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# Introduction

## Data and Digitalisation is at the heart of our plan

Our plans to transform our data and digital capabilities see us invest a total of £223.3m in ED2. That significant investment in an area that underpins our entire business plan is required to unlock the outcomes that enable our strategic objectives. The capability that this investment delivers cuts across all elements of our plan but in particular, it is crucial to our ambitions on decarbonisation because it enables [our Distribution System Operation \(DSO\) strategy](#). 47% of the investments we will make in new systems and capability enable this area of our business plan.

As with any significant investment we expect to have show that we can justify our costs by showing *what* we are investing in and *why* we need to do so. We also expect to have to satisfy our stakeholders and our regulator that the benefits we believe these investments will bring are justified by showing how they underpin the various elements of our overarching plan. And then we know that we need to be able to provide a level of confidence that we are able to deliver these initiatives using our internal capabilities, processes and skills, and external support from our partner network as and when it is needed.

This document is intended to demonstrate that we are able to do all of that. We set this out in the following pages as follows:

- We start by highlighting what **we are planning to invest in**. This shows how our plan is costed across the 10 key areas of our digitalisation strategy and how this maps to the wider business plan.
- We then describe **how we will deliver our plan**. Including how we have developed both the initiatives themselves and the costs associated with them. We also describe our approach to delivering this with our own teams and partners.
- We go onto discuss our **programme plan** and the outcomes table we have developed from it to show the **deliverables, metrics and milestones**.
- Next, we set out the substantial financial **benefits** unlocked by our plans.
- Then we step through each individual core area within our [Data and Digitalisation strategy](#) giving more detail on;
  - **what** we are investing in;
  - **why** we need to make these investments; and
  - the **benefits** they will bring.
- Finally, we describe how we will **manage uncertainty** throughout the 2023-28 period.

Whilst we recognise that our plans show a notable step up in expenditure from the current level, our confidence in being able to deliver them stems from the fact that we have significant experience in delivering multimillion pound, multi-year technology programmes as we have been doing so for some time now. In the 2015-23 period we have delivered some of the foundational capabilities upon which we will build in the next regulatory period, all of which would be categorised as either significant digital and/or data programmes of work.

We have created a digitalised model of our entire electricity network by implementing an enterprise asset management system which allows for the spatial representation of our entire asset inventory in a central, searchable database. This project alone involved multiple subject matter experts working with three external solution integrators and two technology vendors across a five-year time period and was a key deliverable in our ED1 plans. This solution is interfaced with other information systems to provide external access to our data and is used to provide the data source for our

AutoDesign capability. Moving forward we will expand the accessibility of system asset data on an Open Data basis through enhancement of our existing asset data platform.

In the same time period, we implemented our CRM platform. That system allowed us to introduce digital self-serve capabilities and track our interactions with our customers to a much greater extent. This was our first implementation using an agile project methodology on a cloud platform that could integrate back to our on-premises systems to allow customers and outages to be better connected and improve first time contact resolutions.

This CRM platform is a great example of the investments in this period that unlock several incremental improvements in the 2023-28 period, which include:

- using the solution to link data requirements from stakeholders to specific users; and
- integration of our social listening platform as well as live chat and chatbot functionality to streamline the customer care team processes and reduce manual tasks.

Our ‘Foresight’ project is using ground-breaking data analysis to enable fault prediction and proactively deploy network technology to automate the restoration of power supplies to customers. It does this by using data collected on our LV network and deploying network technology to automate the restoration of supplies to customers. Foresight will improve our understanding of indicative pre-fault behaviour of LV cable networks and our ability to develop management options for it. That will support a radical change in our approach to replacement works and will improve network reliability, which will benefit our customers and result in less physical disruption on the network and highways.

We have developed a new, online, self-service tool, called AutoDesign that allows customers to self-serve to receive budget estimates on LV connections in minutes and for free, with the ability to guide customers to the most cost-effective connection options. We expect it will accelerate low-carbon technology deployment by our customers, as well as assisting with our own LV design processes. We will continue to develop this in 2023-28 as part of our Open Insights CVP.

This same solution will be used by our technicians where customers prefer to engage with us on a face-to-face basis, providing our connections customers with omni-channels of their choice. This will speed up the estimation, quotation and acceptance cycle and will contribute towards decarbonisation through reductions in travel.

### **The role of data**

The ability to collect, analyse, and share increasing volumes of data will be essential as we transition to a DSO role. Becoming a DSO will require us to manage increasingly complex power flows, making use of network and customer flexibility. This in turn will require us to further integrate data flows into the second-by-second operation of our network – for example, responding to a fault condition by dispatching customer flexibility in the form of a demand-sided response. On a more strategic level, we will need to develop further our ability to forecast demand on the network and target investment appropriately.

In order to drive down whole system costs, our data will also need to be shared with other organisations. For example, by sharing information on the constraints on our network, we will provide potential flexibility providers with the best chance to take advantage of market opportunities. We will need to carry out especially close co-operation with the ESO, so the flexibility on our network can be deployed to reduce costs across the wider energy system.

We understand this growing importance of data and have therefore made data a significant area of investment in our plans. We have defined our data vision and are creating a scalable data function that will be able to deliver our wider data vision and data requirements. Building this capability will enable us to maximise the value of data through reuse and overlay of internal and external datasets.

We are fully committed to the Open Data principle and recognise that the Open Data products and services that we will deliver will facilitate innovation, and creation of new business models for decarbonisation. We will therefore be

implementing a number of key initiatives and changes, more information on these can be found within Appendix 1 and 2 of [our Digitalisation and Strategy Action Plan \(DSAP\)](#).

### We are investing in ten areas

We described in our main plan how these investment areas cover several categories of technology investments that are shown in Table 1.

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | Average<br>ED1 | 2023/24     | 2024/25     | 2025/26     | 2026/27     | 2027/28     | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2 Delta |
|----------------------------------------------------------------------------------------|----------------|-------------|-------------|-------------|-------------|-------------|----------------|----------------|---------------------|
| 1.0 The journey to Open Data                                                           | 0.0            | 1.8         | 1.9         | 1.9         | 1.9         | 1.9         | 9.3            | 1.9            | 1.9                 |
| 2.0 Network management capability to enable Net zero                                   | 4.6            | 4.2         | 4.2         | 4.2         | 4.3         | 4.3         | 21.2           | 4.2            | (0.4)               |
| 3.0 Data at the point of need                                                          | 1.2            | 1.6         | 1.6         | 1.6         | 1.7         | 1.7         | 8.2            | 1.6            | 0.4                 |
| 4.0 Cyber                                                                              | 1.6            | 2.2         | 2.2         | 2.2         | 2.2         | 2.2         | 11.1           | 2.2            | 0.6                 |
| 5.0 Back Office                                                                        | 1.2            | 0.6         | 0.6         | 0.6         | 0.6         | 0.6         | 2.9            | 0.6            | (0.6)               |
| 6.0 Field Force Mngmt.                                                                 | 0.7            | 1.4         | 1.4         | 1.4         | 1.4         | 1.4         | 7.1            | 1.4            | 0.7                 |
| 7.0 Robotics & Automation                                                              | 0.0            | 1.0         | 1.1         | 1.1         | 1.1         | 1.1         | 5.3            | 1.1            | 1.1                 |
| 8.0 Enabling customers to self serve                                                   | 3.9            | 4.0         | 4.0         | 4.0         | 4.0         | 4.1         | 20.1           | 4.0            | 0.1                 |
| 9.0 Advanced Analytics                                                                 | 1.1            | 3.6         | 3.6         | 3.6         | 3.6         | 3.6         | 18.0           | 3.6            | 2.5                 |
| 10.0 Future-proofed Agile                                                              | 0.0            | 0.7         | 0.7         | 0.7         | 0.7         | 0.7         | 3.6            | 0.7            | 0.7                 |
| <b>Capex</b>                                                                           | <b>14.3</b>    | <b>21.1</b> | <b>21.3</b> | <b>21.4</b> | <b>21.5</b> | <b>21.6</b> | <b>106.9</b>   | <b>21.4</b>    | <b>7.0</b>          |
| Business Support Costs - IT & telecoms (Gross)                                         | 22.2           | 23.0        | 23.1        | 23.3        | 23.4        | 23.5        | 116.3          | 23.3           | 1.1                 |
| <b>Totex - per D&amp;D plan</b>                                                        | <b>36.5</b>    | <b>44.1</b> | <b>44.4</b> | <b>44.6</b> | <b>44.9</b> | <b>45.1</b> | <b>223.2</b>   | <b>44.6</b>    | <b>8.1</b>          |

**Table 1: Technology investments in ED2 business plan**

As you can see, our plan shows we are investing more, on average, across eight of the ten core areas identified, the biggest uplifts being in areas that support either entirely new capabilities such as in the 'Journey to Open Data' or in areas that will undergo significant maturity in capability such as in 'Advanced Analytics'. To speak specifically to some of these significant spend areas;

- On Open Data we intend to invest £9.3m in **data platforms** and **integration** which is required to enable open energy system data sharing and joint planning with stakeholders, fulfilling one of the outcomes of DSO.
- Enhanced Network Management (at a cost of £21.2m) is required as without this investment in **advanced network management systems** that can support **distributed energy resources**, we would be unable to operate and optimise our network as customer and network flexibility increases.
- Finally, the £20.1m we expect to spend on Self-Service is required to facilitate the mass uptake of LCTs and development of customer flexibility by further developing our **AutoDesign** self-serve solutions and providing enhanced **network heat maps**.

We will invest in these areas because they will deliver significant benefits. However, we must not ignore the areas of cost that deliver hygiene factors that are no less important.

- We will invest £3.6m in ensuring we are setup to respond to uncertainty by adapting agile processes and platform-based solutions. Specifically, we will deploy our early cloud footprint and setup our data functions that will implement the governance to manage them.
- We will continue our track record of investing in cyber resilience to keep pace with the threats as they emerge. In the period 2023-28 we plan to invest a further £11.1m in doing so.
- We plan to reduce the manual rework and repetitive tasks that might exist across our business by spending £5.3m in deploying robotic process automation and other enterprise grade automation solutions.

Table 2 shows that these investments can be attributed across our plan areas, showing where the spend will unlock value. The most significant costs are attributed to decarbonisation which reflects our ambitions and plans in this area. In total almost 47% of our initiative costs will go to deliver outcomes to support decarbonisation.

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | 2023/24     | 2024/25     | 2025/26     | 2026/27     | 2027/28     | Total<br>costs | Average<br>ED2 |
|----------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|----------------|----------------|
| DSO                                                                                    | 9.2         | 9.3         | 9.3         | 9.4         | 9.4         | 46.5           | 9.3            |
| Other                                                                                  | 6.2         | 6.3         | 6.3         | 6.4         | 6.4         | 31.6           | 6.3            |
| Decarbonisation                                                                        | 15.4        | 15.5        | 15.6        | 15.7        | 15.8        | 78.2           | 15.6           |
| Asset Resilience                                                                       | 2.1         | 2.1         | 2.1         | 2.1         | 2.1         | 10.6           | 2.1            |
| Reliability and Availability                                                           | 2.3         | 2.4         | 2.4         | 2.4         | 2.4         | 11.8           | 2.4            |
| Environmental Action Plan                                                              | 0.3         | 0.3         | 0.3         | 0.3         | 0.3         | 1.6            | 0.3            |
| Safety                                                                                 | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.3            | 0.1            |
| Climate Resilience                                                                     | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.9            | 0.2            |
| Information Operational Resilience                                                     | 0.1         | 0.2         | 0.2         | 0.2         | 0.2         | 0.8            | 0.2            |
| Customer Service                                                                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0            | 0.0            |
| Vulnerability                                                                          | 0.5         | 0.5         | 0.5         | 0.5         | 0.5         | 2.5            | 0.5            |
| Communities                                                                            | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.2            | 0.0            |
| Connections                                                                            | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0            | 0.0            |
| Openness & Transparency                                                                | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0            | 0.0            |
| <b>Capex</b>                                                                           | <b>21.1</b> | <b>21.3</b> | <b>21.4</b> | <b>21.5</b> | <b>21.6</b> | <b>106.9</b>   | <b>21.4</b>    |
| DSO                                                                                    | 0.1         | 0.2         | 0.2         | 0.2         | 0.2         | 0.8            | 0.2            |
| Other                                                                                  | 5.7         | 5.7         | 5.8         | 5.8         | 5.8         | 28.8           | 5.8            |
| Decarbonisation                                                                        | 5.8         | 5.9         | 5.9         | 5.9         | 6.0         | 29.5           | 5.9            |
| Asset Resilience                                                                       | 4.1         | 4.1         | 4.1         | 4.2         | 4.2         | 20.7           | 4.1            |
| Reliability and Availability                                                           | 4.6         | 4.6         | 4.6         | 4.6         | 4.7         | 23.1           | 4.6            |
| Environmental Action Plan                                                              | 0.6         | 0.6         | 0.6         | 0.6         | 0.6         | 3.1            | 0.6            |
| Safety                                                                                 | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0            | 0.0            |
| Climate Resilience                                                                     | 0.3         | 0.3         | 0.3         | 0.3         | 0.3         | 1.7            | 0.3            |
| Information Operational Resilience                                                     | 7.2         | 7.2         | 7.3         | 7.3         | 7.3         | 36.4           | 7.3            |
| Customer Service                                                                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0            | 0.0            |
| Vulnerability                                                                          | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 1.2            | 0.2            |
| Communities                                                                            | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.3            | 0.1            |
| Connections                                                                            | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0            | 0.0            |
| Openness & Transparency                                                                | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.1            | 0.0            |
| <b>Cyber security &amp; Opex</b>                                                       | <b>23.0</b> | <b>23.1</b> | <b>23.3</b> | <b>23.4</b> | <b>23.5</b> | <b>116.3</b>   | <b>23.3</b>    |
| <b>Totex</b>                                                                           | <b>44.1</b> | <b>44.4</b> | <b>44.6</b> | <b>44.9</b> | <b>45.1</b> | <b>223.2</b>   | <b>44.6</b>    |

**Table 2: Technooogy Investments across business plan areas**

In Table 3, we show how our costs map back to the overall view that is required by our regulator. It shows that there is a discrepancy between the average annual cost throughout ED2 (£60.2m in Table 3 against the £44.6m quoted above in Table 2) due to the way we are expected to account for certain aspects of our operational technology that cannot be considered data and digitalisation activities.

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | RIIO-ED1    |             |             |             |             |             |             |             | RIIO-ED2    |             |             |             |             | Average     | Average     | Variance    | Variance   |
|----------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
|                                                                                        | 2015/16     | 2016/17     | 2017/18     | 2018/19     | 2019/20     | 2020/21     | 2021/22     | 2022/23     | 2023/24     | 2024/25     | 2025/26     | 2026/27     | 2027/28     | ED1         | ED2         | (£m)        | (%)        |
| <b>Northeast</b>                                                                       |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |            |
| Operational IT and telecoms                                                            | 1.0         | 0.3         | 1.2         | 1.6         | 1.7         | 1.6         | 8.9         | 7.2         | 7.6         | 9.9         | 7.2         | 8.8         | 9.2         | 2.9         | 8.6         | 5.6         | 66%        |
| Non-operational capex - IT & telecoms (Gross)                                          | 6.6         | 6.1         | 5.5         | 3.8         | 3.3         | 4.1         | 4.9         | 4.2         | 8.2         | 8.2         | 8.2         | 8.3         | 8.3         | 4.8         | 8.2         | 3.4         | 41%        |
| Business Support Costs - IT & telecoms (Gross)                                         | 9.2         | 10.8        | 11.8        | 9.7         | 9.4         | 10.6        | 8.8         | 8.0         | 10.3        | 10.4        | 10.4        | 10.4        | 10.5        | 9.8         | 10.4        | 0.6         | 6%         |
| <b>Totex</b>                                                                           | <b>16.8</b> | <b>17.1</b> | <b>18.5</b> | <b>15.1</b> | <b>14.4</b> | <b>16.3</b> | <b>22.7</b> | <b>19.4</b> | <b>26.1</b> | <b>28.4</b> | <b>25.9</b> | <b>27.5</b> | <b>28.0</b> | <b>17.5</b> | <b>27.2</b> | <b>9.6</b>  | <b>35%</b> |
| <b>Yorkshire</b>                                                                       |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |            |
| Operational IT and telecoms                                                            | 0.9         | 0.6         | 1.1         | 2.7         | 4.1         | 3.2         | 10.1        | 5.2         | 10.7        | 13.1        | 12.1        | 12.2        | 12.6        | 3.5         | 12.1        | 8.7         | 71%        |
| Non-operational capex - IT & telecoms (Gross)                                          | 5.8         | 5.8         | 5.4         | 3.6         | 3.2         | 4.0         | 5.3         | 5.3         | 7.9         | 8.0         | 8.0         | 8.1         | 8.1         | 4.8         | 8.0         | 3.2         | 40%        |
| Business Support Costs - IT & telecoms (Gross)                                         | 11.3        | 12.0        | 13.8        | 12.7        | 12.8        | 12.2        | 12.1        | 12.1        | 12.7        | 12.8        | 12.9        | 12.9        | 13.0        | 12.4        | 12.9        | 0.5         | 4%         |
| <b>Totex</b>                                                                           | <b>18.1</b> | <b>18.4</b> | <b>20.3</b> | <b>18.9</b> | <b>20.0</b> | <b>19.4</b> | <b>27.5</b> | <b>22.6</b> | <b>31.3</b> | <b>33.8</b> | <b>33.0</b> | <b>33.2</b> | <b>33.7</b> | <b>20.7</b> | <b>33.0</b> | <b>12.4</b> | <b>37%</b> |
| <b>Northern Powergrid</b>                                                              |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |            |
| Operational IT and telecoms                                                            | 2.0         | 0.9         | 2.2         | 4.3         | 5.8         | 4.8         | 19.0        | 12.4        | 18.3        | 23.0        | 19.3        | 21.1        | 21.9        | 6.4         | 20.7        | 14.3        | 69%        |
| Non-operational capex - IT & telecoms (Gross)                                          | 12.4        | 11.9        | 11.0        | 7.4         | 6.5         | 8.1         | 10.2        | 9.5         | 16.1        | 16.2        | 16.3        | 16.3        | 16.4        | 9.6         | 16.3        | 6.6         | 41%        |
| Business Support Costs - IT & telecoms (Gross)                                         | 20.5        | 22.8        | 25.6        | 22.4        | 22.2        | 22.8        | 20.9        | 20.1        | 23.0        | 23.1        | 23.3        | 23.4        | 23.5        | 22.2        | 23.3        | 1.1         | 5%         |
| <b>Totex</b>                                                                           | <b>34.9</b> | <b>35.6</b> | <b>38.8</b> | <b>34.0</b> | <b>34.4</b> | <b>35.7</b> | <b>50.1</b> | <b>42.0</b> | <b>57.4</b> | <b>62.3</b> | <b>58.9</b> | <b>60.7</b> | <b>61.8</b> | <b>38.2</b> | <b>60.2</b> | <b>22.0</b> | <b>37%</b> |

*Table 3: Mapping of IT & Telecoms costs to regulatory categories*

## Delivering the programme

We realise that delivering a programme such as this requires significant experience and expertise. We must therefore increase both our capability and our capacity, recognising that embracing digital is not just about making investments in technology but encompasses people and culture too. We have some great experience in doing some valuable initiatives in RIIO-ED1 but we know we still have a long way to go.

### We have successfully delivered complex technology programmes as part of ED1

The delivery of complex programmes is not a new concept to us. We are already implementing digital innovation projects and have experience of delivering sizeable, complex technology programmes that have spanned multiple years and involved multiple partners and suppliers. In addition, we are not building from scratch in many of the areas but upon strong foundations.

In ED1 we delivered £114.5m worth of technology initiatives, including several £10m+ programmes of work that spanned multiple years and delivered significant benefits such as the deployment of our smart grid enablers; improving our ability to enact automation on our network but more critically setting the pathway to connect many more endpoints and monitors in ED2.

The digitisation of our network records, creating a network model containing an inventory of our assets, defined within a geospatial space, so replacing our legacy GIS systems is another example of a complex programme we have completed within this period.

The key features of such projects were that they were highly complex, had many variables and involved working across several technology vendors and partners, all of which required persistent and effective management. They have also allowed us to create a significant number of reference points upon which to base our costs and apply biases appropriate to over and underspend.

We used this bank of experience to initially scope out our cost expectations against our initiatives and build the programmes of work, using maturity assessments on capabilities we knew we would utilise such as data governance and agile project delivery.

### We are driving efficiencies in our implementations

We will need to implement new, complex, systems to support our role as DSO, and add additional functionality to many existing systems. However, we are taking the opportunity to consolidate our systems and standardise our processes, allowing us to hold our operating costs static despite the increase in the scope of our data and digitalisation abilities.

