Energy Networks Association

Open Networks Project

System Wide Resource Register Feasibility Report

5th December 2018

WS1 & Product 8
Restriction: Public
## Document Control

### Version Control

<table>
<thead>
<tr>
<th>Version</th>
<th>Issue Date</th>
<th>Author</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>12\textsuperscript{th} November 2018</td>
<td>ENA</td>
<td>Final draft for checking following Product 8 telecons to review reports.</td>
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<td>ENA</td>
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<tr>
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<td>Version issued to team for further review taking on board comments from WS1 and Steering Groups.</td>
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<td>Proposed version for publication addressing the outstanding points raised by the WS1 and Steering Groups.</td>
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<td>5\textsuperscript{th} December 2018</td>
<td>ENA</td>
<td>Proposed version for publication including final changes from Product 8 team and ENA.</td>
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1 Summary

Workstream 1 Product 8: System Wide Resource Register has considered the requirements for a centrally co-ordinated System Wide Resource Register for Distributed Energy Resources (DER) and a Reinforcement Works Register. These registers would provide a single place where industry stakeholders could access comprehensive DER data. The registers would support stakeholders as they plan to connect to networks and provide services to network operators. They would also support network companies in their network investment planning and operational decision making.

This document reports the work carried out during 2018 to assess the detailed requirements for these registers and presents options to implement the registers. A proposed plan to take a System Wide Resource Register and a Reinforcement Works Register during 2019 is outlined.

2018 Work

The work carried out during 2018 has covered a number of elements. Current network company information has been reviewed to better understand what is in place and where there are gaps. The scope and format for centrally managed Resource Registers has been identified and potential data confidentiality and code framework issues have been considered.

- The review of existing network company data established that much data on DER is already available albeit there are gaps and data is managed in different ways across companies.
- Templates for the proposed registers have been designed and reviewed with stakeholders.
- To enable wider sharing of certain data, Licence and Network Code aspects would have to be addressed. Additionally, new obligations would be required on companies to ensure that good quality data is provided for the registers.
- One option for taking a centrally managed System Wide Resource Register forward would be for the GB SO to co-ordinate and manage this alongside other GB wide registers. It may be that the existing Embedded Register could form the basis of the System Wide Resource Register.
- A second option is for the ENA to establish Resource Registers as part of the Open Networks project. Given overlaps with other areas of Open Networks work, these could form a central part of the work on information provision that the ON project is carrying out.

Further work is proposed in early 2019 to agree the preferred option for taking the registers forward. However the registers are implemented, it would result in increased demands on network companies to manage DER data more consistently. It would also increase work for the co-ordinating organisation to bring together network information alongside information from other sources.

Whilst the potential benefits of establishing a System Wide Resource Register were recognised, some concerns were identified by stakeholders. As well as the need to agree and implement Licence and Code changes, there were also concerns that the costs of process changes, new resources and system changes may outweigh the demand and value of the information improvements. Industry stakeholders and the Open Networks Steering Group were keen that these risks were managed.

Proposed Work for 2019

Further work is proposed to address concerns and take a System Wide Resource Register forward as part of the 2019 Open Networks programme.

The work proposed for the first half of 2019 looks to carry out preliminary work ahead of deciding on full implementation of a Resource Register. It is proposed that a webpage (or pages) would be set up by the ENA in its Open Networks area to enable more straightforward navigation to existing industry
data. This would provide explanation of the data, improve access to existing data and represent a partial implementation of a Resource Register. If this initial stage is established early in 2019, it will allow use of the data to be monitored and the demand for improved data to be better understood. This webpage would also summarise data on the levels of DER flexibility services provided to DNOs.

Alongside work to further understand the level of demand, the necessary licence and code changes would be framed and options for ongoing implementation would be further developed ahead of an implementation decision in mid-2019. If demand for a System Wide Resource Register is established and if there is agreement on the Licence and Code aspects, then full implementation of the preferred option would begin in the second half of 2019. Through 2019, progress on the Resource Register will be further reviewed with the new Energy Data Task Force being launched by BEIS and Ofgem.
2 Introduction

This report is part of the ENA Open Networks Project, Workstream 1 (WS1), Product 8: System Wide Resource Register.

The scope for Product 8 includes the development of a structure for a System Wide Resource Register and consideration of the feasibility to implement. Such a register would support decision making by network companies and by their customers and stakeholders. The purpose of this report is to set out the work undertaken during 2018 and to summarise the proposed approach in the development of the System Wide Resource Register and to assess options for implementation. Planned work for 2018 did not include actual implementation of a System Wide Resource Register.

In recent years, network companies have been more proactive at making information available publicly to customers to assist early informed decisions about opportunities as to where to seek a connection to the network. This information ranges from heat maps to lists of contracted generation. With networks becoming increasingly constrained, and the shift towards generation, storage and flexible demand as the mix of distributed energy resources all seeking connection across the transmission and distribution networks, network companies are receiving more requests from customers to widen the scope of the information made available. Coupled with increased focus on queue management, revisions to the Statement of Works process and demand for flexible services, this has re-opened the debate on whether or not network companies should publish contracted queues associated with GSPs and contracted queues linked to registers of reinforcement works.

