|  |  |  |  |
| --- | --- | --- | --- |
| RRGRR Number | [023](http://www.ercot.com/mktrules/issues/rrgrr023) | RRGRR Title | Related to NPRR1002, BESTF-5 Energy Storage Resource Single Model Registration and Charging Restrictions in Emergency Conditions |
| Date of Decision | | July 9, 2020 | |
| Action | | Recommended Approval | |
| Timeline | | Normal | |
| Proposed Effective Date | | Upon system implementation of Nodal Protocol Revision Request (NPRR) 1002, BESTF-5 Energy Storage Resource Single Model Registration and Charging Restrictions in Emergency Conditions, NPRR1026, BESTF-7 Self-Limiting Facilities and Self-Limiting Resources, and NPRR1029, BESTF-6 DC-Coupled Resources | |
| Priority and Rank Assigned | | Not applicable | |
| Resource Registration Glossary Sections Requiring Revision | | Section 2, Resource Registration Glossary - GENERAL\_SITE\_ESI ID\_Information - General and Site Information  Section 2, Resource Registration Glossary - GENERAL\_SITE\_ESI ID\_Information - Gen Load Split - ESI ID  Section 2, Resource Registration Glossary - GENERAL\_SITE\_ESI ID\_Information - Private Network – Site  Section 2, Resource Registration Glossary – Unit Information  Section 2, Resource Registration Glossary – Unit Info – DG  Section 2, Resource Registration Glossary – Unit Information – AGR  Section 2, Resource Registration Glossary – Unit Information – Train  Section 2, Resource Registration Glossary – Unit Information – CC  Section 2, Resource Registration Glossary – Unit Info – Renewable Resource Unit Information  Section 2, Resource Registration Glossary – Unit Info – Energy Storage Resource (new)  Section 2, Resource Registration Glossary – Unit Info – Turbine Details  Section 2, Resource Registration Glossary – Inverter Details  Section 2, Resource Registration Glossary – Panel Details  Section 2, Resource Registration Glossary – PVGR Connectivity  Section 2, Resource Registration Glossary – ESR Connectivity (new)  Section 2, Resource Registration Glossary – Ownership  Section 2, Resource Registration Glossary – Parameters  Section 2, Resource Registration Glossary – Operational Parameters  Section 2, Resource Registration Glossary – Operational Parameters – NRRC (Normal Ramp Rate Curve)  Section 2, Resource Registration Glossary – Operational Parameters – ERRC (Emergency Ramp Rate Curve)  Section 2, Resource Registration Glossary – CC Configurations  Section 2, Resource Registration Glossary – CC Transitions  Section 2, Resource Registration Glossary – Private Network – Unit  Section 2, Resource Registration Glossary – Reactive Capability  Section 2, Resource Registration Glossary – Planning  Section 2, Resource Registration Glossary – Protection  Section 2, Resource Registration Glossary – Subsynchronous Information (if requested by ERCOT)  Section 2, Resource Registration Glossary – Collector System  Section 2, Resource Registration Glossary – Collector System Segment Data  Section 2, Resource Registration Glossary – Generation Information – Load Resource  Section 2, Resource Registration Glossary – Load Resource Information  Section 2, Resource Registration Glossary – Load Resource Parameters  Section 2, Resource Registration Glossary – Line Data (as applicable)  Section 2, Resource Registration Glossary – Line Temperature (as applicable)  Section 2, Resource Registration Glossary – Most Limiting Series Element  Section 2, Resource Registration Glossary – Breaker Switch Data (as applicable)  Section 2, Resource Registration Glossary – Capacitor and Reactor Data (as applicable)  Section 2, Resource Registration Glossary – Transformer Data (as applicable)  Section 2, Resource Registration Glossary – Transformer Tap Settings (as applicable)  Section 2, Resource Registration Glossary – Static Var Compensator Data (as applicable)  Section 2, Resource Registration Glossary – Station  Section 2, Resource Registration Glossary – Series Device Data (as applicable)  Section 2, Resource Registration Glossary – Load Data (as applicable)  Section 2, Resource Registration Glossary – PUN Load Data  Section 2, Resource Registration Glossary – Miscellaneous | |
| Related Documents Requiring Revision/Related Revision Requests | | Nodal Operating Guide Revision Request (NOGRR) 208, Related to NPRR1002, BESTF-5 Energy Storage Resource Single Model Registration and Charging Restrictions in Emergency Conditions  NPRR1002  NPRR1026  NPRR1029 | |
| Revision Description | | This Resource Registration Glossary Revision Request (RRGRR) establishes provisions and requirements in the Resource Registration Guide for Energy Storage Resources (ESRs) that are identical to those already in place for Generation Resources and Settlement Only Generators (SOGs). | |
| Reason for Revision | | Addresses current operational issues.  Meets Strategic goals (tied to the [ERCOT Strategic Plan](http://www.ercot.com/content/wcm/lists/144926/ERCOT_Strategic_Plan_2019-2023.pdf) or directed by the ERCOT Board).  Market efficiencies or enhancements  Administrative  Regulatory requirements  Other: (explain)  *(please select all that apply)* | |
| Business Case | | This RRGRR provides clarity and certainty for existing and new ESRs in the ERCOT System. | |
| ROS Decision | | On 6/4/20, ROS unanimously voted via roll call to recommend approval of RRGRR023 as amended by the 5/27/20 ERCOT comments. All Market Segments were present for the vote.  On 7/9/20, ROS unanimously voted via roll call to endorse and forward to TAC the 6/4/20 ROS Report as amended by the 7/2/20 ERCOT comments and the Revised Impact Analysis for RRGRR023. All Market Segments were present for the vote. | |
| Summary of ROS Discussion | | On 6/4/20, there was no discussion.  On 7/9/20, there was no discussion. | |

|  |  |
| --- | --- |
| Sponsor | |
| Name | Sandip Sharma |
| E-mail Address | [Sandip.sharma@ercot.com](mailto:Sandip.sharma@ercot.com) |
| Company | ERCOT |
| Phone Number | 512-248-4298 |
| Cell Number |  |
| Market Segment | Not applicable |

|  |  |
| --- | --- |
| **Market Rules Staff Contact** | |
| **Name** | Cory Phillips |
| **E-Mail Address** | [cory.phillips@ercot.com](mailto:cory.phillips@ercot.com) |
| **Phone Number** | 512-248-6464 |

|  |  |
| --- | --- |
| **Comments Received** | |
| Comment Author | **Comment Summary** |
| ERCOT 051520 | Added new fields for additional Resource types planned for upcoming Revision Requests |
| ERCOT 052720 | Provided additional clarifications to the 5/15/20 ERCOT comments |
| ERCOT 070220 | Proposed additional redlines stemming from the incorporation of RRGRR021, Dynamic Model Requirement for TSAT, into the March 1, 2020 Resource Registration Glossary |

|  |
| --- |
| Market Rules Notes |

Please note the baseline Resource Registration Glossary language in the following section(s) has been updated to reflect the incorporation of the following RRGRR(s) into the Resource Registration Glossary:

* RRGRR021 (incorporated 3/1/20)
  + Section 2, Resource Registration Glossary – Miscellaneous
  + Section 2, Resource Registration Glossary – Protection

Please note that the following RRGRR(s) also proposes revisions to the following section(s):

* RRGRR022, Related to NPRR973, Add Definitions for Generator Step-Up and Main Power Transformer
  + Section 2, Resource Registration Glossary – Protection
  + Section 2, Resource Registration Glossary – Transformer Data
* RRGRR024, Related to NPRR1003, Elimination of References to Resource Asset Registration Form
  + Section 2, Resource Registration Glossary – Reactive Capability
  + Section 2, Resource Registration Glossary – Protection
  + Section 2, Line Data (as applicable)
  + Section 2, Breaker Switch Data (as applicable)
  + Section 2, Transformer Data (as applicable)
  + Section 2, Static Var Compensator Data (as applicable)
  + Section 2, Station
  + Section 2, Miscellaneous
* RRGRR025, Related to NPRR1005, Clarify Definition of Point of Interconnection (POI) and Add Definition Point of Interconnection Bus (POIB)
  + Section 2, Resource Registration Glossary – Unit Information
* RRGRR026, Related to NPRR1016, Clarify Requirements for Distribution Generation Resources (DGRs) and Distribution Energy Storage Resources (DESRs)
  + Section 2, Resource Registration Glossary – General and Site Information

|  |
| --- |
| Proposed Guide Language Revision |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RARF Tab** | | **Wind** | **Solar Photovoltaic (PV)** | **Energy Storage Resource (ESR)** | **Conventional Generation (Gen)** | **Combined Cycle (CC)** | **Load Resources** | **Distributed Generation** | **Notes** | **Field Name** | **Definition / Detailed Description** | **Screening Study (SS)  (R, C, O, A)** | **Full Interconnect Study (FIS)  (R, C, O, A)** | **Planning Model (R, C, O, A)** | **Full Registration  (R, C, O, A)** |  | |
| **GENERAL\_SITE\_ESIID\_Information - General and Site Information** | | | | | | | | | | | | | | | | | |
| General and Site | | X | X | X | X | X |  | X | List | This submittal is for: | Select from drop down: New Site, Revision, Addition of unit(s), or Deletion of unit(s). |  |  | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | mm/dd/yyyy | Date Form Completed: | Enter date that form completed/revised in the format MM/DD/YYYY. |  |  |  | O |  | |
| General and Site | | X | X | X | X | X |  | X | Text | Resource Entity Submitting Form: | Enter the name of the Resource Entity/ Interconnecting Entity. The RE must be the same entity name that filed on the Standard Form Agreement. The IE must be the same entity name that filed on the Generation Entity Information Sheet. The Protocols require that a Load Resource must also complete and submit an Application. |  |  | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | Number | Resource Entity DUNS #: | Enter the Market Participant unique identifier as registered with ERCOT for the Resource Entity (e.g. DUNS number plus '3XXX' as assigned by ERCOT). | R | R | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | Text | Resource Site Name: | Resource site or main Facility name (e.g. Cedar Bayou Plant). Determined jointly with ERCOT. |  |  |  | R |  | |
| General and Site | | X | X | X | X | X |  | X | Text | Resource Site Code: | Code for Resource site (e.g. Cedar Bayou Plant is CBY). Determined jointly with ERCOT. | R | R | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | Text | Street Address: | Physical Street Address of the plant site |  |  | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | Text | City: | City associated with the physical street address of the plant site. |  |  |  | R |  | |
| General and Site | | X | X | X | X | X |  | X | Text | State: | State associated with the physical street address of the plant site. |  |  |  | R |  | |
| General and Site | | X | X | X | X | X |  | X | Text | Zipcode: | Zip code associated with the physical street address of the plant site. |  |  |  | R |  | |
| General and Site | | X | X | X | X | X |  | X | List | County: | County associated with the physical street address of the plant site. | R | R | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | Date | Site In-Service Date: | Date is the date when site was (or is planned to be) commissioned. Entered once initially for the Screening Study. Updated once for FIS. Updated once for the Full Registration. Updated finally for the site commissioning. | R | R | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | Date | Site Stop Service Date: | Model Ready Date when RE retires or relinquishes ownership of all equipment. Blank if not applicable/known. |  |  |  | O |  | |
| General and Site | | X | X | X | X | X |  | X | List | Congestion Management Zone for 2003: | This information can be found in the ERCOT Data Dictionary on the Planning and Operations Information website. For newer units, please contact ERCOT. |  |  |  | R |  | |
| General and Site | | X | X | X | X | X |  | X | Y/N | Resource owned by NOIE? | Indicate Non Opt-In Entity Ownership of Resource | R | R | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | Y/N | Is Resource behind a NOIE Settlement Meter Point? | For Resources that are connected to the grid behind NOIE Settlement Meter Points |  |  |  | R |  | |
| General and Site | | X | X | X | X | X |  | X |  | Number of EPS Primary meters: | Enter the total number of primary ERCOT-Polled Settlement (EPS) Meters associated with this site. |  |  |  | R |  | |
| General and Site | | X | X | X |  |  |  |  | Y/N | Is Resource a DC-Coupled Resource as defined in ERCOT Protocol Section 2.1, Definitions? | Refer to ERCOT Protocol Section 2.1, Definitions, for the definition of a DC-Coupled Resource. |  |  |  |  |  | |
| General and Site | |  |  | X |  |  |  |  | Y/N | Is Resource a Self-Limiting Resource as defined in ERCOT Protocol Section 2.1, Definitions? | Refer to ERCOT Protocol Section 2.1, Definitions, for the definition of a Self-Limiting Resource |  |  |  |  |  | |
| General and Site | | X | X | X | X | X |  |  | Y/N | Is Resource a part of a Self-Limiting Facility as defined in ERCOT Protocol Section 2.1, Definitions? | Refer to ERCOT Protocol Section 2.1, Definitions, for the definition of a Self-Limiting Facility. |  |  |  |  |  | |
| General and Site | | X | X | X | X | X |  | X | Y/N | Is Resource claiming status as a Settlement Only Generator (SOG) as defined in ERCOT Protocol Section 2.1, Definitions? | Refer to Protocol Section 2.1, Definitions, for the definition of a Settlement Only Generator (SOG). |  |  |  | R |  | |
| General and Site | | X | X | X | X | X |  | X | Y/N | Is Resource >10 MW? | Indicate if the Resource nameplate rating is greater than 10 MW (Gross). Required if Resource is claiming Settlement Only Generator (SOG) status. |  |  |  | C |  | |
| General and Site | | X | X | X | X | X |  | X | Text | Printed Name: | Enter the Primary Contact person who can address ERCOT questions regarding Resource Registration submittal. Enter the contact's name, title, phone number, and email address. | R | R | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | Text | Title: | Enter the Title of the Primary Contact | R | R | R | R |  | |
| General and Site | | X | X | X | X | X |  | X |  | Phone Number: | Enter the Phone Number for the Primary Contact | R | R | R | R |  | |
| General and Site | | X | X | X | X | X |  | X |  | E-mail Address: | Enter the E-mail Address for the Primary Contact | R | R | R | R |  | |
| General and Site | | X | X | X | X | X |  | X | Text | Printed Name: | Enter the Secondary Contact person who can address ERCOT questions regarding Resource Registration submittal. Enter the contact's name, title, phone number, email address, and fax number. | O | O | O | O |  | |
| General and Site | | X | X | X | X | X |  | X | Text | Title: | Enter the Title of the Secondary Contact |  |  | O | O |  | |
| General and Site | | X | X | X | X | X |  | X |  | Phone Number: | Enter the Phone Number for the Secondary Contact |  |  | O | O |  | |
| General and Site | | X | X | X | X | X |  | X |  | E-mail Address: | Enter the E-mail Address for the Secondary Contact |  |  | O | O |  | |
| **GENERAL\_SITE\_ESI ID\_Information - Gen Load Split - ESI ID** | | | | | | | | | | | | | | | | | |
| Gen Load Split - ESIID | | X | X |  | X | X |  | X | Y/N | Generation Load Split? | Select "Y" if unit(s) represent Split Generation Resources behind the EPS Meter, or, if Load is split across multiple TDSPs. |  |  |  | R |  | |
| Gen Load Split - ESIID | | X | X | X | X | X |  | X | Y/N | ERCOT Read Meter? | Select "Y" if the meter is an ERCOT Polled Settlement Meter. |  |  |  | R |  | |
| Gen Load Split - ESIID | | X | X | X | X | X |  | X |  | ESI ID: | Enter the ESI ID associated with EACH EPS meter. Required unless behind a NOIE Settlement Point. |  |  |  | C |  | |
| Gen Load Split - ESIID | | X | X | X | X | X |  | X | List | TDSP Providing Service To Resource: | From the drop-down menu, select the name of the TDSP that provides transmission or distribution service to the site for the ESI ID. Required unless behind a NOIE Settlement Point. |  |  |  | C |  | |
| Gen Load Split - ESIID | | X | X | X | X | X |  | X | Automatic | TDSP DUNS Number: | The TDSP DUNS number is automatically populated based on TDSP selection. |  |  |  | A |  | |
| Gen Load Split - ESIID | | X | X |  | X | X |  | X |  | Fixed Load Splitting | Enter the fixed percentage of Load associated with each ESI ID. |  |  |  | C |  | |
| Gen Load Split - ESIID | | X | X | X | X | X |  | X | List | Load Serving Entity | Enter the Load Serving Entity (LSE) associated with that ESI ID. |  |  |  | C |  | |
| Gen Load Split - ESIID | | X | X | X | X | X |  | X | Automatic | Load Serving Entity DUNS # | The LSE DUNS number is automatically populated based on LSE selection. |  |  |  | A |  | |
| **GENERAL\_SITE\_ESIID\_Information - Private Network - Site** | | | | | | | | | | | | | | | | | |
| Private Network - Site | | X | X | X | X | X |  | X | Y/N | Private Network? | Indicate if the site is a Private Use Network as defined in the Protocol Section 2. | R | R | R | R |  | |
| Private Network - Site | | X | X | X | X | X |  | X | MW | Average Amount of Self-serve Private Load | If the site is a Private Use Network, then enter the amount of the total SITE generation MW output used for self serve and not available for the grid. | C | C | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X | MVAR | Average Amount of Self-serve Private Reactive Load | If the site is a Private Use Network, then enter the amount of the total SITE generation MVAr output used for self serve and not available for the grid. | C | C | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X | MW | Expected Typical Private Network Net Interchange | If the site is a Private Use Network, then enter the MW Net Interchange of the SITE, with the ERCOT grid (typically Net=Gen-Load). | C | C | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X | MVAR | Expected Typical Private Network Net Reactive Interchange | If the site is a Private Use Network, then enter the MVAr Net Interchange with of the SITE, with the ERCOT grid (typically Net=Gen-Load). | C | C | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X | MW | Private Network Gross Unit Capability | If the site is a Private Use Network, then enter the MW Gross Generation Capability for the SITE. | C | C | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X | MVAR | Private Network Gross Unit Reactive Capability | If the site is a Private Use Network, then enter the MVAr Gross Generation Capability for the SITE. | C | C | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X |  | Large Motor, Percent of Total MW Load | Enter % of total MW Load per Load type. The split between large and small motor should be along voltage lines - where motors connected at 2400/4160V and above should be considered large, and below 2400/4160V should be considered small. |  |  | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X |  | Small Motor, Percent of Total MW Load | Enter % of total MW Load per Load type. The split between large and small motor should be along voltage lines - where motors connected at 2400/4160V and above should be considered large, and below 2400/4160V should be considered small. |  |  | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X |  | Resistive (heating) Load, Percent of Total MW Load | Enter % of total MW Load per Load type. |  |  | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X |  | Discharge Lighting, Percent of Total MW Load | Enter % of total MW Load per Load type. |  |  | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X |  | Other, Percent of Total MW Load | Enter % of total MW Load per Load type. |  |  | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X |  | Large Motor, Percent of Total MVAR Load | Enter % of total MVAr Load per Load type. The split between large and small motor should be along voltage lines - where motors connected at 2400/4160V and above should be considered large, and below 2400/4160V should be considered small. |  |  | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X |  | Small Motor, Percent of Total MVAR Load | Enter % of total MVAr Load per Load type. The split between large and small motor should be along voltage lines - where motors connected at 2400/4160V and above should be considered large, and below 2400/4160V should be considered small. |  |  | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X |  | Discharge Lighting, Percent of Total MVAR Load | Enter % of total MVAr Load per Load type. |  |  | C | C |  | |
| Private Network - Site | | X | X | X | X | X |  | X |  | Other, Percent of Total MVAR Load | Enter % of total MVAr Load per Load type. |  |  | C | C |  | |
| **Unit Information** | | | | | | | | | | | | | | | | | |
| Unit Information | | X | X | X | X |  |  | X |  | Resource Site Code: | Enter the Site Code established in the General and Site Information tab of the GENERAL\_SITE\_ESIID\_Information workbook. | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  | X | All Caps | UNIT NAME | Enter Unit Code for the generator unit (e.g. Cedar Bayou Plant Gen 1 is "CBYG1"). For ESR this is the name of the ESR while discharging. | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  | X | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  | A | A |  | |
| Unit Information | |  |  | X |  |  |  |  | All Caps | Energy Storage Resource (ESR) Name | This name is used to tie ESR discharging and charging, prior to single ESR model era. | R | R | R | R |  | |
| Unit Information | |  |  | X |  |  |  |  | All Caps | Dispatch Asset Code (provided by ERCOT) | For ESR enter the Dispatch Asset Code (this code will be provided by ERCOT). This code will be used for ESR while charging |  |  |  | R |  | |
| Unit Information | |  |  | X |  |  |  |  |  | ESIID assigned to meter | ESI ID number assigned to the meter. For NOIEs, the TDSP will create a non-settlement ESI ID. |  |  |  | R |  | |
| Unit Information | |  |  | X |  |  |  |  | Y/N | Wholesale Delivery Point? | Enter Y or N, if the point of delivery is a wholesale delivery point. |  |  |  | R |  | |
| Unit Information | | X | X | X | X |  |  |  | Y/N | Settlement Only Generator (SOG) | Refer to ERCOT Protocol Section 2.1, Definitions, for the definition of a Settlement Only Generator (SOG). |  |  | R | R |  | |
| Unit Information | | X | X | X | X |  |  |  |  | PUC Registration Number | Enter the PUCT registration number. |  |  |  | O |  | |
| Unit Information | | X | X | X |  |  |  |  | Y/N | DC-Coupled Resource | Refer to ERCOT Protocol Section 2.1, Definitions, for the definition of a DC-Coupled Resource | R | R | R | R |  | |
| Unit Information | |  |  | X |  |  |  |  | Y/N | Self-Limiting Resource | Refer to ERCOT Protocol Section 2.1, Definitions, for the definition of a Self-Limiting Resource | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  |  | Y/N | Part of Self-Limiting Resource Facility | Refer to ERCOT Protocol Section 2.1, Definitions, for the definition of a Self-Limiting Resource Facility | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  |  | ~~#~~ | Self-Limiting Facility # | Self-Limiting Facility # 1, 2, 3…. Leave blank if not Self-Limiting Facility. Refer to definition of Self-Limiting Facility in Protocol Section 2.1, Definitions. | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  |  | Automatic | Site\_Self-Limiting Facility# | Automatic field. All Resources that are part of the same Self-Limiting Facility will have same code |  |  |  | A |  | |
| Unit Information | | X | X | X | X | X |  |  |  | ERCOT Interconnection Project Number - Only New Units | Enter the ERCOT INR number. Required for new or upgraded units. |  | C | C | C |  | |
| Unit Information | | X | X | X | X |  |  |  |  | NERC Number | Enter NERC NCR number. |  |  |  | O |  | |
