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IMPLEMENTATION GUIDE

AVAILABILITY DATA

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Revision history

SECTION	CHANGE	REV	DATE
Alle			21-06-2024
2 3.2 3.4.2 General information	Roletype A08 replaces A06 General explanation of the use of data; grid congestion must be included in reports. Sender_MarketParticipant.marketRole.type changed to A08 Demand (consumption) added in explanations throughout.	1	02-07-2024
3.2 and table 3	B13 added for facilities not included in BRP's portfolio	2	16-07-2024

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1. Scope

This document aims to clarify and describe the business processes for submitting availability data for balance-responsible parties (BRPs) for generation (production) and demand (consumption) facilities operating in the Danish electricity market.

The data submitted in the availability schedules is used for adequacy assessments by both Energinet and Nordic RCC. Adequacy assessments are used to determine whether there is sufficient generation available in an area to meet the expected demand. Data is assessed in a common Nordic context and then coordinated with European data.

2. Terms and definitions

The structure of the availability schedules is based on ENTSO-E's Availability CIM document and uses the relevant definitions described in the following sections.

The following Types are used in the availability data document:

MessageType:

A28 (Generation availability schedule): This document contains information related to energy availability.

ProcessType:

A14 (Forecast): Data in this document is used in forecast processes for short, medium, and long time frames.

RoleType:

A08 (Balance responsible party): BRP for both generation and demand.

A04 (System operator): The transmission system operator (Energinet).

BusinessType:

A61 (Maximum available): This time series specifies a schedule for maximum available generation or demand of a given resource object.

A60 (Minimum possible): The time series specifies a schedule for minimum generation or demand of a given resource object.

CurveType:

A03 (Variable Sized Blocks): A03 is an ENTSO-E defined standard 'curvetype'.

Definitions:

Standard start-up warning: The facility takes some time to start up but will be available if prompted by the price signal from the day-ahead market. Start-up of the facility takes less time than from 13:00 to 24:00. The facility must be shown as available.

Extended start-up warning: The facility is out (staff has been sent home, there is a revision/fault or similar); facility start-up takes longer than from 13:00 to 24:00.

Data structure: The curve consists of a series of data points, each representing availability across a specific time interval over the course of 10 days. A time interval is hereinafter referred to as a "block".

Variable block size: The block size, i.e. the length of a time interval, can vary. Different data points may therefore apply to intervals of different sizes.

Values in MW: Each data point indicates the expected availability (minimum or maximum) of the corresponding block (time interval) in megawatts. This gives a detailed representation of the expected available capacity at any given time during the 10 days.

3. Business process for availability data

3.1 Overview

Requirements for the availability data process are stated in market regulation C3. A 'use case' is linked to the availability data process. The process for exchanging data and the way in which this is done is described below.

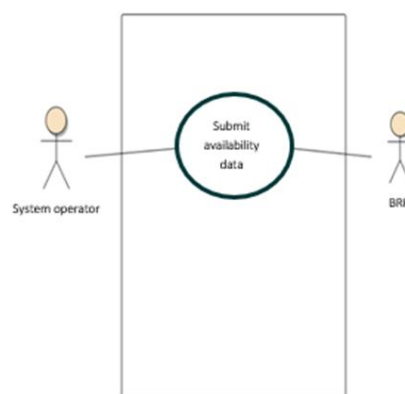


Figure 1 Use case Submit availability data

3.2 General outline

One single availability data schedule must contain a BRP's total set of schedules for specific facilities. Schedule data are used by Energinet and N-RCC to assess the situation further ahead in time than covered by the resource schedules.

Regulation C3's section on availability lists the types of generation and demand facilities that operational schedules must be submitted for.

The BRPs' availability data schedules must include the following time series:

- Time series per facility, indicating availability of each facility.
- Time series per facility, indicating minimum generation or demand of each facility.

These time series are shown as "blocks", indicating availability for a period. As an example, for a single facility, a submission of time series can thus be submitted with a single value in each time series, if there are no changes to the facility's availability during the period.

The following information must be stated:

- Facility name
- Facility status (available, unavailable, or testing)
- Current maximum capacity
- Current minimum capacity that the facility can be regulated downwards to.

Facility status: Must be submitted if the facility has status unavailable (B18) or if it is testing (B19). Otherwise, we will infer that the facility is available.

If the plant is not in the portfolio during the relevant period, this is also reported under the plant's status, this is reported as B13.

Maximum capacity: Must be assessed based on the assumption that there will be maximum prices. This means that in a situation where a facility has been deactivated, but can be reactivated with sufficient profit, the facility must be listed with maximum capacity from the time when the facility can be active again. In this reporting, limitations due to heat should not be included. For weather-dependent RE facilities, available capacity must be reported, i.e. how large a part of a facility is available for generation, not the total possible generation capacity of the facility. For example, a PV power facility with 100 MW installed power must also list 100 MW on a winter day.