Customers have consistently expressed the need for improved availability of information to support business planning and investment decisions along with more efficient procurement of services. Similarly, better quality and more readily available information would improve network company investment and operational decision making. As part of the Open Networks work in 2018, the Product 8 team has been looking at options for the structure of a System Wide Resource Register with a view of providing improved availability of information for the benefit of both stakeholders and network companies. The content of the System Wide Resource Register would be supported by DNOs, IDNOs, TOs and the GBSO and would be centrally managed.

The work under WS1 Product 8 has a key focus to ensure that any recommended approach adopted for implementation will be supported by industry reporting processes across the network companies with any information reported and published done so on a consistent basis.

The System Wide Resource Register product is comprised of 5 sub-products. The sub-products and associated deliverables are as follows:

- 8.1 Review & Report What is Currently in Place
- 8.2 Identify Potential Format & Requirements
- 8.3 Establish Approach for Sharing Contracted DER Information
- 8.4 Consider Publication of GSP Queues, Reinforcements & Data Protection
- 8.5 Report Feasibility of System Wide Resource Register

This report constitutes the last deliverable of WS1 Product 8. It details the work to date, engagement with network companies and stakeholders, and sets out proposals for the structure of the proposed System Wide Resource Register along with considerations for implementation.
3 Product 8 Scope & Findings

In delivering sub-products 8.1 to 8.5, the workgroup has reviewed what existing DER information is available across network companies, engaged with wider stakeholders and has proposed a structure for a Resource Register. The workgroup also considered data confidentiality, GB network code obligations and notification requirements and what information, currently not accessible, might be shared. The following sections 3.1 to 3.5 summarise the main areas of assessment.

Whilst WS1 Product 8 did not encompass the overall development and implementation of a new System Wide Resource Register (database) for implementation, the workgroup has considered what could be feasible in terms of improving on and/or adding to existing information.

3.1 Review & Report What is Currently in Place (Sub-Product 8.1)

At present, information on DER resources is drawn from different national and regional databases and, as a result, can often be incomplete with gaps in important areas. During the first phase of work under Product 8, the workgroup reviewed the current position and assessed what information is available and how this could be improved for network operators and stakeholders.

The WS1 Product 8 workgroup conducted a survey across the GBSO and DNOs to understand what information they currently publish. Each company reported back on published information along with some detail as to how this information is compiled, what form the information takes, what the demand for the service is and where information is available. The survey consisted of 7 questions:

1. How is information compiled?
2. What information is published?
3. What form does this information take?
4. What time period does information represent?
5. Who are the custodians?
6. What is the demand for this service?
7. What feedback has been received?

The output of the survey is summarised in a presentation available at:

Key points are shown below in Table 1:

Table 1 Existing Information on DER Resources Held by Network Companies

<table>
<thead>
<tr>
<th>GBSO</th>
<th>Descriptor of Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEC Register</td>
<td>List of all direct transmission contracted and connected sites, along with details of customer, site name along with status and capacity. Register also indicates which Transmission Owner network area the project is connected to.</td>
</tr>
<tr>
<td>Embedded TEC Register</td>
<td>List of all embedded generation contracted and connected sites, along with details of customer, site name along with status and capacity. Register also indicates which Transmission Owner network area the project is connected to.</td>
</tr>
<tr>
<td>Interconnector Register</td>
<td>List of all contracted and connected interconnector sites, along with details of customer, station name along with status and capacity. Register also indicates which Transmission Owner network area the project is connected to.</td>
</tr>
<tr>
<td>NGET Transmission works Register</td>
<td>List of all planned works, reference number, description of the works, linked projects and planned completion date.</td>
</tr>
<tr>
<td>LDTEC Register</td>
<td>List of application received by the GBSO for Limited Duration TEC. This includes customer, site, MWs, duration and application status.</td>
</tr>
<tr>
<td>STTEC Register</td>
<td>List of application received by the GBSO for Short Term Duration TEC. This includes customer, site, MWs, duration and application status.</td>
</tr>
</tbody>
</table>
In addition to the information reported, DNOs, as part of their licence obligations and Incentive of Connection Engagement (ICE) commitments, also publish the following information:

- **Connection Guides**
- **Long Term Development Statements (LTDS)**
- **Common Connection Charging Methodology Statement**
- **Incentive on Customer Engagement (ICE) Plan**
- **GIS Information** (e.g. locations of DNO substations and routes)
- "Heat-maps" to illustrate connection opportunities.

