**3GPP TSG CT WG3 Meeting #142 *C3-253690***

**Goteborg, SE, 25th – 29th August, 2025 was C3-253342**

**Source: Huawei, Ericsson, Nokia**

**Title: Pseudo-CR on updates and corrections to the API definition clauses**

**Spec: 3GPP TS 29.566**

**Agenda item: 19.60 (EnergySys)**

**Document for: Agreement**

**1. Introduction**

The following issues have been identified in the definition of the API definition clauses of the new Neif\_EventExposure API defined in this TS 29.566:

- The data model is not complete and needs to be refined to support to subscribe to multiple Energy related events via the same subscription and thus also notify with potentially several per-event reports.

- Missing support of the generic GET method on the collection resource.

- Several typos, remaining unnecessary text from the SBI TS Skeleton and incorrect API name.

**2. Reason for Change**

Address the above-detailed issues to complete the definition of the service description clauses of the new Neif\_EventExposure API.

**3. Conclusions**

N/A

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.566 V 1.0.0.

\* \* \* \* Start of changes \* \* \* \*

### 6.1.1 Introduction

The Neif\_EventExposure Service shall use the Neif\_EventExposure API.

The API URI of the Neif\_EventExposure API shall be:

**{apiRoot}/<apiName>/<apiVersion>**

The request URIs used in HTTP requests from the NF service consumer towards the NF service producer shall have the Resource URI structure defined in clause 4.4.1 of 3GPP TS 29.501 [5], i.e.:

**{apiRoot}/<apiName>/<apiVersion>/<apiSpecificResourceUriPart>**

with the following components:

- The {apiRoot} shall be set as described in 3GPP TS 29.501 [5].

- The <apiName>shall be "neif-ee".

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 6.1.3 and 6.1.4.

\* \* \* \* Next changes \* \* \* \*

#### 6.1.3.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 6.1.3.1-1 depicts the resource URIs structure for the Neif\_EventExposure API.

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**Figure 6.1.3.1-1: Resource URI structure of the Neif\_EventExposure API**

Table 6.1.3.1-1 provides an overview of the resources and applicable HTTP methods for the Neif\_EventExposure API.

**Table 6.1.3.1-1: Resources and methods overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource name** | **Resource URI** | **HTTP method or custom operation** | **Description** |
| Energy Event Exposure Subscriptions | /subscriptions | POST | Create a new Energy Event Exposure Subscription. |
| GET | Retrieve all the Energy Event Exposure Subscriptions managed by the EIF. |
| Individual Energy Event Exposure Subscription | /subscriptions/{subId} | GET | Retrieve an existing "Individual Energy Event Exposure Subscription" resource. |
| PUT | Update an existing "Individual Energy Event Exposure Subscription" resource. |
| PATCH | Modify an existing "Individual Energy Event Exposure Subscription" resource. |
| DELETE | Delete an existing "Individual Energy Event Exposure Subscription" resource. |

\* \* \* \* Next changes \* \* \* \*

##### 6.1.3.2.2 Resource Definition

Resource URI: **{apiRoot}/neif-ee/<apiVersion>/subscriptions**

This resource shall support the resource URI variables defined in table 6.1.3.2.2-1.

**Table 6.1.3.2.2-1: Resource URI variables for this resource**

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| apiRoot | string | See clause 6.1.1. |

\* \* \* \* Next changes \* \* \* \*

###### 6.1.3.2.3.1 POST

The HTTP POST method enables an NF service consumer to request the creation of an Energy Event Exposure Subscription at the EIF.

This method shall support the URI query parameters specified in table 6.1.3.2.3.2-1.

**Table 6.1.3.2.3.1-1: URI query parameters supported by the POST method on this resource**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.2.3.2-2 and the response data structures and response codes specified in table 6.1.3.2.3.2-3.

