

EDAC Data Submission Requirements

EDAC Operations Design Working Group
April 16, 2009



- EDAC Data types
 - Enrolment data
 - Daily Generator Data
 - Dispatch Data
 - Expedited Operational Data
- EDAC Data Submission Timeline

EDAC Data Types

- Enrolment Data (Previously Covered)
- Daily Generator Data
- Dispatch Data
- Expedited Operational Data

Daily Generator Data

- Registered generator data that can be updated on a daily basis in EDAC only:
 - Minimum Loading Point (MLP)
 - Minimum Generation Block Run Time (MGBRT)
 - Minimum Down Time
 - Maximum Number of Starts per Day
- Submission from 6:00 on the pre-EDAC day in an electronic format (subject to validation/approval rules)
- Registration data is default data and will be used in EDAC unless revised through a daily submission (does not change registration data)
- Validation will be performed on submission

Minimum Loading Point (MLP)

- Minimum Loading Point is the minimum output of *energy* specified by the *market participant* that can be produced by a *generation facility* under stable conditions without ignition support (Market Rules Chapter 11)
- Changes from registered values must be based on technical reasons and will be held for approval if $>$ MLP Limit

Minimum Loading Point (MLP)

- MLP Limit is defined as the highest (in MW) minimum loading point that is required for anticipated operating conditions. This value is intended to cover operating conditions that are regularly encountered and is not meant to cover all possible operating conditions.
- MLP is a single value for each hour of the EDAC day. The data will be validated on submission based on the following validation rules:
 - Must not be a quick start generation unit
 - Number format xxxx.x MW
 - Up to 24 quantities, one for each hour of the EDAC day
 - >0 and \leq MLP Limit
 - Must be non-negative

Minimum Generation Block Run Time (MGBRT)

- Minimum Generation Block Run Time (MGBRT) is defined as the time difference specified by the *market participant* between the *minimum run-time* and the minimum time required for a *generation facility* to ramp from synchronization to *minimum loading point* (Market Rules Chapter 11)
- Changes from registered values must be based on technical reasons and will be held for approval if $>$ MGBRT Limit

Minimum Generation Block Run Time (MGBRT)

- MGBRT Limit is defined as the longest (in hours) minimum generation block run time that is required for anticipated operating conditions. This value is intended to cover operating conditions that are regularly encountered and is not meant to cover all possible operating conditions.
- MGBRT is a single value for all hours of the EDAC day. The data will be validated on submission based on the following validation rules:
 - Must not be a quick start generation unit
 - Number format xx hours
 - Maximum of one quantity (applied to all hours of the EDAC day)
 - >1 and \leq MGBRT Limit
 - Must be a non negative integer

Maximum Number of Starts per Day

- Maximum number of starts per day is defined as the number of times that a generation unit can be started up within a day.
- The Maximum Number of Starts per Day is a single value for all hours the EDAC day. The data will be validated on submission based on the following validation rules:
 - Must not be a quick start generation unit
 - Number format xx starts
 - Must be a non-negative integer
 - Maximum of one quantity (applied to all hours of the EDAC day)
 - Must be $\leq 1 + 24 / (\text{MGBRT} + \text{MDT})$ rounded down to the nearest whole number

Minimum Down Time

- Minimum Down Time is defined as the minimum time, in hours, between the time a generator is last at its minimum loading point before de-synchronization and the time the generator reaches its minimum loading point again after synchronization
- The Minimum Down Time is a single value for all hours of the EDAC day. The data will be validated on submission based on the following validation rules:
 - Must not be a quick start generation unit
 - Number format xx hours
 - $\Rightarrow 0$ and ≤ 24
 - Must be a non-negative integer
 - Maximum of one quantity (applied to all hours of the EDAC day)

EDAC Dispatch Data

- Three Part Offers for dispatchable non-quick start generators
 - Start-up cost
 - Speed-no-load cost
 - Incremental energy
- Dispatch data for pseudo-units will be discussed at a future meeting
- No changes to dispatch data for other resources:
 - Dispatchable Load
 - Dispatchable quick start generators
 - Non-dispatchable generators
 - Imports/exports

Start-up Cost

- Start-up Cost is defined as the cost incurred to bring an off-line resource through all the unit specific start-up procedures, including synchronization and ramp up to minimum loading point.
- The Start-Up Cost is a single value for each hour of the EDAC day. The data will be validated on submission based on the following validation rules:
 - Must be a PCG eligible generation unit
 - Number format xxxxxx \$/hour
 - Up to 24 quantities, one for each hour of the EDAC day
 - =>0
 - Must be a non-negative integer

