Benefits Methodology

2025

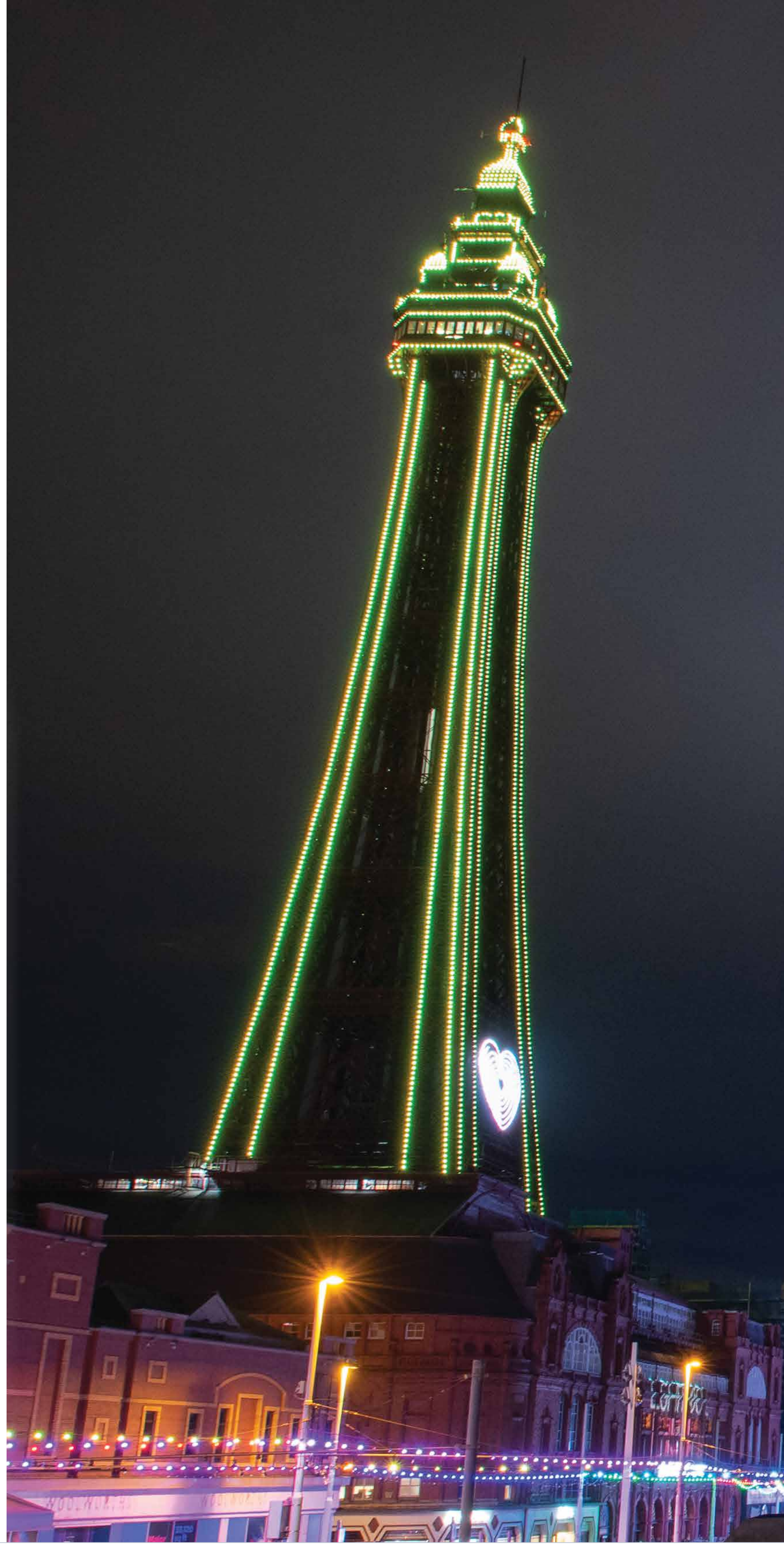
Contents and context

Purpose of this document

This document explains how we quantify the benefits that our Distribution System Operation (DSO) activities deliver. In publishing this document, we hope to:

- Provide clear links between the quantified benefits and actions outlined in our DSO panel submission document.
- Highlight how our delivery of benefits aligns to our **RIIO-ED2 Business Plan**.
- Articulate our modelling methodology to enhance transparency for our customers and stakeholders.

Contents



List of abbreviations

We have abbreviated terms throughout our report, where doing so improves clarity and readability. We provide the full form of an abbreviation at first use and then the abbreviation thereafter. A full list of the abbreviations used is provided below.

Term	Meaning
ANM	Active Network Management
API	Application Programming Interface
BSP	Bulk Supply Point
CBA	Cost Benefit Analysis
CND	Coordinated Network Development
DER	Distributed Energy Resource
DFES	Distribution Future Energy Scenarios
DG	Distributed Generation
DNO	Distribution Network Operator
DSO	Distribution System Operation
ECR	Embedded Capacity Register
EHV	Extra-High Voltage
ENA	Energy Networks Association
ENWL	Electricity North West Limited
EV	Electric Vehicle

Term	Meaning
FY	Financial Year
GVA	GigaVoltAmpere
GW	Gigawatts
HV	High Voltage
KPI	Key Performance Indicator
LAEP	Local Area Energy Plan
LCT	Low Carbon Technology
LV	Low Voltage
NESO	National Energy System Operator
NPSV	Net Present Social Value
NPV	Net Present Value
RIIO-ED2/ED3	Current and future regulatory Price Control
SCOP	Seasonal Coefficient of Performance
SROI	Social Return on Investment
tCO_2e	Tonnes of Carbon Dioxide Equivalent

1

High Level Overview of our Benefits Approach

1.1 Introduction

Background

- This document responds to **Ofgem's Performance Panel feedback** by providing more detail on our benefits approach, whilst enhancing transparency and clarity for our customers. It summarises how we **quantify the benefits arising from our DSO activities**.
- Across the North West, there is a consensus among stakeholders for the need to urgently transition to a Net Zero energy system, while ensuring that customers' bills are kept as low as possible. We are passionate about our role in empowering regional progress towards Net Zero through the delivery of affordable services and infrastructure for decarbonisation. Our DSO function supports us in doing this by delivering investment and flexibility solutions in the right place, at the right time. This will ultimately help customers to decarbonise, drive economic growth, and provide the affordable infrastructure essential for achieving Net Zero.
- This year, we have refreshed our approach to align with the approach agreed at the DSO Collaboration Forum, facilitated by the Energy Networks Association (ENA). This uses the "Theory of Change" methodology to create an even stronger link between the DSO activities we are delivering, and the benefits these activities drive for a range of stakeholders. This has been done to help ensure that we are focusing our delivery activities in the **right areas** and **enabling benefits that extend beyond just network cost savings** i.e. wider energy system impacts, benefits to connecting customers, and wider society.

In updating our framework we have ensured that our approach:

- Follows **HM Treasury Green Book** guidance to evaluate benefits, ensuring robust and transparent tracking of benefits. This includes alignment with our RIIO-ED2 business plan and planning for RIIO-ED3.
- Clearly considers how DSO activities affect different types of consumers.
- Balances the use of data in our approach, leveraging network monitoring along with forecasted and historical data, to ensure our methodology supports progress towards future system needs, not just near-term ones. We show our Year 2 realised benefits, our ED2 and 2040 ambition, along with reporting unlocked benefits based on investment already undertaken within the ED2 period.
- Collaborates across Distribution Network Operator (DNO) and DSO functions to align initiatives and complement broader network investment planning.

1.2 High Level Benefits Approach

The diagram below highlights our high-level benefits approach. In line with Ofgem's DSO Performance Panel criteria, we followed the HM Treasury Green Book guidance in establishing this approach.

