Overview of the Single Markets Platform Application Programming Interface (SMP API)

Version 1.1

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Introduction

This document aims to describe the architecture which the National Grid Electricity System Operator (NGESO) has put in place, to enable access to the Single Markets Platform (SMP) via Application Programming Interfaces (APIs).

This document is intended for Market Participants who want to connect to the SMP API infrastructure using web services and internet-based connectivity.

Strategic solution

NGESO has embraced Internet of Things technology, making the SMP API's available to Market Participants. This enables faster, more flexible connections to the SMP. This in turn offers a reduced cost to end-consumers due to establishing these new connections.

All new and existing Market Participants can connect directly to the new the API infrastructure. However, they may also opt to use an intermediate hosting service, provided by a preferred commercial vendor.

Further information

More information about the SMP API's is available on the Single Markets Platform page of the NGESO website.

To discuss opportunities offered by the Single Markets Platform and the API's, please contact NGESO via your account manager or email Commercial.Operation@nationalgrideso.com.

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System and Connection Overview

The new API infrastructure uses web services across the internet to enable access to the SMP.

The API Infrastructure uses web services protocols, coupled with Transport Layer Security (TLS), to encrypt communications across the boundary between a Market Participant and NGESO.

To do this, the Market Participant must set up a web services client which will send packets of data containing signed Java Script Object Notation

Conversely, the market participant must set up an end point to receive return packets of data, also containing signed JSON payloads, from NGESO's API service. These payloads, in both directions, will carry SMP messages.

Further technical information will be provided at a suitable time during the connection process for the Market Participant. This is to ensure the security and integrity of the API service.

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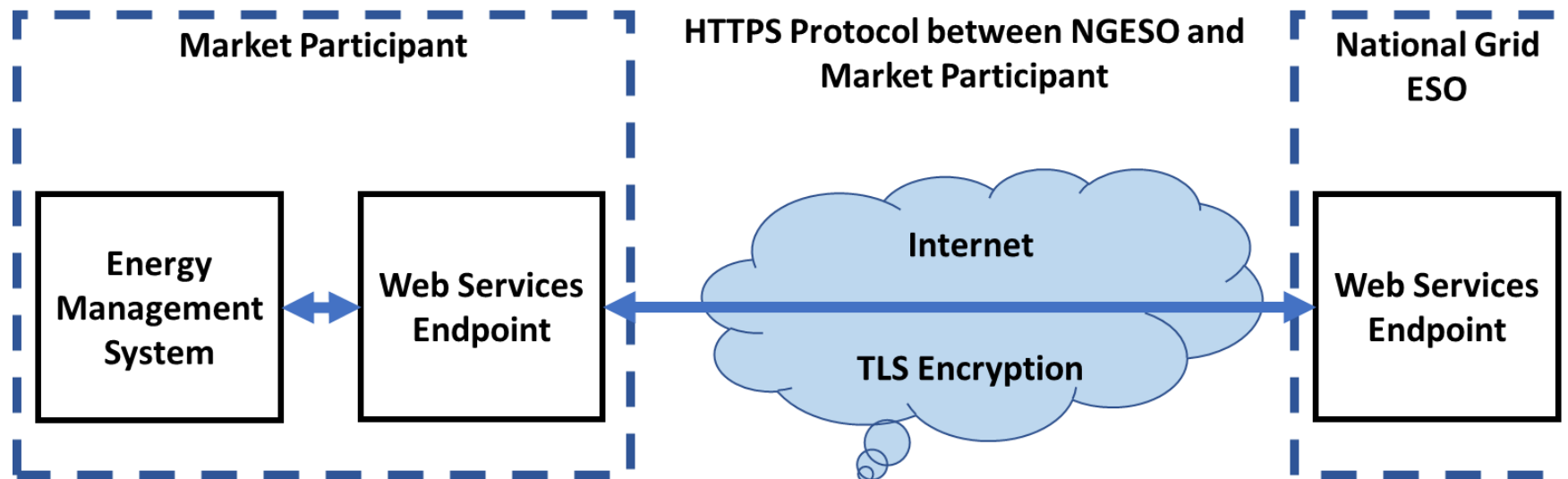
Intermediate Connection Overview

SMP participants may opt to use an intermediate data host. This service is available from commercial vendors independent of NGESO. Such arrangements may offer the benefit of using bespoke or legacy protocols on the SMP participants energy management systems.

Notes:

I. NGESO assumes no responsibility for the integrity of any SMP messages between the SMP participant and an intermediate host.