Speed No-Load Cost

- Speed No-Load Cost is defined as the cost to maintain a generator synchronized with zero net energy injected into the system for hour, h. The speed no-load cost and the incremental offer for energy up to a generator's minimum loading point forms its minimum generation costs.
- The Speed-No Load Cost is a single value for each hour of the EDAC day. The data will be validated on submission based on the following validation rules:
 - Must be a PCG eligible generation unit
 - Number format xxxxx \$/hour
 - Up to 24 quantities, one for each hour of the EDAC day
 - =>0
 - Must be a non-negative integer

Incremental Energy Bids/Offers

- No change to existing bid/offer structure and validation
- Approved offers will be used by both EDAC and pre-dispatch
- Incremental energy offers can be adjusted after the EDAC schedule of record is issued in accordance with existing submission window rules
- Pre-dispatch only considers incremental energy offers
- Offers (for non-quick start generation units) may need to be changed after EDAC for hours where no EDAC schedule exists

DACP:

- Minimum Shut Down Time (submitted during Facility Registration and baselined)
- Start-up Time (provided on request)
- Maximum Number of Starts per Day (provided on request)

EDAC

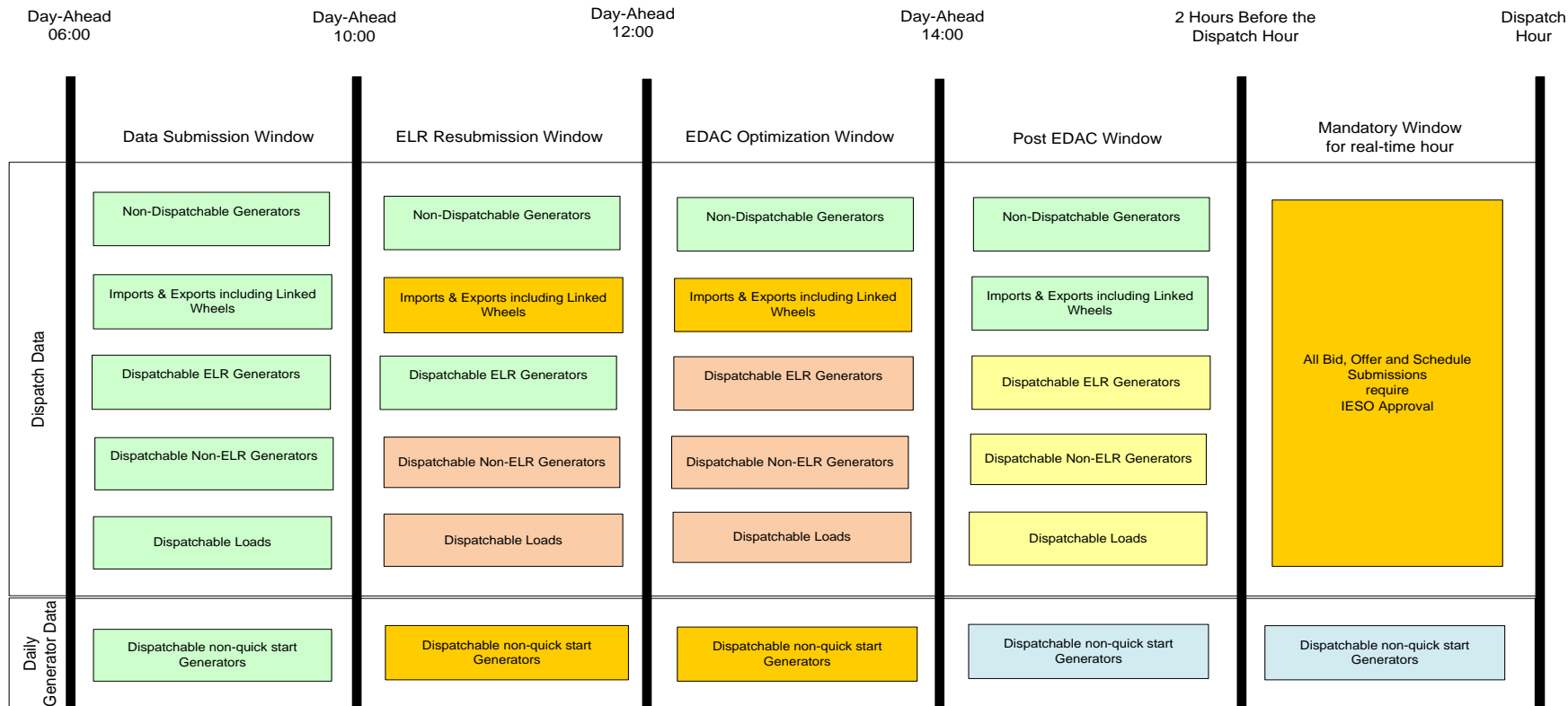
- Minimum Shut Down Time (provided on request)
- Start-up Time (provided on request)