It was noted however that some information is not readily available at present to stakeholders and/or network companies. This includes:

- Transmission Heat Maps
- Views of Contracted Capacity versus Installed Capacity
- GBSO visibility of all DER connected to DNO networks
- DNOs visibility of FITS connected generation
- DNOs visibility of services provided to the ESO by distribution connected DER

In general, there would appear to be a good level of commonality between DNOs as to certain information that is made publicly available. There are however examples of some DNOs who are further advanced in some areas of development, e.g. development of DSOF (Distribution System Operability Framework) and DFES (Distribution Future Energy Scenarios). It was also noted that it is not clear and consistent the basis upon which information is published, for example whilst all DNOs currently publish heat maps, these are not available in a consistent form.

To some extent, other Open Network products in the 2018 workplan are investigating similar information used by network companies. For example, Workstream 1 Product 5 is considering the development of a Whole System FES process by network companies. Workstream 2 Product 1 has established guidelines for good practice in how information, including heat-maps, should be made available to customers in the pre-connection application phase. The main overlapping areas of Open Networks 2018 work are summarised in Figure 1.

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**Table: Descriptor of Information**

<table>
<thead>
<tr>
<th>DNOs</th>
<th>Descriptor of Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset Data*</td>
<td>Information on assets</td>
</tr>
<tr>
<td>Capacity Maps (Dynamic)</td>
<td>The availability of traditional capacity. This is determined by finding the difference between asset rating and peak loading for a number of assets. The minimum permitted generation and demand is calculated at a Primary level and all assets above.</td>
</tr>
<tr>
<td>Heat Maps (Static)</td>
<td>Fault level, thermal overload and voltage exceedance data is captured from Primary System Design and formatted into a table. This information is then translated into a coloured highlighted geographic overlay onto the EHV network.</td>
</tr>
<tr>
<td>DNO Contracted Volumes</td>
<td>Contracted volumes for generation are aggregated by Primary/BSP/GSP. Level of detail varies across DNOs.</td>
</tr>
<tr>
<td>DSOF*</td>
<td>Distribution System Operability Framework which details and describes the top operability issues to influence industry into creating/developing solutions</td>
</tr>
<tr>
<td>Flexibility Requirements*</td>
<td>Analysis of current and future distribution flexibility requirements is undertaken and quantified. Forecasted information on Month and Hour MW/MWh requirements are collated per nominated constraint.</td>
</tr>
</tbody>
</table>

*Not available for all DNOs*
Potential overlaps with WS1 Product 8 include:

- DER data that might be used for Whole System scenarios (WS1 Product 5).
- WS2 Product 4 may identify data on DSO flexibility services.
- WS2 Product 1 is identifying good practice for the data to be provided ahead of connection applications, and
- WS2 Product 5 is considering connection queue management.

Any implementation of a System Wide Resource Register should take the outcomes of these and other ongoing Open Network developments into account.

3.2 Identify Potential Format & Requirements (Sub-Product 8.2)

The scope of WS1 Product 8, sub-product 8.2 was to develop a proposed format for the System Wide Resource Register. During this development, the WS1 Product 8 workgroup identified that much of the data proposed within the System Wide Resource Register and Reinforcement Works Register is already available from existing information resources, for example:

- GBSO TEC Register
- GBSO Embedded Register
- GBSO Works Register
- DNOs Contract Registers

In order to more fully assess what information stakeholders would like that isn’t currently available, the WS1 Product 8 workgroup engaged directly with stakeholders in this regard. The WS1 Product 8 workgroup considered it important to understand what information stakeholders would like to see made publicly available and to understand the key drivers for this information.

The proposed fields which will form the System Wide Resource Register and Reinforcement Works Register are set out in an earlier Product 8 deliverable at: http://www.energynetworks.org/assets/files/ON-PRJ-WS1%20Product%208-September%202018.pdf

The proposed fields are also summarised in Tables A and B within the Appendices (Section 8) of this report. The data set presented has been identified as those which best serve requirements of interested stakeholders. This follows consultation with all network companies along with representatives of the DER Steering Group and the Open Networks Project Advisory Group.

For the data shown in Tables A and B, it is anticipated that the relevant network companies would provide the data for DER in their areas. It is anticipated that most of the data fields shown in Tables A & B would be available for public access but that the fields relating to any network services that DER may be providing would be restricted to network company access. Visibility of the latter will
allow DNOs to know what type of flexibility services are in operation on their network along with who is providing them, which in turn will allow them to identify potential local service providers but also any potential conflicts between different services in constrained areas of the network.

Having different levels of access to data fields for different stakeholders will complicate implementation but should help overcome wider concerns about data sensitivity.

It is also proposed that the Resource Register is updated and published on a monthly basis. Analysis of changes that influence updates to existing registers support this to be a reasonable timeframe.

3.3 Establish Approach for Sharing Contracted DER Information (Sub-Product 8.3)

The key focus of sub-product 8.3 was to assess what provisions are in place in order for DNOs and the GBSO to publish information and to identify what barriers there are with respect to confidentiality and what would be required to overcome them.

During this assessment, it was identified that DNOs are restricted in their ability to publish certain information in relation to customer connections. This differs from the GBSO. For example, the information published by the GBSO as part of the TEC and Embedded Registers is made available in order to comply with CUSC obligations.

