nationalgridESO

# MW Dispatch System Set up for Ancillary Service Provider (UKPN)

**V1.0**

# DOCUMENT CONTROL

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# 1   Introduction

The PAS (Platform Ancillary Services) project has an objective to replace and enhance systems across the Ancillary Service lifecycle. Starting with a flexible dispatch platform, capable of sending and receiving data, such as provider availability submissions and dispatch notifications. This document will focus on the addition of **Non-BM MW Dispatch Services**. For the Service Provider 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 need to implement, including the initial set up of the system and the exceptions rules for the web services.

## 1.1   Scope

This document applies to Non-BM providers for MW Dispatch services only and covers the business rules and exceptions which are to be implemented by MW Dispatch Service Providers.

# 2   Initial System Set-up Business Rules

Once a Unit has been successful in pre-qualification/registration, ASDP will receive the Units registration data (including NATIONAL GRID ESO   assigned Unit ID) 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 as per the framework agreement).

The following data items are received from the Contract Files for MW Dispatch Service-

| Data Item | Description |
|---|---|
| Unit ID | Unit ID as per the framework agreement. |
| Contract Start Date | Start date of contract as per framework agreement |
| Contract End Date | End date of contract as per framework agreement |
| Ramp Up Rate | MW / Minute |
| Ramp Down Rate | MW / Minute |
| Allocated MW | Allocated MW per unit |

The Unit ID will be provided as 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/registered DER units mapped to RDP_NEGATIVE Service Type in the webservices.

# 3   Web Services Business Rules and Exceptions

## 3.1   General business rules and exceptions

This section provides General Business Rules and Exceptions followed for MW Dispatch Service-

- 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 'RDP_NEGATIVE' instead of 'RDP_NEGATIVE ' or ' RDP_NEGATIVE' 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.

- For dispatch / cease instruction web service, National Grid ESO will wait for 1 minute to get synchronous response back from Service Providers before the system times out.

- Real Time Availability of a unit should be sent by Service Provider to National Grid ESO to intimate the service availability for a unit.

- 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 TimeStamp specified in request and response for the Services should always be in UTC.

The operational day for MW Dispatch service is defined to be between 05:00am local time if given Calendar Day to 05:00 am local time of the next Calendar Day.

Note: The National Grid ESO and DER Service Provider communication for the mentioned services request and response would always be via DNO.

## 3.2   Web Service Versioning

We have introduced web service version to help with traceability for onboarding new Ancillary Services. Current webservice version for MW Dispatch service 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   Unavailability Service:

This section provides business logic for the Unavailability service to submit unavailability of DER units. Window unavailability can be submitted only after a unit is successfully registered with National Grid ESO.

This service is used for declaration of unavailable time for DER unit within an operational day. Service Providers are expected to send unavailability request for single operational day of a unit (05:00 – 05:00 local time) and should not include the period crossing over operational days.

If DER unit is unavailable for consecutive two days, Service Providers are expected to send unavailability request split as per operational day start and end date time. The unavailability slot should be rounded off to the nearest 30 mins, i.e. the unavailability period will always be at minimum of 30 mins resolution and should not include seconds in request timestamp.

Unit will be considered as dispatchable or non-dispatchable considering the Real Time Availability flag and the DA unavailability data. If Real time availability flag is OFF/Null or RTM is lost or unit is unavailable, it will be considered as non-dispatchable.

National Grid ESO does not expect Service Provider to send overlapping and duplicate unavailable service windows.

The following fields are required to be populated by Service Providers in the request payload during unavailability declaration – **Interface (UNAVAIL-DATA)**, **ServiceType, UnitID, StartDateTime, EndDateTime** and **DateTimeStamp**.

Service provider can send multiple units unavailability duration within single request payload.

The Unavailability StartDateTime & EndDateTime will need to be specified within the UnAvailabilityWindow Array in the request.

The StartDateTime & EndDateTime should always be within the next Operational Day Timeframe (i.e. between D+1 05:00 hrs local time and D+2 05:00 hrs local time) and should always be rounded off to the nearest 30 minute resolution.

No other details should be provided, refer to the sample payloads in the Appendix section_1N from the Web Service Specification v3 document.