**Table 6.1.3.2.3.1-2: Data structures supported by the POST Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| EnergyEeSubsc | M | 1 | Represents the parameters to request the creation of a new Energy Event Exposure Subscription. |

**Table 6.1.3.2.3.1-3: Data structures supported by the POST Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response****codes** | **Description** |
| EnergyEeSubsc | M | 1 | 201 Created | Successful case. The Energy Event Exposure Subscription is successfully created and a representation of the created "Individual Energy Event Exposure Subscription" resource shall be returned.An HTTP "Location" header that contains the URI of the created resource shall also be included. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] shall also apply. |

**Table 6.1.3.2.3.1-4: Headers supported by the 201 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure:{apiRoot}/neif-ee/<apiVersion>/subscriptions/{subId} |

\* \* \* \* Next changes \* \* \* \*

###### 6.1.3.2.3.2 GET

The HTTP GET method allows an NF service consumer to retrieve the Energy Event Exposure Subscriptions managed by the EIF.

This method shall support the URI query parameters specified in table 6.1.3.2.3.2-1.

Table 6.1.3.2.3.2-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.2.3.2-2 and the response data structures and response codes specified in table 6.1.3.2.3.2-3.

Table 6.1.3.2.3.2-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.1.3.2.3.2-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| array*(*EnergyEeSubsc) | M | 0..N | 200 OK | Successful case. All the active "Individual Energy Event Exposure Subscription" resource(s) managed by the EIF are returned.If there are no active "Individual Energy Event Exposure Subscription" resource(s) at the EIF, an empty array is returned. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.(NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.(NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the HTTP GET method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] shall also apply.NOTE 2: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [4]). |

Table 6.1.3.2.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target EIF (service) instance towards which the request is redirected. |

Table 6.1.3.2.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target EIF (service) instance towards which the request is redirected. |

\* \* \* \* Next changes \* \* \* \*

##### 6.1.3.3.2 Resource Definition

Resource URI: **{apiRoot}/neif-ee/<apiVersion>/subscriptions{subId}**

This resource shall support the resource URI variables defined in table 6.1.3.3.2-1.

**Table 6.1.3.3.2-1: Resource URI variables for this resource**

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| apiRoot | string | See clause 6.1.1. |
| subId | string | Represents the identifier of the "Individual Energy Event Exposure Subscription" resource. |

\* \* \* \* Next changes \* \* \* \*

###### 6.1.3.3.3.1 GET

The HTTP GET method enables an NF service consumer to retrieve an existing "Individual Energy Event Exposure Subscription" resource at the EIF.

This method shall support the URI query parameters specified in table 6.1.3.3.3.1-1.

**Table 6.1.3.3.3.1-1: URI query parameters supported by the GET method on this resource**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.3.3.1-2 and the response data structures and response codes specified in table 6.1.3.3.3.1-3.

**Table 6.1.3.3.3.1-2: Data structures supported by the GET Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
|  |  |  |  |

**Table 6.1.3.3.3.1-3: Data structures supported by the GET Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response****codes** | **Description** |
| EnergyEeSubsc | M | 1 | 200 OK | Successful case. The requested "Individual Energy Event Exposure Subscription" resource is returned in the response body. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.(NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.(NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the HTTP GET method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] shall also apply.NOTE 2: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [4]). |

**Table 6.1.3.3.3.1-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target EIF (service) instance towards which the request is redirected |

**Table 6.1.3.3.3.1-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target EIF (service) instance towards which the request is redirected |

\* \* \* \* Next changes \* \* \* \*

###### 6.1.3.3.3.2 PUT

The HTTP PUT method enables an NF service consumer to request the update of an existing "Individual Energy Event Exposure Subscription" resource at the EIF.

This method shall support the URI query parameters specified in table 6.1.3.3.3.2-1.

**Table 6.1.3.3.3.2-1: URI query parameters supported by the PUT method on this resource**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.3.3.2-2 and the response data structures and response codes specified in table 6.1.3.3.3.2-3.

**Table 6.1.3.3.3.2-2: Data structures supported by the PUT Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| EnergyEeSubsc | M | 1 | Represents the updated "Individual Energy Event Exposure Subscription" resource representation. |

**Table 6.1.3.3.3.2-3: Data structures supported by the PUT Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response****codes** | **Description** |
| EnergyEeSubsc | M | 1 | 200 OK | Successful case: The "Individual Energy Event Exposure Subscription" resource is successfully updated and a representation of the updated resource is returned in the response body. |
| n/a |  |  | 204 No Content | Successful case: The "Individual Energy Event Exposure Subscription" resource is successfully updated and no content is returned in the response body. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.(NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.(NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the HTTP PUT method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] shall also apply.NOTE 2: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [4]). |

**Table 6.1.3.3.3.2-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target EIF (service) instance towards which the request is redirected. |

**Table 6.1.3.3.3.2-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target EIF (service) instance towards which the request is redirected. |

\* \* \* \* Next changes \* \* \* \*

###### 6.1.3.3.3.3 PATCH

The HTTP PUT method enables an NF service consumer to request the modification of an existing "Individual Energy Event Exposure Subscription" resource at the EIF.