Identifying beneficial DSO activities

- Identify all DSO activities we are undertaking in RIIO-ED2
- Hold workshops with DSO and DNO teams to define and organise these activities
- Identify which activities can deliver benefits for our customers and wider stakeholders

Agree benefit and stakeholder categories

- Define and categorise the benefits from DSO activities, e.g. cost deferral, cost savings and carbon savings
- Define the stakeholder groups that benefit, e.g. existing customers, connecting customers, wider system actors and wider society
- Ensure these categories align with Ofgem and ENA guidance

Develop "Theory of Change"

- Develop a Theory of Change for each activity
- For each **DSO activity** we map out the causal chain:
  - The **action(s)** we are taking under that activity
  - The **outcome(s)** that these actions achieve
  - The **benefit(s)** of those outcomes
  - The **stakeholders** who benefit

Define counterfactuals

- For each DSO activity, we specify what the outcome would be **were we not to pursue that activity**
- This forms the basis against which the benefit of each activity is assessed

Agree data sources and assumptions

- Choose inputs to populate the CBA
- Use existing data where possible, making use of the Open Data Portal if appropriate
- Any estimates or assumptions are agreed with the relevant DNO and DSO experts
- All assumptions are clearly documented in the model and supporting materials for transparency and future revision

Populate Cost Benefit Analysis (CBA) templates

- Use Ofgem CBA templates as the basis of the analysis
- Create separate CBAs for each DSO activity, and combine into an overall CBA
- Separate into **realised** Year 2 (Y2) benefits, cumulative benefit **ambition** out to ED2 and 2040, and consider the '**unlocked**' ED2 benefit where different from the ED2 ambition

Tracking and updating

- The model itself will be updated annually, using the latest data and revisiting assumptions made
- In the interim, we will use Key Performance Indicator (KPIs) relating to DSO activities to ensure that we are on track to deliver the anticipated benefits

1.3 Theory of Change

- Our benefits mapping process ensures that each initiative has clear outcomes and benefits, which are directly linked to the stakeholders they impact. This method provides quantifiable benefits, typically expressed in monetary terms (e.g. avoided or deferred costs), while also accounting for non-monetary benefits such as carbon emissions reduction.
- To measure the broader social, environmental, and economic impacts of our initiatives, we include benefits derived from the Social Return on Investment (SROI) framework we used on our Load Related Reopener submission, reporting the Net Present Social Value (NPSV), ensuring a comprehensive evaluation of the value generated by our DSO activities.
- The benefits delivered from core activities undertaken this year are outlined in the following pages. For each initiative, we have provided a Theory of Change that underpins our methodology. Additionally, we have included a concise explanation of how each benefit area is assessed and the resulting benefits achieved through implementing our plan this year. This is accompanied by a projection of our ambition for the whole of RIIO-ED2 and out to 2040, and a qualitative estimate of the benefits already unlocked in ED2.

Activity	Action(s)	Outcome(s)	Benefit(s)	Stakeholder(s)
The DSO initiative or programme that is being undertaken, and is being included in the CBA	The action being taken by the DSO, e.g. procuring flexibility or deploying monitoring	The beneficial outcome of that action, e.g. in terms of a change in volume or timing of effort	The benefit, expressed in monetary or environmental terms, e.g. Net Present Value (NPV) or carbon saving	The stakeholders who benefit, whether DNO customers, wider system users or wider society

Mapping activities to actions

- We assign specific actions to each of our DSO activities
- Some activities have a single action, whereas others involve a combination of actions
- Examples would be procuring and dispatching flexibility, deploying and using monitoring, and offering third party Active Network Management (ANM) connections

Map actions to outcomes

- For each action, we specify how that action results in a beneficial outcome for our network, our customers, or wider stakeholders
- Examples include deferring or reducing reinforcement costs, facilitating earlier connections, reducing end user energy consumption, or avoiding carbon emissions

Map outcomes to benefits

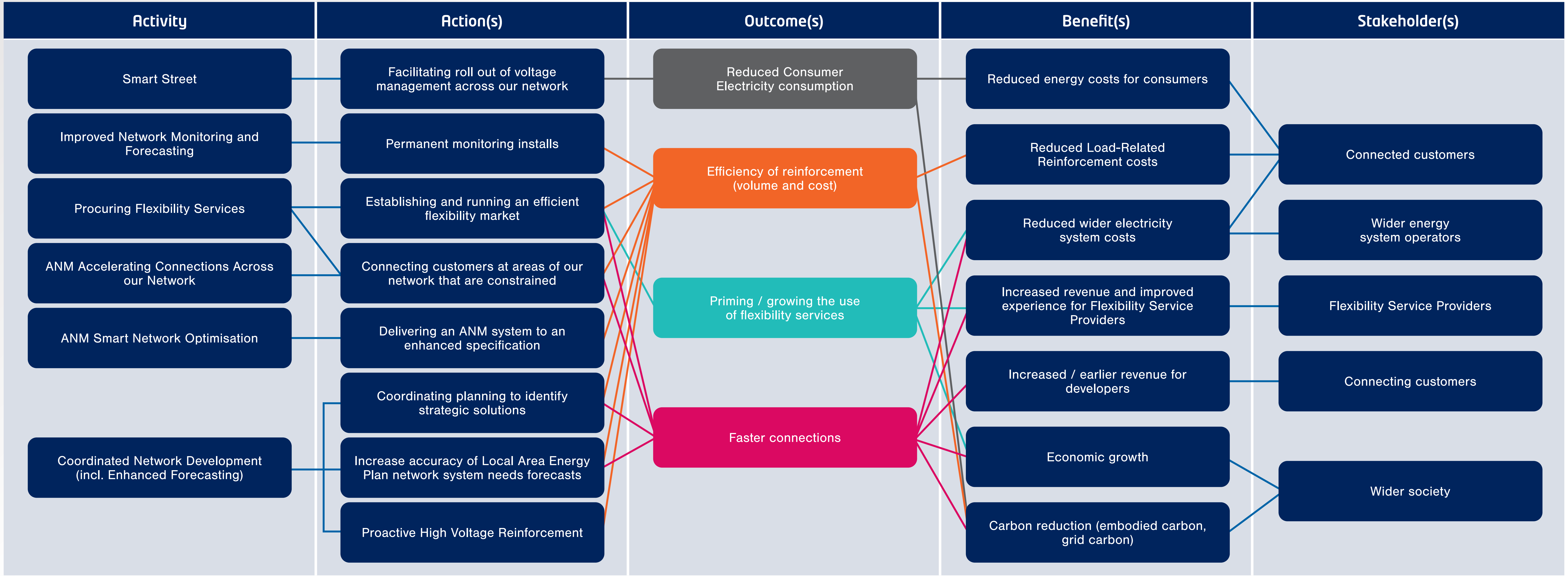
- For each outcome, we convert this into a quantifiable benefit
- Typically this is expressed in monetary terms, such as avoided or deferred cost, or additional revenue
- It also includes non-monetary benefits, such as CO_2 reduction
- Financial assumptions are required, which are logged in the model and documentation

Map benefits to stakeholders

- All benefits ultimately pass to one or more stakeholders
- Often, DSO benefits take the form of network savings which pass to our existing customers
- Other stakeholders include connecting customers, wider system users and wider society

1.4 Benefits Summary

We have split our core DSO activities into specific actions; each action has resulting outcomes which provide different types of benefits. Each of these activities, and the specific actions, outcomes, benefits and stakeholders impacted are discussed, alongside the method for quantifying this, on the following pages.



1.4 Benefits Summary

We have quantified our DSO benefits for the current Financial Year 2024-25 (Y2), along with the benefits associated with our ambition for DSO through ED2 and out to 2040. Additionally, we've provided our benefits from the previous Financial Year 2023-24 (Y1) to show our progress. All financial figures are expressed in Net Present Value (NPV) terms, and have been grouped according to our DSO activities.

The results are indicated below, highlighting the opportunity to provide **£3.6b of financial benefit by 2040**.

