WECC

# 2022 Loads and Resources Data Collection Manual

December 2021

# Table of Contents

## Contents

# Introduction

The WECC Data Collection Manual provides instructions for reporting Loads and Resources (L&R) information WECC requests from all Balancing Authorities (BA) in the Western Interconnection.

The information is used for a variety of analyses, including the State of the Interconnection Report, Western Assessment on Resource Adequacy and by NERC for its reliability assessments. NERC reports parts to the U.S. Department of Energy's (DOE) Energy Information Administration (EIA) to satisfy the filing requirements of Form EIA 411.

# Reporting Responsibility

WECC Members are required to provide L&R information as outlined in the WECC Information Reporting Policy, pursuant to WECC Bylaws § 4.6.11, in addition to MOD-031-2.

## Balancing Authority Responsibility

Each BA must respond to WECC requests for L&R information for its entire Balancing Authority Area (BAA). Responses should include data for the BA and for all non-BA entities in its BAA. BAs are responsible for developing proper procedures for data collection to ensure all requested information is provided and there is no duplication of information.

## Non-Balancing Authority Responsibility

Non-BA entities must respond to BA requests for L&R information as part of WECC L&R requests. Non-BA entities may designate reporting contacts in their organizations. The designated reporting contacts should provide requested information to WECC by the established due date and answer any questions about that information.

# Data Confidentiality

WECC will use and share L&R information in accordance with its Information Reporting and Information Sharing policies. See section 2.1.2.

# Submission Procedure

The 2022 L&R Data Request will occur in two parts. Each has its own requirements and timeline. WECC will issue requests for each part together. Responses must be returned to WECC Stakeholder Support Services through the electronic file sharing site before WECC will consider a BA to have satisfied its reporting obligation.

**Table 1: Reporting Timeline**

| Part | Dates |
|---|---|
| **Part One** | **Issue Date**: December 17, 2021<br>**Due Date**: January 24, 2022 |
| **Part Two** | **Issue Date**: December 17, 2021<br>**Due Date**: February 21, 2022 |

**Part One** will include:

- All existing generation resources located within the BA
- All planned generation resources located anywhere
- 2021 hourly generation

**Part Two** will include:

- Regulating reserves
- 2021 hourly demand
- 2021 and ten-year monthly peak demand and energy forecasts; including:
    1. Demand-Side Management (DSM) and Energy Efficiency on peak hour 2021 and forecasts
    2. Standby demand under contract on peak hour, 2021 and forecasts
- Year 10 Supplemental monthly peak load and energy forecasts with new coding
- Projected transmission lines, transformer additions and changes
- Path transfer capabilities between modeling areas
- Actual and forecast resource outages on peak hour

## L&R Data Contacts List

Data reporters can get prompt communication from WECC about requests for L&R information by submitting any changes to L&R Data Contacts during the year to WECC support at support@wecc.org.

## Questions

Send all questions to WECC Support at support@wecc.org or (877) 937 9722

## Section 1—Excel Workbooks

The L&R Data Request uses Excel workbooks. The workbooks contain blank fields to add new information, as well as previously submitted data that must be reviewed and updated where necessary for accuracy.

**Table 2: Workbooks Structure, Part One**

| Workbook | Worksheet | Description |
|---|---|---|
| **Baseload** | **New & Planned Resources** | All existing energy storage generation (do **not** include hydro types) located within the BA and all generation additions planned anywhere |
| **Energy Storage** | **New & Planned Resources** | All existing energy storage generation (do **not** include hydro types) located within the BA and all generation additions planned anywhere |
| | **Hourly** | 2021 hourly charge and discharge |
| | **Validation** | This tab will serve as a cross check in the future when more than one year of energy storage data is available |
| **Solar** | **New & Planned Resources** | All existing solar generation located within the BA and all solar generation additions planned anywhere |
| | **Hourly** | 2021 hourly solar generation |
| | **Validation** | Use this tab to cross check data aligns with expected trends before submitting. Catch and fix errors to either this or previous years' submissions |
| **Wind** | **New & Planned Resources** | All existing wind generation located within the BA and all wind generation additions planned anywhere |
| | **Hourly** | 2021 hourly wind generation |
| | **Validation** | Use this tab to cross check data aligns with expected trends before submitting. Catch and fix errors to either this or previous years' submissions |
| **Hydro** | **New & Planned Resources** | All existing hydro generation located within the BA and all hydro generation additions planned anywhere |
| | **Hourly Run of River** | 2021 run-of-river hourly hydro generation |
| | **Hourly Storage** | 2021 storage-capable hourly hydro generation |
| | **Hourly Pumped Storage** | 2021 pump-storage hourly hydro generation |
| | **Validation** | Use this tab to cross check data aligns with expected trends before submitting. Catch and fix errors to either this or previous years' submissions |

**Table 3: Workbooks Structure, Part Two**

| Workbook | Worksheet | Description |
|---|---|---|
| **Demand** | **Dashboard** | Contact information about BAA, Regulating Reserves |
| | **Validation** | Use this tab to cross check data aligns with expected trends before submitting. Catch and fix errors to either this or previous years' submissions |
| | **Historical Hourly Demand** | 2021 Hourly Demand |
| | **Peak Monthly Forecast** | 2021 and forecasted monthly peak demand, DSM, resource outages and standby demand under contract |
| | **Codes** | `Peak Monthly Codes for Firm demand, DSM types, Unavailable capacity due to scheduled maintenance or inoperable capacity, forced outages (for 2021 only), expected installed capacity of rooftop solar, expected rooftop solar demand served, cumulative conservation & energy efficiency, and standby demand under contract. |
| | **Energy Monthly Forecasts** | Actual and forecast monthly energy |
| **Transmission, Transformers & Paths** | **Directions** | Clarifications and definitions |
| | **Form D Transmission** | Projected transmission line additions and changes |
| | **Form E Transformers** | Projected transformer additions and changes |
| | **Paths** | Transfer path capabilities between modeling areas See directions tab and JA |
| **Year Ten Loads** | **Codes** | A listing of the supplemental peak and energy codes to use on the next two tabs |
| | **Peak** | Year 10 monthly peak forecasts |
| | **Energy** | Year 10 monthly energy forecasts |

## Time Zone Reporting

Report all data in **Mountain Time**.