**Time specified in unavailability request should always be in UTC.**

**Note**: **Once Service Providers submit the DER unavailability window period, DER unit(s) can't be made available back for specified unavailability time duration.**


 **XSD/JSON Rejections from National Grid ESO to UKPN:**

The following are different possibilities of XSD/JSON rejections after appropriate XSD/JSON validations:

1.  If **Interface** is missing/blank/other than "UNAVAIL-DATA" or "NAPUnavail3WA" or "NAPUnavailDA"in request payload, National Grid ESO rejects the same via XSD/JSON validation and Service Provider should be getting a 400 bad request response back with appropriate message as "*Invalid Interface*".

2.   If **ServiceType** is missing/blank/other than RDP_NEGATIVE in request payload, National Grid ESO rejects the same via XSD/JSON validation and Service Provider should be getting a 400 bad request response back with appropriate message as "*Invalid ServiceType*".

3.  *If any* **UnitID** is missing/blank in the request payload, National Grid ESO rejects the same via XSD/JSON validation and Service Provider should be getting a 400 bad request response back. The response will also provide the details of the error. – "*Invalid UnitID*"

4.  If StartDateTime is missing/blank in the request payload, National Grid ESO rejects the same via XSD/JSON validation and Service Provider should be getting a 400 bad request response back. The response will also provide the details of the error. – "*Invalid StartDateTime*"

5.  If EndDateTime is missing in the request payload, National Grid ESO rejects the same via XSD/JSON validation and Service Provider should be getting a 400 bad request response back. The response will also provide the details of the error. – *"Invalid EndDateTime"*

6.  If DateTimeStamp is missing/blank in the request payload, National Grid ESO rejects the same via XSD validation and Service Provider should be getting a 400 bad request response back. The response will also provide the details of the error. "*Invalid DateTimeStamp".*


**National Grid ESO Data Validations rules** (*Communicated to Service Providers via Email and not Service*):

In the event when unavailability is failed due to below validation rules by National Grid ESO, Service Provider would be communicated via email for the further analysis.

1. If **UnitID value differs** to what has been set up in PAS application, National Grid ESO will reject the unavailability with appropriate message.

2. If the absolute **difference between Service Provider DateTimeStamp** and **National Grid ESO s current system time (in UTC)** is greater than "five-minutes", National Grid ESO will rejects the unavailability with FileReason 'AS_Error9'.

3. If UnitID is not mapped to the appropriate ServiceType, National Grid ESO will reject the unavailability with FileReason 'AS_Error2'.

4. If StartDateTime or EndDateTime is in the past, National Grid ESO will reject the unavailability with Validation as "INVALID" and the WindowReason as 'AS_Error4'.

5. If StartDateTime or EndDateTime is outside of Service term (unit end date), National Grid ESO will reject the unavailability with Validation as "INVALID" and the WindowReason as 'AS_Error24'.

6. If there is a repetition / duplicate/overlapping of StartDateTime and EndDateTime across two or more UnAvailabilityWindow arrays in a single file, National Grid ESO will reject the affected unavailable windows with Validation as "INVALID" and the WindowReason as 'AS_Error27'.

7. If UnAvailabilityWindow submitted is after gate closure (1hour before operational start date time), National Grid ESO will reject unavailability rejection for the affected windows with Validation as "INVALID" and the WindowReason as 'AS_Error34'.

8. In the case of any unspecified error, National Grid ESO will reject unavailability with Validation as "INVALID" and the WindowReason as '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 Dispatch/Cease Service

This section provides business logic for the Dispatch / Cease Service. Unit can be dispatched/ceased using the Dispatch/Cease service. VolumeRequested tag is mandatory for dispatch instruction with 0 MW value.

The same DUI is used for both Dispatch and Cease instruction. At any point in time, there will be only one active DUI per Unit ID.

Dispatch instruction will have 'START' and cease instruction will have 'STOP' in the Instruction tag.

A cease instruction will be sent by National Grid ESO only after dispatch instruction is accepted. The next dispatch will be sent only after unit is successfully ceased and available back to dispatch.

When dispatch is accepted by Service Provider, the unit should curtail down to 0 MW and Service Provider must send updated RTM meter reading to National Grid ESO in next RTM request and should send the RTM after every 15secs. This will be used for verification in settlements process.

