVLOV | 2 | |
| 2024 | 4 | | MCENRAP5 | LARDVN\_LASCRU1\_1 | | LARDVNTH | | LASCRUCE | 2 | |
| 2024 | 4 | | SCOLBAL8 | SANA\_FMR1 | | SANA | | SANA | 2 | |
| 2024 | 4 | | SSAMTH35 | 506\_\_A | | SAMSW | | FBRSW | 2 | |
| 2024 | 4 | | DCAGCO58 | 583T583\_1 | | BANDER | | MASOCR | 2 | |
| 2024 | 4 | | SSUNMGS8 | 6235\_\_A | | SNYDR | | CGRSW | 2 | |
| 2024 | 4 | | SZEPCMN8 | 670\_\_A | | BRNWD | | BRNSO | 2 | |
| 2024 | 4 | | MCE\_LO58 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 2 | |
| 2024 | 4 | | SCOLBAL8 | BALLIN\_HUMBLT1\_1 | | BALLINGE | | HUMBLTAP | 2 | |
| 2024 | 4 | | DELMTEX5 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 2 | |
| 2024 | 4 | | SPAWCAL5 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 2 | |
| 2024 | 4 | | SKLNSAL5 | 271\_\_A | | KLNSW | | SALSW | 2 | |
| 2024 | 4 | | DSWECCR5 | 6215\_\_A | | BCKSW | | CGRSW | 2 | |
| 2024 | 4 | | DKENCA58 | 656T656\_1 | | KENDAL | | BERGHE | 2 | |
| 2024 | 4 | | DNARCOR8 | 670\_\_C | | CMPBW | | BRNSO | 2 | |
| 2024 | 4 | | SBROALP9 | BELD\_BRONCO1\_1 | | BRONCO | | BELD | 2 | |
| 2024 | 4 | | SCOLPAW5 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 2 | |
| 2024 | 4 | | SCACHUG8 | BLESSI\_PAVLOV1\_1 | | PAVLOV | | BLESSING | 2 | |
| 2024 | 4 | | BASE CASE | EBONY\_GENTIE\_1 | | EBNY\_ESS | | EBNY\_ESS | 2 | |
| 2024 | 4 | | MCE\_LO58 | FREER\_LOBO1\_1 | | LOBO | | FREER | 2 | |
| 2024 | 4 | | DCONLNG5 | 14040\_\_A | | PCTSW | | DEWTP | 1 | |
| 2024 | 4 | | DBOMLKW8 | 6165\_\_A | | BOMSW | | PRKWY | 1 | |
| 2024 | 4 | | SMGPBRN8 | 650\_\_B | | PNKNY | | BRNWD | 1 | |
| 2024 | 4 | | DBIGKEN5 | 663\_\_A | | CMNSW | | MGPSW | 1 | |
| 2024 | 4 | | DSANSA89 | 663\_\_A | | CMNSW | | MGPSW | 1 | |
| 2024 | 4 | | XALM689 | ALMC\_T2 | | ALMC | | ALMC | 1 | |
| 2024 | 4 | | XFTS89 | ALPINE\_PAIS1\_1 | | ALPINE | | PAIS | 1 | |
| 2024 | 4 | | DAJOSTE5 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 1 | |
| 2024 | 4 | | DWPWFWP5 | BSTCPR36\_A | | BST | | CPR | 1 | |
| 2024 | 4 | | SN\_SAJO5 | CELANE\_N\_SHAR1\_1 | | CELANEBI | | N\_SHARPE | 1 | |
| 2024 | 4 | | SZEPCMN8 | COLETA\_COLE\_I1\_1 | | COLE\_IVI | | COLETAP | 1 | |