II. Any intermediate connection arrangements must ensure minimal latency, as SMP data messages are time sensitive

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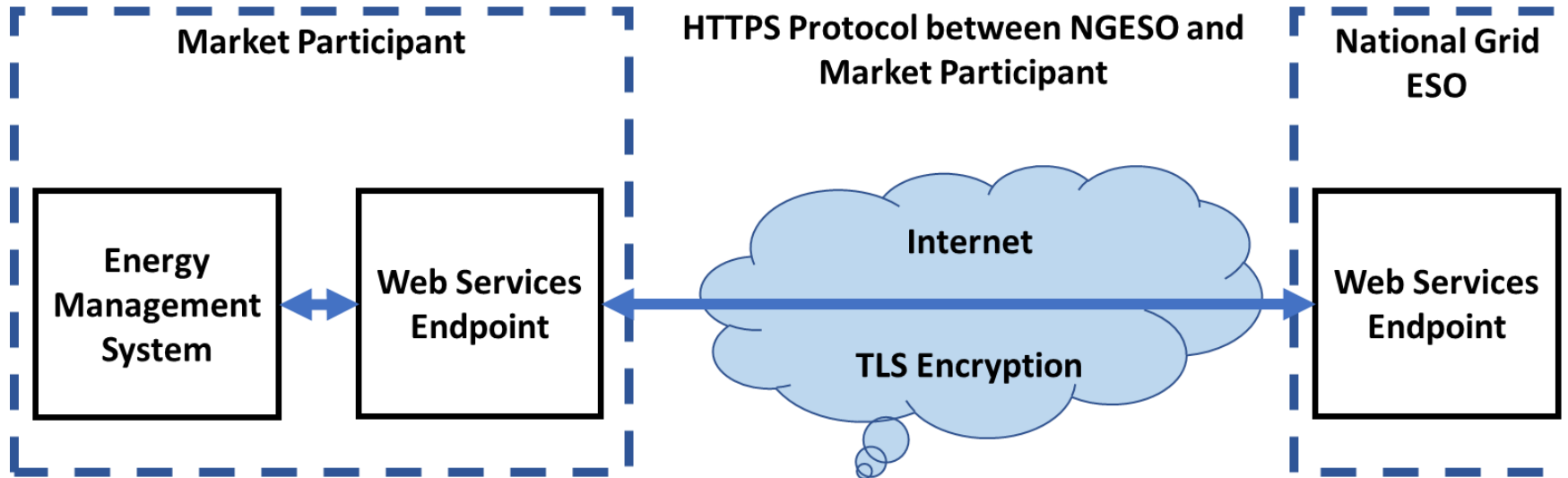
Establishing SMP connections

On signature of any connection agreements and payment of fees, NGESO will discuss options for access to the SMP with the prospective Market Participant.
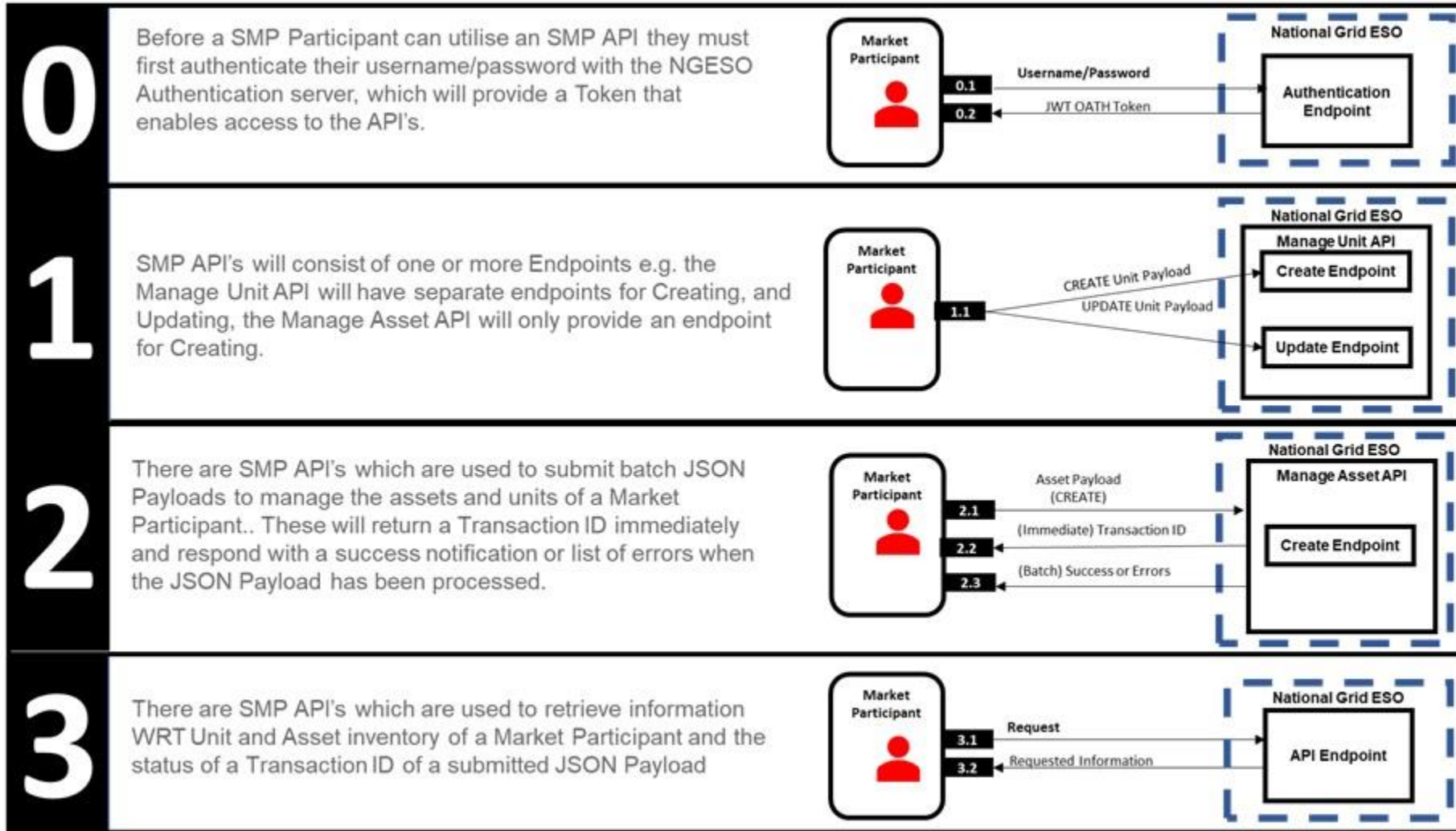
To establish a connection to the API services this process will be followed:

