
ASR Frequency Response System Set-up for Ancillary Service Provider (DM/DR/DC) _v1.4

DOCUMENT CONTROL

Change History

| VERSION | DATE | CHANGES |
|---------|------------|--|
| 1.0 | 13/01/2022 | Business Logic for ASR Frequency Response Products – (DM/DR/DC) |
| 1.1 | 15/02/2022 | Removal of Gate Closure rules and allowing the Service Providers to submit Availability per 30-minute settlement period of the window for DM/DR/DC. |
| 1.2 | 03/03/2022 | Added Error code for Availability MW validation |
| 1.3 | 13/07/2022 | Added PN Service, PN Confirmation, Heartbeat Service, Heartbeat NACK, Disarm/ARM Instruction Service and Disarm/ARM Instruction Confirmation Service Updated Error code AS_Error31 definition for Availability Service. |
| 1.4 | 26/09/2022 | Updated definition for PN_Error01 for Physical Notification Service Deprecated PN_Error03 for Physical Notification Service |

| NEXT UPDATE | VERSION | PLANNED CONTENTS |
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1 Introduction

The PAS (Platform Ancillary Services) project has an objective to replace and enhance systems across the AncillaryService lifecycle. Starting with a flexible dispatch platform, capable of sending and receiving data, such as provideravailability submissions and dispatch notifications. This document will focus on the addition of Non-BM Ancillary Service Reforms (ASR) Frequency Response products namely, Dynamic Moderation (DM), Dynamic Regulation (DR) and Dynamic Containment (DC). For the Service Providers to communicate with National Grid ESO they are required to develop the appropriate web services as per the web service specifications.

This document explains the Business Rules Service Providers should implement, including the initial set up of the system and the exception rules for the web services.

1.1 Scope

This document applies to Non-BM providers only and covers the business rules and exceptions which are to be implemented by DM/DR/DC service providers.

2 Initial System Set-up Business Rules

Once a Unit has been successful in auction, ASDP will receive the contract files from internal systems. Each of the web service URLs will be tagged against a Unit ID (for the purpose of this document, the Unit ID is the unique ID in the framework agreement).

The following data items are applicable for the Frequency Response Service.

| Data Item | Description |
|---------------------|---|
| Unit ID | Unit ID as per the framework agreement. |
| Contract Start Date | Start date of contract as per accepted tender |
| Contract End Date | End date of contract as per accepted tender |
| Contracted MW | Contracted MW for a service type |
| Telephone | Telephone number that National Grid ESO Electricity Control Room can call in the event of a manual intervention |

The Unit ID will be provided agreed between National Grid ESO and Provider. This will act as an identifier for which unit or aggregation of units the messages will pertain to. All prequalified Response contracts map to DMH/DML, DRH/DRL, DCH/DCL Service Types in the webservices.

3 Web Services Business Rules and Exceptions

3.1 General business rules and exceptions

In all the web services and for all the data tags, the data should be trimmed and should be without any spaces before or after the data. For example, National Grid ESO would expect 'DMH' instead of 'DMH ' or ' DMH' in the service type.

The web service will not be accepted if Service Providers send any blank tags. This will mean the 'NULL' value

will be updated in the PAS system. This is applicable for all the optional fields. If the field is optional, National Grid ESO would expect Service Provider to ignore that tag completely from the xml unless mentioned in this document for a particular web service.

If Service Provider sends blank tag for mandatory tags, PAS will update 'NULL' value in the system.

National Grid ESO will wait for 1 minute to get synchronous response back from Service Providers before the system times out.

National Grid ESO has made a provision for its systems and Service Providers' systems to be out of sync only by 1 minute. This is reflected in all the DateTimeStamp validations for all web services.

The operational day for DM, DR and DC is defined to be between 23:00 D to 23:00 D+1 local time.

3.2 Web Service Versioning

We have introduced web service versions to help with traceability for onboarding new Ancillary Services. Current webservice version for ASR Response products (DM/DR/DC) is Version 3, any changes will be communicated by updating the web specification and business logic document appropriately. Providers will be notified by email of any new documentation.

3.3 Availability Service

This web service is used for declaration of an availability window per 30-minute settlement period granularity. It is also used to redeclare a settlement period.

A unit will be deemed fully available for its contracted position once ASDP has received the contract file.