| 2024 | 4 | | SLONLON8 | COLETO\_VICTOR2\_1 | | COLETO | | VICTORIA | 1 | |
| 2024 | 4 | | DBWN\_AM5 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 1 | |
| 2024 | 4 | | SGARBAL8 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 1 | |
| 2024 | 4 | | SNICORN8 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 1 | |
| 2024 | 4 | | DBUCRGP5 | FORTMA\_YELWJC1\_1 | | YELWJCKT | | FORTMA | 1 | |
| 2024 | 4 | | SBIGOR55 | FORTMA\_YELWJC1\_1 | | YELWJCKT | | FORTMA | 1 | |
| 2024 | 4 | | DDMTMHO5 | LPLMK\_LPLNE\_1 | | LPLMK | | LPLNE | 1 | |
| 2024 | 4 | | SFORYEL8 | MASNPH\_MASN1\_1 | | MASN | | MASNPHT | 1 | |
| 2024 | 4 | | DWHIGIB8 | NAVALB\_N\_PADR1\_1 | | NAVALBAS | | N\_PADRE | 1 | |
| 2024 | 4 | | SMYRSPR8 | SNT\_ST\_\_1 | | SJO | | SNTJO | 1 | |
| 2024 | 4 | | DCALBEC8 | U2\_X3\_1 | | BRAUNIG | | X3 | 1 | |
| 2024 | 4 | | DCAGCO58 | 122T122\_1 | | COMFOR | | RAYBAR | 1 | |
| 2024 | 4 | | SW\_SW\_L5 | 15060\_\_B | | VEALMOOR | | KOCHTAP | 1 | |
| 2024 | 4 | | DKENCA58 | 255T279\_1 | | PIPECR | | MEDILA | 1 | |
| 2024 | 4 | | DLWSRNK5 | 584\_\_A | | KRMSW | | ARGYL | 1 | |
| 2024 | 4 | | SNATBEA8 | 6144\_\_A | | STASW | | BSPRW | 1 | |
| 2024 | 4 | | DDMTBCK8 | 6235\_\_A | | CGRSW | | SNYDR | 1 | |
| 2024 | 4 | | DSALKLN5 | 630\_\_A | | BLTSW | | BLTON | 1 | |
| 2024 | 4 | | DBIGKEN5 | 660\_\_B | | MGPSW | | ZEPHYR | 1 | |
| 2024 | 4 | | DBUCRGP5 | 663\_\_A | | CMNSW | | MGPSW | 1 | |
| 2024 | 4 | | MNEDPOM5 | ASHERT\_CATARI1\_1 | | CATARINA | | ASHERTON | 1 | |
| 2024 | 4 | | SKATLON5 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 1 | |
| 2024 | 4 | | SWOLROT9 | ASPM\_CONA1\_1 | | ASPM | | CONA | 1 | |
| 2024 | 4 | | DZORHAY5 | BERGHE\_AT1H | | BERGHE | | BERGHE | 1 | |
| 2024 | 4 | | MSTPANS5 | BLESSI\_LOLITA1\_1 | | LOLITA | | BLESSING | 1 | |
| 2024 | 4 | | SBRAHAM8 | BRACKE\_ESCOND1\_1 | | BRACKETT | | ESCONDID | 1 | |
| 2024 | 4 | | DBIGKEN5 | CARVER\_TINSLE1\_1 | | CARVER | | TINSLEY | 1 | |
| 2024 | 4 | | DFRIILL8 | CARVER\_TINSLE1\_1 | | CARVER | | TINSLEY | 1 | |
| 2024 | 4 | | SILLFTL8 | CARVER\_TINSLE1\_1 | | CARVER | | TINSLEY | 1 | |
