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# Guidebook for Bucket 3 Final GRDT Preparation

This guidebook is intended to help with completing the [Generator Resource Data Template (GRDT)](https://www.caiso.com/documents/generatorresourcedatatemplate.xlsx) for submission as Final GRDT in Bucket 3.

The GRDT contains multiple worksheet tabs. The tabs highlighted in **blue bold** text in the following tables are required to be populated in Bucket 3. The other spreadsheet tabs may or may not be applicable later when the resource becomes active in the market, but they are part of the template structure and should not be deleted from the GRDT file.

Refer to the document [GRDT and IRDT Definitions](https://www.caiso.com/documents/grdt-and-irdt-definitions.xlsx)for more detail describing each data element.

An example Bucket 3 Final GRDT template (*insert link*) can be used in conjunction with this guidebook.

| Spreadsheet Tab | Contents |
| --- | --- |
| Instruction |  |
| Definition-GRDT |  |
| Code |  |
| [**RESOURCE**](#_Resource_tab:) | Required for all resources |
| [**RAMPRATE**](#_RAMPRATE_tab:) | Required for all resources |
| [**HEATRATE**](#_HEATRATE_tab:) | Required for all resources |
| [**STARTUP**](#_STARTUP_tab:) | Required for all resources |
| FORBIDDEN OPR REGION |  |
| REGULATION |  |
| REG RAMP |  |
| OP RES RAMP |  |
| [**HYBRID\_COMPONENTS**](#_HYBRID_COMPONENTS_tab:) | Required for hybrid resources only. |
| MSG\_CONFIG |  |
| TRANSITION |  |
| CONFIG\_RAMP |  |
| CONFIG\_HEAT |  |
| CONFIG\_STRT |  |
| CONFIG\_REG |  |
| CONFIG\_RREG |  |
| CONFIG\_ROPR |  |
| ELECTRIC\_PRICE\_HUB |  |
| GHG\_EMISSION\_RATE |  |
| GEN\_RES\_AGGR |  |

The CAISO will review the Final GRDT submitted for the project in RIMS paying particular attention to the required fields. Other data fields not bolded will be populated with a default value based on the type of resource. The GRDT template accommodates a variety of resource types so many of the columns are not applicable to the submission of bucket item Final GRDT. Please don’t delete any columns or worksheet tabs.

The accepted Final GRDT will be used as a starting point for CAISO when setting up the resource and its related resource characteristics in the Master File.

## Resource tab:

All the columns in the Resource worksheet tab are listed in the following table though only a small subset of fields are required at this point. These required fields are listed in **blue bold** text. Fields that are not bolded will be populated by CAISO with default values or left blank as needed.

