Public



Annual Load Data Request Form Instructions

ERCOT *8/16/2023*

Blank Page

# Introduction

Each year recipients of the Annual Load Data Request (ALDR) must submit load data to ERCOT. The Transmission and Distribution Service Providers (TDSP) must provide load data each year to allow necessary transmission system reliability analysis and planning, as well as to meet NERC standard requirements. Each TDSP is responsible for providing historical and

forecasted load data for all the loads connected to its system as of March 1 of the submittal year, or the next business day if March 1 falls on a weekend.

The load data includes forecasted information necessary to allow for the timely development, design, and implementation of electric system plans needed to reliably supply customer requirements. System modeling is the first step toward reliable interconnected transmission systems. The timely development of system modeling data to realistically simulate the electrical behavior of the components in the interconnected network is the only means to accurately plan for reliability. Forecasts should generally include such factors as economic, demographic, and customer trends; conservation, improvements in the efficiency of electrical energy uses; other changes in the end uses of electricity; and weather effects. Data shall be submitted for self- serve facilities with a contract for the transmission grid to provide backup power to their loads.

# Submittal Date

Each recipient of an ALDR must submit the data by ***March 1*** of the submittal year. Submittal of the requested data on time is necessary for the base case development and the system analysis process to start on time. Failure to submit the data by the due date may result in insufficient transmission capacity or facilities to serve the subject load. Late or incomplete submittals will violate NERC compliance requirements for Transmission and Distribution Service Providers.

Late submissions and changes to load data submittals will be accepted on a case-by-case basis in light of load-flow base case development activities following the ALDR submission due date.

# Format

The data must be submitted electronically via the Microsoft Excel data submission workbook that accompanies these instructions. The workbook file is named yyALDRBASE.xls, where yy indicates the digits representing the submittal year. Submissions on paper will not be accepted. The data submittal workbook is sent to the TDSPs via email.

*Please do not change the format of the workbook.* This will increase review time and the possibility of an invalid submittal. If you believe there is an incorrect formula or have other issues in working with the workbook, please notify aldr@ercot.com.

# Submission Completeness and Accuracy

Complete and accurate data is needed for system analyses to ensure the adequacy and security of the interconnected transmission system, to meet projected customer demands, and to determine the need for system enhancements or reinforcements.

Invalid or incomplete submittals will NOT be accepted by ERCOT. Submittals should include information for each TDSP.

The following is a list of items to check before the ALDR is submitted:

1. If negative values are entered for Self-Serve and Distributed Generation Loads in the Dispersed Loads section of the Load Detail sheet, the checkbox in column C, row 15 must be checked to ensure correct aggregate-level data reporting.
2. The bus number in column D on the Load Detail sheet must be included. Bus numbers can be obtained from the SSWG member or from the data dictionary on the ERCOT System Planning website.
3. The coincidence factors in columns L and R on the Load Detail sheet must be less than or equal to 100%.
4. All power factors must be less than or equal to 1 and greater than or equal to 0 unless it reflects a reactive device or lightly loaded DSP point that supplies kVar.
5. The county name should be spelled correctly.
6. There should be only one voltage level for each delivery point.
7. Be sure to enter data using the correct units (i.e., kV, kW, kVar).

# Confidentiality

The confidentiality for the data supplied as a result of meeting this request is covered under Nodal Protocol section 1.3.1.1(h) and (q). The data is considered protected information.

# NERC MOD-031 and MOD-032 Changes

Two new NERC “Modeling, Data and Analysis” (MOD) reliability standards that went into effect during 2016 resulted in significant changes to the ALDR data collection form:

* + MOD-031-3, “Demand and Energy Data” (https://[www.nerc.com/\_layouts/15/PrintStandard.aspx?standardnumber=MOD-031-](http://www.nerc.com/_layouts/15/PrintStandard.aspx?standardnumber=MOD-031-) 3&title=Demand%20and%20Energy%20Data&jurisdiction=United%20States)
  + MOD-032-1, “Data for Power System Modeling and Analysis”

(<http://www.nerc.com/files/MOD-032-1.pdf>)

MOD-031-3, “Demand and Energy Data”

NERC requires that ERCOT (the “Planning Coordinator or Balancing Authority”) issue a data request to applicable entities *if a need is identified* for collecting Total Internal Demand, Net Energy for Load, and Demand Side Management data [emphasis added]. Since ERCOT already produces and collects data for Total Internal Demand, Net Energy for Load, and Demand Side Management, ERCOT is no longer requesting that TDSPs provide this data.