**Dispatch:**

In case National Grid ESO receives REJETCED or ERROR or no confirmation from Service Provider for Dispatch instruction, Service Provider to ensure those units are marked as unavailable for future dispatches via Real time availability flag sent to National Grid ESO. Those units will be tagged as non-dispatchable and will not be available

for future dispatches by National Grid ESO.

Once the issue is resolved and communication link is re-established, Service Provider to make the units as Available via Real time availability flag sent to National Grid ESO, so the units will be tagged as dispatchable and will be available for Future dispatches.

*Note- if for some reason, Service Provider fails to update the real time availability flag, then in that case National Grid ESO will consider the latest received Realtime availability status of the unit.*

**Cease:**

In case National Grid ESO receives REJETCED or ERROR or no confirmation from Service Provider for Cease instruction, those units will be tagged under Cease failed in National Grid ESO. Service Provider to ensure the units which are failed to cease are marked as Unavailable via Real time availability flag sent to National Grid ESO.

Once connection is restored and communication link is established, Service Provider to update Real Time availability flag as ON, so that the cease failed units will be available back to re-cease at National Grid ESO system.

*Note – if Service Provider fails to update real time availability flag as OFF where Cease has Failed and currently there is loss of communication, National Grid ESO will be able to send the Cease instructions as the latest real time flag of that Unit is found as ON and those units are available to retry the cease instruction.*

*if Service Provider fails to update real time availability flag as ON where Cease has Failed earlier and communication link is restored, National Grid ESO will NOT be able to send the Cease instructions as the real time availability flag of that unit is found as OFF and unit is not available to retry the cease instruction.*

**XSD Rejections from Service Provider:**

1. If **ServiceType is invalid or missing value**, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure.

2. If **Unit ID is missing**, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure.

3. If **DUI is missing**, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure.

4. If **Instruction is different to that of XSD or missing**, National Grid ESO expects Service Provider to throw 500 Internal Server Error as XSD validation failure.

5. If **DateTimeStamp is missing** in the xml, National Grid ESO expects Service Provider to throw 500 Internal ServerError as XSD validation failure.

**Error Code Responses from Service Provider:**

1. **Unit ID is not valid**, National Grid ESO expects Service Provider to send Dispatch / Cease confirmation response with ERROR in the ResponseCode with the associated Errorcode 'DCS_Error1'.

2. If **VolumeRequested is different to 0 MW**, National Grid ESO expects Service Provide to send Dispatch confirmation response with ERROR in the ResponseCode with the associated Errorcode 'DCS_Error2'.

3. If the **absolute difference** between National Grid ESO DateTimeStamp and Service Provider current system time(in UTC) **is greater than 1 min**, National Grid ESO expects Service Provider to send Dispatch / Cease confirmationresponse with ERROR in the ResponseCode with the associated Errorcode 'DCS_Error3'.

4. If **Unit ID is not matching** to that of ServiceType, NG expects Service Provider to send Dispatch / Cease confirmation rejection with the ErrorCode 'DCS_Error4'.

5. If there is an **unspecified error in the Dispatch or Cease message**, National Grid ESO expects DER to send Dispatch / Cease confirmation response with ERROR in the ResponseCode with the associated Errorcode 'DCS_Error99'.

## 3.5 Dispatch / Cease Confirmation Service

This section provides business logic for the Dispatch / Cease Confirmation Service.

Dispatch/Cease instruction confirmation can be sent by Service Provider using Dispatch/Cease Confirmation Service.

**Dispatch**:

If National Grid ESO does not receive an Acknowledgement 200 Ok synchronous response past 60 seconds from the dispatch instruction, it will be considered that Service Provider has not acknowledged the instruction.

In the event when National Grid ESO does not receive synchronous 200 Ok but asynchronous confirmation back for a dispatch instruction from Service Provider, unit will be considered as ACCEPTED/REJECTED by National Grid ESO based on the confirmation response received.

Similarly, if National Grid ESO does not receive an asynchronous confirmation irrespective of 200 Ok response to the dispatch instruction that has been sent by National Grid ESO past 12mins from the dispatch instruction, it will be considered as dispatch IGNORED by National Grid ESO .