We are doing this by:

- reducing the complexity of solutions, meaning they need less effort to maintain, so less cost to support;
- reducing the extent to which data is duplicated across the organisation, or requires complex transformations to be integrated with other datasets;
- moving workloads to the cloud to reduce the need for expensive data centre infrastructure, and allow us to scale up or introduce business separation between systems as required;
- consolidating to reduce the amount of software and therefore licensing required;
- moving to software which is continually updated; and
- tapping into our parent company's buying power to deliver value for our customers.



**We have had our plans scrutinised and challenged by external experts to drive down costs**

We further refined our programmes of initiatives, working with our key technology partner, Capgemini, utilising their experience across utilities and other sectors to define how we could employ agile, flexible IT and aligned business processes to support business agility – and how much cost could be avoided in doing so.

For example, by rationalising, consolidating, and re-negotiating our software licensing and service contracts we could expect to deliver our programme of work with a potential cost avoidance of 10-15%. By utilising new, enterprise wide, fully integrated digital solutions to improve processes, cut costs and future proof the business, we could again, expect to save an additional 10% over and above what may be expected for implementations such as the ones we outline in our plan. We have adjusted our costs downwards accordingly to reflect these efficiency initiatives.

Capgemini also brought insight from the market by working with key vendors such as Microsoft, Oracle and others to develop clearer views of solution costs and the effort to implement and transition. At this stage, we were able to build out the full cost of projects, including design, training and change management.

After we rigorously analysed each individual initiative from a cost perspective, drawing upon industry standards, vendor insight and experience from our technology partners, we optimised across the suite of initiatives to look for interdependencies and opportunities for consolidation, creating a saving in delivering technology holistically.

Once this was complete, a thorough decomposition of the cost was established to include, planning and design, the base solution cost, cost of implementation, training and business change, so these too could be fully understood and to look for further opportunities for consolidation.

**We have drawn on the expertise of our parent company**

To refine this, we also worked in collaboration with our parent company, Berkshire Hathaway Energy (BHE) to understand where our global level access to software vendors could both validate and improve costs (by utilising the enhanced buying power of the larger entity) and to apply their independent assurance of our plans based on their knowledge and experience of delivering similar initiatives. We feel that this leaves us with a well-defined and understood plan with accurate costs. Almost all our initiatives have clear periods of design, architecture and definition and those that do not are because we are building on existing capabilities.

**We are investing in our people and partnerships**

We do not underestimate the challenges ahead and are not assuming that our past experience is all that we will need to deliver this strategy and action plan. We will provide our colleagues with the training, upskilling and support they require to do their jobs effectively as well as increase their data literacy and ability to innovate as we take them on our journey of driving a digital culture. We will also attract new talent, with data and digital skills to complement our existing colleagues and bring in new ideas. You can read more about this in [our workforce resilience strategy](#).

Where we require highly specialised skills and knowledge, or a resource that is only required for a short period of time we will use partnerships to augment and strengthen our in-house skills and experience, this is how we operate with our partnership of suppliers and service providers today, so is not a new capability we will need to establish.

Thanks to our coordinated technology approach with our owners BHE we can leverage their size and scale to lock in favourable pricing with vendors like Oracle, allowing us to source enterprise grade, easily integrated solutions at costs we could not achieve on our own.

We will work with key technology vendors such as Oracle, who provide enterprise level software and hardware solutions that span the entire front and back office. Critically, they have the capacity to enable best practice processes based on many business deployments and will help us integrate our complex business process footprint with ease, allowing data to flow across our business and beyond. We expect to be able to deliver over 60% of our digital capability needs with these solutions in 2023-28.

Our current strategic partnership framework provides us with skills and capabilities from several significant solution providers such as Tata Consultancy Services (TCS), a global leader in IT services, consulting and business solutions as well as CapGemini, a global leader in technology services, consulting, and digital transformation.

As we progress through our digital journey, we will extend our partnerships to include neutral, technology agnostic challenge groups such as Gartner for best practices and benchmarking, the Alan Turing Institute to challenge our approach to using machine learning and AI across our data and Digital Catapult to help us tap into new and changing digitalisation skills and the start-ups who may be innovating in this space.

Whilst we feel these new partnerships will allow for appropriate external assurance to take place and help reduce the risks associated with an implementation of this size, we will evaluate the need for more dedicated independent assurance as we continue with our planning and implementation.

As mentioned previously the people aspect is key to a successful digital transformation and digital skills are critical to not only implementing but also embedding new digital capabilities. As well as developing our workforce for the future through training, support and a cultural shift towards innovation we are building a team to deliver new requirements.

We will supplement our existing teams by bringing in new resources to support the implementation of the initiatives within the [DSAP](#) with a particular focus on system and data architects and analysts who will help define and deploy new data architecture to service data-dependent DSO functions and ensure we can increase our open data products and services and develop new internal data projects to process data from 1m+ new local sensors (as an example). We will also be seeking the OT and IT skills required to implement the new systems and enhanced modelling/analytical capabilities to support efficient LV system reinforcement and a 'digital twin' of the network for strategic planning and who will support the development of innovative network flexibility solutions like automatic load transfer and voltage optimisation to actively balance variable power flows.

We expect that these new roles will be added over the course of 2023-28 but will ultimately lead to an increase in head count by around 25 roles, focussed predominantly on the areas where we are investing to improve our capabilities.

### **Delivering a programme of this size will require a well-coordinated managed environment**

Whilst we are undertaking a thorough planning process, we also recognise that the future of the energy system is uncertain, and we will need to be able to respond to developments as they occur. As described in this document, we are increasingly using agile project management methodologies, where appropriate, to provide this responsiveness. This is complemented by our increased usage of cloud-based solutions, which will enable us to quickly scale up services, driven by business and customer needs.

We must also apply a rigorous monitoring framework to wrap around our entire programme of work to provide a suitable mechanism to track progress, cost and benefits to keep this agility and uncertainty tightly controlled along the journey. Below we set out our solid internal governance arrangements which will be used to apply this monitoring.

Our data and digitalisation transformation office will sit alongside our existing programme management office (PMO) to coordinate and manage the complex programme interactions that this plan will see us embark on. Clearly there will be many dependencies across initiatives that will need continuous management, particularly those that will be developed and implemented by different partners. The PMO have been in place throughout 2015-23 and as such, have captured lessons learned that feed into every new project that we initiate, a practice that has been in place since the inception of our internal gateway process in the early part of ED1.

This internal gateway process is based on best practice project methodology aligned with the principles of PRINCE2 and will expanded to include agile as this continues to be embedded. The process is made up of six stages as defined below, the most significant changes in adapting more agile delivery will be from stage 4 onwards, but the principles will remain. These stages are agreed with the Programme Manager, PMO Manager, Project Manager and Project Sponsor up-front prior to project commencement:

- Gateway Stage 1, Strategic Review, a strategic review is undertaken of the project to ensure it aligns with the business strategy and company goals. The project is rejected or approved at this stage. Whilst this check will be repeated as part of the project, alignment with the business strategy has already been verified as part of the workstream formation.
- Gateway Stage 2, Start Up, during this stage the Project Sponsor and Project Manager are appointed, and a project brief is created. The project brief defines what the problem is that the project will address along with the business case detailing costs, benefits, risks, and the business requirements. The mandatory and project specific criteria of the project is also defined for inclusion in the gateway checklist.
- Gateway Stage 3, Initiate, work is undertaken to establish the project approach, to produce a Project Initiation Document, to develop the baseline plan including major project milestones, to create the first cut of the Benefits Realisation Strategy and Plan and gain approval of the Business Case. The work also includes the development of essential management strategies comprising communication, risk, configuration, and quality management.
- The remaining members of the Project Board (i.e., Senior User(s), Senior Supplier(s), Project Assurance, and Technical Authority) will also be appointed, in addition to the project team. Consideration will also be given to any areas of the project where more specialist advice or expertise is necessary to assure delivery of one or more of the deliverables i.e., Quality Assurance, Procurement, HR, Safety. Once planning activity is sufficiently advanced, the IT PMO / the Strategic Planning and Delivery team will arrange a meeting with the necessary stakeholders to agree the gateway criteria specific to the project.
- Gateway 4a, Design, ensures that any detailed user and business requirements are properly documented. These requirements are then used to develop a design of the solution along with the underlying technical architecture. This stage also includes the specification of a testing strategy(ies) and associated test plans. During this and the subsequent stages of the project, a highlight report on the status of the project is provided weekly to the programme management office (PMO). This report also provides information on risks, assumptions, issues, and dependencies.
- Gateway Stage 4b, Develop, development and testing of the proposed solution, as well as any planning required for its eventual deployment. If the development is being led by a third party the gateway criteria will include assurance activities designed to ensure that the business continues to validate the solution while it is being developed.
- Gateway Stage 5, Implement, this stage is concerned with the successful delivery of project outcomes within the agreed project tolerances and includes User Acceptance Testing; the delivery of training packages; compilation of appropriate business process documents; and policies etc. The Benefits Realisation Plan and evidence of effective change and risk management are key components to this gateway. Business readiness to accept and manage the enduring solution will also be considered at this stage. For the larger more complex projects a number of within stage review points will be included.

This stage may also extend into the production environment and user acceptance of the deployed solution.

- Gateway Stage 6, Close, at this final stage all implementation work is complete when it has been accepted by the programme/project board. The Project Manager will then seek formal approval of the Project Sponsor to formally close the project and disband the Project Team.

Each project is managed by a dedicated project manager who on a weekly basis provides a highlight report to the programme management office (PMO) showing project progress, risks, assumptions, issues, and dependencies. This provides assurance that the project remains on track and provides a point to escalate project issues that require a business decision to address.

On a monthly basis there is a technology portfolio board that reviews at a high level the status of all programmes within the portfolio. The technology portfolio board pack displays a RAG status of each project under the programmes that are

being managed showing if the project delivery is on track and in line with expected costs. Key issues are also identified and highlighted as part of this pack.

Project completion only occurs after successful testing and approval that the project objectives have been met. Following closure, a Project implementation review is conducted which is fed back into the PMO so that efficiencies in project management continue to be developed.

### Managing the risks associated with a programme of work this size will be critical

We know there are inherent risks associated with an implementation such as this one, particularly given the increase in complexity as we begin to interlink systems that have previously stood alone and as we seek to maintain robust levels of data assurance as we expand the amount we collect, use, and ultimately share.

When sequencing our projects, we have prioritised, by understanding the dependencies between initiatives, the least risk approach to delivery but this is something that will continue to be refined as we build out our projects in more detail and begin to select solutions.

All risks within Northern Powergrid are assessed with reference to our core principles of customer service; employee commitment; environmental respect; regulatory integrity; operational excellence; and financial strength respect. We will utilise this existing risk management framework to manage the risks associated with the delivery of this plan.

The risk assessment process is summarised below:

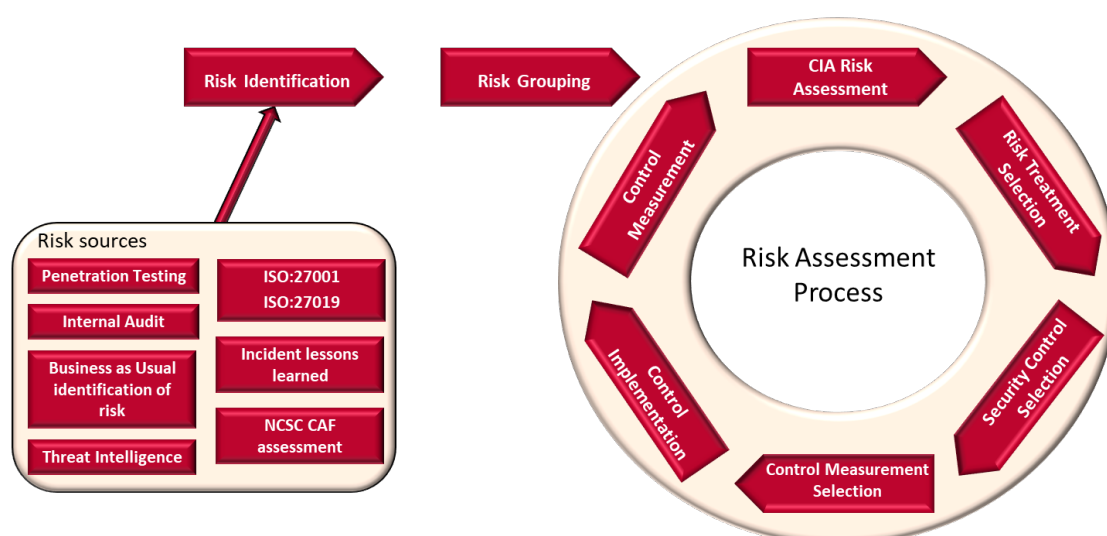


Figure 1: Risk assessment process

This framework works in parallel with the robust project governance model we already have in place which manages the overall programmes of work as well as the individual projects. As well as overseeing progress and costs, this model manages the identification, treatment and remediation of project related risks across project and programme levels.

Ultimately, these project risks are reported up to our Risk Advisory Board (RAB) who oversee this process and provide independent scrutiny of our risk identification and remediation efforts.

### We have phased our plans according to business needs

When planning the phasing of this work, we have worked closely with the business functions we will be supporting, iterating our road maps to ensure the platforms we are developing are in place at an appropriate time. In particular, data and digitalisation is an essential plank of our [DSO strategy](#), and so our plan is strongly linked to our DSO deliverables and initiatives, as highlighted both here and in our [DSO strategy](#) document. A full set of roadmaps for each data and digitisation focus area, with milestones and deliverables, can be found in our [DSAP](#).

In our DSAP we describe how we see our programmes largely fitting into one of three phases:

- **Enable.** Where we will deploy initiatives that solve immediate challenges, take us from manual capabilities to digitised ones or create new capabilities in the first instance. An example of this would be our intention to build a data and digitalisation transformation office very early in the programme to support the setting up of rigorous data governance that will enable several dependent initiatives.
- **Expand.** During this period we will take the previously established capabilities and expand them across the enterprise or expand their capabilities to release further benefits. For example, the cloud data platforms that will be deployed early in the programme, but will grow as our need for increasingly advanced analytical capabilities expand.
- **Enhance.** Having realised the capabilities in the expand phase, this phase is where we will use them to their maximum advantage to get the most value from our investments. When we have large volumes of rich datasets, for example, we will be able to utilise the fully established advanced analytics capabilities to deploy machine learning to find new insights in our data and proactively manage our asset base in a completely new way.

These phases allowed us to sequence our initiatives, aligned to business needs, in particular the [DSO strategy](#) and plans, resulting in an overarching view of this sequencing as a programme roadmap, as depicted in the following image (image 1). That has allowed us to go further and set out a view of the milestones, deliverables, and proposed measures we plan to use in 2023-28. They are summarised in the following table (table 4).

In general, our approach to the sequencing of the initiatives was as follows:

- Customer needs. Taking feedback from customers, stakeholders and the wider business, we have sought to sequence our deliverables to enable customer outcomes as early as possible in line with our business plan areas.
- Technology dependencies. Where the introduction of a technology requires reskilling of staff for them to operate such technology, or where one technical deliverable is required to enable another, we have sought to understand these dependencies and sequence appropriately.
- Cyber threat landscape. Where there is the potential for increased digitalisation to introduce new areas of cyber risk, we have sought to mitigate by sequencing in line with the IT and OT Cyber Resilience plans.
- Reduction of delivery risk. By developing a programme plan that includes detailed design phases, the use of pilots, agile initiative delivery and the management of risk throughout, we have sought to sequence to avoid delivery risk wherever possible.

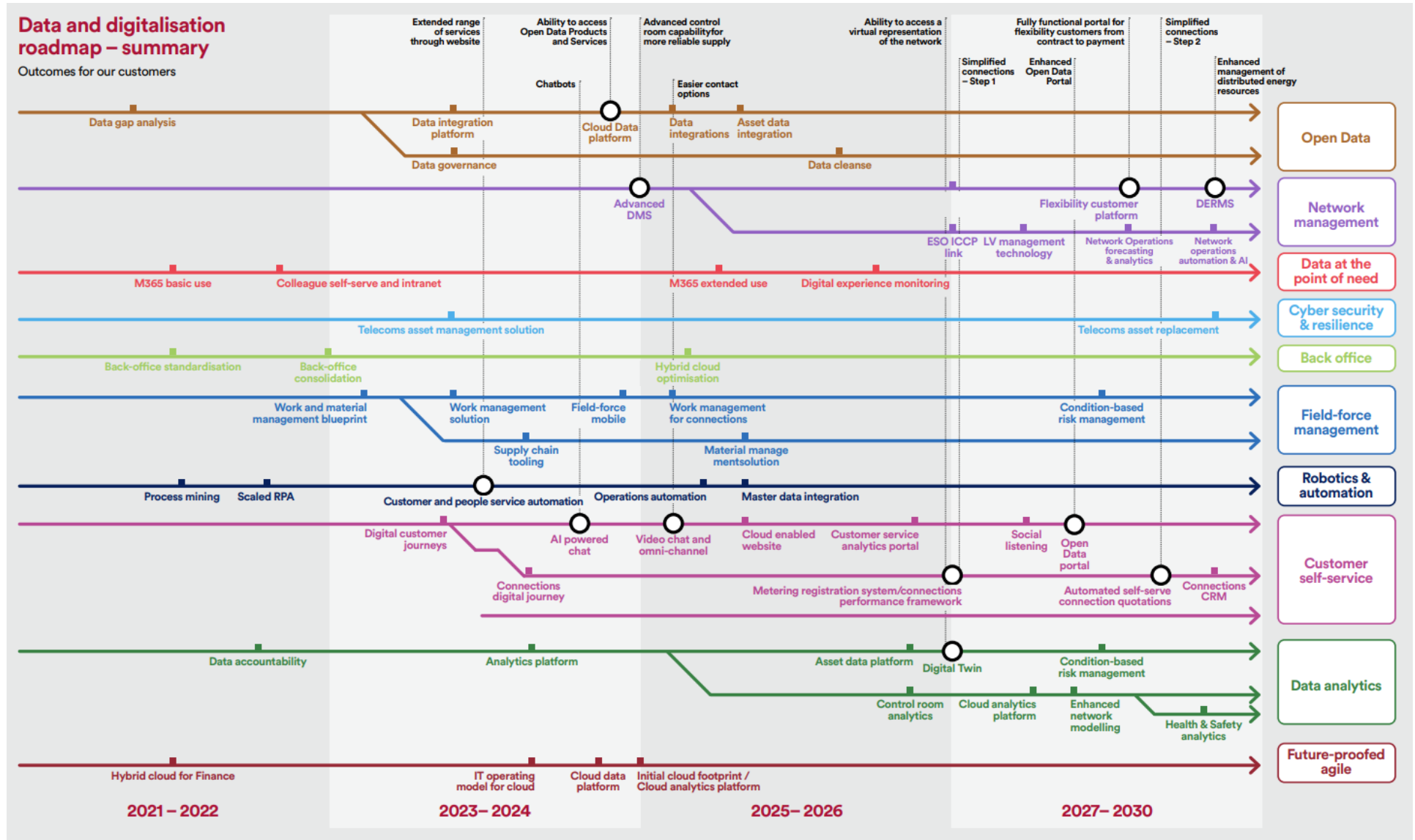


Image 1: Roadmap Summary

## Milestones, deliverables and measures

| D&D Focus Areas                                                                                                                                                                                                                                           | Milestones <sup>1</sup><br>(Italics – deliverable in another plan section)                                                                                                                                                                                                                              | Deliverables<br>(target date for deliverable – end of period unless otherwise stated)                                                                                                                                                                                                                                                                             | Annex                                                                                         | Measure <sup>2</sup><br>(output/indicative inputs)                                | ED1<br>to date | ED1<br>Forecast | ED2<br>Target |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------|-----------------|---------------|
| <b>DD1) The journey to open data</b> - Understand, improve, and expand our energy system data and promote data transparency through Open Data.                                                                                                            | <b>DD1.1)</b> Fully data best practice compliant by the end of 2023-24                                                                                                                                                                                                                                  | <b>Data integration platform</b> deployed and API management with pre-built integrations launched.                                                                                                                                                                                                                                                                | <a href="#">DSAP</a><br><a href="#">DSO Strategy</a>                                          | <b>Data best practice compliant</b>                                               | 50%            | 80%             | 100%          |
|                                                                                                                                                                                                                                                           | <b>DD1.2)</b> Asset and energy system data linked by an integration layer by 2024-25                                                                                                                                                                                                                    | <b>Data integrations</b> , initial integrations hooked up to core business platforms holding master data.                                                                                                                                                                                                                                                         |                                                                                               | <i>No. collaborative open data projects</i>                                       | 2              | 2               | 5             |
|                                                                                                                                                                                                                                                           | <b>DD1.3)</b> Open insights data portal capability launched by 2024-25 (supporting <b>DSO3.1</b> )<br><br><b>DSO3.1)</b> Open Insights data portal full functionality delivered by the end of 2026-27 CVP                                                                                               | <b>Data asset integration</b> , further integrations setup with asset and energy data systems.<br><br><b>Cloud data platforms</b> deployed and data storage for new integrations setup. Open data portal created.                                                                                                                                                 |                                                                                               | <b>Availability of energy system data products</b> (Cross-reference <b>DSO3</b> ) | -              | -               | +70%          |
| <b>DD2) Network management capability to enable net zero</b> - Upgrade and implement new IS systems to enhance network management and decision-making in real time to enable us to efficiently operate our distribution network in a decarbonisation era. | <b>DSO 4.2)</b> Enhance our Active Network Management (ANM) coordination and control to manage thermal, voltage and fault level constraints using a central and/or local management system to control flexible customer assets. Planned to deliver a complete set of capabilities by the end of 2025/26 | <b>Flexibility customer platform</b> enhancements to existing platform delivered to launch new customer services.<br><br><b>Advanced DMS</b> implemented to manage network flexibility across all voltage levels of the network.<br><br><b>DERMS</b> deployed, allowing us to operate flexibility services from customer assets such as DSR, microgeneration etc. | <a href="#">DSO Strategy</a><br><a href="#">Reliability and Availability Improvement Plan</a> | <b>Availability of DERMS capability</b>                                           | -              | -               | ✓             |
|                                                                                                                                                                                                                                                           | <b>DSO4.6)</b> Establish an Inter Control Centre Protocol (ICCP) link with the ESO, to allow real-time communication and data exchange, by 2026-27                                                                                                                                                      | <b>LV management technology</b> capability launched to enhance our ability to ingest and understand our LV network data.<br><br><b>ESO ICCP link</b> setup to allow real-time communication and data exchange between NPg and the ESO.                                                                                                                            |                                                                                               | <b>Availability of ESO ICCP link</b>                                              | -              | -               | ✓             |

<sup>1</sup> Milestones will be updated in our action plan every 6 months and managed using a change control mechanism.