## Data Checking

Please cross check data before submitting for both accuracy and thoroughness. Here are some common errors and tips to prevent follow-up requests and/or escalation:

- Use the added Validation tabs to check against previous years' submissions, ensuring trendlines

are as expected and providing updates or corrections to other years' submissions as needed

- Hover over column headers to see the included pointer notes and check all accepted abbreviations or codes are being used correctly
- Make sure all actual or anticipated Commission Dates are populated
- Review Retirement Dates for updates
- Tier definitions for WECC and NERC status codes, and the new Power Flow abbreviations, have been provided and must be filled in
- If a Bus Number is not available for a future resource, please provide a County

# Section 2: Reporting Instructions for Part One

## Existing and Planned Generation

Respondents must provide information about all existing and planned generating units **1 MW or greater** in their BAA. Providing information about smaller or behind-the-meter units is voluntarily.

Worksheets include previously reported existing and planned generation. Update the information to be current as of December 31 of 2021. **If you are a BA in the United States, information must be consistent with monthly reports to the DOE in Form EIA- 860**.

If you represent a BA with multiple zones, you should report units according to Table 17.

**Table 4: Period Definitions**

| Period Definitions | Year Number | Calendar Year |
|---|---|---|
| Actual Year | 0 | 2021 |
| Current Year | 1 | 2022 |
| Forecast Years | 2-12 | 2023-2033 |

Include comments in the published or non-published columns as appropriate:

- Explain the status of inoperable units (examples include deactivated shutdown or cold standby)
- Give the reason for actual or planned retirements or derates (such as due to internal energy goals, or State or EPA regulations)
- Report entities with capacity commitments, including their share of remote resources reported on the New & Existing Resources sheets
- Let us know which fields were 'best guesses', like on the location of future resources, their nameplate capacities or commission dates

Report the combustion-turbine and steam portions of combined-cycle units separately. The seasonal capacity should be equal to the capacity that applies when the units are operated in a combined-cycle configuration—i.e., the total should equal the capacity of the combined-cycle unit. An existing steam or combustion-turbine unit that is planned to be converted to a combined cycle unit should not be reported as a combined cycle unit.

## Existing Generation

Existing generation should detail all generating units in the BA with in-service dates up to the end of 2021. Check the data provided for accuracy and make updates as needed. See Table 8 for an explanation of each field on the sheet.

- **New Units:** If there are units missing from the list or new units must be added, fill in a new row at the bottom of the list and provide the proper information. For units that came into service during 2021:

    1. Set the Status Code to Operating (OP);
    2. Set the NERC Class Code to Existing—Certain (EC);
    3. Set the WECC Class Code to 0;
    4. Update the Commission Date; and
    5. Remove these units from the New & Existing Resources sheet.

- **Retired Units:** For units retired during 2021:

    1. Set the Status Code to Retired (RE);
    2. Set the capacity to zero (0);
    3. Update the Retirement Date; and
    4. Remove the unit from the New & Existing Resources sheet.

- **Out-of-Service Units/Units on Standby:** For out-of-service units:

    1. Set the Status Code to Out of Service (OS); and
    2. Set the capacity to zero (0);

    For mothballed and cold standby units:

    1. Set the Status Code to Standby (SB); and
    2. Set the capacity to the expected available capacity when the unit is returned to service.

- **Behind-the-Meter Generation:** Reporting information about behind-the-meter units is voluntary. To show an existing unit is behind-the-meter, set its WECC Class Code to 10.

## Generation Additions/Changes

Generation additions should detail a list of a BA's generating units that have anticipated increases or decreases in generating capacity in future years. This includes construction of new generation,

retirements, and rerates of existing units. Closely review and update the provided list and fill in new rows as needed to provide information for additions and other changes. See Table 8 for an explanation of each field on the sheet.

- **Planned Additions:** Report the capacity of planned additions as the expected available capacity when the unit is commissioned
- **Planned Retirements:** Report retirement dates on resources' original row
- **Planned Rerates:** Report the capacity of planned up-rates and derates by inputting a retirement date for the original line and inserting a new line with the new information for the unit as if new
- **Cancelled Additions:** Units reported on last year should remain on the sheet even if planned changes are cancelled; set the NERC Class Code to CL and the WECC Class Code to 5

### Hourly Hydro, Wind, Solar and Energy Storage Generation

If you include existing hydro, wind, or solar units on the New & Existing resource sheets, you must report hourly actual integrated generation in MWh for those units on the associated worksheet. Include hydro generation in the appropriate worksheet based on technology type. See Table 12 for an explanation of the fields on each sheet.