WS1 Product 8 engaged with DNO representatives that form the Connections COG, a sub-group of the COG (Commercial Operations Group). During this engagement, the collective view was that the over-riding restriction sat within the Utilities Act, Section 105:

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**General restrictions on disclosure of information.**

1. Information which—
   
   (a) has been obtained under or by virtue of the provisions of this Act, Part I of the 1986 Act[F1, Part I of the 1989 Act F2, F3, section 104(3) or 105(6) of the Energy Act 2004[F4, Part 2 or section 27 or 28 of the Energy Act 2010[F5, section 50 or 51 of the Energy Act 2013]] or section 41 or 106 of the Energy Act 2008[F6, for the Domestic Gas and Electricity (Tariff Cap) Act 2013]] and

   (c) relates to the affairs of any individual or to any particular business. shall not be disclosed during the lifetime of the individual or so long as the business continues to be carried on, except as provided below.

2. Subsection (1) does not apply to a disclosure made with the consent of the individual or the person for the time being carrying on the business.

3. Subsection (1) does not apply to a disclosure if—
   
   (a) it is made for the purpose of facilitating the performance of any functions of the Secretary of State, the Authority, [F7 Citizens Advice, Citizens Advice Scotland] or the [F8 Competition and Markets Authority] under the 1986 Act, the 1998 Act[F9, section 104 or 105 of the Energy Act 2004][F10, sections 41 to 43 F11, of the Energy Act 2008][F12, Part 2 or section 28 of the Energy Act 2010][F13, section 50 or 51 of the Energy Act 2013][F14, the REMIT Regulations] or this Act;

   [F14(acc)] It is made for the purpose of facilitating the performance, by a body specified as the Administrator under an order under section 33BC of 33BD of the Gas Act 1989 or under section 41A or 41B of the Electricity Act 1989, of its functions under that section and the order.

   [F15(2a)] It is made for the purpose of facilitating any functions of any person under section 103 of the Energy Act 2008.

   [F16(2b)] it is required by a notice under section 103B of this Act or is permitted by subsection (6) of that section.

   (d) it is required by a notice under section 28(9) or 28(2A) of the 1986 Act;

   (c) it is a licence holder and is required to be made by a condition of his licence; or

   (d) it is made by a licence holder to another and is required by that other licence holder for purposes connected with the carrying on of relevant activities.

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If it is determined that the GBSO will be the central custodian of the System Wide Register with obligation for publication, it is considered that the DNOs could be relieved of the restriction within the Utility Act under subsection (3) (d). This however should be subject to further legal review as part of the 2019 scope of work.

3.4 Consider Publication of GSP Queues, Reinforcements & Data Protection (Sub-Product 8.4)

This scope of this sub-product activity was absorbed as part of sub-product 8.2.

3.5 Report Feasibility of System Wide Resource Register (Sub-Product 8.5)

Implementation of a System Wide Resource Register was not part of the 2018 scope for this product. However, to further consider the feasibility of implementation, options for implementation were identified and considered.

The feasibility assessment took account of the work carried out under sub-products 8.1, 8.2 and 8.3 and the various stakeholder feedback. Different approaches to implementation are compared in section 5 (Considerations for Implementation). These include the co-ordination of the Resource Registers by either the GBSO or by the ENA on behalf of network companies. Following feedback from stakeholders and from the Open Networks Steering Group, a phased implementation is proposed. This would allow the demand for a centrally managed Resource Register to be measured before larger scale process and system changes are implemented.

Proposals for further work are laid out in section 7 (Proposed 2019 Scope to Deliver Requirements).
4 Stakeholder Engagement

4.1 Introduction

It is intended that the production of a System Wide Resource Register would support i) network companies in planning and operating their networks, and ii) DER developers and operators in planning and operating distribution connected resources.

Extensive interaction with network companies has taken place through the work of the Product 8 team and through the wider engagement with Workstream 1. Most of the data to support the implementation of a System Wide Resource Register is already available in network companies although further assessment is needed to understand what further work is needed to make this readily accessible through a central database.

With regard to DER stakeholders, 2 separate engagements have taken place during the 2018 Product 8 work. These were with the DER Connections Steering Group and with the ON Advisory Group.

4.2 Feedback from DER Steering Group

The Product 8 work was presented to the DER Connections Steering group in June. Albeit there were few DER member attendees at the meeting, the following points were captured:

- There was general support for a single central register with a single custodian.
- DER members favoured a central register as it removes the reliance on multiple sources, often with conflicting information.
- DER members emphasised that the register must provide good quality information for users to have confidence in the data.
- ON should consider capturing non network information in the register, but with limited access, e.g. DVLA data on number of registered electric car users for network companies.
- There wasn’t support for developing the register on the same basis as the GB SO which is not restricted by confidentiality in same way DNOs are.

4.3 Feedback from Advisory Group

The Product 8 work was presented to the ON Advisory Group on 2nd August. A PowerPoint slide set was presented to each of three round-table sessions and 5 questions were included to help structure the discussions. A summary of the main discussion points is captured in Table 2.