<sup>2</sup> Note that the metrics listed map to the customer outcomes and do not always have a 1-1 mapping to deliverables. Numbers shown may be subject to rounding - see Annex 'A1.4 - key targets & measures' for profiled targets.



| D&D Focus Areas                                                                                                                                                                                                       | Milestones <sup>1</sup><br>(Italics – deliverable in another plan section)                                                                                                                                         | Deliverables<br>(target date for deliverable – end of period unless otherwise stated)                                                                                                            | Annex                                             | Measure <sup>2</sup><br>(output/indicative inputs)                                   | ED1<br>to date | ED1<br>Forecast | ED2<br>Target |
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| <b>DD3) Data at the point of need</b> - Introduce data and applications at the point of need in order to improve colleague efficiency and effectiveness.                                                              | <b>DD3.1)</b> Field-based colleagues have access to a new mobile collaboration platform by 2024-25<br><br><b>DD3.2)</b> Internal, remotely accessible data platform made available to field colleagues by 2025-26. | <b>M365 basic use</b> implemented for all colleagues.                                                                                                                                            | <a href="#">DSAP</a>                              | Field colleagues with access to mobile collaboration applications                    | 20%            | 40%             | 100%          |
|                                                                                                                                                                                                                       |                                                                                                                                                                                                                    | <b>M365 extended use</b> deployed introducing new technologies such as Power Apps, Power Automate and Power BI.                                                                                  |                                                   | HR and training processes available to complete via mobile intranet                  | 40%            | 50%             | 100%          |
|                                                                                                                                                                                                                       |                                                                                                                                                                                                                    | <b>Colleague self-serve and intranet</b> launched, enabling colleagues to “self-serve”.                                                                                                          |                                                   | Customer digital experience score of ‘good’ or better                                | -              | -               | ✓             |
|                                                                                                                                                                                                                       |                                                                                                                                                                                                                    | <b>Digital experience monitoring</b> deployed for internal and customer facing digital services.                                                                                                 |                                                   | Bespoke satisfaction survey – data services (Cross-reference CS3)                    | -              | -               | >90%          |
| <b>DD4) Cyber security and resilience</b> – Continue to invest in advanced cyber controls and tools to maintain a robust cyber security posture, aligned to the threats emerging from<br><br>increased digitalisation | <b>DD4.1)</b> Retain ISO27001 and ISO27019 certification in 2023<br><br><b>PC4.1)</b> Deploy a resilient mobile voice communication system for our critical field colleagues by 2025-26                            | <b>Continued cyber resilience</b> , additional cyber security tooling implemented in line with design standards to secure our network in line with the NIS-D.                                    | <a href="#">DSAP</a><br><br>Cyber Resilience (OT) | <b>Loss of information (material cyber breach)</b> (Cross-reference PC1)             | 0              | 0               | 0             |
|                                                                                                                                                                                                                       |                                                                                                                                                                                                                    |                                                                                                                                                                                                  |                                                   | <b>Loss of supply (material cyber breach)</b> (Cross-reference PC2)                  | 0              | 0               | 0             |
|                                                                                                                                                                                                                       |                                                                                                                                                                                                                    |                                                                                                                                                                                                  |                                                   | Operational Technology Network Monitoring upgrades (Cross-reference PC2)             | -              | -               | 700           |
|                                                                                                                                                                                                                       |                                                                                                                                                                                                                    |                                                                                                                                                                                                  |                                                   | BitSight score in ‘Advanced’ category                                                | ✓              | ✓               | ✓             |
|                                                                                                                                                                                                                       |                                                                                                                                                                                                                    |                                                                                                                                                                                                  |                                                   | Continued compliance with NIS-D regulation.                                          | ✓              | ✓               | ✓             |
|                                                                                                                                                                                                                       |                                                                                                                                                                                                                    | <b>Telecoms asset management solution</b> , deployed to manage all telecoms assets.<br><br><b>Telecoms asset replacement</b> , replacing our legacy Telecoms equipment with modern technologies. |                                                   | Telecoms estate managed within single asset repository linked to automated patching. | 50%            | 50%             | 100%          |



| D&D Focus Areas                                                                                                                                                    | Milestones <sup>1</sup><br>(Italics – deliverable in another plan section)                                                                                                                                                                   | Deliverables<br>(target date for deliverable – end of period unless otherwise stated)                                                                                                                                                                                                                                                                                                                                                                                                                     | Annex                | Measure <sup>2</sup><br>(output/indicative inputs)                              | ED1<br>to date | ED1<br>Forecast | ED2<br>Target |
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| <b>DD5) Modern back office</b> - Modernise the back-office environment to reduce risk, secure information and improve colleague experience.                        | <b>DD5.1) Upgraded back office fully deployed by 2025-26</b>                                                                                                                                                                                 | <b>Back-office consolidation</b> , back-office systems deployed on evergreen cloud-based software.                                                                                                                                                                                                                                                                                                                                                                                                        | <a href="#">DSAP</a> | <b>Hybrid cloud solutions deployed</b>                                          | -              | -               | ✓             |
|                                                                                                                                                                    |                                                                                                                                                                                                                                              | <b>Hybrid cloud optimisation</b> , hybrid cloud tools and processes deployed to continuously optimise IT spend in line with TBM recommendations.                                                                                                                                                                                                                                                                                                                                                          |                      | <b>Reduction in technical debt attributable to back-office</b>                  | -              | -               | 100%          |
| <b>DD6) Field force management</b> - Introduce improved field-force, work and asset management processes to improve operational performance.                       | <b>DD6.1) Connections work able to be allocated automatically via mobile app by 2025-26</b><br><br><b>DD6.2) All applicable field work types able to be allocated automatically via mobile app by 2026-27</b>                                | <b>Work solution management</b> implemented capturing work demand centrally, assigning jobs based on capacity and availability.                                                                                                                                                                                                                                                                                                                                                                           | <a href="#">DSAP</a> | <i>Work allocated automatically via work management system</i>                  | 0%             | 0%              | 60%           |
|                                                                                                                                                                    |                                                                                                                                                                                                                                              | <b>Field-force mobile</b> , mobile platform developed to assign, record and manage details of work delivery in the field.<br><br><b>Work management for connections</b> specific connections processes deployed on work management solution.<br><br><b>Supply chain tooling</b> solution deployed for field colleagues to request materials in the field.<br><br><b>Material management solution</b> , solution implemented that manages the provision of materials to engineer and predicts parts usage. |                      | <b>Reduction in avoidable "return to base" action taken by field colleagues</b> | -              | -               | 25%           |
| <b>DD7) Robotics and automation</b> - Deploy robotics and automation to reduce cost of low value, high volume tasks and improve customer and colleague experience. | <b>DD7.1) Roll out process mining across all core business areas by 2024-25</b><br><br><b>DD7.2) Deploy RPA capability for customer services processes by 2024-25</b><br><br><b>DD7.3) Deploy master data management solution by 2025-26</b> | <b>Customer and people service automation</b> deployed on customer and people service processes.                                                                                                                                                                                                                                                                                                                                                                                                          | <a href="#">DSAP</a> | <b>Total number of processes with automation</b>                                | 0              | 5               | 50            |
|                                                                                                                                                                    |                                                                                                                                                                                                                                              | <b>Operations automation</b> deployed on operational processes.<br><br><b>Master data integration</b> established to enable controlled sharing of data between systems for faster transaction and more effective analytics.                                                                                                                                                                                                                                                                               |                      | <b>Process productivity improvement through automation</b>                      | -              | -               | 30%           |

| D&D Focus Areas                                                                                                                                                                                                           | Milestones <sup>1</sup><br>(Italics – deliverable in another plan section)                                                                                                                                             | Deliverables<br>(target date for deliverable – end of period unless otherwise stated)                                                               | Annex                                                              | Measure <sup>2</sup><br>(output/indicative inputs)                                    | ED1<br>to date | ED1<br>Forecas<br>t | ED2<br>Target |
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| <b>DD8) Enabling customers to self-serve</b> - Implement self-serve, personalised services to meet customer demand and experience, implementing a customer insight and interaction portal and reducing the cost to serve. | <b>DD8.1)</b> New website, contact centre and scheduling capabilities launched by 2025-26                                                                                                                              |                                                                                                                                                     | <a href="#">DSAP</a><br><br><a href="#">Vulnerability Strategy</a> | <b>Number of digital contact channels</b><br>(Cross-reference to CS1)                 | 5              | 5                   | 8             |
|                                                                                                                                                                                                                           | <b>DD8.2)</b> Data capture and social listening deployed by 2026-27 to feed automatic complaints root cause analysis.                                                                                                  | <b>Cloud-based website</b> implemented to provide faster support for customers and reduce the number and type of inbound contacts.                  |                                                                    | <b>Increase in customers using new self-serve functionality</b>                       | -              | 10%                 | 30%           |
|                                                                                                                                                                                                                           | <b>DD8.3)</b> Upgrade self-serve customer connections platform to allow the generation of quotations for LC demand connections, load increases for existing connections, and budget estimates for new ones, by 2025-26 | <b>AI powered chat</b> deployed as part of our new website providing answers to customers at their convenience.                                     |                                                                    | <b>Open data portal for customers deployed</b>                                        | -              | -                   | ✓             |
|                                                                                                                                                                                                                           | <b>CS1.1)</b> Give customers more choice in how to contact us through the introduction of three new communication channels, while ensuring full access to traditional contact channels                                 | <b>Video chat and omni-channel</b> implemented to increase customer contact choice.                                                                 |                                                                    |                                                                                       |                |                     |               |
| <b>DD9) Advanced analytics</b> - Enable advanced analytics to improve the planning, design and operation of our distribution network.                                                                                     | <b>VN1.3)</b> Give our vulnerable customers more choice in how they engage with us by creating a fully digitised 'one-stop-solution' by 2024-25                                                                        | <b>Customer service analytics portal</b> deployed, providing a single location for customers to access information.                                 | <a href="#">DSAP</a>                                               |                                                                                       |                |                     |               |
|                                                                                                                                                                                                                           |                                                                                                                                                                                                                        | <b>Open data portal</b> implemented, providing integration between the customer service analytics portal, cloud data platforms and cloud analytics. |                                                                    |                                                                                       |                |                     |               |
|                                                                                                                                                                                                                           |                                                                                                                                                                                                                        |                                                                                                                                                     |                                                                    |                                                                                       |                |                     |               |
|                                                                                                                                                                                                                           |                                                                                                                                                                                                                        |                                                                                                                                                     |                                                                    |                                                                                       |                |                     |               |
| <b>DD9) Advanced analytics</b> - Enable advanced analytics to improve the planning, design and operation of our distribution network.                                                                                     |                                                                                                                                                                                                                        | <b>Cloud analytics platform</b> new functionality and scalable capacity to meet future analytics workloads implemented.                             | <a href="#">DSAP</a>                                               | <b>Availability of energy system data products (ODI-F)</b><br><i>[Linked to DSO3]</i> | -              | -                   | +70%          |
|                                                                                                                                                                                                                           | <b>DD9.1)</b> Provided open access to the digital twin of our network by 2026-27                                                                                                                                       | <b>Digital twin</b> static strategic planning model of the network deployed to improve network planning and investment.                             |                                                                    | <b>Colleagues using self-service analytics</b>                                        | -              | -                   | 50%           |
|                                                                                                                                                                                                                           | <b>DD9.2)</b> Completed implementation of single reporting, analytics, and information delivery platform for the Control Room by 2026-27                                                                               | <b>Condition-based risk management</b> that develops our risk management tools and allow us to better target capital investment launched.           |                                                                    | <b>Contractors accessing cloud analytics platform for safety portal</b>               | -              | -                   | ✓             |
|                                                                                                                                                                                                                           |                                                                                                                                                                                                                        | <b>Control room analytics</b> implemented in a single reporting, analytics and information delivery platform for the control room.                  |                                                                    |                                                                                       |                |                     |               |
|                                                                                                                                                                                                                           |                                                                                                                                                                                                                        | <b>Enhanced network modelling</b> implemented allowing us to undertake advanced and automated systems analysis.                                     |                                                                    |                                                                                       |                |                     |               |

| D&D Focus Areas                                                                                                                               | Milestones <sup>1</sup><br><i>(Italics – deliverable in another plan section)</i>  | Deliverables<br><i>(target date for deliverable – end of period unless otherwise stated)</i>                                                                                                                                                                                                                                                                        | Annex                | Measure <sup>2</sup><br><i>(output/indicative inputs)</i> | ED1<br>to date | ED1<br>Forecast | ED2<br>Target |
|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------|----------------|-----------------|---------------|
| <b>DD10) Future-proofed agile</b> - Provide future-proofed, agile solutions to be flexible enough to adapt to the change in the energy sector | <b>DD10.1) Established a cloud-ready, dev-ops management capability by 2023-24</b> | <b>Cloud data platform</b> initial cloud data platform implemented for HCM, Finance and CX business areas. Introducing capabilities that will be built on in DD1 and DD9.<br><br><b>Hybrid cloud for Finance</b> completing the upgrade to our Finance and Planning solutions as they reach end of life to deliver new functionality to cover end-to-end processes. | <a href="#">DSAP</a> | Cloud financials solution implemented                     | -              | -               | ✓             |
|                                                                                                                                               |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                     |                      | Cloud capital projects solution implemented               | -              | -               | ✓             |
|                                                                                                                                               |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                     |                      | Cloud HR solution implemented                             | -              | -               | ✓             |

Table 4: Roadmap Summary

This high-level representation of our plans shows that we:

- have a clear sequence and understanding of where the dependencies lie across our plans; and
- already know when we expect to deliver some milestones.

In our [DSAP](#) we break down the sequencing further for each individual key area, built from a project plan that has been established to commission the programmes. In relation to the milestones and deliverables, table x described where these key deliverables will feature across our plan. That plan will be continuously refined as we prepare to deliver in 2023-28.

Overall, we believe our plans are robust and built on solid foundations with clear deliverables and milestones that we can track to ensure we are delivering value throughout but there is still more to do in 2022 to establish these programmes and projects, continue to build the capabilities we will need to deliver, particularly in the field of data management, analysis and governance for example; and source the solutions that will meet the needs of our requirements and fulfil the capabilities we need.

### Our investments unlock substantial benefits in our plan

Our initiatives combine to underpin the entirety of our plans for the 2023-28 period and will enable us to deliver a set of new and enhanced capabilities that ultimately will transform our business.

We have used feedback from our customers, businesses and regulatory guidance to identify where we need to enhance and change our capabilities, leading to the development of our ten core areas. We drilled down further to identify the initiatives that would enable these enhancements and changes. Although our initiatives are sectioned into our ten core areas, the dependencies throughout mean that the sum of the whole is greater than the ten individual parts. The initiatives, outcomes and customer benefits are shown in the diagram below:

| <div></div> <div>Focus areas</div> |                                                  | CAPEX (£m) | Impact on output areas |                           |                        |                              |                        |                          |                               |                        |                        |                        |                        |                           |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------|------------------------|---------------------------|------------------------|------------------------------|------------------------|--------------------------|-------------------------------|------------------------|------------------------|------------------------|------------------------|---------------------------|
|                                                                                                                       |                                                  |            | Decarbonisation        | Environmental Action Plan | Safety                 | Reliability and Availability | Asset Resilience       | Environmental Resilience | Physical and Cyber Resilience | Customer Service       | Vulnerable Customers   | Our Communities        | Connections            | Openness and Transparency |
| DD1                                                                                                                   | The journey to open data                         | 9.3        | <div><div></div></div> |                           |                        | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   |                               | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div>    |
| DD2                                                                                                                   | Network management capability to enable net zero | 21.2       | <div><div></div></div> |                           |                        | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   | <div><div></div></div>        | <div><div></div></div> | <div><div></div></div> |                        | <div><div></div></div> | <div><div></div></div>    |
| DD3                                                                                                                   | Data at the point of need                        | 8.2        | <div><div></div></div> |                           |                        | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   | <div><div></div></div>        |                        |                        |                        |                        |                           |
| DD4                                                                                                                   | Cyber security and resilience                    | 11.1       | <div><div></div></div> |                           |                        | <div><div></div></div>       | <div><div></div></div> |                          | <div><div></div></div>        | <div><div></div></div> | <div><div></div></div> |                        | <div><div></div></div> | <div><div></div></div>    |
| DD5                                                                                                                   | Modern back office                               | 2.9        |                        |                           | <div><div></div></div> |                              |                        |                          | <div><div></div></div>        | <div><div></div></div> |                        | <div><div></div></div> |                        |                           |
| DD6                                                                                                                   | Field force management                           | 7.1        | <div><div></div></div> |                           |                        | <div><div></div></div>       | <div><div></div></div> |                          | <div><div></div></div>        | <div><div></div></div> |                        | <div><div></div></div> |                        |                           |
| DD7                                                                                                                   | Robotics and automation                          | 5.3        | <div><div></div></div> |                           | <div><div></div></div> | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   | <div><div></div></div>        |                        |                        |                        |                        |                           |
| DD8                                                                                                                   | Enabling customers to self-serve                 | 20.1       | <div><div></div></div> |                           |                        |                              |                        |                          | <div><div></div></div>        | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div>    |
| DD9                                                                                                                   | Advanced analytics                               | 18.0       | <div><div></div></div> | <div><div></div></div>    |                        | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   |                               | <div><div></div></div> |                        |                        | <div><div></div></div> | <div><div></div></div>    |
| DD10                                                                                                                  | Future-proofed agile                             | 3.9        | <div><div></div></div> | <div><div></div></div>    |                        | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   | <div><div></div></div>        | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div>    |
| TOTAL                                                                                                                 |                                                  | 106.9      |                        |                           |                        |                              |                        |                          |                               |                        |                        |                        |                        |                           |

Figure 4: Mapping of initiatives to output areas

We know the investments made in data and digitisation will enable efficiencies across our whole business. £246m of the £378m of totex efficiencies savings embedded in our plan can be directly linked to these investments. For example, the £27.8m of investments in advanced analytics capabilities and enhanced network management will unlock £90.2m of efficiency savings.

In addition to these benefits, our data and digitisation initiatives are also vital for unlocking the £31.2m of consumer value from our four CVPs:

- **One-stop app solution for vulnerable customers.** As described above, initiatives carried out as part of the enabling customers to self-serve area (DD8) will underpin this solution which we expect will deliver a net present value of £3.3m over the period 2023-28.
- **Self-service analytics toolkit.** The combination of self-serve initiatives (DD8), and advanced analytics (DD9) will allow us to build enhanced functionality on top of our open data offering (DD1), delivering a net present value to customers of £4.7m.
- **Dynamic voltage optimisation for domestic energy efficiency.** The enhanced analytics using smart metering data and network management investments within DD2 will enable us to roll out dynamic voltage management to networks serving 1m customers by 2028.
- **Phase one of roll-out of next generation energy system.** As part of our investments in network management (DD2) we are developing the technology to support local microgrids. This will allow us to roll out 30 innovative microgrid solutions in some of the most remote parts of our network to enhance system resilience.