If the facility is subject to limitations from Energinet, for example in connection with grid congestion, this must be included in the availability assessment.

Minimum capacity must be listed based on the expected situation. This means that, as a minimum, 0 must be listed if there is no expectation that the facility will run, but the actual minimum generation must be listed if the facility is expected to run. This only seems relevant for thermal units with minimum generation.

Note the following for statuses Unavailable and Testing: If it is possible to have the facility back in operation within the 10 days stated in the forecast, the current maximum capacity that the facility can return to operation with must be stated.

3.3 Business process

Figure 2 and the following description explain the process of submitting availability data.

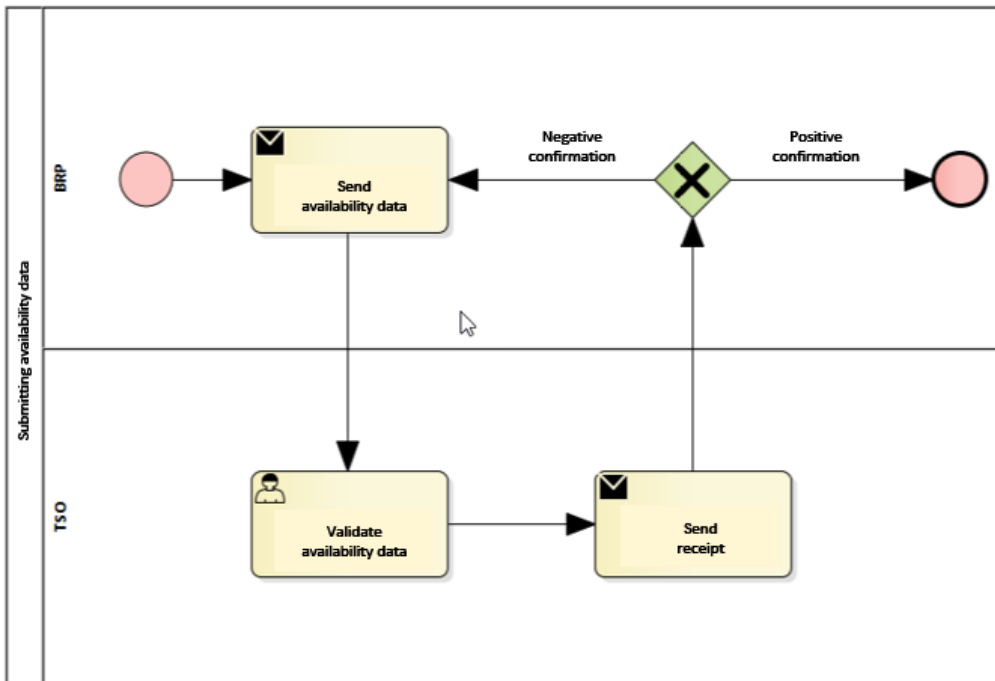


Figure 2 Schedule submission process for availability data (DK1 and DK2).

Prior to the submission of availability data, the BRP has assessed the current maximum capacity of the next 10 days for the facilities for which submissions must be made.

1. Send availability data

All BRPs with facilities governed by C3's section on availability must submit availability data schedules for the next 10 days of operation. The schedules must reflect current maximum capacity for all facilities governed by C3's section on availability shortly before the submission deadline.

If a facility is not available and has an extended start-up warning, the schedule submitted must state that the facility is unavailable. We are working to make it possible to specify start-up time in connection with an extended start-up warning. The schedule must always apply to the next 10 days of operation (to be reported per day). The extended start-up warning applies to facilities that cannot participate in the intraday market, i.e. activate the facility by midnight if prices at 13:00 are sufficiently attractive.

The facilities relevant in connection with the submission of availability schedules are listed for the balance-responsible party on Electricity Market Service.

The balance-responsible party must ensure that the availability schedules have reached Energinet's system based on the return of a positive receipt of acknowledgement. The balance-responsible party must therefore contact Energinet if no acknowledgement receipt is returned.