A change in the availability can be submitted only after a contract is awarded by National Grid ESO. This is expected to be by D 16:00 hrs every day for the next operational day starting at D 23:00 to D+1 23:00.

A change in availability can be submitted any time after D 16:00 hrs for the next operational day per 30-minute settlement period granularity of the window.

The following fields are required to be populated by Service Providers in the xml payload. ServiceType, UnitID, AUI, StartDateTime, EndDateTime, BreakPoint, OfferBid_Number (always 1), and DateTimeStamp in the xml. No other details should be provided, refer to the sample payloads in the Appendix section of the web service specification.

AUI should be unique for every declaration or redeclaration sent by Service Providers and should follow the logic mentioned in the web service specification.

Note - Service Provider should send the redeclarations only by exceptions.(if there is any change in Window MW or unit is Unavailable)

Post Tender Declarations/Redeclarations:

Service Providers may send a change in availability declarations for a Non-BM Frequency Response unit after the contract is awarded and loaded into ASDP system.

- Availability declarations for a particular operational day must be submitted from Service Providers only after the contract is awarded by National Grid ESO.
- Window timings are defined as per the contract tendered for the unit and an availability should be submitted on a 30-minute settlement period granularity within the window.
- A declaration/redeclaration should contain only BreakPoint value between 0MW to Contracted MW for

OfferBid_Number 1 in the payload.

- A change in availability can also be redeclared within the current settlement period of the window.
- The EndDateTime of any declaration/redeclaration must not be in the past for all contracts. i.e., No settlement period in the past should be redeclared.

As mentioned in the Web Service specification, SP's can submit multiple availability declarations and/or re-declaration per settlement period for a single operational day within the same xml.

Following are the exceptions and the appropriate error responses that would be expected when the xml is sent by Service Provider to National Grid ESO:

XSD Rejections:

1. If ServiceType is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
2. If UnitID is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
3. If StartDateTime is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
4. If EndDateTime is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
5. If DateTimeStamp is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.

Other Rejections

1. If ServiceType is not from the list of acceptable values and/or not matching with the contracted service type of the unit in the PAS application, National Grid ESO rejects the same with a 400 bad request and 'Invalid Service Type' message.

File Rejections (Complete file)

1. If the UnitID value differs to what has been set up in PAS application (or NULL value in the tag), or contract data does not exist in PAS application for the unit, National Grid ESO will send availability confirmation rejection with the FileReason 'AS_Error33'.
2. If the absolute difference between Service Provider DateTimeStamp and National Grid ESOs current system time(in UTC) is greater than one-minute, National Grid ESO will send availability confirmation rejection with the FileReason 'AS_Error9'.

Window Rejections (Only for the specified window):

1. If StartDateTime and EndDateTime is not matching to the 30-minute settlement period, National Grid ESO

- will send window validation as INVALID with the WindowReason 'AS_Error3'
2. If EndDateTime is in the past, National Grid ESO will send window validation as INVALID with the WindowReason 'AS_Error4'.
 3. If EndDateTime is outside of Service term (contract end date), National Grid ESO will send window validation as INVALID with the WindowReason 'AS_Error24'
 4. If OfferBid_Number is not 1 or is Null for the window, National Grid ESO will send window validation as INVALID with the WindowReason 'AS_Error25'.
 5. If the BreakPoint value for OfferBid_Number 1 (MW values) is not between 0 and Contracted MW, National Grid ESO will send availability confirmation rejection with the WindowReason 'AS_Error31'.
 6. If more than one OfferBid array or OfferBid_Number is provided for a single AvailabilityWindow array in a file National Grid ESO will send window validation as INVALID for the affected windows with the WindowReason 'AS_Error26'
 7. If there is a repetition / duplicate of StartDateTime and EndDateTime across two or more AvailabilityWindow arrays in a single file, National Grid ESO will send window validation as INVALID for the affected windows with the WindowReason 'AS_Error27'.
 8. If the OfferBid Number 1 does not have a BreakPoint, National Grid ESO will send window validation as INVALID with the WindowReason 'AS_Error32'.
 9. In the case of an unspecified error, National Grid ESO will send window validation as INVALID with the WindowReason 'AS_Error99'.

It should be noted that the multiple error codes have a limit of 200 characters. In the case of error codes exceeding 200 characters, the reasons will be trimmed to 200 characters.