The total ED2 cost efficiencies that are enabled by D&D are ~£246m, and including the £30m of monetised benefits from the CVPs described above, this takes the total ED2 benefits driven by D&D investments to £276m.

The efficiency benefits from our investments in new or improved solutions alone are therefore larger than the total £223.2m which we will spend on data and digitalisation across the period, which includes all of the “business-as-usual” IT capabilities required to support our business.

We step through the justification of these investments in more detail in the rest of this document.

### Stakeholder engagement has been key to shaping our plans

Our data and digitalisation plan has been continuously tested and shaped by feedback from stakeholders, who have had the opportunity to get involved across some 800+ interactions. We firmly believe in a 'User First' approach and have engaged with a wide variety of stakeholders using various mediums, ranging from workshops through to surveys and direct mail.

We took significant amounts of input from the formal waves of engagement for our ED2 plan, receiving the feedback relevant to our underpinning initiatives and revising them accordingly, understanding the impact not only within our plan area but within areas enabled by data and digitalisation.

Stakeholders supported our ambition to use cutting edge technology and supported the increased investment in this area because they recognised the link to enabling the efficiencies as detailed later in this paper. We also created a plan to invest in the technologies that unlock decarbonisation because we heard from stakeholders that they felt that this, and environmental protection, could only benefit from increased digitalisation. Beyond this:

- customers agreed with the increased focus on personalisation that support service improvement;
- customers value our investment in the important hygiene factors such as Cyber Security;
- stakeholders were clear that investment in data and automation were key in maximising the future efficiency of DER utilisation in flexibility markets;

- effective management of customer data and data privacy was a key issue for our stakeholders;
- colleagues and trade unions felt it was important we provided the tools to enable them to carry out their roles as effectively as possible; and
- most customers supported additional investment in capacity to enable widespread use of LCTs.

We have engaged on our user personas; to ratify the user needs, their challenges and their ideal ‘tomorrows’ experience. During the development of our [DSAP](#) we engaged with stakeholders throughout, updating the document with changes resulting from their feedback and noting the more significant pieces in the “you said, we did” section. The [DSAP](#) also has a continuous stakeholder engagement methodology in place to ensure that we constantly adapt to reflect changing user needs.

User personas have been a tool used throughout our stakeholder engagement to ratify the user needs, their challenges and their ideal ‘tomorrows’ experience, captured generically but based on real discussions and needs. This allows to map our outcomes and enablers to persona needs and be able to describe how we are meeting these from an external perspective. We have developed 28 separate stakeholder personas during our engagement process, all of which have some requirement for data or digitalisation, and we will use these as we refine our plans and as we move into delivery so we can track against customer outcomes continuously.

To demonstrate this aspect of our engagement approach, an example of one of these personas is presented in Annex B of this document. In this example, we define a data stakeholder, based on real customer discussions, who has needs that will be met by the implementation of nine individual projects that are grouped under four of our core areas.

There were many more examples of where stakeholder feedback directly influenced our plans, and you can read more about these in our [Digitalisation Strategy and Action Plan \(DSAP\)](#) and [our detailed engagement findings](#).

### Breaking down our investments

Understanding how our 10 key areas breakdown will explain how the benefits we talked about earlier are achieved and what we are investing in more clarity so in the following section we will expand on each one of these areas in sequence to explain and justify our investment. Further detail on how each area enables benefits found elsewhere within our business plan is provided in Appendix 1.

# DD1: Journey to open data

## What we are investing in

We will understand, improve, and expand our energy system data and promote data transparency through Open Data. To do this, we will invest £9.3m over the period 2023-28 in the following initiatives:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | Average<br>ED1 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2<br>Delta |
|----------------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|---------|----------------|----------------|------------------------|
| <b>1.0 The journey to Open Data</b>                                                    | 0.0            | 1.8     | 1.9     | 1.8     | 1.9     | 1.9     | 9.3            | 1.9            | 1.9                    |
| - Data Quality and Governance (1.01, 1.02, 1.05)                                       |                | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 1.1            | 0.2            |                        |
| - Data Integration (1.03, 1.04, 1.06)                                                  |                | 1.1     | 1.2     | 1.1     | 1.2     | 1.2     | 5.8            | 1.2            |                        |
| - Cloud Data Platform (1.07, 1.08)                                                     |                | 0.5     | 0.5     | 0.5     | 0.5     | 0.5     | 2.4            | 0.5            |                        |

Table 5

**Data quality and governance.** We will continue to map out the potential use cases of our data in the first instance, this will be a continuous and iterative approach to ensure there is value attributed to the data we are surfacing. This will involve engaging with external data stakeholders including other networks, the ESO, suppliers, and consumers who may utilise this data. Once we have prioritised the datasets which are likely to have the greatest value to these stakeholders, we will begin the process of identifying data quality standards, embracing industry standardisation wherever possible, then addressing any issues, and transforming datasets into easily digestible formats. We will also create a Data and Digitalisation Transformation Office (DDTO). This is a central function which will manage data governance – for example, co-ordinating all data requests and deliveries, and setting the rules for data quality and availability. It will also setup the initial functions to deliver data analytics capabilities that will utilise the new toolsets described below.

**Data integration.** We will deploy the platforms that will allow both external stakeholders and internal processes to access all of our data at the point of need, in real-time. This will include functionality to catalogue data and make it searchable, provision metadata automatically, and provide strong access controls and security mechanisms to fully protect the data that cannot be considered open to all. We will collaborate with other networks and the ESO to use common standards for this where possible. We will then build the integrations between the key platforms holding our data internally on newly deployed, modern platforms that can integrate across multiple standards. For example, we will link the databases holding customer and asset information so that data can be brought together and, if appropriate, shared using our open data platform. We will also carry out a process to discover where data is gathered through methods such as spreadsheets, Access databases, emails and paper, and move these to solutions which can be integrated with the wider data platform, ultimately consolidating our information footprint to enable quicker, more accurate surfacing of data.

**Cloud data platform.** In order for us to offer open data services in a future-proofed and flexible way, we will migrate certain workloads to the cloud, improving performance and allowing them to scale on demand. This also benefits from much larger scale compute capabilities that mean some of our more complex requirements to publish data in real-time can be met without the need to invest significant upfront costs, more we will be able to scale to demand as the need grows.

## Why we need to make these investments

As recognised by the Energy Data Taskforce, the open availability of energy systems data has the potential to enable drive efficiency and create productivity gains across the system. For example:

- increased visibility of the energy system (e.g. asset locations and constraints) will make it easier for parties to deploy smart technologies where they have the most value;
- greater availability of data across the system will allow for more predictive and automated approaches to system management, and optimisation across energy vectors;

- transparency of system asset and operational data may open new markets to better drive price discovery of the value of flexibility at a local level;
- more widely available data will also provide the regulator with more ways of assessing performance and risks; and
- the availability of data to new market players may stimulate innovation and new business models.

We already share a considerable amount of data with third parties. For example, our distribution future energy scenarios (DFES) are shared through an open data platform with Leeds Open Data Institute, and we share data with the ESO to support its activities. However, at present there is still a large amount of data regarding our network is held in formats which limit its usefulness, or are not available to other entities which may be able to make use of them.

In order that the benefits of these datasets can be realised, we will need to collect, analyse and share both raw datasets and the results of analysis carried out on these datasets, in a way which is in line with Ofgem’s Data Best Practice Guidance.

### Benefits

Sharing our energy data with other organisations in the system is a vital part of our transition to a DSO. By giving organisations the information that they need to adopt a “whole system” approach, the development and operation of the system can proceed in a way which delivers decarbonisation more efficiently.

Other stakeholders will also benefit from the availability of this data. For example, customers will find it easier to access data relevant to new connections, and we will be able to better co-ordinate with partners such as local authorities and other utility companies.

As part of this focus area, we will also undertake a process of surfacing, cleansing and structuring data that we already hold, and will be able to make better use of datasets provided by other organisations. We will be able to use these datasets for a variety of purposes – for example, targeting support at vulnerable customers, or better forecasting where demand will grow on our network.

The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1

| <div></div> <div>Focus areas</div> |                          | CAPEX (£m) | Impact on output areas |                           |        |                              |                        |                          |                               |                  |                        |                        |                        |                           |                        |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------|------------|------------------------|---------------------------|--------|------------------------------|------------------------|--------------------------|-------------------------------|------------------|------------------------|------------------------|------------------------|---------------------------|------------------------|
|                                                                                                                       |                          |            | Decarbonisation        | Environmental Action Plan | Safety | Reliability and Availability | Asset Resilience       | Environmental Resilience | Physical and Cyber Resilience | Customer Service | Vulnerable Customers   | Our Communities        | Connections            | Openness and Transparency |                        |
| DD1                                                                                                                   | The journey to open data | 9.3        | <div><div></div></div> |                           |        | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   | <div><div></div></div>        |                  | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div>    | <div><div></div></div> |



## DD2: Enhanced network management

### What we are investing in

This area consists of a suite of initiatives designed to provide enhanced monitoring, control of the network and interfacing with customer flexibility assets. They will allow local network issues to be identified well ahead of time, and mitigated through the use of flexibility supplied by consumers. We will invest £21.2m over the period 2023-28 in the following initiatives:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | Average<br>ED1 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2<br>Delta |
|----------------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|---------|----------------|----------------|------------------------|
| <b>2.0 Network management capability to enable Net zero</b>                            | 4.6            | 4.0     | 4.4     | 4.1     | 4.3     | 4.4     | 21.2           | 4.2            | (0.4)                  |
| - Advanced Network Management and Flexibility (2.01 thru 2.03, 2.10)                   |                | 2.7     | 2.9     | 2.7     | 2.8     | 2.9     | 14.0           | 2.8            |                        |
| - Network Operations Analytics (inc. LV), Automation and AI (2.04 thru 2.07)           |                | 1.1     | 1.2     | 1.2     | 1.2     | 1.2     | 5.9            | 1.2            |                        |
| - Whole System Resilience (2.08, 2.09)                                                 |                | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 2.1            | 0.4            |                        |

Table 6

**Advanced Network Management and Flexibility.** This includes work to develop our DERMS (distributed energy resource management) platform, which will enable us to operate flexibility services from customer assets such as DSR, microgeneration etc. and ADMS (advanced distribution management system), which monitors and controls network assets such as voltage controllers, circuit breakers and switches. We will also put in place enhanced modelling for forecasting demand in operational timescales, and used for automating actions. Finally, we will enhance the platform used by customers providing flexibility (e.g. automating functions such as billing).

**Network operations analytics (inc. LV), automation and AI.** This includes the use of AI (artificial intelligence) and machine learning to optimise the way in which the network responds to fault conditions, drawing on the increased volume of data from monitoring systems. This will build on the work we have already done to automate the network using ADMS functionality such as the Automated Power Restoration System (APRS). Further information is also available within our [Reliability and Availability Improvement Plan](#).

**Whole system resilience.** We will introduce systems to manage microgrids - decentralised groups of energy sources and loads which can, if required operate in island mode, improving resilience and potentially facilitating peer-to-peer trading. We will also build an inter-control centre communications protocol link to the ESO, allowing us and the ESO to share real-time information to enhance system optimisation. Further information is also available within our [Whole System Strategy](#).

### Why we need to make these investments

As shown in our DFES scenarios, the 2030s will see a significant (but uncertain) increase in peak demand on the network, as well as much greater volumes of generation and storage connecting directly to our network. This will lead to more complex power flows across the network that we will need to manage and the use of customer flexibility to manage localised peak demands. Without action, this would lead to local networks quickly reaching capacity, resulting in a combination of outages, the need to carry out expensive reinforcement, and the curtailment of new connections.

Although the number of LCTs added to the network during ED2 is expected to be much lower, the clustered nature of LCTs, together with the way in which some part of the network will already be at capacity, will mean some networks will reach this point much earlier. A way of managing the network is therefore needed which can be developed, tested and proven during ED2, such that it can provide immediate benefit in the 2020s for congested areas and continue to deliver the necessary savings in the 2030s.

Historically, all DNOs (including NPg) have had very little ability to directly monitor and control the LV network, which has been largely passive. The DNOs are reliant upon consumers to report faults, and network reinforcement has been carried out as and when the need arises. While greater monitoring and automation exists at higher voltage levels, these are

typically stored in individual systems, and separately to customer data. However, if such an approach were maintained during the transition to net zero, the costs to customers would be huge.

## Benefits

The initiatives described above will allow us to better monitor our network, determining where interventions are required to increase network utilisation. We will then be able to adopt a “flexibility first” approach, integrating both customer flexibility and network flexibility into the day-to-day management of our network:

- Customer flexibility relates to the incentivisation of customers (whether directly or indirectly) to increase or reduce their electricity use or production.
- Network flexibility relates to the use of active network management through technologies such as voltage control, or automatically reconfiguring the network in response to both faults and increased utilisation (for example through the microgrid management system described above, which will provide the ability for part of the network to operate autonomously if the connection to the wider system is lost).

As a result, our network will be more reliable, better able to cope with the demands of increasing numbers of LCTs, and able to facilitate an efficient transition to net-zero.

By bringing forward flexibility, our investments in this area are also likely to lead to benefits across the rest of the energy system. For example, flexible demand may be used to shift demand to times of lower wholesale market prices; reduce the nationwide peak, reducing the need for generation and transmission capacity; and provide national balancing services. We will develop a link to the ESO to facilitate these sorts of whole system benefits.

The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1.

| <div></div> <div>Focus areas</div> |                                                  | CAPEX (£m) | Impact on output areas |  |                           |  |        |                        |                              |                        |                        |                        |                          |                        |                               |                        |                        |                        |                        |  |                        |  |                        |                        |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------|------------------------|--|---------------------------|--|--------|------------------------|------------------------------|------------------------|------------------------|------------------------|--------------------------|------------------------|-------------------------------|------------------------|------------------------|------------------------|------------------------|--|------------------------|--|------------------------|------------------------|
|                                                                                                                       |                                                  |            | Decarbonisation        |  | Environmental Action Plan |  | Safety |                        | Reliability and Availability |                        | Asset Resilience       |                        | Environmental Resilience |                        | Physical and Cyber Resilience |                        | Customer Service       |                        | Vulnerable Customers   |  | Our Communities        |  | Connections            |                        |
| DD2                                                                                                                   | Network management capability to enable net zero | 21.2       | <div><div></div></div> |  |                           |  |        | <div><div></div></div> | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div>   | <div><div></div></div> | <div><div></div></div>        | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> |  | <div><div></div></div> |  | <div><div></div></div> | <div><div></div></div> |

## DD3: Data at the point of need

### What we are investing in

The initiatives in this area will provide modern tools and training for our colleagues to access relevant data and collaborate with each other, wherever they are and whenever they need it. We will invest £8.2m over the period 2023-28 in the following initiatives:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | Average<br>ED1 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2<br>Delta |
|----------------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|---------|----------------|----------------|------------------------|
| <b>3.0 Data at the point of need</b>                                                   | 1.2            | 1.6     | 1.7     | 1.6     | 1.7     | 1.7     | 8.2            | 1.6            | 0.5                    |
| - Modern Technology Workplace (3.01 thru 3.03,3.09)                                    |                | 1.5     | 1.6     | 1.5     | 1.5     | 1.6     | 7.6            | 1.5            |                        |
| - Hybrid Cloud for Finance (3.04)                                                      |                | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.9            | 0.2            |                        |

Table 7

**Modern Technology Workplace.** We will first roll out the Microsoft Office 365 suite of applications (e.g. Teams, Outlook/Exchange, OneDrive), as well as other digital workplace tools (e.g. for idea and project management) as required. Following this, we will be able to incorporate more advanced use-cases such as using applications like Power Apps, Power Automate, and Power BI to further embed digital analysis and automation in the field. We will also roll out digital experience monitoring, tools to help optimise the performance of applications for our colleagues and consumers, alongside a training and business change programme to ensure our colleagues have the necessary digital skills.

**Colleague self-serve and intranet.** This initiative will enable colleagues to “self-serve” services such as benefits, health and safety and policies in a convenient fashion, improving productivity and reducing costs in the same way that we are doing for our customer-facing services. This will include the development of a modern intranet.

### Why we need to make these investments

At present, many of the systems used by our colleagues for productivity and collaboration are nearing the end of their life and require replacement. However this also represents an opportunity to upgrade to a modern suite of applications that will support increased collaboration and the application of data that will be required to support the changes that will occur in our business through ED2 and beyond.

First, the move to DSO will require greater collaboration between different teams. For example, as increasing numbers of LCTs connect to the system, we will be required to develop innovative ways of managing these challenges, and then roll these out into business-as-usual. Colleagues will therefore require the ability to easily access and manipulate relevant data from across the organisation. Colleagues in the field will also require access to data which is not always currently available to them.

Second, the COVID-19 pandemic required the vast majority of our non-operational colleagues to work from home, which has led to additional needs for tools to facilitate collaboration when not face-to-face.

### Benefits

General purpose software such as email clients and office suites is used across all of our areas of work. Upgrading these systems will enable us to take advantage of new functionality and carry out our work more productively. For example, it will be easier for colleagues to access datasets from across the organisation, or communicate with one another. The digital experience monitoring tools will allow us to track the performance of our systems so we can continue to make processes more streamlined.

Some of these tools may also be applicable to our customer-facing activities. For example, the digital experience monitoring tools that we will implement could be used to track the availability and performance of services we provide our customers, such as self-serve tools used to request connections or report outages, or the flexibility customer

platform that customers providing DER will interact with. This will improve the service to our customers, and may lead to a reduced requirement for call centres if more customers are able to successfully self-serve.

We are replacing the software and operating systems used by our colleagues with modern versions which are continuously patched and always in support. This will ensure help avoid the build-up of technical debt and ensure that our systems are as secure as they can be.

The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1.

| <div></div> <div>Focus areas</div> |                           | CAPEX (£m) | Impact on output areas |                           |        |                              |                        |                          |                               |                        |                      |                 |             |                           |  |
|---------------------------------------------------------------------------------------------------------------------|---------------------------|------------|------------------------|---------------------------|--------|------------------------------|------------------------|--------------------------|-------------------------------|------------------------|----------------------|-----------------|-------------|---------------------------|--|
|                                                                                                                     |                           |            | Decarbonisation        | Environmental Action Plan | Safety | Reliability and Availability | Asset Resilience       | Environmental Resilience | Physical and Cyber Resilience | Customer Service       | Vulnerable Customers | Our Communities | Connections | Openness and Transparency |  |
| DD3                                                                                                                 | Data at the point of need | 8.2        | <div><div></div></div> |                           |        | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   | <div><div></div></div>        | <div><div></div></div> |                      |                 |             |                           |  |

## DD4: Cyber security and resilience

### What we are investing in

The initiatives in this area will invest in advanced cyber-security controls which will help protect our customers' information and the integrity of our network. We will invest £11.1m over the period 2023-28 in the following initiatives:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m  | Average<br>ED1 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2<br>Delta |
|-----------------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|---------|----------------|----------------|------------------------|
| <b>4.0 Cyber</b>                                                                        | 1.6            | 2.1     | 2.3     | 2.2     | 2.2     | 2.3     | 11.1           | 2.2            | 0.6                    |
| - Continue Cyber Resilience (4.01 thru 4.03), See <b>Cyber Section of Business Plan</b> |                | 0.7     | 0.8     | 0.7     | 0.7     | 0.8     | 3.7            | 0.7            |                        |
| - Telecoms Asset Replacement (4.04 thru 4.06)                                           |                | 1.5     | 1.6     | 1.5     | 1.5     | 1.6     | 7.7            | 1.5            |                        |

Table 8

**Continue Cyber Resilience.** We plan to carry out a number of initiatives to maintain our strong security posture and reduce risks in line with the deliverables within the rest of our [DSAP](#). For example:

- Implementing multi factor authentication on our new services. These are tools which prevent unauthorised access to our systems, particularly important as we move to more cloud provided services, something that would be delivered by the project as “secured by design”.
- Using industry standard (AES-256) encryption on new services. Again, to ensure the resilience maintained to our standards for all new services that will be introduced within this period.

This is subtly different to the initiatives covered within our Cyber security main plan section and annexes, where we describe the initiatives and investments required to materially improve our cyber security posture, responding to the ever-changing threat landscape. You can read more about this in the main plan section and the cyber annexes, but it is important to note that we purposefully do not release all information in this area due to its sensitive nature.

**Telecoms Asset Replacement.** As with our IT estate, we need to continue to invest to reduce and avoid technical debt that in turn introduces unnecessary risk, particularly from the threat of cyber-attack. Building on programmes such as ‘smart grid enablers’, we have maintained our telecoms assets, both corporate and operational, throughout 2015-23 but this is an area of continuous investment to ensure we can cope with, for example, the increasing flow of data in real-time across our communications network whilst retaining a strong cyber posture.

