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**ASDP Service Provider –  
Web Services Specification  
Version 3\_v2.1**

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## Document Revision

## Change History

| DOC VERSION | DATE       | CHANGES   |
|-------------|------------|---|
| 1.0         | 13/01/2022 | ASDP Version 3 Web Services for ASR Frequency Response (DM/DR/DC)   |
| 1.1         | 03/03/2022 | Corrected AUI example data  |
| 2.0         | 11/07/2022 | Update on Nomination Request & Response, Heartbeat and PN Services<br><b>WindowConfirmation</b> Tag Updated from Confirmation<br><b>WindowReason</b> Tag Updated from Reason<br><b>FileConfirmation</b> New Tag Added. The PP<br><b>StartDateTime</b> Tag is made <b>Mandatory</b> in Availability Confirmation Service |
| 2.1         | 26/09/2022 | Updated PN Confirmation SLA.<br>Made PNDetails Tag as Optional  |

| NEXT UPDATE | VERSION | PLANNED CONTENTS |
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## 1. Introduction

The PAS (Platform for 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. The platform is being rolled out to include Frequency Response, Reserve and other ancillary services. To implement this National Grid ESO is using web services to communicate with Ancillary Service Providers. To achieve the communication between National Grid ESO and Service Providers, systems from both sides should accept common data interfaces. This document provides the technical specifications required to establish communication between PAS and Service Providers.

### 1.1. Scope

This document describes the *version 3* of web services to be implemented from both National Grid ESO (PAS) system and Service Providers' systems.

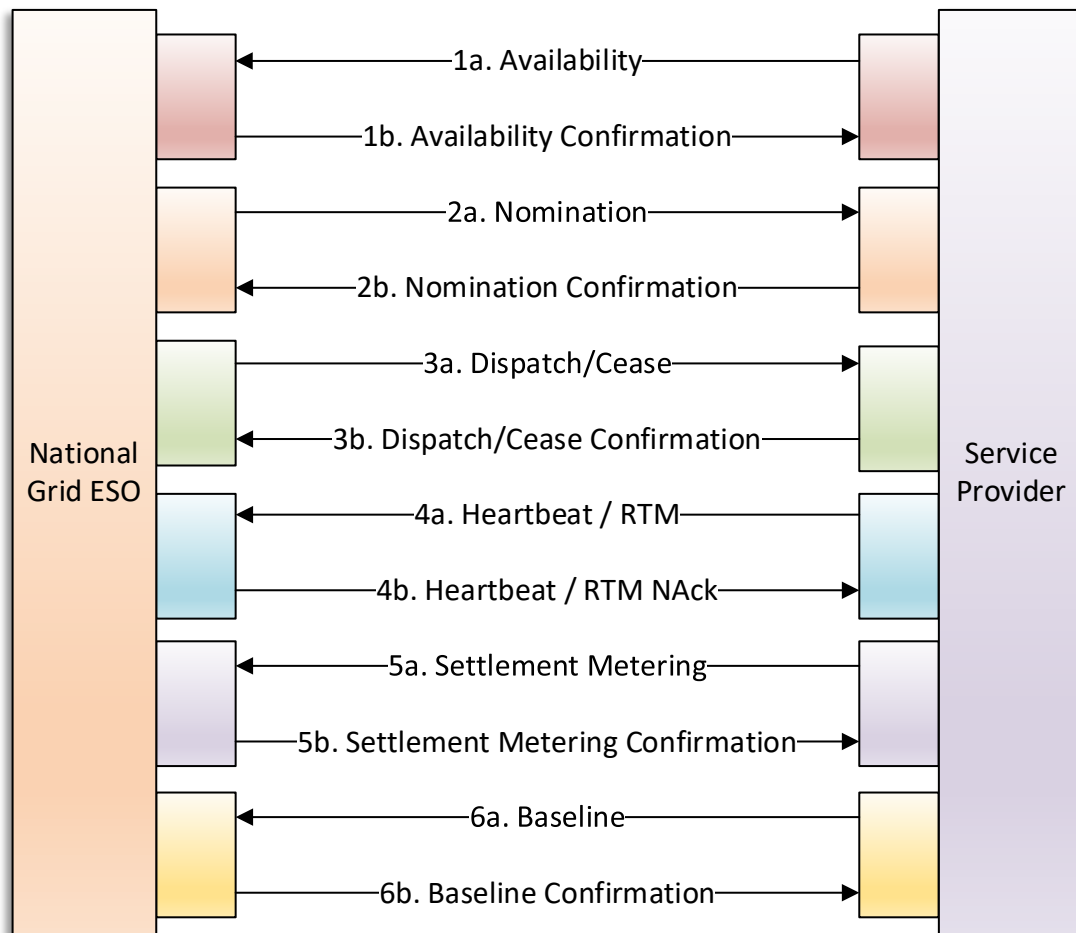
It also describes the technical specifications including WSDLs (Web Services Description Language) and XSDs (XML Schema Definition), methods and parameters to be used to invoke the WSDLs, connection patterns and protocols, security measures.

The validations and exceptions are particular to each ancillary service and hence these will be published as a separate 'Business Logic Document' for each ancillary service.

## 2. Services

Both National Grid ESO and Service Providers should expose the web services to each other for effective communication.

The fields mentioned in this document are categorized into mandatory and optional in each web service. The optional fields are not expected to be submitted unless required for that ancillary service which is specified in Business Logic Document. The sample payloads for the web services are mentioned in the Appendix.



The below matrix specifies which web services are required for each ancillary service.

Table 1 - Web Services by Service Type

| Web Service  | Dynamic Moderation (DMH/DML) | Dynamic Regulation (DRH/DRL) | Dynamic Containment (DCH/DCL) | MW Dispatch (RDP_NEGATIVE) |
|--|------------------------------|------------------------------|-------------------------------|----------------------------|
| Availability   | ✓                            | ✓                            | ✓                             | ✓                          |
| Availability Confirmation                              | ✓                            | ✓                            | ✓                             | ✓                          |
| Nomination (Disarm / Rearm)                            | ✓                            | ✓                            | ✓                             |                            |
| Nomination (Disarm / Rearm) Confirmation               | ✓                            | ✓                            | ✓                             |                            |
| Dispatch / Cease Instruction                           |                              |                              |                               | ✓                          |
| Dispatch / Cease Confirmation                          |                              |                              |                               | ✓                          |
| Heartbeat / RTM (Real-Time Metering)                   | ✓                            | ✓                            | ✓                             | ✓                          |
| Heartbeat / Realtime Metering Negative Acknowledgement | ✓                            | ✓                            | ✓                             | ✓                          |
| Physical Notification                                  | ✓                            | ✓                            | ✓                             |                            |
| Physical Notification Confirmation                     | ✓                            | ✓                            | ✓                             |                            |

**Description of Service**

| Sl. No. | Service                   | Service Description  | Implemented by    | Consumed by       | Applicable Ancillary Service               |
|---------|---------------------------|--|-------------------|-------------------|--|
| 1a      | Availability              | Web service for National Grid ESO to receive availability data from Service Providers. This would include declarations and redeclarations. | Service Provider  | National Grid ESO | DMH, DML, DRH, DRL, DCH, DCL, RDP_NEGATIVE |
| 1b      | Availability Confirmation | Web service for Service Providers to receive an Availability Confirmation from National Grid ESO post                                      | National Grid ESO | Service Provider  | DMH, DML, DRH, DRL, DCH, DCL, RDP_NEGATIVE |

|    |  |  |                   |                   |  |
|----|--|--|-------------------|-------------------|--|
|    |  | data validation of availability payload.   |                   |                   |  |
| 2a | Nomination   | Web service for Service Providers to receive the Nomination Disarm / Rearm Instruction from National Grid ESO          | National Grid ESO | Service Provider  | DMH, DML, DRH, DRL, DCH, DCL               |
| 2b | Nomination Confirmation                                | Web service for National Grid ESO to receive the Nomination Confirmation from Service Providers                        | Service Provider  | National Grid ESO | DMH, DML, DRH, DRL, DCH, DCL               |
| 3a | Dispatch / Cease Instruction                           | Web service for Service Providers to receive the Dispatch or Cease Instruction from National Grid ESO                  | National Grid ESO | Service Provider  | RDP_NEGATIVE                               |
| 3b | Dispatch / Cease Confirmation                          | Web service for National Grid ESO to receive the Confirmation of Dispatch or Cease Instruction from Service Providers  | Service Provider  | National Grid ESO | RDP_NEGATIVE                               |
| 4a | Heartbeat / Real-Time Metering (RTM)                   | Web service for National Grid ESO to receive Real-Time Metering data from Service Providers                            | Service Provider  | National Grid ESO | DMH, DML, DRH, DRL, DCH, DCL, RDP_NEGATIVE |
| 4b | Heartbeat / Realtime Metering Negative Acknowledgement | Web service for Service Providers to receive Non-Acknowledgement for the Realtime Metering data from National Grid ESO | National Grid ESO | Service Provider  | DMH, DML, DRH, DRL, DCH, DCL, RDP_NEGATIVE |
| 5a | Physical Notification Service                          | Web service for National Grid ESO to receive PN MWs for a Unit from Service Providers                                  | Service Provider  | National Grid ESO | DMH, DML, DRH, DRL, DCH, DCL               |
| 5b | Physical Notification Confirmation                     | Web service for Service Providers to receive the Physical Notification Confirmation from National Grid ESO             | National Grid ESO | Service Provider  | DMH, DML, DRH, DRL, DCH, DCL               |



### 3. Web Services Specification

This document provides details about the version 3 set of Web Services for the PAS system. Version 3 is for the new set of Frequency Response products introduced to the market by National Grid ESO. National Grid ESO will provide details of when Service Providers can be onboarded in the appropriate communication.

It is expected that both National Grid ESO and Service Providers develop URI client based (**?wsdl based**) **SOAP 1.1** Web Services rather than file based (.wsdl based).

**Datetime** fields for all web services below should be in **UTC standard** unless specified explicitly.

It is recommended that Service Providers enable logs to capture any http errors and the appropriate messages that come along with it synchronously.

**Note:** The Service Providers who are already using version 1 or version 2 set of web services may need not change to version 3 for those ancillary services. The PAS system will be compatible with all the set of versions.