Table 1: Summary of quantified benefits per DSO activity (£m)

Activity	NPV Y1	NPV Y2	NPV ED2	NPV to 2040
Monitoring	1.9	3.0	24.2	97.6
Flexibility procurement	0.2	1.2	30.0	1,495.9
Accelerating connections	5.3	11.4	141.5	1,316.6
ANM Optimisation	0.0	0.1	30.5	348.2
Coordinated Network Development	8.6	8.7	43.8	438.6
Smart Street	2.4	4.7	33.4	33.4
Total	18.4	29.1	303.3	3,833.3

Table 2: Summary of carbon benefits per DSO activity (tCO_2e)

Activity	Carbon Y1	Carbon Y2	Carbon ED2	Carbon to 2040
Monitoring	1,425	2,139	17,099	41,894
Flexibility procurement	187	273	5,646	193,553
Accelerating connections	38,112	54,684	380,037	4,726,460
ANM Optimisation*	0	0	0	0
Coordinated Network Development	136	136	679	21,547
Smart Street	161	322	2,418	12,092
Total	40,022	57,554	405,880	4,995,545

*ANM Optimisation is expected to deliver embodied carbon savings, but we have conservatively opted to exclude from the quantified modelling as the impact is uncertain.

1.5 How our Activities Benefit our Stakeholders

Key:
↑ Increase
↓ Decrease

Through our activities, we have **delivered a range of benefits to various stakeholder groups**. The table below outlines how these benefits are distributed across these groups and **our personas** to illustrate how DSO is delivering value across them. It also provides insights into the expected scale of impact in RIIO-ED2 and beyond, extending to 2040.

Our eight Stakeholder Persona's

- Battery Storage Operator
- Distributed Generator
- Domestic Customer
- NESO
- Flexibility Aggregator
- Industrial and Commercial Customers
- Local Authority
- Network Operator

Stakeholder type	Connected customers	Connecting customers	Flexibility service providers	Wider energy system	Wider society
Description	Refers to those already connected to our network, with these benefits translating into reduced bills.	Refers to all those looking to connect to our network, who can benefit from cheaper or faster connections.	Refers to those involved in our flexibility markets, responding to our tenders and contracting to provide services.	Refers to the overall system electricity price and wider system operators, particularly the NESO.	Refers to benefits delivered to society in general, without attribution to a specific beneficiary.
Personas					
How our activities deliver benefits to stakeholders					
Monitoring & forecasting	↓ Reinforcement cost				↓ Embodied carbon
Flexibility procurement	↓ Reinforcement cost	↓ Connection delay ↑ Earlier revenue	↑ Revenue opportunity ↑ Provider service	↓ Connection delay ↓ Wider system costs	↓ Embodied carbon ↑ Economic growth
Accelerating connections	↓ Wider system costs	↓ Connection delay ↑ Earlier revenue	↓ Connection delay ↑ Earlier revenue	↓ Connection delay ↓ Wider system costs	↓ Grid carbon ↑ Economic growth
ANM Optimisation	↓ Reinforcement cost				↓ Embodied carbon ↑ Economic growth
Coordinated Network Development	↓ Reinforcement cost	↓ Connection delay ↑ Earlier revenue		↓ Connection delay ↓ Wider system costs	↓ Embodied/grid carbon ↑ Economic growth
Smart Street	↓ Energy consumption				↓ Grid carbon
NPV RIIO-ED2	**£134m**	**£83m**	**Not quantified**	**£39m**	**£47m**
NPV 2040	**£1,286m**	**£1,055m**	**Not quantified**	**£1,146m**	**£345m**

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Activities and Assumptions

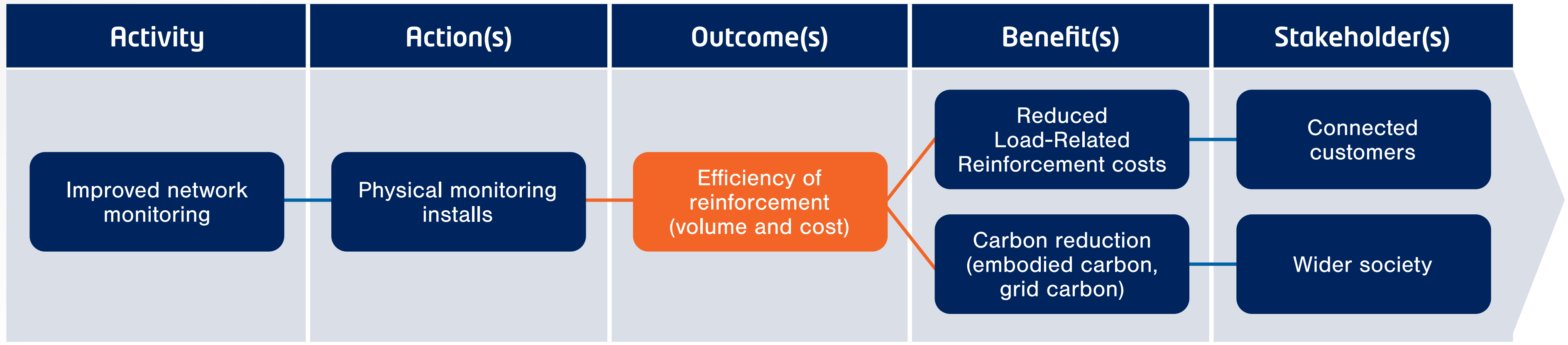
2.1 Improved Network Monitoring and Enhanced Forecasting

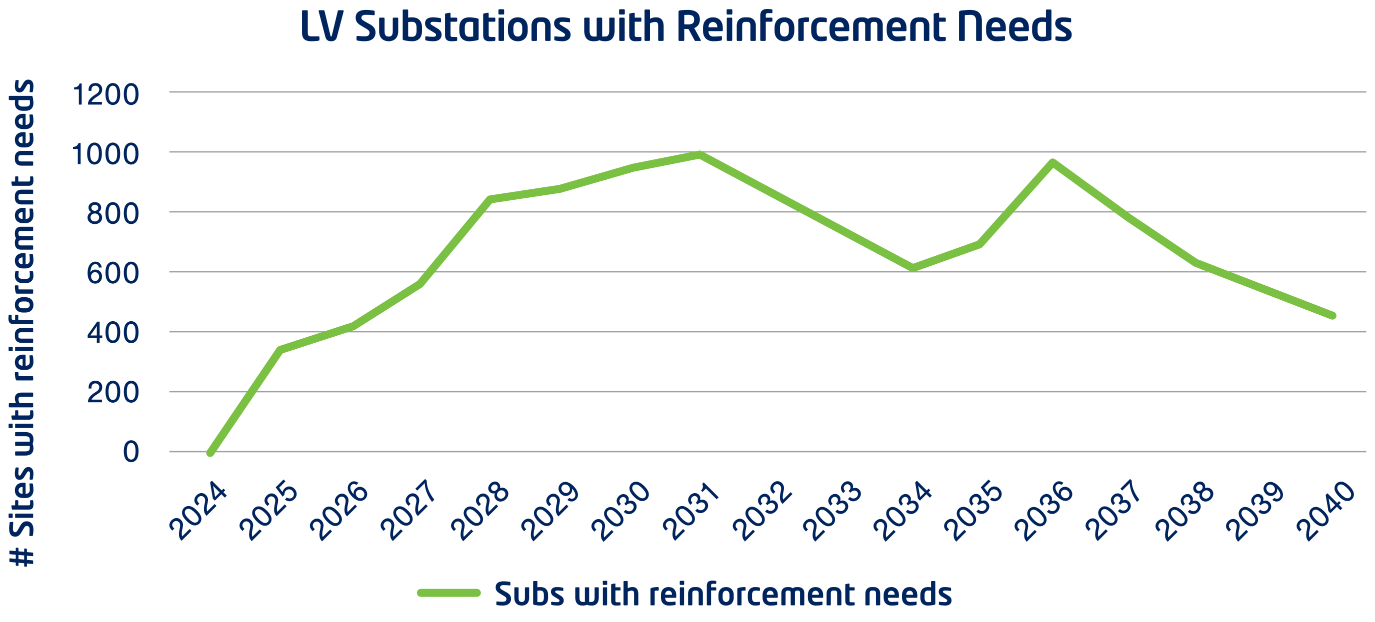
The first step in the DSO role of securing efficient network capacity for customers is to have visibility of the demand and load flows on the network. If we have greater visibility of network conditions across a wider proportion of our network, it allows us to intervene in the network (through flexibility or reinforcement) more accurately. This can avoid us intervening too early when not necessary, or too late after issues have emerged on the network, therefore saving reinforcement or operating costs.