**Table 5: Hourly Hydro, Wind and Solar Sheets**

| Sheet Name | Resource Type |
|---|---|
| Hourly Hydro—Run of River | Run-of-river hydro units |
| Hourly Hydro—Storage | Storage-capable hydro units |
| Hourly Hydro—Pump Storage | Pump-storage hydro units |
| Hourly Wind | Wind units |
| Hourly Solar | Solar units |

## Section 3: Reporting Instructions for Part Two

### Transfer Path Capabilities

Verify and update the Paths sheet with the proper transfer capabilities between modeling areas. There are two sets of data for each path, inbound and outbound. The list of transmission lines in the Paths sheet identifies cut planes between modeling areas. Report planned upgrades or changes, and their effective dates, in both the Paths and Transmission sheets. See Table 10 for an explanation of the fields on the Paths sheet.

- **Maximum Transfer Capability:** Provide the capability associated with ratings found in the

WECC Path Rating Catalog. If the path is not rated, give your best estimate.

- **Operating Transfer Capability (OTC):** Provide the capability used in daily operations based on seasonal thermal or stability limits.
- **"High Load" Transfer Capability:** Provide the capability that may be reasonably expected under simultaneous, high seasonal-loading conditions. This capability should include restrictions such as simultaneous or loop flows.

## Transmission Lines

Report all transmission lines 100 kV and above that were added during 2021 or are projected to be added during the next 10 years. See Table 13 for an explanation of the fields on the Transmission sheet.

- Make sure each entry has the same attributes (e.g., voltage) over the entire line. If line attributes change over a single project, list each portion separately.
- List each three-phase circuit of a multi-circuit line separately, unless the projected in-service date of one or more circuits is more than 10 years in the future.
- Report retirements and operating voltage changes to multi-circuit lines circuit by circuit, not on a multi-line basis.

## Transformers

Report all transformers with a low-side rating of 100 kV and above that were added during the Actual Year or are projected to be added during the next 10 years. Indicate replacement transformers in the description/status column. See Table 14 for an explanation of the fields on the Transformer sheet.

## Regulating Reserves

In the Demand Workbook, on the Dashboard tab, there is a Regulating Reserve table to the right. Report the amount of regulating reserves expected to be available during the summer and winter seasons. You may report this in MW or as a percentage of load.

## Hourly Demand

Report actual hourly integrated demand in MWh on the Hourly Demand sheet. This should be consistent with what is reported to the Federal Energy Regulatory Commission (FERC) in Form 714. Data will be compared to the Net Energy for Load annual accounting request. See Table 11 for an explanation of each field on the Hourly Demand sheet.

The hour column corresponds to the 8,760 hours of the year (8,784 in leap years). This format eliminates the need to adjust for daylight savings time.

BAs with multiple zones should report demand according to Table 17.

### Peak Demand

Report actual and forecasted demand, DSM and unavailable capacity for the peak hour of each month of the forecast period on the Peak Data sheet. Provide values in MW for each code in Table 6. See Table 15 for an explanation of the fields on the Peak Data sheet.

**Table 6: Peak Data Codes**

| Code | Category | Description |
|---|---|---|
| 1 | Firm demand | Firm demand, excluding station use |
| 2-I | DSM—Expected available | Interruptible demand |
| 2-L | DSM—Expected available | Load management |
| 2-P | DSM—Expected available | Critical peak pricing with control |
| 2-R | DSM—Expected available | Load as a capacity resource |
| 3-IT | DSM—Total enrolled | Interruptible demand |
| 3-LT | DSM—Total enrolled | Load management |
| 3-PT | DSM—Total enrolled | Critical peak pricing with control |
| 3-RT | DSM—Total enrolled | Load as a capacity resource |
| 14 | Unavailable capacity | Scheduled maintenance |
| 15 | Unavailable capacity | Inoperable capacity |
| 16 | Unavailable capacity | Forced outages, Actual Year only |
| 18 | Rooftop solar | Expected installed capacity |
| 19 | Rooftop solar | Expected demand served by rooftop solar |
| 70 | Conservation/Energy Efficiency | Conservation and Energy Efficiency |
| 73 | Standby Demand | Standby demand under contract |

### Energy

Report actual or forecasted monthly net energy for load for each month of the forecast period on the Energy Data sheet. Provide values in GWh for each code in Table 7. See Table 16 for an explanation of the fields on the Energy Data sheet.

**Table 7: Energy Data Codes**

| Code | Description |
|---|---|
| 1 | Firm energy |
| 2 | Non-firm energy |

## Appendix A: File Layout

The following tables explain the layout of the L&R data request worksheets. Refer to these tables for more information about the fields in each worksheet.