3.4 Availability Confirmation Service

This web service is primarily used to validate the declaration/re-declaration data submitted by the Service Providers. There are two levels of data validation done by National Grid ESO – one at file level and the other at a window level.

If any of the exceptions mentioned in the above section occur for File level rejection, the availability confirmation will be marked as 'REJECTED' with appropriate reason code as mentioned in the above section in the FileReason tag. If the confirmation is marked as 'REJECTED' all settlement periods should be considered as rejected for the availability file submission. If the file has been REJECTED the confirmation response will not contain any settlement periods, the file should be identified by the DateTimeStamp which will correspond to the date timestamp which is sent in the availability web service.

If any of the exceptions mentioned in the above section occur for a settlement period level rejection, the availability confirmation will be marked as 'ACCEPTED' but the Availability Window array(s) will be marked INVALID and will have appropriate WindowReason error code. The Service Provider is expected to resend the correction only for those settlement periods which have been rejected by National Grid ESO.

XSD Rejections:

1. If ServiceType is not from the list or missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
2. If UnitID is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure

3. If UnitID is not valid, National Grid ESO expects Service Provider to send a non 200 http status code back with a message 'Invalid UnitID'
4. If either StartDateTime or EndDateTime is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
5. If DateTimeStamp is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
6. If Confirmation is not from the list or missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
7. If Validation is not from the list or missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure

Other Rejections:

1. If StartDateTime and EndDateTime is different to the window provided by SP, National Grid ESO expects Service Provider to send a non 200 http status code back with a message 'Invalid StartDateTime and EndDateTime'
2. If File or Window Reason is different to the rejection codes mentioned in the above section, National Grid ESO expects Service Provider to send a non 200 http status code back with a message 'Invalid Reason in File or Window'

Using availability confirmation web service, National Grid ESO can send error codes for different settlement periods in a single availability confirmation xml. National Grid ESO can also send multiple error codes for a single settlement period. These error codes will be separated by semicolons.

3.5 DISARM/ARM Instruction Service

This service which is also referred as Availability Nomination Service in Web Specification Document, is used to send the DISARM and ARM instruction request for DM/DR/DC units by National Grid ESO to Service Provider.

The NUI is used for both DISARM and ARM instruction. At any point in time, there will be only one active NUI per Unit ID. A unit is by default considered as armed by National Grid ESO for its activation period unless the unit is instructed to DISARM.

DISARM and ARM instructions for a unit can be sent at three levels, unit level, Services level (DC H/L, DM H/L, DR H/L) and GSP Group level. Though the instruction request will be sent per Unit ID to Service Provider as per Web Specification- Availability Nomination V3 service.

Nomination disarm instruction will have 'DISARM', and ARM instruction will have 'ARM' in the Nomination tag.

National Grid ESO will send the current DateTimeStamp (Now time) and StartDateTime in the DISARM/ARM instruction request to Service Provider. The StartDateTime will always be 2 minutes after the current DateTimeStamp time in xml request being sent to Service Provider. Please note additional 2mins in StartDateTime is added to generalise the response from all Service Providers.

For example, if National Grid ESO sends a DISARM/ARM instruction for a unit to Service Provider at 10:30, the instruction request would have a StartDateTime of 10:32.

Note- DISARM/ARM instructions will be sent only to those units which are pre-qualified and contracted.

XSD Rejections:

1. If ServiceType is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
2. If UnitID is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
3. If NUI is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
4. If DateTimeStamp is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure.

File Rejections:

1. If UnitID is not valid, National Grid ESO expects Service Provider to send confirmation response with a FileReason error code 'NS_Error1'
2. If UnitID is not mapped to the appropriate ServiceType, National Grid ESO expects Service Provider to send confirmation response with a FileReason error code 'NS_Error2'
3. If the absolute difference between National Grid DateTimeStamp and Service Provider's current system time (in UTC) is greater than 1 min, National Grid ESO expects Service Provider to send confirmation response with a FileReason error code 'NS_Error3'
4. If a non-specified Error occurs, National Grid ESO expects Service Provider to send confirmation response with a FileReason error code 'NS_Error99'.

Other Rejections:

1. If StartDateTime is in the past or incorrect, National Grid ESO expects Service Provider to send Confirmation tag as REJECTED with a Reason error code 'NS_Error4'

3.6 DISARM/ARM Instruction Confirmation Service

This service which is also referred as Availability Nomination Confirmation Service in Web Specification Document, is used by Service Provider to confirm the DISARM/ARM request sent by National Grid ESO for DMH/L, DR H/L, DC H/L services.