| **RDT FIELD** | **Contents** |
| --- | --- |
| **PGA NAME** | Should match the Legal Name in the project details form. |
| SCID | Can be left null if unknown.  CAISO will populate based on SC Acceptance and Owner letters |
| **RESOURCE ID** | Must match the RIMS project page. |
| **RESOURCE NAME** | Should match the RIMS project name. |
| **RES TYPE** | GEN (Generator or Non-generator [aka NGR or Battery])  TG (Dynamic Import or Pseudo) |
| **AGGREGATE** | Y or N  CAISO will populate based on the modeled resource. |
| DR\_TYPE | Leave null.  This is a read-only field that applies to PDR or RDRR only |
| SLOW\_DR | Leave null.  This is a read-only field that applies to PDR or RDRR only |
| ENERGY TYPE | DYN (if res type is TG)  This column can be left null. ISO will populate based on the modeled resource. |
| **FUEL TYPE** | Should match the RIMS project page  Refer to GRDT and IRDT Definitions document for full list of available fuel types. |
| **GEN TECH TYPE** | Use ‘OTHR’ if fuel type is HYBD, LESR, WIND, or if technology type is not included in the list of available technologies.  Refer to GRDT and IRDT Definitions document for full list of available technology types. |
| GEN TYPE | Leave null.  CAISO will populate based on the modeled resource. |
| **FUEL REGION** | Use the default fuel region for the resource's Balancing Authority,  e.g. ‘FRCISO’ for CISO BA  To request a fuel region other than the default, a CIDI ticket must be submitted. Please refer to the [BPM for Market Instruments](https://bpmcm.caiso.com/BPM%20Document%20Library/Market%20Instruments/BPM_for_Market%20Instruments_V91_Clean.doc) Attachment C for more information. |
| **ELECTRIC REGION** | Use the default electric region that corresponds to the resource's fuel region:  ‘ERCISOW’ for FRCISO |
| POWER\_PRICE\_HUB | Leave null.  CAISO will populate based on the modeled resource. |
| DEFAULT\_ELECTRIC\_HUB | Leave null – requires CIDI ticket for Hydro DEB |
| AQM DIST TYPE | Refer to GRDT and IRDT Definitions document for full list of Air Quality districts |
| **MAX GEN** | Should match the Nameplate that is provided in the RIMS project page.   * If MAX\_GEN is less than Nameplate, please provide an explanation in the GRDT Explanation document. * MAX\_GEN cannot be greater than the modeled pmax in EMS. |
| **MIN GEN** | If greater than 0 for a generator, please provide explanation.  Must be negative for a battery. |
| **MIN ON** | If a value is not provided, the CAISO will populate 0 in this field. |
| MAX ON | Not used |
| MAX\_DAILY\_RUN\_TIME | Leave null. This field applies to PDR or RDRR only. |
| **MIN OFF** | MIN\_OFF >= START-UP TIME in segment 1 of STRT curve.  For battery, this field does not apply, but CAISO will populate with 0. |
| **MAX STRT** | Must be >=1.  For a battery, this field does not apply, but CAISO will populate with 1 if no value is provided. |
| MKT MAX STRT | Not used |
| MIN LOAD COST | Leave null  This field is only applicable for resources that are eligible and have elected Registered Cost methodology for ML\_COST\_BASIS\_TYPE or SU\_COST\_BASIS\_TYPE |
| ML\_COST\_BASIS\_TYPE | PRXC is the default  CAISO will populate this field if left blank |
| SU\_COST\_BASIS\_TYPE | PRXC is the default  CAISO will populate this field if left blank |
| MAX PUMP | For Pump Storage resources only |
| MIN PUMP | For Pump Storage resources only |
| PUMPING FACTOR | For Pump Storage resources only |
| PUMP MAX STRT | For Pump Storage resources only |
| PUMP MIN UP | For Pump Storage resources only |
| PUMP MIN DWN | For Pump Storage resources only |
| MIN DWN TM GP | For Pump Storage resources only |
| MIN DWN TM PG | For Pump Storage resources only |
| MAX PUMP SD | For Pump Storage resources only |
| PUMP SHTDWN | For Pump Storage resources only |
| **COST RANK LMPM** | If a ranking is not provided, the CAISO will populate with the default value of 1 |
| **NEGO RANK LMPM** | If a ranking is not provided, the CAISO will populate with the default value of 2 |
| **PRC RANK LMPM** | If a ranking is not provided, the CAISO will populate with the default value of 3 |
| **STORAGE\_RANK\_LMPM** | Applicable for batteries only. Options are ‘1’ or null.  If ranking is set to 1, ISO will rank COST, NEGO, and PRC rankings as 2, 3, and 4, respectively. ISO will ignore a value in this field for a non-battery. |
| HYDRO\_RANK\_LMPM | Hydro Resource Only - Approved CIDI ticket required |
| MAX\_STOR\_HORIZON | Hydro Resource Only - Approved CIDI ticket required |
| RSRV CAP SPIN | Leave null. Requires AS testing |
| RSRV CAP NSPIN | Leave null. Requires AS testing |
| CERT PIRP | Leave null. This field will be populated, if applicable, by CAISO internal process. |
| MOO QUALIFIED | R or N based on the resource type  CAISO will populate based on the type of resource. |
| STARTUP CD TYPE | Leave null. CAISO will populate when applicable. |
| PGA PART | Y = unit has a PGA, QF-PGA/NS-PGA, or PLA,  N = all others (MSS, EIM, DSA, PDR/RDRR, 'exempt' QF resource)  CAISO will populate based on the agreement the resource has with the CAISO |