In summary, there was general agreement with the concept of having a central System Wide Resource Register but there were no strong preferences as to ownership of the Resource Register. However, it was felt that ownership needs to be considered at an early stage given the cost implications.

It was also felt that that implementation of a System Wide Resource Register should be developed with careful consideration of the associated costs as this may colour stakeholder views. Obligations to ensure the quality and consistency were also recognised as being important.
**Table 2  Discussion Points from Advisory Group Discussions on 2nd August 2018**

<table>
<thead>
<tr>
<th>Question</th>
<th>Discussion Points</th>
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| Do you support implementation of central GB registers for DER resources and Reinforcement Works? | Generally, there was support for central registers.  
It would be reasonable to update the register each month, but this may depend on automating the process. |
| What are key areas of information for stakeholders?                     | The specified data including queue information is important. Queue information could be useful to help developers understand the timescales for projects.  
We should be mindful of what queue information is published. For example, stakeholders can benefit from knowing how many projects are in a queue but don’t need to know who these are to decide on their development. |
| Are other sources of industry data available (e.g. through Trade Associations) that might support completion of the registers? | Existing sources of information include the FITS register, Capacity Market/CFD registers and the UK Govt’s renewable energy planning database. Electralink also have valuable data as do government bodies who are tracking green kwh.  
Ofgem pointed out that BEIS are consulting on the feed in tariff and, when that ends, there may be no way to know where solar and other green DER is connected. This supports a resource register.  
There is a risk of duplicating effort as others in government are working on measuring green kilowatt hours. There could be benefit of collaborating on this.  
For non-network data such as electric vehicles, there was discussion on who would provide information. The register may need to have multiple providers who can input data from sources that they own. |
| Should existing confidentiality restrictions should be revised to make information more widely available? | Access to information for non-network parties was discussed. Having different levels of access for different types of stakeholders was accepted though work is needed to understand what different stakeholders might require.  
If parties are connected on a flexible basis, or if they are providing services, this could be included in the register but may not be publicly available.  
The need for obligations to input data was recognised. There may be a need to impose requirements, and for network companies, this might mean license or code obligations. |
| What is your preferred approach to implementation including ownership and co-ordination of the registers? | The owner might be a single entity. Alternatively, multiple entities could own as with other approaches in the EU.  
Preferences for implementation would depend on the costs of different options. A phased approach may be better where current needs are addressed through short term options. |
4.4 Other Stakeholder Feedback

In separate discussions around Open Networks (e.g. with BEIS), there has been an increasing expectation that the ON work will improve access to DER data and establish a system wide database.

4.5 Conclusions from Stakeholder Feedback

In summary there was broad support from stakeholders for implementing a System Wide Resource Register though there are reservations about the quality of information in the Resource Register and the potential costs of implementing a Resource Register.

This latter point was also noted when the System Wide Resource Register was discussed by the ON Steering Group. Whilst there was support in the Steering Group for establishing a System Wide Resource Register, there were also concerns on costs and the extent to which wider DER stakeholders would ultimately access and benefit from such a register.

In summary, some key conclusions are:

- A phased approach to implementing the System Wide Resource Register would allow the full costs and benefits to be better understood before committing large-scale costs.
- The costs of implementing a full solution need to be assessed.
- Changes to code and confidentiality requirements need to be fully explored to ensure that the Resource Register will be updated with good quality information going forward.
5 Considerations for Implementation

5.1 Business Impact and Change Requirements

The proposed Resource Register requires data which is held by the DNOs, TOs and GBSO. Data from other industry sources may also be included. Much of the network company data is not currently published and, dependent upon the network company, is held within several disparate IT systems. To efficiently collate the data at the proposed monthly update rate could require the network companies to invest in IT solutions to automate much of the process; this will vary by each company.

Notwithstanding the need for improved IT systems, the production of the Resource Register on a monthly basis will also require additional resources both at the network companies and also at the publishing body. The ongoing level of resource to maintain the Resource Register is not considered to be significant but may be of the order of 1 FTE week per month for each participant. This estimate is based on the level of work currently carried out within the GBSO to maintain similar registers and to update and publish the registers on a monthly basis.

In the implementation phase, there would be additional work to cleanse data, align the data to standard formats and put in place monthly processes. As the publication and associated process become embedded within network companies, this initial resource requirement would reduce.

The publishing body, dependent upon who this is, will either have to develop a new IT platform to publish the Resource Register or, in the case of GBSO, extend the currently published registers to include the wider set of information.

It is also important that the Resource Register is appropriately "signposted" within the publishing body’s website to facilitate easy identification and navigation by stakeholders.

The new Resource Register will represent a significant increase in data collection, collation and publishing and this will have to have appropriate legal disclaimers to protect all parties.

5.2 Regulatory Considerations

To provide regulatory assurance, the requirement to publish the Resource Register should be obligated on all network companies. For example, for DNOs, this is could be achieved by review and expansion of the existing Distribution Licence Condition 25 (Long Term Development Statement).