### Why we need to make these investments

We are bound by UK legislation to take appropriate and proportionate measures in securing the network and information systems on which our customers' essential service relies. The transition to DSO will only increase the need for effective cyber-security, as our network will need to interface with an increasing number of external systems (for example, calling upon flexibility provided by customers, communicating with the ESO, or sharing open data with other entities in the system). The continued roll-out of smart grid technologies (e.g. automation on the LV network) also increases the range of activities which we need to protect.

Some of our existing telecoms assets and systems will reach the end of their useful life and require replacement in 2023-28 (these are described in a number of our telecoms related EJPs). However, this will allow us to benefit from the features of more modern systems and continue to reduce the risk of cyber-attack associated with unpatched hardware.

## Benefits

The implementation of these systems will increase our resilience to cyber breaches, allowing us to deliver a secure and reliable power supply to customers – and if a compromise occurs, we have the systems and processes in place to detect and respond accordingly.

They will ensure our ongoing compliance with GDPR – customers can be confident in sharing data with us, safe in the knowledge we will keep that data secure. Building confidence with our customers will also help us better support vulnerable customers who will be more willing to disclose any specific considerations if they are confident that we will not disclose data beyond what we have agreed to do.

The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1.

| <br>Focus areas |                               | Impact on output areas |                           |        |                              |                  |                          |                               |                  |                      |                 |             |                           |
|--------------------------------------------------------------------------------------------------|-------------------------------|------------------------|---------------------------|--------|------------------------------|------------------|--------------------------|-------------------------------|------------------|----------------------|-----------------|-------------|---------------------------|
|                                                                                                  |                               | Decarbonisation        | Environmental Action Plan | Safety | Reliability and Availability | Asset Resilience | Environmental Resilience | Physical and Cyber Resilience | Customer Service | Vulnerable Customers | Our Communities | Connections | Openness and Transparency |
| DD4                                                                                              | Cyber security and resilience | 11.1                   |                           |        |                              |                  |                          |                               |                  |                      |                 |             |                           |

## DD5: Modern back office

### What we are investing in

These initiatives focus on modernising our back office environment to reduce risk, secure information, and improve customer and colleague experiences. We plan to invest £2.9m to deliver the following initiatives:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | Average<br>ED1 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2<br>Delta |
|----------------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|---------|----------------|----------------|------------------------|
| <b>5.0 Back Office</b>                                                                 | 1.2            | 0.6     | 0.6     | 0.6     | 0.6     | 0.6     | 2.9            | 0.6            | (0.7)                  |
| - Back Office Consolidation (5.04)                                                     |                | 0.1     | 0.1     | 0.1     | 0.1     | 0.1     | 0.7            | 0.1            |                        |
| - Hybrid Cloud Optimisation (5.05)                                                     |                | 0.4     | 0.5     | 0.5     | 0.5     | 0.5     | 2.4            | 0.5            |                        |

Table 9

**Back office consolidation.** We will identify where our existing back-office operations need to be migrated into the equivalent cloud or upgraded ERP products, using process mining as a route to ensure the most effective processes are implemented. Where our current custom functionality cannot be replaced by standard cloud or ERP functionality, we will explore options to re-implement it. Based on this assessment, we will understand our options to consolidate our current multiple ERP instances and adopt evergreen, cloud software.

**Hybrid cloud optimisation.** This is a precursor to fully establishing the Data and Digitalisation Transformation Office (DDTO). We will begin by evaluate industry standard agile delivery models to select the best fit for our needs and that matches our future operating model before expanding using cloud-based tools that enable these processes at scale. These can then be rolled out to support the rest of the programme and enable the DDTTO to interface with our existing programme delivery capability.

### Why we need to make these investments

Our back office operations are currently spread across multiple solution instances and, without standardisation, will require costly refresh programmes to deliver new functionalities as they are developed by our vendor. The current use of on-premises rather than hybrid cloud platforms for our back office functions also limits our ability to work flexibly and continuously optimise our IT spend based on changing needs.

While these systems were originally implemented in line with industry standards, the availability of new solutions gives us the opportunity to move to a more efficient back-office.

### Benefits

Standardising our back office functions and establishing a best in class data and digital transformation office will deliver several benefits. Firstly, by consolidating our ERP instances we will be able to reduce our operating costs and work more efficiently, this feeds directly into our commitment to holding our operating costs in line with where they are currently. It will also promote more seamless working, helping our colleagues do their jobs more effectively and ensuring the services we provide to our customers and stakeholders are efficient and secure. Looking forward, moving to evergreen cloud-based systems will provide the latest functionality without costly refresh programmes.

The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1.

| <div></div> <div>Focus areas</div> <div>DD5    Modern back office</div> |  | CAPEX (£m) | Impact on output areas |                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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|                                                                                                                                                          |  |            | Decarbonisation        | Environmental Action Plan | Safety                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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Environmental Resilience | Physical and Cyber Resilience | Customer Service | Vulnerable Customers | Our Communities | Connections |
|                                                                                                                                                          |  | 2.9        |                        |                           | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><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## DD6: Field force management

### What we are investing in

These initiatives will improve the support we give to our field-force, enabling them to work more efficiently and optimising material flows. We will be able to better plan and coordinate work in our patches and be able to respond quicker to significant events, even getting to a position where intra-day reorganisation of all work becomes a possibility. To do this, we will invest £7.1m into the following initiatives:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | Average<br>ED1 | 2023/24    | 2024/25    | 2025/26    | 2026/27    | 2027/28    | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2<br>Delta |
|----------------------------------------------------------------------------------------|----------------|------------|------------|------------|------------|------------|----------------|----------------|------------------------|
| <b>6.0 Field Force Mngmt.</b>                                                          | <b>0.7</b>     | <b>1.4</b> | <b>1.5</b> | <b>1.4</b> | <b>1.4</b> | <b>1.5</b> | <b>7.1</b>     | <b>1.4</b>     | <b>0.7</b>             |
| - Work Management Capabilities (6.01 thru 6.04)                                        |                | 0.7        | 0.7        | 0.7        | 0.7        | 0.7        | 3.6            | 0.7            |                        |
| - Supply Chain and Materials Management (6.05 thru 6.07)                               |                | 0.5        | 0.5        | 0.5        | 0.5        | 0.5        | 2.5            | 0.5            |                        |
| - Field Force Mobile (6.08, 6.09)                                                      |                | 0.3        | 0.3        | 0.3        | 0.3        | 0.3        | 1.4            | 0.3            |                        |

Table 10

**Work management capabilities.** These initiatives will develop and deploy a work and material management solution that will span across work planning and execution and work management for connections. This will include developing functionality to manage work demand centrally, track job progress, optimise job allocation, and deliver mobile functionalities for field workers, as well as automated scheduling and dispatch.

**Supply chain and materials management.** These initiatives will focus on developing new processes and tools to optimise supply chain and materials management. This will include a baseline assessment of our current bottlenecks and consolidate our list of suppliers and will be integrated with our other systems e.g. finance system. These initiatives will also address materials management, developing a solution that manages provision of materials and predicts part usage based on service requests.

**Field force mobile.** We will introduce field-force management mobile applications to record and manage details of work delivery of all work in a standardised way.

### Why we need to make these investments

Our current systems incorporate multiple data sources including manual spreadsheets and bespoke systems, some continue to be a paper-based too. Whilst we are currently able to fulfil our requirements with these systems, moving to a centralised and integrated system that supports better automation and analysis will allow us to deliver our work more efficiently, reducing costs and improving performance.

### Benefits

By implementing improved field force management solutions, we will improve our efficiency and ability to deliver. We will reduce lead times on connections, fix faults quicker and complete more work on a first-time basis by improving our coordination activities with third parties. By using new predictive analytics that allow us to take a more proactive approach e.g. forecasting part usage based on service requests and eliminating delays due to ordering lead times, we could expect to further improve efficiency and ultimately save money.

The move to an improved field force management solution will also contribute to our environmental action plan. Our new supply chain tooling will replace our existing paper-based process, reducing waste. Optimising our routes for existing jobs so that the order of jobs minimises overall travel times and costs will also reduce our emissions as we transition to ultra-low emission/zero emission vehicles in our fleet.

The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1.

| <div></div> <div>Focus areas</div> |                        | CAPEX (£m) | Impact on output areas |                           |        |                              |                        |                          |                               |                        |                        |                 |                        |                           |
|---------------------------------------------------------------------------------------------------------------------|------------------------|------------|------------------------|---------------------------|--------|------------------------------|------------------------|--------------------------|-------------------------------|------------------------|------------------------|-----------------|------------------------|---------------------------|
|                                                                                                                     |                        |            | Decarbonisation        | Environmental Action Plan | Safety | Reliability and Availability | Asset Resilience       | Environmental Resilience | Physical and Cyber Resilience | Customer Service       | Vulnerable Customers   | Our Communities | Connections            | Openness and Transparency |
| DD6                                                                                                                 | Field force management | 7.1        | <div><div></div></div> |                           |        | <div><div></div></div>       | <div><div></div></div> |                          |                               | <div><div></div></div> | <div><div></div></div> |                 | <div><div></div></div> |                           |

## DD7: Robotics and automation

### What we are investing in

Automation and robotics will help us to deliver more streamlined services at lower cost, allowing us to spend our time and resources to deliver maximum public value. To do this, we will invest £5.3m into the following initiatives:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | Average<br>ED1 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2<br>Delta |
|----------------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|---------|----------------|----------------|------------------------|
| <b>7.0 Robotics &amp; Automation</b>                                                   | 0.0            | 1.0     | 1.1     | 1.0     | 1.1     | 1.1     | 5.3            | 1.1            | 1.1                    |
| - Integration of Master Data (7.06)                                                    |                | 0.3     | 0.4     | 0.3     | 0.3     | 0.4     | 1.7            | 0.3            |                        |
| - Robotics and Automation (7.01 thru 7.05)                                             |                | 0.7     | 0.8     | 0.7     | 0.8     | 0.8     | 3.8            | 0.8            |                        |

Table 11

**Integration of master data.** In order to enable robotics and automation to remove manual activities, we must ensure that systems are integrated, allowing data to be shared between systems for faster transactions and more effective analytics. We will develop an overarching target architecture which will act as a blueprint for this integration, identifying opportunities for intelligent automation opportunities and ensuring that when we upgrade or replace a system, it is designed for intelligent automation. The target architecture will also allow us to identify integration opportunities with our back-office systems (human capital management, finance, and customer experience).

**Robotics and automation.** We have several robotics and automation initiatives. Firstly, we will continue investment and rollout of process mining into all process areas, finding opportunities to streamline our existing processes and remove non-value-added activities. These opportunities will be used to co-ordinate new robotic process automation (RPA) to reduce manual activities and interventions, including automation of our customer and people services processes. Similarly, where we are adopting new processes to meet our new DSO role, we will identify those that would benefit from automation e.g. registering new connections or flexibility processes, particularly before a fully integrated system might be developed, or even required.

### Why we need to make these investments

Our transition to a DSO has significantly increased the number of processes that we handle, and our current systems are not designed around delivering these processes in an efficient manner. Identifying opportunities to automate processes within our existing systems will provide an interim solution while we build longer-term target systems tailored to meeting these new requirements.

### Benefits

Automation will allow us to meet increasing demand for connections as we move to a world of LCT, flexible connections, reducing the time and manual process required to register new connections and facilitating the transition to net zero. In addition, having this capability in place will mean we can deploy interim automated processes until full, end-to-end processes have been enabled by other digital investments.

More widely, process mining and automation will help us to work more efficiently, removing non-value-added activities from processes, streamlining them, and improving overall customer and colleague satisfaction without significant increase in costs.

The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1.

| <div></div> <div>Focus areas</div> |                         | CAPEX (£m) | Impact on output areas |                           |                        |                              |                        |                          |                               |                        |                      |                 |             |                           |
|---------------------------------------------------------------------------------------------------------------------|-------------------------|------------|------------------------|---------------------------|------------------------|------------------------------|------------------------|--------------------------|-------------------------------|------------------------|----------------------|-----------------|-------------|---------------------------|
|                                                                                                                     |                         |            | Decarbonisation        | Environmental Action Plan | Safety                 | Reliability and Availability | Asset Resilience       | Environmental Resilience | Physical and Cyber Resilience | Customer Service       | Vulnerable Customers | Our Communities | Connections | Openness and Transparency |
| DD7                                                                                                                 | Robotics and automation | 5.3        | <div><div></div></div> |                           | <div><div></div></div> | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   | <div><div></div></div>        | <div><div></div></div> |                      |                 |             |                           |

## DD8: Enabling customers to self-serve

### What we are investing in

Our stakeholder engagement highlighted the importance of providing a personalised service both for customers who prefer to self-serve and those who prefer to speak to us. To meet these needs, we are investing £20.1m in several initiatives to improve our customer services and provide more choice for our customers and stakeholders:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | Average<br>ED1 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2<br>Delta |
|----------------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|---------|----------------|----------------|------------------------|
| <b>8.0 Enabling customers to self serve</b>                                            | 3.9            | 3.8     | 4.2     | 3.9     | 4.1     | 4.1     | 20.1           | 4.0            | 0.2                    |
| - Enhanced Customer Services and Self Service (8.01 thru 8.06, 8.08)                   |                | 1.7     | 1.8     | 1.7     | 1.8     | 1.8     | 8.8            | 1.8            |                        |
| - Open Data Portal (8.07)                                                              |                | 0.1     | 0.1     | 0.1     | 0.1     | 0.1     | 0.6            | 0.1            |                        |
| - Regulatory System Changes (8.09)                                                     |                | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 1.7            | 0.3            |                        |
| - Efficiency and Customer Self Service for Connections (8.10 thru 8.14)                |                | 1.9     | 2.0     | 1.9     | 2.0     | 2.0     | 9.8            | 2.0            |                        |

Table 12

**Enhanced customer services and self-service.** In order to ensure that our investments can deliver the most value to our customers, we will continue to build on our customer journey research, mapping end-to-end customer journeys across all service types and customer sizes to identify ways to improve their experience. These findings will be used to scope improvements in the way we engage with customers, including informing our omni-channel experience which will allow customers to shift between preferred channels in a cost-effective manner. Our new website will be integrated with modern content management, making it easier for customers to navigate to where they need to go, as well as provide AI-powered web and social chatbot functionalities to provide immediate support.

We also recognise that customers are increasingly relying on social media to interact with companies, and we will create analytics based on customer interactions across our social media channels and provide integration with the CRM.

Finally, we will provide a one-stop location for customers to enquire, track, and manage their services and transactions, improving the customer experience while allowing us to plan activities in an optimal manner.

**Open data portal.** We will integrate our new website with cloud analytics to provide easy access to Open Data and insights for stakeholders. We will define KPIs to measure website and intranet performance against requirements, allowing us to identify where we are performing strongly and where there are areas for continuous improvement.

**Regulatory system changes.** We will continue work to meet the two significant regulatory projects for registration services: central switching and moving to the delivery of half hourly settlements. We will do this alongside further reducing the levels of technology debt through the replacement of meter technical details solution and Grid Take Data Validation System.

**Efficiency and customer self-service for connections.** We understand that choice is important to our customers and therefore we are investing in several initiatives to improve self-service for connections. We will complete our existing CRM rollout programme and develop an end-to-end connections blueprint that will act as a baseline for further improvements. We will also product a connection delivery performance framework which will ensure we have a consistent blueprint for connections performance across the whole firm. Finally, we will build on the success of our automation and self-service for all connection quotations (AutoDesign) which aims to produce quotes and estimates faster and on demand to connection customers and integrate with other platforms to automate design and engineering activities.

## Why we need to make these investments

We already provide tools allowing our customers to self-serve. For example, customers can use our website to apply for new or altered connections, report power outages, request that they are added to the priority services requester, or book services such as line shrouding.

The needs and expectations of our customers are rapidly changing with growth in LCT connections and demand for greater personalisation, and our website needs to change to enable us to meet these needs. This also offers an opportunity to utilise our new data analytics capabilities to monitor website and wider CRM performance to ensure that we are meeting customer expectations and focus future improvements where required. Modernising our self-serve connections architecture also allows us to integrate it with other functionalities, automating processes along the whole connections journey and delivering time and cost efficiency savings for our customers.

## Benefits

These initiatives will allow us to improve the customer experience, providing them with more choice as well as the opportunity to streamline our processes and freeing up colleagues to spend time with those customers who cannot or choose not to use our self-serve offering.

Taking a user-first approach, better performance monitoring, and developing a deeper understanding of the end-to-end customer journey will also allow us to provide tailored services to vulnerable customers. Vulnerability spans a number of dimensions and will vary by different groups. Research from other sectors has shown that some groups may prefer telephone-based services whilst others such as customers with mental health problems face ‘serious difficulties’ in using telephone services and prefer alternative communication channels<sup>3</sup>. Our omni-channel approach offers alternative routes for these customers, whether it be fully self-serve or via our online webchat service.

Beyond customer experience, these initiatives will contribute to supporting decarbonisation. Streamlining processes from better integration will allow us to meet increasingly demand for new LCT connections in a cost-effective manner. Expanding our self-service customer connections platform to allow the generation of quotations for LV demand connections, load increases, and budget estimates for new LV connections will allow customers to easily identify the most viable and cost-effective options, encouraging the mass uptake of LCTs, flexible connections, and network flexibility.

The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1.

| <div></div> <div>Focus areas</div> |                                  | CAPEX (£m) | Impact on output areas |                           |        |                              |                  |                          |                               |                  |                      |                 |             |                           |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------|------------|------------------------|---------------------------|--------|------------------------------|------------------|--------------------------|-------------------------------|------------------|----------------------|-----------------|-------------|---------------------------|
|                                                                                                                       |                                  |            | Decarbonisation        | Environmental Action Plan | Safety | Reliability and Availability | Asset Resilience | Environmental Resilience | Physical and Cyber Resilience | Customer Service | Vulnerable Customers | Our Communities | Connections | Openness and Transparency |
| DD8                                                                                                                   | Enabling customers to self-serve | 20.1       | <div></div>            |                           |        |                              |                  |                          |                               | <div></div>      | <div></div>          | <div></div>     | <div></div> | <div></div>               |

<sup>3</sup> [https://www.ofcom.org.uk/data/assets/pdf\\_file/0034/198763/treating-vulnerable-customer-fairly-guide.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0034/198763/treating-vulnerable-customer-fairly-guide.pdf)

## DD9: Advanced analytics

### What are we investing in?

The datasets available to us are growing in terms of their variety (with open data initiatives enabling us to access data from across the energy system) and volume. To make the most of these, we are investing in advanced analytics which will allow us to improve the planning, design, and operation of our distribution network. This will release value of our new and improved datasets both for ourselves and our external stakeholders, helping to support sector performance as a whole. We are investing £18m to deliver these initiatives:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency<br>£m | Average<br>ED1 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | Total<br>costs | Average<br>ED2 | ED1 to<br>ED2<br>Delta |
|----------------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|---------|----------------|----------------|------------------------|
| <b>9.0 Advanced Analytics</b>                                                          | 1.1            | 3.4     | 3.7     | 3.5     | 3.6     | 3.7     | 18.0           | 3.6            | 2.5                    |
| - Enhanced Decision Making with Monitoring and Analytics (9.01 thru 9.03, 9.05)        |                | 0.9     | 1.0     | 1.0     | 1.0     | 1.0     | 4.9            | 1.0            |                        |
| - Upgrade Asset Data Platform (9.04)                                                   |                | 0.5     | 0.5     | 0.5     | 0.5     | 0.5     | 2.6            | 0.5            |                        |
| - Enhanced Network Modelling (9.06, 9.09, 9.10, 9.11)                                  |                | 1.3     | 1.4     | 1.3     | 1.4     | 1.4     | 6.8            | 1.4            |                        |
| - Health and Safety Insights (9.12)                                                    |                | 0.9     | 0.9     | 0.9     | 0.9     | 0.9     | 4.5            | 0.9            |                        |

Table 13

**Enhanced decision making with monitoring and analytics.** Development and expansion of our condition-based risk management tools that underpin our Network Asset Risk Methodology. This will be supported by the deployment of additional asset sensors, such as online dissolved gas analysis for power transformer or partial discharge for cables, across our network and advanced control room analytics. We will also develop our LV analytics capability to create network insights by combining data from our LV monitoring, smart metering data, static network data and state estimation. This will provide information for our heat maps to encourage flexibility market development and when combined with forecasts of localised demand growth for targeting interventions. **Upgrade asset data platform.** We will enhance the existing asset data platform to provide better access to system data, allowing us to enhance security and facilitate new functionalities in the future. This includes EAM/spatial upgrades (database upgrades, modernising the architecture, normalising database structures, and upgrading interfaces).