In case if the instruction is rejected by UKPN, National Grid ESO expects UKPN to send ResponseCode as REJECTED and ErrorCode as "UKPN_Rejected" in Instruction Confirmation Response.

**Cease**:

If National Grid ESO does not receive an acknowledgement 200 Ok synchronous response past 60 seconds from the cease instruction, it will be assumed that Service Provider has not acknowledged the instruction.

In the event when National Grid ESO does not receive the synchronous 200 Ok but asynchronous confirmation back for a cease instruction from Service Provider, unit will be considered as ACCEPTED/REJECTED by National Grid ESO based on the confirmation response received.

Similarly, if National Grid ESO does not receive an asynchronous confirmation irrespective of 200 Ok response to the cease instruction that has been sent by NATIONAL GRID ESO  past 120 seconds from the cease instruction, it will be considered as cease IGNORED by NATIONAL GRID ESO.

The same DUI should be sent for both Dispatch and Cease instructions. At any point in time, there will be only one active DUI per Unit ID.

**XSD Rejections from National Grid ESO:**

1. If **ServiceType  is missing in the xml**, National Grid ESO Middleware rejects the same via XSD validation Service Provider  should be getting a 500 Internal Server Error response back with appropriate error message.

2. If **Unit ID 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.

3. If **DUI 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.

4. If **Instruction is missing in the xml**, National Grid ESO Middleware rejects the same via XSD validation and Service Provider s h o u l d  be getting a 500 Internal Server Error response back.

5. If **ResponseCode is missing** or is not as per the enumeration list as per web service specification, National Grid ESO Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal ServerError response back.

6. If **DateTimeStamp 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.

**Other Rejections from National Grid ESO :**

1. If Unit ID is not matching to the dispatch/cease xml payload National Grid ESO has sent, National Grid ESO will reject the confirmation with a 400 Bad Request with a message '*Invalid UnitID'* in the response.

2. If Instruction (START or STOP) is not matching to the dispatch/cease xml payload National Grid ESO has sent, National Grid ESO will reject the confirmation with a 400 Bad Request with a message "*Unexpected 'STOP' instruction type received*" when START is sent in dispatch/cease instruction or "*Unexpected 'START' instruction type received*" message when STOP is sent in dispatch/cease instruction'.

3. If ErrorCode is different to that of the list mentioned in the above section, National Grid ESO will reject the confirmation with a 400 Bad Request with a message '*Invalid ErrorCode*' in the response.

4. If the absolute difference between Service Provider DateTimeStamp and National Grid ESO's current system time (in UTC) is greater than 1 min, National Grid ESO will reject the confirmation with a 400 Bad Request with a message '*Invalid DateTimeStamp'* in the response.

5. If **DUI is not matching** to the dispatch/cease xml payload National Grid ESO has sent, National Grid ESO will reject theconfirmation with a 400 Bad Request with a message  '*Invalid DUI*' in the response.

6. If **Dispatch / Cease confirmation is received after defined SLA,** National Grid ESO will reject the confirmation with a 400 Bad Request with a message '*SLA breach*' in the response.

## 3.6   Realtime Metering Service

This section provides business logic for Realtime Metering Service.

National Grid ESO expects Service Provider to send updated meter reading to National Grid ESO so that the unit can be used for further operational purpose. Meter reads submitted should not be beyond unit's Registered MW (Contracted MW) provided during registration.

The only required fields for all MW Dispatch UKPN units are – **ServiceType, UnitID, DateTimeOfMeterReading, MeterReading and DateTimeStamp**, no other fields should be submitted. However, the UnitID should always be prefixed with **'UKPN'.**

National Grid ESO expects at least one meter reading in every 15secs from Service Provider. The RTM value

provided with RDP_NEGATIVE service for all generators exporting should always be the positive, in case if the provided RTM value received is negative, NG ESO will consider the RTM as 0.

One meter read should be provided per Unit. Service Provider to send the latest MeterReading value (in MW), DateTimeOfMeterReading from last 15 secs.