(Maximum Number of Starts per Day becomes Facility Registration data)

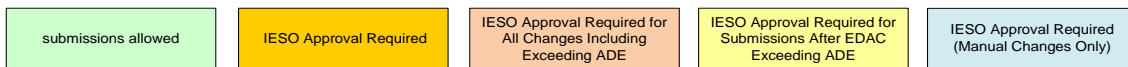
Specific business rules are required for the submission of Dispatch Data and Daily Generator Data in three distinct timeframes:

- Prior to EDAC operation (6:00 to 10:00)
- During EDAC operation (10:00 to 14:00)
- After EDAC operation (after 14:00)

EDAC - Data Submission Timeline



LEGEND



Before EDAC Operation (6:00 – 10:00)

- The dispatch data submission window opens at 6:00. At that time all standing dispatch data is accepted as real time dispatch data.
- Dispatch data will be accepted subject to the data validation and approval rules.
- Daily generator data will be accepted subject to the validation and approval rules.

During EDAC Operation (10:00 – 14:00)

- Resubmission of offers from Energy Limited Resources (ELR):
 - Resubmission allowed on completion of the first run of EDAC (approximately 11:00 to 12:00*)
 - Eligible Energy Limited Resources will be allowed to resubmit their offers without limitation
 - Eligible ELR resources are cascade hydroelectric generators. Resubmission of offers is required to align with schedules of other generation units on the same cascade river system
 - No need for other Energy Limited Resources to resubmit offers because EDAC optimizes schedules for all energy limited resources over 24 hours

*Note: These times are subject to change

During EDAC Operation (10:00 – 14:00)

- Dispatch Data and Daily Generator Data changes from Dispatchable Generators and Dispatchable Loads (all new submissions, revisions, and cancellation requests) applicable for any hours of the next day will require operator approval with the following exception:
 - From 11:00 to 12:00* no restrictions will apply to *Dispatch Data* changes from eligible Energy Limited Resources (all new submissions, revisions, and cancellation requests) applicable for any hours of the next day which submitted energy offers before 10:00

- Dispatch Data for Dispatchable Generators or Dispatchable Loads waiting for operator approval at 14:00, will be automatically rejected
 - Any dispatch data from other resources waiting for operator approval at 14:00, will be automatically accepted (subject to validation)
- Dispatch Data and daily Generator Data submissions from Dispatchable Generators or Dispatchable Loads which are subject to operator approval must be accompanied by one of the currently defined reason codes. If “OTHER” is selected, a corresponding text description must be included. If a reason code is not included, the bid/offer will be automatically rejected with a validation error issued

After EDAC (After 14:00)

- Availability Declaration Envelope is established by 10:00 dispatch data (or changes to dispatch data approved before 14:00):
 - All Dispatchable Resource *Dispatch Data* changes for the current day and the next day after the completion of EDAC (14:00) must not exceed the maximum bid/offer for each hour set during the previous day's EDAC process.
- No increases to MLP price
- Speed-no-load and start-up costs for the current day and the next day after the completion of EDAC (14:00) will be ignored.
- Daily Generator Data for the current day and the next day after the completion of EDAC (14:00) will be rejected with a corresponding message to the Market Participant.

- The EDAC calculation Engine will only schedule non-synchronized reserve from non-quick start generation facilities that are scheduled for energy
- The calculation engine considers a generation facility to be a quick start generation facility if it meets the following criteria:
 - *minimum loading point* is zero, and;
 - costs associated with commitment (*SNL & Start-up*) are zero, and;
 - *minimum generation block run-time* and minimum down time are zero.
- With this design generation facilities with a DET >5 minutes that wish to have their minimum loading point and minimum generation block run time respected in their EDAC schedule will only be scheduled for non-synchronized reserve in EDAC when they have a corresponding energy schedule.

- Dispatchable Load bid at \$2000 is considered to be non dispatchable in pre-dispatch.
- The EDAC Calculation Engine will dispatch this load in the unlikely event that the price reaches \$2000
- Dispatchable loads may receive an EDAC schedule showing reduced consumption when this occurs
- Load bid at \$2000 will continue to be considered non-dispatchable in pre-dispatch