The Voice of the Networks

Energy Networks Association

Open Networks Project

Good Practice for information provision on Flexibility Services

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Document Control

Version Control

Version	Issue Date	Author	Comments
0.1	18 July 2018	ENA	Initial draft for Product Team review
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0.7	4 December 2018	ENA	Final

Table of Contents

List of Figures

List of Tables

Executive Summary

This is one of three specific products identified under Workstream 1 and Workstream 2 which address aspects of flexibility services that might be provided by DER (distributed energy resources) to DNOs (distribution network operators). Other relevant products are Workstream 1 Products 2 and 6.

The document:

- Sets out good practice on information provision and stakeholder engagement for network owners/operators considering the procurement of flexibility/balancing services
- Gives flexibility service providers an indication of the type and quality of information they can expect to receive from network owners/operators seeking to procure flexibility services.

The electricity system is changing at an ever-increasing pace. We are moving away from a centralised predominantly fossil fuel based system to a decentralised hybrid system with considerably more renewable generation connected.

The growth in generation connections as a result of this shift has significantly increased utilisation of many parts of the electricity system. This means that access to those parts of the system may be constrained, even if only for short periods of time.

It is often not economic or sustainable to continue to just build new infrastructure to meet these time bounded constraints, the new model requires network operators to use their network more effectively and efficiently and to consider alternative means of meeting the needs of the system and customers where it is more cost effective to do so.

Flexibility services can provide alternative often non-traditional means of fulfilling this requirement.

1. Introduction

This document is the output of Open Networks project, Workstream 2, Product 4 which covers:

> Information on Flexibility Services – Review how information should be provided to customers on potential DNO requirements for flexibility services. Agree good practice.

This is one of three specific products identified under Workstream 1 and Workstream 2 which address aspects of flexibility services that might be provided by DERs to DNOs. Other relevant products are Workstream 1 Products 2 and 6. Figure 1 below indicates how these fit together.