Consequently, a number of sheets in the ALDR data submission form have been eliminated. These sheets include “ERCOT Coincident Loads”, “Net Energy for Load”, “Monthly Peaks and Energy”, and “8760 Hours”.

MOD-31-3 requires collection of 10-year forecast information, submission of 10-year forecast data on the Detail Load sheet is now mandatory in order to align with ERCOT’s load forecasting time horizon for reliability assessments.

MOD-032-1, “Data for Power System Modeling and Analysis”

MOD-032-1 is a consolidation and replacement of existing standards MOD-010-0, MOD-011-0, MOD-012-0, MOD-013-1, MOD-014-0, and MOD-015-0.1. There are two new requirements that directly impact the ALDR:

R2. Each Balancing Authority, Generator Owner, Load Serving Entity, Resource Planner, Transmission Owner, and Transmission Service Provider shall provide steady-state, dynamics, and short circuit modeling data to its Transmission Planner(s) and Planning Coordinator(s) according to the data requirements and reporting procedures developed by its Planning Coordinator and Transmission Planner in Requirement R1. For data that has not changed since the last submission, a written confirmation that the data has not changed is sufficient.

R4. Each Planning Coordinator shall make available models for its planning area reflecting data provided to it under Requirement R2 to the Electric Reliability Organization (ERO) or its designee to support creation of the Interconnection-wide case(s) that includes the Planning Coordinator’s planning area.

Development of the required load model entailed modifying and expanding the data elements already being collected in the Load Detail sheet. The changes include:

* + The addition of net load (kW) and mega volt amps reactive (kVar) for Distributed Energy Resources

# Power Factor Reporting

The "Load Point Delivery Voltage" (column F) on the Load Detail sheet of the ALDR data submission workbook should be reported where the load is metered. If the load is metered at a voltage less than 60 kV, then transformer kVar losses will be calculated by the TSP. If the load is metered at a voltage higher than 60 kV, then transformer kVar losses will not be calculated, and the voltage level reported will be metered voltage. Distribution voltage capacitors that are installed in the substation for purposes other than power factor correction should not be included in the reporting. Power factor should be expressed as positive (+) for receiving VARs

from the transmission system and negative (-) for sending VARs to the transmission system. Please refer to the "ERCOT Voltage and Reactive Requirements and Compliance Monitoring" document for more details. This document is available at:

<http://www.ercot.com/content/meetings/ros/keydocs/2003/1210/ROS12102003-4.doc>. For more background, see the Reactive Compensation & Voltage Control Task Force’s report to the Reliability and Operations Subcommittee at: <http://www.ercot.com/content/meetings/ros/keydocs/2003/0409/ROS04092003-7.ppt>.

This requirement is incorporated in Nodal Protocol Sections 3.15 (Voltage Support Subsections 3.15.1 and 3.15.2).

# Coordination with the Steady-State Working Group

The use of this data is to aid in the development of base cases by the Steady-State Working Group (SSWG), it is imperative that the submitter coordinate with the appropriate SSWG member. Questions about the data (bus numbers, voltage levels, etc.) are best answered by the SSWG members because they will be primary users of the data. To find your SSWG member, review the roster posted at <http://www.ercot.com/committee/sswg>.

# TDSP Information

The ALDR submittals shall include the identity, address, e-mail address, telephone number, and (optional) facsimile number of the party supplying data and the name of a contact person to deal with matters relating to the submittal. These will be provided in the Contact Information sheet of the workbook. This contact person will be the single point contact for all questions and

information relating to the load data submittal.

# Questions

Any questions concerning the Annual Load Data Request should be directed to ERCOT at via email at aldr@ercot.com.