| Unit Information | | X | X | X | X |  |  |  | Y/N | Qualifying Facility | Refer to ERCOT Protocol Section 2 for the definition of Qualifying Facility. |  |  |  | R |  | |
| Unit Information | | X | X | X | X | X |  |  | mm/dd/yyyy | Transmission Only MRD | Proposed model load date for RE-owned transmission equipment. |  |  |  | O |  | |
| Unit Information | | X | X | X | X | X |  |  | mm/dd/yyyy | Standard Generation Interconnection Agreement (SGIA) Signature Date | Enter the date the Resource signed SGIA. For NOIEs, use MOU date. |  |  |  | R |  | |
| Unit Information | | X | X | X | X | X |  | X | mm/dd/yyyy | Unit Start Date (Model Ready Date) | Proposed model load date for unit. Required for new units only. |  |  |  | O |  | |
| Unit Information | | X | X | X | X | X |  |  | mm/dd/yyyy | Commercial Operations Date | Enter the unit's planned Commercial Operations Date. After the unit completes operational performance testing, this field should be updated by the RE with the actual Commercial Operations Date. | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  | X | mm/dd/yyyy | Unit End Date | Entry of a date in this field will result in the unit being removed from the ERCOT model. Enter the model ready date of expected or actual retirement. Leave blank if not known/applicable. |  |  |  | O |  | |
| Unit Information | | X | X | X | X | X |  |  | All Caps | SubStation Code/SubStation Mnemonic | Enter the interconnecting transmission station code. If you need assistance in determining the corresponding ERCOT Substation Code\Mnemonic, please consult your TDSP, or ERCOT. For the SS/FIS, if a substation code cannot be identified, leave field blank and enter the expected electrical connection point as text in the comment section. | O | O | R | R |  | |
| Unit Information | | X | X | X | X | X |  |  | kV | Voltage Level | Enter the nominal voltage level at the Point of Interconnection (e.g. 69kV, 138kV, 345kV). If you need assistance in determining the corresponding Voltage Level, please consult your TDSP, or ERCOT. | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  |  | # | PTI Bus Number | Enter the PTI Bus Number at the Point of Interconnection in the planning model. If you need assistance in determining the corresponding PTI Bus Number, please consult your TDSP, or ERCOT. | O | O | R | R |  | |
| Unit Information | |  |  | X |  |  |  |  | All Caps | Transmission Station Load Name in Network Operations Model | Enter the Load Name as listed in the ERCOT model as provided by the TDSP to be used by the ESR while charging. |  |  |  | R |  | |
| Unit Information | | X | X | X | X | X |  | X | List | Primary Fuel Type | AB -- Agriculture Byproducts (bagasse, straw, energy crops) BFG -- Blast-Furnace Gas BIT -- Bituminous Coal BL -- Black liquor DFO -- Distillate Fuel Oil (diesel, No1 fuel oil, No 2 fuel oil, No 4 fuel oil) GEO -- Geothermal JF -- Jet Fuel KER -- Kerosene LFG -- Landfill Gas LIG -- Lignite MSW -- Municipal Solid Waste (refuse)  MWH – Electricity (use this fuel type for battery energy storage) NA -- Not Applicable NG -- Natural Gas (use this fuel type for steam turbines which are part of a Combined Cycle Train) NUC -- Nuclear (uranium, plutonium, thorium) OBG -- Other - Biomass Gas (methane, digester gas) OBL -- Other - Biomass Liquids (ethanol, fish oil, waste alcohol, other gases) OBS -- Other - Biomass Solids (animal manure/waster, medical waste, paper pellets, paper derived fuel) OG -- Other - Gas (butane, coal processes, coke-oven coal, methanol, refinery gas) OO -- Other - Oil (butane, crude, liquid byproducts, oil waste, propane) OTH -- Other (, chemicals, hydrogen pitch sulfur, misc. technologies) PC -- Petroleum Coke PG -- Propane RFO -- Residual Fuel Oil (No 5 and No 6 fuel oil) STM -- Steam from other units SLW -- Sludge Waste SUB -- Sub-bituminous Coal SUN -- Solar (photovoltaic, thermal) or DC-Coupled Resources combining photovoltaic and battery energy storage TDF -- Tires T -- Tidal WAT -- Water (conventional, pumped storage) WDL -- Wood/Wood Waste - Liquids (red liquor, sludge wood spent sulfite liquor, other liquors) WDS -- Wood/Wood Waste - Solids (peat, railroad ties, utility poles, wood chips, other solids) WH -- Waste heat  WND -- Wind and DC-Coupled Resources combining wind and battery energy storage WOC -- Waste / Other Coal  WND\_SUN – DC-Coupled Resources combining wind, photovoltaic and battery energy storage | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  |  | List | Secondary Fuel Type | Same data entry elements as primary fuel type, but for secondary or start-up fuel. For DC-Coupled Resource use MWH | R | R | R | R |  | |
| Unit Information | | X | X |  | X |  |  |  | List | Fuel Transportation Type | CV -- Conveyor PL -- Pipeline RR -- Railroad TK -- Truck NA -- Not Applicable |  |  |  | R |  | |
| Unit Information | | X | X | X | X |  |  | X | List | Resource Category | Nuclear Hydro Coal and Lignite Combined Cycle ≤ 90 MW\* Combined Cycle > 90 MW\* Gas Steam - Supercritical Boiler Gas Steam - Reheat Boiler Gas Steam - Non-reheat or Boiler without air-preheater Simple Cycle ≤ 90 MW Simple Cycle > 90 MW Diesel Renewable Reciprocating Engine Solar Battery Energy Storage  DC-Coupled Battery Energy Storage and Solar  DC-Coupled Battery Energy Storage and Wind  DC-Coupled Battery Energy Storage and Solar and Wind  Other |  |  | R | R |  | |
| Unit Information | | X | X |  | X |  |  | X | Y/N | Renewable | Indicate if the unit is a Renewable Energy Credit (REC) generator, as certified with the PUCT. |  |  |  | R |  | |
| Unit Information | | X | X |  | X |  |  | X | Y/N | Renewable/Offset | REC offset generators that produce generation to cover offsets they have been approved to provide, as certified with the PUCT. |  |  |  | R |  | |
| Unit Information | | X | X | X | X | X |  | X | List | Physical Unit Type | BA – Battery Energy Storage  BA-PV – DC-Coupled Battery Energy Storage and Photovoltaic  BA-WT – DC-Coupled Battery Energy Storage and Wind Turbine  BA-PV-WT – DC-Coupled Battery Energy Storage, Photovoltaic and Wind Turbine  CA -- Combined cycle steam turbine part (includes steam part of integrated coal gasification combined cycle) CC -- Combined cycle total unit (use only for plants/generators that are in planning stage, for which specific generator details cannot be provided) CE -- Compressed air energy storage CS -- Combined cycle single shaft (combustion turbine and steam turbine share a single generator) CT -- Combined cycle combustion/gas turbine part (includes comb. turbine part of integrated coal gasification combined cycle) FC -- Fuel Cell GT -- Simple-cycle Combustion (gas) turbine (includes jet engine design) HY -- Hydraulic turbine (includes turbines associated with delivery of water by pipeline IC -- Internal combustion (diesel, piston) engine NA -- Unknown at this time (planned units only) OT -- Other PS -- Hydraulic Turbine - Reversible (pumped storage) PV -- Photovoltaic ST -- Steam Turbine including nuclear, geothermal and solar. Does not include combined cycle. WT -- Wind Turbine | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  | X | MVA | Name Plate Rating | Manufacturer designed MVA Rating of this unit at its rated power factor (gross). | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  |  | MW | Real Power Rating | Manufacturer designed MW at rated power factor (gross). | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  |  | MVAR | Reactive Power Rating | Manufacturer designed MVAr at rated power factor (gross) | R | R | R | R |  | |
| Unit Information | | X | X |  | X | X |  |  | MW | Turbine Rating | Manufacturer designed MW of the turbine (gross) | C | C | R | C |  | |
| Unit Information | | X | X | X | X | X |  |  | kV | Unit Generating Voltage | Terminal voltage of generating unit, as modeled (typically equivalent to low side of GSU) | R | R | R | R |  | |
| Unit Information | | X | X | X | X | X |  |  |  | Governor Droop Setting | The percent change in frequency that will cause generator output to change from no Load to full Load. (e.g. for 5%, use .05) |  |  |  | C |  | |
| Unit Information | | X | X | X | X | X |  |  | Hz | Governor Dead-band | The range of deviations of system frequency (+/-) that produces no Primary Frequency Response. |  |  |  | R |  | |
| Unit Information | | X | X | X | X | X |  |  | degree F | Design Max Ambient Temperature | This is the plant design maximum (high) air temperature. |  |  |  | O |  | |
| Unit Information | | X | X | X | X | X |  |  | degree F | Design Min Ambient Temperature | This is the plant design minimum (low) air temperature. |  |  |  | O |  | |
| ***[RRGRR019: Insert Unit Information - Switchable Generation Resource below upon system implementation:]*** | | | | | | | | | | | | | | | | | |
| Unit Information | | X | X | X | X | X |  |  | Y/N | Switchable Generation Resource | Is the unit able to switch between the ERCOT Control Area and a non-ERCOT Control Area? | R | R | R | R |  | |
| **Unit Info - DG** | | | | | | | | | | | | | | | | | |
| Unit Info - DG | |  |  |  |  |  |  | X | List | Technology Type | (FS) Fossil Fuel Steam (GT) Gas Turbine (H) Hydro (W) Wind,  (S) Solar  (X) Other |  |  |  |  |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | # | If Wind, Number of Turbines | Count total of wind turbines | R | R | R | R |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | Y/N | Private Network / Cogen | A cogen is a generating facility that produces electricity and another form of useful thermal energy used for industrial, commercial, heating, or cooling purposes. N/A for DRG |  |  |  |  |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | MW | Amount of Self Serve for Cogen | Amount of the unit output used for self serve and not available for the grid |  |  |  |  |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | MW | Private Network Net Interchange | For private networks, the net interchange shall be provided along with gross MW and MVAr per generating unit. (ERCOT Operating Guides) |  |  |  |  |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | MW | Private Network Gross Unit (MW) | For private networks, the net interchange shall be provided along with gross MW and MVAr per generating unit. (ERCOT Operating Guides) |  |  |  |  |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | MVAR | Private Network Gross Unit (MVAR) | For private networks, the net interchange shall be provided along with gross MW and MVAr per generating unit. (ERCOT Operating Guides) |  |  |  |  |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | List | Generic Fuel Category | 1) Coal and Lignite 2) Combined Cycle greater than 90 MW 3) Combined Cycle less than or equal to 90 MW 4) Diesel (and all other diesel or gas-fired Resources) 5) Gas Steam Non-reheat Boiler or Boiler without air-preheater 6) Gas Steam Reheat Boiler 7) Gas Steam Supercritical Boiler 8) Hydro 9) Nuclear 10) Other Renewable (i.e. non-hydro renewable Resources) 11) Power Storage 12) Simple Cycle greater than 90 MW 13) Simple Cycle less than or equal to 90 MW |  |  |  |  |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | List | Generic Start-up / Operating Category | 1) Base Load 2) Gas-Cyclic 3) Gas-Intermediate 4) Gas-Peaking 5) Renewable (Including Hydro) |  |  |  |  |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | All Caps | Substation Name for POD | Enter the name of the substation as provided by the TDSP. (Where the DG will be mapped.) |  |  |  | R |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | All Caps | Substation Code for POD | Enter the TDSP substation code as provided by the TDSP. (Where the DG will be mapped.) |  |  |  | R |  | |
| Unit Info - DG | |  |  |  |  |  |  | X |  | Transmission Bus POD (PTI Bus No) | Enter the transmission PTI bus number as provided by the TDSP. (Where the DG will be mapped.) |  |  |  | R |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | kV | Transmission Station Voltage | Enter the transmission level voltage of the TDSP station as provided by the TDSP. Normally this will be 69 kV or higher. (Where the DG will be mapped.) |  |  |  | R |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | All Caps | Transmission Station Load Name in Network Operations Model | Enter the Load Name as listed in the ERCOT model as provided by the TDSP. (Where the DG will be mapped.) |  |  |  | R |  | |
| Unit Info - DG | |  |  |  |  |  |  | X | All caps | Resource Entity Name Owner | Enter the name of the Resource Entity who owns all or a portion of this unit. |  |  |  | R |  | |
| Unit Info - DG | |  |  |  |  |  |  | X |  | Resource Entity Owner  Duns Number | Enter the name of the Resource Entity/ Interconnecting Entity. The RE must be the same entity name that filed on the Standard Form Agreement. The IE must be the same entity name that filed on the Generation Entity Information Sheet. The Protocols require that a Load Resource must also complete and submit an Application. |  |  |  | R |  | |
| **Unit Information - AGR** | | | | | | | | | | | | | | | | | |
| Unit Info - AGR | |  |  |  | X |  |  |  | All Caps | Resource Name (Unit Code/Mnemonic) | Enter concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  | R | R | R |  | |
| Unit Info - AGR | |  |  |  | X |  |  |  | All Caps | Aggregated Generation Resource(Manufacturer/Model) | From name-plate or manufacturer data sheet |  | R | R | R |  | |
| Unit Info - AGR | |  |  |  | X |  |  |  | MW | MW Rating for this Aggregated Generation Resource | MW Rating of each generator of Manufacturer/Model in this AGR |  | R | R | R |  | |
| Unit Info - AGR | |  |  |  | X |  |  |  | # | Number of this type of Aggregated Generation Resource | Count of generators of this Manufacturer/Model in this AGR |  | R | R | R |  | |
| **Unit Information - Train** | | | | | | | | | | | | | | | | | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  |  | Resource Site Code: | Enter the Site Code established in the General and Site Information tab of the GENERAL\_SITE\_ESIID\_Information workbook. | R | R | R | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | List | Train Name | Select Train name from drop-down list. | R | R | R | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | Automatic | Train Code | A Site Code and Train Name concatenation |  |  | A | A |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | Y/N | Settlement Only Generator (SOG) | Refer to ERCOT Protocol Section 2.1, Definitions, for the definition of a Settlement Only Generator (SOG). |  |  | R | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  |  | PUC Registration Number | Enter the PUCT registration number. |  |  |  | O |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  |  | ERCOT Interconnection Project Number - only new units | Enter the ERCOT INR number. Required for new or upgraded units. |  | C | C | C |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  |  | NERC Number | Enter NERC NCR number. |  |  |  | O |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | Y/N | Qualifying Facility | Refer to ERCOT Protocol Section 2 for the definition of Qualifying Facility. |  |  |  | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | mm/dd/yyyy | Transmission Only MRD | Proposed model load date for RE-owned transmission equipment. |  |  |  | O |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | mm/dd/yyyy | Train Commercial Date | The date at which the Resource Entity anticipates or declares the resource (first generator in train) released for commercial operations. Format is MM/DD/YYYY | R | R | R | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | mm/dd/yyyy | Train Retirement Date | Train Retirement Date in MM/DD/YYYY format. Leave blank if not known/applicable. |  |  |  | O |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | Y/N | Is Train Augmented With Duct Burner(s)? | Indicate whether Duct Burner(s) augmentation is available for use for increased capacity |  |  |  | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | Y/N | Is Train Augmented with Evap Cooler(s)? | Indicate whether Evap Cooler(s) augmentation is available for use for increased capacity |  |  |  | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | Y/N | Is train augmented with Chiller(s)? | Indicate whether Chiller(s) augmentation is available for use for increased capacity |  |  |  | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | Y/N | Other augmentation? | Indicate whether other augmentation is available for use for increased capacity |  |  |  | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | decimal degrees (N) | Latitude of center of Plant | The geographic coordinate that specifies the north-south position of the plant provided in decimal degrees | R | R | R | R |  | |
| Unit Info - TRAIN | |  |  |  |  | X |  |  | decimal degrees (W) | Longitude of center of Plant | The geographic coordinate that specifies the east-west position of the plant provided in decimal degrees | R | R | R | R |  | |
| **Unit Information - CC** | | | | | | | | | | | | | | | | | |
| Unit Info - CC | |  |  |  |  | X |  |  |  | Resource Site Code: | Enter the Site Code established in the General and Site Information tab of the GENERAL\_SITE\_ESIID\_Information workbook. | R | R | R | R |  | |
| **Unit Info ~~-~~ Renewable Resource Unit Information** | | | | | | | | | | | | | | | | | |
| Unit Info - Renewable Resource | | X | X |  |  |  |  |  | degree F | Maximum Operating Temperature | The highest ambient temperature at which individual turbines may cease operating due to procedural requirements or equipment limitations. (Most limiting condition) |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X | X |  |  |  |  |  | degree F | Minimum Operating Temperature | The lowest ambient temperature at which individual turbines may cease operating due to procedural requirements or equipment limitations. (Most limiting condition) |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X |  |  |  |  |  |  | m/s | High Wind Speed Cut-Out | Sustained wind speed in meters per second at which the turbine will cease operations due to high wind speed |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X |  |  |  |  |  |  | minutes | High Wind Speed Cut-Out time | The amount of time associated with the high wind speed cut-out value. (The time used to determine if it is a sustained value, instead of a gust value) |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X |  |  |  |  |  |  | m/s | High Wind Speed Cut-Out Reset | The wind speed at which a turbine will begin operating following a cut-out event |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X |  |  |  |  |  |  | minutes | High Wind Speed Cut-Out Reset Time | The amount of time associated with the high wind speed cut-out reset value. (The amount of time at or below the reset value following a high wind speed cut-out event before the turbine will begin operating) |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X |  |  |  |  |  |  | meters | Average Height above ground of Turbine Hub | Used for Renewable Resource Forecasting |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X | X |  |  |  |  |  | decimal degrees (N) | Latitude of Meteorological Tower | Used for Renewable Resource Forecasting. For multiple meteorological towers, select one location that best represents the conditions for the site. |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X | X |  |  |  |  |  | decimal degrees (W) | Longitude of Meteorological Tower | Used for Renewable Resource Forecasting. For multiple meteorological towers, select one location that best represents the conditions for the site. |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X | X |  |  |  |  |  | meters | Height of Meteorological Instrumentation - Wind speed | Used for Renewable Resource Forecasting |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X | X |  |  |  |  |  | meters | Height of Meteorological Instrumentation - Wind direction | Used for Renewable Resource Forecasting |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X | X |  |  |  |  |  | meters | Height of Meteorological Instrumentation - Barometric pressure | Used for Renewable Resource Forecasting |  |  |  | R |  | |
| Unit Info - Renewable Resource | | X | X |  |  |  |  |  | meters | Height of Meteorological Instrumentation - Temperature | Used for Renewable Resource Forecasting |  |  |  | R |  | |
| Unit Info - Renewable Resource | |  | X |  |  |  |  |  | meters | Height of Meteorological Instrumentation - Irradiance | Used for Renewable Resource Forecasting |  |  |  | R |  | |
| Unit Info - Renewable Resource | |  | X |  |  |  |  |  | meters | Average Height above ground of Panel Center | Height of the panel axis point. |  |  |  | R |  | |
| Unit Info - Renewable Resource | |  | X |  |  |  |  |  | meters | Site elevation above sea Level | Average height above MSL for the facility |  |  |  | R |  | |
| Unit Info - Renewable Resource | |  | X |  |  |  |  |  | MW | Nameplate DC Capacity | Mathematical summation of the DC nameplate capacities of all panels in the PVGR. |  |  |  | R |  | |
| Unit Info - Renewable Resource | |  | X |  |  |  |  |  | MW | Nameplate AC Capacity | Mathematical summation of the AC nameplate capacities of all inverters in the PVGR. |  |  |  | R |  | |
| **Unit Info - Energy Storage Resource** | | | | | | | | | | | | | | | | | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | degree F | Maximum Operating Temperature | The highest ambient temperature at which ESR may cease operating due to procedural requirements or equipment limitations. (Most limiting condition) |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | degree F | Minimum Operating Temperature | The lowest ambient temperature at which ESR may cease operating due to procedural requirements or equipment limitations. (Most limiting condition) |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | ft | Distance above base flood elevation | Flood level elevation |  |  |  | R |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | MW | Nameplate DC Capacity | Mathematical summation of the DC nameplate capacities of all battery modules in the ESR. |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | MW | Nameplate AC Capacity | Mathematical summation of the AC nameplate capacities of all inverters in the ESR. |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | MWh | Nameplate MWh Rating | Mathematical summation of the nameplate MWh ratings of all battery modules in the ESR. |  |  | R | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | % | Roundtrip Efficiency | Roundtrip Efficiency of an ESR at the POI. |  |  | R | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | % /day | Self-discharge Rate | % Energy loss/day |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | seconds | Minimum discharge time | Minimum discharge time to ramp from 0 MW to rated MW discharging capacity |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | seconds | Minimum charge time | Minimum charge time to ramp from 0 MW to Maximum Discharge Power |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | MW | Maximum Charge Power | Power needed to fully charge the ESR from completely discharged state |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | Hr | Standard discharge duration | Estimated distribution of the state of charge and power level in operation --Maximum discharge time |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | # | Cycling capacity | Number of times the ESR can release energy level it was designed for after re-charge (#/days; #/week, etc.) |  |  |  | R |  | |
| Unit Info - Energy Storage Resource | |  |  | X |  |  |  |  | Yrs | Life Expectancy | Estimated ESR life expectancy in years |  |  |  | R |  | |
| **Unit Info - Turbine Details** | | | | | | | | | | | | | | | | | |
| Turbine Details | | X |  |  |  |  |  |  | List | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  | A | A |  | |