**Table 8: New & Existing Generating Resource Fields**

| Column Name | Description |
|---|---|
| Submitted | No data entry needed – this column helps WECC track data vintages |
| Ownership % | Please enter the ownership percentage; zero is accepted |
| NERC ID | NERC-assigned ID |
| EIA Plant Code | Provide the EIA-860 Plant Code for all units in the United States |
| EIA Unit Code | Provide the EIA-860 Unit Code for all units in the United States |
| Bus Number | Bus number that the generating unit ties into or could be anticipated to tie into when it comes online in the future |
| Zone | See Table 17. Use BA for BAs with a single zone |
| BA | Balancing Authority code |
| Org | Load-Serving Entity (LSE) in whose footprint the unit is located (use BA if LSE is unknown) |
| Unit Name | Use name reported on EIA-860 for all units in the United States |
| Unit Number | Unit number (up to four characters) |
| Unit Type | BA..... Energy Storage, Battery<br>CE..... Energy Storage, Compressed Air<br>CP..... Energy Storage, Concentrated Solar Power<br>FW..... Energy Storage, Flywheel<br>PS..... Energy Storage, Reversible Hydraulic Turbine (Pumped Storage)<br>ES..... Energy Storage, Other (specify in comments)<br>ST..... Steam Turbine, including nuclear, geothermal, and solar steam (does not include combined cycle)<br>GT..... Combustion (Gas) Turbine (does not include the combustion turbine part of a combined cycle)<br>IC..... Internal Combustion Engine (diesel, piston, reciprocating)<br>CA ..... Combined Cycle Steam Part<br>CT..... Combined Cycle Combustion Turbine Part<br>CS ..... Combined Cycle Single Shaft (combustion turbine and steam turbine share a single generator)<br>CC..... Combined Cycle Total Unit (plants/generators in planning stage for which specific generator details cannot be provided)<br>HA..... Hydrokinetic, Axial Flow Turbine<br>HB ..... Hydrokinetic, Wave Buoy<br>HK..... Hydrokinetic, Other (specify in comments)<br>HY ..... Hydroelectric Turbine (including turbines associated with delivery of water by pipeline)<br>BT ..... Turbines Used in a Binary Cycle (including those used for geothermal applications)<br>PV..... Photovoltaic<br>WT..... Wind Turbine, Onshore<br>WS..... Wind Turbine, Offshore<br>FC…… Fuel Cell<br>OT …... Other (specify in comments) |

| Column | Description |
|---|---|
| Nameplate | The highest value on the generator nameplate |
| Summer Cap | Net summer capacity |
| Winter Cap | Net winter capacity |
| Primary Fuel | The most predominant type of energy that fuels the generator:<br>ANT ... Anthracite Coal<br>BIT..... Bituminous Coal<br>LIG ..... Lignite Coal<br>SGC ..... Coal-Derived Synthesis Gas<br>SUB ..... Subbituminous Coal<br>WC ..... Waste/Other Coal (including anthracite culm, bituminous gob, fine coal, lignite waste, waste coal)<br>RC..... Refined Coal<br>DFO..... Distillate Fuel Oil (including diesel, No. 1, No. 2, and No. 4 fuel oils)<br>JF ..... Jet Fuel<br>KER ..... Kerosene<br>PC …. Petroleum Coke<br>PG …. Gaseous Propane<br>RFO … Residual Fuel Oil (No. 5, No. 6 fuel oils, and bunker C fuel oil)<br>SGP … Synthetic Gas from Petroleum Coke<br>WO … Waste/Other Oil (including crude oil, liquid butane, liquid propane, naphtha, oil waste, re-refined motor oil, sludge oil, tar oil, or other petroleum-based liquid wastes)<br>BFG … Blast Furnace Gas<br>NG …. Natural Gas<br>OG …. Other Gas (specify in comments)<br>AB …. Agriculture Byproducts<br>MSW ... Municipal Solid Waste<br>OBS … Other Biomass Solids (specify in comments)<br>WDS … Wood/Wood Waste Solids (including paper pellets, railroad ties, utility poles, wood chips, bark, and wood waste solids)<br>OBL … Other Biomass Liquids (specify in comments)<br>SLW … Sludge Waste<br>BLQ … Black Liquor<br>WDL … Wood Waste Liquids excluding Black Liquor (including red liquor, sludge wood, spent sulfite liquor, and other wood-based liquids)<br>LFG … Landfill Gas<br>OBG … Other Biomass Gas (including digester gas, methane, and other biomass gases; specify in the comments field)<br>SUN … Solar<br>WND ... Wind<br>GEO … Geothermal<br>WAT … Water at a Conventional Hydroelectric Turbine, and water used in Wave Buoy Hydrokinetic Technology, Current Hydrokinetic Technology, and Tidal Hydrokinetic Technology; Pumping Energy for Reversible (Pumped Storage) Hydroelectric Turbine<br>NUC … Nuclear (including Uranium, Plutonium, Thorium)<br>PUR … Purchased Steam<br>WH.....Waste Heat not directly attributed to a fuel source<br>TDF .....Tire-Derived Fuels<br>MWH … Electricity used for energy storage<br>OTH .....Other (specify in comments)<br>UKN … Unknown (specify in comments) |

| Column | Description |
|---|---|
| Secondary Fuel | The second-most predominant type of energy that fuels the generator |
| Status Code | Existing Generation<br>OP..... Operating or short-term outage<br>SB..... Cold standby, 3–6 months to reactivate<br>OS..... Out of service<br>RE..... Retired<br><br>Generation Additions<br>P..... Planned for installation but not under active construction<br>L..... Regulatory approval pending but not under active construction (started site preparation)<br>T..... Regulatory approval received but not under active construction<br>U ..... Under active construction, less than or equal to 50% complete (based on construction time to first electric date)<br>V ..... Under active construction, more than 50% complete (based on construction time to first electric date)<br>TS..... Construction complete but not yet in commercial operation (including low power testing of nuclear units)<br>A ..... Generator capability increased (rerated or relicensed)<br>D ..... Generator capability decreased (rerated or relicensed) (indicate reason in comments field)<br>M ..... Generator to be put in deactivated shutdown status<br>RA ..... Previously retired or deactivated generator planned for reactivation<br>RC..... Retirement, committed<br>RU ..... Retirement, uncommitted<br>FC ..... Existing generator planned for conversion to another fuel or energy Source<br>IP ..... Indefinitely postponed<br>CO ..... Change of ownership (including change of shares of jointly owned units) |
| State | State or Province where the unit is located |
| County | County where the unit is located |