Adjustment of schedule:

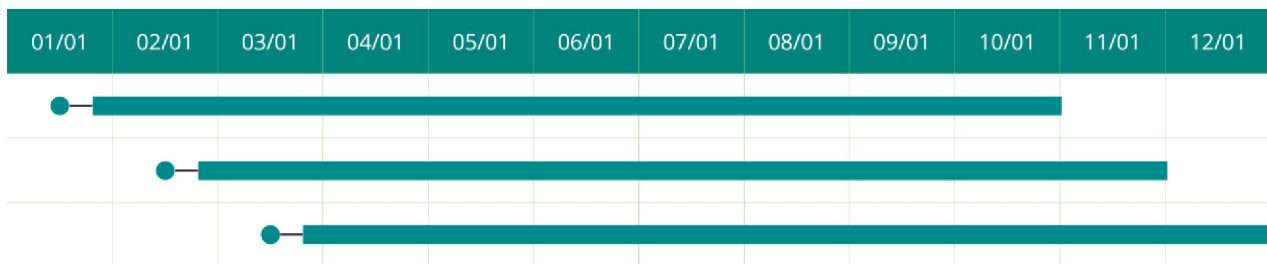
An availability schedule cannot be deleted. If adjustments are made to a schedule, the entire schedule must be re-submitted, including any changes. Resubmitted schedules will thus overwrite previously submitted schedules.

Time limit:

The availability schedule must be submitted before 14:00 on the day before the start time stated in the schedule. The plan must comprise D-1 through D-10, i.e. the next 10 days. A new plan is expected to be submitted every day, however, for a period of time we can accept that up to 7 plans are submitted, i.e. for a week ahead.

2. Validate availability data

On receipt of availability data, Energinet will check syntax and semantics, for example that the codes used exist and the necessary elements of the message are present. Market participants' identifications are verified, and checks done of whether schedules comprise 10-day periods (checks that daily submissions are made). Thus, it is possible to submit in advance for several coming days, but a new schedule must be available for each individual day.



As it is possible to submit one value comprising the entire period, no checks will be done of whether all points from 1-240 are submitted; however, checks will be done that no points after position 240 are sent. However, +/- 1 hour at winter/daylight saving time, and therefore 241/239 points,

3. Send receipt acknowledgement

Depending on whether errors are found or not, a positive or negative receipt acknowledgement will be generated, which is then sent to the party.

3.4 Business rules

Sign:

All values must be indicated with a positive sign.

Rounding, digits and decimals

The general rounding rules apply. Any residual value resulting from rounding is ignored.

Full stop is used as decimal separator. If a decimal separator is included in a value, the separator must be both preceded and followed by at least one digit.

A decimal separator may only be used where allowed cf. the relevant message implementation guide.

Triad separators are not used.

A numeric value may not contain special characters.

If a value has leading zeros (0), these must not be included.

Leading and trailing blanks must not be included.

3.4.1 Description of party

A market participant is identified by a unique ID, irrespective of the number of roles of the market participant. This ID is either a GLN or EIC number. An approved balance-responsible party (BRP) is a participant approved to handle balance responsibility for a given generating unit, demand, or trade towards Energinet. In this document, a balance-responsible party, or BRP, is a market participant responsible for one or more electricity-generating or electricity-demanding units governed by C3's section on availability.

3.4.2 Dependencies with PlannedResourceSchedule_MarketDocument

The Planned Resource Schedule market document is used to submit availability data.

	XSD requirements	
PlannedResourceSchedule_MarketDocument		
mRID	Mandatory	Sender's Unique Identification
RevisionNumber	Mandatory	The revision number of the document
type	Mandatory	A28 = Generation availability schedule
process.processType	Mandatory	A14 = Forecast
sender_MarketParticipant.mRID	Mandatory	The coding scheme is the Energy Identification Coding Scheme (EIC), maintained by ENTSO-E. EIC for Energinet = 10X1001A1001A248 A01=EIC or GLN for Energinet = 5790000432752 A10 = EAN/GLN
sender_MarketParticipant.marketRole.type	Mandatory	A08 = Balance responsible party
receiver_MarketParticipant.mRID	Mandatory	The coding scheme is the Energy Identification Coding Scheme (EIC), maintained by ENTSO-E. A01=EIC or A10 = EAN/GLN
receiver_MarketParticipant.marketRole.type	Mandatory	A04 = System operator
createdDateTime	Mandatory	Creation date/time of the document (in ISO 8601 UTC format) YYYY-MM-DDTHH:MM:00Z
schedule_Period.timeInterval	Mandatory	Period covered (in ISO 8601 UTC format) <period.timeInterval> <start>2013-07-21T22:00Z</start> <end>2013-07-31T22:00Z</end> </period.timeInterval> This should cover the complete period In relation to a CET time zone: In winter, the time spread is from 23:00 UTC to 23:00 UTC The change from winter to summer time spread is from 23:00 UTC to 22:00 UTC The summer time spread is from 22:00 UTC to 22:00 UTC The change from summer to winter time spread is from 22:00 UTC to 23:00 UTC
domain.mRID	Conditional	Not used
subject_MarketParticipant.mRID	Conditional	Not used
subject_MarketParticipant.marketRole.type	Conditional	Not used