| COM | Leave null |
| COG | Leave null |
| CERT BLKSTRT | N is the default. Requires approved Black Start test to be Y. |
| CERT DAM | Y for all CISO market resources. CAISO will populate if this is left blank. |
| CERT RTM | Y for all CISO market resources. CAISO will populate if this is left blank. |
| CERT RUC | CAISO will populate based on the resource type.  N if fuel type is LESR or HYBD  Y for all other fuel types. |
| LMPM | CAISO will populate based on the resource type  Y for all Generators, and batteries with pmax >= 5MW  N for all TGs, and batteries with pmax < 5MW |
| CERT REG DOWN | N (Requires approved AS test to be Y) |
| CERT REG UP | N (Requires approved AS test to be Y) |
| CERT SPIN | N (Requires approved AS test to be Y) |
| CERT NSPIN DAM | N (Requires approved AS test to be Y) |
| CERT NSPIN RTM | N (Requires approved AS test to be Y) |
| MSS LD FLNG DWN | Applicable to MSS resources only |
| MSS LD FLNG UP | Applicable to MSS resources only |
| QF | Y if resource is a qualifying facility  Leave null for all others |
| USE LIMIT | N is the default. Approved CIDI ticket required for Use Limited Resource status. |
| CAR | Leave null. Approved CIDI ticket required for Conditionally Available Resource status. |
| ENERGY\_OM\_ADDER | CAISO will populate with the default value based on the resource’s FUEL\_TYPE/GEN\_TECH\_TYPE |
| ENERGY\_OM\_ADDER\_TYPE | D = Default  N = Negotiated (Requires negotiation with CAISO)  See BPM for Market Instruments Attachment L for more detail |
| ML\_ADDER (Minimum Load O&M Adder) | CAISO will populate based on the resource’s FUEL\_TYPE and GEN\_TECH\_TYPE |
| SU\_ADDER (Start Up O&M Adder) | CAISO will populate based on the resource’s FUEL\_TYPE and GEN\_TECH\_TYPE |
| ML/SU\_ADDER\_TYPE (ML & SU O&M Adder indicator) | D = Default  N = Negotiated (Requires negotiation with CAISO)  See BPM for Market Instruments Attachment L for more detail |
| PRIOR\_TYPE | Leave blank |
| DISP | N for WIND or SOLR  Y for all others  CAISO will populate based on the resource type |
| DISCRETE DISP | Leave null  Applicable for RDRR resources only |
| BID\_DISP\_OPT | Default is 5  ISO will populate this field if left blank |
| RMR | Leave null  Requires RMR contract |
| MAX RR | Leave null  This is a read-only field that will present the resource’s maximum ramp rate once the GRDT data has been entered into ISO Master File |
| PRC SET DAM | Y for all market resources. CAISO will populate if this is left blank. |
| PRC SET RTM | Y for all market resources. CAISO will populate if this is left blank. |
| MSG | Default is N  ISO will populate if left blank. |
| STARTUP RAMP TIME | STARTUP\_RAMP\_TIME is equal to the startup time in segment 1 of the STRT curve |
| SUPPLY CONFIG | Leave null |
| HR PRE DISP | Leave null |
| **NGR** | Y if fuel type = LESR or HYBD  Leave null for all others |
| STORAGE\_VARIABLE\_COST | Applicable to resources with fuel type of LESR only.  Non-zero value requires approved CIDI ticket |
| APPLY\_WHLSLE\_CHARGE | Y if NGR = Y  CAISO will populate if left blank. |
| REM | Null or Y |
| **MIN CONT ENERGY LIMIT** | Required for LESR to declare COD |
| **MAX CONT ENERGY LIMIT** | Required for LESR to declare COD |
| CURT ENERGY LIMIT | Required for DDR |
| **ENERGY EFFIC** | Required for LESR to declare COD |
| CHP | Y if resource is a combined heat and power resource |
| RMTG MAX ON PEAK | For a CHP QF resource under 20MW, the RMTmax value should be equal to the Pmax value. CAISO will populate if appropriate. |
| RMTG ON PEAK EXPIR | Leave null |
| RMTG MAX OFF PEAK | For a CHP QF resource under 20MW, the RMTmax value should be equal to the Pmax value. CAISO will populate if appropriate. |
| RMTG OFF PEAK EXPIR | Leave null |
| ADDER AMT | Not used |
| VER | Leave blank for CAISO grid resources (non-WEIM). CAISO will populate by internal process when applicable.  Y for WEIM participating and Non-Participating Solar/Wind |
| FORECAST\_SELECTION | Leave blank for CAISO grid resources (non-WEIM). CAISO will populate by internal process when applicable  SC for WEIM Participating and Non-Participating Solar/Wind resource that will provide their own forecast |
| CO\_LOCATED | Y if resource is co-located and is included in an Aggregate Capability Constraint (ACC)  CAISO will populate based on the PGA Schedule 1 |
| VER\_NGR | Not used – moved to Hybrid Component tab |
| METER\_DATA\_INTERVAL | Must match the SQMD  CAISO will populate based on the SQMD |
| RUN\_OF\_RIVER | Requires approved CIDI ticket |
| EIM PARTICIPATING | Leave blank for resources in CAISO control area  Y indicates resource is a WEIM Participating Resource  N indicates resource is a WEIM Non-participating Resource |
| BAA | Leave null  This is a read-only field that will present the resource’s balancing area once the GRDT data has been entered into ISO Master File |
| EXP\_SUPPORT (Export Capable) | Leave null |
| JOU (Joint Owned Unit) | Leave null |
| JOU\_PCT\_OWNERSHIP (Percent Ownership for Joint Owned Units) | Leave null |