This method shall support the URI query parameters specified in table 6.1.3.3.3.3-1.

**Table 6.1.3.3.3.3-1: URI query parameters supported by the PATCH method on this resource**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.3.3.3-2 and the response data structures and response codes specified in table 6.1.3.3.3.3-3.

**Table 6.1.3.3.3.3-2: Data structures supported by the PATCH Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| EnergyEeSubscPatch | M | 1 | Contains the parameters to request the modification of the "Individual Energy Event Exposure Subscription" resource. |

**Table 6.1.3.3.3.3-3: Data structures supported by the PATCH Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response****codes** | **Description** |
| EnergyEeSubsc | M | 1 | 200 OK | Successful case. The "Individual Energy Event Exposure Subscription" resource is successfully modified and a representation of the updated resource is returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual Energy Event Exposure Subscription" resource is successfully modified and no content is returned in the response body. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.(NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.(NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the HTTP PATCH method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] shall also apply.NOTE 2: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [4]). |

**Table 6.1.3.3.3.3-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target EIF (service) instance towards which the request is redirected. |

**Table 6.1.3.3.3.3-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target EIF (service) instance towards which the request is redirected. |

\* \* \* \* Next changes \* \* \* \*

###### 6.1.3.3.3.4 DELETE

The HTTP PUT method enables an NF service consumer to request the deletion of an existing "Individual Energy Event Exposure Subscription" resource at the EIF.

This method shall support the URI query parameters specified in table 6.1.3.3.3.4-1.

**Table 6.1.3.3.3.4-1: URI query parameters supported by the DELETE method on this resource**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.3.3.4-2 and the response data structures and response codes specified in table 6.1.3.3.3.4-3.

**Table 6.1.3.3.3.4-2: Data structures supported by the DELETE Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| n/a |  |  |  |

**Table 6.1.3.3.3.4-3: Data structures supported by the DELETE Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response****codes** | **Description** |
| n/a |  |  | 204 No Content | Successful case: The "Individual Energy Event Exposure Subscription" resource is successfully deleted. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.(NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.(NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the HTTP DELETE method listed in table 5.2.7.1-1 of 3GPP TS 29.500 [4] shall also apply.NOTE 2: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [4]). |

**Table 6.1.3.3.3.4-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target EIF (service) instance towards which the request is redirected. |

**Table 6.1.3.3.3.4-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative EIF (service) instance towards which the request is redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target EIF (service) instance towards which the request is redirected. |

\* \* \* \* Next changes \* \* \* \*

#### 6.1.5.1 General

Notifications shall comply to clause 6.2 of 3GPP TS 29.500 [4] and clause 4.6.2.3 of 3GPP TS 29.501 [5].

**Table 6.1.5.1-1: Notifications overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Notification** | **Callback URI** | **HTTP method or custom operation** | **Description****(service operation)** |
| Energy Event Exposure Notification | {notifUri} | POST | Enables the EIF to notify a previously subscribed NF service consumer on energy consumption information related event(s).  |

\* \* \* \* Next changes \* \* \* \*

##### 6.1.5.2.1 Description

The Energy Event Exposure Notification is used by the EIF to notify a previously subscribed NF service consumer on energy consumption information related event(s).

\* \* \* \* Next changes \* \* \* \*

6.1.5.2.3.1 POST

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |

This method shall support the request data structures specified in table 6.1.5.2.3.1-1 and the response data structures and response codes specified in table 6.1.5.2.3.1-2.