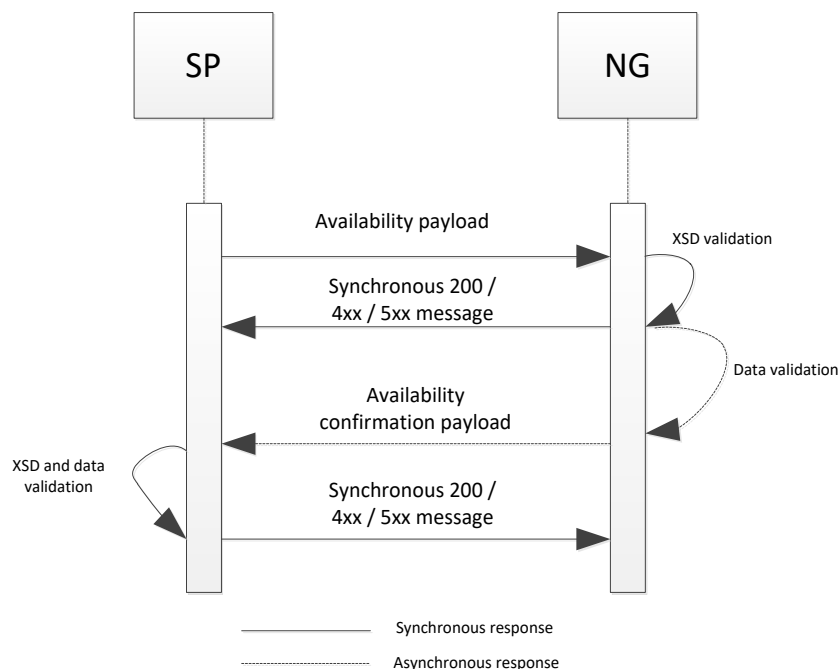
#### 3.1. Availability Service v3

This service will be implemented by National Grid ESO to receive the availability data submissions from Service Providers. The specifications below will be followed by National Grid ESO to implement the service.

**Owner:** National Grid ESO

**Request:** Below are the service parameters, data types, size, formats and lists.

**Service Type:** This is synchronous service which will send 200 ok synchronously after the data has reached the end point successfully and all XSD validations have passed. On XSD validation failures, a 4xx or 5xx error message is synchronously sent back by National Grid ESO. On any data validation failures, the error codes / messages are communicated asynchronously using Availability Confirmation web service by National Grid ESO.



### 3.1.1. Availability Service Inbound

Frequency Response Ancillary Services (Dynamic Moderation (High/Low), Dynamic Containment (High/Low) and Dynamic Regulation (High/Low)) can submit the availabilities using the OfferBid array as mentioned below for a particular Availability Window or a group of Windows as required.

MW Dispatch Services (RDP (Positive/Negative)) can submit availabilities using the OfferBid arrays as mentioned below for a particular AvailabilityWindow or a group of Windows as required.

| Name               | Description  | Data type | Size/Format/<br>List   | Mandatory<br>/ Optional | Constraint<br>/ Notes  |
|--------------------|--|-----------|--|-------------------------|--|
| ServiceType        | Type of Service                                    | String    | 25 Characters<br><br>For example:<br>DMH/DML<br><br>DCH/DCL<br><br>DRH/DRL<br><br>RDP_POSITIVE<br><br>RDP_NEGATIVE | Mandatory               | Service Types from the list only should be populated in this filed   |
| UnitID             | Contract Identifier                                | String    | 20 Characters  | Mandatory               | As per the framework agreement   |
| AUI                | Availability Unique Identifier - ID of the message | String    | 20 Characters  | Optional                | Custom generated ID  |
| AvailabilityWindow | NA   | NA        | NA   | Mandatory               | Start of AvailabilityWindow array  |
| StartDateTime      | Start date and time for Availability               | Datetime  | YYYY-MM-DDThh:mm:ssTZD<br><br>e.g. 2021-07-16T19:20:30Z  | Mandatory               | The start time should match the contract window start time. Time should be in UTC standard with Time Zone Designator (Z) |

| Name                    | Description                        | Data type  | Size/Format/List                                    | Mandatory / Optional | Constraint / Notes   |
|-------------------------|------------------------------------|------------|---|----------------------|--|
| EndTime                 | End date and time for Availability | Datetime   | YYYY-MM-DDThh:mm:ssTZD<br>e.g. 2021-07-16T19:20:30Z | Mandatory            | The end time should match the contract window end time. Time should be in UTC standard with Time Zone Designator (Z) |
| OfferBid                | NA                                 | NA         | NA  | Optional             | Start of OfferBid array  |
| OfferBid_Number         | Number                             | Integer    | 1<br>e.g. 999 or -999                               | Optional             | Offer Bid number   |
| UtilisationPrice        | Price in £/MWh                     | Numeric    | 5.2<br>e.g. 12345.12                                | Optional             | Utilisation price  |
| BreakPoint              | MW                                 | Numeric    | 5.6<br>e.g. 12345.123456                            | Optional             | The MW value to be submitted   |
| BreakPoint_Max          | MW                                 | Numeric    | 5.6<br>e.g. 12345.123456                            | Optional             | Max MW value   |
| AvailabilityPrice       | Price in £/MWh                     | Numeric    | 5.2<br>e.g. 12345.12                                | Optional             | Availability price   |
| OfferBid                | NA                                 | NA         | NA  | Optional             | End of OfferBid array  |
| UtilisationPercent_Lead | Lead Utilisation Percentage        | Percentage | 3.2   | Optional             | Lead Percentage  |
| UtilisationPercent_Lag  | Lag Utilisation Percentage         | Percentage | 3.2   | Optional             | Lag Percentage   |
| Band                    | NA                                 | NA         | NA  | Optional             | Start of Band array  |
| BandID                  | Band Identifier                    | Integer    | 3   | Optional             | Band Number  |

| Name               | Description  | Data type   | Size/Format/List                                    | Mandatory / Optional | Constraint / Notes  |
|--------------------|--|-------------|---|----------------------|---|
| LeadLagIndicator   | To indicate if this band belongs to Lead or Lag                          | Enumeration | LEAD<br>LAG   | Optional             | Lead or Lag   |
| Q                  | MVAr   | Numeric     | 5.6   | Optional             | Q value   |
| Q_Max              | MVAr   | Numeric     | 5.6   | Optional             | Q Max value   |
| AssociatedL        | MVAr   | Numeric     | 5.6   | Optional             | Associated Lead/Lag value   |
| AvailabilityCost   | Cost in £  | Numeric     | 5.2<br>e.g. 12345.12                                | Optional             | Availability cost   |
| UtilisationCost    | Cost in £  | Numeric     | 5.2<br>e.g. 12345.12                                | Optional             | Utilisation Cost  |
| MaxUtilisationCost | Cost in £  | Numeric     | 5.2<br>e.g. 12345.12                                | Optional             | Maximum Utilisation cost  |
| Band               | NA   | NA          | NA  | Optional             | End of Band array   |
| AvailabilityWindow | NA   | NA          | NA  | Mandatory            | End of AvailabilityWindow array   |
| GateClosure        | To indicate if this is pre or post gate closure submission               | Enumeration | PRE<br>POST   | Optional             | PRE to indicate pre gate closure submission and POST to indicate post gate closure submission |
| DateTimeStamp      | Date and time when the web service payload was sent to National Grid ESO | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>e.g. 2021-07-16T19:20:30Z | Mandatory            | Time should be in UTC standard with Time Zone Designator (Z)                                  |

**Guidelines:**

1. Service Providers should invoke the Availability webservice to submit any declarations or redeclarations for all Ancillary Services.
2. Service Providers can send availabilities for multiple windows using a single xml, multiple OfferBid arrays in a single AvailabilityWindow where applicable.
3. Service Providers would invoke the Webservice as per the WSDL url: [https://test.pas.nationalgrid.com/services/V3\\_Sandbox\\_ConsumeAvailabilityService?wsdl](https://test.pas.nationalgrid.com/services/V3_Sandbox_ConsumeAvailabilityService?wsdl) and sample payloads in Appendix 1A.
4. National Grid ESO will Accept/Reject the availability (through Availability Confirmation web service 3.2) for a specific availability window as specified in business logic document
5. AUI should have 15-18 characters in total with the following algorithm to make it unique to 1 in million times. This field is used for traceability purposes. See example payloads in Appendix for reference.
  - a. First 3 characters will have 'AUI'
  - b. Next 2 characters will be random lowercase alphabets from a-z
  - c. Next characters will be a random number from 1 to 9999
  - d. Next 3 characters will be random uppercase alphabets between A-Z
  - e. The last 6 characters will be MMHHdd (where MM is month e.g. 08; HH is hours e.g. 16; dd is date e.g. 28)  
So, an example AUI will be 'AUIxq34YMU081816'

### 3.2. Availability Confirmation Service v3

This service will be implemented by Service Provider to receive the confirmation of data validation of Availability Declaration / Redeclaration against the contract data. The below specifications will be followed by Service Provider to implement the service.

**Owner:** Service Provider

**Service Type:** This is asynchronous to Availability web service and synchronous on its own i.e. Service Provider should send 200 ok synchronously after the availability confirmation data has been received and validated by Service Provider successfully. In the case of XSD or data validation failure, National Grid ESO expects Service Provider to send synchronous 4xx or 5xx error message back. The pattern diagram is represented in section 3.1.