| Column Name | Description |
|---|---|
| NERC Class Code | Existing Generation<br>EC.....Existing—Certain; existing units that meet one of the following criteria:<br>• Unit has firm capability and a Power Purchase Agreement (PPA) with firm transmission<br>• Unit is classified as a Designated Network Resource<br>• Unit is a designated market resource eligible to bid into the market<br>EO Existing—Other; existing units that do not meet any of the criteria for EC<br>RE.....Retired; permanently removed from commercial operation<br>MB.....Mothballed; currently inactive or on standby but available for commercial operation<br>Generation Additions<br>T1.....Tier 1; units that meet at least one of the following criteria:<br>• Status Code is RC<br>• Construction complete, not in commercial operation<br>• Under construction<br>• Signed/approved Interconnection Service Agreement (ISA)<br>• Signed/approved Power Purchase Agreement (PPA)<br>• Signed/approved Interconnection Construction Service Agreement (CSA)<br>• Signed/approved Whole Market Participant Agreement (WMPA)<br>• Included in an integrated resource plan or under a regulatory environment that mandates a resource adequacy requirement (for Vertically Integrated Entities)<br><br>T2.....Tier 2; units that do not meet any of the criteria for Tier 1 but that meet one of the following criteria:<br>• Status Code is RU<br>• Feasibility study complete<br>• System impact study complete<br>• Facilities study complete<br>• Interconnection Service Agreement requested<br>• Included in an integrated resource plan or under a regulatory environment that mandates a resource adequacy requirement (for RTOs and ISOs)<br><br>T3.....Tier 3; units that do not meet any of the criteria for Tier 1 or Tier 2<br><br>CL.....Cancelled; units previously reported that have been cancelled or<br>• indefinitely postponed |

| Column Name | Description |
|---|---|
| WECC Class Code | See Table 9 for a comparison of NERC and WECC Class Codes<br><br><u>Existing Generation</u><br>0 Existing Generation; units existing as of December 31 of the Actual Year, excluding behind-the-meter generation<br>10 ..... Existing Generation—Behind-the-Meter<br><br><u>Generation Additions</u><br>Class 1; units under active construction as of December 31 of the Actual Year and projected to be in-service in the period ending five years from the end of the Actual Year. (Include units with a firm date for retirement in the assessment period because of regulatory requirements or corporate decisions.)<br><br>Class 2; units that do not meet the criteria for Class 1, but that meet all the following criteria:<br>• Received regulatory approval or undergoing regulatory review<br>• Signed/approved interconnection agreement<br>• An expected online date in the period ending seven years from the end of 2021<br>Include units expected to be retired in the assessment period<br><br>Class 3; units with a NERC Class Code of T1 or T2, but that do not meet the criteria for WECC Class 1 or Class 2.<br><br>Class 4; units with a NERC Class Code of T3<br><br>Class 5; units previously reported that have been cancelled |
| Power Flow Code | 1 = existing or under construction;<br>2 = w/signed agreements, e.g. signed GIA, signed PPA<br>3 = w/regulatory approval, e.g. approved CPCN, PPA, or Power Plant Siting Certification<br>4 = under generation interconnection study;<br>5 = Application for regulatory approval (e.g., of CPCN, Power Plant Siting) submitted<br>6 = generic; no connection point, may be part of a group of resources in an area<br>7 = generic small resources, bus numbers assigned by Data Submitter<br>8 = generic small resource, bus number assigned by PCDS<br>9 = small resources netted with Load in L&R Submittal, not netted with Load in Power Flow<br>10 = repowered<br>11 = retired |

| Column Name | Description |
|---|---|
| Commission Date | Month and year the unit entered or is expected to enter service |
| Retirement Date | Month and year the unit was or is expected to be retired |
| Latitude | Actual latitude location of unit in XX.XXXXXX/–XX.XXXXXX |
| Longitude | Actual longitude location of unit in XX.XXXXXX/–XX.XXXXXX |
| Reporting Area | Reporting area where the unit is located (for hydro, wind, and solar units) |
| Published Comments | Public explanatory comments |
| Non-Published Comments | Confidential explanatory comments |
| Modeling ID | For WECC use only |

**Table 9: Comparison of NERC and WECC Class Codes to the Power Flow Codes**

| NERC | WECC |
|---|---|
| EC | 0 or 10 |
| EO | 0 or 10 |
| MB | 1 |
| T1 | 1 |
| | 2 |
| | 3 |
| T2 | 2 |
| | 3 |
| T3 | 4 |
| RE | 5 |
| CL | 5 |

**Table 10: Path Fields**

| Column | Description |
|---|---|
| Transfer Capability Summer Max | Aggregate maximum transfer capability from the modeling area in Column B to the modeling area in Column C for summer |
| OTC Summer | Aggregate OTC from the modeling area in Column B to the modeling area in Column C for summer |
| Transfer Capability Summer High Load | Aggregate "High Load" transfer capability from the modeling area in Column B to the modeling area in Column C for summer |
| Transfer Capability Winter Max | Aggregate maximum transfer capability from the modeling area in Column B to the modeling area in Column C for winter |
| OTC Winter | Aggregate OTC from the modeling area in Column B to the modeling area in Column C for winter |
| Transfer Capability Winter High Load | Aggregate "High Load" transfer capability from the modeling area in Column B to the modeling area in Column C for winter |
| Loss % | Transmission loss percent on path |
| Wheel $/MWh | Cost for wheeling on path |