## RAMPRATE tab:

| **RDT FIELD** | **Contents** |
| --- | --- |
| **RESOURCE ID** | Must match Resource tab |
| **SEGMENT TYPE** | RAMP |
| **SEGMENT NUMBER** | Incrementally increasing beginning with 1  Minimum of 2 segments are required and a maximum of 5 |
| **OPERATING LEVEL** | For segment 1, must equal MIN\_GEN from Resource tab  Highest segment must equal MAX\_GEN from Resource tab |
| **WORST OPERATIONAL RAMP RATE** | Must be > 0  Must be <= BEST OPERATIONAL RAMP RATE for same segment  Must be the same in last 2 segments |
| **BEST OPERATIONAL RAMP RATE** | Must be >= 0.1  Must be >= WORST OPERATIONAL RAMP RATE for same segment  Must be the same in last 2 segments |
| MARKET RAMP RATE | Not used |

## HEATRATE tab:

| **RDT FIELD** | **Contents** |
| --- | --- |
| **RESOURCE ID** | Must match Resource tab |
| **SEGMENT TYPE** | HEAT |
| **SEGMENT NUMBER** | Incrementally increasing beginning with 1  Minimum of 2 segments are required and a maximum of 11 |
| **HEAT RATE OPERATING LEVEL** | For segment 1, must equal MIN\_GEN from Resource tab  Highest segment must equal MAX\_GEN from Resource tab |
| **HEAT RATE** | Required if FUEL\_TYPE = GAS  Leave null for other fuel types |
| HEAT EMISSION RATE | Optional for FUEL\_TYPE = GAS  Leave null for other fuel types |
| **AVERAGE COST** | Required if FUEL\_TYPE is not GAS. May be 0. |

## STARTUP tab:

| **RDT FIELD** | **Contents** |
| --- | --- |
| **RESOURCE ID** | Must match Resource tab |
| **SEGMENT TYPE** | STRT |
| **SEGMENT NUMBER** | Incrementally increasing beginning with 1  Minimum of 1 segment is required and a maximum of 3 are allowed |
| **REGISTERED COOLING TIME** | Must be 0 for Segment 1  If more than 1 segment, this value must increase with each segment |
| **START UP TIME** | Required, but may be 0 for Segment 1  If more than 1 segment, this value must increase with each segment |
| **START UP COST** | Required for non-Gas resources, but may be 0 for Segment 1  If more than 1 segment, this value must increase with each segment  Please explain all non-zero values in the GRDT Explanation document |
| START UP AUX | Optional |
| **START UP FUEL** | Required for Gas resources |
| START UP MMA | Not used |

## HYBRID\_COMPONENTS tab (only populate for Hybrid resource):

| **RDT FIELD** | **Contents** |
| --- | --- |
| **RESOURCE ID** | Must match Resource tab |
| **COMPONENT ID** | Component ID is created by adding defining characters for the fuel type at the end of the resource ID  Example:  Battery component = RESOURCE\_ID\_**LESR1**  Solar component = RESOURCE\_ID\_**SOLR1**  Wind component = RESOURCE\_ID\_**WIND1** |
| **FUEL\_TYPE** | Corresponds to the fuel type of the Component ID.  LESR for battery  SOLR for solar  WIND for wind |
| **GEN\_TECH\_TYPE** | Corresponds to the Component ID. |
| **MAX\_GEN** | Corresponds to the Component ID. |
| **MIN\_GEN** | Corresponds to the Component ID. |
| VER\_NGR | Leave null. CAISO will populate this field by internal process if/when appropriate. |
| **FORECAST\_SELECTION** | Should match selection made in RIMS for the project.  Leave null for LESR. |
| DISP | Y for LESR,  N for SOLR or WIND.  CAISO will populate if left null |
| MIN\_CONT\_ENERGY\_LIMIT | Applies to the LESR component only. Leave null for other component IDs. |
| MAX\_CONT\_ENERGY\_LIMIT | Applies to the LESR component only. Leave null for other component IDs. |
| ENERGY\_EFFIC | Applies to the LESR component only. Leave null for other component IDs. |