**Request:** Below are the service parameters, data types, size, formats etc.

**SLA:** Within 5 minutes of receiving the Availability payload, National Grid ESO will send the Availability confirmation payload

#### 3.2.1. Availability Confirmation Service Outbound

| Name        | Description     | Data type | Size/Format/Li<br>st                        | Mandatory<br>/ Optional | Constraint /<br>Notes                      |
|-------------|-----------------|-----------|---|-------------------------|--|
| ServiceType | Type of Service | String    | 25 Characters<br><br>DMH/DML<br><br>DCH/DCL | Mandatory               | Service Types from the list only should be |

|                    |  |             |   |           |  |
|--------------------|--|-------------|---|-----------|--|
|                    |  |             | DRH/DRL<br>RDP_POSITIVE<br>RDP_NEGATIVE             |           | populated in this filed                                      |
| UnitID             | Contract Identifier  | String      | 20 Characters                                       | Mandatory |  |
| AUI                | Availability Unique Identifier - ID of the Availability web service message        | String      | 20 Characters                                       | Optional  |  |
| AvailabilityWindow | NA   | NA          | NA  | Optional  | Start of AvailabilityWindow                                  |
| StartDateTime      | Start date and time for Availability   | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>e.g. 2021-07-16T19:20:30Z | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |
| EndDateTime        | End date and time for Availability   | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>e.g. 2021-07-16T19:20:30Z | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |
| Validation         | To indicate if the data submitted for this availability window is valid or invalid | Enumeration | VALID<br>INVALID                                    | Optional  | Validation message   |
| WindowReason       | Reason for rejecting the availability data in a particular AvailabilityWindow      | String      | 200 Characters                                      | Optional  | Error codes are mentioned in business logic document         |
| AvailabilityWindow | NA   | NA          | NA  | Optional  | End of AvailabilityWindow                                    |
| Confirmation       | Message to inform if the xml payload file is accepted                              | Enumeration | ACCEPTED<br>REJECTED                                | Mandatory | Confirmation message   |
| FileReason         | Reason for rejecting the availability file over                                    | String      | 200 Characters                                      | Optional  | Error codes are mentioned in                                 |

|               |  |          |   |           |  |
|---------------|--|----------|---|-----------|--|
|               | and above the fields within the AvailabilityWindow arrays        |          |   |           | business logic document                                      |
| DateTimeStamp | Date and time when the web service was sent to National Grid ESO | Datetime | YYYY-MM-DDThh:mm:ssTZD<br>e.g. 2021-07-16T19:20:30Z | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |

**Guidelines:**

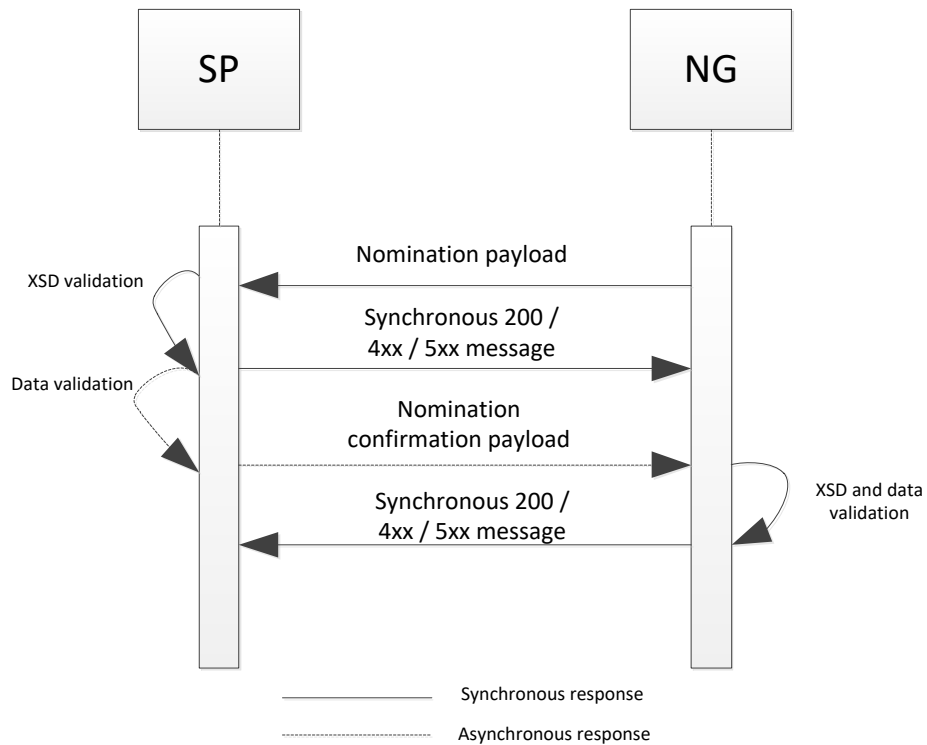
1. National Grid ESO would invoke this service to confirm the validation of the availability data received from Service Provider.
2. National Grid ESO will send a single confirmation xml even when Service Providers send multiple windows using a single Availability Service xml.
3. Validation and Confirmation is segregated in this version and relevant reasons made available at the appropriate place which are detailed in business logic document.
4. Service Provider would implement the Webservice as per the WSDL url: [https://test.pas.nationalgrid.com/services/V3\\_SP\\_Sandbox\\_ConsumeAvailabilityConfPS?wsdl](https://test.pas.nationalgrid.com/services/V3_SP_Sandbox_ConsumeAvailabilityConfPS?wsdl) and the sample payloads will be sent by National Grid ESO are available in Appendix 1B.

### 3.3. Availability Nomination Service v3

This service will be implemented by Service Provider to receive the business acceptance/nomination of the unit to arm and disarm. The below specifications will be followed by Service Provider to implement the service.

**Owner:** Service Provider

**Service Type:** Based on different ancillary service type, this becomes asynchronous to Availability web service and synchronous on its own (e.g. DM H/L, DC H/L and DR H/L). National Grid ESO will send nominations and expect to receive synchronous 200 ok response if XSD validation has passed. On XSD validation failures, it is expected that Service Provider sends synchronous 4xx or 5xx error message to National Grid ESO. Any data validations have to be captured as error codes in the next nomination confirmation web service as per business logic document.



**Request:** Below are the service parameters, data types, size, formats etc.

### 3.3.1. Availability Nomination Outbound

**Context:**

For Frequency Response services (DM H/L, DC H/L and DR H/L), to disarm a unit, National Grid ESO will send the Nomination as DISARM and to arm a unit, the instruction will have nomination as ARM.

National Grid ESO can send a single nomination request per unit.

| Name        | Description  | Data type | Size/Format/List  | Mandatory / Optional | Constraint / Notes   |
|-------------|--|-----------|---|----------------------|--|
| ServiceType | Type of Service  | String    | 25 Characters<br>DMH/DML<br>DCH/DCL<br>DRH/DRL<br>PP_REACTIVE | Mandatory            |  |
| UnitID      | Contract Identifier  | String    | 20 Characters   | Mandatory            |  |
| AUI         | Availability Unique Identifier used to refer to the appropriate Availability message | String    | 20 Characters   | Optional             | Only to be used by certain ancillary services. See example payloads in |



|                    |   |             |  |           |  |
|--------------------|---|-------------|--|-----------|--|
|                    | submitted by Service Provider                   |             |  |           | Appendix for reference                                       |
| AvailabilityWindow | Array Starts                                    | NA          | NA   | Mandatory | Start of AvailabilityWindow                                  |
| NUI                | Nomination Unique Identifier                    | String      | 20 Characters  | Mandatory |  |
| StartDateTime      | Start date and time for sending Nomination      | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z      | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |
| EndDateTime        | End date and time for sending Nomination        | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z      | Optional  | Time should be in UTC standard with Time Zone Designator (Z) |
| BandID             | Band Identifier                                 | Integer     | 3  | Optional  |  |
| LeadLagIndicator   | To indicate if this band belongs to Lead or Lag | Enumeration | LEAD<br>LAG  | Optional  |  |
| Q                  | MVAr  | Numeric     | 5.6<br>e.g. 12345.123456                               | Optional  |  |
| AssociatedL        | MVAr  | Numeric     | 5.6<br>e.g. 12345.123456                               | Optional  |  |
| AvailabilityCost   | £   | Numeric     | 5.2<br>e.g. 12345.12                                   | Optional  |  |
| MaxUtilisationCost | £   | Numeric     | 5.2<br>e.g. 12345.12                                   | Optional  |  |
| Nomination         | Message to Arm or Disarm the unit               | String      | 25 Characters<br>ARM, DISARM,<br>ACCEPTED,<br>REJECTED | Mandatory |  |

|                    |  |          |   |           |  |
|--------------------|--|----------|---|-----------|--|
| WindowReason       | Reason for rejecting the tender                                  | String   | 200 Characters                                    | Optional  | Business Reason  |
| AvailabilityWindow | NA   | NA       | NA  |           | End of AvailabilityWindow                                    |
| DateTimeStamp      | Date and time when the web service was sent to National Grid ESO | Datetime | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |

**Guidelines:**

1. Nomination web services will be used differently for different service types.
2. Service Provider would implement the Webservice as per the WSDL url: [https://test.pas.nationalgrid.com/services/V3\\_SP\\_Sandbox\\_ConsumeAvailabilityNominationPS?wsdl](https://test.pas.nationalgrid.com/services/V3_SP_Sandbox_ConsumeAvailabilityNominationPS?wsdl) and the sample payloads which will be sent by National Grid ESO in Appendix 1C.
3. Service Provider is expected to Accept/Reject the nomination (through Nomination Confirmation web service 3.4) as specified in business logic document.

### 3.4. Nomination Confirmation Service v3

This service will be implemented by National Grid ESO to receive the availability nomination confirmation from Service Providers of their acceptance / rejection of nomination sent by National Grid ESO. The below specifications will be followed by National Grid ESO to implement the service.

**Owner:** National Grid ESO

**Service Type:** This is asynchronous service to Availability Nomination and synchronous on its own i.e. National Grid ESO will send 200 ok synchronously after the data has been received and validated successfully. In the case of XSD or data validation, National Grid ESO will send synchronous 4xx or 5xx error message back.

**Request:** Below are the service parameters, data types, size, formats etc.

**SLA:** Within 2 minutes of receiving nomination payload, Service Provider should send the availability nomination confirmation payload

#### 3.4.1. Nomination Confirmation Inbound

| Name        | Description     | Data type | Size/Format/List | Mandatory / Optional | Constraint / Notes |
|-------------|-----------------|-----------|------------------|----------------------|--------------------|
| ServiceType | Type of Service | String    | 25 Characters    | Mandatory            |                    |

|                    |  |             |  |           |  |
|--------------------|--|-------------|--|-----------|--|
|                    |  |             | DMH/DML<br>DCH/DCL<br>DRH/DRL<br>RDP_POSITIVE<br>RDP_NEGATIVE<br>PP_REACTIVE |           |  |
| UnitID             | Contract Identifier  | String      | 20 Characters  | Mandatory |  |
| AUI                | Availability Unique Identifier used to refer to the appropriate Availability message submitted by Service Provider | String      | 20 Characters  | Optional  |  |
| AvailabilityWindow | Array Starts   | NA          | NA   | Mandatory | Start of Availability Window                                 |
| NUI                | Nomination Unique Identifier   | String      | 20 Characters  | Mandatory |  |
| StartDateTime      | Start date and time for DISARM / RE-ARM Instruction  | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z                            | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |
| EndDateTime        | End Date time  | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z                            | Optional  | Time should be in UTC standard with Time Zone Designator (Z) |
| WindowConfirmation | To indicate if the data submitted for this availability window is ACCEPTED or REJECTED                             | Enumeration | ACCEPTED<br>REJECTED   | Mandatory |  |
| WindowReason       | Reason for rejecting the availability data   | String      | 200 Characters   | Optional  | Error codes are  |

|                    |   |             |   |           |  |
|--------------------|---|-------------|---|-----------|--|
|                    | in a particular AvailabilityWindow  |             |   |           | mentioned in business logic document                         |
| AvailabilityWindow | NA  | NA          | NA  |           | End of AvailabilityWindow                                    |
| FileConfirmation   | Message to inform if the xml payload file is accepted and File level validation pass                      | Enumeration | ACCEPTED<br>REJECTED                              | Mandatory |  |
| FileReason         | Reason for rejecting the availability file over and above the fields within the AvailabilityWindow arrays | String      | 200 Characters                                    | Optional  | Error codes are mentioned in business logic document         |
| DateTimeStamp      | Date and time when the web service was sent to National Grid ESO  | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |

**Guidelines:**

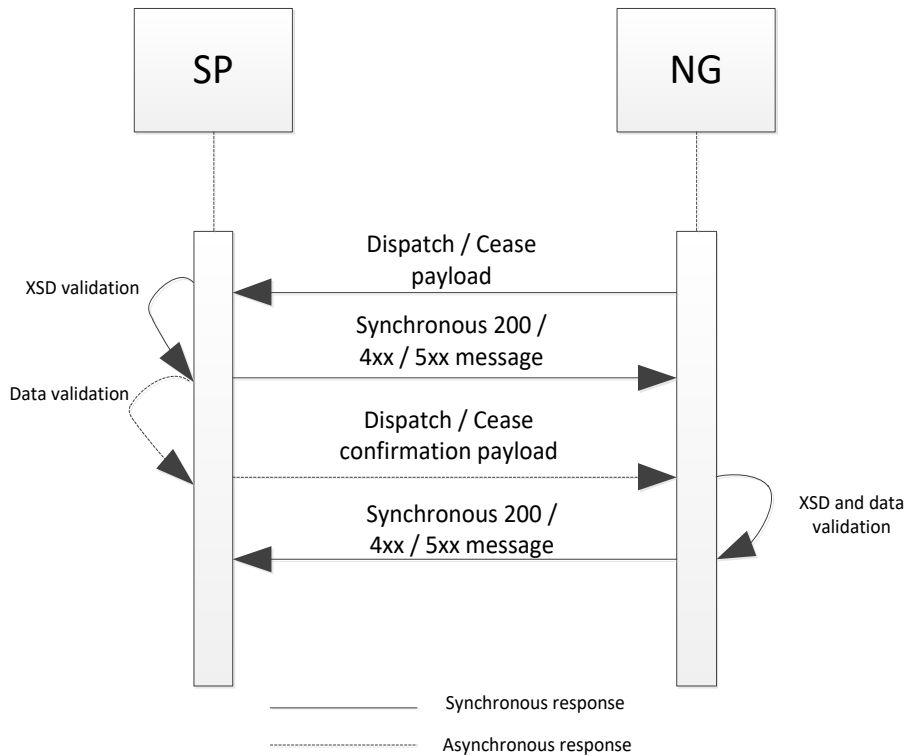
1. For DM/DR/DC, Service Provider should send the confirmation to National Grid. Confirmation for DISARM / ARM should have StartDateTime.
2. Data validation for nomination should happen at file and window level and the appropriate reason should be provided as detailed in business logic document.
3. Validation and Confirmation is segregated in this version and relevant reasons made available at the appropriate place which are detailed in Business Logic Document.
4. Service Providers would invoke the Webservice as per the wsdl url: [https://test.pas.nationalgrid.com/services/V3\\_Sandbox\\_ConsumeAvailNomConfService?wsdl](https://test.pas.nationalgrid.com/services/V3_Sandbox_ConsumeAvailNomConfService?wsdl) and sample payloads in Appendix 2D.

**3.5. Dispatch/Cease Service v3**

This service should be implemented by Service Providers to receive the Dispatch and Cease instructions from National Grid ESO. Below are the specifications to be followed by Service Providers to implement the service.

**Owner:** Service Provider

**Service Type:** This is synchronous service which will send 200 ok synchronously after the data has reached the end point successfully and all XSD validations have passed. On XSD validation failures, a 4xx or 5xx error message is synchronously sent back. On any data validation failures, the error codes / messages are communicated asynchronously using Dispatch / Cease Confirmation web service.



**Request:** Below are the service parameters, data types, size, formats and lists.

### 3.5.1. Dispatch/Cease Instruction Outbound

| Name             | Description                                       | Data type | Size/Format/List                              | Mandatory / Optional | Constraint / Notes                   |
|------------------|---|-----------|---|----------------------|--------------------------------------|
| ServiceType      | Type of Service                                   | String    | 25 Characters<br>RDP_POSITIVE<br>RDP_NEGATIVE | Mandatory            |                                      |
| UnitID           | Contract Identifier                               | String    | 20 Characters                                 | Mandatory            |                                      |
| DUI              | Dispatch Unique Identifier                        | String    | 20 Characters                                 | Mandatory            |                                      |
| VolumeRequest ed | In MW<br>This could be positive or negative value | Numeric   | 5.6<br>e.g. 12345.123456                      | Optional             | Non-Mandatory for cease instructions |

|                    |   |             |   |           |  |
|--------------------|---|-------------|---|-----------|--|
| VTarget            | kV (kilo Volts)   | Numeric     | 5.4<br>e.g. 12345.1234                            | Optional  |  |
| DroopPercentage    | Droop Percentage  | Percentage  | 3.2   | Optional  |  |
| DeadBandPercentage | Dead Band Percentage which includes both up and down              | Percentage  | 3.2   | Optional  | If the Deadband up is 5% and Deadband down is 5%, the value in this field should be 10% (i.e. 10 in value) |
| ScheduledDateTime  | Date time of scheduled Dispatch / Cease (i.e. START / STOP)       | Date time   | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Optional  | Time should be in UTC standard with Time Zone Designator (Z)   |
| Instruction        | Dispatch (START) or Cease (STOP) instruction                      | Enumeration | START<br>STOP                                     | Mandatory |  |
| DateTimeStamp      | Date and time when the instruction is sent from National Grid ESO | Date time   | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory | Time should be in UTC standard with Time Zone Designator (Z)   |

**Guidelines:**

1. The request having instruction as START will be a Dispatch instruction and should have value in Volume Requested tag (RDP\_POSITIVE and RDP\_NEGATIVE).
2. The request having instruction as STOP will be a Cease instruction.
3. National Grid ESO would call this service to send instructions (Dispatch/Cease) to Service Providers.
4. Service Providers should implement the Webservice as per the WSDL: [https://test.pas.nationalgrid.com/services/V3\\_SP\\_Sandbox\\_ConsumeInstructionServicePS?wsdl](https://test.pas.nationalgrid.com/services/V3_SP_Sandbox_ConsumeInstructionServicePS?wsdl) and the sample payloads which will be sent by National Grid ESO as per Appendix 1E.

5. The VolumeRequested field is required for MW ancillary services. If it is positive then this can be considered as a dispatch notification to increase generation or reduce demand, if the number is negative this can be considered as a dispatch notification to reduce generation or increase demand.
6. Service Provider is expected to reject the dispatch / cease (through Confirmation web service 3.6) as specified in business logic document.

### 3.6. Dispatch/Cease Confirmation Service v3

This service should be implemented by National Grid ESO to receive the confirmation from Service Provider for Dispatch / Cease instruction. The below specifications will be followed by National Grid ESO to implement the service.

**Owner:** National Grid ESO

**Service Type:** This is asynchronous service to Dispatch / Cease and synchronous on its own i.e. National Grid ESO should send 200 ok synchronously after the data has been received and validated successfully. In the case of XSD or data validation failure, National Grid ESO will send synchronous 4xx or 5xx error message back.

**Request:** Below are the service parameters, data types, size, formats and lists.

**SLA:** This asynchronous confirmation has to be sent by Service Providers within a certain period of time after Dispatch / Cease instruction is received by Service Provider. This SLA is defined in business logic document.

#### 3.6.1. Dispatch/Cease Instruction Confirmation Inbound

| Name        | Description                | Data type   | Size/Format/List                                    | Mandatory / Optional | Constraint / Notes                             |
|-------------|----------------------------|-------------|---|----------------------|--|
| ServiceType | Type of Service            | String      | 25 Characters<br>E.g. RDP_POSITIVE,<br>RDP_NEGATIVE | Optional             |  |
| UnitID      | Contract Identifier        | String      | 20 Characters                                       | Mandatory            |  |
| DUI         | Dispatch Unique Identifier | String      | 20 Characters                                       | Mandatory            |  |
| QDelta      | MVAr                       | Numeric     | 5.6   | Optional             | QDelta will always be what has been dispatched |
| QDeltaCost  | £                          | Numeric     | 5.2   | Optional             |  |
| Instruction | Dispatch (START) or        | Enumeration | START<br>STOP                                       | Mandatory            |  |

|               |   |             |   |  |  |
|---------------|---|-------------|---|--|--|
|               | Cease (STOP) instruction  |             |   |  |  |
| ResponseCode  | Code to confirm if Accepted or Reject or Error                  | Enumeration | ACCEPTED<br>REJECTED<br>ERROR                     | Mandatory                                      |  |
| ErrorCode     | Code to inform the error  | String      | 200 Characters                                    | Mandatory when Response Code is equal to ERROR | Error codes are mentioned in business logic document         |
| DateTimeStamp | Date and time when the instruction is sent to National Grid ESO | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory                                      | Time should be in UTC standard with Time Zone Designator (Z) |

**Guidelines:**

1. This service should be invoked by Service Providers for each dispatch or cease request received from National Grid ESO. If National Grid ESO does not receive a dispatch confirmation within the SLA defined in the business logic document, it will be deemed by National Grid ESO that the Service Provider is not available to dispatch.
2. Service Provider should invoke the Webservice as per the WSDL: [https://test.pas.nationalgrid.com/services/V3\\_Sandbox\\_ConsumeInstructionConfService?wsdl](https://test.pas.nationalgrid.com/services/V3_Sandbox_ConsumeInstructionConfService?wsdl) and sample payloads as per Appendix 1F.