**Enhanced network modelling.** We have several initiatives to support enhanced network modelling. Firstly we will deliver enhanced network analysis in further phases of our distribution system analysis tool project including sophisticated probabilistic assessment of power systems. Then we will design an analytics centre of Excellence (CoE) which will coach and champion the use of self-service analytics as well as deliver more complex analytical requirements. We will also develop a static strategic planning model of the network (a digital twin) to improve network planning and investment, building on our two power system modelling tools. Finally, we will implement our cloud analytics platform to deliver scalable capacity to meet analytical workloads.

**Health and safety insights.** We will centralise safety, health and environment to enable analytics and better reporting of incidents. This includes implementing a new system for incident and hazard reporting, an automated tracking of colleagues and contractors' safety requirements, and the introduction of a single safety portal for all colleagues and contractors to access SHE activities. We will also centralise data on safety standards for our assets and tools, along with real-time monitoring to expand our alarming capabilities. Finally, we will explore ways to leverage our incident reporting system to provide mobility services, enabling reporting 'on the go' and improve our real-time tracking.

### Why we need to make these investments?

Our network asset data and other performance data is an asset of significant value to ourselves and our stakeholders, allowing us to manage the network both today and for the future. We have invested some £22m in ED1 to establish our integrated network model that provides a single data repository for our static asset information. In ED2 we are proposing to further invest in open data and robotics and automation.

We are now proposing to significantly increase the value of these investments, we need to augment it with dynamic time-base data to provide real-time feedback on network performance. By investing in advanced analytic capabilities, we can

further use this data to inform decision-making, identifying areas of significant opportunity to achieve our goals of decarbonisation, efficiency, and service quality.

The digital twin capability we propose to enable in DSO2.4 is able to continuously identify available capacity within our network, thereby supporting the connection and, where necessary, control of LCTs without either compromising the electricity network or resorting (by default) to costly traditional reinforcement. The digital twin concept will leverage classical power system models by combining historically static models with dynamically measured and predicted energy demand/generation all the way down to individual connections to yield repeatable data on which to base both short term decisions and longer term investment planning

Power system modelling tools and historical measured data are not new but what is absent is the capability to combine them in a timely fashion together with forecasts to provide a continuously updated assessment of available capacity. An increasingly active network managed using DSO techniques means that the balance is shifting towards a positive NPV for an energy system model based on time series models.

*We are already in the process of replacing systems that are the core foundations of these capabilities:*

- *The Connect/LV tool is a web based replacement for the widely used DEBUT LV design software. As well as a comprehensive design package it also allows large scale studies to be run across the full Northern Powergrid LV network model. This will have widespread benefits for the business as a whole, providing greater LV network visibility and allowing future energy scenarios to be modelled.*
- *Powerfactory is a replacement for our DINIS and IPSA models. This has several benefits including the integration with our static asset data sources, a modernised interface, add-on modules option upgrades and scripting facilities.*

## **Benefits**

Investing in advanced analytics is a critical step for managing our networks today and tomorrow, ensuring that we have the best data available when planning, designing, and operating our distribution network. This will deliver several benefits:

- **Enabling decarbonisation and innovation.** Improving our advanced analytics capabilities is key to taking a more flexible and data-led approach to decision making. Our digital twin will provide a low-cost option to test new innovative ideas and allow us to flex our scenario modelling as new information comes to light. At the same time, improving our ability to analyse data from new sensors will help to forecast demand growth and lead to more efficient investment for decarbonisation pathways.
- **Enabling asset and environmental resilience.** Real time monitoring combined with improved analytics to monitor and predict disruption will help us to make the most of existing infrastructure. New algorithms can help to predict future disruptions, facilitating the move to a more preventative approach and reducing disruption for our customers in the face of climate change. Analysis of our data will also guide long-term investment priorities, enabling better targeting to those areas with the greatest need and impact.
- **Improving health and safety.** The health and safety of our colleagues and contractors is a key priority. The centralisation of safety, health, and environment information will enable better incident prevention, for example through the expansion of real-time monitoring and asset tracking, and improved reporting of incidents when they do happen. Not only will this reduce the human cost of maintaining the network, reducing the number of accidents for our people, it will also deliver efficiency gains through streamlining our safety programme e.g. integration with asset management could trigger issue of work orders as they relate to safety inspection.



The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1.

| Focus areas               | CAPEX (£m) | Impact on output areas |                           |        |                              |                  |                          |                               |                  |                      |                 |                           |
|---------------------------|------------|------------------------|---------------------------|--------|------------------------------|------------------|--------------------------|-------------------------------|------------------|----------------------|-----------------|---------------------------|
|                           |            | Decarbonisation        | Environmental Action Plan | Safety | Reliability and Availability | Asset Resilience | Environmental Resilience | Physical and Cyber Resilience | Customer Service | Vulnerable Customers | Our Communities | Openness and Transparency |
| DD9    Advanced analytics | 18.0       | ●                      | ●                         |        | ●                            | ●                | ●                        |                               | ●                |                      |                 | ●                         |

## DD10: Future proofed agile

### What are we investing in?

We will move to a hybrid cloud approach for managing our operations, enabling better data integration and analytics. This will allow us to take a more agile and flexible way of working in the face of increasing sector uncertainty over the ED2 period and adopt a 'sense and respond' approach to managing new challenges in an efficient manner. To do this we will invest £3.6m in the following initiatives:

| Extract of IT & Telecoms from ED2 business plan<br>Including RPEs and efficiency |  | Average |         |         |         |         |         | Total | Average | ED1 to |
|----------------------------------------------------------------------------------|--|---------|---------|---------|---------|---------|---------|-------|---------|--------|
| £m                                                                               |  | ED1     | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | costs | ED2     | Delta  |
| <b>10.0 Future-proofed Agile</b>                                                 |  | 0.0     | 0.7     | 0.7     | 0.7     | 0.7     | 0.7     | 3.6   | 0.7     | 0.7    |
| - Data and Digital Operating Model (10.02)                                       |  |         | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.2   | 0.0     |        |
| - Cloud Data Platform (10.03 thru 10.05)                                         |  |         | 0.7     | 0.7     | 0.7     | 0.7     | 0.7     | 3.5   | 0.7     |        |

Table 14

**Data and digital operating model.** To enable the move to hybrid cloud we will develop the target operating model and establish the roadmap architecture to deliver our digitalisation strategy.

**Cloud data platform.** We will first establish an initial cloud footprint through a series of cloud functionalities and integration upgrades for existing back-office platforms. This will be followed by the migration of our business information and ERP systems to the cloud data platform, as well as our finance systems.

### Why we need to make these investments?

The energy sector and wider society face significant uncertainty over the ED2 period. Many of these will relate to the transition to decarbonisation and the frontrunner solutions that will emerge in the future. To efficiently address these challenges, we must provide future-proofed agile solutions that are flexible enough to adapt to these changes. This agile approach will require better data integration and analytics, improved scalability, and more efficient ways of working to enable ongoing adaptation, all whilst maintaining a secure environment that can be best achieved through utilising cloud platforms.

### Benefits

These initiatives will enable a fundamental change to the way in which we work across our whole business, supporting a 'sense and respond' approach and avoiding prescriptive approaches that cannot adapt to new innovative solutions. The benefits this will bring will extend across almost every output area, with the greatest gains felt in areas that face the most uncertainty such as the path to decarbonisation. Whilst we have a detailed plan based on projections that tie to the government's current 10-point plan for decarbonisation, the latest Net Zero Strategy recognises that there is significant uncertainty and the final solutions may be very different from what we predict today.<sup>4</sup>

For example, the Government has recently published the UK hydrogen strategy which aims to achieve 5GW of low carbon hydrogen production capacity by 2030. However, the UK currently has almost no low carbon hydrogen production today and several trials are currently planned for testing new technologies<sup>5</sup>. We will need to be able to adapt our network planning, resourcing, and investments to the final solutions for industry, power, heat and transport.

In order to meet our decarbonisation targets in the most efficient way, we must adapt our ways of working to manage this uncertainty through an agile flexibility-first approach. This will allow us to select solutions that are scalable, extensible, and interoperable, and ensure the network is positioned to support all credible pathways to net zero. These flexible solutions will in turn require flexible ways of working and better integration of data to guide continuous decision-

<sup>4</sup> HM Government (2021). Net Zero Strategy: Build Back Greener

<sup>5</sup> HM Government (2021). UK Hydrogen Strategy.

making. This can be achieved by adopting a hybrid cloud approach to our technical landscape, and adopting agile ways of working more widely across our data and digitalisation activities.

The figure below shows how the initiatives we plan to carry out as part of this focus area will enable activities in our output areas and you can read more detail in Appendix 1.

| <br>Focus areas | CAPEX (£m) | Impact on output areas |                           |                        |                              |                        |                          |                               |                        |                        |                        |                        |                           |
|--------------------------------------------------------------------------------------------------|------------|------------------------|---------------------------|------------------------|------------------------------|------------------------|--------------------------|-------------------------------|------------------------|------------------------|------------------------|------------------------|---------------------------|
|                                                                                                  |            | Decarbonisation        | Environmental Action Plan | Safety                 | Reliability and Availability | Asset Resilience       | Environmental Resilience | Physical and Cyber Resilience | Customer Service       | Vulnerable Customers   | Our Communities        | Connections            | Openness and Transparency |
| DD10 Future-proofed agile                                                                        | 3.9        | <div><div></div></div> | <div><div></div></div>    | <div><div></div></div> | <div><div></div></div>       | <div><div></div></div> | <div><div></div></div>   | <div><div></div></div>        | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div> | <div><div></div></div>    |

## Managing uncertainty and risk

Our plan is setup to embrace uncertainty, indeed one of our design principles is ‘Keeping the future in mind’, as we firmly believe that we need to interweave adaptability and flexibility into our designs. We have a plan that we think manages this uncertainty by delivering efficient investment that is necessary for a range of pathways and is capable of adapting as we proceed, something that is particularly important when considering our [DSO strategy](#).

We have, and will continue to, design our solutions to be scalable, extensible and interoperable so as to build in the necessary flexibility, allowing us to change to meet both anticipated and unexpected business needs. This will often be met by utilising these inherent features of cloud-based services, allowing us to scale on demand and remove what may no longer be needed without the risk of regret spend.

In less easily defined future scenarios, such as those relating to DSO, we expect that there will be key decision points along the way that will define some of our technology choices thereafter, meaning we cannot set out with definitive plans at this stage. These decision points can be managed however, and because of our understanding of the dependencies across our programme, we can ensure that we can respond to these as and when they arise.

We have mapped the specific data and digitalisation initiatives to the DSO requirements to ensure our alignment is clear and can aid this ongoing management of uncertainty. We show below, the detailed D&D initiatives which are required to successfully deliver the [DSO strategy](#), including ongoing activities taking place today which will continue into the next price control period and are prerequisites for delivering the [DSO strategy](#) in 2023-28.

As shown, there are significant system investments planned to enable DSO functions through our Data and Digitalisation initiatives. Whilst many of the systems supporting DSO will be new, others will be upgrades to our existing systems. When developing these initiatives, we have taken into account the requirement that our operational systems must be capable of being cost effectively assigned to another party in future if this is needed. As we have set out in the governance section of the [DSO strategy](#), however, separation of these functions would lead to poor outcomes for customers, even where our design allows for future separability.

We have considered and designed solutions that are: scalable, so can grow as our needs change; extensible, to allow us to take a modular approach to plugging in new capabilities; and interoperable, to drive an architecture that is flexible both internally and when connecting with external sources and stakeholders.

For instance, we plan to utilise cloud-based analytical services to make this capability available early in our plans, including enhancing our ability to ingest and understand our LV network data. Whilst it is planned that this will use the same analytics solution that will support customer service, connections and field operations, as a cloud-based system, separation will be possible by simply implementing the platform across separate tenancies. Our customer flexibility platform will be an integrated but stand-alone platform which, if required, could be separated. Forward integration into DNO systems would still be possible via the API integration implementation layer.

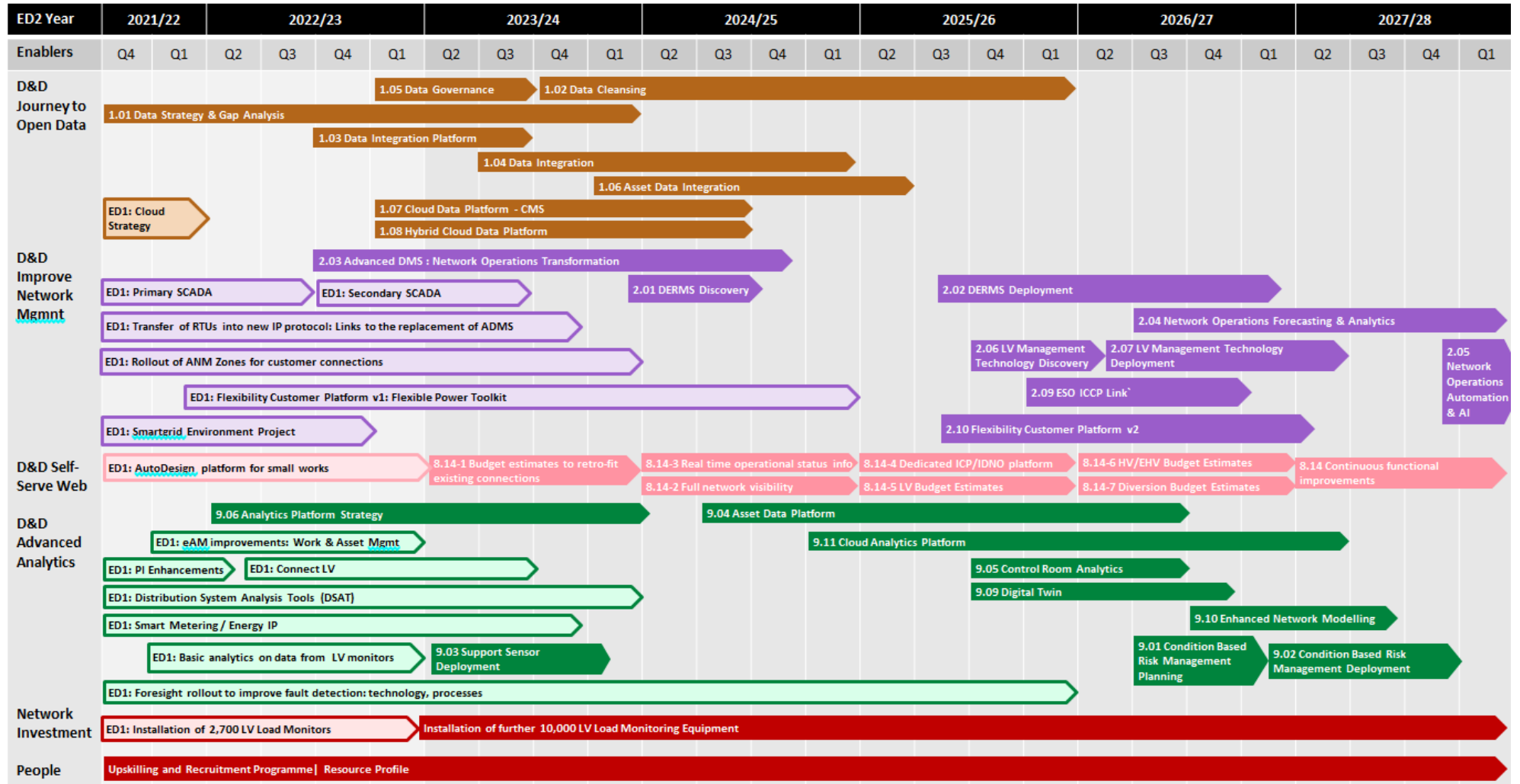


Image 2

The areas of investment in general, however, are not dependent on knowing the exact path that lies ahead, we have taken a sensible approach to future proofing our capabilities meaning that we can be confident that our technology footprint can deliver all envisaged pathways.

For example, capturing, using and sharing significantly more data is a key theme across almost all of our business operations therefore, the platforms we will implement to support this aspect of our [DSO strategy](#) are equally applicable to support our customer service outcomes and as such, should the DSO direction change at any point, it will simply be a case of reducing the size and scale of the technologies that underpin these outcomes, which, because they are predominantly cloud based, interoperable solutions, is done with relative ease and no lost spend. As we continue to plan and prepare for the implementation of our [data and digitalisation strategy](#) in 2023-28, we will also continue to refine our plans, getting increasingly more accurate on our choices, the benefits they will bring and the detailed implementation schedules to bring them to bear.

## Appendix 1: Outcome Tables

| DD1: Journey to open data                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                                                                                                                             | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Decarbonisation</b>                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>DSO 1.1</b> Build on existing information management capabilities to expand network data and integrate datasets delivering capabilities by the end of 2025-26. Capture more detailed data more regularly, purchase data to enhance network visibility, and cleanse, structure and store data more effectively. | <p>The work on data integrations will better allow us to utilise multiple internal and external datasets to enhance network visibility and decision making.</p> <p>As part of this focus area we will be cleansing our datasets, and converting datasets stored in formats such as spreadsheets into a more usable format. Reviewing data governance and models for both the network and customer connections.</p> <p>Improving the structure of our data will enable us to roll out the new CIM (common information model) standard, and comply with Ofgem's Data Best Practice principles such as identifying the roles of stakeholders of data assets, and making them discoverable and interoperable.</p> |
| <b>DSO 1.2</b> Work with stakeholders to improve information exchange and understand flexibility service requirements                                                                                                                                                                                             | Our data gap analysis will help us understand the requirements for information exchange with other parties, which we will then develop. For example, we are collaborating with Ofgem and other stakeholders on LTDS reform.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>DSO 2.5</b> Improve the format and consistency of our forecasting information, in collaboration with other DNOs, and publish this via our network development plans, and expanded LTDS we share with stakeholders.                                                                                             | As a result of the initiatives we are undertaking, we will be able to share our forecasts in more useful formats for our stakeholders (e.g. machine-readable datasets).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>DSO 3.1</b> Build enhanced functionality on top of our open data platform to unlock additional customer benefits. This will include a set of free analytical tools to help processing data and enhance self-service delivering capabilities by the end of 2026-27 CVP.                                         | The open data platform we will develop as part of this focus area will be the portal to access these tools.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>DSO 3.2</b> Provide assistance and expertise to support the design of LAEPs in collaboration with local authorities and the wider energy sector, utilising knowledge of the network, loading projections, customer activity and the wider environment to provide feedback, feeding insights to our own plans.  | Our open data platform will make relevant data available to stakeholders, including local authorities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>DSO 5.3</b> Develop a flexibility services communication, engagement and trading platform that allows third parties such as flexibility providers and aggregators to keep track of flexibility services related information such as service requirements, procurement methods, contracts and outage            | The investments we are making in our data integration platform will enable us to share this type of information with third parties.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| DD1: Journey to open data                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | How it is enabled                                                                                                                                                                                                                                                                                   |
| visibility.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                     |
| <b>WS 1.2</b> Collaborate with other network operators in our region to create an open register and a process that allows interested parties with complementary energy needs to find each other – “energy matchmaking”. We will facilitate the initial engagement between parties, who can then work together to produce whole system benefits, such as reduced utilisation of the network, reduced probability of constraint and greater value that is possible through enhanced coordination. | As part of this focus area we will surface and cleanse datasets which provide information on our requirements for flexibility. These, together with the platforms we are developing for sharing and integrating data, will form the basis of this “energy matchmaking” service.                     |
| <b>Reliability and availability</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                     |
| <b>RA 3</b> Establish LV network management capability to allow the increased data from Foresight, LV monitoring and smart meters to be used to improve services.                                                                                                                                                                                                                                                                                                                               | Our data integration platform will make it easier for us to incorporate additional data from our network devices, both temporary and permanent, and from elsewhere (for example, smart meter “last gasp” communications). This will form the basis for more proactive management of the LV network. |
| <b>Asset resilience</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                     |
| <b>AR 1.2</b> Enhance our business processes and analysis tools to better enable the identification of load growth and asset condition synergies.                                                                                                                                                                                                                                                                                                                                               | Our data integration platform will make it easier for us to incorporate additional data from different internal management processes and other stakeholders. This will aid us to optimise investment decision making.                                                                               |
| <b>Environmental resilience</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                     |
| <b>CR 1.3</b> Share data with infrastructure providers on local-level resilience and identify local dependencies                                                                                                                                                                                                                                                                                                                                                                                | We will share this data through the platforms that we are developing.                                                                                                                                                                                                                               |
| <b>CR 3.1</b> Collaborate with other regional infrastructure operators to identify and mitigate interdependencies.                                                                                                                                                                                                                                                                                                                                                                              | We will share data with other infrastructure operators through the platforms that we are developing.                                                                                                                                                                                                |
| <b>Customer service</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                     |
| <b>CS 3.2</b> Provide simple, intuitive guidance for data to our customers making it easier to access, find and use.                                                                                                                                                                                                                                                                                                                                                                            | Our open data platforms will make it easier for customers to find the data they require (for example, information about outages, or the availability of connections).                                                                                                                               |