| 2024 | 4 | | DBWNAMO5 | COKEST\_REDCRE1\_1 | | REDCREEK | | COKESTRE | 1 | |
| 2024 | 4 | | MTIDERA5 | FREER\_LOBO1\_1 | | LOBO | | FREER | 1 | |
| 2024 | 4 | | SCOMHA38 | HAMILT\_MAXWEL1\_1 | | MAXWELL | | HAMILTON | 1 | |
| 2024 | 4 | | SLP6LPL0 | LPLMK\_LPLNE\_1 | | LPLMK | | LPLNE | 1 | |
| 2024 | 4 | | DKRACMV8 | MSNPET04\_A | | PET | | MSN | 1 | |
| 2024 | 4 | | SRZK1R8 | MSNPET04\_A | | PET | | MSN | 1 | |
| 2024 | 4 | | SSPRVAL8 | PAT\_BOWI\_1 | | BOW | | PATTSNST | 1 | |
| 2024 | 4 | | DVICEDN8 | RAY\_L\_46\_1 | | L\_463S | | RAYBURN | 1 | |
| 2024 | 4 | | SBAKCED5 | SAMATH\_SANW1\_1 | | SANW | | SAMATHIS | 1 | |
| 2024 | 4 | | DBIGSCH5 | SANTAR\_WOLFCA1\_1 | | WOLFCAMP | | SANTARIT | 1 | |
| 2024 | 4 | | MDTPBEL5 | 1295\_\_A | | TMPCR | | TMPSW | 1 | |
| 2024 | 4 | | DCONLNG5 | 6095\_\_D | | LMESA | | JPPOI | 1 | |
| 2024 | 4 | | DTMPBE58 | 630\_\_C | | HHSTH | | BLTSW | 1 | |
| 2024 | 4 | | DMGSBIT5 | 6474\_\_A | | SUNSW | | MGSES | 1 | |
| 2024 | 4 | | DCPSST58 | 651\_\_B | | CMNSW | | CMNTP | 1 | |
| 2024 | 4 | | SBRNCMN8 | 660\_\_B | | MGPSW | | ZEPHYR | 1 | |
| 2024 | 4 | | DCAGCO58 | 6T227\_1 | | HAYSEN | | ZORN | 1 | |
| 2024 | 4 | | SCOCBAR9 | ALMC\_PAIS1\_1 | | ALMC | | PAIS | 1 | |
| 2024 | 4 | | SOWLBIG8 | BISON\_STRS1\_1 | | BISON | | STRS | 1 | |
| 2024 | 4 | | SOWLBIG8 | BISON\_STRS1\_1 | | STRS | | BISON | 1 | |
| 2024 | 4 | | SWRDYN8 | BLESSI\_PAVLOV1\_1 | | PAVLOV | | BLESSING | 1 | |
| 2024 | 4 | | SCOMHA38 | CARVER\_TINSLE1\_1 | | CARVER | | TINSLEY | 1 | |
| 2024 | 4 | | DREFSTP5 | CKT\_3124\_1 | | STP | | HLJ | 1 | |
| 2024 | 4 | | SCTLCMN5 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 1 | |
| 2024 | 4 | | SBOSWHT8 | LKW\_WHT\_1 | | LKWHITNY | | WHTNY | 1 | |
| 2024 | 4 | | SFTLMES8 | SAMATH\_SANW1\_1 | | SANW | | SAMATHIS | 1 | |
| 2024 | 4 | | SW\_GW\_L5 | 15060\_\_B | | VEALMOOR | | KOCHTAP | 1 | |
| 2024 | 4 | | SECRDMT8 | 6235\_\_A | | CGRSW | | SNYDR | 1 | |
| 2024 | 4 | | DBUCRGP5 | 660\_\_B | | MGPSW | | ZEPHYR | 1 | |
| 2024 | 4 | | DFIRBA89 | 663\_\_A | | CMNSW | | MGPSW | 1 | |
| 2024 | 4 | | SREVDIL8 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 1 | |