**Table 6.1.5.2.3.1-1: Data structures supported by the POST Request Body**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| EnergyEeNotif | "M | "1 | Represents the Energy Event Exposure Notification. |

**Table 6.1.5.2.3.1-2: Data structures supported by the POST Response Body**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| n/a |  |  | 204 No Content | Successful case. The Energy Event Exposure Notification is successfully received and acknowledged. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection.(NOTE 2) |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection.(NOTE 2) |
| NOTE 1: The mandatory HTTP error status codes for the HTTP POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] shall also apply.NOTE 2: The RedirectResponse data structure may be provided by an SCP (cf. clause 6.10.9.1 of 3GPP TS 29.500 [4]). |

**Table 6.1.5.2.3.1-3: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative NF service consumer (service) instance towards which the notification should be redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target NF service consumer (service) instance towards which the notification request is redirected. |

**Table 6.1.5.2.3.1-4: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative NF service consumer (service) instance towards which the notification should be redirected.For the case where the request is redirected to the same target via a different SCP, refer to clause 6.10.9.1 of 3GPP TS 29.500 [4]. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Contains the identifier of the target NF service consumer (service) instance towards which the notification request is redirected. |

\* \* \* \* Next changes \* \* \* \*

### 6.1.6 Data Model

\* \* \* \* Next changes \* \* \* \*

#### 6.1.6.1 General

This clause specifies the application data model supported by the API.

Table 6.1.6.1-1 specifies the data types defined for the Neif\_EventExposure service-based interface protocol.

**Table 6.1.6.1-1: Neif\_EventExposure specific Data Types**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Clause defined** | **Description** | **Applicability** |
| EcEifEvent | 6.1.6.3.3 | Represents an Energy related event. |  |
| EnergyEeNotif | 6.1.6.2.4 | Represents an Energy Event Exposure Notification. |  |
| EnergyEeReport | 6.1.6.2.6 | Describes notifications about a single event that occurred. |  |
| EnergyEeSubsc | 6.1.6.2.2 | Represents an Energy Event Exposure Subscription. |  |
| EnergyEeSubscPatch | 6.1.6.2.3 | Represents the requested modifications to an Energy Event Exposure Subscription. |  |
|  |  |  |  |
|  |  |  |  |
| EcEifEventParameter | 6.1.6.3.4 | Represents parameter for energy consumption information. |  |
|  |  |  |  |
| EnergyEeSubscSet | 6.1.6.2.5 | Represents an Energy Event Exposure Subscription set. |  |
|  |  |  |  |
|  |  |  |  |

Table 6.1.6.1-2 specifies data types re-used by the Neif\_EventExposure service-based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Neif\_EventExposure service-based interface.

**Table 6.1.6.1-2: Neif\_EventExposure re-used Data Types**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Reference** | **Comments** | **Applicability** |
| ApplicationId | 3GPP TS 29.571 [14] | Representsthe application identifier. |  |
| DateTime | 3GPP TS 29.571 [14] | Represents a date and a time. |  |
| Dnn | 3GPP TS 29.571 [14] | Represents a DNN. |  |
| DurationSec | 3GPP TS 29.571 [14] | Represents a time duration in units of seconds. |  |
| EnergyInfo | 3GPP TS 29.122 [17] | Represents the Energy consumption information. |  |
| FlowDescription | 3GPP TS 29.514 [16] | Represents an IP flow description. |  |
| Gpsi | 3GPP TS 29.571 [14] | Represents a GPSI. |  |
|  |  |  |  |
| RedirectResponse | 3GPP TS 29.571 [14] | Represents redirection related information. |  |
| ReportingInformation | 3GPP TS 29.523 [18] | Represents the reporting requirements. |  |
| Snssai | 3GPP TS 29.571 [14] | Represents an S-NSSAI. |  |
| Supi | 3GPP TS 29.571 [14] | Represents a SUPI. |  |
| SupportedFeatures | 3GPP TS 29.571 [14] | Represents the list of supported feature(s) and used to negotiate the applicability of optional features. |  |
| TimeWindow | 3GPP TS 29.122 [17] | Represents a time window. |  |
| Uinteger | 3GPP TS 29.571 [14] | Represents an unsigned integer. |  |
| Uri | 3GPP TS 29.571 [14] | Represents a URI. |  |