Example: for below meter read data National Grid ESO expects Service Provider to send RTM at 10:00:15 with DateTimeOfMeterReading as 10:00:09 and MeterRead value as 1.22.

| DateTimeOfMeterReading | MeterReading |
|---|---|
| 10:00:05 | 1.2 |
| 10:00:06 | 1.29 |
| 10:00:09 | 1.22 |

1. If National Grid ESO does not receive any RTM in the last 2mins, RTM NACK will be sent with an error code 'RTM_Error1'.

The other exceptions are handled as follows.

**XSD Rejections:**

1. If **ServiceType is invalid** 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.

2. If **UnitID is missing**, National Grid ESO Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back.

3. If **MeterReading is missing**, National Grid ESO Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back.

4. If **DateTimeOfMeterReading is missing**, National Grid ESO Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back.

5. If **DateTimeStamp is missing**, National Grid ESO Middleware rejects the same via XSD validation and Service Provider should be getting a 500 Internal Server Error response back.

**Other Rejections:**

1. If Unit ID is not mapped to the appropriate ServiceType selected, National Grid ESO will reject the RTM with 400 Bad Request with error message '*Unit ID not matching to ServiceType'* in the response.

2. If UnitID value differs to what has been set up in PAS application, National Grid ESO will reject the RTM with a 400 bad request including a message '*Invalid UnitID'* in the response.

3. If ServiceType is not valid, National Grid ESO will reject the RTM with 400 bad request with message as *"Invalid Service Type"* in the response.

4. If the **absolute time difference** between Service Provider's DateTimeStamp and National Grid ESO 's current systemtime (in UTC) is **greater than 1 min**, National Grid ESO will reject the RTM with 400 bad request with a message '*Invalid DateTimeStamp'* in the response.

5. If **DateTimeOfMeterReading** is before or after the Unit activation date, National Grid ESO will reject the RTM

with a 400 Bad request back including a message '*DateTimeOfMeterReading is not within Unit's activation date*' in the response.

6. If **DateTimeStamp** is not at 00:00:00, 00:00:15, 00:00:30 or 00:00:45 in every minute, National Grid ESO will reject the RTM with a 400 Internal Server Error response back including a message '*DateTimeStamp is not in 15 seconds*' in the response.

7. If **DateTimeOfMeterReading** is in future, National Grid ESO will reject the RTM with 400 Bad request back including the appropriate message in the response.

## 3.7   Realtime Metering Negative Acknowledgement Service

A Realtime Metering Negative Acknowledgement (NACK) is a message to communicate that we have not received RTM for the last 2 minutes or there is some issue with the Realtime metering that has been sent and until remedied with correct RTM submissions the contract will be considered as non-dispatchable.

**XSD Rejections from Service Providers:**

1. If ServiceType is not from the list 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 ESO expects Service Provider to send a non 200 http status code back with a 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 is not form the list as mentioned in the previous section, National Grid ESO 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 XSDvalidation failure.

7. If the absolute difference between National ESO 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'.*

## 3.8  Potential Dispatch Order Service:

A Potential Dispatch Order is a service to send Day ahead dispatch merit order for available UKPN units.  Every day at 16:45 BST hours DA dispatch merit order of UKPN DER units would be sent to UKPN via REST API as per V3 web specification section 3.11.

In case of any exception (any system is down or unavailable) if National Grid ESO fails to send the data, there will be a provision to resend this data once the systems are up and running.

In the event when DA DER price data is not received due any technical issues at National Grid ESO end before scheduled time 16:45 BST at ASDP, the DA Dispatch merit order data to UKPN could be blank. NATIONAL GRID

ESO will be re-posting the updated data upon receiving the DA DER price details at ASDP end once the issue is resolved.

DER units for which DA DER Price is not received due to any data validation, same DER unit will not be considered to send in Dispatch merit order data.

NATIONAL GRID ESO   would be sending below details as a part of the Dispatch merit order data: **InterfaceName as "UKPN-DISP-ORDER",  GSPName,  ESOMWD_DERID,  PricedOrderDispatch,  MaxRegisteredCapacity and DateTimeStamp.**

This is synchronous service and hence National Grid ESO expects to receive 200 Ok synchronously from UKPN.