| Turbine Details | | X |  |  |  |  |  |  | # | Group | Group # 1,2,3… only if grouping two or more . Leave blank if not grouping. Refer to definition of Group in Protocol Section 2. |  |  |  | O |  | |
| Turbine Details | | X |  |  |  |  |  |  | Automatic | Site\_Group | Automatic field |  |  |  | A |  | |
| Turbine Details | | X |  |  |  |  |  |  | All Caps | Turbine Manufacturer and Model | From name-plate or manufacturer data sheet | R | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | MW | MW Rating for this model of Turbine | From name-plate or manufacturer data sheet | R | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | # | Number of Turbine Manufacturer/Model | Count of wind turbines in this WGR of the specified Manufacturer/Model | R | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | 1,2,3,4,5 | Turbine Type | Indicate the type of Turbine (eg. Type 1, 2, 3, 4, 5)  Type 1 Conventional induction generator Type 2 Variable Rotar-Resistance Induction generator Type 3 WTG – Doubly fed asynchronous generator Type 4 WTG – Full-converter unit Type 5 WTG – Variable Ratio Converter Coupled Synchronous Generator |  |  | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | MVA | What Is The MVA Base That The Following Data Is Based On? | The MVA Base for stated impedances. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | kV | What Is The kV Base That The Following Data is Based On? | The kV Base for stated impedances. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Subtransient Reactance X'',(Instantaneous Fault Current Period)  (unsaturated) | Enter the instantaneous subtransient reactance (unsaturated) for the fault. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Transient Reactance, X' (First 2-3 cycles of the Fault) (unsaturated) | Enter the transient reactance (unsaturated) for the first 2-3 cycles of the fault. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | R in p.u. | Positive Sequence Resistance (unsaturated) | Enter the positive sequence resistance (unsaturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | X in p.u. | Synchronous Reactance X (After 4 cycles of the fault) (unsaturated) | Enter the synchronous reactance (unsaturated) after 4 cycles of the fault. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | R in p.u. | Negative Sequence Z (unsaturated) | Enter the negative sequence resistance (unsaturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | X in p.u. | Negative Sequence Z (unsaturated) | Enter the negative sequence reactance (unsaturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | R in p.u. | Zero Sequence Z (unsaturated) | Enter the zero sequence resistance (unsaturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | X in p.u. | Zero Sequence Z (unsaturated) | Enter the zero sequence reactance (unsaturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Subtransient Reactance X'',(Instantaneous Fault Current Period)  (saturated | Enter the instantaneous subtransient reactance (saturated) for the fault. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Transient Reactance, X' (First 2-3 cycles of the Fault) (saturated) | Enter the transient reactance (saturated) for the first 2-3 cycles of the fault. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | R in p.u. | Positive Sequence Resistance (saturated) | Enter the positive sequence resistance (saturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | X in p.u. | Synchronous Reactance X (After 4 cycles of the fault) (saturated) | Enter the synchronous reactance (saturated) after 4 cycles of the fault. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | R in p.u. | Negative Sequence Z (saturated) | Enter the negative sequence resistance (saturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | X in p.u. | Negative Sequence Z (saturated) | Enter the negative sequence reactance (saturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | R in p.u. | Zero Sequence Z (saturated) | Enter the zero sequence resistance (saturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | X in p.u. | Zero Sequence Z (saturated) | Enter the zero sequence reactance (saturated) for system models. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Grounding Resistance For An Impedance Grounded Generator In p.u. (100 MVA Base) | Zero sequence resistance value of the generator grounding impedance is required. The value must be specified on a 100 MVA base. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Grounding Reactance For An Impedance Grounded Generator In p.u. (100 MVA Base) | Zero sequence reactance value of the generator grounding impedance is required. The value must be specified on a 100 MVA base. |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Instantaneous Controlled Fault Current Magnitude (Multiple of full Load current) for Turbine Types 3 & 4 | Wind turbine instantaneous fault current magnitude for Type 4 and Type 3, if the controls operate (no crowbar operation) as a percent of full Load current, expressed in per unit. |  |  | C | C |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Controlled Fault Current Magnitude At 2 to 3 cycles after fault (Multiple of full Load current) for Turbine Types 3 & 4 | Wind turbine fault current magnitude at 2 – 3 cycles after a fault for Type 4 and Type 3, if the controls operate (no crowbar operation) as a percent of full Load current, expressed in per unit. |  |  | C | C |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Controlled Fault Current Magnitude At 4 plus cycles after fault (Multiple of full Load current) for Turbine Types 3 & 4 | Wind turbine fault current magnitude at 4+ cycles after a fault for Type 4 and Type 3, if the controls operate (no crowbar operation) as a percent of full Load current, expressed in per unit. |  |  | C | C |  | |
| Turbine Details | | X |  |  |  |  |  |  | MVA | Continuous Rating | Rating that the Pad Mount Transformer can operate at indefinitely without damage |  | R | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | kV | High Side Voltage Level (nominal) | Enter the voltage level (in kV) on the high-voltage side of the wind generator pad-mount transformer. |  |  | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | kV | Low Side Voltage Level (nominal) | Enter the voltage level (in kV) on the low-voltage side of the wind generator pad-mount transformer. |  |  | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | List | High Side Voltage Connection | Identify the type of connection used for the windings (Wye/Delta and Neutral Grounding) on the high-voltage side of the transformer. |  |  | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | List | Low Side Voltage Connection | Identify the type of connection used for the windings (Wye/Delta and Neutral Grounding) on the low-voltage side of the transformer. |  |  | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Impedance Z | Enter the impedance of the transformer. |  |  | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  |  | X/R Ratio | Enter the ratio of the reactance to the resistance of the transformer. |  |  | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | p.u. | Zero Sequence Z | Enter the zero sequence impedance of the transformer. |  |  | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  |  | Zero Sequence X/R Ratio | Enter the ratio of the zero sequence reactance to the zero sequence resistance of the transformer. |  |  | R | R |  | |
| Turbine Details | | X |  |  |  |  |  |  | MVA | Base MVA For Transformer Data | Enter the base MVA upon which the per unit transformer data is provided. |  |  | R | R |  | |
| **Inverter Details** | | | | | | | | | | | | | | | | | |
| Inverter Details | |  | X | X |  |  |  |  | Automatic All Caps | Site Name |  |  | A | A | A |  | |
| Inverter Details | |  | X | X |  |  |  |  | Automatic | Skid/Array Configuration Identifier | Unique identifier to use for a given inverter model and skid transformer combination. |  | A | A | A |  | |
| Inverter Details | |  | X | X |  |  |  |  | All Caps | Inverter Manufacturer | From name-plate or manufacturer data sheet |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | All Caps | Inverter Model | From name-plate or manufacturer data sheet |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | MW | MW Rating for this Model of Inverter | Nameplate AC capacity of inverter output. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | Y/N | Bi-directional Inverter? | Enter Y if inverter is capable of exporting power into and import from ERCOT grid. Enter N if inverter is only capable of exporting into ERCOT grid. | R | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | # | Number of Inverters per Skid/Array Transformer | Enter how many inverters share the same Skid/Array Transformer |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | # | Inverter Efficiency Curve | Attach efficiency curve supplied by inverter manufacturer. |  |  |  | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | MVA | What is the MVA base that the following data is based on? | The MVA Base of the inverter for stated impedances. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | kV | What is the kV base that the following data is based on? | The kV Base of the inverter for stated impedances. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Subtransient Reactance X''d,(Instantaneous Fault Current Period)  (unsaturated) | Enter the instantaneous subtransient reactance (unsaturated) for the inverter. It may be calculated as X"d = 1/Imax, where Imax is the maximum instantaneous fault current contribution in per unit of full load current. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Transient Reactance, X' (First 2-3 cycles of the Fault) (unsaturated) | Enter the transient reactance (unsaturated) of the inverter for the first 2-3 cycles of the fault. Fault current contribution in per unit of full load current between 2-3 cycles may be used to calculate X'd = 1/I fault current contribution at 2-3 cycles |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | R in p.u. | Positive Sequence Resistance (unsaturated) | Enter the positive sequence resistance (unsaturated) for system models. For inverter-based systems, R can be entered as zero if the net effect of reflecting the short circuit current is already in the reactance |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | X in p.u. | Synchronous Reactance X (After 4 cycles of the fault) (unsaturated) | Enter the synchronous reactance (unsaturated) of the inverter after 4 cycles of the fault. Fault current contribution in per unit of full load current after 4 cycles may be used to calculate Xd = 1/I fault current contribution after 4 cycles. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | R in p.u. | Negative Sequence Z (unsaturated) | Enter the negative sequence resistance (unsaturated) of the inverter for system models. R may be entered as zero if the net effect of reflecting the short circuit current is already in the reactance. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | X in p.u. | Negative Sequence Z (unsaturated) | Enter the negative sequence reactance (unsaturated) for system models. For inverter-based systems can calculate X negative sequence = 1/I negative sequence fault current contribution, where I negative sequence fault current contribution is in per unit of full load current. If negative sequence fault current contribution is zero, then enter 99999. This is normally a very high impedance |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | R in p.u. | Zero Sequence Z (unsaturated) | Enter the zero sequence resistance (unsaturated) for system models. For inverter-based systems, R may be entered as zero if the net effect of reflecting the short circuit current is already in the reactance. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | X in p.u. | Zero Sequence Z (unsaturated) | Enter the zero sequence reactance (unsaturated) of the inverter for system models. You may calculate X = 1/I zero sequence fault current contribution, where I zero sequence fault current contribution is in per unit of full load current. If zero sequence fault current contribution is zero, then enter 99999. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Subtransient Reactance X'',(Instantaneous Fault Current Period)  (saturated) | Enter the instantaneous subtransient reactance (saturated). (Can enter the same as the unsaturated value.) For inverter-based systems, can calculate X"d = 1/Imax, where Imax is the maximum instantaneous fault current contribution in per unit of full load current . |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Transient Reactance, X' (First 2-3 cycles of the Fault) (saturated) | Enter the transient reactance (saturated) of the inverter for the first 2-3 cycles of the fault. (You may enter the same as the unsaturated value.) Fault current contribution in per unit of full load current between 2 - 3 cycles may be used to calculate X'd = 1/I fault current contribution at 2-3 cycles |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | R in p.u. | Positive Sequence Resistance (saturated) | Enter the positive sequence resistance (saturated) of the inverter for system models. R may be entered as zero if the net effect of reflecting the short circuit current is already in the reactance. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | X in p.u. | Synchronous Reactance X (After 4 cycles of the fault) (saturated) | Enter the synchronous reactance (saturated) after 4 cycles of the fault. (Can enter the same as the unsaturated value.) For inverter-based systems, fault current contribution in per unit of full load current after 4 cycles can be used to calculate Xd = 1/I fault current contribution after 4 cycles. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | R in p.u. | Negative Sequence Z (saturated) | Enter the negative sequence resistance (saturated) for system models. For inverter-based systems, R may be entered as zero if the net effect of reflecting the short circuit current is already in the reactance. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | X in p.u. | Negative Sequence Z (saturated) | Enter the negative sequence reactance (saturated) of the inverter for system models. (You may enter the same as the unsaturated value.) You may calculate X = 1/I negative sequence fault current contribution, where I negative sequence fault current contribution is in per unit of full load current. If negative sequence fault current contribution is zero, then enter 99999. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | R in p.u. | Zero Sequence Z (saturated) | Enter the zero sequence resistance (saturated) for system models. For inverter-based systems, R can be entered as zero if the net effect of reflecting the short circuit current is already in the reactance. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | X in p.u. | Zero Sequence Z (saturated) | Enter the zero sequence reactance (saturated) of the inverter for system models. (You may enter the same as the unsaturated value.) You may calculate X = 1/I zero sequence fault current contribution, where I zero sequence fault current contribution is in per unit of full load current. If zero sequence fault current contribution is zero, then enter 99999. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Zero Sequence Grounding Resistance For An Impedance Grounded Inverter in p.u. (100 MVA Base) | The value must be specified on a 100 MVA base. For inverter-based systems that are ungrounded, enter Grounding Resistance R = 99999. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Grounding Reactance For An Impedance Grounded Inverter in p.u. (100 MVA Base) | The value must be specified on a 100 MVA base. For inverter-based systems that are ungrounded, enter Grounding Reactance X = 99999. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Instantaneous Controlled Fault Current Magnitude (Multiple of full Load current) | Inverter instantaneous fault current magnitude in per unit of full load current. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Controlled Fault Current Magnitude At 2 to 3 cycles after fault (Multiple of full Load current) | Inverter fault current magnitude at 2 – 3 cycles after a fault in per unit of full Load current. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Controlled Fault Current Magnitude At 4 plus cycles after fault (Multiple of full Load current) | Inverter fault current magnitude at 4+ cycles after a fault in per unit of full Load current. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | MVA | Skid/Array Transformer Rating | Continuous rating of the Skid/Array Transformer |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | MVA | Base MVA for Skid/Array Transformer Data | Enter the base MVA upon which the per unit Skid/Array Transformer data is provided. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | kV | High Side Voltage Level (nominal) | Enter the voltage level (in kV) on the high-voltage side of the Skid/Array Transformer. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | kV | Low Side Voltage Level (nominal) | Enter the voltage level (in kV) on the low-voltage side of the Skid/Array Transformer. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | List | High Side Voltage Connection | Identify the type of connection used for the transformer windings on the high-voltage side of the Skid/Array Transformer |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | List | Low Side Voltage Connection | Identify the type of connection used for the windings on the low-voltage side of the Skid/Array Transformer |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Positive Sequence Impedance Z | Enter the positive sequence impedance of the Skid/Array Transformer. |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  |  | Positive Sequence X/R Ratio | Enter the ratio of the positive sequence reactance to the positive sequence resistance of the Skid/Array Transformer |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  | p.u. | Zero Sequence Impedance Z | Enter the zero sequence impedance of the Skid/Array Transformer |  | R | R | R |  | |
| Inverter Details | |  | X | X |  |  |  |  |  | Zero Sequence X/R Ratio | Enter the ratio of the zero sequence reactance to the zero sequence resistance of the Skid/Array Transformer |  | R | R | R |  | |
| **Panel Details** | | | | | | | | | | | | | | | | | |
| Panel Details | |  | X |  |  |  |  |  | All Caps | Site Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| Panel Details | |  | X |  |  |  |  |  | List | Panel Configuration Identifier | Unique name of a given Panel Model used more than once |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | List | Tracking Type | What type of tracking system does this plant use? (None, Azimuth only, Tilt only, Azimuth and Tilt) |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | degrees | Plane of Array - Azimuth | Used for Solar Generation Forecasting (Tracking Type =Fixed or Tilt-only) |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | degrees | Plane of Array - Tilt | Used for Solar Generation Forecasting (Tracking Type =Fixed or Azimuth-only) |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | All Caps | Panel Manufacturer | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | All Caps | Panel Model | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | meters squared | Panel Area | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | % | Panel Efficiency | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | % / degrees C | Panel temperature Coefficient of power | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | Degrees C | Nominal Operating Cell Temperature | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | MW | MW Rating for this Model of Panel | From name-plate or manufacturer data sheet |  | R | R | R |  | |
| ***[RRGRR016: Replace Section "Panel Configuration Details" above with the following upon system implementation:]*** | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| **Panel Details** | | | | | | | | | | | | | | | | | |
| Panel Details | |  | X |  |  |  |  |  | All Caps | Site Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| Panel Details | |  | X |  |  |  |  |  | List | Panel Configuration Identifier | Unique name of a given Panel Model used more than once |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | List | Tracking Type | What type of tracking system does this plant use? (Tilt Tracking Only, Azimuth Tracking Only, Double Axis, Fixed/None) |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | degrees | Plane of Array - Azimuth | Tracking Type of Fixed/None or Tilt Tracking Only - Enter the orientation of the panel (not orientation of the axis for tilt-tracking) in degrees, using true north (0 degrees), as a reference point. Tracking type of Azimuth Tracking Only, or Double Axis - Enter the maximum potential range of Azimuth tracking in degrees, using true north (0 degrees) as the starting point. For example, if the panel is capable of reaching due West, enter 270. If the panel is capable of a complete arc, enter 360. |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | degrees | Plane of Array - Tilt | For Tracking Type Fixed/None or Azimuth Tracking Only - Enter the degrees of tilt, using horizontal (0 degrees) as a reference. For Tracking Type Tilt Tracking Only, or Double Axis - Enter the maximum possible tilt, using horizontal (0 degrees), as a reference. |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | All Caps | Panel Manufacturer | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | All Caps | Panel Model | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | meters squared | Panel Area | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | % | Panel Efficiency | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | % / degrees C | Panel temperature Coefficient of power | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | Degrees C | Nominal Operating Cell Temperature | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Panel Details | |  | X |  |  |  |  |  | kW | kW Rating for this Model of Panel | From name-plate or manufacturer data sheet |  | R | R | R |  | |
| **Battery Module Details** | | | | | | | | | | | | | | | | | |
| Battery Module Details | |  |  | X |  |  |  |  | All Caps | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| Battery Module Details | |  |  | X |  |  |  |  | List | Battery Module Configuration Identifier | Unique name of a given Battery Module used more than once |  |  |  | R |  | |
| Battery Module Details | |  |  | X |  |  |  |  | All Caps | Battery Module Manufacturer | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Battery Module Details | |  |  | X |  |  |  |  | All Caps | Battery Module Model | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Battery Module Details | |  |  | X |  |  |  |  | % | Roundtrip Efficiency | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Battery Module Details | |  |  | X |  |  |  |  | kW | kW Rating of this Model of Battery Module | From name-plate or manufacturer data sheet |  |  |  |  |  | |
| Battery Module Details | |  |  | X |  |  |  |  | kWh | kWh Rating of this Model of Battery Module | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Battery Module Details | |  |  | X |  |  |  |  | kW/min | Maximum Charging Rate of this Model of Battery Module | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Battery Module Details | |  |  | X |  |  |  |  | kW/min | Maximum Discharging Rate of this Model of Battery Module | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| Battery Module Details | |  |  | X |  |  |  |  | kV | Voltage Range | From name-plate or manufacturer data sheet |  |  |  | R |  | |
| **PVGR Connectivity** | | | | | | | | | | | | | | | | | |