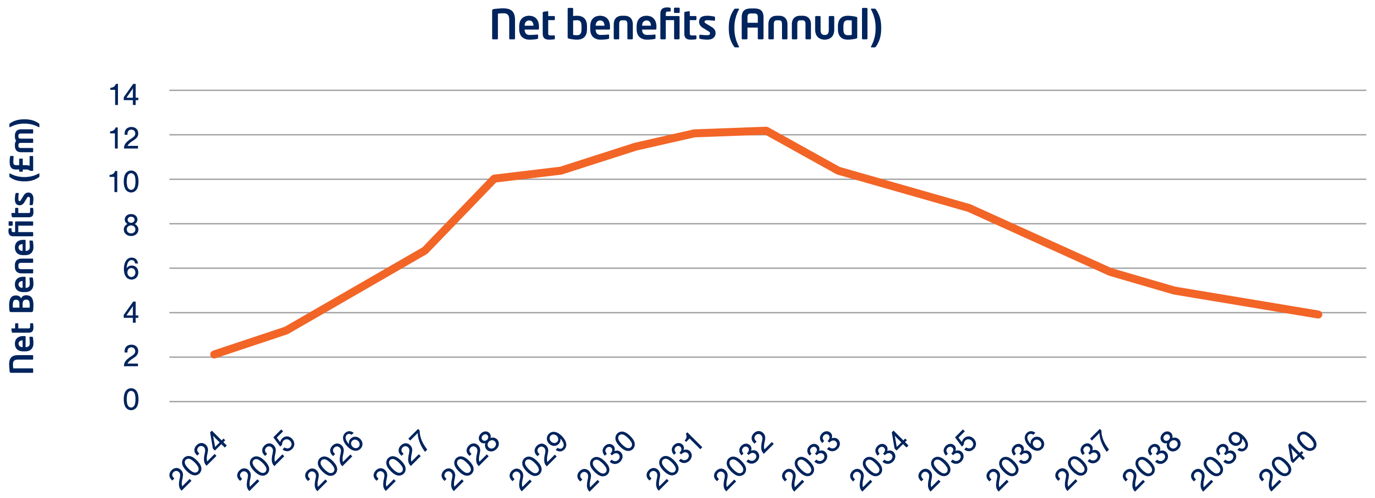
Installing permanent network monitoring devices allows us to reduce the rate at which we reinforce secondary substations by deferring reinforcement into the future. This deferral of expenditure translates into a positive NPV when discounting is applied. In addition, there is a carbon benefit associated with this deferral, linked to the embodied carbon associated with network assets.

As part of our modeling, we have made the following assumptions:

- We have used our projection of Low Voltage (LV) substation utilisation. As a baseline, we assume that those in the **80-100% peak utilisation** band would have been reinforced in the absence of permanent LV monitoring (see corresponding profile on the right).
- Our monitoring deployment profile increases from **20% to 35%** over RIIO-ED2 based on our business plan. In parallel we continuously investigate the quality and adequacy of smart meter data to produce enhanced estimates (see our **Smart Meter Data Study** for more information). As such, £18m of the ED2 benefits have already been 'unlocked' based on the monitoring installed to date.
- We assume that reinforcement can be deferred at those sites in the 80-100% band where reinforcement is in place, and that reinforcement can be deferred by **5 years**.
- We conservatively assume the cost of a single LV reinforcement is **£40,000**.
- We also assume that each LV reinforcement creates **8.21 tCO_2e** of embodied carbon, which is also deferred through monitoring.





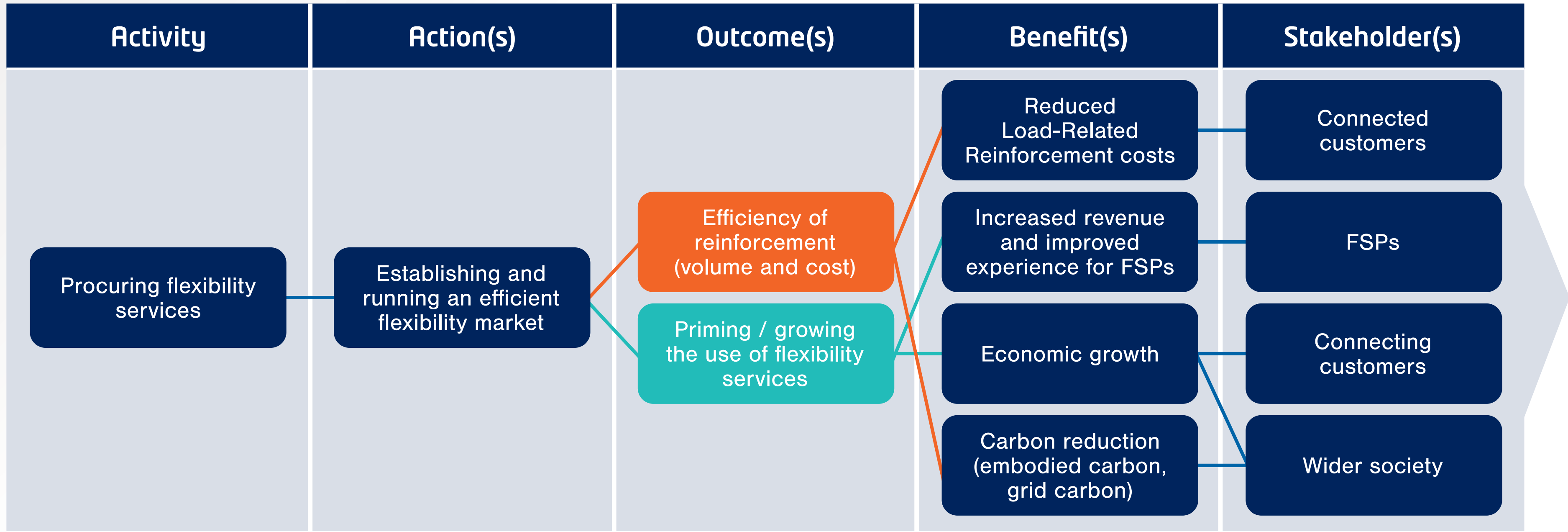


Monitoring	NPV Y2	NPV ED2	NPV to 2040
Financial saving (£m NPV)	3.0	24.2	97.6
Carbon saving (tCO_2e)	2,139	17,099	41,894

2.2 Flexibility Services for Reinforcement Deferral

There is a range of benefits that can be delivered through the use of flexibility services. The benefits considered in this slide relates to deferring the reinforcement of our Bulk Supply Point (BSP), Primary and Secondary substations. Establishing and running an efficient flexibility market means identifying flexibility providers that can alleviate network constraints, and procuring from a diverse and competitive range of providers to ensure that the cost of flexibility comes down over time. Our systems are fully ready to scale up to procure as much flexibility as is economically viable. As such, the ED2 benefit can be considered 'unlocked'. The logic we have used to estimate the benefits of this deferral is similar across these asset types, as summarised below:

	BSP	Primary	Secondary
Baseline	We have used our projection of BSP firm capacity exceedances (in MVA) to estimate the baseline reinforcement profile	We have used our projection of Primary substation firm capacity exceedances to estimate the baseline reinforcement profile	We have assumed that Secondary sites with estimated peak load in the 80-100% utilisation band require reinforcement, then excluded sites that have monitoring (to avoid double counting with the monitoring benefit)
% deferred with flexibility	We have assumed a certain proportion of these reinforcements can be addressed through flexibility – 5% this year, rising to 35% by 2040		
Deferral years	We assume that each BSP reinforcement can be deferred by 5 years	We assume that each Primary reinforcement can be deferred by 4 years	We assume that each Primary reinforcement can be deferred by 5 years
Reinforcement cost	We assume that each BSP reinforcement costs £8.8m	We assume that each Primary reinforcement costs £5.5m	We assume that each Secondary reinforcement costs £40k
Flexibility cost	We estimate the cost of flexibility based on the ceiling price (~3.3% of the reinforcement cost), assuming that the cost is 80% of this ceiling price during ED2, then falling by 2% per year to reach 56% by 2040 as the market matures		
Embodied carbon	We assume embodied carbon of 129tCO_2e per BSP reinforcement	We assume embodied carbon of 129tCO_2e per Primary reinforcement	We assume embodied carbon of 8.21tCO_2e per Secondary reinforcement



Flexibility for reinforcement deferral	NPV Y2	NPV ED2	NPV to 2040
Financial saving (£m NPV)	1.2	11.0	209.7
Carbon saving (tCO_2e)	273	1,877	15,480

2.3 Accelerating Connections Across our Network (1)

Flexible connections enable generators to connect to the network sooner than if they had to wait for reinforcement to occur ahead of a conventional connection. This delivers benefits to the connecting party, along with wider system and consumer benefits, and a reduction in grid carbon intensity. This year our ANM system has been enhanced to manage both transmission and distribution constraints, enabling faster and more efficient connections. These improvements can help fast-track 1.8 GW of connection schemes, accelerating projects that faced had delays of up to 10 years.