**Table 11: Hourly Demand Fields**

| Column | Description |
|---|---|
| Hour | Hour of year |
| Name | Zone for which demand is reported |
| Hourly Demand | Actual hourly demand in MW |

**Table 12: Hourly Hydro, Hourly Wind, Energy Storage and Hourly Solar Fields**

| Column | Description |
|---|---|
| Hour | Hour of year |
| Name | Zone where generation is located |
| Nameplate Sum | Nameplate capacity of reported units in MW |
| Hourly Generation | Actual integrated generation of reported units in MWh |

**Table 13: Transmission Fields**

| Column | Description |
|---|---|
| NERC Project ID | NERC-assigned ID |
| Project Name | Project name |
| Project Status | • Under Construction<br>• Planned; any of the following criteria are met:<br>  ○ Permits approved<br>  ○ Design complete<br>  ○ Needed to meet a regulatory requirement<br>• Conceptual; any of the following criteria are met:<br>  ○ Projected in a transmission plan<br>  ○ Required to meet a NERC TPL Standard or power-flow model but cannot be categorized as "Under Construction" or “Planned”<br>  ○ Other projected lines that do not meet requirements of “Under Construction” or “Planned”<br>• Completed<br>• Delayed: Load Growth, Permitting Challenges, Siting Challenges, Economics or Other (specify in comments)<br>• Cancelled: Load Growth, Permitting Challenges, Siting Challenges, Economics or Other (specify in comments) |
| Tie Line | Specify whether project is classified as a tie line |
| Primary Driver | • Reliability<br>• Generation Integration<br>• Variable/Renewable Integration<br>• Nuclear Integration<br>• Fossil-Fire Integration<br>• Hydro Integration<br>• Economics or Congestion<br>• Other |
| Secondary Driver (if applicable) | • Reliability<br>• Generation Integration |

| | |
|---|---|
| | • Variable/Renewable Integration<br>• Nuclear Integration<br>• Fossil-Fire Integration<br>• Hydro Integration<br>• Economics or Congestion<br>• Other |
| Terminal Origin | Beginning terminal point location |
| Terminal Endpoint | Ending terminal point location |
| Company Name | Majority owner |
| Company EIA Code | Use company code assigned by EIA for all projects in the United States |
| Entity Type | C..... Cooperative<br>F ..... Federally-owned<br>I ..... Investor-owned<br>M..... Municipality<br>S..... State-owned<br>O Other |
| Ownership (%) | For jointly-owned projects, provide percentage owned by the entity with the highest ownership share. List each owner in the comments with corresponding percentage ownership. If a line is not jointly owned, enter 100 percent. |
| Line Type | OH ..... Overhead<br>UG..... Underground<br>SM..... Submarine |
| Voltage Type | AC..... Alternating Current<br>DC..... Direct Current |
| Line Length (Circuit Miles) | Circuit miles between terminal origin and end point (if a line crosses multiple BAAs, provide only portion in your BAA) |
| Operating Voltage Class (kV) | • 100-120<br>• 121-150<br>• 151-199<br>• 200-299<br>• 300-399<br>• 400-599<br>• 600 + |
| Voltage Design (kV) | • For new lines, provide design voltage. For existing lines, provide current voltage. |
| Circuits per Structure Present | • 1 Three-Phase Circuit<br>• 2 Three-Phase Circuits<br>• 3 Three-Phase Circuits<br>• TBD |
| Circuits Per Structure Ultimate | • 1 Three-Phase Circuit<br>• 2 Three-Phase Circuits<br>• 3 Three-Phase Circuits<br>• TBD |
| Capacity Rating (MVA) | • Normal load-carrying capacity in MVA |

| Column Name Continued | Description |
|---|---|
| Expected In-Service Year | Expected year line will be energized under the control of the system operator |
| Data Submitter Comments | Explanatory information, Cause of Delay/Other Comments |
| Capacity Rating (MVA) | Normal load-carrying capacity in MVA |
| Original In-Service Month | For delayed projects, original month line was scheduled to be energized under the control of the system operator |
| Original In-Service Year | For delayed projects, original year line was scheduled to be energized under the control of the system operator |
| Expected In-Service Month | Expected month line will be energized under the control of the system operator |

**Table 14: Transformer Fields**

| Column Name | Description |
|---|---|
| Project ID | NERC-assigned ID |
| Project Status | • Under Construction<br>• Planned<br>• Conceptual<br>• Completed (specify In-Service date in comments)<br>• Delayed (specify in comments)<br>• Cancelled (specify in comments) |
| Name | Project name |
| Low-Side Voltage (kV) | Low-side voltage |
| High-Side Voltage (kV) | High-side voltage |
| In-Service Month | Expected month transformer will be energized under the control of the system operator |
| In-Service Year | Expected year transformer will be energized under the control of the system operator |
| Data Submitter Comments | Explanatory information, Description/Status |

**Table 15: Peak Data Fields**

| Column Name | Description |
|---|---|
| Year | Year |
| Code | See Table 6. |
| Zone | See Table 17. Use BA for BAs with a single zone. |
| BA | Balancing Authority code |
| Jan-Dec | Monthly value in MW |
| Comment | Explanatory comments |

**Table 16: Energy Data Fields**

| Column Name | Description |
|---|---|
| Year | Year |
| Code | See Table 7. |
| Zone | See Table 17. Use BA for BAs with a single zone. |
| BA | Balancing Authority code |
| Jan-Dec | Monthly value in GWh |
| Comment | Explanatory comments |