# Internet Information

ERCOT’s primary means of distributing data is via the internet. The TDSPs are encouraged to periodically review updated information on the various ERCOT, NERC, and Public Utility Commission of Texas sites:

ERCOT Home Page: <http://www.ercot.com/>

ERCOT Market Guides: <http://www.ercot.com/mktrules/guides/>

ERCOT Nodal Protocols: <http://www.ercot.com/mktrules/nprotocols/>

Public Utility Commission of Texas: <http://www.puc.state.tx.us/>

North American Electric Reliability Corporation (NERC): <http://www.nerc.com/Pages/default.aspx>

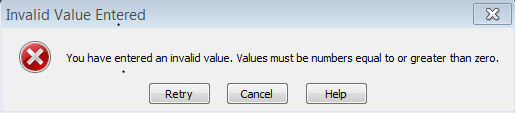
NERC’s complete set of Reliability Standards: [http://www.nerc.com/pa/Stand/Reliability%20Standards%20Complete%20Set/RSCompleteSet.p](http://www.nerc.com/pa/Stand/Reliability%20Standards%20Complete%20Set/RSCompleteSet.pdf) [df](http://www.nerc.com/pa/Stand/Reliability%20Standards%20Complete%20Set/RSCompleteSet.pdf)

# Detailed Excel Workbook Data Submittal Instructions

The data entry areas of the workbook consist of color-coded cells. The color-coding scheme is shown below. Yellow cells require data entry by the TDSP. Upon entry of a valid value, the yellow color changes to white, indicating successful data entry. If an invalid value is entered, an error message is generated.

Required Manual Data Entry by the TDSP or TDSP's agent

|  |  |
| --- | --- |
|  | Fixed or calculated data (do not modify) |
|  | Manual Data Entry by ERCOT |



The peach color coding indicates that a cell is already populated with a value, and cannot be modified. Cells with blue color coding are intended for ERCOT staff data entry.

Instructions for each sheet in the workbook are provided below.

## Contact Information Sheet

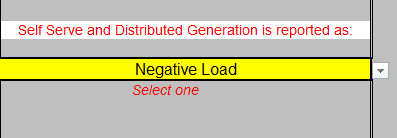
This workbook sheet records individual, and organization contact information associated with the ALDR submittal. This includes the TDSP’s single point contact for all information and questions relating to the request. If you are filing on behalf of others, enter their contact information as well. This is important for verifying that all TDSP-connected Loads are accounted for.

## ERCOT Data Sheet

This sheet automatically uses the ERCOT-provided information in other parts of the workbook. There is no submitter input on this page.

## Load Detail Sheet

This sheet is organized into two main areas: Aggregated Loads (rows 9 through 20) and Dispersed Loads (rows 22 through 2000). Rows 13 through 19 constitute the aggregate delivery point Load data area, and include both data entry cells and non-editable cells that report summary statistics based on the detailed load data entered. The aggregate delivery Load cells must account for every transmission system delivery point. (*Note that a select box in column C changes summation formulas based on whether negative values are entered for Self-Serve and Distributed Generation loads. It is thus important that the correct selection be made in order to record Self-Serve and Distributed Generation accurately. Otherwise, aggregate load totals will be incorrect.*)



Upon saving the workbook, a validation is applied that detects a mismatch (i.e., the box is checked but no negative load values are entered, or the box is not checked but at least one negative load value is entered.) The file cannot be saved until the mismatch is corrected.

Rows 25 through 2000 of the Dispersed Load areas consist of delivery point identification and Load value input cells.

The information to be provided in the Dispersed Load area, in kilowatts (kW), shall include the following:

Aggregated Loads Data Area

**Row 13: [Calculated, not editable]** Total Load, consisting of the sum of three other aggregated Load values: “Total without Self-Serve and Dist. Gen.” (row 14), “Self-Serve” (row 15), and “Distributed Generation” (row 16).

**Row 14: [Calculated, not editable]** The aggregated dispersed loads that are not classified as Self-Serve or Distributed Generation.

**Row 15: [Calculated, not editable]** Self-Serve Load at the time of ERCOT coincident and noncoincident peak load.

*Note: For TDSPs that report Self-Serve Load and Distributed Generation Resources as negative values, click the checkbox located in Column C, row 15. This action changes the Totals formulas on row 13 to accommodate the negative load values.*

**Row 16: [Calculated, not editable]** Distributed Generation at the time of ERCOT coincident and noncoincident peak load. This is a calculated value that may be positive or negative depending on the values entered in the Dispersed Loads section.

**Row 17:** Estimate of Direct Load Control capacity at the time of peak load.

**Row 18:** Estimate of Interruptible Load at the time of peak load.

**Row 19:** Estimate of Energy Efficiency Program capacity at the time of peak load.

*Actual Loads*

**Column G**: Actual base-year winter non-coincident peak load (kW). The winter season is defined as December, January, and February (“winter Peak Load Season”).