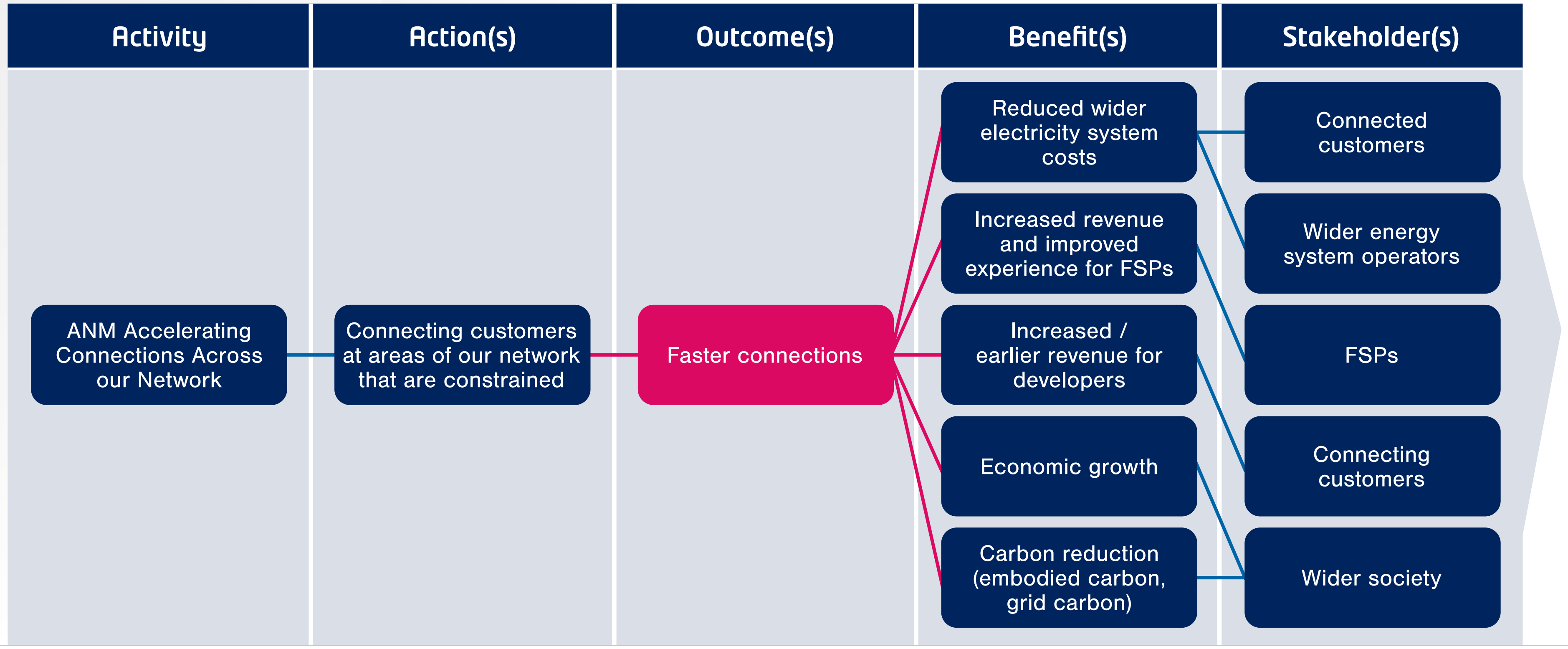
We have a range of flexible connections schemes in place, allowing us to accelerate or increase the access rights for a range of new generation, storage, and demand customers, including enabling the installation of Electric Vehicle (EV) chargers and heat pumps. As part of our modeling, we have made the following assumptions:

The benefits of **flexible storage connections**

- Estimated in terms of batteries' ability to increase their peak import/export capacity, and the additional revenue that this is expected to deliver.
- Our Embedded Capacity Register (ECR) is used to derive the Y2 benefit. The forward pipeline of connections is projected based on the Distribution Future Energy Scenario (DFES) Best View.
- We assume that flexible connections allow batteries to be 50% larger than they otherwise would under conventional (non-flexible) connections.
- We assume (conservatively) a battery lifetime of 10 years.
- For the value of enabled storage, we link this to the revenue that grid batteries can expect to earn, taken to be £40,000/MW/year*.

The benefits of **EV and heat pump enablement**

- We have estimated that 20% of the projected roll-out is enabled through our DSO activities, with the benefits coming via lower driving costs and carbon emissions, and the carbon savings associated with heat pumps compared to gas boilers.
- We have used the projection of EV and heat pump uptake from our DFES Best View scenario. We have assumed that this uptake would be 20% lower than it would otherwise have been under conventional (non-flexible) connections.
- Noting that EV running costs (7p/mile) are lower than either petrol (13p/mile) or diesel (15p/mile), we account for this saving to our customers (based on the MWh of EV charging in our DFES). We assume no heat pump cost saving, given that the cost of operating a heat pump is comparable to running a gas-fired boiler.
- We estimate the carbon saving by using a 'wheel to well' carbon intensity of EVs (196gCO_2e/mile**) vs petrol or diesel (400gCO_2e/mile). We also estimate the carbon saving from heat pumps displacing gas boilers, assuming a Seasonal Coefficient Of Performance (SCOP) of 4 vs a boiler efficiency of 0.9.



Accelerating connections	NPV Y2	NPV ED2	NPV to 2040
Financial saving (£m NPV)	11.4	141.5	1,316.6
Carbon saving (tCO_2e)	54,684	380,037	4,726,460

*GB battery energy storage revenues fell 14% in September 2024 - Research | Modo Energy

**Well-to-wheel greenhouse gas emissions of electric versus combustion vehicles from 2018 to 2030 in the US - ScienceDirect