# Appendix B—Zones

**Table 17: BAs with Multiple Zones**

| BA | Description | Zone |
|---|---|---|
| PACE | PAC, Wyoming | PAWY |
| PACE | PAC, Idaho | PAID |
| PACE | PAC, Utah | PAUT |
| PACE | BAA Total Demand | PACE |
| CISO | PGAE, Bay | CIPB |
| CISO | PGAE, Valley | CIPV |
| CISO | SCE | CISC |
| CISO | SDGE | CISD |
| IPCO | Treasure Valley | IPTV |
| IPCO | Magic Valley | IPMV |
| IPCO | Far East | IPFE |
| WALC | Arizona | WAAZ |
| WALC | New Mexico | WANM |
| WACM | Colorado | WACO |
| WACM | Wyoming | WAWY |

**Table 18: Supplemental Load Codes**

| Code | Description | Remarks |
|---|---|---|
| 1001 | Gross load **with** transmission loss (Peak) | Gross load = BA load reduced only for Energy Efficiency (EE) Savings and includes losses in the distribution system. If Gross Load with Transmission Loss is entered, also enter the associated Transmission Loss (Code 1005). |
| 1002 | Or submit Gross load with**out** transmission loss (Peak) | If Gross Load without Transmission Loss is entered, then it is not necessary to enter the associated Transmission Loss. |
| 1003 | Net load **with** transmission loss (Peak) | Net load = Gross load - Incremental committed EE - AAEE – DG_BTM – DR – EV - Storage - Pumping load (if included in L&R). If Net Load with Transmission Loss is entered, also enter the associated Transmission Loss |

| Code | Description | Remarks |
|---|---|---|
| | | (Code 1005) |
| 1004 | Or submit Net load with**out** transmission loss (Peak) | If Net Load without Transmission Loss is entered, then it is not necessary to enter the associated Transmission Loss. |
| 1005 | Transmission losses (Peak) | |
| 1010 | Transmission losses (Energy) | |
| 1006 | Gross load with transmission loss (Energy) | Gross load = BA load reduced only for Energy Efficiency (EE) Savings and includes losses in the distribution system. If Gross Load with Transmission Loss is entered, also enter the associated Transmission Loss (Code 1010) |
| 1007 | Or submit Gross load without transmission loss (Energy) | If Gross Load without Transmission Loss is entered, then it is not necessary to enter the associated Transmission Loss |
| 1008 | Net load with transmission loss (Energy) | Net load = Gross load - Incremental committed EE - AAEE – DG_BTM – DR – EV - Storage - Pumping load (if included in L&R). If Net Load with Transmission Loss is entered, also enter the associated Transmission Loss (Code 1010). |
| 1009 | Or submit Net load without transmission loss (Energy) | If Net Load without Transmission Loss is entered, then it is not necessary to enter the associated Transmission Loss. |
| 1052 | DG_BTM - Monthly maximum | Net metering tariffs might help provide a partial picture of the monthly BTM DG |
| 1053 | DG_BTM - Monthly energy | |
| 1061 | Committed Incremental EE - Projected capacity | Committed Incremental EE = projected committed EE that are not already included in the Gross Load - in case the Gross Load only include EE for the base year, and not the projected EE. |
| 1062 | Committed Incremental EE - Monthly maximum | |
| 1063 | Committed Incremental EE - Monthly energy | |
| 1064 | Committed Incremental EE - Monthly peak impact | The EE value in the PF case for the Peak conditions should be one of the monthly peak impact values |
| 1071 | AAEE - Projected capacity | AAEE = Additional Achievable Energy Efficiency Savings, new entry to reflect uncommitted EE beyond what is already included in Gross load. |
| 1072 | AAEE - Monthly maximum | |
| 1073 | AAEE - Monthly energy | |
| 1074 | AAEE - Monthly peak impact | The AAEE value in the PF case for the Peak conditions should be one of the monthly peak impact values |
| 1081 | DR_Control - Projected capacity under the control of the BAA | DR_BA = Demand Response (DR) under the control of the BAA = customer reduction in electricity usage, such that the customer's normal consumption pattern is reduced in response to price changes or incentive payments designed to lower electricity use at times of system stress or high market prices. (DDVM, P.13 and P.24 and P.33). |
| 1082 | DR_Control - Monthly maximum | |
| 1083 | DR_Control - Monthly energy | |
| 1084 | DR_Control - Monthly peak impact | The amount of DR, if used in the PF case for the Peak conditions, should be one of the monthly peak impact values |
| 1091 | DR - Projected capacity NOT under the control of the BAA | DR = Demand Response (DR) NOT under the control of the BAA = customer reduction in electricity usage, such that the customer's normal consumption pattern is reduced in response to price changes or incentive payments designed to lower electricity use at times of system stress or high market prices. (DDVM, P.13 and P.24 and P.33) |
| 1092 | DR - Monthly maximum | |