| 2024 | 4 | | SOWLBIG8 | BIGLAK\_PHBL\_T1\_1 | | PHBL\_TAP | | BIGLAKE | 1 | |
| 2024 | 4 | | XBGL88 | BIGLAK\_PHBL\_T1\_1 | | PHBL\_TAP | | BIGLAKE | 1 | |
| 2024 | 4 | | SPEAX28 | BIG\_FO\_PLEASA1\_1 | | BIG\_FOOT | | PLEASANT | 1 | |
| 2024 | 4 | | SREVDIL8 | CATARI\_PILONC1\_1 | | CATARINA | | PILONCIL | 1 | |
| 2024 | 4 | | SCARBU28 | CKT\_979\_1 | | MAGPLANT | | NORTHLAN | 1 | |
| 2024 | 4 | | DWPWFWP5 | DOWOAS27\_A | | DOW | | OAS | 1 | |
| 2024 | 4 | | DRYSFOR5 | FORSW\_MR3H | | FORSW | | FORSW | 1 | |
| 2024 | 4 | | MNEDPOM5 | FREER\_LOBO1\_1 | | LOBO | | FREER | 1 | |
| 2024 | 4 | | SRAYRI38 | HAINE\_\_LA\_PAL1\_1 | | LA\_PALMA | | HAINE\_DR | 1 | |
| 2024 | 4 | | DELMMAR5 | HILL\_MAR\_2\_1 | | MARION | | HILLCTRY | 1 | |
| 2024 | 4 | | MNEDPOM5 | LASCRU\_MILO1\_1 | | LASCRUCE | | MILO | 1 | |
| 2024 | 4 | | XFOW58 | LASCRU\_MILO1\_1 | | LASCRUCE | | MILO | 1 | |
| 2024 | 4 | | SMV\_MV78 | RIOHND\_ERIOHND\_1 | | MV\_RIOHO | | RIOHONDO | 1 | |
| 2024 | 4 | | XAPP85 | SAMATH\_SANW1\_1 | | SANW | | SAMATHIS | 1 | |
| 2024 | 4 | | SSNYCGR8 | SNYDR\_FMR1 | | SNYDR | | SNYDR | 1 | |
| 2024 | 4 | | DBRNSTR8 | V2\_Z5\_1 | | Z5 | | V2 | 1 | |
| 2024 | 4 | | DCAGCI58 | 122T122\_1 | | COMFOR | | RAYBAR | 1 | |
| 2024 | 4 | | DMGSCON5 | 15060\_\_B | | VEALMOOR | | KOCHTAP | 1 | |
| 2024 | 4 | | XFOR58 | 200\_\_A | | FORSW | | RYSSW | 1 | |
| 2024 | 4 | | SGLDSUN8 | 6215\_\_A | | BCKSW | | CGRSW | 1 | |
| 2024 | 4 | | SES2FRI8 | BIGLAK\_PHBL\_T1\_1 | | BIGLAKE | | PHBL\_TAP | 1 | |
| 2024 | 4 | | MNEDPOM5 | CATARI\_PILONC1\_1 | | PILONCIL | | CATARINA | 1 | |
| 2024 | 4 | | SCOLPAW5 | GODDAR\_TANGO1\_1 | | GODDARD | | TANGO | 1 | |
| 2024 | 4 | | DMK\_YH95 | LPLNW\_LPLYH\_1 | | LPLYH | | LPLNW | 1 | |
| 2024 | 4 | | DHECWHI8 | NCARBI\_SEADRF1\_1 | | NCARBIDE | | SEADRFTC | 1 | |
| 2024 | 4 | | DBWN\_AM5 | ORNT\_REDCRE1\_1 | | REDCREEK | | ORNT | 1 | |
| 2024 | 4 | | SGTVTUG9 | PAN-JON\_1 | | JNESBORO | | PCAKETNP | 1 | |
| 2024 | 4 | | SGTVTUG9 | PAN-JON\_1 | | PCAKETNP | | JNESBORO | 1 | |
| 2024 | 4 | | SMV\_SCA8 | RIOHND\_ERIOHND\_1 | | MV\_RIOHO | | RIOHONDO | 1 | |