| PVGR Connectivity | |  | X |  |  |  |  |  | All Caps | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| PVGR Connectivity | |  | X |  |  |  |  |  | List | Skid/Array Configuration Identifier | Select one from drop down list |  |  |  | R |  | |
| PVGR Connectivity | |  | X |  |  |  |  |  | # | Number of Skid/Arrays per Skid/Array Configuration Identifier | Enter the total number of Skid/Arrays of the identifier selected in the preceding cell |  |  |  | R |  | |
| PVGR Connectivity | |  | X |  |  |  |  |  | List | Panel Configuration Identifier | Select one from drop down list |  |  |  | R |  | |
| PVGR Connectivity | |  | X |  |  |  |  |  | # | # of Panels per Panel Configuration | Enter the total number of panels of the identifier selected in the preceding cell |  |  |  | R |  | |
| PVGR Connectivity | |  | X |  |  |  |  |  | # | Group | Group # 1,2,3… only if grouping two or more  Leave blank if not grouping. |  |  |  | C |  | |
| PVGR Connectivity | |  | X |  |  |  |  |  | Automatic | Site\_Group | Automatic field |  |  |  | A |  | |
| **ESR Connectivity** | | | | | | | | | | | | | | | | | |
| ESR Connectivity | |  |  | X |  |  |  |  | All Caps | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| ESR Connectivity | |  |  | X |  |  |  |  | List | Skid/Array Configuration Identifier | Select one from drop down list |  |  |  | R |  | |
| ESR Connectivity | |  |  | X |  |  |  |  | # | Number of Skid/Arrays per Skid/Array Configuration Identifier | Enter the total number of Skid/Arrays of the identifier selected in the preceding cell |  |  |  | R |  | |
| ESR Connectivity | |  |  | X |  |  |  |  | List | Battery Module Configuration Identifier | Select one from drop down list |  |  |  | R |  | |
| ESR Connectivity | |  |  | X |  |  |  |  | # | # of Battery Modules per Module Configuration | Enter the total number of battery modules of the identifier selected in the preceding cell |  |  |  | R |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| **Ownership** | | | | | | | | | | | | | | | | | |
| Ownership | | X | X | X | X |  |  |  | List | Unit Name | Code for name of generator unit, as provided on the Unit Information tab. |  |  | R | R |  | |
| Ownership | |  |  |  |  | X |  |  | List | Train Name | Code for name of Train, as provided on the Unit Information Train tab. |  |  |  | R |  | |
| Ownership | |  |  |  |  | X |  |  | Automatic | Train Code | A Site Code and Train Name concatenation |  |  | A | A |  | |
| Ownership | | X | X | X | X |  |  |  | Automatic?List for Gen | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| Ownership | | X | X |  | X |  |  |  | Y/N | Joint Ownership? | Does unit have multiple owners? (does not apply to CC Units, as they must have a single owner for each Train.) |  |  | R | R |  | |
| Ownership | | X | X | X | X | X |  |  |  | Resource Entity Name | Enter the name of the Resource Entity who owns all or a portion of this unit. |  |  |  | C |  | |
| Ownership | | X | X | X | X | X |  |  | 9-13 digits | Resource Duns Number | Enter the name of the Resource Entity DUNS # who owns all or a portion of this unit (or Train). |  |  |  | C |  | |
| Ownership | | X | X | X | X | X |  |  |  | Fixed Ownership | Percentage of ownership for this unit that this Resource Entity owns in decimal format. (Does not apply to CC Units, as they must have a single owner for each Train.) |  |  |  | C |  | |
| Ownership | | X | X | X | X | X |  |  | Y/N | Master Owner | Is this Resource Entity the Master Owner of the unit? (does not apply to CC Units, as they must have a single owner for each Train.) |  |  | R | R |  | |
| Ownership | | X | X | X | X | X |  |  | mm/dd/yyyy | Ownership Start Date | Enter the date ownership started, or, the model ready date of expected ownership transfer to your RE . Leave blank if not applicable. |  |  |  | O |  | |
| Ownership | | X | X | X | X | X |  |  | mm/dd/yyyy | Ownership Stop Date | Enter the model ready date (minus 1 day) of expected ownership transfer from your RE . Leave blank if not applicable. |  |  |  | O |  | |
| **Parameters** | | | | | | | | | | | | | | | | | |
| Parameters | |  | X | X |  | X |  |  | List | SITECODE | For Parameters - CFG - enter the Site Code established in the General and Site Information tab of the GENERAL\_SITE\_ESIID\_Information workbook. |  |  | R | R |  | |
| Parameters | |  | X |  |  | X |  |  | List | Train Code | For Parameters - CFG - enter the Train Code as provided on the Unit Information Train tab. Select from drop-down list. |  |  | R | R |  | |
| Parameters | |  | X |  |  | X |  |  | List | Configuration Code | For Parameters - CFG - enter the Concatenated code of the Train Code and the Configuration Number. Select from drop-down list. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | List | UNIT NAME | Code for name of generator unit, as provided on the Unit Information tab. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  | A | A |  | |
| Parameters | | X | X | X | X | X |  |  | MW | High Reasonability Limit | A theoretical value of net generation above which, the generator is not expected to operate under most conceivable conditions. This value is used by ERCOT market systems to validate COP submissions of HSL, telemetered HSL, and certain offers which may have been entered in error by the QSE. The HRL is also used in settlements to deconstruct prices at a CCT logical resource node. Self-Limiting Resources should use this field to enter the limit for maximum MW injection |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | High Reasonability Limit, Self-Limiting Facility | Limit for maximum MW injection for Self-Limiting Facility above which the Self-Limiting Facility is not expected to operate.  This field should not be used by Resources that are not part of Self-Limiting Facility |  |  |  |  |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Low Reasonability Limit | A theoretical limit of net generation below which, the generator is not expected to operate under most conceivable conditions. For Energy Storage Resource (ESR) Low Reasonability limit is a negative value showing theoretical limit of net withdrawal/charging below which ESR is not expected to withdraw/charge. This value is used by ERCOT market systems to validate COP submissions of LSL, telemetered LSL, and certain offers which may have been entered in error by the QSE. Self-Limiting Resources should use this field to enter the limit for maximum MW withdrawal |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Low Reasonability Limit, Self-Limiting Facility | Limit for maximum MW withdrawal of Self-Limiting Facility above which the Self-Limiting Facility is not expected to operate  This field should not be used by Resources that are not part of Self-Limiting Facility |  |  |  |  |  | |
| Parameters | | X | X | X | X | X |  |  | MW/min | High Reasonability Ramp Rate Limit | An "Out-of-Bounds" value chosen by the Resource Entity that represents the maximum magnitude of the values entered for the up and down ramp rates used by SCED. Used by ERCOT to alarm/reject data exceeding this value. |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW/min | Low Reasonability Ramp Rate Limit | An "Out-of-Bounds" value chosen by the Resource Entity that represents the minimum magnitude of the values entered for the up and down ramp rates used by SCED. Used by ERCOT to alarm/reject data below this value. |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Max Sustainable Rating - Spring | Spring months are March, April, and May. Ambient conditions (dry bulb temperature) assumptions by ERCOT Weather Zone shall be as follows:  - 87 deg F for Coastal Weather Zone,  - 89 deg F for East Weather Zone,  - 96 deg F for Far West Weather Zone,  - 90 deg F for North Central Weather Zone,  - 89 deg F for North Weather Zone,  - 92 deg F for South Central Weather Zone, - 90 deg F for South Weather Zone,  - 93 deg F for West Weather Zone. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Min Sustainable Rating - Spring | Spring months are March, April, and May. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. For ESR this value is negative, showing seasonal net maximum withdrawal/charging. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Max Emergency Rating - Spring | Spring months are March, April, and May. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Min Emergency Rating - Spring | Spring months are March, April, and May. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. For ESR this value is negative, showing seasonal net maximum emergency withdrawal/charging. |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Max Sustainable Rating - Summer | Summer months are June, July, and August. Ambient conditions (dry bulb temperature) assumptions by ERCOT Weather Zone shall be as follows:  - 94 deg F for Coastal Weather Zone,  - 98 deg F for East Weather Zone,  - 98 deg F for Far West Weather Zone,  - 101 deg F for North Central Weather Zone,  - 99 deg F for North Weather Zone,  - 99 deg F for South Central Weather Zone, - 96 deg F for South Weather Zone,  - 99 deg F for West Weather Zone. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Min Sustainable Rating - Summer | Summer months are June, July, and August. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. For ESR this value is negative, showing seasonal net maximum withdrawal/charging. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Max Emergency Rating - Summer | Summer months are June, July, and August. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Min Emergency Rating - Summer | Summer months are June, July, and August. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. For ESR this value is negative, showing seasonal net maximum emergency withdrawal/charging. |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Max Sustainable Rating - Fall | Fall months are September, October, and November. Ambient conditions (dry bulb temperature) assumptions by ERCOT Weather Zone shall be as follows:  - 86 deg F for Coastal Weather Zone,  - 86 deg F for East Weather Zone,  - 87 deg F for Far West Weather Zone,  - 87 deg F for North Central Weather Zone,  - 84 deg F for North Weather Zone,  - 88 deg F for South Central Weather Zone, - 88 deg F for South Weather Zone,  - 86 deg F for West Weather Zone. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Min Sustainable Rating - Fall | Fall months are September, October, and November. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. For ESR this value is negative, showing seasonal net maximum withdrawal/charging. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Max Emergency Rating - Fall | Fall months are September, October, and November. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Min Emergency Rating - Fall | Fall months are September, October, and November. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. For ESR this value is negative, showing seasonal net maximum emergency withdrawal/charging. |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Max Sustainable Rating - Winter | Winter months are December, January, and February. Ambient conditions (dry bulb temperature) assumptions by ERCOT Weather Zone shall be as follows:  - 37 deg F for Coastal Weather Zone,  - 30 deg F for East Weather Zone,  - 26 deg F for Far West Weather Zone,  - 26 deg F for North Central Weather Zone,  - 23 deg F for North Weather Zone,  - 31 deg F for South Central Weather Zone, - 40 deg F for South Weather Zone,  - 26 deg F for West Weather Zone. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Min Sustainable Rating - Winter | Winter months are December, January, and February. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. For ESR this value is negative, showing seasonal net maximum withdrawal/charging. |  |  | R | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Max Emergency Rating - Winter | Winter months are December, January, and February. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. |  |  |  | R |  | |
| Parameters | | X | X | X | X | X |  |  | MW | Seasonal Net Min Emergency Rating - Winter | Winter months are December, January, and February. These are not the HSL/LSL or HEL/LEL values that are submitted in the COP. For ESR this value is negative, showing seasonal net maximum emergency withdrawal/charging. |  |  |  | R |  | |
| Parameters | |  |  |  | X |  |  |  | MW | MW1 | Net MW value where the steam generator typically reaches rated pressure (required value for steam turbines). |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | PSI | PSI1 | Rated throttle pressure (required value for steam turbines) at MW1 |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | MW | MW2 | Net unit output (breakpoint value used to define the pressure/MW curve). If pressure is constant for the normal operating range enter the same value as is entered for MW1. |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | PSI | PSI2 | Throttle steam pressure (psi) at MW2 value (breakpoint value used to define the pressure/MW curve). If pressure is constant for the normal operating range enter the same value as is entered for PSI1. |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | MW | MW3 | Net unit output (breakpoint value used to define the pressure/MW curve). If pressure is constant for the normal operating range, or is not needed, enter the same value as is entered for MW2. |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | PSI | PSI3 | Throttle steam pressure (psi) at MW3 value (breakpoint value used to define the pressure/MW curve). If pressure is constant for the normal operating range, or is not needed, enter the same value as is entered for PSI2. |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | MW | MW4 | Net unit output (breakpoint value used to define the pressure/MW curve). If pressure is constant for the normal operating range, or is not needed, enter the same value as is entered for MW3. |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | PSI | PSI4 | Throttle steam pressure (psi) at MW4 value (breakpoint value used to define the pressure/MW curve). If pressure is constant for the normal operating range, or point is not needed, enter the same value as is entered for PSI3. |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | MW | MW5 | Net unit output (breakpoint value used to define the pressure/MW curve). If pressure is constant for the normal operating range, or point is not needed, enter the same value as is entered for MW4. |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | PSI | PSI5 | Throttle steam pressure (psi) at MW5 value (breakpoint value used to define the pressure/MW curve). If pressure is constant for the normal operating range, or point is not needed, enter the same value as is entered for PSI4. |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | MW | MW6 | Net unit MW output where the steam generator typically reaches minimum pressure (required value for steam turbines). |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | PSI | PSI6 | Throttle steam pressure (psi) at MW6 value (required value for steam turbines). |  |  |  | C |  | |
| Parameters | |  |  |  | X |  |  |  | PSIG/MW | Limiting K Factor | The K factor is used to model the stored energy available to the resource. The value ranges between 0.0 and 0.6 psig per MW change. Additional information on determining the K factor can be found in Attachment 2, Primary Frequency Response Reference Document, of NERC Reliability Standard, of BAL-001-TRE-1, Primary Frequency Response in the ERCOT Region. The default value would be zero (required for steam turbines). |  |  |  | C |  | |
| **Operational Parameters** | | | | | | | | | | | | | | | | | |
| Operational Parameters | | X | X |  | X |  |  |  | List | Unit Name | Code for name of generator unit, as provided on the Unit Information tab. |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X |  |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| Operational Parameters | |  |  |  |  | X |  |  | List | SITECODE | For Parameters - CFG - enter the Site Code established in the General and Site Information tab of the GENERAL\_SITE\_ESIID\_Information workbook. |  |  | R | R |  | |
| Operational Parameters | |  |  |  |  | X |  |  | List | Train Code | Train Code as provided on the Unit Information Train tab. Select from drop-down list. |  |  | R | R |  | |
| Operational Parameters | |  |  |  |  | X |  |  | List | Configuration Code | Concatenated code of the Train Code and the Configuration Number. Select from drop-down list. |  |  | R | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  | hours | Minimum On Line Time | The minimum number of consecutive hours the Resource must be On-Line before being shut down. For Combined Cycle Generation Resources, this value applies to the configuration, and not the subcomponent (e.g. GT, steamer). Used by ERCOT for RUC and DAM. |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  | hours | Minimum Off Line Time | The minimum number of consecutive hours the Resource must be Off-Line before being restarted. For Combined Cycle Generation Resources, this value applies to the configuration, and not the subcomponent (e.g. GT, steamer). Used by ERCOT for RUC and DAM. |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  | hours | Hot Start Time | The time, in hours, from the ERCOT startup notice to LSL, for a Resource in its hot-temperature state. Hot, Cold, Intermediate start times are not additive. |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  | hours | Intermediate Start Time | The time interval, in hours, from the ERCOT startup notice to LSL, for a Resource in its intermediate temperature state. Hot, Cold, Intermediate start times are not additive. |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  | hours | Cold Start Time | The time interval, in hours, from the ERCOT startup notice to LSL, for a Resource in its cold-temperature state. Hot, Cold, Intermediate start times are not additive. |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  |  | Max Weekly Starts | The maximum number of times a Resource can be started in seven consecutive days under normal operating conditions. For Combined Cycle Generation Resources, this value applies to the configuration, and not the subcomponent (e.g. GT, steamer) |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  | hours | Max On Line Time | The maximum number of consecutive hours a Resource can run before it needs to be shut down. For Combined Cycle Generation Resources, this value applies to the configuration, and not the subcomponent (e.g. GT, steamer) |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  |  | Max Daily Starts | The maximum number of times a Resource can be started in a 24 hour period under normal operating conditions. For Combined Cycle Generation Resources, this value applies to the configuration, and not the subcomponent (e.g. GT, steamer) |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  | MWh | Max Weekly Energy | The maximum amount of energy, in MWh, a Resource can produce in seven consecutive days. |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  | hours | Hot-to-Intermediate Time | The time, in hours, from shutdown until a Resource reaches its intermediate-temperature state. |  |  |  | R |  | |
| Operational Parameters | | X | X |  | X | X |  |  | hours | Intermediate-to-cold Time | The time, in hours, between entering an intermediate-temperature-state until reaching its cold-temperature state. |  |  |  | R |  | |
| **Operational Parameters - NRRC (Normal Ramp Rate Curve)** | | | | | | | | | | | | | | | | | |
| Operational Parameters - NRRC | | X | X | X | X |  |  |  | List | Unit Name | Code for name of generator unit, as provided on the Unit Information tab. |  |  |  | R |  | |
| Operational Parameters - NRRC | | X | X | X | X |  |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| Operational Parameters - NRRC | |  |  |  |  | X |  |  | List | Train Code | Train Code as provided on the Unit Information Train tab. Select from drop-down list. |  |  | R | R |  | |
| Operational Parameters - NRRC | |  |  |  |  | X |  |  | List | Configuration Code | Concatenated code of the Train Code and the Configuration Number. Select from drop-down list. |  |  | R | R |  | |
| Operational Parameters - NRRC | | X | X | X | X | X |  |  | List | MW Number | Select MW1- MW10 from list |  |  |  | R |  | |
| Operational Parameters - NRRC | | X | X | X | X | X |  |  | Automatic | NRRC Code | Concatenated code of the Unit Code, MW Number and the Ramp Rate type |  |  |  | A |  | |
| Operational Parameters - NRRC | | X | X | X | X | X |  |  | MW | NRRC MW | Normal Ramp Rate curve, as defined by the Protocols, spans from Low Sustainable Limit (LSL) to High Sustainable Limit (HSL). As LSL/HSL are subject to change, it is recommended to establish this curve from the Low Reasonability Limit (LRL) to the High Reasonability Limit (HRL) for registration purposes. The curve is reflected in ERCOT systems as steps. The curve is not interpolated between points. |  |  |  | R |  | |
| Operational Parameters - NRRC | | X | X | X | X | X |  |  | MW/min | Upward RampRate | Enter Normal Ramp Rate for each NRRC MW value. This is the rate at which the Resource can increase MW output in MW/minute for the given output level. |  |  |  | R |  | |
| Operational Parameters - NRRC | | X | X | X | X | X |  |  | MW/min | Downward RampRate | Enter Normal Ramp Rate for each NRRC MW value. This is the rate at which the Resource can decrease MW output in MW/minute for the given output level. |  |  |  | R |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| **Operational Parameters - ERRC (Emergency Ramp Rate Curve)** | | | | | | | | | | | | | | | | | |
| Operational Parameters - ERRC | | X | X | X | X |  |  |  | List | Unit Name | Code for name of generator unit, as provided on the Unit Information tab. |  |  |  | R |  | |
| Operational Parameters - ERRC | | X | X | X | X |  |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| Operational Parameters - ERRC | |  |  |  |  | X |  |  | List | Train Code | Train Code as provided on the Unit Information Train tab. Select from drop-down list. |  |  | R | R |  | |
| Operational Parameters - ERRC | |  |  |  |  | X |  |  | List | Configuration Code | Concatenated code of the Train Code and the Configuration Number. Select from drop-down list. |  |  | R | R |  | |
| Operational Parameters - ERRC | | X | X | X | X | X |  |  | List | MW Number | Select MW1- MW10 from list. |  |  |  | R |  | |
| Operational Parameters - ERRC | | X | X | X | X | X |  |  | Automatic | ERRC Code | Concatenated code of the Unit Code, MW Number and the Ramp Rate type |  |  |  | A |  | |
| Operational Parameters - ERRC | | X | X | X | X | X |  |  | MW | ERRC MW | Emergency Ramp Rate curve, as defined by the Protocols, spans from Low Sustainable Limit LSL to High Sustainable Limit HSL. As LSL/HSL are subject to change, it is recommended to establish this curve from the Low Reasonability Limit LRL to the High Reasonability Limit HRL for registration purposes. The curve is reflected in ERCOT systems as steps. The curve is not interpolated between points. |  |  |  | R |  | |
| Operational Parameters - ERRC | | X | X |  | X | X |  |  | MW/min | Upward RampRate | Enter Emergency Ramp Rate for each ERRC MW value. This is the rate at which the Resource can increase MW output in MW/minute for the given output level. |  |  |  | R |  | |
| Operational Parameters - ERRC | | X | X |  | X | X |  |  | MW/min | Downward RampRate | Enter Emergency Ramp Rate for each ERRC MW value. This is the rate at which the Resource can decrease MW output in MW/minute for the given output level. |  |  |  | R |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| **CC Configurations** | | | | | | | | | | | | | | | | | |
| CC Configurations | |  |  |  |  | X |  |  | List | Train Code | Train Code as provided on the Unit Information Train tab. Select from drop-down list. |  |  | R | R |  | |