**Column J**: Actual base-year delivery point load coincident with ERCOT winter system peak. (The date and time of the ERCOT winter system peak are provided in the column heading.) **Column L**: Calculated coincidence factor. (This is a good data-checking tool. It should not be greater than 100%.)

**Column M**: Actual delivery point summer non-coincident peak load (kW). The summer season is defined as June, July, August, and September (“summer Peak Load Season”).

**Column P**: Actual delivery point load coincident with ERCOT summer system peak. (The date and time of the ERCOT summer system peak are provided in the column heading.)

**Column R**: Calculated coincidence factor. (It should not be greater than 100%.)

**Column S**: Delivery point Load coincident with the ERCOT system minimum. (The date and time of the ERCOT minimum demand is provided in the column heading.)

**Column U**: Calculated ratio of Minimum Load to Peak Load. (This value should not be greater than 100%.)

*Projected Noncoincident Loads*

**Column V**: Projected delivery point summer non-coincident peak demand (kW) for the submittal year.

**Columns X, Z:** Projected delivery point winter and summer non-coincident peak demands (kW) for forecast year 1.

**Columns AB, AD:** Repeat of Columns X and Z for forecast year 2. **Columns AF, AH:** Repeat of Columns X and Z for forecast year 3. **Columns AJ, AL:** Repeat of Columns X and Z for forecast year 4.

**Columns AN, AP:** Repeat of Columns X and Z for forecast year 5. **Columns AR, AT:** Repeat of Columns X and Z for forecast year 6. **Columns AV, AX:** Repeat of Columns X and Z for forecast year 7. **Columns AZ, BB:** Repeat of Columns X and Z for forecast year 8. **Columns BD, BF:** Repeat of Columns X and Z for forecast year 9.

Dispersed Loads Data Area

**Rows 26 through 2000**: Dispersed Load data for each delivery point.

*Delivery Point Identification*

**Column B**: Delivery point name.

**Column C**: Location county name.

**Column D**: SSWG load-flow base case bus number of this delivery point (1-99999). Do not leave these values blank.

**Column E**: SSWG load-flow base-case load ID (Use SS for self-serve loads and DG for distributed generation. This field allows multiple Self-Serve loads, identify them as S1, S2….etc) **Column F**: Metered delivery voltage (kV) based upon location for the reporting power factor.

*Actual Loads*

**Column G**: Actual base-year winter non-coincident peak load (kW). The summer season is defined as June, July, August, and September (“summer Peak Load Season”).

**Column H**: Date of actual delivery point winter non-coincident peak demand (date format: mm/dd/yyyy).

**Column I**: Actual aggregate power factor (PF) at delivery point winter non-coincident peak Load. Enter as a decimal value from zero to one.

**Column J**: Actual base-year delivery point load coincident with ERCOT winter system peak. (The date and time of the ERCOT winter system peak are provided in the column heading.) **Column K**: Actual aggregate power factor at delivery point at ERCOT prior year winter system peak

**Column L**: Calculated coincidence factor. (It should not be greater than 100%.)

**Column M**: Actual delivery point summer non-coincident peak load (kW)

**Column P**: Actual delivery point load coincident with ERCOT summer system peak. (The date and time of the ERCOT summer system peak are provided in the column heading.)

**Column R**: Calculated coincidence factor. (It should not be greater than100%.)

**Column S**: Delivery point Load coincident with the ERCOT system minimum. (The date and time of the ERCOT minimum demand are provided in the column heading.)

**Column U**: Calculated ratio of Minimum Load to Peak Load. (This value should not be greater than 100%.)

*Projected Loads*

**Column V**: Projected delivery point summer non-coincident peak demand (kW) for the submittal year.

**Columns X, Z:** Projected delivery point winter and summer non-coincident peak demands (kW) for forecast year 1.

**Columns AB, AD:** Repeat of Columns X and Z for forecast year 2. **Columns AF, AH:** Repeat of Columns X and Z for forecast year 3. **Columns AJ, AL:** Repeat of Columns X and Z for forecast year 4. **Columns AN, AP:** Repeat of Columns X and Z for forecast year 5.