| 2024 | 4 | | DSLKSOL5 | 138\_FLT\_FXT\_1 | | TNFXTAIL | | FLAT\_TOP | 1 | |
| 2024 | 4 | | DLYTZOR5 | 230T230\_1 | | STRAHAT1 | | SANMAR | 1 | |
| 2024 | 4 | | DNORSD85 | 3160\_\_A | | OKCLS | | CDCSW | 1 | |
| 2024 | 4 | | DBERBO58 | 415T415\_1 | | MILLER | | HENLY | 1 | |
| 2024 | 4 | | DCAGCI58 | 584T584\_1 | | KENDAL | | WELFAR | 1 | |
| 2024 | 4 | | SNATBEA8 | 6144\_\_A | | BSPRW | | STASW | 1 | |
| 2024 | 4 | | SELBBUL8 | 6470\_\_D | | MCDLD | | GLSCN | 1 | |
| 2024 | 4 | | XFIR88 | 660\_\_A | | ZEPHYR | | BRNSW | 1 | |
| 2024 | 4 | | DSANSA89 | 660\_\_B | | MGPSW | | ZEPHYR | 1 | |
| 2024 | 4 | | SHONMOO8 | BIG\_FO\_PLEASA1\_1 | | BIG\_FOOT | | PLEASANT | 1 | |
| 2024 | 4 | | MHARNED5 | BURNS\_HEIDLBRG\_1 | | MV\_BURNS | | MV\_HBRG4 | 1 | |
| 2024 | 4 | | SSANFOW5 | CATARI\_PILONC1\_1 | | CATARINA | | PILONCIL | 1 | |
| 2024 | 4 | | DELMSAN5 | COLETO\_VICTOR2\_1 | | COLETO | | VICTORIA | 1 | |
| 2024 | 4 | | DKLNRGP5 | FORTMA\_YELWJC1\_1 | | YELWJCKT | | FORTMA | 1 | |
| 2024 | 4 | | SCARKEI8 | GRE\_GIBC\_1 | | GIBCRK | | GREENS\_P | 1 | |
| 2024 | 4 | | DNOECED5 | HARGRO\_PUMPJA1\_1 | | HARGROVE | | PUMPJACK | 1 | |
| 2024 | 4 | | DELMELM5 | HILL\_MAR\_2\_1 | | MARION | | HILLCTRY | 1 | |
| 2024 | 4 | | MDTPBEL5 | PRY\_PRY1 | | PRY | | PRY | 1 | |
| 2024 | 4 | | DANACDE5 | 105\_\_B | | RNKSW | | LWSSW | 1 | |
| 2024 | 4 | | SLPRGDL8 | 1485\_\_A | | LPRSW | | TRSES | 1 | |
| 2024 | 4 | | DSALHUT5 | 1710\_\_E | | SALSW | | SALDS | 1 | |
| 2024 | 4 | | MDTPLCS5 | 1830\_\_F | | WATCO | | COTONBLT | 1 | |
| 2024 | 4 | | DLEGOUT5 | 40\_\_A | | BBSES | | JEWET | 1 | |
| 2024 | 4 | | SMGSBTR5 | 6036\_\_A | | TKWSW | | MGSES | 1 | |
| 2024 | 4 | | DGLDDMT8 | 6240\_\_C | | SACRC | | DPCRK | 1 | |
| 2024 | 4 | | DTMPBE58 | 630\_\_B | | KLNSW | | HHSTH | 1 | |
| 2024 | 4 | | DBRNSTR8 | B4\_V2\_1 | | V2 | | B4 | 1 | |
| 2024 | 4 | | SBENRAI8 | BENTS\_FRTER\_1C\_1 | | RAILROAD | | S\_MISSIN | 1 | |
| 2024 | 4 | | SBAKCED5 | CEDRHI\_SILT1\_1 | | CEDRHILL | | SILT | 1 | |
| 2024 | 4 | | SJCKSTP5 | CKT\_3124\_1 | | STP | | HLJ | 1 | |
| 2024 | 4 | | SSOLALM8 | COCS\_FTST1\_1 | | FTST | | COCS | 1 | |