\* \* \* \* Next changes \* \* \* \*

##### 6.1.6.2.2 Type: EnergyEeSubsc

**Table 6.1.6.2.2-1: Definition of type EnergyEeSubsc**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| notifUri | Uri | M | 1 | Contains the URI via which Energy consumption information related event(s) reporting shall be delivered. |  |
| repReqs | ReportingInformation | O | 0..1 | Contains the reporting requirements of the subscription. |  |
| eventsSubscSets | map(EnergyEeSubscSet) | M | 1..N | Contains the set(s) of Energy Event Exposure subscription related details.The key of the map shall be set to the value of the "event" attribute of the corresponding map value encoded using the EnergyEeSubscSet data structure. |  |
| reports | array(EnergyEeReport) | C | 1..N | Contains the Energy Event Exposure report(s).This attribute shall be present only when immediate reporting was requested in the corresponding subscription request and there are available report(s). |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features used as defined in clause 6.1.8.This attribute shall be present only when feature negotiation is required. |  |

\* \* \* \* Next changes \* \* \* \*

##### 6.1.6.2.3 Type: EnergyEeSubscPatch

**Table 6.1.6.2.3-1: Definition of type EnergyEeSubscPatch**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| notifUri | Uri | O | 0..1 | Contains the updated URI via which Energy consumption information related event(s) reporting shall be delivered. |  |
| eventsRepInfo | ReportingInformation | O | 0..1 | Contains the reporting requirements of the subscription. |  |
| eventsSubscSets | maps(EnergyEeSubscSet) | O | 1..N | Contains the set(s) of Energy Event Exposure subscription related details.The key of the map shall be set to the value of the "event" attribute of the corresponding map value encoded using the EnergyEeSubscSet data structure. |  |

\* \* \* \* Next changes \* \* \* \*

##### 6.1.6.2.4 Type: EnergyEeNotif

**Table 6.1.6.2.4-1: Definition of type EnergyEeNotif**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| subId | string | M | 1 | Contains the identifier of the Energy Event Exposure Subscription to which the notification is related. |  |
| reports | array(EnergyEeReport) | M | 1..N | Contains the Energy Event Exposure report(s). |  |

\* \* \* \* Next changes \* \* \* \*

##### 6.1.6.2.5 Type: EnergyEeSubscSet

**Table 6.1.6.2.5-1: Definition of type EnergyEeSubscSet**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| event | EcEifEvent | M | 1 | Contains the subscribed Energy related event. |  |
| subscSetId | string | M | 1 | Contains the identifier of the Energy event exposure subscription set. |  |
|  |  |  |  |  |  |
| supi | Supi | C | 0..1 | Contains the target SUPI.(NOTE 1) |  |
| gpsi | Gpsi | C | 0..1 | Contains the target GPSI.(NOTE 1) |  |
| dnn | Dnn | C | 0..1 | Contains the target DNN.(NOTE 2) |  |
| snssai | Snssai | C | 0..1 | Contains the target S-NSSAI.(NOTE 2, NOTE 4) |  |
| appId | ApplicationId | C | 0..1 | Contains the identifier of the target application.(NOTE 3) |  |
| flowDescs | array(FlowDescription) | C | 1..N | Contains the service flow information description for a target application.(NOTE 3) |  |
| repTimePeriod | TimeWindow | O | 0..1 | Contains the reporting time period. |  |
| enrgRepThres | EnergyInfo | O | 0..1 | Contains the reporting thresholds for the Energy consumption information event exposure.This attribute shall be present in case threshold-based reporting is requested. |  |
| repReqs | ReportingInformation | O | 0..1 | Contains the reporting requirements of the subscription set.The "repPeriod" within the ReportingInformation data structure shall be present in case periodic reporting is requested.(NOTE 5) |  |
| NOTE 1: These attributes are mutually exclusive and only one of them shall be present.NOTE 2: If the value of the "event" attribute is set to "PDU\_SESSION\_ENERGY" or "SERVICE\_FLOW\_ENERGY", then at least one of these attributes shall be present.NOTE 3: If the value of the "event" attribute is set to "SERVICE\_FLOW\_ENERGY", then at least one of these attributes shall be present.NOTE 4: if the value of the "event" attribute is set to "UE\_SNSSAI\_ENERGY", then this attribute shall be present.NOTE 5: When this attribute is present, the event reporting requirements provided within this attribute shall take precedence over the common events reporting requirements provided within the "repReqs" attribute of the parent EnergyEeSubsc data structure. |