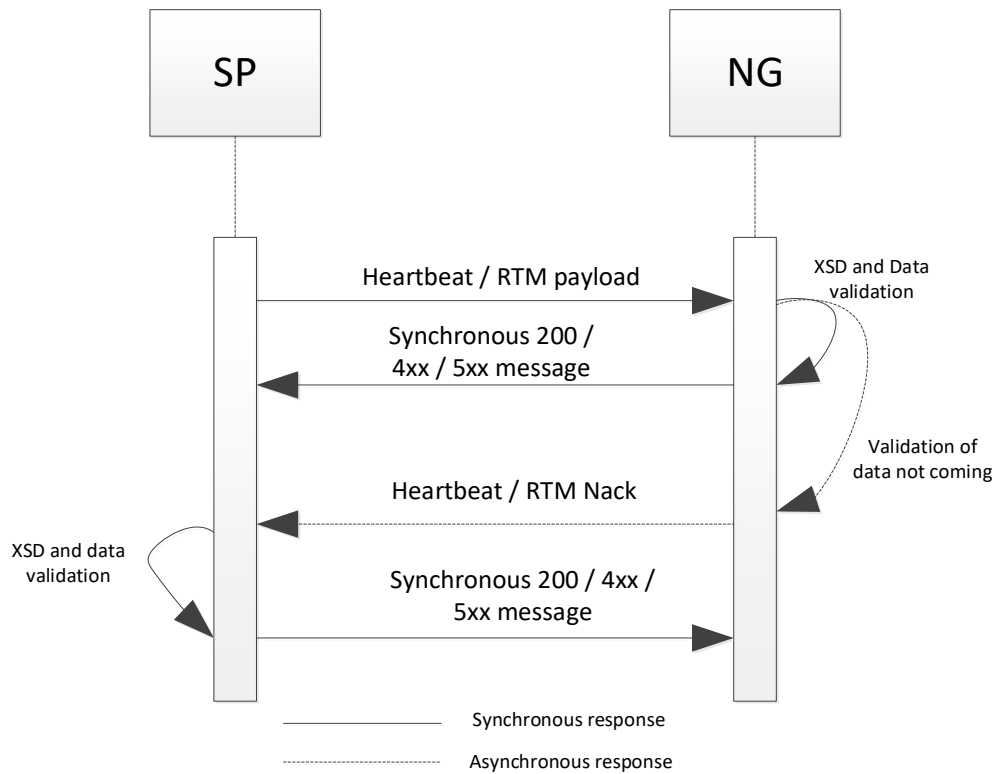
### 3.7. Heartbeat / Realtime Metering Service v3

This service will be implemented by National Grid ESO to receive the Realtime Metering data from Service Providers. The below specifications will be followed by National Grid ESO to implement the service.

**Owner:** National Grid ESO

**Service Type:** This is synchronous service which will send 200 ok synchronously after the data has reached the end point successfully and all XSD validations have passed. On XSD or data validation failures, a 4xx or 5xx error message is synchronously sent back. Only in the case where no data is received and on certain data validation failures, NG will send RTM Negative Acknowledgement (Nack) asynchronously to SP.





**Request:** Below are the service parameters, data types, size, formats and lists.

**SLA:** The SLA for each ancillary service is different which will be specified appropriately in the respective BLD of the service. Further for a heartbeat signal, all the optional fields can be left blank.

### 3.7.1. Heartbeat / RTM Service Inbound

| Name                   | Description                            | Data type | Size/Format/List                                  | Mandatory / Optional | Constraint / Notes   |
|------------------------|--|-----------|---|----------------------|--|
| ServiceType            | Type of Service                        | String    | 25 Characters<br>RDP_NEGATIVE                     | Mandatory            |  |
| UnitID                 | Contract Identifier                    | String    | 20 Characters                                     | Mandatory            |  |
| DateTimeOfMeterReading | Datetime of the meter reading          | DateTime  | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Optional             | Time should be in UTC standard with Time Zone Designator (Z) |
| MeterReading           | In MW the active power of the contract | Numeric   | 10.4  | Optional             |  |

|                      |   |             |                          |          |  |
|----------------------|---|-------------|--------------------------|----------|--|
| PowerAvailable       | MW (only applicable to Wind / Solar generators)   | Numeric     | 10.4                     | Optional |  |
| AbsoluteMeterReading | Actual meter reading aggregated at a contract level without any calculations in between | Numeric     | 10.4                     | Optional |  |
| AvailableHeadroom    | Also known as Dummy Meter   | Numeric     | 10.4                     | Optional |  |
| AvailableFootroom    |   | Numeric     | 10.4                     | Optional |  |
| StateOfCharge        | Active Power MW Number  | Percentage  | 3.2                      | Optional | <i>Note: Only applicable for EFR Service</i> |
| Frequency            | Frequency of system   | Numeric     | 2.4                      | Optional | <i>Note: Only applicable for EFR Service</i> |
| LeadLagIndicator     | To indicate if this band belongs to Lead or Lag   | Enumeration | LEAD<br>LAG              | Optional |  |
| QCurrent             | MVAR (includes ride through and it is only delta and not absolute value)                | Numeric     | 5.6<br>e.g. 12345.123456 | Optional |  |
| QMaxCurrent          | MVAR (Max value of MVAR for the GSP)  | Numeric     | 5.6<br>e.g. 12345.123456 | Optional |  |
| QCurrentRideThrough  | MVAR (Only Ride Through value)  | Numeric     | 5.6<br>e.g. 12345.123456 | Optional |  |
| QUtilisationCost     | £   | Numeric     | 5.2<br>e.g. 12345.12     | Optional |  |
| Pup                  | ?   | Numeric     | 5.6                      | Optional |  |

|               |  |             |   |           |  |
|---------------|--|-------------|---|-----------|--|
|               |  |             | e.g. 12345.123456                                 |           |  |
| PDown         | ?  | Numeric     | 5.6<br>e.g. 12345.123456                          | Optional  |  |
| PCurrent      | ?  | Numeric     | 5.6<br>e.g. 12345.123456                          | Optional  |  |
| PDelta        | ?  | Numeric     | 5.6<br>e.g. 12345.123456                          | Optional  |  |
| Voltage       | kV (absolute Value)  | Numeric     | 5.4<br>e.g. 12345.1234                            | Optional  |  |
| PState        |  | Enumeration | ON<br>OFF   | Optional  | Note: To be used for RDP to send the Unit Availability Flag  |
| QState        |  | Enumeration | ON<br>OFF   | Optional  |  |
| DateTimeStamp | Date and time when the web service was sent to National Grid ESO | Date Time   | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |

**Guidelines:**

1. Service Provider would invoke this Webservice as per the WSDL: [https://test.pas.nationalgrid.com/services/V3\\_Sandbox\\_Consume\\_RTMSERVICE?wsdl](https://test.pas.nationalgrid.com/services/V3_Sandbox_Consume_RTMSERVICE?wsdl) and sample payloads in Appendix 1G.
2. As RTM is used by National Grid ESO to gauge the heartbeat of Service Provider's comms, we would consider the contract to be unavailable to dispatch as per business logic document.
3. PState is to be used by the RDP service to send the Unit Availability Flag.

### 3.8. Heartbeat / RTM Negative Acknowledgement Service v3

This service will be implemented by Service Providers to receive Negative Acknowledgement for the Realtime Metering data from National Grid ESO. The below specifications will be followed by Service Providers to implement the service.

**Owner:** Service Provider

**Service Type:** This is asynchronous to RTM web service and synchronous on its own i.e. Service Provider should send 200 ok synchronously after the NACK is received and validated by Service Provider successfully. In the case of XSD or data validation failure, National Grid ESO expects Service

Provider to send synchronous 4xx or 5xx error message back. The pattern diagram is represented in section 3.9.

**Request:** Below are the service parameters, data types, size, formats and lists.

**SLA:** SLA is defined separately for different ancillary services which is specified in business logic document.

### 3.8.1. Heartbeat / RTM NACK Service Outbound

| Name          | Description   | Data type | Size/Format/List                                  | Mandatory / Optional | Constraint / Notes   |
|---------------|---|-----------|---|----------------------|--|
| ServiceType   | Type of Service   | String    | 25 Characters                                     | Mandatory            |  |
| UnitID        | Contract Identifier   | String    | 20 Characters                                     | Mandatory            |  |
| StartDateTime | Start date time meter reading not received (Last date time of meter read) | Datetime  | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory            | Time should be in UTC standard with Time Zone Designator (Z) |
| EndDateTime   | End time meter reading not received / UTC Now time when sending request   | Datetime  | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory            | Time should be in UTC standard with Time Zone Designator (Z) |
| ErrorCode     | Code to inform the error  | String    | 200 Characters                                    | Optional             | Error codes are mentioned in business logic document         |
| DateTimeStamp | Date and time when the web service was sent from National Grid ESO        | Datetime  | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory            | Time should be in UTC standard with Time Zone Designator (Z) |

#### Guidelines:

1. Service Provider should implement this Webservice as per the WSDL: [https://test.pas.nationalgrid.com/services/V3\\_SP\\_Sandbox\\_ConsumeRTMNegativeAckPS?wsdl](https://test.pas.nationalgrid.com/services/V3_SP_Sandbox_ConsumeRTMNegativeAckPS?wsdl) and payload as in Appendix 1H.
2. National Grid ESO will populate appropriate error codes in the ErrorCode tag as per business logic document.

### 3.9. Physical Notification Service v3

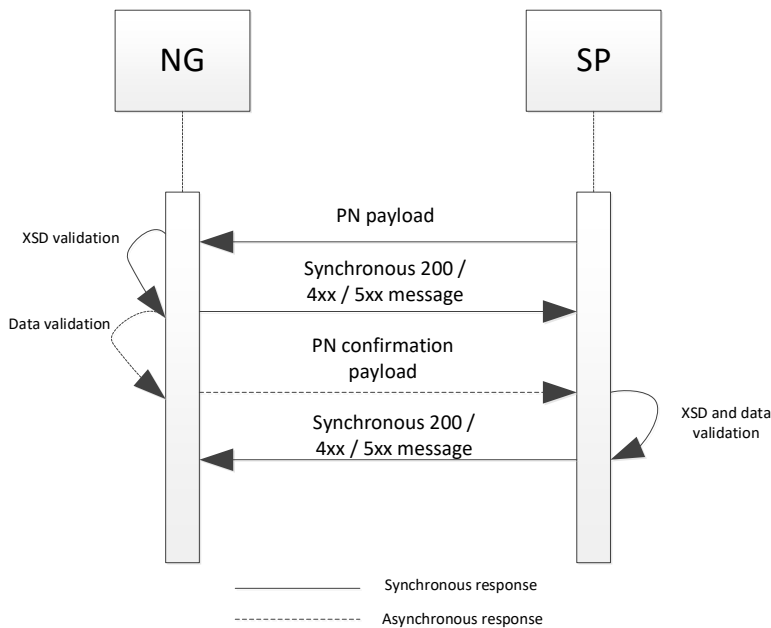
This service will be implemented by National Grid ESO to receive the Physical Notification Service - MW submissions from Service Providers. The specifications below will be followed by National Grid ESO to implement the service.