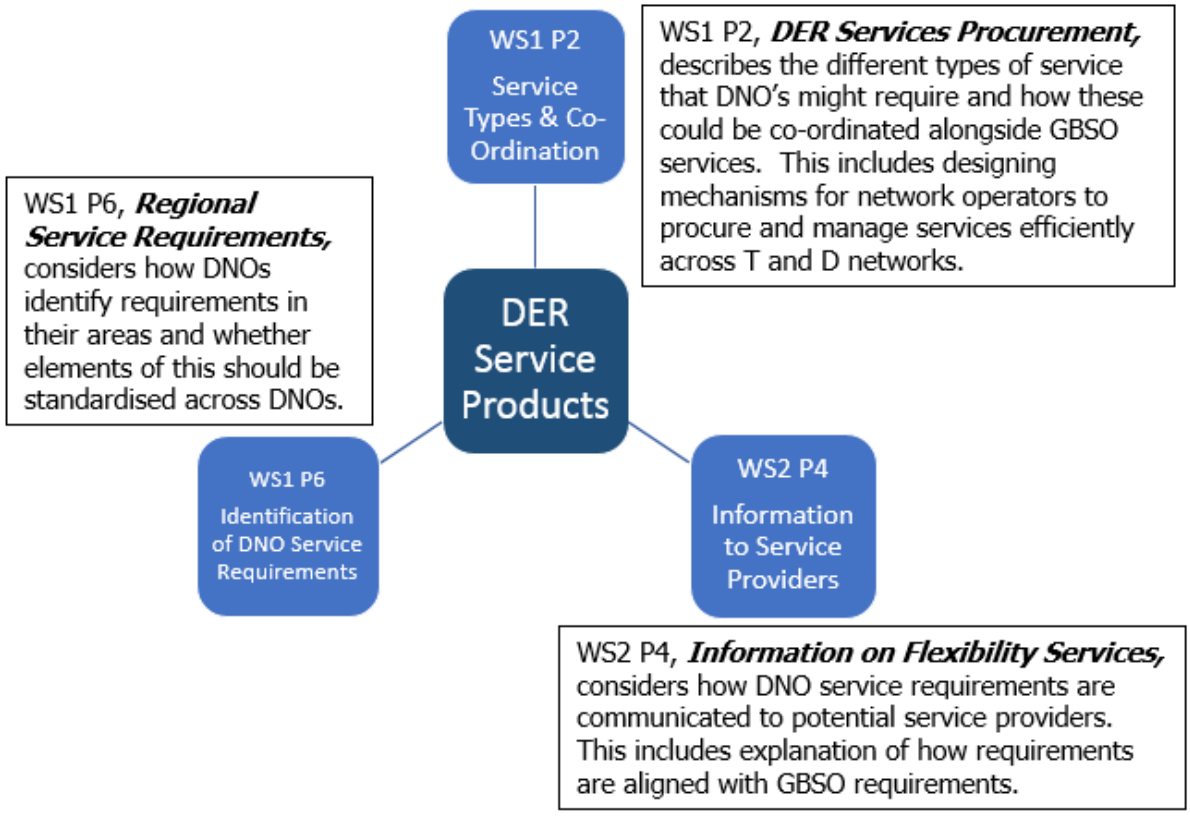

Figure 1 interaction between relevant products

Further information on Workstream 1 Products 2 and 6 is available here.

2. Purpose of this document?

Given the anticipated growth in the requirement for flexibility services by network operators, this document aims to provide guidance to both customers (flexibility service providers) and network owner/operators on how such services should be offered and procured in a clear and consistent manner. The document:

- Sets out good practice on information provision and stakeholder engagement for network owners/operators considering the procurement of flexibility/balancing services

- Gives flexibility service providers an indication of the type and quality of information they can expect to receive from network owners/operators seeking to procure flexibility services.

3. Background

The electricity system is changing at an ever-increasing pace. We are moving away from a centralised predominantly fossil fuel based system to a decentralised hybrid system with considerably more renewable generation connected. Electricity no longer flows in one direction from large power stations to end users. Bi-directional power and information flows mean the system needs to be managed differently and more responsively. Customers no longer just consume energy; they are able to both consume and self-produce, and are able to sell the energy they produce.

The growth in generation connections as a result of this shift has significantly increased utilisation of many parts of the electricity system. This means that access to those parts of the system may be constrained, even if only for short periods of time. It is often not economic or sustainable to continue to just build new infrastructure to meet these time bounded constraints, the new model requires network operators to use their network more effectively and efficiently and to consider alternative means of meeting the needs of the system and customers where it is more cost effective to do so.

Flexibility services can provide alternative often non-traditional means of fulfilling this requirement. Within this document the term flexibility services is used to describe both services to network operators to enable more efficient network use and services to support energy balancing.

4. What are flexibility services?

Product 3 of Work-Stream 2 recently published a “Terms and Definitions” document. Within this Flexibility has been defined as “modifying generation and/or consumption in reaction to an external source (such as a change in price, or an electronic message) to provide a service within the energy system”.

Flexibility services is a relatively new term within the electricity distribution industry, but flexibility itself has long been used to ensure secure delivery of electricity to meet real-time demand. It can be defined as the ability to adjust energy usage (generation or consumption) up or down to meet a system need such as managing network constraints to maintain the stability of the electricity system.

National Grid as the transmission system operator (TSO) has been procuring balancing services for some time and therefore the processes and service requirements are mature. Balancing services can take many forms but typically fall into just a few headline categories as shown below.