\* \* \* \* Next changes \* \* \* \*

##### 6.1.6.2.6 Type: EnergyEeReport

**Table 6.1.6.2.6-1: Definition of type EnergyEeReport**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| event | EcEifEvent | M | 1 | Contains the reported Energy related event. |  |
| subscSetId | string | M | 1 | Contains the identifier of the Energy event exposure subscription set to which this report is related. |  |
| timeStamp | DateTime | M | 1 | Contains the time at which the event is observed. |  |
| timeWindow | TimeWindow | O | 0..1 | Contains the time window representing a start time and a stop time of the reported data collection period. |  |
|  |  |  |  |  |  |
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|  |  |  |  |  |  |
| energyInfo | EnergyInfo | O | 0..N | Contains the energy consumption information. |  |
|  |  |  |  |  |  |

\* \* \* \* Next changes \* \* \* \*

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\* \* \* \* Next changes \* \* \* \*

##### 6.1.6.3.2 Simple data types

The simple data types defined in table 6.1.6.3.2-1 shall be supported.

**Table 6.1.6.3.2-1: Simple data types**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type Name** | **Type Definition** | **Description** | **Applicability** |
|  |  |  |  |

\* \* \* \* Next changes \* \* \* \*

##### 6.1.6.3.3 Enumeration: EcEifEvent

The enumeration EcEifEvent represents EIF exposure event. It shall comply with the provisions defined in table 6.1.6.3.3-1.

**Table 6.1.6.3.3-1: Enumeration EcEifEvent**

|  |  |  |
| --- | --- | --- |
| **Enumeration value** | **Description** | **Applicability** |
| ENERGY\_CONSUMPTION |  |  |

Editor's Note: The definition and content of this enumeration is FFS.

\* \* \* \* Next changes \* \* \* \*

##### 6.1.6.3.4 Enumeration: EcEifEventParameter

AThe enumeration EcEifEventParameter represents EIF exposure events. It shall comply with the provisions defined in table 6.1.6.3.4-1.

**Table 6.1.6.3.4-1: Enumeration EcEifEventParameter**

|  |  |  |
| --- | --- | --- |
| **Enumeration value** | **Description** | **Applicability** |
| UE\_LEVEL | Energy consumption information per UE level. |  |
| S\_NSSAI\_PER\_UE\_LEVEL | Energy consumption information per S-NSSAI of UE level. |  |
| PDU\_SESSION\_LEVEL | Energy consumption information per PDU session level of UE level. |  |
| APP\_IDENTIFIER\_LEVEL | Energy consumption information per Application Identifier of UE level. |  |
| FLOW\_INFO\_LEVEL | Energy consumption information per Flow description(s) per UE level. |  |

Editor's Note: The need for this enumeration is FFS.

\* \* \* \* Next changes \* \* \* \*

### 6.1.8 Feature negotiation

The optional features in table 6.1.8-1 are defined for the Neif\_EventExposure API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [4].

**Table 6.1.8-1: Supported Features**

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
|  |  |  |

\* \* \* \* Next changes \* \* \* \*

### 6.1.10 HTTP redirection

An HTTP request may be redirected to a different Neif\_EventExposure service instance when using direct or indirect communications (see 3GPP TS 29.500 [4]).

An SCP that reselects a different EIF producer instance will return the NF Instance ID of the new EIF producer instance in the 3gpp-Sbi-Producer-Id header, as specified in clause 6.10.3.4 of 3GPP TS 29.500 [4].

If an EIF redirects a service request to a different EIF using an HTTP "307 Temporary Redirect" or "308 Permanent Redirect" status code, the identity of the new EIF towards which the service request is redirected shall be indicated in the "3gpp-Sbi-Target-Nf-Id" header of the HTTP "307 Temporary Redirect" or "308 Permanent Redirect" response as specified in clause 6.10.9.1 of 3GPP TS 29.500 [4].

\* \* \* \* End of changes \* \* \* \*