**Owner:** National Grid ESO

**Service Type:** This is synchronous service which will send 200 ok synchronously after the data has reached the end point successfully and all XSD validations have passed. On XSD validation failures, a 4xx or 5xx error message is synchronously sent back by National Grid ESO. On any data validation failures, the error codes / messages are communicated asynchronously using Physical Notification Service Confirmation web service by National Grid ESO.

**Context:** Non- Balancing Services can submit the Physical Notification values **for each unit** as mentioned below. The Physical Notification value is set at a global level for each Unit. This can be submitted for an active pre-qualified unit even without having a valid contract.

**Request:** Below are the service parameters, data types, size, formats and lists



#### 3.9.1. Physical Notification Service Inbound

| Name   | Description   | Data type | Size/Format/List | Mandatory / Optional | Constraint / Notes |
|--------|---|-----------|------------------|----------------------|--------------------|
| UnitID | Unit Identifier   | String    | 20 Characters    | Mandatory            |                    |
| PUI    | Physical Notification Service Unique Identifier - ID of the message | String    | 20 Characters    | Mandatory            |                    |

| Name          | Description  | Data type | Size/Format/<br>List  | Mandatory<br>/ Optional | Constraint /<br>Notes   |
|---------------|--|-----------|---|-------------------------|---|
| PNDetails     | NA   | NA        | NA  | Mandatory               | Start of PN<br>Details array  |
| StartDateTime | Start date and time for<br>PN  | Datetime  | YYYY-MM-<br>DDThh:mm:ss<br>TZD<br><br>eg 2021-07-<br>16T19:20:30Z | Mandatory               | Time should be<br>in UTC standard<br>with Time Zone<br>Designator (Z) |
| EndDateTime   | End date and time for PN   | Datetime  | YYYY-MM-<br>DDThh:mm:ss<br>TZD<br><br>eg 2021-07-<br>16T19:20:30Z | Mandatory               | Time should be<br>in UTC standard<br>with Time Zone<br>Designator (Z) |
| PN_Start_MW   | Expected Start of<br>Physical Notification<br>MW                       | Decimal   | e.g. 1234.5678  | Mandatory               |   |
| PN_End_MW     | Expected End of Physical<br>Notification MW                            | Decimal   | e.g 1234.5678   | Mandatory               |   |
| PNDetails     | NA   | NA        | NA  | Mandatory               | End of PN<br>Details array  |
| DateTimeStamp | Date and time when the<br>web service was sent to<br>National Grid ESO | Datetime  | YYYY-MM-<br>DDThh:mm:ss<br>TZD<br><br>eg 2021-07-<br>16T19:20:30Z | Mandatory               | Time should be<br>in UTC standard<br>with Time Zone<br>Designator (Z) |

**Guidelines:**

1. Service Providers should invoke the Physical Notification webservice to submit the Physical Notification values for the Non- Balancing Services.
2. Service Providers can send Physical Notification values with start time and end time. The duration up to which the PN can be sent for each unit using a single xml (where applicable), will be unique for different services and will be mentioned in the BLD.
3. Service Providers would invoke the Webservice as per the WSDL url: [https://test.pas.nationalgrid.com/services/V3\\_Sandbox\\_ConsumePhysicalNotificationService?wsdl](https://test.pas.nationalgrid.com/services/V3_Sandbox_ConsumePhysicalNotificationService?wsdl) and sample payloads in Appendix 1K.
4. National Grid ESO will Accept/Reject the Physical Notifications (through Physical Notification Services Confirmation web service 3.10) for a specific Unit as specified in the business logic document.

5. Physical Notification Service Unique Identifier should have 20 characters in total with the following algorithm to make it unique to 1 in million times. This field is applicable only to particular ancillary services. See example payloads in Appendices for reference.
  - a. First 3 characters will have letters 'PUI'
  - b. Next 2 characters will be random lowercase alphabets from a-z
  - c. Next characters will be a random number from 0001 to 9999
  - d. Next 3 characters will be random uppercase alphabets between A-Z
  - e. The last 6 characters will be MMDDHHmm (where MM is month e.g. 08; DD is date e.g. 18, HH is hours e.g. 16; mm is minute e.g. 25)  
So, an example BUI will be 'PUIxq0034YMU08181625
6. DateTimeStamp – refers here datetime stamp in UTC when request payload for sending PN data is sent to NG ESO web service.

### 3.10. Physical Notification Confirmation Service v3

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

**Owner:** Service Provider

**Service Type:** This is **asynchronous** to Physical Notification web service and synchronous on its own i.e. Service Provider should send 200 ok after the confirmation data has been received and validated by Service Provider successfully. In the case of XSD or data validation failure, National Grid ESO expects Service Provider to send synchronous 4xx or 5xx error message back.

**Request:** Below are the service parameters, data types, size, formats and lists.

**SLA:** Within 5 minutes of receiving the Physical Notification Service Payload from the Service Provider, National Grid ESO will send the Physical Notification Service confirmation payload back.

#### 3.10.1. Physical Notification Confirmation Service Outbound

| Name          | Description   | Data type | Size/Format/List       | Mandatory / Optional | Constraint / Notes                       |
|---------------|---|-----------|------------------------|----------------------|--|
| UnitID        | Unit Identifier   | String    | 20 Characters          | Mandatory            |  |
| PUI           | Physical Notification Service Unique Identifier - ID of the message | String    | 20 Characters          | Mandatory            |  |
| PNDetails     | NA  | NA        | NA                     | Optional             | Start of PN Details array                |
| StartDateTime | Start date and time for Physical Notification                       | Datetime  | YYYY-MM-DDThh:mm:ssTZD | Mandatory            | Time should be in UTC standard with Time |

|               |  |             |   |           |  |
|---------------|--|-------------|---|-----------|--|
|               |  |             | eg 2021-07-16T19:20:30Z                           |           | Zone Designator (Z)  |
| EndDateTime   | End date and time for Physical Notification  | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |
| PNValidation  | To indicate if the data submitted for this Unit is valid or invalid                                  | Enumeration | VALID<br>INVALID                                  | Optional  |  |
| PNReason      | Reason for rejecting the Physical Notification data in a particular Unit                             | String      | 200 Characters                                    | Optional  | Error codes are mentioned in business logic document         |
| PNDetails     | NA   | NA          | NA  |           | End of PN Details array                                      |
| Confirmation  | Message to inform if the xml payload file is accepted  | Enumeration | ACCEPTED<br>REJECTED                              | Mandatory |  |
| FileReason    | Reason for rejecting the Physical Notification file over and above the fields within the Unit arrays | String      | 200 Characters                                    | Optional  | Error codes are mentioned in business logic document         |
| DateTimeStamp | Date time when confirmation was sent from NG ESO   | Datetime    | YYYY-MM-DDThh:mm:ssTZD<br>eg 2021-07-16T19:20:30Z | Mandatory | Time should be in UTC standard with Time Zone Designator (Z) |

**Guidelines:**

1. National Grid ESO would invoke this service to confirm the validation of the Physical Notification data received from Service Provider.
2. National Grid ESO will send a single confirmation xml for each of the Physical Notification request made via the Physical Notification service for a unit.



3. Validation and Confirmation is segregated in this version and relevant reasons made available at the appropriate place which are detailed in business logic document.
4. Service Provider would implement the Webservice as per the WSDL url: [https://test.pas.nationalgrid.com/services/V3\\_SP\\_Sandbox\\_ConsumePhysicalNotification\\_ConfPS?wsdl](https://test.pas.nationalgrid.com/services/V3_SP_Sandbox_ConsumePhysicalNotification_ConfPS?wsdl) and the sample payloads will be sent by National Grid ESO are available in Appendix 1L.

## 4. Security of messages

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

1. Transport Layer security using https / SSL / TLS
2. Authenticate the message through username tokens (username and password)
3. Whitelist IP address – NG to whitelist SP IP address(es) and SP can also whitelist NG IP addresses (as per the IP addresses provided in *Section 6* below)

National Grid ESO would introduce Digital Certificates and Signatures (through binary tokens) at a later point in time. The specification will be updated with the appropriate timelines until which the above security pattern would need to be followed.

### 4.1. Authentication using username and passwords

This section details how to use the UsernameToken with the WSS: SOAP Message Security specification [WSS]. More specifically, it describes how a web service consumer can supply a UsernameToken as a means of identifying the requestor by “username”, and using a password (or shared secret, or password equivalent) to authenticate that identity to the web service producer.

The <wsse:UsernameToken> element is introduced in the WSS: SOAP Message Security documents as a way of providing a username.

Within <wsse:UsernameToken> element, a <wsse:Password> element may be specified. Passwords of type PasswordText and PasswordDigest are not limited to actual passwords, although this is a common case. Any password equivalent such as a derived password can be used.

Passwords of type PasswordDigest are defined as being the Base64 [XML-Schema](#) encoded, of the UTF8 encoded password (or equivalent). However, unless this digested password is sent on a secured channel or the token is encrypted, the digest offers no real additional security over use of wsse:PasswordText.

When a UsernameToken is referenced using <wsse:SecurityTokenReference> the ValueType attribute is not required. If specified, the value of UsernameToken MUST be specified.

A Service Provider can have multiple contracts across multiple ancillary services; however, the assumption is that there will be a single set of web services exposed to National Grid ESO and hence National Grid ESO would expect to have a single web services password per Service Provider. The same will be the situation for the web services exposed by National Grid ESO.

The usernames and passwords should be changed every 6 months to avoid any security breach. Once every 6 months, National Grid ESO will share the passwords to the appropriate Service Provider IT personnel securely and expect Service Providers to do the same.

#### 4.2. Sample request Header with username token

```
<soapenv:Header>

  <wsse:Security soapenv:mustUnderstand="1" xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">

    <wsse:UsernameToken wsu:Id="UsernameToken-4" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">

      <wsse:Username>Weblogic</wsse:Username>

      <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">FMW@12345</wsse:Password>

    </wsse:UsernameToken>

  </wsse:Security>

</soapenv:Header>
```

In order to enable testing of this username token, please contact National Grid ESO.

#### 4.3. User credentials for Sandbox environment web services

User credentials for the sandbox environments could be requested from National Grid ESO by sending an email to: [box.support.pas@nationalgrid.com](mailto:box.support.pas@nationalgrid.com)

## 5. Response Pattern for web services

When an xml is sent to the end point, it is expected to send synchronous response back. National Grid ESO is following in-line wsdL response and requests Service Providers to follow the same. This pattern is embedded in the wsdLs and explained below.