| CC Configurations | |  |  |  |  | X |  |  | Automatic | SITE CODE | Site Code as provided on the General and Site Information tab. |  |  | A | A |  | |
| CC Configurations | |  |  |  |  | X |  |  | List | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name as provided on the Unit Info tab. Select from drop-down list. |  |  | R | R |  | |
| CC Configurations | |  |  |  |  | X |  |  | # | Configuration # | Number of this configuration. The configuration numbers should increase based on increasing capability, not necessarily by increasing number of components. This is a sequential numbering of all possible operational configurations. |  |  | R | R |  | |
| CC Configurations | |  |  |  |  | X |  |  | Automatic | Configuration Code | Concatenated code of the Train Code and the Configuration Number |  |  | A | A |  | |
| CC Configurations | |  |  |  |  | X |  |  | List | Configuration Type | Register all operationally unique configurations. Additional background to assist with this step can be obtained from the Resource Registration Guide. |  |  | R | R |  | |
| **CC Transitions** | | | | | | | | | | | | | | | | | |
| CC Transistions | |  |  |  |  | X |  |  | List | Site Code | Site Code as provided on the General and Site Information tab. |  |  | R | R |  | |
| CC Transistions | |  |  |  |  | X |  |  | List | Mnemonic for Combined Cycle Train | A Site Code and Train Code concatenation |  |  | R | R |  | |
| CC Transistions | |  |  |  |  | X |  |  | List | Configuration Code From | Additional background to assist with this step can be obtained from the Resource Registration Guide. |  |  | C | C |  | |
| CC Transistions | |  |  |  |  | X |  |  | List | Configuration Code To | Additional background to assist with this step can be obtained from the Resource Registration Guide. |  |  | C | C |  | |
| **Private Network - Unit** | | | | | | | | | | | | | | | | | |
| Private Network - Unit | | X | X | X | X | X |  |  | Automatic | Unit Name | Unit Code as provided on the Unit Info tab. | R | R | R | R |  | |
| Private Network - Unit | | X | X | X | X | X |  |  | Automatic | SITE CODE | Site Code as provided on the General and Site Information tab. |  |  | A | A |  | |
| Private Network - Unit | | X | X | X | X | X |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Resource name as provided on the General and Site Information tab. |  |  | A | A |  | |
| Private Network - Unit | | X | X | X | X | X |  |  | MW | Average Amount of Self-serve Private Load | Amount of the total site generation MW output used for self serve and not available for the grid. If multiple generators are registered, proportion the total site load against each generator, not to exceed the nameplate capacity of any generator. | C | C | C | C |  | |
| Private Network - Unit | | X | X | X | X | X |  |  | MVAR | Average Amount of Self-serve Private Reactive Load | Amount of the total site generation MVAr output used for self serve and not available for the grid. If multiple generators are registered, proportion the total site load against each generator, not to exceed the nameplate capacity of any generator. | C | C | C | C |  | |
| Private Network - Unit | | X | X | X | X | X |  |  | MW | Expected Typical Private Network Net Interchange | MW Net Interchange with ERCOT grid (typical Net=Gen-Load). If multiple generators are registered, proportion the total site load against each generator. | C | C | C | C |  | |
| Private Network - Unit | | X | X | X | X | X |  |  | MVAR | Expected Typical Private Network Net Reactive Interchange | MVAr Net Interchange with ERCOT grid (typical Net=Gen-Load). If multiple generators are registered, proportion the total site load against each generator. | C | C | C | C |  | |
| Private Network - Unit | | X | X | X | X | X |  |  | MW | Private Network Gross Unit Capability | MW Gross Generation Capability for the generator | C | C | C | C |  | |
| Private Network - Unit | | X | X | X | X | X |  |  | MVAR | Private Network Gross Unit Reactive Capability | MVAr Gross Generation Capability for the generator | C | C | C | C |  | |
| Private Network - Unit | | X | X | X | X | X |  |  | Y/N | If Unit Trips, Does Load Trip? | This is necessary to determine how much Load will appear on the ERCOT grid if the unit trips. |  |  | C | C |  | |
| Private Network - Unit | | X | X | X | X | X |  |  |  | If Yes, Approximate Percentage Of Load That Will Trip? | If unit trips what percentage of Load associated with this unit is tripped? Enter % (ex. 70% is entered as 70.0) |  |  | C | C |  | |
| **Reactive Capability** | | | | | | | | | | | | | | | | | |
| Reactive Capability | | X | X | X | X | X |  |  | List | Unit Name | Unit Code as provided on the Unit Info tab. | R | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | Automatic | SITE\_CODE | Site Code as provided on the General and Site Information tab. |  |  |  | A |  | |
| Reactive Capability | | X | X | X | X | X |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  | A | A |  | |
| Reactive Capability | | X | X | X | X | X |  |  | List | Reactive Capability Provided is Gross Value? | Select Gross | R | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | List | Reactive Capability Data Provided is from NDCRC Test Data | Indicate (Y/N) if the reactive capability data is from test data |  |  |  | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | mm/dd/yyyy | If Reactive Capability Data Provided Is From NDCRC test Data Then Enter The Date On Which The Test Was Performed. | Include the Reactive Test Date, if the Reactive Capability Data Provided is from NDCRC test data |  |  |  | C |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MW | Mw1 | For non-IRR generators, the gross MW value associated with the units' lowest "Seasonal Net Minimum Sustainable Rating" as registered on the RARF, (Net to Gross conversion). For IRRs, record 0.1 MW. |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Lagging MVAR Limit Associated With Mw1 Output | The Lagging Reactive Power capability associated with the MW1 curve point, in MVAr. |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Leading MVAR Limit Associated With Mw1 Output | The Leading Reactive Power capability associated with the MW1 curve point, in MVAr; input as negative number |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MW | Mw2 | Select MW 2 breakpoint which provides the best straight line fit between MW points 1 and 4. |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Lagging MVAR Limit Associated With Mw2 Output | The Lagging Reactive Power capability associated with the MW2 curve point, in MVAr. |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Leading MVAR Limit Associated With Mw2 Output | The Leading Reactive Power capability associated with the MW2 curve point, in MVAr; input as negative number |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MW | Mw3 | Select MW 3 breakpoint which provides the best straight line fit between MW points 1 and 4. |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Lagging MVAR Limit Associated With Mw3 Output | The Lagging Reactive Power capability associated with the MW3 curve point, in MVAr. |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Leading MVAR Limit Associated With Mw3 Output | The Leading Reactive Power capability associated with the MW3 curve point, in MVAr; input as negative number |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MW | Mw4 | The gross MW value which is associated with the highest "Seasonal Net Maximum Sustainable Rating" as registered on the RARF, (Net to gross conversion) |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Lagging MVAR Limit Associated With Mw4 Output | The Lagging Reactive Power capability associated with the MW4 curve point, in MVAr. |  | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Leading MVAR Limit Associated With Mw4 Output | The Leading Reactive Power capability associated with the MW4 curve point, in MVAr; input as negative number |  | R | R | R |  | |
| Reactive Capability | |  | X | X | X | X |  |  | MW | Mw5 - Unity Power Factor | The MW output at Unity power factor (zero MVAr) |  | R | R | R |  | |
| Reactive Capability | |  |  |  | X | X |  |  | PSI | Indicate Hydrogen Pressure (PSI) Associated With Your Reactive Curve Submitted for ERCOT Studies | From manufacturer Reactive Capability Curve or data sheet. |  |  |  | C |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Maximum Lagging Operating Capability (MVAR) | Enter the largest magnitude value for lagging MVArs associated with MW points 1-4. Input as positive number | R | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | MVAR | Maximum Leading Operating Capability (MVAR) | Enter the largest magnitude value for leading MVArs associated with MW points 1-4. Input as negative number | R | R | R | R |  | |
| Reactive Capability | | X | X | X | X | X |  |  | Y/N | Manufacturer's Capability Curve Submitted? | Has the most recent curve been submitted to ERCOT? If not, please attach. |  | R | R | R |  | |
| **Planning** | | | | | | | | | | | | | | | | | |
| Planning | | X | X | X | X | X |  |  | List | Unit Name | Unit Code as provided on the Unit Info tab. |  | R | R | R |  | |
| Planning | | X | X | X |  | X |  |  | Automatic | SITE\_CODE | Site Code as provided on the General and Site Information tab. |  |  |  | A |  | |
| Planning | | X | X | X | X | X |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| Planning | |  |  |  | X | X |  |  | MVA | What Is the MVA Base That The Following Data Is Based On? | The MVA Base for stated impedances. This must match the MVA Base submitted for the dynamic models. |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | kV | What is the kV Base That The Following Data Is Based On? | The kV Base for stated impedances. |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | p.u. | Direct Axis Subtransient Reactance, X"di (unsaturated) | Enter the direct axis subtransient reactance (unsaturated). This must match data submitted for the dynamic model. |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | p.u. | Direct Axis Transient Reactance, X'di (unsaturated) | Enter the direct axis transient reactance (unsaturated). This must match data submitted for the dynamic model. |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | R in p.u. | Positive Sequence (Synchronous) Z (unsaturated) | Enter the positive sequence resistance (unsaturated) for system models. |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | X in p.u. | Positive Sequence (Synchronous) Z (unsaturated) | Enter the positive sequence reactance (unsaturated) for system models. This must match data submitted for the dynamic model. |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | R in p.u. | Negative Sequence Z (unsaturated) | Enter the negative sequence resistance (unsaturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | X in p.u. | Negative Sequence Z (unsaturated) | Enter the negative sequence reactance (unsaturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | R in p.u. | Zero Sequence Z (unsaturated) | Enter the zero sequence resistance (unsaturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | X in p.u. | Zero Sequence Z (unsaturated) | Enter the zero sequence reactance (unsaturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | p.u. | Direct Axis Subtransient Reactance, X"dv (saturated) | Enter the direct axis subtransient reactance (saturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | p.u. | Direct Axis Transient Reactance, X"dv (saturated) | Enter the direct axis transient reactance (saturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | R in p.u. | Positive Sequence (Synchronous) Z (saturated) | Enter the positive sequence resistance (saturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | X in p.u. | Positive Sequence (Synchronous) Z (saturated) | Enter the positive sequence reactance (saturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | R in p.u. | Negative Sequence Z (saturated) | Enter the negative sequence resistance (saturated) for system models. |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | X in p.u. | Negative Sequence Z (saturated) | Enter the negative sequence reactance (saturated) for system models. |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | R in p.u. | Zero Sequence Z (saturated) | Enter the zero sequence resistance (saturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | X in p.u. | Zero Sequence Z (saturated) | Enter the zero sequence reactance (saturated). |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | p.u. | Zero Sequence Grounding Resistance For An Impedance Grounded Generator in P.u. (100 MVA Base) | Zero Sequence Grounding Resistance value of the Generator Grounding Impedance is required. The value must be specified on a 100 MVA base. |  | R | R | R |  | |
| Planning | |  |  |  | X | X |  |  | p.u. | Zero Sequence Grounding Reactance For An Impedance Grounded Generator in P.u. (100 MVA Base) | Zero Sequence Grounding Reactance value of the Generator Grounding Impedance is required. The value must be specified on a 100 MVA base. |  | R | R | R |  | |
| Planning | | X | X | X | X | X |  |  | MW | Average Amount of Auxiliary Real Power | Enter average MW for auxiliary Load at full MW output of the unit (For Aux MW >= 1.0, enter all % load splits for MW and MVAr aux loads) | R | R | R | R |  | |
| Planning | | X | X | X | X | X |  |  | MVAR | Average Amount of Auxiliary Reactive Power | Enter average MVAr for auxiliary Load at full MW output of the unit | C | C | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Auxiliary Load Power Factor | Enter power factor for auxiliary Load, if average MVAr for auxiliary load is not provided | C | C | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Large Motor, Percent Of Total Mw Load | Enter estimated % of total MW Load per Load type. The split between large and small motor should be along voltage lines - where motors connected at 2400/4160V and above should be considered large, and below 2400/4160V should be considered small. |  |  | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Small Motor, Percent Of Total Mw Load | Enter estimated % of total MW Load per Load type. The split between large and small motor should be along voltage lines - where motors connected at 2400/4160V and above should be considered large, and below 2400/4160V should be considered small. |  |  | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Resistive (heating) Load, Percent Of Total Mw Load | Enter estimated % of total MW Load per Load type. |  |  | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Discharge Lighting, Percent Of Total Mw Load | Enter estimated % of total MW Load per Load type. |  |  | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Other, Percent of total MW Load | Enter estimated % of total MW Load per Load type. |  |  | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Large Motor, Percent of total MVAR Load | Enter estimated % of total MVAr Load per Load type. The split between large and small motor should be along voltage lines - where motors connected at 2400/4160V and above should be considered large, and below 2400/4160V should be considered small. |  |  | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Small Motor, Percent of total MVAR Load | Enter estimated % of total MVAr Load per Load type. The split between large and small motor should be along voltage lines - where motors connected at 2400/4160V and above should be considered large, and below 2400/4160V should be considered small. |  |  | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Discharge Lighting, Percent of total MVAR Load | Enter estimated % of total MVAr Load per Load type. |  |  | C | C |  | |
| Planning | | X | X | X | X | X |  |  |  | Other, Percent Of Total MVAR Load | Enter estimated % of total MVAr Load per Load type. Ensure that Large Motor, percent of total MVAR load + Small Motor, percent of total MVAR load Discharge Lighting, percent of total MVAR load + Other, percent of total MVAR load = 100. |  |  | C | C |  | |
| Planning | |  |  |  | X | X |  |  |  |  | PSSE MODEL : The following list of models and data are required: Generator, Turbine-Governor, Excitation System, Power System Stabilizer (required If There Is A Power System Stabilizer), Compensator (required If There Is A Compensator), Over Excitation Limiter (required If There Is An Over Excitation Limiter), and Under Excitation Limiter (required If There Is An Under Excitation Limiter). PLEASE imbed the data files in the Dynamics Data Tab, if files are very large, or numerous, imbed the files in a single zip file. If user-defined models are submitted, include the .obj or.dll or .lib files, and documentation for the model used. |  | R | R | R |  | |
| **Protection** | | | | | | | | | | | | | | | | | |
| Protection | | X | X | X | X | X |  |  | List | Unit Name | Unit Code as provided on the Unit Info tab. |  | R | R | R |  | |
| Protection | | X |  | X |  | X |  |  | Automatic | SITE\_CODE | Site Code as provided on the General and Site Information tab. |  |  |  | A |  | |
| Protection | | X | X | X | X | X |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  | A | A |  | |
| Protection | | X | X | X | X | X |  |  | cycles | Breaker Interruption Time | Time taken (in cycles) between the breaker receiving the trip signal, and the breaker contacts opening to interrupt the flow of current. |  | R | R | R |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Instantaneous Undervoltage Trip | The per unit value (below nominal) of the undervoltage relay instantaneous set point. |  | O | O | O |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Undervoltage 1 | Enter the first level undervoltage relay set point in per unit. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 1 | Enter the first level undervoltage time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Undervoltage 2 | Enter the second level undervoltage relay set point in per unit. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 2 | Enter the second level undervoltage time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Undervoltage 3 | Enter the third level undervoltage relay set point in per unit. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 3 | Enter the third level undervoltage time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Undervoltage 4 | Enter the fourth level undervoltage relay set point in per unit. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 4 | Enter the fourth level undervoltage time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Instantaneous Overvoltage Trip | The per unit value (above nominal) of the overvoltage relay instantaneous set point. |  | O | O | O |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Overvoltage 1 | Enter the first level overvoltage relay set point in per unit. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 1 | Enter the first level overvoltage relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Overvoltage 2 | Enter the second level overvoltage relay set point in per unit. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 2 | Enter the second level overvoltage relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Ovrvoltage 3 | Enter the third level overvoltage relay set point in per unit. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 3 | Enter the third level overvoltage relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | p.u. | Overvoltage 4 | Enter the fourth level overvoltage relay set point in per unit. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 4 | Enter the fourth level overvoltage relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Instantaneous Underfrequency Trip | The per unit value (below 60Hz) of the underfrequency relay instantaneous set point. |  | O | O | O |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Underfrequency 1 | Enter the first level underfrequency relay set point in Hz. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 1 | Enter the first level underfrequency relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Underfrequency 2 | Enter the second level underfrequency relay set point in Hz. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 2 | Enter the second level underfrequency relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Underfrequency 3 | Enter the third level underfrequency relay set point in Hz. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 3 | Enter the third level underfrequency relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Underfrequency 4 | Enter the fourth level underfrequency relay set point in Hz. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 4 | Enter the fourth level underfrequency relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Instantaneous Overfrequency Trip | The per unit value (above 60Hz) of the overfrequency relay instantaneous set point. |  | O | O | O |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Overfrequency 1 | Enter the first level overfrequency relay set point in Hz. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 1 | Enter the first level overfrequency relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Overfrequency 2 | Enter the second level overfrequency relay set point in Hz. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 2 | Enter the second level overfrequency relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Overfrequency 3 | Enter the third level overfrequency relay set point in Hz. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 3 | Enter the third level overfrequency relay time delay set point. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | Hz | Overfrequency 4 | Enter the fourth level overfrequency relay set point in Hz. |  | C | C | C |  | |
| Protection | | X | X | X | X | X |  |  | sec | Time 4 | Enter the fourth level overfrequency relay time delay set point. |  | C | C | C |  | |
| Protection | | X |  |  |  |  |  |  | Y/N | Does the resource have the manufacturer's technical document / Simulation Results / Test Results, etc. describing the turbine technology & VRT optIons purchased with turbine, if any | TURBINE VRT CAPABILITY: Ensure that VRT capability is included as part of the normal dynamic model data submitted. If yes, provide the following: (1) the PSS/E dynamic model including the settings and (2) technical manufacturer's documents describing the VRT capabilities of the purchased packages. Models and documents are to be embedded in the RARF Dynamic Data tab or included in the zip file. |  | R | R | R |  | |
| ***[RRGRR021: Replace the Protection field above with the following on August 1, 2020:]*** | | | | | | | | | | | | | | | | | |
| Protection | | X |  |  |  |  |  |  | Y/N | Does the resource have the manufacturer's technical document / Simulation Results / Test Results, etc. describing the turbine technology & VRT options purchased with turbine, if any | TURBINE VRT CAPABILITY: Ensure that VRT capability is included as part of the normal dynamic model data submitted. If yes, provide the following: (1) the PSS/E dynamic model including the settings, (2) the TSAT dynamic model including the settings, and (3) technical manufacturer's documents describing the VRT capabilities of the purchased packages. Models and documents are to be embedded in the RARF Dynamic Data tab or included in the zip file. |  | R | R | R |  | |
| Protection | | X |  |  |  |  |  |  | Y/N | Does the Resource use dynamic reactive devices (SVC/statcom, etc.) at the wind farm? - (note: capacitor/reactor banks used for conventional reactive support cannot be considered as dynamic reactive devices) - If yes, please provide supporting documentation. (manufacturer's technical document, PSS/E model etc.), submitted in the Dynamics Data Tab. | TURBINE VRT CAPABILITY: If yes, provide the following (1) the PSS/E dynamic model for the Dynamic Reactive Device (SVC,DVAR,STATCOM), including the settings and (2) a manufacturer's technical document describing the dynamic device and model. Models and documents are to be embedded in the RARF Dynamic Data tab or included in the zip file. |  | R | R | R |  | |