Table 1 PlannedResourceSchedule_MarketDocument

PlannedResource_TimeSeries		
mRID	Mandatory	Unique identification of time series within the document
businessType	Mandatory	A61 = Maximum available A60 = Minimum available
flowDirection.direction	Conditional	Not used
product	Mandatory	8716867000016 = Active power
connecting_Domain.mRID	Mandatory	DK1 = 10YDK-1-----W (EIC) DK2 = 10YDK-2-----M (EIC)
registeredResource.mRID	Conditional	GRSN for generation/demand unit >= 25 MW A10 = GS1, the coding scheme for the preceding attribute.
mktPSRType.psrType	Conditional	Not used
resourceProvider_MarketParticipant.mRID	Mandatory	The coding scheme is the Energy Identification Coding Scheme (EIC), maintained by ENTSO-E. A01=EIC or A10 = EAN/GLN
Acquiring_Domain.mRID	Conditional	Not used Not used
marketAgreement.type	Conditional	Not used
marketAgreement.mRID	Conditional	Not used
measurement_Unit.name	Mandatory	MAW = Megawatt
objectAggregation	Conditional	A06 = Resource Object. Generation/demand unit >= 25 MW
curveType	Mandatory	A03 = Variable sized blocks

Table 2 *PlannedResource_TimeSeries*

UnavailableReserve_TimeSeries (associated with Original_MarketDocument)	Conditional	Not used
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Table 3 *UnavailableReserve_TimeSeries (associated with Original_MarketDocument)*

Series_Period		
timeInterval	Mandatory	Start and End time of the time period, 10 days. <period.timeInterval> <start>2013-07-21T22:00Z</start> <end>2013-07-31T22:00Z</end> </period.timeInterval>
resolution	Mandatory	PT60M or PT1H = one hour

Table 4 *Series_Period*

Point		
Position	Mandatory	Position within the time interval Between 1 - 240 (+/- 1 on DST days)
Quantity	Mandatory	Actual generation/demand (only zero/positive values are reported) Precision is 0.1

Table 5 *Point*

Reason (On Point level)		
Code	Mandatory	Only when unavailable: B18 = Failure (Outage) B19 = Foreseen maintenance (Testing) B13 = Communication status currently inactive (not in BRP's portfolio)
Text	Conditional	Not used

Table 6 Reason (On Point level)

4. Assembly Model's References

IEC 62325-451-7 – Planned Resource Schedule

5. Appendix 1 – Terminology and definitions

5.1 GLN number

Global Location Number. The numbers are administered globally by GS1. In Denmark, GS1 Denmark is allocated and consists of 13 digits:

- Positions 1-3: The three first digits are always the prefixes (country code), which is 579 for Denmark.
- Positions 3-12: The following positions are allocated consecutively according to the modulus 10 rules and are administered by GS1.
- Position 13: The last digit (K) is a reference digit calculated on the basis of an algorithm (modulus 10). The reference digit for the GLN number is an integral part of the location number. The reference digit is calculated on the basis of the preceding characters using a modulus 10 algorithm.

5.2 EIC number

The European Identification Code, just like the GLN number, is used to uniquely identify market participants. EIC numbers are administered by a unit under the ETSO organisation. Moreover, ENTSO-E members have local administrative units that are authorised to issue EIC numbers.

Different structures have been established, depending on what the EIC number identifies.

Basically, the number is made up of 16 characters, and the market participant identification code is structured as follows:

- Positions 1-2: The two first characters refer to the issuing entity allocated by ETSO.
- Position 3: Identifies this as a market participant identification number with the letter 'X'.
- Positions 4-15: 12 characters in upper-case letters allocated by the issuing entity.
- Position 16: Reference digit.

5.3 GSRN number

GSRN (Global Service Relation Number) is a uniquely defined number series allocated by GS1, which uniquely identifies a facility, metering points, and consumer portfolios within a distribution company's distribution system. The GSRN number, issued under the master data register, is used as identification in availability and operational schedules.

All generation facilities and selected demand facilities must be identified using the GSRN number, which should remain the same over time. It must not be changed in case of a change of supplier, for instance.

Structure of GSRN's 18 digits:

- Positions 1-2: GS1 Denmark
- Positions 3-7: 5 digits fixed for the entire Danish electricity and gas supply sector for identification of metering points
- Positions 8-10: Number of the electricity supply company
- Positions 11-17: 7 digits for consecutive numbering of the individual metering points allocated by the electricity supply company.
- Position 18: Check digit.