### 5.1. Success synchronous response

When the party is expected to send synchronous successful response, along with 200 http status code, the following is expected in xml format. **The below is only a sample representation.**

```
<soapenv:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">

  <env:Header xmlns:ins="http://www.nationalgrid.com/pas/cdsa/xyz"/>

  <env:Body xmlns:ins="http://www.nationalgrid.com/pas/cdsa/xyz">

    <ns1:xyzResponse xmlns:ns1="http://www.nationalgrid.com/pas/cdsa/xyz">

      <ns1:ServiceType> </ns1:ServiceType>

      <ns1:UnitID> </ns1:UnitID>

      <ns1:Response> </ns1:Response>

    </ns1:xyzResponse>

  </env:Body>
```

```
</soapenv:Envelope>
```

ServiceType tag in the above xml will have the **ServiceType sent by the party in the payload**

UnitID tag in the xml will have the **UnitID sent by the party in the payload**

Response tag in the xml will have **SUCCESS**

### 5.2. Failure synchronous response

When the party is supposed to send synchronous failure response, along with non-200 http status code, the following is expected in xml format. **The below is only a sample representation.**

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:env="http://schemas.xmlsoap.org/soap/envelope/">
  <env:Body xmlns:ins="http://www.nationalgrid.com/pas/cdsa/xyz">
    <ns1:xyzResponse xmlns:ns1="http://www.nationalgrid.com/pas/cdsa/Instruction">
      <ns1:ServiceType> </ns1:ServiceType>
      <ns1:UnitID></ns1:UnitID>
      <ns1:Response> </ns1:Response>
      <ns1:Details> </ns1:Details>
    </ns1:xyzResponse>
  </env:Body>
</soapenv:Envelope>
```

ServiceType tag in the above xml will have the ServiceType sent by the party in the payload

UnitID tag in the xml will have the UnitID sent by the party in the payload

Response tag in the xml will have FAILURE

Details tag will have the appropriate error message on why the service has failed.

## 6. National Grid ESO Public Facing IP

Service Providers are requested to whitelist the below IP addresses from National Grid ESO in case they don't want other traffic to come through. These IP addresses are the same for test and production traffic.

|                |
|----------------|
| 62.190.154.115 |
| 62.190.148.115 |
| 65.209.62.115  |
| 65.196.116.115 |

## 7. Open and Closed Issues

| ID | ISSUE | RESOLUTION | OWNER | TARGET DATE | IMPACT DATE | OPEN/CLOSED |
|----|-------|------------|-------|-------------|-------------|-------------|
|    |       |            |       |             |             |             |
|    |       |            |       |             |             |             |

## 8. Appendix: About the XSD and WSDLs

National Grid ESO requests all the Service Providers to implement their relevant web service (Availability Confirmation) with the same service name, port type, binding operation names and namespaces. The services should be exposed as https but using http bindings. In order to facilitate quick development for Service Provider, National Grid ESO has mocked Service Provider web services which are available in the relevant sections of this document.

## 9. Appendix 1: Sample payloads for v3 Web Services

### 9.1. Appendix 1A: Availability Service Inbound

```
<soapenv:Envelope xmlns:ava="http://www.nationalgrid.com/pas/cdsa/Availability"
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
```

```
<soapenv:Header>
```

```
<wsse:Security soapenv:mustUnderstand="1" xmlns:wss="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
```

```
<wsse:UsernameToken wsu:Id="UsernameToken-CC41A651D47C8E5D2316400957078552">
```

```
<wsse:Username>XXXXXXXXXXXX</wsse:Username>
```

```
<wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
username-token-profile-1.0#PasswordText">XXXXXXXXXXXX</wsse:Password>
```

```
</wsse:UsernameToken>
```

```
</wsse:Security>
```

```
</soapenv:Header>
```

```
<soapenv:Body>
```

```
<ava:AvailabilityDetails>
```

```
<ava:ServiceType>DCH</ava:ServiceType> <<Comment: Service type can be DCH, DCL, DMH, DML, DRH, DRL>>
```

```
<ava:UnitID>ABC123</ava:UnitID>
```

```
<ava:AUI>AUIXQ34YMU081816</ava:AUI> <<Comment: Unique ID>>
```

```
<ava:AvailabilityWindow>
```

```

    <ava:StartDateTime>2021-10-01T03:00:00Z</ava:StartDateTime> <<Comment: UTC Format>>
    <ava:EndDateTime>2021-10-01T07:00:00Z</ava:EndDateTime> <<Comment: UTC Format>>
    <ava:OfferBid>
      <ava:OfferBid_Number>1</ava:OfferBid_Number>
      <ava:BreakPoint>30</ava:BreakPoint>
    </ava:OfferBid>
  </ava:AvailabilityWindow>
  <ava:DateTimeStamp>2021-10-01T01:00:00Z</ava:DateTimeStamp>
</ava:AvailabilityDetails>
</soapenv:Body>
</soapenv:Envelope>

```

## 9.2. Appendix 1B: Availability Confirmation Service Outbound

```

<soapenv:Envelope xmlns:ava="http://www.nationalgrid.com/pas/cdsa/AvailabilityConfirmation"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="1" xmlns:wsse="http://docs.oasis-
  open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:wsu="http://docs.oasis-
  open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
      <wsse:UsernameToken wsu:Id="UsernameToken-CC41A651D47C8E5D2316400964670337">
        <wsse:Username>XXXXXXXXXX</wsse:Username>
        <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
  username-token-profile-1.0#PasswordText">XXXXXXXXXXXX</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
  <soapenv:Body>
    <ava:Availability_Conf_Message>
      <ava:ServiceType>DCH</ava:ServiceType>
      <ava:UnitID>ABC123</ava:UnitID>
      <ava:AUI>AUIXQ34YMU081816</ava:AUI>
    <ava:AvailabilityWindow>
      <ava:StartDateTime>2021-10-01T03:00:00Z</ava:StartDateTime>

```

```

    <ava:EndTime>2021-10-01T07:00:00Z</ava:EndTime>
    <ava:Validation>VALID</ava:Validation>
  </ava:AvailabilityWindow>
  <ava:Confirmation>ACCEPTED</ava:Confirmation>
  <ava:DateTimeStamp>2021-10-01T01:00:00Z</ava:DateTimeStamp>
</ava:Availability_Conf_Message>
</soapenv:Body>
</soapenv:Envelope>

```

### 9.3. Appendix 1C: Nomination Service Outbound (For DisArm and ReArm)

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ava="http://www.nationalgrid.com/pas/cdsa/Availability_Nomination">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="1" xmlns:wsse="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
      <wsse:UsernameToken wsu:Id="UsernameToken-3B128FE039B473E38A15882451474871">
        <wsse:Username>PASTestUser</wsse:Username>
        <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
username-token-profile-1.0#PasswordText">13M0Ni2$2t01HP</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
  <soapenv:Body>
    <ava:Availability_NominationRequest>
      <!--1 or more repetitions:-->
      <ava:Availability_NominationDetails>
        <ava:ServiceType>string</ava:ServiceType>
        <ava:UnitID>string</ava:UnitID>
        <!--Optional:-->
        <ava:AUI>string</ava:AUI>
        <!--1 or more repetitions:-->

```

```

    <ava:Availability_Window>
      <ava:NUI>string</ava:NUI>
      <ava:StartDateTime>2008-09-29T02:49:45</ava:StartDateTime>
      <!--Optional:-->
      <ava:EndDateTime>2014-09-19T00:18:33</ava:EndDateTime>
      <!--Optional:-->
      <ava:BandID>100</ava:BandID>
      <!--Optional:-->
      <ava:LeadLagIndicator>LEAD</ava:LeadLagIndicator>
      <!--Optional:-->
      <ava:Q>1000.000000</ava:Q>
      <!--Optional:-->
      <ava:AssociatedL>1000.000000</ava:AssociatedL>
      <!--Optional:-->
      <ava:AvailabilityCost>1000.00</ava:AvailabilityCost>
      <!--Optional:-->
      <ava:MaxUtilisationCost>1000.00</ava:MaxUtilisationCost>
      <ava:Nomination>DISARM</ava:Nomination>
      <!--Optional:-->
      <ava:WindowReason>string</ava:WindowReason>
    </ava:Availability_Window>
    <ava:DateTimeStamp>2008-11-15T16:52:58</ava:DateTimeStamp>
  </ava:Availability_NominationDetails>
</ava:Availability_NominationRequest>
</soapenv:Body>
</soapenv:Envelope>

```

#### 9.4. Appendix 1D: Nomination Confirmation Service Inbound

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ava="http://www.nationalgrid.com/pas/cdsa/Avail_Nom_Confirmation">
  <soapenv:Header>

```

```
<wsse:Security soapenv:mustUnderstand="1" xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
```

```
<wsse:UsernameToken wsu:Id="UsernameToken-3B128FE039B473E38A15882451474871">
```

```
<wsse:Username>PASTestUser</wsse:Username>
```

```
<wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">13M0Ni2$2t01HP</wsse:Password>
```

```
</wsse:UsernameToken>
```

```
</wsse:Security>
```

```
</soapenv:Header>
```

```
<soapenv:Body>
```

```
<ava:Avail_Nom_ConfirmationRequest>
```

```
<ava:Avail_Nom_ConfirmationDetails>
```

```
<ava:ServiceType>string</ava:ServiceType>
```

```
<ava:UnitID>string</ava:UnitID>
```

```
<!--Optional:-->
```

```
<ava:AUI>string</ava:AUI>
```

```
<!--1 or more repetitions:-->
```

```
<ava:AvailabilityWindow>
```

```
<ava:NUI>string</ava:NUI>
```

```
<ava:StartDateTime>2008-09-29T02:49:45</ava:StartDateTime>
```

```
<!--Optional:-->
```

```
<ava:EndDateTime>2014-09-19T00:18:33</ava:EndDateTime>
```

```
<ava:WindowConfirmation>ACCEPTED</ava:WindowConfirmation>
```

```
<!--Optional:-->
```

```
<ava:WindowReason>string</ava:WindowReason>
```

```
</ava:AvailabilityWindow>
```

```
<ava:FileConfirmation>ACCEPTED</ava:FileConfirmation>
```

```
<!--Optional:-->
```

```
<ava:FileReason>string</ava:FileReason>
```

```
<ava:DateTimeStamp>2008-11-15T16:52:58</ava:DateTimeStamp>
```

```
</ava:Avail_Nom_ConfirmationDetails>
```



```

    </ava:Avail_Nom_ConfirmationRequest>
  </soapenv:Body>
</soapenv:Envelope>

```

### 9.5. Appendix 1E: Dispatch/Cease Service Outbound