1. NGESO will provide a technical pro-forma to the participant – this requires details of the developers, API endpoints, etc., and will be provided from the box.singlemarketsplatform@nationalgrideso.com mailbox

2. The participant will need to return the pro-forma to NGESO *via the same mailbox*

3. NGESO will update its SMP systems and provide access for the participant to relevant documentation and test environments

4. NGESO will contact the participant to arrange a suitable time to test the message flows, in preparation for future participation in the appropriate balancing markets.

Notes:

I. The sole purpose of the box.singlemarketsplatform@nationalgrideso.com mailbox is to enable communications concerning the connection process – for more general enquiries, please contact NGESO via your account manager or email Commercial.Operation@nationalgrideso.com

II. The participant should make available suitable technical staff to develop and implement a web services end point solution to establish bi-directional API connections

III. The establishment of the API connection requires simultaneous liaison between the participant and NGESO

IV. The participant should make available suitable technical staff to test the individual flows

V. The commissioning test requires simultaneous liaison between the participant and NGESO – this will involve the simulation and testing of all flows by the participant

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Basics of SMP APIs

0 Before a SMP Participant can utilise an SMP API they must first authenticate their username/password with the NGESO Authentication server, which will provide a Token that enables access to the API's.

Market Participant — 0.1 Username/Password → National Grid ESO Authentication Endpoint — 0.2 JWT OATH Token

1 SMP API's will consist of one or more Endpoints e.g. the Manage Unit API will have separate endpoints for Creating, and Updating, the Manage Asset API will only provide an endpoint for Creating.

Market Participant — 1.1 → National Grid ESO Manage Unit API: CREATE Unit Payload → Create Endpoint; UPDATE Unit Payload → Update Endpoint

2 There are SMP API's which are used to submit batch JSON Payloads to manage the assets and units of a Market Participant.. These will return a Transaction ID immediately and respond with a success notification or list of errors when the JSON Payload has been processed.

Market Participant — 2.1 Asset Payload (CREATE) → National Grid ESO Manage Asset API Create Endpoint; 2.2 (Immediate) Transaction ID; 2.3 (Batch) Success or Errors

3 There are SMP API's which are used to retrieve information WRT Unit and Asset inventory of a Market Participant and the status of a Transaction ID of a submitted JSON Payload

Market Participant — 3.1 Request → National Grid ESO API Endpoint; 3.2 Requested Information

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The SMP APIs

API	NGESO Endpoint	Purpose	Submit	Maximum	Immediate Return	Batch Return
Authenticate	Authenticate	Request token to be used in the headers for API Calls	Username Password	NA	JWT OATH Token	NA
Manage Asset	Create	Create new Asset	JSON Payload	1000 Assets	Transaction ID	Success Notification OR list of errors
Manage Unit	Create	Create new Unit	JSON Payload	1 Unit 1000 Aligned Assets	Transaction ID	Success Notification OR list of errors
Get Transaction Status	Transaction Status	Retrieve status of a submitted Payload	JSON Payload	1 Transaction ID	Status of submitted Payload	NA

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Thank You!

Please reach out to box.singlemarketsplatform@nationalgrideso.com for specific API queries

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