| ***[RRGRR021: Replace the Protection field above with the following on August 1, 2020:]*** | | | | | | | | | | | | | | | | | |
| Protection | | X |  |  |  |  |  |  | Y/N | Does the Resource use dynamic reactive devices (SVC/statcom, etc.) at the wind farm? - (note: capacitor/reactor banks used for conventional reactive support cannot be considered as dynamic reactive devices) - If yes, please provide supporting documentation. (manufacturer's technical document, PSS/E model, TSAT model etc.), submitted in the Dynamics Data Tab. | TURBINE VRT CAPABILITY: If yes, provide the following (1) the PSS/E dynamic model for the Dynamic Reactive Device (SVC, DVAR, STATCOM), including the settings, (2) the TSAT dynamic model for the Dynamic Reactive Device (SVC, DVAR, STATCOM), including the settings, and (3) a manufacturer's technical document describing the dynamic device and model. Models and documents are to be embedded in the RARF Dynamic Data tab or included in the zip file. |  | R | R | R |  | |
| Protection | | X |  |  |  |  |  |  | Y/N | Does the Resource have plant voltage protection? If yes, please provide supporting documentation. | TURBINE VRT CAPABILITY: Plant voltage protection is substation main power transformer and equipment protection, If yes, provide a technical description of the protection scheme and voltage settings. The documents are to be embedded in the RARF Dynamic Data tab or included in the zip file. |  | R | R | R |  | |
| Protection | | X |  |  |  |  |  |  | Y/N | Does The Resource Have Feeder Voltage Protection? If Yes, Please Provide Supporting Documentation. | TURBINE VRT CAPABILITY: Feeder voltage protection is protection on the feeder breakers, If yes, provide a technical description of the protection scheme and voltage settings. The documents are to be embedded in the RARF Dynamic Data tab or included in the zip file. |  | R | R | R |  | |
| **Subsynchronous Information (if requested by ERCOT)** | | | | | | | | | | | | | | | | | |
| Subsync | |  |  |  | X | X |  |  | List | Unit Name | Unit Code as provided on the Unit Info tab. |  | R | R | R |  | |
| Subsync | |  |  |  |  | X |  |  | Automatic | SITECODE | Site Code as provided on the General and Site Information tab. |  |  |  | A |  | |
| Subsync | |  |  |  | X | X |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  |  | A |  | |
| Subsync | |  |  |  | X | X |  |  | List | Mass Number | Select a unique number for each mass. |  | C | C | C |  | |
| Subsync | |  |  |  | X | X |  |  | Automatic | Mass Code | Concatenated code automatically provided of the Resource Name and Mass Number |  |  |  | A |  | |
| Subsync | |  |  |  | X | X |  |  | Automatic | Name | Identification of the masses- HP, IP, LP1, LP2, EXC, etc. |  |  |  | A |  | |
| Subsync | |  |  |  | X | X |  |  |  | Mass Inertia | H-value. The inertia constant of each mass, either in MW's, MVA, or lbm.ft² |  | C | C | C |  | |
| Subsync | |  |  |  | X | X |  |  |  | Inertia units | MW's, MVA, or lbm.ft² |  | C | C | C |  | |
| Subsync | |  |  |  | X | X |  |  |  | Associated damping | The damping associated with each mass either in p.u. torque/p.u. speed deviation, or lbf.ft.sec/rad |  | C | C | C |  | |
| Subsync | |  |  |  | X | X |  |  |  | Damping units | p.u. torque/p.u. speed or lbf.ft.sec/rad |  | C | C | C |  | |
| Subsync | |  |  |  | X | X |  |  |  | Stiffness between Masses Previous And Current Mass | The stiffness (spring constant) between each two mass, either in p.u. torque/rad, or lbf.ft/rad (coupling). |  | C | C | C |  | |
| Subsync | |  |  |  | X | X |  |  |  | Stiffness units | p.u. torque/rad or lbf.ft/rad |  | C | C | C |  | |
| **Collector System** | | | | | | | | | | | | | | | | | |
| Collector System | | X | X | X |  |  |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  | A | A |  | |
| Collector System | | X | X | X |  |  |  |  |  | Cable Type | Enter the type(s) of conductor(s) used in the collector system. |  | R | R | R |  | |
| Collector System | | X | X | X |  |  |  |  | kV | Voltage Level kV | Enter the voltage level (in kV) of the collector system. Used when calculating Positive and Zero Sequence resistance and reactance. |  | R | R | R |  | |
| Collector System | | X | X | X |  |  |  |  | (p.u. on 100 MVA base) | Positive Sequence R/kft (p.u. on 100 MVA base) | Enter in per unit, the positive sequence resistance per kilo-foot of the collector system calculated on a 100 MVA base. |  | R | R | R |  | |
| Collector System | | X | X | X |  |  |  |  | (p.u. on 100 MVA base) | Positive Sequence X/kft (p.u. on 100 MVA base) | Enter in per unit, the positive sequence reactance per kilo-foot of the collector system calculated on a 100 MVA base. |  | R | R | R |  | |
| Collector System | | X | X | X |  |  |  |  | (p.u. on 100 MVA base) | Positive Charging Bc/kft (p.u. on 100 MVA base) | Enter in per unit, the positive sequence line charging reactance per kilo-foot of the collector system calculated on a 100 MVA base. |  | R | R | R |  | |
| Collector System | | X | X | X |  |  |  |  | (p.u. on 100 MVA base) | Zero Sequence R0/kft (p.u. on 100 MVA base) | Enter in per unit, the zero sequence resistance per kilo-foot of the collector system calculated on a 100 MVA base. |  | R | R | R |  | |
| Collector System | | X | X | X |  |  |  |  | (p.u. on 100 MVA base) | Zero Sequence X0/kft (p.u. on 100 MVA base) | Enter in per unit, the zero sequence reactance per kilo-foot of the collector system calculated on a 100 MVA base. |  | R | R | R |  | |
| Collector System | | X | X | X |  |  |  |  |  | Collection System One-Line Diagram | Collection System One-Line Diagram (Imbed a PDF one-line diagram) |  | R | R | R |  | |
| Collector System | | X | X | X |  |  |  |  |  | Collection System Detailed Model. Embed a PSS/E Raw & Sequence model, or an ASPEN/Powerworld Model (to include both positive and zero sequence data) | Collection System Detailed Model. Embed a PSS/E Raw & Sequence model, or an ASPEN/Powerworld Model (to include both positive and zero sequence data) |  | R | R | R |  | |
| **Collector System Segment Data** | | | | | | | | | | | | | | | | | |
| Collector System - Segment Data | | X | X | X |  |  |  |  | Automatic | Resource Name (Unit Code/Mnemonic) | Concatenated mnemonic of Resource Site Code and Unit name (e.g. CBY\_CBYG1). |  |  | A | A |  | |
| Collector System - Segment Data | | X | X | X |  |  |  |  | List | Cable Type | Cable Type as provided on the Collector System tab |  | R | R | R |  | |
| Collector System - Segment Data | | X | X | X |  |  |  |  | alpha/numeric | From | Enter the bus identifier for the sending end or "from" bus of the cable segment. Consistent with a PSS/E, ASPEN, or PowerWorld model submitted. |  | R | R | R |  | |
| Collector System - Segment Data | | X | X | X |  |  |  |  | alpha/numeric | To | Enter the bus identifier for the receiving end or "to" bus of the cable segment. Consistent with a PSS/E, ASPEN, or PowerWorld model submitted. |  | R | R | R |  | |
| Collector System - Segment Data | | X | X | X |  |  |  |  | alpha/numeric | Circuit Number | Enter the circuit number associated with the "From" and "To" fields, consistent with the PSS/E, ASPEN, or PowerWorld model submitted. |  | R | R | R |  | |
| Collector System - Segment Data | | X | X | X |  |  |  |  | kV | Voltage Level | Enter the voltage level of the cable segment in kV. |  | R | R | R |  | |
| Collector System - Segment Data | | X | X | X |  |  |  |  | in kft | Cable Segment Length | Enter the length of the cable segment in kilo-feet. |  | R | R | R |  | |
| Collector System - Segment Data | | X | X | X |  |  |  |  | Integer | Number of Turbines/Inverters On Cable Segment | Enter the number of turbines/Inverters connected to the cable segment. |  | R | R | R |  | |
| **General Information - Load Resource** | | | | | | | | | | | | | | | | | |
| General Information - Load Resource | |  |  |  |  |  | X |  | List | This submittal is for | Select from drop down list of reason for this submittal - New Resource Entity, Revisions, Additions, Deletions |  |  |  | R |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  | mm/dd/yyyy | Date Form Completed | Enter date in the format MM/DD/YYYY. |  |  |  | O |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  |  | Resource Entity Submitting Form | Enter the name of the Resource Entity. This must be the same entity name that filed as a Resource Entity on the Standard Form Agreement. The Protocols require that a Load Acting as a Resource must also complete and submit an Application. |  |  |  | R |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  | Number | Resource Entity DUNS # | Enter the Market Participant unique identifier as registered with ERCOT for the Resource Entity (DUNS number plus 4 as assigned by ERCOT). |  |  |  | R |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  | Text | Primary Contact | Enter the Primary Contact person who can address ERCOT questions regarding Resource Registration submittal. Enter the contact's name, title, phone number, email address, and fax number. |  |  |  | R |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  | Text | Title: | Enter the Title of the Primary Contact |  |  |  | R |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  |  | Phone Number: | Enter the Phone Number for the Primary Contact |  |  |  | R |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  |  | E-mail Address: | Enter the E-mail Address for the Primary Contact |  |  |  | R |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  |  | Fax Number: | Enter the Fax Number for the Primary Contact |  |  |  | O |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  | Text | Secondary Contact | Enter the Secondary Contact person who can address ERCOT questions regarding Resource Registration submittal. Enter the contact's name, title, phone number, email address, and fax number. |  |  |  | O |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  | Text | Title: | Enter the Title of the Secondary Contact |  |  |  | O |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  |  | Phone Number: | Enter the Phone Number for the Secondary Contact |  |  |  | O |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  |  | E-mail Address: | Enter the E-mail Address for the Secondary Contact |  |  |  | O |  | |
| General Information - Load Resource | |  |  |  |  |  | X |  |  | Fax Number: | Enter the Fax Number for the Secondary Contact |  |  |  | O |  | |
| **Load Resource Information** | | | | | | | | | | | | | | | | | |
| Load Resource Information | |  |  |  |  |  | X |  | All Caps | Common Name for Load Resource | Enter the common name of the Load that will be acting as a resource. ( e.g.. South Gulf Refinery, etc.) |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | All Caps | Dispatch Asset Code (provided by ERCOT) | Enter the Dispatch Asset Code (this code will be provided by ERCOT) |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  |  | Physical Street Address for Point of Delivery (POD) | Physical street address for Point of Delivery. For ALRs, this is the physical address of the station that load is assigned to as provided by ERCOT. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  |  | Name of City for Point of Delivery (POD) | Name of city for Point of Delivery. For ALRs, this is the city of the station that load is assigned to as provided by ERCOT. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | Y/N | Is Load Netted From Generation at ERCOT Read Gensite? | Select whether Load is netted from generation |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | Y/N | Is Load Behind a NOIE Settlement Meter Point? | Select whether Load is behind a NOIE Settlement Meter |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | List | Load Resource Type (CLR/UFR) | Select from drop down list the Load Resource Type - CLR or UFR |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | Y/N | If CLR, will CLR be Dynamically Scheduling? | Select only if this Load Resource is a Controllable Load Resource |  |  |  | C |  | |
| Load Resource Information | |  |  |  |  |  | X |  | Y/N | If CLR, ability to operate as a UFR type Resource? | Select only if this Load Resource is a Controllable Load Resource |  |  |  | C |  | |
| Load Resource Information | |  |  |  |  |  | X |  | mm/dd/yyyy | Load Resource Effective Date | Enter the date the Load became a Load Resource. For new Load Resources, this date must be a future date associated with a network operations model database load. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | mm/dd/yyyy | Load Resource Expiration Date | Enter the date the Load ceased being a Load Resource. For retiring Load Resources, this date must be a future date associated with a network operations model database load. |  |  |  | O |  | |
| Load Resource Information | |  |  |  |  |  | X |  | All Caps | Substation Name for POD | Enter the name of the substation that supplies service to the Point of Delivery of the Load Resource. For ALRs, this is the station that load is assigned to as provided by ERCOT. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | All Caps | Substation Code for POD | Enter the TDSP substation code as provided by the TDSP. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  |  | Transmission Bus POD (PTI Bus No) | Enter the transmission PTI bus number as provided by the TDSP. For ALRs, this is the station that load is assigned to as provided by ERCOT. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | kV | Transmission Station Voltage | Enter the transmission level voltage of the TDSP station as provided by the TDSP. Normally this will be 69 kV or higher. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | All Caps | Transmission Station Load Name in Network Operations Model | Enter the Load Name as listed in the ERCOT model as provided by the TDSP. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | List | Meter Reading Entity | Enter who reads the meter and provides interval data to ERCOT. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | Automatic | Meter Reading Entity Duns Number | Enter the DUNS number for the entity above. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  |  | ESIID assigned to meter | ESI ID number assigned to the meter. For NOIEs, the TDSP will create a non-settlement ESI ID. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | Y/N | Wholesale Delivery Point? | Enter Y or N, if the point of delivery is a wholesale delivery point. |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | List | Load Resource Control Device | Select the type of interrupting device. (Control Technology / Interruptible Switch / Circuit Breaker) |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | List | ERCOT Load Zone | Select the ERCOT Load Zone from the drop down list |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | MW | Maximum POD Total Load | Maximum MW Load total |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | MW | Maximum Interruptible Load MW | Maximum MW interruptible or controllable load total |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | MW | High Reasonability Limit | The High "Out-of-Bounds" value of the interruptible or controllable load chosen by the Resource Entity and used by ERCOT for validation purposes |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | MW | Low Reasonability Limit | The Low "Out-of-Bounds" value of the interruptible or controllable load chosen by the Resource Entity and used by ERCOT for validation purposes |  |  |  | R |  | |
| Load Resource Information | |  |  |  |  |  | X |  | MW/min | CLR High Reasonability Ramp Rate Limit | The High "Out-of-Bounds" ramp rate value of the controllable load chosen by the Resource Entity and used by ERCOT for validation purposes. Applies to Controllable Load Resources only |  |  |  | C |  | |
| Load Resource Information | |  |  |  |  |  | X |  | MW/min | CLR Low Reasonability Ramp Rate Limit | The Low "Out-of-Bounds" ramp rate value of the controllable load chosen by the Resource Entity and used by ERCOT for validation purposes. Applies to Controllable Load Resources only |  |  |  | C |  | |
| Load Resource Information | |  |  |  |  |  | X |  | Y/N | Private Use Network? | Select whether Load is part of a Private Use Network |  |  |  | R |  | |
| **Load Resource Parameters** | | | | | | | | | | | | | | | | | |
| Load Resource Parameters | |  |  |  |  |  | X |  | List | Dispatch Asset Code | Select the Dispatch Asset Code from the drop down list as provided from the Load Resources Information tab |  |  |  | R |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | hours | Minimum Interruption Time (Non-CLR) | The minimum number of consecutive hours the Resource can be deployed (between breaker open to breaker close). |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | hours | Minimum Restoration Time (Non-CLR) | The minimum number of consecutive hours the Resource must remain energized (not deployed), from the time the Resource is restored from interruption and available for the next potential interruption. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  |  | Max WEEKLY Deployments (Non-CLR) | The maximum number of times the Resource can be deployed in seven consecutive days under normal operating conditions. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | hours | Max Interruption Time (Non-CLR) | The maximum number of consecutive hours the Resource can remain deployed before it needs to be energized. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  |  | Max DAILY Deployments (Non-CLR) | The maximum number of times the Resource can be deployed in a day under normal operating conditions. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MWh | Max Weekly Energy (Non-CLR) | The maximum amount of energy, in MWh, a for which the Resource can be deployed in seven consecutive days |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | minutes | Minimum Notice Time (Non-CLR) | The notice time that the Resource requires before deployment (e.g., instantaneous, 30 minutes, etc.). |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | hours | Max Deployment Time (CLR) | The maximum amount of time a Controllable Load Resource can be deployed before it must return to normal operating conditions. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MWh | Max Weekly Energy (CLR) | The maximum amount of energy a Controllable Load Resource can be deployed in seven consecutive days. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW1 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate1 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate1 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW2 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate2 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate2 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW3 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate3 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate3 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW4 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate4 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate4 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW5 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate5 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate5 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW6 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate6 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate6 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW7 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate7 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate7 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW8 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate8 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate8 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW9 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate9 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate9 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW10 (CLR NRRC) | Normal Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate10 (CLR NRRC) | Enter Normal Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate10 (CLR NRRC) | Enter Normal Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW1 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate1 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate1 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW2 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate2 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate2 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW3 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate3 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate3 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW4 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate4 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate4 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW5 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate5 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate5 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW6 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate6 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate6 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW7 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate7 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate7 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW8 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate8 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate8 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW9 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate9 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate9 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW | MW10 (CLR ERRC) | Emergency Ramp Rate curve is a pairing (MW Output vs. Ramp Rate), enter MW value here |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Upward RampRate10 (CLR ERRC) | Enter Emergency Rate at which resource can increase MW output in MW/minute for the given output level. |  |  |  | C |  | |
| Load Resource Parameters | |  |  |  |  |  | X |  | MW/min | Downward RampRate10 (CLR ERRC) | Enter Emergency Rate at which resource can decrease MW output in MW/minute for the given output level. |  |  |  | C |  | |
| **Line Data (as applicable)** | | | | | | | | | | | | | | | | | |
| Line Data | | X | X | X | X |  |  | X |  | Resource Site Code: | Enter the Site Code established in the General and Site Information tab of the GENERAL\_SITE\_ESIID\_Information workbook. | R | R | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | List | Description of Change | Select: description of change from drop down list: Add, Change or Delete |  |  |  | C |  | |