| Code | Description | Remarks |
|---|---|---|
| 1093 | DR - Monthly energy | |
| 1094 | DR - Monthly peak impact | The amount of DR not under the control of the BAA, if used in the PF case for the Peak conditions, should be one of the monthly peak impact values |
| 1101 | EV - Projected capacity | EV = Electric Vehicle charging, new entry because EV charging can have different characteristic than customer load. |
| 1102 | EV - Monthly maximum | |
| 1103 | EV - Monthly energy | |
| 1104 | EV - Monthly peak impact | The EV load in the PF case for the Peak conditions should be one of the monthly peak impact values |
| 1111 | Storage_BTM - Installed Capacity (Discharging = positive value) | BTM Storage, e.g. battery (DDVM P.13, P.19) |
| 1112 | Storage_BTM - Installed Capacity (Charging = negative value) | |
| 1113 | Storage_BTM - Monthly maximum (Charging or Discharging) | |
| 1114 | Storage_BTM - Monthly Energy (Discharging) | |
| 1115 | Storage_BTM - Monthly Energy (Charging) | |
| 1116 | Storage_BTM - Monthly peak impact | The BTM Storage in the PF case for the Peak conditions should be one of the monthly peak impact values |
| 1121 | BTM_Pumping Load - Installed Capacity | BTM Pumping Load = pumping load for water delivery (e.g., State pumps) to the extent it is included in the load - new entry because some pumping loads are combined with customer loads |
| 1122 | BTM_Pumping load - Monthly maximum | |
| 1123 | BTM_Pumping load - Monthly Energy | |
| 1124 | BTM_Pumping load - Monthly peak impact | BTM Pumping Load in the PF case for the Peak conditions should be one of the monthly peak impact values |
| 1131 | Transmission-Connected Non-Pumped Storage Pumping load - Installed capacity | Pumping load (e.g., for water delivery) = remove from the Gross load if they are included by individual BAs in their L&R data submittal (DDVM, P.18 and P.23). Pumping Loads are typically modeled as non-conforming Load at the PF Bus |
| 1132 | Transmission-Connected Non-Pumped Storage Pumping load - Monthly maximum | |
| 1133 | Transmission-Connected Non-Pumped Storage Pumping load - Monthly Energy | |
| 1134 | Transmission-Connected Non-Pumped Storage Pumping load - Monthly peak impact | The Transmission Connected Pumping Load in the PF case for the Peak conditions should be one of the monthly peak impact values |

## Appendix C—Glossary

Please consider the following definitions when you prepare L&R information. Direct your questions about the intended meaning of a term to WECC Stakeholder Services at support@wecc.org.

| Term | Definition |
|---|---|
| Active construction | Construction with personnel consistently on site, payroll met, building material delivery ongoing, turbines or other major items on order, etc. |

| Term | Definition |
|---|---|
| Balancing Authority Area | The collection of generation, transmission, and loads in the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance in this area. |
| Biomass | Any organic material not derived from fossil fuels, e.g., animal waste, agricultural and forest byproducts, and municipal refuse |
| Conservation | Implementation of measures that decrease energy consumption of targeted end users resulting in beneficial load shape changes, often by encouraging the use of more efficient appliances and equipment. |
| Critical Peak Pricing with Control | Demand that combines direct control with a pre-specified high price that can be interrupted during designated critical peak periods.<br>Demand should be reported only once as either Load Management or Critical Peak Pricing with Control but not both. |
| Demand | The electric energy requirements of the system, defined as the system net generation plus energy received from others less energy delivered to others. Includes system losses but excludes energy required for the filling of reservoirs at pumped-storage plants. |
| Demand-Side Management | All activities or programs undertaken by an electric system or its customers to influence the amount and timing of electric use. |
| Energy Efficiency | Programs that are aimed at reducing the energy used by specific end- use devices and systems. |
| Firm demand | Demand meant to be served constantly during the period covered by the commitment, even under adverse conditions. |
| Forced outage | An unexpected outage that requires the immediate removal of a unit from service. |
| Fuel cell | A device in which a chemical process converts fuel directly into energy. |
| Inoperable generation | Generation limited due to environmental, legal, or regulatory restrictions, extensive modification or repairs, lack of fuel, or lack of workforce. Does not include scheduled maintenance or forced outages. |
| Interruptible demand | Demand the end user has made available for curtailment. |
| Load as a Capacity Resource | Demand that acts as a capacity resource that can be committed for pre- specified load reduction under certain conditions. |
| Load Management | Demand under the direct control of the system operator. |
| Modeling area | An aggregation of areas with similar demand patterns and operational practices. |

| Term | Definition |
|---|---|
| Nameplate | The full-load, continuous rating of a generator under specific conditions as designated by the manufacturer. |
| Peak demand | The largest electric power requirement during a specific period. |
| Regulating reserve | The amount of reserve responsive to Automatic Generation Control to provide a normal regulating margin. |
| Remote resource | Resources physically located in one BAA but with capacity commitments to an entity located in another BA's geographic footprint. |
| Scheduled maintenance | Shutdown of a generating unit, transmission line, or other facility for inspection or maintenance, scheduled in advance. |
| Standby load under contract | Demand normally served by behind-the-meter generation that has a contract with an LSE to provide energy if the specified generator(s) becomes unavailable. |
| Summer capacity | The expected capacity of a generating unit available to the grid during the peak of the summer season. Does not include station service capacity or reflect planned outages. |
| Winter capacity | The expected capacity of a generating unit available to the grid during the peak of the winter season. Does not include station service capacity or reflect planned outages. |

*WECC receives data used in its analyses from a wide variety of sources. WECC strives to source its data from reliable entities and undertakes reasonable efforts to validate the accuracy of the data used. WECC believes the data contained herein and used in its analyses is accurate and reliable. However, WECC disclaims any and all representations, guarantees, warranties, and liability for the information contained herein and any use thereof. Persons who use and rely on the information contained herein do so at their own risk.*