Service Providers can only reject a request in case of an error in the request sent by National Grid ESO.

If National Grid ESO did not get a confirmation (after receiving a 200 Ok) response to the DISARM instruction that has been sent by National Grid ESO) past 120 seconds from the DISARM sent time, it will be deemed that the Service Provider has rejected the DISARM request and unit will be available back to send DISARM instruction again by National Grid ESO.

If National Grid ESO did not get a confirmation (after receiving a 200 Ok) response to the ARM instruction that has been sent by National Grid ESO) past 120 seconds from the ARM sent time, it will be deemed that the Service Provider has rejected the ARM request and unit will be available back to send ARM instruction again by National Grid ESO.

XSD Rejections:

1. If ServiceType is not from the list or missing value, National Grid ESO Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
2. If UnitID is missing in the xml, National Grid ESO Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
3. If NUI is missing in the xml, National Grid ESO Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
4. If Confirmation is not from the list (ACCEPTED or REJECTED) or missing value, National Grid Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
5. If DateTimeStamp is missing in the xml, National Grid Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.

Other Rejections:

1. If UnitID is not matching to the request payload National Grid ESO has sent, National Grid ESO will reject the confirmation with a non 200 http status code back with a message 'Invalid UnitID' in the response
2. If NUI is not matching to the request payload National Grid ESO has sent, National Grid ESO will reject the confirmation with a non 200 http status code back with a message 'Invalid NUI' in the response
3. If StartDateTime or EndDateTime is in the past (SLA breach), National Grid will reject the confirmation with a non 200 http status code back with a message 'SLA Breach' in the response
4. If the absolute difference between Service Provider DateTimeStamp and National Grid's current system (in UTC) is greater than 1 min, National Grid will reject the confirmation with a non 200 http status code back with a message 'Invalid DateTimeStamp' in the response
5. If StartDateTime or EndDateTime does not match the values National Grid has sent, National Grid will reject the confirmation with a non 200 http status code back with a message 'Invalid StartDateTime' or 'Invalid EndDateTime' in response.

3.7 Heartbeat Service:

This service will be used by Service Provider to send the heartbeat signal to National Grid ESO.

National Grid ESO expects to get heartbeat signal once every 5mins.

The only required fields for all ASR units are; ServiceType, UnitID, DateTimeStamp, all other fields should not be submitted.

As this service is used by National Grid ESO to gauge the heartbeat of Service Provider's comms, we would consider the unit to be unavailable.

In the event when Unit is down/up, Service provider should be aligned to send the heartbeat signal to National Grid ESO.

1. National Grid does not receive any Heartbeat signal in the last 10 minutes, Heartbeat NACK would be sent with an error code 'HBS_Error1'.

The other exceptions are handled as follows. Until the point National Grid ESO gets a heartbeat signal back, the unit will be unavailable as per the above-mentioned logic.

Note- NG ESO expects Heartbeat signals from only those units which are pre-qualified and contracted.

XSD Rejections:

1. If ServiceType is missing value, National Grid ESO Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back.
2. If UnitID is missing, National Grid Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error Response. The response will also provide the details of the error.
3. If DateTimeStamp is missing, National Grid Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.

Other Rejections:

1. If ServiceType is invalid, NG will reject the Heartbeat signal with 4xx bad synchronous response with error message 'INVALID SERVICE TYPE'.
2. If UnitID value differs to what has been set up in PAS application, National Grid will reject the Heartbeat signal with a 4xx synchronous response back including a message 'Invalid UnitID' in the response
3. If UnitID is not mapped to the appropriate ServiceType selected, NG will reject the Heartbeat signal with backend error message 'UnitID not matching to ServiceType' in the response.
4. If the absolute time difference between Service Provider DateTimeStamp and National Grid's current system time (in UTC) is greater than 1 min, National Grid will reject the Heartbeat signal with a 500 Internal Server Error responseback including a message 'Invalid DateTimeStamp' in the response

3.8 Heartbeat Negative Acknowledgement Service

A Heartbeat Negative Acknowledgement (NACK) is a message to communicate that we have not received the Heartbeat signal for the last 10 minutes or there is some issue with the heartbeat signal that has been sent and until remedied with valid heartbeat signal, the contract will be made unavailable.