| DD1: Journey to open data                                                                                                                                                                                                                                                                         |                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                                                                                                             | How it is enabled                                                                                                                                                                          |
| <b>Vulnerable customers</b>                                                                                                                                                                                                                                                                       |                                                                                                                                                                                            |
| <b>VN 3.2</b> identify additional data sources and partnerships to allow us to track new and emerging issues and to support customers and, in doing so, improve our understanding of our customer base.                                                                                           | Our data gap analysis exercise will help identify where we hold information which could be used to support vulnerable customers.                                                           |
| <b>Our communities</b>                                                                                                                                                                                                                                                                            |                                                                                                                                                                                            |
| <b>CO 3.1</b> Educate our communities through communications, awareness activities and partnerships around the path to decarbonisation.                                                                                                                                                           | The open data platforms we are developing will enable us to share data with our communities on their progress towards decarbonisation.                                                     |
| <b>Connections</b>                                                                                                                                                                                                                                                                                |                                                                                                                                                                                            |
| <b>CN 2.2</b> Utilise AutoDesign technology to develop an LV network availability heat map that utilises LV monitoring and smart meter data to enable real-time system planning. Go-live planned for 2024-25.                                                                                     | The open data platforms we are developing will support the sharing of network capacity data with stakeholders.                                                                             |
| <b>CN 3.1</b> Make improvements to our HV and EHV network capacity heat maps to include the provision of an integrated LTDS and information that can forecast changes in capacity availability. Go-live planned for 2024-25.                                                                      | The open data platforms we are developing will support the sharing of this network data. We will also integrate third-party data which may help forecast changes in capacity availability. |
| <b>Openness and transparency</b>                                                                                                                                                                                                                                                                  |                                                                                                                                                                                            |
| <b>OT 2.2</b> Extend our reporting framework to include annual reports on DSO, Major Connections, our Environmental Action Plan, Vulnerable Customers, including upgrading accessibility to material via our website, further utilising plain English, and limiting our use of content redaction. | This reporting will be complemented by the datasets which we will make available.                                                                                                          |

| DD2: Enhanced network management                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                                                                                                                                | How it is enabled                                                                                                                                                                                                                                                                                                                                    |
| <b>Decarbonisation</b>                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                      |
| <b>DSO 1.1</b> Build on existing information management capabilities to expand network data and integrate datasets delivering capabilities by the end of 2025-26. Capture more detailed data more regularly, purchase data to enhance network visibility, and cleanse, structure and store data more efficiently.    | As part of this focus area we are enhancing our distribution network management system to work alongside a large number of monitoring and automation systems.                                                                                                                                                                                        |
| <b>DSO 2.1</b> Use analytics and machine learning to emulate high quality and granular time-series data sets for LV networks.                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                      |
| <b>DSO 2.2</b> Utilise analytics engines and machine learning to enhance and verify time-series data sets for HV and EHV networks.                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                      |
| <b>DSO 2.3</b> Refine power flow models, and supplement forecasting and scenario modelling (such as DFES), using analytics engines to predict future power flows under different scenarios and therefore improving network planning and gaining operational insights.                                                |                                                                                                                                                                                                                                                                                                                                                      |
| <b>DSO 4.1</b> Create a customer flexibility system with network operation processes that enables us to automatically dispatch flexibility services by integrating systems (such as Power on Fusion) with our flexibility platform (Flexible Power Platform). Planned to deliver capabilities by the end of 2025-26. | We are expanding our capability for managing DNO-contracted flexibility (through our flexibility customer platform) and investing in the DERMS system which will deploy this flexibility as required by the network. We are looking to create an enterprise ANM which will provide a platform for, and co-ordinate our use of, flexible connections. |
| <b>DSO 4.2</b> Enhance our ANM coordination and control to manage thermal, voltage and fault level constraints using a central and/or local management system to control flexible customer assets. Planned to deliver capabilities by the end of 2025-26.                                                            |                                                                                                                                                                                                                                                                                                                                                      |
| <b>DSO 4.3</b> Establish network flexibility and network flexibility solutions enabled by control systems to manage thermal, voltage and fault level constraints.                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                      |
| <b>DSO 4.6</b> Offer flexibility services to the ESO to support system-wide decarbonisation.                                                                                                                                                                                                                         | We are developing an Inter-Control Centre Communications Protocol link with the ESO to share data in real time.                                                                                                                                                                                                                                      |
| <b>WS 3.2</b> Optimise network voltage to improve energy efficiency, delivering a reduction in customer energy bills and carbon emissions by dynamically managing voltage on our LV network.                                                                                                                         | The advanced network management systems that this focus area covers will enable us to utilise voltage management.                                                                                                                                                                                                                                    |

| DD2: Enhanced network management                                                                                                         |                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                    | How it is enabled                                                                                                                                             |
| Reliability and availability                                                                                                             |                                                                                                                                                               |
| RA 1 Deploy 8,600 HV remote switches                                                                                                     | As part of this focus area we are enhancing our distribution network management system to work alongside a large number of monitoring and automation systems. |
| RA 2 Deploy 8,100 LV fault-management devices                                                                                            |                                                                                                                                                               |
| Customer service                                                                                                                         |                                                                                                                                                               |
| CS 1.3 Provide proactive communications to customers for both planned and unplanned power cuts, where available, using smart meter data. | We will use data collected from our network to inform these types of communication.                                                                           |

| DD3: Data at the point of need                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                                                                         | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Decarbonisation                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| DSO 2.1 Use analytics and machine learning to emulate high quality and granular time-series data sets for low voltage networks                                                                                                                                | As part of this focus area we are rolling out Power BI and Power Apps to our colleagues. These will allow our teams to access and analyse data held in databases, helping them to move away from ad-hoc spreadsheets. This will help ensure our data is in a form that can more easily be integrated and shared.<br><br>This software also makes it easier for colleagues to combine disparate datasets from across the business. For example, a team prioritising network investment may need to combine data on the status of existing assets, forecast load growth, asset health and the potential for customer flexibility. This is particularly relevant as the transition to DSO will require us to work across different “silos” of data. |
| DSO 2.2 Utilise analytics engines and machine learning to enhance and verify time-series data sets for high and extra high voltage networks                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| DSO 2.3 Refine power flow models, and supplement forecasting and scenario modelling (such as DFES), using analytics engines to predict future power flows under different scenarios and therefore improving network planning and gaining operational insights |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Reliability and availability                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| RA 5 Enhance our first response through improving our ability to track and deploy staff to faults more swiftly, by skillset and location                                                                                                                      | The majority of our colleagues work in the field. At present, their ability to access all the relevant network data while off-site is limited, and so they are sometimes required to “return to base”. The availability of mobile platforms for collaboration and data access will reduce the number of times that this occurs, leading to more issues being fixed faster.                                                                                                                                                                                                                                                                                                                                                                       |

| DD3: Data at the point of need                                                                                                                                                    |                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                             | How it is enabled                                                                                                      |
| <b>Asset resilience</b>                                                                                                                                                           |                                                                                                                        |
| <b>AR 1.2</b> Enhance our business processes and analysis tools to better enable the identification of load growth and asset condition synergies                                  | The availability of tools such as Power BI will enable our teams to carry out this type of analysis more productively. |
| <b>Physical and cyber resilience</b>                                                                                                                                              |                                                                                                                        |
| <b>PC 1.1</b> Invest in technology, such as cloud access security broker (CASB) and AI analytics, that helps to identify weaknesses in our IT systems and quickly detect attacks. | The upgrades we are making to our infrastructure will make it easier to secure our systems.                            |

| DD4: Cyber security and resilience                                                                                                                                                                                                                                                      |                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                                                                                                   | How it is enabled                                                                                                                                                                                    |
| <b>Decarbonisation</b>                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |
| <b>DSO 3.1</b> Build enhanced functionality on top of our open data platform to unlock additional customer benefits. This will include a set of free analytical tools to help processing data and enhance self-service delivering a complete set of capabilities by the end of 2026/27. | These systems will share potentially sensitive operational and customer data. The cyber-security initiatives we plan to carry out will ensure that the data remains safe, and our network is secure. |
| <b>Reliability and availability</b>                                                                                                                                                                                                                                                     |                                                                                                                                                                                                      |
| <b>RA 3</b> Establish LV network management capability to allow the increase data from Foresight, LV monitoring and smart meters to improve services                                                                                                                                    | Our cyber-security initiatives will ensure that the additional data is captured, transmitted, stored and processed securely.                                                                         |
| <b>RA 5</b> Enhance our first response through improving our ability to track and deploy staff to faults more swiftly, by skillset and by location (24/7/365)                                                                                                                           | We will install a resilient voice communications system that will ensure our field engineers can communicate during powercuts when mobile telephone and landlines are not available.                 |
| <b>Asset resilience</b>                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                      |
| <b>AR 2.6</b> Utilise smart meter data to identify customers with high load and therefore, increased risk of overloaded cut-outs                                                                                                                                                        | Our cyber-security initiatives will ensure that smart meter data is captured, transmitted, stored and processed securely.                                                                            |

| DD4: Cyber security and resilience                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                                                                                                                                                                 | How it is enabled                                                                                                                                                                            |
| <b>Physical and cyber resilience</b>                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                              |
| <b>PC 1.1</b> Invest in technology, such as cloud access security broker (CASB) and AI analytics, that helps to identify weaknesses in our IT systems and quickly detect attacks                                                                                                                                                                      | The initiatives in this focus area include these activities, which will combine to ensure we maintain the security of our systems.                                                           |
| <b>PC 1.3</b> Invest in automated event response technology to quickly respond to cyber-attacks                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| <b>PC 1.4</b> Achieve recertification for ISO27001 and ISO27019                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| <b>PC 2.1</b> Design and implement core OT system and major substations network sensors                                                                                                                                                                                                                                                               |                                                                                                                                                                                              |
| <b>PC 2.3</b> Implement EDR on our core systems                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| <b>PC 4.1</b> Deploy a resilient mobile communication system for our critical field colleagues                                                                                                                                                                                                                                                        |                                                                                                                                                                                              |
| <b>PC 3.2</b> Establish vehicle deployable emergency communication hubs (deployable resilience)                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| <b>Customer service</b>                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                              |
| <b>CS 1.5</b> Provide an enhanced digital self-service offering, preserving the option of 100% human contact where preferred                                                                                                                                                                                                                          | The cyber-security tools that we will implement will help protect these new platforms.                                                                                                       |
| <b>Vulnerable customers</b>                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                              |
| <b>VN 1.3</b> Give our vulnerable customers more choice in how they engage with us by creating a fully digitised “one-stop solution” by 2024-25 to enable a more accessible, faster and convenient route to contact us and access our service. This will also free up capacity for a more responsible telephone-based service for those who prefer it | Protecting customer data is at the forefront of all that we do, so deploying this one stop solution requires us to protect it with the cyber security tooling we will deploy in this period. |

| DD5: Modern back office                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                       | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Safety</b>                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>S1.4</b> Deploy digital solutions to transform the process of safety data acquisition, processing and analytics to better inform improvement and intervention areas, including virtual reality training. | The modern back office, particularly the one we envisage, tightly integrated with our other data platforms, will make the reporting of and response to safety data. For example, a colleague will be able to use the self-serve portal for HR to report a safety incident that is then linked back to their records and makes aggregation, reporting and analysis all the more richer.                                                           |
| <b>Physical and cyber resilience</b>                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>PC 1.4</b> Achieve recertification for ISO27001 and ISO27019                                                                                                                                             | Moving to modern systems will increase our data integrity and cyber security as well as simplifying the controls detailed within our ISMS, contributing to our overall information security management and thus ensuring our recertification to the ISO27001 standard.                                                                                                                                                                           |
| <b>Customer service</b>                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>CS 2.2</b> Use analytics to aid quicker analysis of common themes and group complaints by type to support quicker resolution and root cause analysis                                                     | Consolidating our current multiple ERP instances will allow us to integrate datasets and draw out more meaningful analysis on our customer experience data. Moving to more efficient hybrid-cloud based services will allow our colleagues to work more efficiently and free up time to provide more personalised support for customers.                                                                                                         |
| <b>Vulnerable consumers</b>                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>VN3.2</b> Identify additional data sources and partnerships to allow us to track new and emerging issues and to support customers and, in doing so, improve our understanding of our customer base       | <p>Integrating our current ERP instances and databases will facilitate this analysis.</p> <p>The DDTO will build and deploy a digital factor model that will enable multiple cross-functional teams to work together at scale, providing 365 support to our customers and avoiding the need for customers to have multiple conversations that duplicate the same information which can be particularly challenging for vulnerable customers.</p> |
| <b>Connections</b>                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>CN 2.3</b> Introduce new automated systems to streamline the notification/application process for LCTs and facilitate mass uptake                                                                        | Moving to cloud-based evergreen systems will make back office processes more efficient and ensure that our stakeholders benefit from a more efficient service, including better integration with other systems for automation.                                                                                                                                                                                                                   |

| DD6: Field force management                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                        | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Environmental Action plan</b>                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>EP 1.4</b> Increase ULEV/ZEVs on fleet to 40% by 2028, reducing fleet fuel by 40%                                                                                                                         | The new work management solutions will optimise routes so that the order of jobs is optimised based on locations, reducing overall travel distances and emissions as we transition to ULEV and ZEVs in our fleet.                                                                                                                                                                                                                         |
| <b>Safety</b>                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>S3.3</b> Reduce the risk of fatigue in the workforce through effective management of working hours                                                                                                        | The new work management solutions will improve the efficiency of scheduling. It will allow us to schedule jobs based on the skills and qualifications of colleagues, as well as reducing overall travel times from route optimisation. This will reduce the risk of fatigue by having a much clearer view of our colleagues working hours and will allow for predictive analytics to further reduce the potential of this even happening. |
| <b>Reliability and availability</b>                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>RA A.5</b> Enhance our first response through improving our ability to track and deploy staff to faults more swiftly, by skillset and by location                                                         | The new work management solution will enable central management of jobs and can optimise based on skillset and identification of industrial colleagues closest to a fault to reduce response times.                                                                                                                                                                                                                                       |
| <b>Customer service</b>                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>CS1.2</b> Offer greater convenience to customers by extending appointment booking slots for planned services into evening/weekend and same day/next day                                                   | The integrated work management solution will enable us to provide timed appointments and track our workforce through real-time scheduling capabilities.                                                                                                                                                                                                                                                                                   |
| <b>CS1.3</b> Provide proactive communications to customers for both planned and unplanned power cuts, where available, using smart meter data                                                                | We will be able to track the progress of works and provide meaningful updates for customers.                                                                                                                                                                                                                                                                                                                                              |
| <b>CS1.4</b> Provide on-site support where customers experience long-running power cuts                                                                                                                      | Our new scheduling capabilities will be able to identify the most appropriate field colleague to attend outages.                                                                                                                                                                                                                                                                                                                          |
| <b>Vulnerable consumers</b>                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>VN 2.1</b> Deliver proactive communication during supply interruptions utilising digital channels                                                                                                         | We will be able to track the progress of works and provide meaningful updates for customers.                                                                                                                                                                                                                                                                                                                                              |
| <b>VN 2.4</b> Establish a new support team to provide additional on-site support in the event that power cuts last longer than six hours, providing personalised, proactive support for vulnerable customers | We will be able to identify the individuals best placed to support vulnerable customers based on their location and their skillsets, acknowledging where different customer groups may require additional support e.g. those with new safeguarding training for working with young people, or mental health training                                                                                                                      |

| DD6: Field force management                                                                       |                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                             | How it is enabled                                                                                                                                                                                                                                                                                                                  |
|                                                                                                   | for customers likely to experience issues.                                                                                                                                                                                                                                                                                         |
| Connections                                                                                       |                                                                                                                                                                                                                                                                                                                                    |
| <b>CN 1.3</b> Give small works customers the option to pick the data and time of their connection | We will carry out a specific discovery exercise to understand how we can improve our work management systems to support connections and deliver a common work planning system. This is expected to include work management solutions for small connections, real time field engineers calendar, automated scheduling and dispatch. |

| DD7: Robotics and automation                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                        | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                |
| Decarbonisation                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>DSO 5.4</b> Create a system to automatically validate flexibility service provision, calculate remuneration, and issue relevant invoices or compensation                                                  | By automating standard processes we will make it easier and faster to settle flexibility service provision. This will make it more straightforward for customers on the LV networks to provide flexibility services. Whilst ultimately, this may be replaced by end to end systems, we could start by using RPA before introducing more complex automations over time as the workloads increase. |
| Safety                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>S 1.4</b> Deploy digital solutions to transform the process of safety data acquisition, processing and analytics to better inform improvement and intervention areas, including virtual reality training. | We will use process mining to identify areas of optimisation, including our customer and people services, back-office operations, and field operations. This could identify opportunities to streamline safety processes, for example automating work orders and compliance reporting.                                                                                                           |
| Asset resilience                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>AR2.8</b> Investigate using AI and machine learning to automatically triage captured drone imagery and highlight where works are required                                                                 | Integration of master data will bring together the necessary systems and data to automate works identification. Process mining will assess the feasibility and opportunities to deliver automatic triage.                                                                                                                                                                                        |
| Environmental resilience                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                  |



| DD7: Robotics and automation                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Key customer outcomes                                                                                                                                                                                                                                                                                                                                                                                      | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                |
| CR 2.5 Utilise LiDAR technology to ensure efficient targeting of our vegetation management                                                                                                                                                                                                                                                                                                                 | Operational automation will allow us to automatically process LiDAR data into our advanced analytics capability and in turn, then prioritise areas for vegetation management, for example. This is an example of some fairly complex automation that would be interfaced through our integration platforms but is likely to require batch or real-time style automation to deal with the complexity of the task. |
| Physical and cyber resilience                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| PC 1.3 Invest in automated event response and technology to help us quickly respond to cyber-attacks                                                                                                                                                                                                                                                                                                       | Process automation will streamline response processes in the event of a physical or cyber-attack, delivering faster, automated responses.                                                                                                                                                                                                                                                                        |
| PC 3.1 Deploy rapid incident response security solution to quickly protect network substations                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Customer service                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CS 1.3 Provide proactive communications to customers for both planned and unplanned power cuts, where available, using smart meter data                                                                                                                                                                                                                                                                    | Integration of master data and process mining will identify opportunities to automate proactive communications for customers using smart data.                                                                                                                                                                                                                                                                   |
| CS 2.2 Use data analytics to aid quicker analysis of common themes and group complaints by types to support quicker resolution and root cause analysis                                                                                                                                                                                                                                                     | Integration of master data extends to back-office integration, allowing us to understand how API integration between CX and network systems can support analysis of SLA targets and customer performance, and pro-actively allowing us to target these areas.                                                                                                                                                    |
| CS 3.1 Expand our services for large customers, electricity suppliers and Independent Distribution Network Operators, working collaboratively with our customer account management team to provide tailored support on flexibility products and services, making best use of our customer relationship management system to identify requirements, answer FAQs and signpost to approved service providers. | By streamlining and automating low-value processes, we will free up time and resource that can be used to expand services for our customers and provide more tailored support.                                                                                                                                                                                                                                   |
| Vulnerable consumers                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| VN 2.2 Provide proactive communication during supply interruptions utilising digital channels                                                                                                                                                                                                                                                                                                              | Integration of master data and systems and process mining will identify opportunities to automate communications in the event of supply interruptions                                                                                                                                                                                                                                                            |
| Connections                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                  |

**DD7: Robotics and automation**

| Key customer outcomes                                                                                                                | How it is enabled                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CN 2.3</b> Introduce new automated systems to streamline the notification/application process for LCTs and facilitate mass uptake | Automation of common processes such as registration of new connections will reduce the time and effort required for our customers and colleagues. |