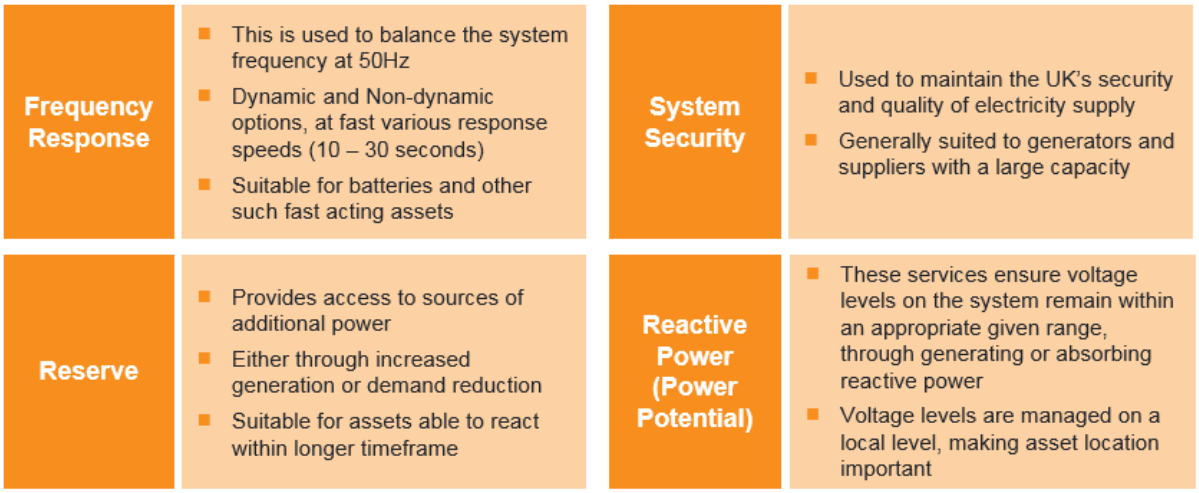

Figure 2 National Grid balancing services categories

At distribution, the market for flexibility is nascent but DNOs are increasingly looking to use flexibility services from DER to support the planning and operation of the network. Current DNO needs include.

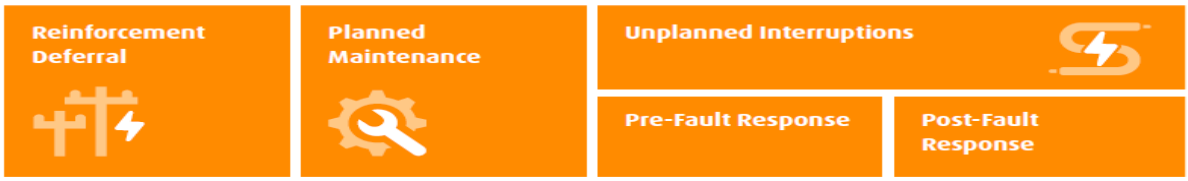

Figure 3 DNO requirements

WS1 P2, DER Services Procurement, describes the different types of service (by their characteristics) that DNOs might require and how these could be co-ordinated alongside GBSO services. The table below (copied from WS1 P2) summarises the service characteristics into four categories.

Service Characteristics	Scheduled Constraint Management	Pre-fault Constraint Management	Post-fault Constraint Management	Restoration Support
When to act	Pre-fault	Pre-fault	Post-fault	Post-fault
Triggering action	Time	DSO forecast; or Asset Loading	Network Fault	Network Fault
Certainty of utilisation	Very certain	Uncertain	Uncertain	Very uncertain
Efficiency of utilisation	Low	Medium	High	Low
Risk to network assets	Low	Medium	High	Low
Frequency of use	High	Medium	Low	Low

Figure 4 service characteristics from Workstream 1 P2

More information on these can be found by accessing WS1 P2 here.

The above Figures are examples of good practice.

In future as the market for flexibility matures and with increasing penetration of DER onto the lower voltage networks, flexibility needs on the distribution networks could also include:

- LV flexibility needs
- Whole system products and
- Demand turn up

Each of these categories contains a number of specific services. Not all services may be relevant to all network operators – National Grid for example may be interested in a wider range of flexibility services than DNOs. However as the transition to DSO (Distribution System Operator) continues this balance may change.

As well as providing significant benefit to network operators typically in terms of lower investment costs flexibility service providers can also derive significant financial benefit. If the overall costs are lower, end user customers will also benefit through reduced charges.

5. Who is this document aimed at/target audience?

- Network operators considering tendering for the procurement of flexibility/balancing services

- Flexibility service providers looking to provide flexibility services to network operators who should consult DNO websites

6. What/who has informed this document?

- Under the guardianship of the Open Networks Project, a product team was assembled and comprised representatives from National Grid SO, SP Energy Networks, UK Power Networks and WPD.

- As mentioned earlier, National Grid SO has extensive experience in the procurement of balancing services. Only a couple of DNOs have gained experience in the procurement of flexibility services, although almost all DNOs have experience of managing constraints on their networks.

- Some of the outputs from WS1 have informed this document. The work here has been shared within the Open Networks Project and has been tested with the Open Networks Project Advisory Group. It has also been shared with the DER Connections Steering Group comprising DNOs and key stakeholders.

7. What does good practice look like?

The key to network operators successfully procuring flexibility services is in being able to communicate their requirements to flexibility service providers clearly and accurately. The following section provides guidance on good practice.