2.3 Accelerating Connections Across our Network (2)

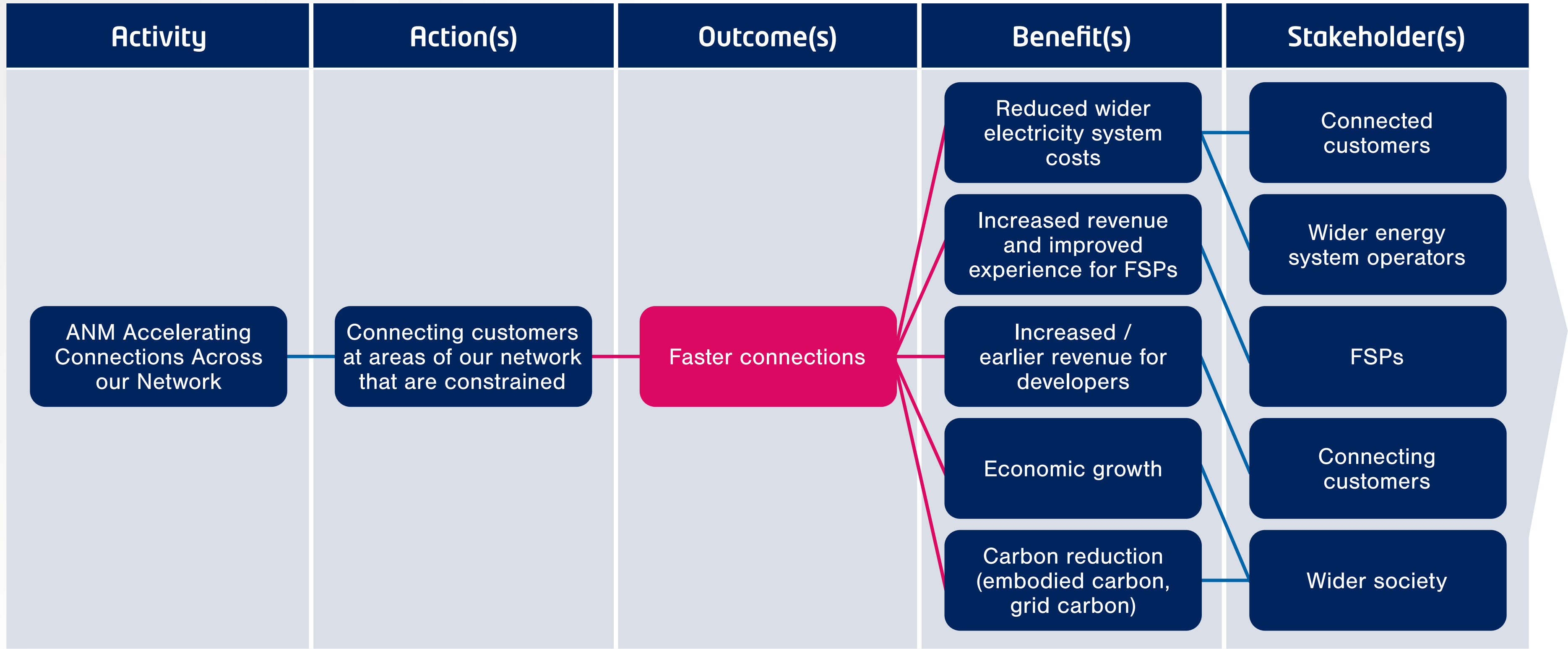
The benefit of **flexible generation connections:**

- Based on our connection pipeline, we use our DFES Best View to project the volume of electricity (in MWh) produced by different Distributed Generation (DG) technologies, comprising solar, wind, flexible generation and "other" generation (hydro, waste, biogas, etc.)
- We then assume that just 2% of connections are flexible at the start of RIIO-ED2, but that this grows at a rate of 3% per year, reaching 50% by 2040.
- We assume that flexible connections – where used – accelerate the connection of these technologies by an average of 6 years.
- We assume that each additional MWh of electricity produced by these accelerated DG connections displaces the need for a corresponding MWh from a Combined Cycle Gas Turbine on the transmission network, producing a cost saving of £45/MWh.
- We also conservatively assume that DG (with the exception of flexible generation) reduces the carbon intensity of the grid (assuming 0.2tCO_2e/MWh average grid carbon intensity)

The benefit of **flexible demand connections:**

- We use our connections pipeline data to derive the number and capacity of demand connections being made on our network. We project this forward based on the BSP and Primary Maximum Import Capacity growth rates in our DFES Best View projections.
- We assume that flexible demand connections – where used – can speed up the connection by 4 years on average.
- Estimated based on the wider economic benefit that this facilitates. We use a Gross Value Added (GVA) figure of £430k/MVA/year based on a data centre study*, and assuming a 20% attribution to ENWL's DSO activities.

We have assumed that an **increasing proportion of generation and demand connections can be facilitated using flexibility procurement**, making use of the lowest cost technologies in a given area to manage a network constraint. The ability to identify the optimal combination of flexible connection curtailment and flexibility procurement is a key feature of our ANM system. We report the benefits of this approach separately (*on the next page*) to avoid double-counting.



Accelerating connections	NPV Y2	NPV ED2	NPV to 2040
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Carbon saving (tCO_2e)	54,684	380,037	4,726,460

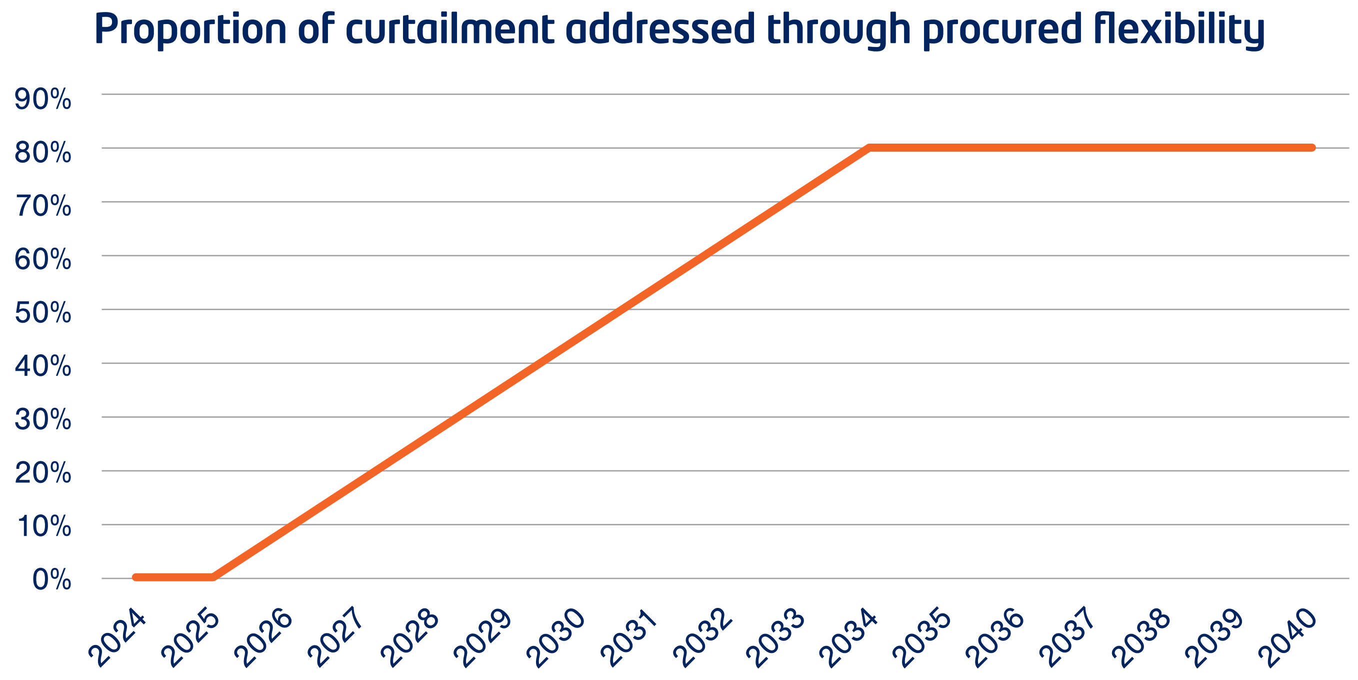
*techUK Report - Foundations For The Future: How Data Centres Can Supercharge UK Economic Growth