Exceptions:

1. If ServiceType is invalid or missing, National Grid ESO expects Service Provider to throw 500 InternalServer Error as XSD validation failure
2. If UnitID is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
3. If UnitID is not valid, National Grid expects Service Provider to send a non 200 http status code back witha message 'Invalid UnitID'
4. If StartDateTime or EndDateTime is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
5. If ErrorCode not in the list as mentioned in the previous section, National Grid expects Service Provider to send a non 200 http status code back with a message 'Invalid ErrorCode'

6. If DateTimeStamp is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
7. If the absolute difference between National Grid DateTimeStamp and Service Provider’s current system time (in UTC) is greater than 1 min, National Grid ESO expects Service Provider to send a non 200 http status code backwith a message ‘Invalid DateTimeStamp’

3.9 Physical Notification Service

This service will be implemented by National Grid ESO to receive the Physical Notification data from Service Providers.

- The operational day for DM, DR and DC is defined to be between 23:00 D to 23:00 D+1 local time
- Service Provider can send the Physical Notification data, after the unit is pre-qualified in National Grid ESO.
- Service Provider can send the PN data at Unit level and once the PN is received for a Unit, the same PN would be applicable for all the active services of the Unit.
- The expected time format for all the date time fields is UTC.
- Physical Notification data would be accepted for current as well as future 5 operational days. Service Provider can submit multiple PN declarations and/or re- declaration for a Unit for an operational day within the same request xml.

e.g.:

| | | | | | | |
|---|-----|-----|-----|-----|-----|-----|
| Current Ops Day(D) 23:00-23:00 (local) | D+1 | D+2 | D+3 | D+4 | D+5 | D+6 |
| Dec/Redec for single operational day | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |

- Service Provider can redeclare the Physical notification until 60 mins before the StartDateTime of the 30mins Settlement Period.
- Physical Notification should cover the complete half hour settlement period in same request payload.

e.g

| UnitID | Start TIME | End Time | Start MW | END MW |
|--------|------------|----------|----------|--------|
| Unit-1 | 10:00 | 10:30 | 5 | 20 |
| Unit-1 | 14:00 | 14:20 | 10 | 20 |
| Unit-1 | 14:20 | 14:30 | 20 | 10 |

- The following fields are required to be populated by Service Providers in the xml payload. UnitID, PUI, StartDateTime, EndDateTime, PN_Start_MW, PN_End_MW and DateTimeStamp in the xml. No other details should be provided, refer to the sample payloads in the **Appendix 1K** section of the latest web service specification v3 document.
- Zero level data defaulting is applied where the submitted data is not complete for any settlement period in an operational day. For example, if there is a gap in data for settlement period 2022-12-07 13:00 to 2022-12-07 13:30 then this gap would be filled with zero level data.

XSD Rejections:

1. If UnitID is missing/null in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
2. If PUI is missing/null/invalid (not 20 chars) in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
3. If StartDateTime is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
4. If EndDateTime is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
5. If PN_Start_MW is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
6. If PN_End_MW is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.
7. If DateTimeStamp is missing in the xml, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back. The response will also provide the details of the error.

File Rejections (Complete file)

1. If the UnitID value differs to what has been set up in PAS application, or unit is expired or unit does not exist in PAS application, National Grid ESO will send confirmation rejection with the FileReason 'PN_Error1'.
2. If the absolute difference between Service Provider DateTimeStamp and National Grid ESOs current system time(in UTC) is greater than one-minute, National Grid ESO will send confirmation rejection with the FileReason 'PN_Error2'.
3. If the request payload contains more than one operational day data, National Grid ESO will send the PN Confirmation rejection with the FileReason 'PN_Error12'.
4. If the request payload contains the data outside of future 5 operational days from the current date, National Grid ESO will send the PN Confirmation rejection with the FileReason 'PN_Error9'.

Window Rejections (Only for the specified window):

1. If StartDateTime and EndDateTime is in the past, National Grid ESO will send PNValidation as INVALID with the PNReason 'PN_Error4'.
2. If PN_Start_MW and PN_End_MW values are not within the range of -9999MW to Max Registered Capacity MW, National Grid ESO will send PNValidation as INVALID with PNReason'PN_Error5'.
3. If StartDateTime and EndDateTime is overlapping with other windows StartDateTime and EndDateTime in the same file, National Grid ESO will send PNValidation as INVALID with PNReason 'PN_Error6'.