Overview

The procurement of flexibility services by DNOs is still in its relative infancy with only a few DNOs having sought the provision of flexibility services. Engagement with stakeholders has varied but has tended to be based upon tried and tested methods/processes.

When launching a new service to meet a system requirement, network operator/owners need to engage with potential providers to raise awareness of the new opportunity and promote participation.

It is essential that engagement methods cater for both the needs of new market entrants as well as existing connected customers. New market entrants will typically need to invest to provide services whereas existing connected customers are "sitting" on their assets. Platforms should ideally be capable of catering for the needs of multi-site customers as well as single sites.

In order to enable potential providers to fully understand the opportunity available to them and make informed decisions, the network operator will need to provide clear information on the service requirements being sought. The example below is from National Grid website. It details the services National Grid procure to help balance the transmission system.

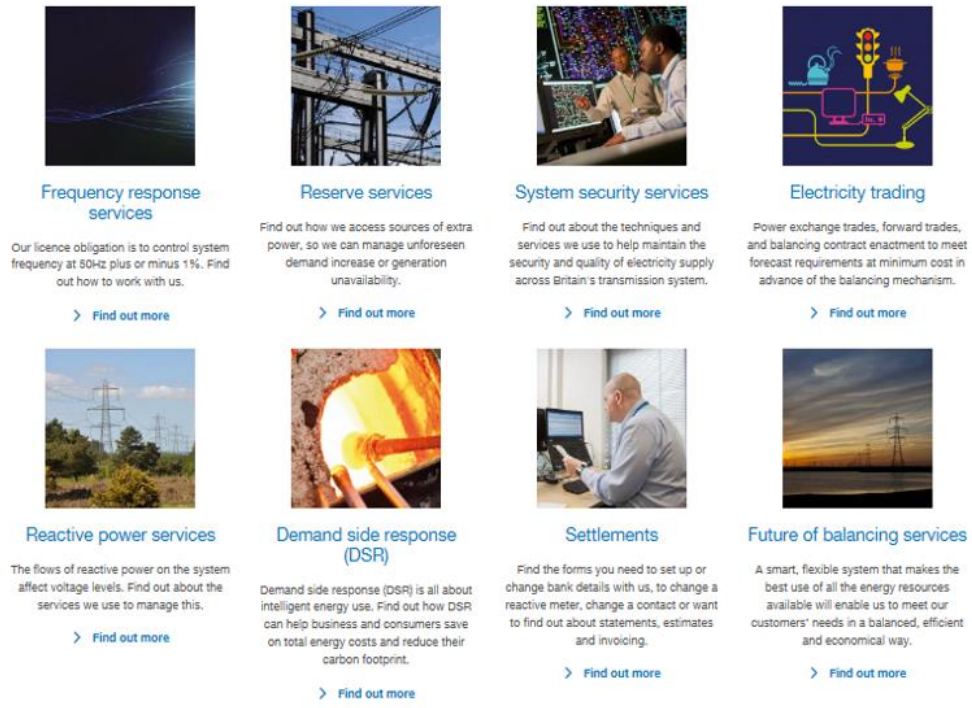

Figure 5 example from National Grid website

Information provision

It is good practice to share information on:

- the drivers for the service/the network requirement including whether the needs are a short or long term requirement
- service requirements, including:
  - the characteristics required by assets to deliver the service (as described in WS1 P2).
  - minimum MW thresholds (if applicable)
  - locational requirements
  - specified service windows – whether requirements vary within day, week, month, season etc.
- procurement method
  - chosen method e.g. competitive tender vs fixed price
  - timeline for procurement exercise(s)
  - assessment criteria for procurement exercise
- payment approach and structure, including:

        - the types of payments the provider can expect to receive for being on standby and delivering a service
        - whether the prices paid are set or can be specified by potential providers
        - behaviour constituting an Event of Default and the associated penalty
    - possible contract lengths
        - frequency of procurement eg. whether once a year for a long (a year) period or more regularly i.e. in one monthly windows but for a twelve month period.
    - dispatch information, including:
        - notice period
        - likely utilisation, if possible (for example based on historic data or anticipated need)
        - hardware, software, technology and mechanisms
    - position on service conflicts
    - what flexibility has been procured and dispatched during previous contract rounds. This will provide useful signals to the market

Communication

DNOs should endeavour to reach both new market entrants and existing connected customers as well as industry players such as suppliers and aggregators.