| 2024 | 4 | | DBRNCMN8 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 1 | |
| 2024 | 4 | | SFTCGAR8 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 1 | |
| 2024 | 4 | | MCE\_LO58 | FREER\_SAN\_DI1\_1 | | SAN\_DIEG | | FREER | 1 | |
| 2024 | 4 | | BASE CASE | HAMILT\_MAXWEL1\_1 | | MAXWELL | | HAMILTON | 1 | |
| 2024 | 4 | | BASE CASE | I\_PASP | | n/a | | n/a | 1 | |
| 2024 | 4 | | MCENCAB5 | LARDVN\_LASCRU1\_1 | | LARDVNTH | | LASCRUCE | 1 | |
| 2024 | 4 | | DVICEDN8 | LOOP\_VICTORIA\_1 | | VICTORIA | | L\_463S | 1 | |
| 2024 | 4 | | BASE CASE | MCCAMY | | n/a | | n/a | 1 | |
| 2024 | 4 | | SSTAWIC8 | 138\_IH2\_COT\_1 | | IH20 | | TNCOLIET | 1 | |
| 2024 | 4 | | MDTMBEL5 | 1830\_\_F | | WATCO | | COTONBLT | 1 | |
| 2024 | 4 | | SFO2RYS5 | 210\_\_A | | FORSW | | RYSSW | 1 | |
| 2024 | 4 | | DSTEDES8 | 2450\_\_A | | WXHCH | | WXOCF | 1 | |
| 2024 | 4 | | DCAGCO58 | 584T584\_1 | | KENDAL | | WELFAR | 1 | |
| 2024 | 4 | | SSALTMP5 | 630\_\_B | | KLNSW | | HHSTH | 1 | |
| 2024 | 4 | | DMGSBTR5 | 6474\_\_A | | SUNSW | | MGSES | 1 | |
| 2024 | 4 | | DKENCA58 | 6T227\_1 | | HAYSEN | | ZORN | 1 | |
| 2024 | 4 | | SGODKAT5 | ASHERT\_CATARI1\_1 | | ASHERTON | | CATARINA | 1 | |
| 2024 | 4 | | MHARRIO5 | BURNS\_RIOHONDO\_1 | | RIOHONDO | | MV\_BURNS | 1 | |
| 2024 | 4 | | SKATLON5 | CATARI\_PILONC1\_1 | | CATARINA | | PILONCIL | 1 | |
| 2024 | 4 | | XBAL89 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 1 | |
| 2024 | 4 | | XCMN58 | CONCHO\_VRBS1\_1 | | CONCHO | | VRBS | 1 | |
| 2024 | 4 | | SBRAHAM8 | ESCOND\_GANSO1\_1 | | GANSO | | ESCONDID | 1 | |
| 2024 | 4 | | DCAGTA58 | H3\_K0\_1 | | K0 | | H3 | 1 | |
| 2024 | 4 | | SWOLGIL8 | MADDUX\_TREADW1\_1 | | TREADWEL | | MADDUX | 1 | |
| 2024 | 4 | | DMCEBUT8 | MERK\_MKLT1\_1 | | MKLT | | MERK | 1 | |
| 2024 | 4 | | DDUPLGE8 | NCARBI\_SEADRF1\_1 | | NCARBIDE | | SEADRFTC | 1 | |
| 2024 | 4 | | DVICCO89 | VICTO\_WARBU\_1A\_1 | | VICTORIA | | WARBURTN | 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: 18,881 MW on 03/28/2024 at 11:24 | Current Solar Penetration Record: 42.98% 03/28/2024 at 11:27 [↑](#footnote-ref-2)