```

<soapenv:Envelope xmlns:ins="http://www.nationalgrid.com/pas/cdsa/Instruction"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="1" xmlns:wsse="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
      <wsse:UsernameToken wsu:id="UsernameToken-CC41A651D47C8E5D2316400966748769">
        <wsse:Username>XXXXXXXXXX</wsse:Username>
        <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
username-token-profile-1.0#PasswordText">XXXXXXXXXXXX</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
  <soapenv:Body>
    <ins:InstructionMessage>
      <ins:ServiceType>DCH</ins:ServiceType>
      <ins:UnitID>ABCD001</ins:UnitID>
      <ins:DUI>DUIjkg hdf87620</ins:DUI>
      <ins:VolumeRequested>0</ins:VolumeRequested>
      <ins:Instruction>START</ins:Instruction>
      <ins:DateTimeStamp>2021-10-14T18:44:14Z</ins:DateTimeStamp>
    </ins:InstructionMessage>
  </soapenv:Body>
</soapenv:Envelope>

```

### 9.6. Appendix 1F: Dispatch/Cease Confirmation Inbound

```

<soapenv:Envelope xmlns:dis="http://www.nationalgrid.com/pas/cdsa/DispatchConfirmation"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">

```

```

<soapenv:Header>
  <wsse:Security soapenv:mustUnderstand="1" xmlns:wsse="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
    <wsse:UsernameToken wsu:Id="UsernameToken-CC41A651D47C8E5D2316400958326673">
      <wsse:Username>XXXXXXXXXXXX</wsse:Username>
      <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
username-token-profile-1.0#PasswordText">XXXXXXXXXXXX</wsse:Password>
    </wsse:UsernameToken>
  </wsse:Security>
</soapenv:Header>
<soapenv:Body>
  <dis:Dispatch_ConfirmationRequest>
    <dis:DispatchConfirmationDetails>
      <dis:ServiceType>DCH</dis:ServiceType>
      <dis:UnitID>ABCD001</dis:UnitID>
      <dis:DUI>DUJkghdf87620</dis:DUI>
      <dis:Instruction>START</dis:Instruction>
      <dis:ResponseCode>ACCEPTED</dis:ResponseCode>
      <dis:DateTimeStamp>2021-10-14T18:44:24Z</dis:DateTimeStamp>
    </dis:DispatchConfirmationDetails>
  </dis:Dispatch_ConfirmationRequest>
</soapenv:Body>
</soapenv:Envelope>

```

### 9.7. Appendix 1G: Heartbeat / Real-Time Metering Service Inbound

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:con="http://www.nationalgrid.com/pas/cdsa/ConsumerRTM">
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="1" xmlns:wsse="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:wsu="http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
      <wsse:UsernameToken wsu:Id="UsernameToken-3B128FE039B473E38A15882451474871">

```

```
<wsse:Username>PASTestUser</wsse:Username>

  <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-
username-token-profile-1.0#PasswordText">13M0Ni2$2t01HP</wsse:Password>

</wsse:UsernameToken>

</wsse:Security>

</soapenv:Header>

<soapenv:Body>

  <con:ConsumeRealTimeRequest>

    <con:ConsumeRealtimeDetails>

      <con:ServiceType>string</con:ServiceType>

      <con:UnitID>string</con:UnitID>

      <!--Optional:-->

      <con:DateTimeOfMeterReading>2008-09-29T02:49:45</con:DateTimeOfMeterReading>

      <!--Optional:-->

      <con:MeterReading>1000.0000</con:MeterReading>

      <!--Optional:-->

      <con:PowerAvailable>1000.0000</con:PowerAvailable>

      <!--Optional:-->

      <con:AbsoluteMeterReading>1000.0000</con:AbsoluteMeterReading>

      <!--Optional:-->

      <con:AvailableHeadroom>1000.0000</con:AvailableHeadroom>

      <!--Optional:-->

      <con:AvailableFootroom>1000.0000</con:AvailableFootroom>

      <!--Optional:-->

      <con:StateOfCharge>999.99</con:StateOfCharge>

      <!--Optional:-->

      <con:Frequency>99.9999</con:Frequency>

      <!--Optional:-->

      <con:LeadLagIndicator>LEAD</con:LeadLagIndicator>

      <!--Optional:-->

      <con:QCurrent>1000.000000</con:QCurrent>
```

```

<!--Optional:-->
<con:QMaxCurrent>1000.000000</con:QMaxCurrent>
<!--Optional:-->
<con:QCurrentRideThrough>1000.000000</con:QCurrentRideThrough>
<!--Optional:-->
<con:QUtilisationCost>1000.00</con:QUtilisationCost>
<!--Optional:-->
<con:PUp>1000.000000</con:PUp>
<!--Optional:-->
<con:PDown>1000.000000</con:PDown>
<!--Optional:-->
<con:PCurrent>1000.000000</con:PCurrent>
<!--Optional:-->
<con:PDelta>1000.000000</con:PDelta>
<!--Optional:-->
<con:Voltage>1000.0000</con:Voltage>
<!--Optional:-->
<con:PState>ON</con:PState>
<!--Optional:-->
<con:QState>ON</con:QState>
<con:DateTimeStamp>2006-08-19T18:27:14+01:00</con:DateTimeStamp>
</con:ConsumeRealtimeDetails>
</con:ConsumeRealTimeRequest>
</soapenv:Body>
</soapenv:Envelope>

```

### 9.8. Appendix 1H: Heartbeat / Real-Time Metering Negative Ack Service Outbound

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:rtm="http://www.nationalgrid.com/pas/cdsa/RTMNegativeACK">
<soapenv:Header>

```

```
<wsse:Security soapenv:mustUnderstand="1" xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
```

```
<wsse:UsernameToken wsu:Id="UsernameToken-3B128FE039B473E38A15882451474871">
```

```
<wsse:Username>PASTestUser</wsse:Username>
```

```
<wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">13M0Ni2$2t01HP</wsse:Password>
```

```
</wsse:UsernameToken>
```

```
</wsse:Security>
```

```
</soapenv:Header>
```

```
<soapenv:Body>
```

```
<rtm:RealtimeMetering_NACKRequest>
```

```
<rtm:RealtimeMetering_NACKDetails>
```

```
<rtm:ServiceType>string</rtm:ServiceType>
```

```
<rtm:UnitID>string</rtm:UnitID>
```

```
<rtm:StartDateTime>2008-09-29T02:49:45</rtm:StartDateTime>
```

```
<rtm:EndDateTime>2014-09-19T00:18:33</rtm:EndDateTime>
```

```
<!--Optional:-->
```

```
<rtm:ErrorCode>string</rtm:ErrorCode>
```

```
<rtm:DateTimeStamp>2006-08-19T18:27:14+01:00</rtm:DateTimeStamp>
```

```
</rtm:RealtimeMetering_NACKDetails>
```

```
</rtm:RealtimeMetering_NACKRequest>
```

```
</soapenv:Body>
```

```
</soapenv:Envelope>
```

### 9.9. Appendix 1K: Physical Notification Service Inbound

```
<soapenv:Envelope xmlns:soapenv=http://schemas.xmlsoap.org/soap/envelope/ xmlns:phy=http://www.nationalgrid.com/pas/cdsa/PhysicalNotification>
```

```
<soapenv:Header>
```

```
<wsse:Security soapenv:mustUnderstand="1" xmlns:wsse=http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd xmlns:wsu=http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd>
```

```
<wsse:UsernameToken wsu:Id="UsernameToken-CC41A651D47C8E5D2316400959478894">
```

```

    <wsse:Username>XXXXXXXXXXXX</wsse:Username>

    <wsse:Password Type=http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-
token-profile-1.0#PasswordText>XXXXXXXXXXXX</wsse:Password>

    </wsse:UsernameToken>

  </wsse:Security>

</soapenv:Header>

<soapenv:Body>
<phy:PhysicalNotificationDetails>
  <phy:UnitID> UNIT001</phy:UnitID>
  <phy:PUI>PUlxq0034YMU08181625</phy:PUI>
  <!--1 or more repetitions:-->
  <phy:PNDetails>
    <phy:StartDateTime>2021-10-29T02:00:00Z </phy:StartDateTime>
    <phy:EndDateTime>2021-10-29T00:02:30Z</phy:EndDateTime>
    <phy:PN_Start_MW>12</phy:PN_Start_MW>
    <phy:PN_End_MW>20</phy:PN_End_MW>
  </phy:PNDetails>
  <phy:DateTimeStamp>2021-10-29T00:02:30Z</phy:DateTimeStamp>
</phy:PhysicalNotificationDetails>
</soapenv:Body>
</soapenv:Envelope>

```

### 9.10. Appendix 1L: Physical Notification Confirmation Service Outbound

```

<soapenv:Envelope xmlns:phy=http://www.nationalgrid.com/pas/cdsa/PhysicalNotificationConf
xmlns:soapenv=http://schemas.xmlsoap.org/soap/envelope/>
  <soapenv:Header>
    <wsse:Security soapenv:mustUnderstand="1" xmlns:wsse=http://docs.oasis-
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd
xmlns:wsu=http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-
1.0.xsd>
      <wsse:UsernameToken wsu:Id="UsernameToken-
CC41A651D47C8E5D23164009675666310">
        <wsse:Username>XXXXXXXXXXXX</wsse:Username>

```

```
<wsse:Password Type=http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText>XXXXXXXXXXXX</wsse:Password>
  </wsse:UsernameToken>
</wsse:Security>
</soapenv:Header>
<soapenv:Body>
  <phy:PhysicalNotification_Conf_Message>
    <phy:UnitID>string</phy:UnitID>
    <phy:PUI>string</phy:PUI>
    <!--1 or more repetitions-->
    <phy:PNDetails>
      <phy:StartDateTime>2008-09-29T02:49:45</phy:StartDateTime>
      <phy:EndDateTime>2014-09-19T00:18:33</phy:EndDateTime>
      <!--Optional-->
      <phy:Validation>VALID</phy:Validation>
      <!--Optional-->
      <phy:PNReason>string</phy:PNReason>
    </phy:PNDetails>
    <phy:Confirmation>ACCEPTED</phy:Confirmation>
    <!--Optional-->
    <phy:FileReason>string</phy:FileReason>
    <phy:DateTimeStamp>2008-11-15T16:52:58</phy:DateTimeStamp>
  </phy:PhysicalNotification_Conf_Message>
</soapenv:Body>
</soapenv:Envelope>
```

End of Document