Similarly, should the publishing body be the GBSO, then its Licence, and CUSC, will have to reflect its obligation to publish the Resource Register.

Presently, the GBSO’s connection framework stipulates that the GBSO can publish resource data insofar as it is required for the purpose of the TEC Register. Similar clauses may have to be inserted into DNO Connection Offers and Connection Agreements.

Some or all of the following documents will have to be reviewed and possibly amended to formalise the requirement to publish the Resource Register;

- Utility Act
- Licence
- CUSC
- DCUSA
- STC
5.3 Ownership, Participants & Information Exchange

In respect of ownership of the Resource Register and its publication; each network company owns and is responsible for its own data, which would be submitted to the publishing body in a consistent format. It is expected that each network company would provide data for the DER in its service area except where services are contracted with other network operators.

The body that publishes the Resource Register will most likely be one with a national coverage. The main options would be GBSO, the ENA, Ofgem or BEIS. The working group propose that the preferred option is selected following further work in the early part of 2019.

Aspects of the GBSO and ENA options are further considered in the following paragraphs:

- **Option 1 (GBSO Ownership)** - The GBSO is well placed to publish the Resource Register. It already publishes the TEC Register and it is familiar with much of the data requirements because of its bi-lateral agreements with DNOs and the TOs. It may be that the Resource Register can be implemented through extension of the Embedded Generation Register which the GBSO already publishes.

- **Option 2 (ENA Ownership)** – The ENA could also take responsibility to publish the Resource Register. This would allow the development to remain aligned with other related ON developments so that any overlaps with other information requirements can be addressed and optimised. As an initial step in early 2019, it is proposed to create an area on the ENA’s website where wider DNO resource information can be linked from.

Whilst DNOs and the TOs will be required to provide data for the Resource Register, DER may also be connected to other network owners. To facilitate a complete understanding of opportunities it is important that that other network operators and industry parties contribute data to the Resource Register. These parties include IDNOs who will have smaller DER connected to their networks, OFTOs and possibly Aggregators who will have data on resources that are providing commercial services.

Other data could be sought to enhance the Resource Register including FiTs data on renewable generation and DVLA data on electric vehicles to provide a more comprehensive database.

5.4 Gaps

The Working Group’s proposal is that the Resource Register contains only DER with a capacity of 1MW or greater. DNO records and knowledge of smaller DER, particularly domestic installations, is generally incomplete. However, should FiTs data and DVLA data on electric vehicles be made available then this could be incorporated into the Resource Register to provide a more complete picture of the network status.

Phased Connections to DNO networks will need some further consideration. These are likely to be more frequent going forward. For example, where network capacity is limited, customers may initially be connected on a restricted basis via a load management scheme with the restriction removed when more extensive network reinforcements are completed. The “MW Contracted” and “MW Connected” fields in the Resource Register (see Appendix in Section 8.1) will give some visibility of this but additional fields may need to be added.

A further concern is that DER data will change from time to time and local network companies may not be made aware of changes. Under the 2018 Open Networks programme, Workstream 1 Product 6 is providing good practice in relation to updating DNOs on changes such as asset configuration and contracted services.
5.5 Phased Approach to Implementation

To introduce the proposed System Wide Resource Register, further work by network companies and other stakeholders is required and possibly Licence/Code modifications. To advance a System Wide Resource Register the following two phase approach is proposed.

**Phase 1** – The ENA’s Open Networks’ website pages would be developed to provide a dedicated central area for current GB DER data. This would include explanations of the available data and links to the DNOs current suite of DER data. Links to other relevant published data such as Heat Maps and Long Term Development Statements (LTDSs) would also be provided. Careful explanation and presentation of the data will be required to ensure the stakeholders understand the terms used. Some data revisions may be needed to provide consistency of terminology.

Additionally, in Phase 1, the outcomes of other 2018 ON products would be factored into the implementation plan. This would include review of those products identified in section 3.1 to determine if additional fields should be included.

As there is limited information on the levels of services being provided by DER to DNOs, this will be held centrally by the ENA until the System Wide Resource Register is fully developed.

**Phase 2** – The work in Phase 1 will enable a better understanding of the ongoing costs and value of a System Wide Resource Register ahead of a decision point in mid-2019. The costs of the options outlined in section 5.3 would be further assessed and the value would be more clearly understood through monitoring the of the Open Networks website page and linked areas. Assuming it is decided to take forward the Resource Register at this point, there would be continued work towards establishing the full System Wide Resource Register including implementation of any Licence and Code changes, the detailed design and implementation of any system changes and the establishment of supporting processes in network companies.

It is recognised that data from other industry sources (e.g. electric vehicles) could be included in the database. For the initial implementation of the System Wider Resource Register, it is not proposed to include data from other sources. However, the System Wider Resource Register should have sufficient flexibility to allow additional data types and fields to be included.