**DD8: Enabling customers to self-serve**

| Customer outcomes enabled                                                                                                                                                                                                                                                                                           | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Decarbonisation</b>                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>DSO3.1</b> Build enhanced functionality on top of our open data platform to unlock additional customer benefits. This will include a set of free analytical tools to help processing data and enhance self-service delivering capabilities by the end of 2026-27.                                                | Integrating our website with cloud analytics will provide stakeholders with easy access to Open Data and insights. For example, we could introduce different views and filters for different user personas, tailoring information individual needs.<br><br>We will continue to incorporate cross-industry best practice research.                                                                                                                                                                                                                                                                                                                                                                            |
| <b>DSO 5.3</b> Develop a flexibility services communication, engagement and trading platform that allows third parties such as flexibility providers and aggregators to keep track of flexibility services related information such as service requirements, procurement methods, contracts and powercut visibility | We are already implementing Flexible Power as our primary route today to engage with flexibility providers. We are looking to develop this further with our DNO partners and other stakeholders in a way that is open to third parties and allows interactions with other platforms. This is an example of the type of customer self-service platform which we will be developing as part of this focus area.                                                                                                                                                                                                                                                                                                |
| <b>Customer Service</b>                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>CS1.1</b> Give customers more choice in how to contact us through the introduction of three new communication channels while ensuring full access to traditional contact channels                                                                                                                                | Our omni-channel strategy will identify preferred channels by customer groups and enable customers to shift seamlessly between channels in a cost-effective manner. Findings will help to prioritise channels for further investment and maximise customer value.<br><br>Our new website will feature AI powered web and social chat platforms for customers, providing direct and immediate support. We will also assess our current social media to understand how best to build social listening dashboards and integrate social media with CRM.<br><br>Integration of processes and automation of reports will free up time that can be used to serve customers who prefer traditional contact channels. |
| <b>CS1.5</b> Provide enhanced digital self-service offering, preserving the option of 100% human contact where                                                                                                                                                                                                      | We are introducing several new digital self-service capabilities including our new website, customer service analytics portal, and AutoDesign which will                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| DD8: Enabling customers to self-serve                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customer outcomes enabled                                                                                                                                                                                                                                                                                                                             | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| preferred.                                                                                                                                                                                                                                                                                                                                            | benefit customers who choose to self-serve while freeing up time to support those who prefer human contact.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>CS 2.2</b> Use data analytics to aid quicker analysis of common themes and group complaints by type to support quicker resolution and root cause analysis.                                                                                                                                                                                         | We will deploy data capture and social listening to feed the automated analytics platform. This will allow us to address common themed complaints proactively, reducing the need for customers to raise future similar complaints.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>CS3.2</b> Provide simple, intuitive guidance for data to our customers making it easier to access, find and use                                                                                                                                                                                                                                    | The customer service analytics portal will act as a one-stop location for customers to enquire, track, and manage their services and transactions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Vulnerable customers                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>VN1.3</b> Give our vulnerable customers more choice in how they engage with us by creating a fully digitised 'one stop solution' by 2024/25 to enable a more accessible, faster and convenient route to contact us and access our services. This will also free up capacity for a more responsive telephone-based service for those who prefer it. | The introduction of our customer service analytics portal, which provides a single location for customers to enquire, manage, and track their services and transactions offers these customers that face barriers to telephone services an alternative way to contact us, as does the AI powered web-chat service on our website while still maintaining telephone services for those that prefer them.                                                                                                                                                                                                                                                                                                                                                        |
| Connections                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>CN 1.1</b> Develop our digital platforms for customers who want to self-serve and provide enhanced upfront support for those who prefer to talk to us before making an application                                                                                                                                                                 | <p>Deployment of AutoDesign will produce quotes and estimates faster and on demand to connections customers, providing them with the necessary information to inform their decision making processes. This will be complemented by the customer service analytics portal which provides a single location for customers to manage their services and transactions, making it easier for customers who prefer to self-serve and freeing up capacity to support those who prefer telephone support.</p> <p>The information provided by AutoDesign and our open data platform will allow customers to identify the most viable solutions and accelerate mass uptake of LCTs, flexible connections, and network flexibility, supporting the drive to net zero.</p> |
| <b>CN 2.2</b> Utilise AutoDesign technology to develop an LV monitoring and smart meter data to enable real-time system planning. Go live planned for 2024/25.                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>CN 2.3</b> Introduce new automated systems to streamline the notification/application process for LCTs and facilitate mass uptake. Go-live planned for 2023/24.                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>CN 4.3</b> Develop a bespoke AutoDesign platform for ICPs and IDNOs with non-contestable costs. Go live planned for 2024/25.                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| DD9: Advanced analytics                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customer outcomes enabled                                                                                                                                                                                                                                                 | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Decarbonisation</b>                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>DSO 2.1</b> Use analytics and machine learning to emulate high quality and granular time series data for LV networks.                                                                                                                                                  | <p>Our investment in analytics and machine learning will ensure that we get the most of our existing data. We will integrate data from LV sensors with other data sources such as smart metering and outputs of state estimation to create network visibility. This will be used for network planning and open data. We will bring LV sensors into our control room and systems to support network operation.</p> <p>As part of our digital twin development process, our 'quick data wins' initiative will identify where existing data within systems can be extracted, cleansed, and reloaded to manage our LV, HV, and EHV networks.</p> <p>Our enhanced network planning initiative will identify opportunities to integrate new and existing data to draw out new insights for network planning and modelling.</p> |
| <b>DSO 2.2</b> Use analytics engines and machine learning to enhance and verify time-series data for HV and EHV networks.                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>DSO 2.3</b> Refine power flow models, and supplement forecasting and scenario modelling (such as DFES), using analytics engines to predict future power flows under different scenarios and therefore improving network planning and gaining operational insights.     | <p>Our additional sensors will provide more granular data for operational planning.</p> <p>Our digital twin initiative will be key to enhancing modelling for network planning and investment. It will allow us to test a wider range of scenarios, updating these scenarios and the subsequent implications on network planning as current thinking evolves. It will allow us to create sandbox environments to trial new concepts rather than having physically build them, giving us a fast and low-risk option for innovation.</p>                                                                                                                                                                                                                                                                                   |
| <b>DSO 2.4</b> Create a static strategic planning modelling of the network which integrates historical and real-time data from various OT/IT systems delivering a complete set of capabilities by the end of 2025-26                                                      | We have made significant investment and delivered a single integrated network model that provides a single data repository for asset information. We will continue to build on this model to release new capabilities, including modernising the architecture with a single master dataset and create dynamic interfaces between DB Link and Oracle ESB.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>DSO 3.1</b> Build enhanced functionality on top of our open data platform to unlock additional customer benefits. This will include a set of free analytical tools to help processing data and enhance self-service delivering capabilities by the end of 2026-27 CVP. | This enhanced functionality will include advanced analytics, visualisation, as well as the provision of data in standard formats (including the CIM – common information model).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>DSO 4.5</b> Upskill and recruit engineers to use whole energy system thinking to provide increasingly complex solutions to                                                                                                                                             | We will design an analytics Centre of Excellence which will coach and champion the use of self-service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| DD9: Advanced analytics                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| Customer outcomes enabled                                                                                                                                                                                                        | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| address decarbonisation                                                                                                                                                                                                          | analytics such as PowerBI. The Centre of Excellence will also build and deploy more complex case which require bespoke coding to deliver new capabilities for our stakeholders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>WS 2.2</b> Develop new network planning tools to improve our modelling of the impact of flexibility and mobile loads and therefore improve our network planning process. Work with other DNOs and build on previous learning. | Our investment in forming a digital twin of the network will be key to modelling a wider range of operational conditions, flexibility, and mobile customer loads/generation as we transition to a more active network operation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Safety                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>S 1.3</b> Deploy digital solutions to transform the process of safety data acquisition, processing and analytics to better inform improvement and intervention areas including virtual reality training.                      | <p>Our investment in health and safety analytics will act as a one stop shop for our people.</p> <p>Our new system for incident and hazards reporting will provide a single version of the truth and allow us to carry out analytics to identify any trends or areas to target improvement. We will also integrate safety requirements with operational activities, allowing us to highlight operational bottlenecks e.g. need for specific training or expertise.</p> <p>We will also invest in improved asset tracking, capturing and consolidating all safety and compliance requirements for assets and tools and integrating this with our asset management systems to automatically trigger work orders relating to safety inspections.</p> |
| <b>S 2.2</b> Integrate hazard and near-miss reporting systems through application programming interface solutions                                                                                                                | Our new incident and hazard reporting system will enable mobility solutions so our stakeholders can report events 'on the go'. We will also enhance our real-time monitoring capability to include alarms for drivers, stakeholders, or colleagues during work, leveraging mobile technology.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Reliability and availability                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>RA.3</b> Establish LV management capability to allow increased data from Foresight, LV monitoring, and smart meters to be used to improve services                                                                            | We are integrating and enhancing network monitoring and analytics tools, allowing us to make better short-term decisions on our operational response and better long-term decisions on optimising investments to strengthen the LV network in the future.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>RA 5.</b> Enhance our first response through improving our ability to track and deploy staff to faults more swiftly, by skillset and by location                                                                              | As part of our 'quick wins' initiative, we will focus on accurate identification of industrial colleagues who are closest to faults. This will allow the control room to allocate work to the closest colleagues with the necessary expertise, improving response times.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Asset resilience                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>AR 1.2</b> Enhance our business processes and analysis tools to                                                                                                                                                               | Enhancing our condition-based risk assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| DD9: Advanced analytics                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customer outcomes enabled                                                                                                                                     | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| better enable identification of load growth and asset condition synergies                                                                                     | <p>capabilities will allow us to better target investment where it is most needed based on current performance of the network and future changes in load. We will identify new and existing data that can be better utilised and develop and test new algorithms using this data.</p> <p>Our digital twin will allow us to test a wider range of future load scenarios, taking into account changes over the ED2 period to better direct investment.</p> |
| <b>AR 2.6</b> Utilise smart meter data to identify customers with high load and therefore, increased risk of overloaded cut-outs.                             | This will be supported by predictive modelling.                                                                                                                                                                                                                                                                                                                                                                                                          |
| Environmental resilience                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>CC 4.5</b> Undertake collaborative research projects to develop predictive analytics for the effects of weather on our underground networks.               | Our analytics Centre of Excellence will work with internal and external stakeholders to understand their requirements for complex data analysis to support new research projects. It will then build and deploy these requirements, as well as acting as a central hub for coaching self-service analytics to support research initiatives.                                                                                                              |
| Physical and cyber resilience                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>PC 1.1</b> Invest in technology that helps to identify weaknesses in our IT systems and quickly detect attacks                                             | We will identify the single point of accountabilities for data across the organisation, establishing consistent quality standards and information governance to ensure data remains fit for its intended use and secure.                                                                                                                                                                                                                                 |
| Customer service                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>CS 1.3</b> Provide proactive communications to customers for both planned and unplanned power cuts, where available, using smart meter data.               | We will continue to explore opportunities to using machine learning or AI to more accurately estimate time to restoration, integrating this capability to our CRM to improve communication to customers. This builds upon existing programmes of work undertaken in recent years.                                                                                                                                                                        |
| <b>CS 2.2</b> Use data analytics to aid quicker analysis of common themes and group complaints by type to support quicker resolution and root cause analysis. | We will implement a customer data platform to centralise customer data and provide a single view of the customer, building the ability to undertake customer analysis and wider use of AI for customer insights and targeted improvements.                                                                                                                                                                                                               |
| Connections                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>CN 1.1</b> Develop our digital platforms for customers who want to self-serve and provide enhanced upfront support for those                               | The analytics Centre of Excellence will act as a central hub for self-service analytics and take into account the                                                                                                                                                                                                                                                                                                                                        |

| DD9: Advanced analytics                                                                                                                                                                                                                                                                         |                                                                                                                                                                                   |
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| Customer outcomes enabled                                                                                                                                                                                                                                                                       | How it is enabled                                                                                                                                                                 |
| who prefer to talk to us before making an application.                                                                                                                                                                                                                                          | needs of external stakeholders when developing new capabilities.                                                                                                                  |
| Openness and transparency                                                                                                                                                                                                                                                                       |                                                                                                                                                                                   |
| <b>OT 2.2</b> Extend our reporting framework to include annual reports on DSO, Major connections, our Environmental Action Plan, Vulnerable consumers, including upgrading accessibility to material on our website, further utilising plain English and limiting our use of content redaction. | Each of our analytics initiatives will increase the value the data we collect, drawing out new insights that can help to assess our performance against each of our output areas. |

| DD10: Future proofed agile                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                   |
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| Customer outcomes enabled                                                                                                                                                                                                                                                                                          | How it is enabled                                                                                                                                                                                                                                                                                                                                                                                 |
| Decarbonisation                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>DSO 1.1</b> Build on existing information management capabilities to expand network data and integrate datasets delivering capabilities by the end of 2025-26. Capture more detailed data more regularly, purchase data to enhance network visibility, and cleanse, structure and store data more effectively.  | Moving to a cloud based system will allow us to introduce new BI capabilities to better integrate data from external sources and draw out insights to inform our decarbonisation plans on an ongoing basis. It will also enable us to work in a more modular way, enabling scalability for data storage and processing power as required to onboard new datasets and analysis.                    |
| <b>DSO 1.2</b> Work with stakeholders to improve information exchange and understand flexibility service requirements                                                                                                                                                                                              | Our new BI capabilities will allow greater insight into customer experience (CX) data, helping us to better understand where change is required to accelerate decarbonisation which we can then implement.<br><br>This will be underpinned by our new agile way of working, allowing us to develop and deploy agnostic flexible solutions and adapt these solutions in response to this feedback. |
| <b>DSO 5.3</b> Develop a flexibility services communication, engagement and trading platform that allows third parties such as flexibility providers and aggregators to keep track of flexibility services related information such as service requirements, procurement methods, contracts and outage visibility. | We plan to ensure that flexibility provider registration acceptance time is under 30 days, and procurement events response time is under 3 months. Our investments into human capital management applications will help us meet these targets, allowing us to measure how our colleagues are performing and identifying the need for additional training.                                         |
| <b>DSO 5.4</b> Create a system to automatically validate flexibility service provision, calculate remuneration and issue relevant invoices or compensation.                                                                                                                                                        | The upgrades we are making to our finance system will help to streamline and automate these processes.                                                                                                                                                                                                                                                                                            |
| Environmental Action plan                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>EP 1.1</b> Install renewable energy at 50 sites, remaining receptive to technological advances                                                                                                                                                                                                                  | Our new 'sense and response' approach to working will introduce the necessary flexibility to adapt solutions to new                                                                                                                                                                                                                                                                               |

| DD10: Future proofed agile                                                                                                                                                        |                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customer outcomes enabled                                                                                                                                                         | How it is enabled                                                                                                                                                                                                            |
|                                                                                                                                                                                   | technological innovations.                                                                                                                                                                                                   |
| <b>EP 3.1</b> Introduce a Responsible Procurement Charter achieving >90% compliance                                                                                               | Moving to a hybrid cloud solution will allow us to working a modular way, adding new monitoring and reporting capabilities to monitor supplier progress towards net zero.                                                    |
| Reliability and availability                                                                                                                                                      |                                                                                                                                                                                                                              |
| <b>RA 5</b> Enhance our first response through improving our ability to track and deploy staff to faults more swiftly, by skillset and location.                                  | HCM cloud functionality will allow us to measure how our colleagues perform and identify where additional training is required to enhance our first response to address faults, reducing disruption for customers.           |
| Asset resilience                                                                                                                                                                  |                                                                                                                                                                                                                              |
| <b>AR1.2</b> Enhance our business processes and analysis tool to better enable the identification of load growth and asset condition synergies                                    | Moving to Oracle's asset management cloud solution will enable us to better integrate data and utilise analytic tools to better predict failures.                                                                            |
| Environmental resilience                                                                                                                                                          |                                                                                                                                                                                                                              |
| <b>CR 4.3</b> Embed resilience across our asset programme designs and specifications to deliver long-term synergistic resilience                                                  | Moving to a new hybrid cloud system will allow us to continue to be flexible across our solution design, plugging in new capabilities to reflect innovations or changes in the environment to maintain long-term resilience. |
| Physical and cyber resilience                                                                                                                                                     |                                                                                                                                                                                                                              |
| <b>PC 1.2</b> Develop and implement a cyber-specialist training programme for our workforce                                                                                       | Our new HCM system will identify opportunities for training, as well as providing a one-stop portal for colleague enquiries that will address common cyber-security issues.                                                  |
| <b>PC 1.1.</b> Invest in technology, such as cloud access security broker (CASB) and AI analytics, that helps to identify weaknesses in our IT systems and quickly detect attacks | We will adopt a DevSecOps approach to our new technical architecture, integrating security throughout the whole cloud migration lifecycle. This will increase resilience of our network to cyber-attack.                     |
| Customer service                                                                                                                                                                  |                                                                                                                                                                                                                              |
| <b>CS 2.2</b> Use data analytics to aid quicker analysis of common themes and group complaints by type to support quicker resolution and root cause analysis                      | Our new BI capabilities will integrate finance and customer experience data, and deliver new insights into key areas of improvement.                                                                                         |
| Vulnerable consumers                                                                                                                                                              |                                                                                                                                                                                                                              |
| <b>VN 3.2</b> Identify additional data sources and partnerships to allow us to track new and emerging issues and                                                                  | Moving to a cloud platform will allow easier integration of external datasets. Our new analytic capabilities will allow us                                                                                                   |



| DD10: Future proofed agile                                                                                                                                                                                                                                                      |                                                                                                                                                                                           |
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| Customer outcomes enabled                                                                                                                                                                                                                                                       | How it is enabled                                                                                                                                                                         |
| support customers and in doing so, improve our understanding of our customer base.                                                                                                                                                                                              | to identify new patterns to identify and track new and emerging issues and better identify vulnerable consumers in our customer base.                                                     |
| Connections                                                                                                                                                                                                                                                                     |                                                                                                                                                                                           |
| <b>CN 2.3</b> Introduce new automated systems to streamline the notification/application process for LCTs and facilitate mass uptake.                                                                                                                                           | New BI tools to analyse customer experience data will help to ensure that new systems cover key requirements for customers and achieve its goal of facilitating mass uptake.              |
| Openness and transparency                                                                                                                                                                                                                                                       |                                                                                                                                                                                           |
| <b>OT 1.1</b> Publish And report on our internal processes for investment appraisal of flexibility solutions and network reinforcement in such as a way that demonstrates our flexibility-first approach and ensures the best outcome for the long-term planning of the network | Our new BI reporting capabilities and integration of internal and external data on the hybrid cloud platform will allow us to produce new metrics and insights on our internal processes. |

## Appendix 2: Persona Example

**Persona name:** **Researcher**

32-year-old university professor conducting research in the energy space

*Sheeba Naheed is a senior university lecturer whose students are undertaking research into the way energy networks operate in a real world and how they might be affected by external factors such as global warming.*

### Persona features:

Extensive electrical industry knowledge

Data literate

Data needs will change as knowledge builds

Preferred approach would be self service

### Access channels:



### Quote:

*"As an academic, I would like access to real world, real time and historical energy system data."*

### Needs:

- Online access to undefined data.
- Data to be real time as well as historical.
- Data to be accurate and following a recognised standard.
- Predictive and analytical data outputs for research purposes.
- To simulate scenarios based on real energy network data.
- A seamless triage process for additional data requests.

### Today's challenges:

- Real time data is not readily available at present.
- There is no agreed standard for data within the energy industry.
- No defined data catalogue exists.
- No simulation environment exists.

### Tomorrow's challenges:

- Data standards may not be compatible.
- As we become more data reliant the opportunities to release new benefits may be less than the initial gain.

**Tomorrow's experience:**

*"I am able to easily access accurate and timely energy system data to help inform my research and present key learnings and insights into energy systems particularly relating to decarbonisation."*

*"I will have access to a simulation environment that will allow me to model numerous network scenarios, this will allow me to better educate students, preparing them to enter the energy industry."*

**How tomorrow's experience is enabled:**

The work on data integrations will better allow us to utilise multiple internal and external datasets to enhance network visibility.

As part of this focus area, we will be cleansing our datasets, and converting datasets stored in formats such as spreadsheets into a more usable format. Reviewing data governance and models for both the network and customer connections.

Improving the structure of our data will enable us to roll out the new CIM (common information model) standard and comply with Ofgem's Data Best Practice principles such as identifying the roles of stakeholders of data assets, and making them discoverable and interoperable.

Our open data platforms will make it easier for customers to find the data they require (for example, information about outages, or the availability of connections).

As a result of the initiatives we are undertaking, we will be able to share our forecasts in more useful formats for our stakeholders (e.g. machine-readable datasets).

Integrating our website with cloud analytics will provide stakeholders with easy access to Open Data and insights. For example, we could introduce different views and filters for different user personas, tailoring information individual needs.

We will continue to incorporate cross-industry best practice research.

We will open up significantly more data, following the premise of presumed open and sharing it in a universally recognised format for stakeholders to access.

The open data platform we will develop as part of our 'Journey to Open Data' focus area will be the portal to access these datasets.

**Delivered by these projects:**

**DD1: The Journey to Open Data:**

- **Data integration platform** deployed and API management with pre-built integrations launched.
- **Data integrations**, initial integrations hooked up to core business platforms holding master data.
- **Data asset integration**, further integrations setup with asset and energy data systems.
- **Cloud data platforms** deployed and data storage for new integrations setup. Open data portal created.

**DD7: Robotics and automation:**

- **Master data integration** established to enable controlled sharing of data between systems for faster transaction and more effective analytics.

**DD8: Enabling customers to self-serve:**

- **Customer service analytics portal** deployed, providing a single location for customers to access information.
- **Open data portal** implemented, providing integration between the customer service analytics portal, cloud data platforms and cloud analytics.

**DD9: Advanced analytics:**

- **Cloud analytics platform** new functionality and scalable capacity to meet future analytics workloads implemented.
- **Digital twin** static strategic planning model of the network deployed to improve network planning and investment.

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