4. If DateTimeStamp and StartDateTime is less than 60mins, National Grid ESO will send PNValidation as INVALID for the affected windows with PNReason 'PN_Error7'.
5. If the submitted Physical Notification does not cover the complete half hour settlement period, National Grid ESO will send the PNValidation as INVALID with PNReason 'PN_Error8'.
6. If PN_Start_MW and PN_End_MW value is not a whole number or integer, National Grid ESO will send PNValidation as INVALID for the affected windows with PNReason 'PN_Error10'.
7. If StartDateTime and EndDateTime is beyond 30mins settlement period block, National Grid ESO will send the PNValidation as INVALID for the affected windows with PNReason 'PN_Error11'.
8. In the case of an unspecified error, National Grid ESO will send window validation as INVALID with the WindowReason 'AS_Error99'.

It should be noted that the multiple error codes have a limit of 200 characters. In the case of error codes exceeding 200 characters, the reasons will be trimmed to 200 characters.

Deprecated Error Codes:

1. If StartDateTime and EndDateTime is not within unit's activation date (Pre-qualification Start and End time), National Grid ESO will send PNValidation as INVALID with the PNReason 'PN_Error3'.

3.10 Physical Notification Confirmation Service:

This service will be implemented by Service Providers to receive Confirmation for the Physical Notification from National Grid ESO.

This web service is primarily used to validate the PN data submitted by the Service Providers and to send the confirmation back. There are two levels of data validation done by National Grid ESO – one at file level (File Rejections) and the other at a window level (Window Rejections) as mentioned above.

If any of the exceptions mentioned in the above section occur for **File level rejection**, the Confirmation will be marked as 'REJECTED' with appropriate reason code as mentioned in the above section in the FileReason tag. If the Confirmation is marked as 'REJECTED', PN data for the all window periods in the file should be considered as rejected.

If the file has been REJECTED the confirmation response will not contain any window periods, the file should be identified by the PUI which will correspond to the PUI sent in the Physical Notification web service.

If any of the exceptions mentioned in the above section occur for a **Window level rejection**, the Confirmation will be marked as 'ACCEPTED' but the tag PNValidation will be marked INVALID based on window period and will have appropriate PNReason error code.

The Service Provider is expected to resend the correction only for those PN data window periods which have been rejected by National Grid ESO.

Following are the exceptions and the appropriate error responses that would be expected when the xml is sent by Service Provider to National Grid ESO:

XSD Rejections:

1. If UnitID is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSDvalidation failure
2. UnitID is not valid, National Grid ESO expects Service Provider to send a non 200 http status code back

with message 'Invalid UnitID'

3. If either StartDateTime or EndDateTime is missing when Confirmation tag is ACCEPTED, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
4. If PNValidation is not from the list or missing when Confirmation tag is ACCEPTED, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
5. If DateTimeStamp is missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure
6. If Confirmation is not from the list or missing, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure

Other Rejections:

1. If StartDateTime and EndDateTime is different to the window provided by Service Provider, National Grid ESO expects Service Provider to send a non 200 http status code back with a message 'Invalid StartDateTime and EndDateTime'
2. If FileReason is different to the rejection codes mentioned in the above section, National Grid ESO expects Service Provider to send a non 200 http status code back with a message 'Invalid Reason in File or Window'
3. PNReason is different to the rejection codes mentioned in the above section, National Grid ESO expects Service Provider to send a non 200 http status code back with a message 'Invalid Reason in File or Window'

Using Physical Notification Confirmation web service, National Grid ESO can send error codes for different window periods in a single Physical Notification Confirmation xml. National Grid ESO can also send multiple error codes for a single window period. These error codes will be separated by semicolons.

4 Security rules and exceptions

As per the Web Service Specifications document, National Grid ESO is expecting all the webservices to be authenticated with usernames and passwords. Each Service Provider will have one set of username and password pair i.e., if Service Provider has multiple contracts across any ancillary service types, National Grid ESO will provide a single pair of username and password across all Unit IDs. If Service Provider sends incorrect username and password or if there is a combination mismatch to the username password to that of Unit ID in the web services, National Grid ESO will send the appropriate error (500 Internal server error for any exception or XSD validation failure). It is expected for SPs to send the same to NG.

5 Appendix

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