The 2019 work will also liaise closely with the new Energy Data Task Force by launched by BEIS and Ofgem to ensure that the developing registers align with the direction being taken by this body.

Further detail and timescales for the delivery of the phased approach can be found in section 7 of this document.
6 Benefits

As discussed, the aim is for the proposed System Wide Resource Register to pull together information already made available by the GBSO and DNOs as well as additional information not consistently or readily available at present. The intention is for each party to publish this information in a common template or collated together and published by a single custodian (see section Error! Reference source not found.). To facilitate a complete understanding of connection opportunities it is essential that all network operators contribute data to the Resource Register. These include IDNOs, OFTOs and possibly, in the future, other parties such as Aggregators.

It is anticipated that the Resource Register will benefit customers, network and system operators by providing consistency across the information each party publishes, transparency and clarity on what is connected, contracted as well as any future network reinforcement dependent connections.

A System Wide Resource Register will therefore benefit customers by:

- improving the quality of information available with regards to connected and contracted DER;
- improving consistency across information provided by each party;
- improving transparency of what is being connected and contracted;
- improving confidence in available information by removing the reliance on multiple sources and often conflicting information;
- providing clarity on any reinforcement works triggered by customer connections; and
- allowing stakeholders to risk assess their projects based on potential dependencies with pending customer connection triggered reinforcement works.

Furthermore, a System Wide Resource Register will benefit network and system operators by providing them with information on the types of services each connected and contracted DER provides. This service related information, which will be restricted to relevant parties only (e.g. network companies), could allow them to predict the likely operational behaviour of each DER and hence predict their impact when planning and operating their network. This will enable network companies to make better investment decisions given the improved knowledge of local distribution network connected resources. Network operators would also be able to quickly identify whether there are resources locally that might provide service based alternatives to network asset investment.

Additionally, in a future world where DSOs would be looking to local DERs for the provision of flexibility services for planning and operating their networks, the Resource Register could be a starting point and provide useful information on type of service already contracted, contract duration and exclusivity (see Appendix 8.1, Table A). The Resource Register could also provide a starting point for identifying potential service providers when network operators identify a need for local services.
7 Proposed 2019 Scope to Deliver Requirements

Based on the work carried out to date and the feedback from stakeholders and the Steering Group, the preferred approach to 2019 work is summarised in Figure 2.

Figure 2 Proposed Timeline for Product 8

As noted in section 5.5, this timeline for Product 8 is based on a phased approach to implementation to enable early access to DER data from one place, and to allow benefits to begin to be assessed before commitment to a larger scale implementation project. The options for detailed implementation and the code changes needed to implement these changes would also be more fully assessed in the first half of 2019 ahead of a decision on full implementation around the end of Q2 2019.

The main elements of work in Q1/Q2 2019 include:

1. Set up an ENA Open Networks webpage with explanation of available DER data and links to available data on network company websites.
2. Network companies will update and tidy up data where required.
3. Information on emerging DNO Flexibility services will be collated and held centrally by ENA.
4. Open Networks will monitor use of webpage and use of DER data.
5. Any new requirements through 2018 ON work or through additional network company requirements will be considered.
6. Options for a longer term centrally managed System Wider Resource Register will be costed.
7. Proposed code and contract changes to support data sharing will be worked up.
8. Proposals will be further reviewed with the new Energy Data Task Force.

A decision on whether to implement the Resource Registers and the preferred approach would be made later in 2019. After this decision, any system and code changes to fully implement the Resource Register would be completed in the second half of 2019.
## Appendices

### 8.1 Table A – System Wide Resource Register (Only for Sites 1MW and Above)

<table>
<thead>
<tr>
<th>Field Tag</th>
<th>Field Descriptor</th>
<th>Public/Restricted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Name</td>
<td>Name of party contracted to connect</td>
<td>Public</td>
</tr>
<tr>
<td>Customer Site</td>
<td>Name of customer site/project name</td>
<td>Public</td>
</tr>
<tr>
<td>GSP</td>
<td>Grid Supply Point linked with Customer Site</td>
<td>Public</td>
</tr>
<tr>
<td>Point of Supply</td>
<td>Electrical position where the equipment in customer site connects to the transmission or distribution network.</td>
<td>Public</td>
</tr>
<tr>
<td>Primary</td>
<td>Name of relevant primary substation</td>
<td>Public</td>
</tr>
<tr>
<td>MW Connected</td>
<td>Total MW connected at Project Site</td>
<td>Public</td>
</tr>
<tr>
<td>MW Contracted</td>
<td>Total MW contracted in Construction Offer, not connected</td>
<td>Public</td>
</tr>
<tr>
<td>Export MW Capacity</td>
<td>Total MW capacity permitted as per connection agreement</td>
<td>Public</td>
</tr>
<tr>
<td>MW Change (+/-)</td>
<td>Future planned increase/decrease in contracted export capacity</td>
<td>Public</td>
</tr>
<tr>
<td>Effective Date MW Change</td>
<td>Date upon which the 'MW Change' becomes effective</td>
<td>Public</td>
</tr>
<tr>
<td>Type of Connection</td>
<td>Firm/Non-firm/ANM etc??</td>
<td>Public</td>
</tr>
<tr>
<td>Date Contracted</td>
<td>Date customer contracted with GBSO/DNO[IDNO]</td>
<td>Public</td>
</tr>
<tr>
<td>Date Connected</td>
<td>Date Project connected to network</td>
<td>Public</td>
</tr>
<tr>
<td>Licence Area</td>
<td>Licence area project site is connected within</td>
<td>Public</td>
</tr>
<tr>
<td>Plant Type</td>
<td>Type of plant connected at the site (wind/solar/etc)</td>
<td>Public</td>
</tr>
<tr>
<td>Service Provider (Y/N)</td>
<td>Has project registered as a service provider with host DNO, GBSO, Aggregator or Supplier</td>
<td>Restricted</td>
</tr>
<tr>
<td>Type of Service</td>
<td>Description of type of service being provided</td>
<td>Restricted</td>
</tr>
<tr>
<td>Contract Duration</td>
<td>Duration of service provider contract</td>
<td>Restricted</td>
</tr>
<tr>
<td>Exclusivity</td>
<td>Does service provider contract required customer site to limit provision of services to other parties</td>
<td>Restricted</td>
</tr>
</tbody>
</table>