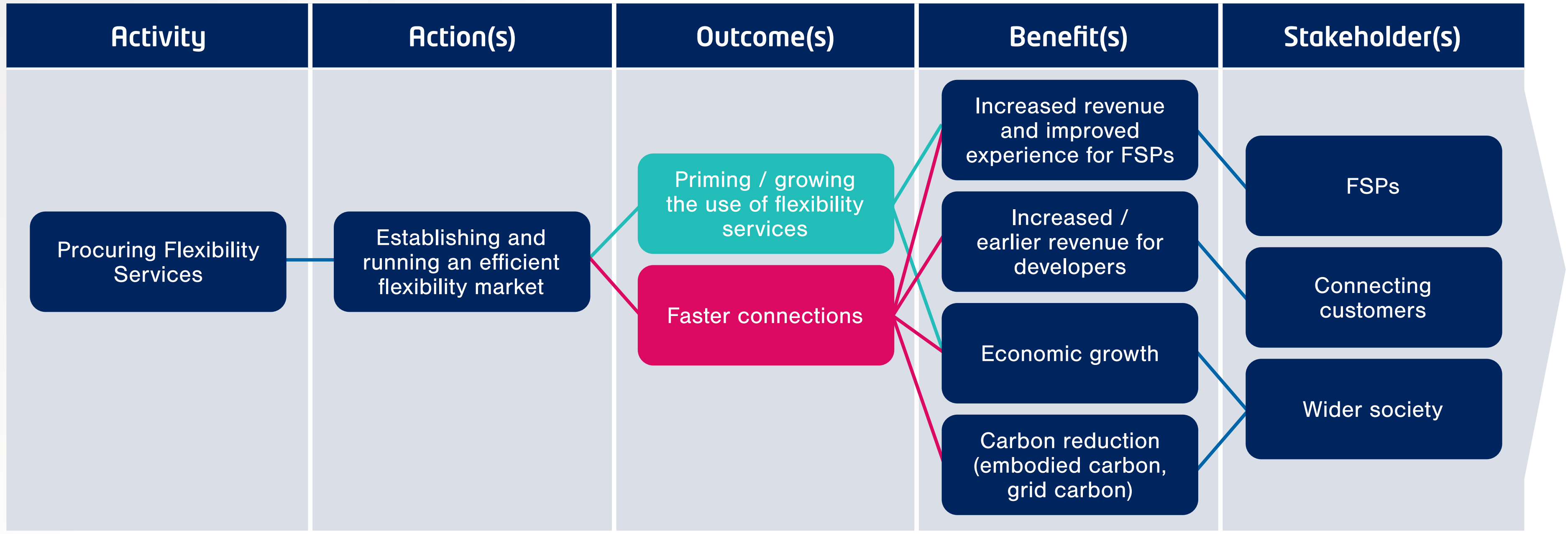
2.4 Flexibility Services for Accelerating Connections

Flexible connections (such as ANM) allow generators to connect to the network sooner than they would if they needed to wait for reinforcement to occur ahead of a conventional connection. This delivers benefits to the connecting party, along with wider system and consumer benefits, and a reduction in grid carbon intensity.

However, the need for connecting customers to accept curtailment risk will limit the number and types of customers who can accept such connections. By using flexibility procurement, it is possible to connect customers on a firm basis, while using the flexibility of assets in the same region to keep the network within its limits.

- As part of our modeling, we have made the following assumptions:
- Flexibility procurement can be used to enable generation and demand connections.
- The proportion of flexible connections to which this applies will increase over time as we scale our activity in procuring flexibility to deliver capacity for connections (see chart).
- The logic for calculating the benefit of accelerated generation and demand connections is consistent with the approach taken for flexible connections (namely, displaced gas generation and the GVA of demand).





Accelerating Connections (via Flex)	NPV Y2	NPV ED2	NPV to 2040
Financial saving (£m NPV)	0.0	19.0	1,286.2
Carbon saving (tCO_2e)	0	3,769	178,073

2.5 Coordinated Network Development

We are undertaking Coordinated Network Development (CND) in ED2 and beyond. This proactive approach considers the capacity requirements across a wider area whilst considering Local Area Energy Plans (LAEPs) ahead of connections submission. By doing so, we can avoid more expensive "piecemeal" network expansion driven by connections when they appear. This enables the timely release of capacity for connecting parties, and cost-effective reinforcement. This delivers benefits in three areas:

CND on the EHV network has allowed us to reduce the reinforcement costs that would have been incurred through piecemeal network reinforcement at Primary and BSPs by 25%, based on analysis of schemes implemented to date. We project this benefit forward in line with the DFES growth in Primary and BSP peak loading. Key assumptions include:

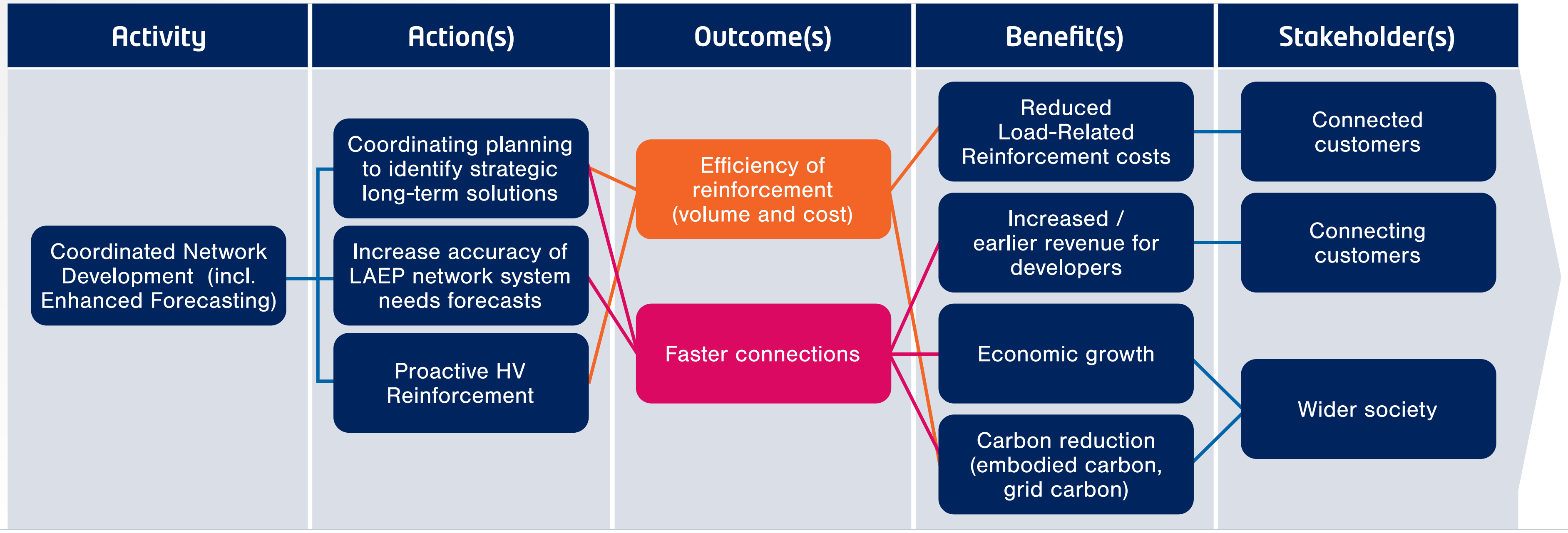
- £158m of EHV expenditure is being undertaken under the CND programme in RIIO-ED2. Based on existing case studies it is estimated that CND can save 20% on these activities, meaning that the implied cost saving is 25% of the ED2 expenditure (100%/(100%-20%)). This value is smoothed across ED2.
- For subsequent years this value is scaled in line with the exceedance expected in that year. This is calculated from the projected growth in Primary and BSP peak load from our DFES data.
- Carbon benefits are calculated by estimating the reduction in the number of reinforcement interventions resulting from CND and multiplying this by the embodied carbon value of 129tCO_2e per transformer.

Proactive High Voltage (HV) reinforcement allows us to reinforce the HV network in a less 'piecemeal' and more proactive way. Key assumptions include:

- Case studies in areas where LCT demand will be supplied by HV feeder networks indicate that proactive reinforcement in ED2 is 33% cheaper than reactive reinforcement in ED3. This translates into a benefit of 50% (100%/(100%-33%)) on the ED2 HV feeder expenditure.
- The benefit is assumed to track in line with the reinforcement cost, which is in turn estimated to be driven by the deployment of EVs and heat pumps.

SROI benefits: By bringing this reinforcement activity forward, and being more proactive in our engagement with third parties, we also provide benefits for wider stakeholders.

- The SROI benefits relate to the wider impact of earlier connections. It is assumed that these align with the benefits identified as part of the Load Related Expenditure (LRE) re-opener SROI. These include EV charger benefits, flexibility services benefits, generation connections benefits, and economic growth benefits.
- To calculate this, we use the SROI multiplier estimated in our LRE re-opener submission, which determined that for every £1 spend in ED2, as well as avoiding the need to spend that same £1 in ED3, an additional £0.18 was created in terms of these wider benefits.
- The expenditure outlined above (EHV and HV proactive reinforcement spend) is therefore scaled by 0.18. We assume that this benefit scales in line with our projected DFES Primary and BSP demand growth.