Multiple engagement channels will help to maximise the effectiveness of this communication, for example establishing a mailing list for email updates to interested parties, maintaining an up-to-date webpage with Frequently Asked Questions, hosting webinars, holding dedicated events and/or utilising third party events. These should cater for both the needs of smaller and larger customers as well as those with single and multiple sites.

Consideration should be given to the ENA hosting both a general flexibility services webpage (with links to DNO webpages) and flexibility services register of interested parties. A system-wide resource register (WS 1 P8) has covered this as part of their work in 2018 and it is proposed that this will be developed further in 2019.

Heat maps or geographical representation should also be considered. From a customer perspective, it is good practice for such maps/geographical representations to be similar if not identical. An example of the current communication methods used by DNOs is shown below.

These identify locations where the DNO is seeking to procure flexibility services. Further information on the input required by the DNO is available by clicking on the icons within the actual application.

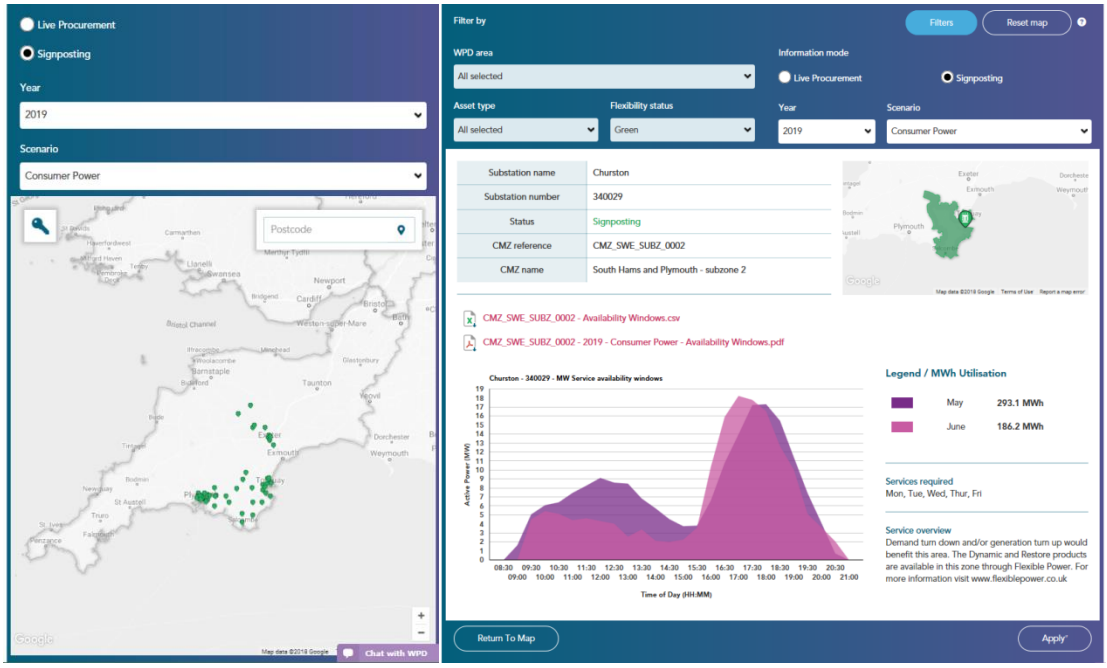

Figure 6 WPD Flexibility Roadmap[1]

Figure 7 Piclo

Piclo is currently being used by a number of DNOs

[1] http://www.westernpower.co.uk/network-flexibility-map

Depending on the type of service being procured visibility should be flagged at both an early stage say 18 months in advance as well say 6 months in advance.

Procurement for where the triggering action is a network fault (see table above) is most likely to be achieved by a term contract.

Network operators/owners should also be mindful that potential providers will have differing levels of understanding and experience in service provision and so, if time and resource permits, it may be valuable to offer one-to-one meetings to allow for more detailed and tailored engagement.

It is good practice to set up a dedicated website and email address for flexibility services. Depending on the maturity of services, network operators/owners may wish to establish Account Manager/Project Manager roles to manage relationships with potential service providers.

Once details of the service have been communicated, Account Managers or responsible teams shall deal with the queries from existing and potential providers/customers connected/to be connected to the distribution network. It is good practice to set a Service Level Agreement (SLA) for response time to queries.