Notes:

(i) Additional fields could be added particularly if other ON products have identified further data requirements. There would be opportunity to do this in early 2019.

(ii) Where a Service Provider provides more than one service, the fields describing each service could be repeated.
8.2 Table B – Reinforcement Works Register

All works listed within the Reinforcement Works Register are those triggered by customer connections.

All terms referred to in Tables A and B have the same meaning prescribed to them as those set out in the “Terms and Definitions” document published on 25th July by Work stream 2.


Public/Restricted refers to information access. Restricted information would be accessible only by GB network operators.

<table>
<thead>
<tr>
<th>Field Tag</th>
<th>Field Descriptor</th>
<th>Public/Restricted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Works Reference</td>
<td>Reinforcement Reference Number</td>
<td>Public</td>
</tr>
<tr>
<td>Works Description</td>
<td>Reinforcement Title/Summary Description</td>
<td>Public</td>
</tr>
<tr>
<td>Works Completion Date</td>
<td>Planned Completion Date of Works</td>
<td>Public</td>
</tr>
<tr>
<td>Driver (Demand/Generation)</td>
<td>Are works driven by demand or generation</td>
<td>Public</td>
</tr>
<tr>
<td>Licence Area</td>
<td>Licence area where works will be delivered</td>
<td>Public</td>
</tr>
<tr>
<td>T/D</td>
<td>Transmission or Distribution</td>
<td>Public</td>
</tr>
<tr>
<td>Customer Name</td>
<td>Name of contracted party</td>
<td>Public</td>
</tr>
<tr>
<td>Customer Site</td>
<td>Name of customer site/project</td>
<td>Public</td>
</tr>
<tr>
<td>GSP</td>
<td>Grid Supply Point linked with Customer Site</td>
<td>Public</td>
</tr>
<tr>
<td>Customer Completion Date</td>
<td>Completion date of customer connection</td>
<td>Public</td>
</tr>
<tr>
<td>Customer Queue Position</td>
<td>Queue position of customer in relation to</td>
<td>Public</td>
</tr>
<tr>
<td></td>
<td>the reinforcement works they are linked to</td>
<td></td>
</tr>
</tbody>
</table>
## Glossary

The following table sets out the acronyms used in this document.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DER</td>
<td>Distributed Energy Resource</td>
</tr>
<tr>
<td>DNO</td>
<td>Distribution Network Operator - These are companies licensed by Ofgem to distribute electricity in Great Britain.</td>
</tr>
<tr>
<td>TO</td>
<td>Transmission Owner</td>
</tr>
<tr>
<td>GBSO</td>
<td>Great Britain System Operator</td>
</tr>
<tr>
<td>IDNO</td>
<td>Independent Distribution Network Operator</td>
</tr>
<tr>
<td>OFTO</td>
<td>Offshore Transmission Owner</td>
</tr>
<tr>
<td>TEC</td>
<td>Transmission Entry Capacity</td>
</tr>
<tr>
<td>GSP</td>
<td>Grid Supply Point</td>
</tr>
<tr>
<td>LTDS</td>
<td>Long Term Development Statement</td>
</tr>
<tr>
<td>ICE</td>
<td>Incentive on Connection Engagement</td>
</tr>
<tr>
<td>CUSC</td>
<td>Connection &amp; Use of System Code</td>
</tr>
<tr>
<td>STC</td>
<td>SO-TO Code</td>
</tr>
<tr>
<td>DSOF</td>
<td>Distribution System Operability Framework</td>
</tr>
<tr>
<td>DFES</td>
<td>Distribution Future Energy Scenarios</td>
</tr>
</tbody>
</table>