**XSD/JSON Rejections from Service Providers:**

1. If **InterfaceName** is missing or blank or other than **UKPN-DISP-ORDER,** National Grid ESO expects  Service Provider to throw 400 bad request error Error as JSON validation failure with message a *"InterfaceName is missing/blank/invalid."*

2. If **GSPName** is missing or blank, National Grid ESO expects Service Provider to throw 400 bad request error as JSON validation failure with message a *"GSPName is missing/blank."*

3. If **ESOMWD_DERID** is missing or blank, National Grid ESO expects Service Provider to throw 400 bad request error as JSON validation failure with message as "***ESOMWD_DERID** is missing/blank."*

4. If **MaxRegisteredCapacity** is missing or null, National Grid ESO expects Service Provider to throw 400 bad request error as JSON validation failure with message as *"**MaxRegisteredCapacity** is missing/blank".*

5. If **DateTimeStamp** is missing or null, National Grid expects Service Provider to throw 400 bad request error as JSON validation failure with message as *"**DateTimeStamp** is missing/blank".*

6. If **ESOMWD_DERID** is not valid, National Grid ESO expects Service Provider to send a 400 bad request back with a message  *'Invalid UnitID' (if multiple units, it should be comma separated in response)*

7. If **GSPName** is not valid, National Grid ESO expects Service Provider to send a 400 bad request back with a message  *'Invalid GSPName' (if multiple GSPNames, it should be comma separated in response).*

In the event when NATIONAL GRID ESO receives above errors, data would be resent upon analyzing and resolving the issue (by manual process) between Service Provider and National Grid ESO.


## 3.9   Realtime Availability Service:

This section provides business logic for Realtime Availability Service for UKPN.

National Grid ESO expects Service Provider to send updated Unit's Realtime availability (RTAStatus flag) status to National Grid ESO so that the unit can be made dispatchable or non-dispatchable accordingly. The Realtime availability (RTAStatus) flag should be sent as ON/OFF only when there is change in unit's real time availability.

The only required fields for all MW Dispatch units are – **ServiceType, UnitID, RTAStatus and DateTimeStamp.**

The other exceptions are handled as follows.

**XSD/JSON Rejections:**

1. If **ServiceType is missing value or null or other than RDP_NEGATIVE**, National Grid ESO Middleware rejects

the same via XSD/JSON validation and Service Provider should be getting a 400 bad request error response back with appropriate error message "Invalid ServiceType".

2. If **UnitID is missing or null**, National Grid ESO Middleware rejects the same via XSD/JSON validation and Service Provider should be getting a 400 bad request error response back with appropriate message as "Missing UnitId".

3. If **RTAStatus is missing or other than ON/OFF**, National Grid ESO Middleware rejects the same via XSD/JSON validation and Service Provider should be getting a 400 bad request response back with appropriate error message with appropriate message as "Invalid RTAStatus".

4. If **DateTimeStamp is missing or null**, National Grid ESO Middleware rejects the same via XSD/JSON validation and Service Provider should be getting a 400 bad request response back with appropriate error message with appropriate message as "Invalid DateTimeStamp".

**Other Rejections:**

1. If UnitID is not mapped to the appropriate ServiceType selected or UnitID value differs to what has been set up in ASDP application, National Grid ESO will reject the Realtime availability with error message "Invalid UnitID".

2. If the **absolute time difference** between Service Provider's DateTimeStamp and National Grid ESO 's current systemtime (in UTC) is **greater than 1 min**, National Grid ESO will reject the Realtime availability with error in the response.

# 4 Security rules and exceptions

As per latest Web Service Specifications Version3 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 (will be only 500 error code when sending backend error exception and for XSD validation failure). It is expected for SPs to send the same to NG.

National Grid ESO will secure its REST webservices as mentioned below and would expect SPs to do the same.

- Transport Layer security using https/SSL/TLS.
- The data exchange between Service Consumer/Provider and MuleSoft will be secured using OAuth authentication.
- The data exchange between MuleSoft and downstream application such as ASDP/RDT will be secured using OAuth authentication.
- IP Whitelisting is required to enable communication between Service Provider and NG ESO.

Please refer section 4.2 – Security Messages from Web Specification V3 document for more details.

# 5 Appendix

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