**Columns AR, AT:** Repeat of Columns X and Z for forecast year 6. **Columns AV, AX:** Repeat of Columns X and Z for forecast year 7. **Columns AZ, BB:** Repeat of Columns X and Z for forecast year 8. **Columns BD, BF:** Repeat of Columns X and Z for forecast year 9.

*Load Type Disaggregation – Actual Delivery Point Load at ERCOT Winter Peak*

**Column BH**: Reactive device, positive sign for capacitors, negative sign for reactors, in kVAR. **Column BI**: Distributed Energy Resource real power, in kW, at the generator terminal (automatically copied from DG value at ERCOT Winter System Peak, edit if necessary)

**Column BJ**: Distributed Energy Resource reactive power, in kVAR, at the generator terminal

*Load Type Disaggregation – Actual Delivery Point Load at ERCOT Summer Peak*

**Column BK**: Reactive device, positive sign for capacitors, negative sign for reactors, in kVAR.

**Column BL**: Distributed Energy Resource real power, in kW, at the generator terminal (automatically copied from DG value at ERCOT Summer System Peak, edit if necessary)

**Column BM**: Distributed Energy Resource reactive power, in kVAR, at the generator terminal

**IMPORTANT:** The ROS approved SSWG Procedure Manual Section 4.2.1(6) states that Distributed Energy Resource shall not be modeled as negative load in any case. The manual, in the same section, also establishes the following DER Types should NOT be embedded in Load Forecasts;

Distributed Generation Resource (DGR)

Distributed Energy Storage Resource (DESR)

Settlement Only Distributed Generation (SODG)

Only Unregistered Distributed Generation (UDG) should be embedded in the Load Forecasts and included in the values provided for columns **BH** - **BK**.

## DSP Power Factor Assessment Sheet

ERCOT shall review Distribution Service Provider (DSP) power factors using the actual summer Load and aggregate power factor information included in the annual Load data request. This sheet is organized for DSPs to report the power factor as measured on the distribution voltage system. Data entry should begin with row 19; sample data has been provided in rows 16-19 for reference purposes. Only one row per delivery point is needed. This sheet has been left unlocked to facilitate removing duplicate rows in case the TSP has reported multiple rows at a delivery point (e.g. Load, Self-Serve and Distributed Generation)

**Column A**: Delivery point name. (This data has been automatically copied from the previous sheet, please verify the information)

**Column B**: Location county name. (This data has been automatically copied from the previous sheet, please verify the information)

**Column C**: Enter Actual delivery point load coincident with ERCOT summer system peak. (The date and time of the ERCOT summer system peak are provided in the column heading.)

**Column D**: Enter Actual delivery point reactive (kVar) coincident with ERCOT summer system peak. (The date and time of the ERCOT summer system peak are provided in the column heading.) Positive sign is used for consumed kVar (lagging delivery point) and negative is sign is used for lightly loaded stations which supply kVar (Leading delivery point).

**Column G**: Enter comments if DSP needs to comment on the station/power factor and how the

DSP is aggregating groups of Facilities.

Columns E and F are calculated, non-editable values. Column E, Calculated KVA, is the KVA at the delivery point coincident with the ERCOT summer system peak hour indicated in the column heading.

Column F, Aggregate Power Factor, is the power factor calculated at the delivery point coincident with ERCOT summer system peak. A positive sign indicates a lagging delivery point and negative sign indicates a lightly loaded station and Leading delivery point. A red value indicates that the power factor is less than the 0.97 threshold cited in Nodal Protocol section 3.15.2(a).

## Documentation Sheet

In conjunction with the data provided in the “Load Detail” sheet, submit a separate narrative document that describes the assumptions and methods used in the development of (1) the coincident peak-hour load projections reported in columns V through BG, and (2) DER data reported in columns BH through BK. The document name should follow the convention described below.

# Submission Instructions

Please start the name of each file you send with the four-letter acronym for your organization (example: LCRA filenames: LCRAyyALDR.xlsx and LCRAyyALDR\_Documentation.docx).

ERCOT will supply an acronym if it is unknown. The next two digits (yy) represent the submittal year (16 for 2016).

The load data submittals shall be sent via e-mail to [aldr@ercot.com.](mailto:aldr@ercot.com) The subject line should be titled ANNUAL LOAD DATA REQUEST for [TDSP name here].