Coordinated Network Development	NPV Y2	NPV ED2	NPV to 2040
Financial saving (£m NPV)	8.7	43.8	438.6
Carbon saving (tCO_2e)	136	679	21,547

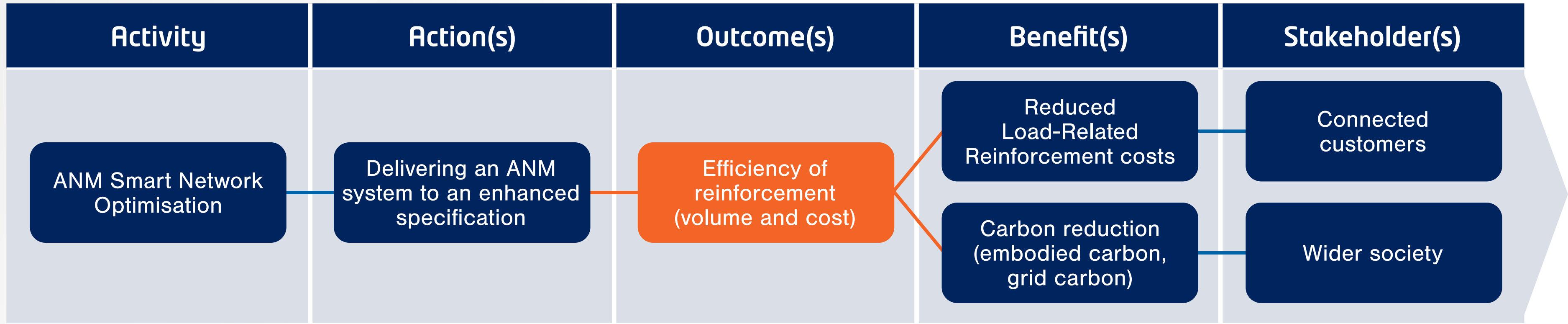
2.6 Active Network Management Smart Network Optimisation

ANM Smart Network Optimisation

Flexible assets are items of plant or equipment which can be controlled to modify the network topology. Load transfers and network reconfigurations using flexible assets can remove capacity constraints in real time. We derive unique benefits from our ANM in that, unlike all other industry approaches, we utilise real-time centralised power flows using live measurements to manage flexible assets. Beyond allowing us to scale up flexibility services and flexible connections in a few weeks without new hardwiring and refreshing ANM rules, this allows for enhanced real time capacity balancing and the capability to unlock greater network capacity, whilst also improving network stability and security.

As part of our modeling, we have made the following assumptions:

- Network ANM allows us to create headroom, reducing the need for conventional reinforcement. ANM uses state estimates across the whole LV network, but controls and uses real time measurements across the HV network.
- ANM is energised and its use is planned to increase rapidly to 100% by the end of RIIO-ED2. The ED2 benefit can therefore be considered 'unlocked'.
- Where ANM is active, we assume it will create an additional 5% of headroom, to which we ascribe a value of £63.3k/MVA. This value is based on the unit rate per GMT as per the LRE Secondary Reinforcement Volume Driver.



ANM Optimisation	NPV Y2	NPV ED2	NPV to 2040
Financial saving (£m NPV)	0.1	30.5	348.2
Carbon saving (tCO_2e)	0	0	0

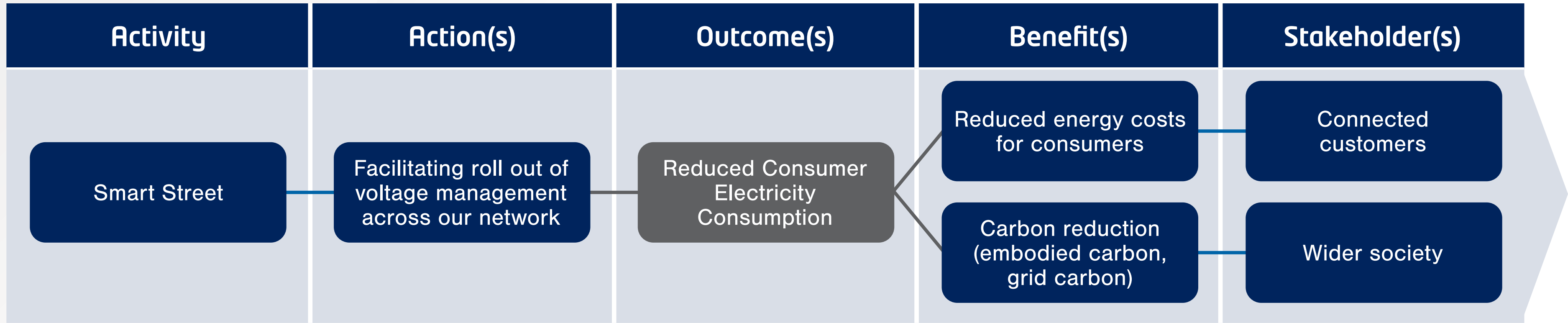
2.7 Smart Street

Smart Street

Smart Street reduces the electricity demand at domestic properties, resulting in bill savings for customers and associated carbon savings. Although not quantified, this can also deliver network savings by reducing loading at peak times. This is achieved through an automated operational process that uses tap changers to reduce the voltage at these properties. This provides significant support for customers in vulnerable circumstances, particularly those in fuel poverty. All assumptions align with the ENWL Smart Street Customer Value Proposition created as part of the RIIO-ED2 submission.

As part of our modeling, we have made the following assumptions:

- Around 100,000 customers benefited from Smart Street this year, and we project this number to increase to 250,000 by the end of RIIO-ED2. As such £20m of the ED2 benefits are already 'unlocked'.
- Our trials have indicated that savings of £40 per home per year can be expected from Smart Street.
- Furthermore, we estimated that 16% of the customers can be considered vulnerable. As such, there is an additional £59/year of benefit that can be ascribed to these customers based on our SROI methodology.
- The carbon benefit is calculated by first calculating the kWh consumed by affected customers. This is estimated as 157kWh based on an assumed 25p/kWh customer electricity cost. This is then multiplied by the carbon intensity of a kWh of electricity from Carbon Savings, (using **Government data**).



Smart Street	NPV Y2	NPV ED2	NPV to 2040
Financial saving (£m NPV)	4.7	33.4	136.5
Carbon saving (tCO_2e)	322	2,418	12,092

3

Tracking our Benefits

3.1 Our Approach for Tracking our Progress

We utilise a range of operational KPIs to track the delivery of our outputs and outcomes and assist in prioritising management focus. Alongside refreshing our benefits methodology, this year we have also reviewed and refreshed our internal KPIs. These KPIs are linked to both our benefits delivery as well as wider lead indicators and broader outcomes. In developing the KPIs we adhere to the principles outlines below. Going forward, we will track these KPIs alongside our monthly management meetings, as well as through our quarterly DSO Stakeholder Panel meetings. We will also publish these on a quarterly basis for stakeholder visibility.

Principles:

- **Measurable -** enabling clear tracking
- **Material -** ensuring we focus on what matters most to our business, customers and stakeholders
- **Within our control -** so we can take full accountability and ownership

DSO Incentive Criteria Alignment	KPI	Unit
DSO Benefits	Value of reinforcement deferred due to DSO/DNO activities	£m
	Connections accelerated using Active Network Management	MW
	Network capacity released through flexibility services	MW
Data and Information Provision	Forecasting accuracy of peak utilisation across primary substations	%
	% of Local Authorities Engaged in LAEP sessions	%
	% of data sets accessed via the API	%
Flexibility marketplace development	Volume of flexible services procured	MW
	Strategic regional partnerships focussing on delivering social value	No.
Options Assessment and Conflict of Interest Mitigation	DSO Stakeholder Satisfaction	No.
	Proportion of network options assessments recommending flexibility	%
DER Decision-Making Framework	Consumer energy savings from smart network operation (Smart Street)	MWh
	Curtailment efficiency - Proportion of network capacity which was available to flexible connections	%

We invite you to share your feedback on these measures. Are there any alternative metrics you'd expect us to track?
Please email stakeholderengagement@enwl.co.uk with your thoughts.

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SHK1761