| Line Data | | X | X | X | X | X |  |  | enter all caps | Line Name | Line names as listed in the ERCOT model, which must meet the character limitation of the system. |  |  | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | kV | Line Voltage Level | Line Voltage Level |  | R | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | p.u. | Resistance in p.u. (100 MVA Base) | Resistance in p.u. (100 MVA Base) |  | R | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | p.u. | Reactance in p.u. (100 MVA Base) | Reactance in p.u. (100 MVA Base) |  | R | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | p.u. | Charging Susceptance in P.u. (100 MVA Base) | Charging Susceptance in p.u. (100 MVA Base) |  | R | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | p.u. | Zero Sequence Line Resistance in P.u. (100 MVA Base) | Zero Sequence Line Resistance in p.u. (100 MVA Base) |  | R | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | p.u. | Zero Sequence Line Reactance in P.u. (100 MVA Base) | Zero Sequence Line Reactance in p.u. (100 MVA Base) |  | R | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | p.u. | Zero Sequence Charging Susceptance in P.u. (100 MVA Base) | Zero Sequence Charging Susceptance in p.u. (100 MVA Base) |  | R | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | Ohms/Phase | DC Resistance | Enter the DC Resistance in Ohms per phase of the line |  |  | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | List | Type | Select line type from drop down list: Overhead, Underground or Both |  |  | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | miles | Segment Length | Length of this line segment between the TO station and the FROM station (circuit miles) |  | R | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | enter all caps | ERCOT TO Station Code Mnemonic | Enter the station code mnemonic of the TO station for this Line |  |  | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | Y/N | Internal Line | Is this line internal to the station (i.e. not directly connected to the TDSP, or, both ends are within the same station)? |  |  | C | C |  | |
| Line Data | | X | X | X | X | X |  |  | List | TSP Name | Select TSP Name from the drop down list |  |  | C | C |  | |
| Line Data | | X | X | X | X | X |  |  | enter all caps | Connected Device 1 thru 10 | Enter device connected to this line in the TO station (can provide up to 10). Ensure device name is consistent throughout all RARF tabs and one-line diagrams. |  |  | R for Device 1 C for 2 thru 10 | R for Device 1 C for 2 thru 10 |  | |
| Line Data | | X | X | X | X | X |  |  | enter all caps | Bus Number (PTI Bus Number) | Enter PTI Bus number connecting this line in the TO station |  |  | R | O |  | |
| Line Data | | X | X | X | X | X |  |  | List | Weather Zone / Weather Station (used for Dynamic Ratings) | Select Weather zone or station from the drop down list |  |  | C | C |  | |
| Line Data | | X | X | X | X | X |  |  | enter all caps | ERCOT FROM Station Code Mnemonic | Enter the station code mnemonic of the FROM station for this Line |  |  | R | R |  | |
| Line Data | | X | X | X | X | X |  |  | enter all caps | Connected Device 1 thru 10 | Enter device connected to this line in the FROM station (can provide up to 10). Ensure device name is consistent throughout all RARF tabs and one-line diagrams. |  |  | R for Device 1 C Xfor 2 thru 10 | R for Device 1 C for 2 thru 10 |  | |
| Line Data | | X | X | X | X | X |  |  | enter all caps | Bus Number (PTI Bus Number) | Enter PTI Bus number connecting this line in the FROM station |  |  | O | O |  | |
| Line Data | | X | X | X | X | X |  |  | List | Weather Zone / Weather Station (used for Dynamic Ratings) | Select Weather zone or station from the drop down list |  |  | C | C |  | |
| Line Data | | X | X | X | X | X |  |  | Automatic | Line Code | Concatenated code automatically provided |  |  |  | A |  | |
| Line Data | | X | X | X | X | X |  |  |  | Comments | Enter any comments regarding this Line data |  |  |  | O |  | |
| Line Data | | X | X | X | X | X |  |  | mm/dd/yyyy | Effective Date: | Date this line was added, removed or updated in the model |  |  |  | R |  | |
| **Line Temperature (as applicable)** | | | | | | | | | | | | | | | | | |
| Line Temperature | | X | X | X | X | X |  |  | List | Description of Change | Select: description of change from drop down list: Add, Change or Delete |  |  |  | C |  | |
| Line Temperature | | X | X | X | X | X |  |  | Automatic | Line Name | Automatically provided based on lines listed in the Line data tab |  |  | A | A |  | |
| Line Temperature | | X | X | X | X | X |  |  | Automatic | Line Code | Automatically provided based on line codes listed in the Line data tab |  |  | A | A |  | |
| Line Temperature | | X | X | X | X | X |  |  | Static/Dynamic | Line Rating | Select Static or Dynamic line rating |  |  | R | R |  | |
| Line Temperature | | X | X | X | X | X |  |  | MVA | Normal Rating | The continuous MVA rating, including substation terminal equipment in series with the line, at the applicable ambient temperature. The Transmission Element can operate at this rating indefinitely without damage, or violation of NESC clearances. |  | R | R | R |  | |
| Line Temperature | | X | X | X | X | X |  |  | MVA | 2-hr Emergency Rating | The two-hour MVA rating, including substation terminal equipment in series with the line, at the applicable ambient temperature. The Transmission Element can operate at this rating for two hours without violation of NESC clearances or equipment failure. |  | R | R | R |  | |
| Line Temperature | | X | X | X | X | X |  |  | MVA | 15-min Rating | Rating that line can operate at this rating for fifteen minutes without violation of NESC clearances or equipment failure. The 15-minute MVA rating, including substation terminal equipment in series with the line, at the applicable ambient temperature and with a step increase from a prior loading up to 90% of the Normal Rating. The Transmission Element can operate at this rating for 15 minutes, assuming its pre-contingency loading up to 90% of the Normal Rating limit at the applicable ambient temperature, without violation of NESC clearances or equipment failure. This rating takes advantage of the time delay associated with heating of the line following a sudden increase in current. |  | R | R | R |  | |
| Line Temperature | | X | X | X | X | X |  |  | MVA | Conductor 2-hour Rating | Per definition of "Conductor/Transformer 2-hour Rating" in Section 2 of the ERCOT protocols, The two-hour MVA rating of the conductor or transformer only, excluding substation terminal equipment in series with a conductor or transformer, at the applicable ambient temperature. The conductor or transformer can operate at this rating for two hours without violation of National Electrical Safety Code (NESC) clearances or equipment failure. |  | R | R | R |  | |
| Line Temperature | | X | X | X | X | X |  |  | MVA | Relay loadability limit | Enter the rating in MVA that would cause the circuit to trip within 15 minutes of exceeding that value (RE owned relays only) |  |  | R | R |  | |
| Line Temperature | | X | X | X | X | X |  |  | MVA | 20 °F - Continuous Rating - 115 °F Continuous Rating | Per definition of "Normal Rating" in Section 2 of the ERCOT protocols, the continuous MVA rating of a Transmission Element, including substation terminal equipment in series with a conductor or transformer, at the stated ambient temperature. The Transmission Element can operate at this rating indefinitely without damage, or violation of NESC clearances. |  |  |  | C |  | |
| Line Temperature | | X | X | X | X | X |  |  | MVA | 20 °F - 2-hr Emergency Rating - 115 °F 2-hr Emergency Rating | Per definition of "Emergency Rating" in Section 2 of the ERCOT protocols, the two-hour MVA rating of a Transmission Element, including substation terminal equipment in series with a conductor or transformer, at the stated ambient temperature. The Transmission Element can operate at this rating for two hours without violation of NESC clearances or equipment failure. |  |  |  | C |  | |
| Line Temperature | | X | X | X | X | X |  |  | MVA | 20 °F - 15-min Rating - 115 °F 15-min Rating | Per definition of "15 Minute Rating" in Section 2 of the ERCOT protocols, The 15-minute MVA rating of a Transmission Element, including substation terminal equipment in series with a conductor or transformer, at the stated ambient temperature and with a step increase from a prior loading up to 90% of the Normal Rating. The Transmission Element can operate at this rating for 15 minutes, assuming its pre-contingency loading up to 90% of the Normal Rating limit at the stated ambient temperature, without violation of NESC clearances or equipment failure. This rating takes advantage of the time delay associated with heating of a conductor or transformer following a sudden increase in current. |  |  |  | C |  | |
| Line Temperature | | X | X | X | X | X |  |  | MVA | 20 °F - Planning Rate C - 115 °F - Planning Rate C | Per definition of "Conductor/Transformer 2-hour Rating" in Section 2 of the ERCOT protocols, The two-hour MVA rating of the conductor or transformer only, excluding substation terminal equipment in series with a conductor or transformer, at the stated ambient temperature. The conductor or transformer can operate at this rating for two hours without violation of National Electrical Safety Code (NESC) clearances or equipment failure. |  |  |  | C |  | |
| **Most Limiting Series Element** | | | | | | | | | | | | | | | | | |
| Most Limiting Series Element | | X | X | X | X | X |  |  | All Caps | Most Limiting Series Element Device | For modeled devices that are the limiting element, simply reference the name of the equipment such as “CB\_52\_1”. For non-modeled devices, simply reference the device type such as “WAVETRAP” or “C/T METER RATIO” |  | ? | R | R |  | |
| Most Limiting Series Element | | X | X | X | X | X |  |  | All Caps | Device restricted by the MLSE | The modeled name of the non-RE owned line or series device that the MLSE affects |  | ? | R | R |  | |
| Most Limiting Series Element | |  |  |  |  |  |  |  | Automatic | MLSE Code | Concatenated code automatically provided |  | ? | R | R |  | |
| Most Limiting Series Element | | X | X | X | X | X |  |  | MVA | 2-hr Emergency Rating | Rating that MLSE can operate at this rating for two hours without violation of NESC clearances or equipment failure |  | ? | R | R |  | |
| Most Limiting Series Element | | X | X | X | X | X |  |  | MVA | 15-min Rating | Rating that MLSE can operate at this rating for fifteen minutes without violation of NESC clearances or equipment failure |  | ? | R | R |  | |
| Most Limiting Series Element | | X | X | X | X | X |  |  | MVA | Normal Rating | Rating that MLSE can operate at this rating indefinitely without violation of NESC clearances or equipment failure |  | ? | R | R |  | |
| **Breaker Switch Data (as applicable)** | | | | | | | | | | | | | | | | | |
| Breaker Switch Data | | X | X | X | X | X |  |  | List | Description of Change | Select: description of change from drop down list: Add, Change or Delete |  |  |  | C |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | enter all caps | Switch Name | Breaker or Switch name as provided in the ERCOT model, which must meet the character limitation of the system. Ensure device name is consistent throughout all RARF tabs and one-line diagram. |  |  | O | R |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | enter all caps | ERCOT Station Name (Station Code or Station Mnemonic) | ERCOT Station Code Mnemonic where the breaker or switch is located |  |  | O | R |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | Automatic | Switch Code | Concatenated code automatically provided |  |  | A | A |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | Y/N | Is This A Fault Isolating Device (e.g. Circuit Breaker) | Select Y or N |  | R | R | R |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | Opened/Closed | Normal Operating Status (when in service) | Select whether Open or Closed during normal operations |  | R | R | R |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | kV | Voltage Level | Enter voltage level of this breaker or switch |  | R | R | R |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | MVA | Continuous Rating | Per definition of "Normal Rating" in Section 2 of the ERCOT protocols, the continuous MVA rating of a Transmission Element, including substation terminal equipment in series with a conductor or transformer, at the applicable ambient temperature. The Transmission Element can operate at this rating indefinitely without damage, or violation of NESC clearances. |  | R | R | R |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | MVA | 2-hr Emergency Rating | Per definition of "Emergency Rating" in Section 2 of the ERCOT protocols, the two-hour MVA rating of a Transmission Element, including substation terminal equipment in series with a conductor or transformer, at the applicable ambient temperature. The Transmission Element can operate at this rating for two hours without violation of NESC clearances or equipment failure. |  | R | R | R |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | MVA | 15-min Rating | Per definition of "15 Minute Rating" in Section 2 of the ERCOT protocols, The 15-minute MVA rating of a Transmission Element, including substation terminal equipment in series with a conductor or transformer, at the applicable ambient temperature and with a step increase from a prior loading up to 90% of the Normal Rating. The Transmission Element can operate at this rating for 15 minutes, assuming its pre-contingency loading up to 90% of the Normal Rating limit at the applicable ambient temperature, without violation of NESC clearances or equipment failure. This rating takes advantage of the time delay associated with heating of a conductor or transformer following a sudden increase in current. |  | R | R | R |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | enter all caps | Connected Device 1 thru 10 | Enter device connected to this breaker or switch on Side 1 (can provide up to 10). Ensure device name is consistent throughout all RARF tabs and one-line diagrams. |  |  | R for Device 1 C for 2 thru 10 | R for Device 1 C for 2 thru 10 |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | enter all caps | Connected Device 1 thru 10 | Enter device connected to this breaker or switch on Side 2 (can provide up to 10) Ensure device name is consistent throughout all RARF tabs and one-line diagrams. |  |  | R for Device 1 C for 2 thru 10 | R for Device 1 C for 2 thru 10 |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  |  | Comments | Enter any comments regarding this breaker-switch data |  |  |  | O |  | |
| Breaker Switch Data | | X | X | X | X | X |  |  | mm/dd/yyyy | Effective Date: | Date this breaker or switch was added, removed or updated in the model |  |  |  | R |  | |
| **Capacitor and Reactor Data (as applicable)** | | | | | | | | | | | | | | | | | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | List | Description of Change | Select: description of change from drop down list: Add, Change or Delete |  |  |  | C |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | enter all caps | Device Name | Capacitor or Reactor name as provided in the ERCOT model, which must meet the character limitation of the system. |  |  | R | R |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | enter all caps | ERCOT Station Name (Station Code or Station Mnemonic) | ERCOT Station Code Mnemonic that the breaker or switch is located, as listed in the model |  |  | R | R |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | Automatic | Device Code | Concatenated code automatically provided |  |  | A | A |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | List | Capacitor Or Reactor | Select whether this device is a capacitor (C) or reactor (R) |  | R | R | R |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | MVAR | Nominal Mvar | Rated MVAr rating of a capacitor or reactor (name plate data) negative MVAr for reactors and positive MVArs for capacitors |  | R | R | R |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | kV | Voltage Level kV | Enter voltage level of this capacitor or reactor |  | R | R | R |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | # | Bus Number (PTI Bus Number) | Enter PTI Bus Number for this device |  |  | O | O |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | Y/N | Automatic Voltage Regulation | Select Y or N whether this device has automatic voltage regulation |  | R | R | R |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | kV | Voltage Level of Busbar being regulated | Enter voltage of busbar where device is located |  | C | C | C |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | kV | Desired Regulating Voltage | Desired Regulating Voltage |  | C | C | C |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | kV | Minimum Regulating Voltage | Lower limit of voltage specified in the voltage regulation scheme |  | C | C | C |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | kV | Maximum Regulating Voltage | Higher limit of voltage specified in the voltage regulation scheme |  | C | C | C |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | enter all caps | Directly Connected Device 1 thru 10 | Enter device connected to this capacitor or reactor (can provide up to 10) |  |  | R for Device 1 C for 2 thru 10 | R for Device 1 C for 2 thru 10 |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | Ohms/Phase | Coil DC resistance | Enter the DC resistance in ohms/phase for grounded shunt reactorcoils (enter "99999" for ungrounded shunt reactors and all shunt capacitors) |  |  | R | R |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | Ohms | Grounding DC resistance | Enter the DC resistance in ohms for the grounding device for grounded shunt reactors (for solidly grounded shunt reactors, enter 0, or enter "99999"for ungrounded shunt reactors and for all shunt capacitors) |  |  | R | R |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  |  | Comments | Enter any comments regarding this breaker-switch data |  |  |  | C |  | |
| Capacitor and Reactor Data | | X | X | X | X | X |  |  | mm/dd/yyyy | Effective Date: | Date this capacitor or reactor was added, removed or updated in the model |  |  |  | R |  | |
| **Transformer Data (as applicable)** | | | | | | | | | | | | | | | | | |
| Transformer Data | | X | X | X | X | X |  |  | List | Description of Change | Select: description of change from drop down list: Add, Change or Delete |  |  |  | C |  | |
| Transformer Data | | X | X | X | X | X |  |  | enter all caps | Transformer Name | Transformer name must be 14 characters or less and contain no special characters other than an underscore "\_". |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | enter all caps | ERCOT Station Name (Station Code or Station Mnemonic) | ERCOT Station Code/Mnemonic where the transformer is located. |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Automatic | Transformer Code | Concatenated code automatically provided |  |  | A | A |  | |
| Transformer Data | | X | X | X | X | X |  |  | Y/N | Transformer Test Report Attached? | Is the Transformer test report attached to this Resource Registration? Submit the Transformer Test Report as a zip file attached to the RARF submission. |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Y/N | Is This Transformer In a Master-follower Current Balancing Configuration? | Select Y or N whether this transformer is part of a master - following configuration |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | enter all caps | Master Name (can Be Same As this transformer) | The registered name of the transformer designated as the master in a parallel transformer control system scheme. |  |  |  | C |  | |
| Transformer Data | | X | X | X | X | X |  |  | enter all caps | Follower Name (can Be Same As this transformer) | The registered name of the transformer designated as the follower in a parallel transformer control system scheme. |  |  |  | C |  | |
| Transformer Data | | X | X | X | X | X |  |  | Y/N | Generator Step up Transformer? | Select Y or N whether this transformer is a generator step up transformer |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  |  | Zero Sequence Data Winding Connect code (1-5) | Enter zero sequence data winding connect code 1 - 5 as noted below.  Transformer Connection Codes: Two Winding Transformers (in order of Voltage highest first) 1 -- Wye-Wye Bank Both Neutrals Grounded 2 -- Wye - Delta Bank Grounded Wye 3 -- Delta - Wye Bank Grounded Wye 4 -- Delta - Delta Bank; Wye-Delta Bank Ungrounded Wye; Delta-Wye Bank Ungrounded Wye; Wye-Wye Bank Either Wye Grounded 5 -- Three Winding only (Test Reports needed for Code 5) |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | p.u. | Zero Sequence Grounding Resistance For An Impedance Grounded Transformer in P.u. (100 MVA Base) | Zero Sequence Grounding Resistance For An Impedance Grounded Generator in p.u. (100 MVA Base) and the nominal system voltage (69, 138 or 345 kV) |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | p.u. | Zero Sequence Grounding Reactance For An Impedance Grounded Transformer In P.u. (100 MVA Base) | Zero Sequence Grounding Reactance For An Impedance Grounded Transformer In P.u. (100 MVA Base) and the nominal system voltage (69, 138 or 345 kV) |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | p.u. | Zero Sequence Resistance In p.u. (100 MVA Base) | Zero Sequence Resistance In p.u. (100 MVA Base) and the nominal system voltage (69, 138 or 345 kV) |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | p.u. | Zero Sequence Reactance In P.u. (100 MVA Base) | Zero Sequence Reactance In P.u. (100 MVA Base) and the nominal system voltage (69, 138 or 345 kV) |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | p.u. | Positive Sequence Resistance (100 MVA Base) | Positive Sequence Resistance (100 MVA Base) and the nominal system voltage (69, 138 or 345 kV) |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | p.u. | Positive Sequence Reactance (100 MVA Base) | Positive Sequence Reactance (100 MVA Base) and the nominal system voltage (69, 138 or 345 kV) |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | MVA | Normal Rating | The continuous MVA rating of the transformer, including substation terminal equipment in series with the transformer, at the applicable ambient temperature. The Transmission Element can operate at this rating indefinitely without damage, or violation of NESC clearances. |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | MVA | 2-hr Emergency Rating | The two-hour MVA rating of the transformer, including substation terminal equipment in series with the transformer, at the applicable ambient temperature. The Transmission Element can operate at this rating for two hours without violation of NESC clearances or equipment failure. |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | MVA | 15-min Rating | The 15-minute MVA rating of the transformer, including substation terminal equipment in series with the transformer, at the applicable ambient temperature and with a step increase from a prior loading up to 90% of the Normal Rating. The transformer can operate at this rating for 15 minutes, assuming its pre-contingency loading up to 90% of the Normal Rating limit at the applicable ambient temperature, without violation of NESC clearances or equipment failure. This rating takes advantage of the time delay associated with heating of the transformer following a sudden increase in current. |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | MVA | Relay loadability limit | Enter the rating in MVA that would cause the circuit to trip within 15 minutes of exceeding that value. If no overload trip relay exists, enter "99999" |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | enter all caps | Unit(s) Associated With This Transformer (Must be entered as SITECODE\_UNITNAME) | Enter the Unit(s) Associated With This Transformer (name must match unit names provided on the unit info tab) |  |  |  | C |  | |
| Transformer Data | | X | X | X | X | X |  |  | kV | High Side Voltage Level (no-Load) | Enter the voltage level of the high side for this transformer system nominal voltage (69, 138, 345 kV) |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | # | High Side PTI Bus Number | Enter the PTI bus number for the high side of this transformer |  |  | O | O |  | |
| Transformer Data | | X | X | X | X | X |  |  | List | High Side Voltage Connection - Wye or Delta | Select whether this high side connection is a Wye or Delta connection |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Device 1 | High Side Voltage Connected Devices | Enter a device connected to the high side of this transformer |  |  |  | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | kV | High Side Manufactured Nominal Voltage | Enter the high side manufactured nominal voltage for this transformer |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | kV | Low Side Voltage level (no-Load) | Enter the voltage level of the low side for this transformer |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | # | Low Side PTI Bus Number | Enter the PTI bus number for the low side of this transformer |  |  | O | O |  | |
| Transformer Data | | X | X | X | X | X |  |  | List | Low Side Voltage Connection - Wye or Delta | Select whether this low side connection is a Wye or Delta connection |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Device 1 | Low Side Voltage Connected Devices | Enter a device connected to the low side of this transformer |  |  |  | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | kV | Low Side Manufactured Nominal Voltage | Enter the low side manufactured nominal voltage for this transformer |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Y/N | On-Load Voltage Regulation | Select Y or N whether this transformer will change tap settings automatically while online to control voltage. |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Y/N | Does Transformer have an On-Load Tap Changer? | Select Y or N whether this transformer has an On-Load Tap changer |  | R | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | List | Location of On-Load Tap Changer - Primary (High) or Secondary (Low) side | If this transformer has an On-Load Tap changer, select whether it is on Primary (High) or Secondary (Low) side. |  | C | C | C |  | |
| Transformer Data | | X | X | X | X | X |  |  | kV | Base kV of Regulated Side | Base kV of Regulated Side |  |  | C | C |  | |
| Transformer Data | | X | X | X | X | X |  |  | kV | Target kV of Regulated Side | Target kV of Regulated Side |  |  | C | C |  | |
| Transformer Data | | X | X | X | X | X |  |  | % | Acceptable Deviation of Target Voltage | Acceptable Deviation from Target Voltage before tap change, in percent (enter 1% as 0.01). |  |  | C | C |  | |
| Transformer Data | | X | X | X | X | X |  |  |  | Comments | Enter any comments regarding this transformer data |  |  |  | O |  | |
| Transformer Data | | X | X | X | X | X |  |  | Ohms/Phase | DC Resistance of Winding 1 | Using manufacturer's data, enter the DC resistance of the Primary/high voltage winding (or for autotransformers, the series winding). |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Ohms/Phase | DC Resistance of Winding 2 | Using manufacturer's data, enter the DC resistance of the Secondary/low voltage winding (or for autotransformers, the common winding). For physical three-winding transformers modeled as three 2-winding transformers, enter "99999"for each transformer row. |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Y/N | GIC Blocking device on Winding 1 | Answer Yes or No whether a Geomagnetic Induced Current blocking device exists on the Primary/high voltage winding (or for autotransformers, the series winding). |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Y/N | GIC Blocking device on Winding 2 | Answer Yes or No whether a Geomagnetic Induced Current blocking device exists on the Secondary/low voltage winding, (or for autotransformers, the common winding). For physical three-winding transformers modeled as three 2-winding transformers, select "N" for each transformer row. |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | List | Vector Group Identifer | Manufacturer-supplied alphanumeric identifier specifying vector group based on transformer winding connections and grounding. For physical three-winding transformers modeled as three 2-winding transformers, enter the same Vector Group Identifier for each transformer row. |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | List | Transformer Core Design Type | Manufacturer-supplied Transformer Core Design Type (Three Phase shell Form, Unknown, 3@Single Phase (separate cores), Three Phase 3-Legged Core Design, Three Phase 5-Legged Core Design, Three Phase 7-Legged Core Design). For physical three-winding transformers modeled as three 2-winding transformers, enter the same Transformer Core Design Type for each transformer row. |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Number | K Factor | Value supplied by transformer manufacturer. If data is unavailable from the manufacturer, enter 0. For physical three-winding transformers modeled as three 2-winding transformers, enter the same K Factor for each transformer row. |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Ohms | Winding 1 Grounding DC Resistance | Enter the Primary/high voltage winding Grounding DC Resistance in Ohms for any grounding device, (for a solidly grounded winding, enter 0, enter "99999" for ungrounded). |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | Ohms | Winding 2 Grounding DC Resistance | Enter the Secondary/low voltage winding Grounding DC Resistance in Ohms for any grounding device, (for a solidly grounded winding, enter 0, enter "99999" for ungrounded). For physical three-winding transformers modeled as three 2-winding transformers, enter "99999" for each transformer row. |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | List | Transformer Model | Enter 0 except for a phase-shifting transformer, which should be entered as a 1. For physical three-winding transformers modeled as three 2-winding transformers, enter the same model for each transformer row. |  |  | R | R |  | |
| Transformer Data | | X | X | X | X | X |  |  | mm/dd/yyyy | Effective Date: | Date this transformer was added, removed or updated in the model |  |  |  | R |  | |
| **Transformer Tap Settings (as applicable)** | | | | | | | | | | | | | | | | | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | List | Description of Change | Select: description of change from drop down list: Add, Change or Delete |  |  |  | C |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | List | Transformer Name | Transformer name as provided in the ERCOT model, which must meet the character limitation of the system. |  |  | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | List | ERCOT Station Code Mnemonic | ERCOT Station Code Mnemonic that the breaker or switch is located, as listed in the model |  |  | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | Automatic | Transformer Code | Concatenated code automatically provided |  |  | A | A |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | List | Primary (High) -Secondary (Low) Flag | Select from list whether taps are on Primary (high) side or Secondary (low) side. Enter both On-Load and No-Load Tap changer data on separate rows if both exist. |  | R | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | # | Tap Position At Manufactured Nominal Voltage | Tap Position At Manufactured Nominal Voltage |  | R | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | # | Total Number of Tap Positions | Total Number of Tap Positions |  | R | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | # | Normal Tap Position | Normal Tap Position |  | R | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | # | Lowest Tap Position | Lowest Tap Position |  | R | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | kV | Voltage at Lowest Tap Position | Voltage at Lowest Tap Position |  | R | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | # | Highest Tap Position | Highest Tap Position |  | R | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | kV | Voltage at Highest Tap Position | Voltage at Highest Tap Position |  | R | R | R |  | |
| Transformer Tap Settings | | X | X | X | X | X |  |  | kV | Size of Each Voltage Level Step | Size of Each Voltage Level Step |  | R | R | R |  | |
| **Static Var Compensator Data (as applicable)** | | | | | | | | | | | | | | | | | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | List | Description of Change | Select: description of change from drop down list: Add, Change or Delete |  |  |  | C |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | enter all caps | SVC Name | Static Var Compensator (SVC, STATCOM, DVAR) name as provided in the ERCOT model, which must be 14 characters or less and contain no special characters other than an underscore "\_". |  |  | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | enter all caps | ERCOT Station Name (Station Code or Station Mnemonic) | ERCOT Station Code Mnemonic that the breaker or switch is located, as listed in the model |  |  | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | Automatic | SVC Code | Concatenated code automatically provided |  |  | A | A |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | kV | SVC Base Voltage Level | Enter base voltage for this SVC device (i.e. voltage that the SVC is modeled at) |  | R | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | MVAR | Fixed MVAr (var injections at Nominal Voltage) | Enter fixed MVAr for this SVC device at nominal voltage |  | R | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | p.u. | Minimum Admittance Limits (on a 1MVA basis which = MVAR capability) | Minimum Admittance Limits (on a 1MVA basis which = MVAR capability) |  | R | R | R | already done in RARF | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | p.u. | Maximum Admittance Limits (on a 1MVA basis which = MVAR capability) | Maximum Admittance Limits (on a 1MVA basis which = MVAR capability) |  | R | R | R | already done in RARF | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | MVAR | Minimum Steady State Reactive power Limits | Minimum Steady State Reactive Power Limits |  | R | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | MVAR | Maximum Steady State Reactive power Limits | Maximum Steady State Reactive Power Limits |  | R | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | MVAR | Minimum Threshold (post contingency) Reactive Power Limits | Minimum Threshold (post contingency) Reactive Power Limits |  | R | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | MVAR | Maximum Threshold (post contingency) Reactive Power Limits | Maximum Threshold (post contingency) Reactive Power Limits |  | R | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | kV | Minimum Voltage Threshold | Minimum Voltage Threshold |  | R | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | kV | Maximum Voltage Threshold | Maximum Voltage Threshold |  | R | R | R |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  |  | Comments | Enter any comments regarding this breaker-switch data |  |  |  | O |  | |
| Static Var Compensator Data | | X | X | X | X | X |  |  | mm/dd/yyyy | Effective Date: | Date this SVC was added, removed or updated in the model |  |  |  | R |  | |
| **Station** | | | | | | | | | | | | | | | | | |
| Station | | X | X | X | X | X |  |  | All Caps | ERCOT Station Code or Mnemonic | ERCOT Station Code Mnemonic for each station with RE-owned devices in RARF |  |  | R | R |  | |
| Station | | X | X | X | X | X |  |  | All Caps | Station Long Name | The complete long name of the station |  |  | R | R |  | |
| Station | | X | X | X | X | X |  |  | List | Voltage Level | Enter the interconnection voltage level for the station. Stations with more than one voltage will require additional rows. Transmission Level Voltage only unless there is no Transmission Voltage Level in Station, then choose "<60 kV" from list. |  |  | R | R |  | |
| Station | |  |  |  |  |  |  |  | Automatic | SubStation Code | Concatenated code automatically provided |  |  | A | A |  | |
| Station | | X | X | X | X | X |  |  | Ohms | Station DC Grounding Resistance | Enter the DC resistance in Ohms of the grounding network to remote earth for this station. If the station has a ground grid that is or may be connected to the TSP ground grid, coordination with your TSP is needed. |  |  | R | R |  | |
| Station | | X | X | X | X | X |  |  | decimal degrees (N) | Latitude of Center of Station | The geographic coordinate that specifies the north-south position of the station provided in decimal degrees | R | R | R | R |  | |
| Station | | X | X | X | X | X |  |  | decimal degrees (W) | Longitude of Center of Station | The geographic coordinate that specifies the east-west position of the station provided in decimal degrees | R | R | R | R |  | |
| Station | | X | X | X | X | X |  |  | p.u. | Normal Voltage Limit - Max p.u. above 60 kV | For each transmission level voltage, provide the RE-defined normal high voltage limit. If the Resource Entity does not have a unique voltage limit, enter 1.05. |  |  |  | R |  | |
| Station | | X | X | X | X | X |  |  | p.u. | Normal Voltage Limit - Min. p.u. Base above 60 kV | For each transmission level voltage, provide the RE-defined normal low voltage limit. If the Resource Entity does not have a unique voltage limit, enter 0.95. |  |  |  | R |  | |
| Station | | X | X | X | X | X |  |  | p.u. | EmergencyVoltage Limit - Max p.u. above 60 kV | For each transmission level voltage, provide the RE-defined emergency high voltage limit. If the Resource Entity does not have a unique voltage limit, enter 1.10. |  |  |  | R |  | |
| Station | | X | X | X | X | X |  |  | p.u. | Emergency Voltage Limit - Min. p.u. Base above 60 kV | For each transmission level voltage, provide the RE-defined emergency low voltage limit. If the Resource Entity does not have a unique voltage limit, enter 0.90. |  |  |  | R |  | |
| **Series Device Data (as applicable)** | | | | | | | | | | | | | | | | | |
| Series Device Data | | X | X | X | X | X |  |  | List | Description of Change | Select: description of change from drop down list: Add, Change or Delete |  |  |  | C |  | |
| Series Device Data | | X | X | X | X | X |  |  | enter all caps | Series Device Name | Series Device name as provided in the ERCOT model, which must be 14 characters or less and contain no special characters other than an underscore "\_". |  |  | R | R |  | |
| Series Device Data | | X | X | X | X | X |  |  | enter all caps | ERCOT Station Name (Station Code or Station Mnemonic) | ERCOT Station Code Mnemonic that the breaker or switch is located, as listed in the model |  |  | R | R |  | |
| Series Device Data | | X | X | X | X | X |  |  | Automatic | SD Code | Concatenated code automatically provided |  |  | A | A |  | |
| Series Device Data | | X | X | X | X | X |  |  | kV | Voltage Level | Enter voltage for this Series device |  | R | R | R |  | |
| Series Device Data | | X | X | X | X | X |  |  | p.u. | Resistance | Enter resistance for this series device (100 MVA base) |  | R | R | R |  | |
| Series Device Data | | X | X | X | X | X |  |  | p.u. | Reactance | Enter reactance for this series device (100 MVA base) |  | R | R | R |  | |
| Series Device Data | | X | X | X | X | X |  |  | MVA | Continuous Rating | Per definition of "Normal Rating" in Section 2 of the ERCOT protocols, the continuous MVA rating of a Transmission Element, including substation terminal equipment in series with a conductor or transformer, at the applicable ambient temperature. The Transmission Element can operate at this rating indefinitely without damage, or violation of NESC clearances. |  | R | R | R |  | |
| Series Device Data | | X | X | X | X | X |  |  | MVA | 2-hr Emergency Rating | Per definition of "Emergency Rating" in Section 2 of the ERCOT protocols, the two-hour MVA rating of a Transmission Element, including substation terminal equipment in series with a conductor or transformer, at the applicable ambient temperature. The Transmission Element can operate at this rating for two hours without violation of NESC clearances or equipment failure. |  | R | R | R |  | |
| Series Device Data | | X | X | X | X | X |  |  | MVA | 15-min Rating | Per definition of "15 Minute Rating" in Section 2 of the ERCOT protocols, The 15-minute MVA rating of a Transmission Element, including substation terminal equipment in series with a conductor or transformer, at the applicable ambient temperature and with a step increase from a prior loading up to 90% of the Normal Rating. The Transmission Element can operate at this rating for 15 minutes, assuming its pre-contingency loading up to 90% of the Normal Rating limit at the applicable ambient temperature, without violation of NESC clearances or equipment failure. This rating takes advantage of the time delay associated with heating of a conductor or transformer following a sudden increase in current. |  | R | R | R |  | |
| Series Device Data | | X | X | X | X | X |  |  | enter all caps | Connected Device 1 thru 10 | Enter device connected to side 2 of this Series Device (can provide up to 10) |  |  | R for Device 1 C for 2 thru 10 | R for Device 1 C for 2 thru 10 |  | |
| Series Device Data | | X | X | X | X | X |  |  | # | Bus Number (PTI Bus Number) | Bus number for Side 1 of this Series Device |  |  | O | O |  | |
| Series Device Data | | X | X | X | X | X |  |  | enter all caps | Connected Device 1 thru 10 | Enter device connected to side 1 of this Series Device (can provide up to 10) |  |  | R for Device 1 C for 2 thru 10 | R for Device 1 C for 2 thru 10 |  | |
| Series Device Data | | X | X | X | X | X |  |  | # | Bus Number (PTI Bus Number) | Bus number for Side 2 of this Series Device |  |  | O | O |  | |
| Series Device Data | | X | X | X | X | X |  |  |  | Comments | Enter any comments regarding this breaker-switch data |  |  |  | O |  | |
| Series Device Data | | X | X | X | X | X |  |  | Ohms/Phase | DC Resistance | Enter the DC Resistance in Ohms per phase of the Series Device(enter "99999" for series capacitor) |  |  | R | R |  | |
| Series Device Data | | X | X | X | X | X |  |  | mm/dd/yyyy | Effective Date: | Date this Series Device was added, removed or updated in the model |  |  |  | R |  | |
| **Load Data (as applicable)** | | | | | | | | | | | | | | | | | |
| Load Data | | X | X | X | X | X |  |  | List | Description of Change | Select: description of change from drop down list: Add, Change or Delete |  |  |  | C |  | |
| Load Data | | X | X | X | X | X |  |  | enter all caps | ERCOT Station Name (Station Code or Station Mnemonic) | ERCOT Station Code Mnemonic that the breaker or switch is located, as listed in the model |  |  | R | R |  | |
| Load Data | | X | X | X | X | X |  |  | enter all caps | Load Name | Load name as provided in the ERCOT model, which must be 14 characters or less and contain no special characters other than an underscore "\_". |  |  | R | R |  | |
| Load Data | | X | X | X | X | X |  |  | Automatic | Load Code | Concatenated code automatically provided |  |  | A | A |  | |
| Load Data | | X | X | X | X | X |  |  | kV | Load Voltage Level | Enter voltage for this Load device |  |  | R | R |  | |
| Load Data | | X | X | X | X | X |  |  | # | PTI Bus Number | Enter bus number for this Load device |  |  | O | O |  | |
| Load Data | | X | X | X | X | X |  |  | MW | Average Load Under Normal Operations | Enter average amount of MW Load under normal operations |  |  | R | R |  | |
| Load Data | | X | X | X | X | X |  |  | MVAR | Average MVAr Under Normal Operations | Enter average MVAr amount for this Load under normal operations |  |  | R | R |  | |
| Load Data | | X | X | X | X | X |  |  | enter all caps | Directly Connected Device 1 thru 10 | Enter device connected to this Load (can provide up to 10) |  |  | R for Device 1 C for 2 thru 10 | R for Device 1 C for 2 thru 10 |  | |
| Load Data | | X | X | X | X | X |  |  |  | Comments | Enter any comments regarding this breaker-switch data |  |  |  | O |  | |
| Load Data | | X | X | X | X | X |  |  | mm/dd/yyyy | Effective Date: | Date this Load was added, removed or updated in the model |  |  |  | R |  | |
| **PUN Load Data** | | | | | | | | | | | | | | | | | |
| PUN Load Data | | X | X | X | X | X |  |  | enter all caps | ERCOT Station Name (Station Code or Station Mnemonic) | Enter Station Code for this PUN Load |  |  | C | C |  | |
| PUN Load Data | | X | X | X | X | X |  |  | List | Load Name | Select Load Name from drop down list (as provided from the Load Data tab) |  |  | C | C |  | |
| PUN Load Data | | X | X | X | X | X |  |  | Automatic | Load Code | Concatenated code automatically provided |  |  | A | A |  | |
| PUN Load Data | | X | X | X | X | X |  |  | Automatic | Hour Ending | Ending Hour of the day that the MW amount is provided |  |  | A | A |  | |
| PUN Load Data | | X | X | X | X | X |  |  | Automatic | Day of the Week | Day of the week for each Ending Hour of the Day that the MW amount is provided |  |  | A | A |  | |
| PUN Load Data | | X | X | X | X | X |  |  | MW | MW | MW Amount for each ending hour of each day of the week for this Load (168 hour period) |  |  | C | C |  | |
| **Miscellaneous** | | | | | | | | | | | | | | | | | |
| One Line | | X | X | X | X | X | X | X |  | Embed a PDF or CAD One Line Diagram | Include a PDF or CAD One Line Diagram of the site |  | R | R | R |  | |
| One Line | | X | X | X | X | X | X | X |  | Date One-Line Diagram last Updated | Date One-Line Diagram last Updated |  | R | R | R |  | |
| Transformer Test Data | | X | X | X | X | X |  | X |  | Transformer Test Data | Include the Transformer Test Data Report attached to the service request for the submission of this RARF, stating positive and zero sequence resistance and reactance data, winding voltages, tap information, on-load tap changing capability, ratings and winding DC resistance in Ohms per phase. |  |  |  | R |  | |
| Transformer Test Data | | X | X | X | X | X |  | X |  | Date transformer test Data last Updated | Date transformer test Data last Updated |  |  |  | R |  | |
| PSCAD Model | | X | X | X | X | X |  |  |  | Embed a PSCAD Model (if applicable) | PSCAD Model for SSO studies as may be required by ERCOT. |  | C | C | C |  | |
| PSCAD Model | | X | X | X | X | X |  |  |  | Date PSCAD Model last Updated | Date PSCAD Model last Updated |  | C | C | C |  | |
| Dynamic Data | | X | X | X | X | X |  |  |  | Embed Dynamic Data | Model data (in current PSS/E format utilized by the DWG), with appropriate values provided for all model parameters, test reports that support the model data based on field/commissioning tests, (if available), model libraries in .dll or .obj file format (if using user defined models not included in the PSS/E standard model library), model documentation/user guides (if using user defined models not included in the PSS/E standard model library). Refer to DWG Procedure Manual for requirements. |  | R | R | R |  | |
| Dynamic Data | | X | X | X | X | X |  |  |  | Date Dynamic Data last Updated | Date Dynamic Data last Updated |  | R | R | R |  | |
| ***[RRGRR021: Insert "Dynamic Data - Embed TSAT Dynamic Data," and "Dynamic Data - Date TSAT Dynamic Data last Updated" below on August 1, 2020:]*** | | | | | | | | | | | | | | | | | |
| Dynamic Data | X | | X | X | X | X |  |  |  | Embed TSAT Dynamic Data | Model data (in current standard PSS/E library model format utilized by the DWG and supported by TSAT), with appropriate values provided for all model parameters, test reports that support the model data based on field/commissioning tests (if available), model libraries in TSAT UDM or .dll file format if using user defined models not included in the TSAT standard model library - the TSAT UDM or .dll shall be able to read the PSS/E format data, and model documentation/user guides if using user defined models not included in the TSAT standard model library. |  |  | R | R |  |
| Dynamic Data | X | | X | X | X | X |  |  |  | Date TSAT Dynamic Data last Updated | Date TSAT Dynamic Data last Updated |  |  | R | R |  |