SSEN Distribution
DSO Benefit Methodology

2024-2025

Scottish & Southern Electricity Networks

CONTENTS

01 - INTRODUCTION

Scottish & Southern Electricity Networks

1.1 PURPOSE OF THIS DOCUMENT

Quantifying the Value of Our DSO Activities

This document outlines the methodology used by SSEN to quantify the benefits delivered through our DSO activities, as presented in our Year 2 DSO Performance Panel submission.

The DSO Incentive, introduced by Ofgem under RIIO-ED2, encourages Distribution Network Operators to demonstrate the value of more efficient, flexible, and transparent system operation. In response, SSEN's methodology sets out how we measure and evidence the benefits created by our DSO strategy — across customer outcomes, system efficiency, decarbonisation, and wider societal value.

Our approach builds on the methodology we presented in the first year of the incentive and reflects feedback from the independent Performance Panel. It incorporates enhancements to data, assumptions, and evaluation methods to ensure our analysis is robust, transparent, and aligned with good industry practice.

Transparent, Evolving Approach

To ensure consistency with cross-industry best practice, we have aligned our benefits framework with the shared "Theory of Change" methodology as agreed through the DSO Collaboration Forum. This approach provides a clear line of sight between DSO activities, the outcomes they deliver, and the resulting benefits for stakeholders.

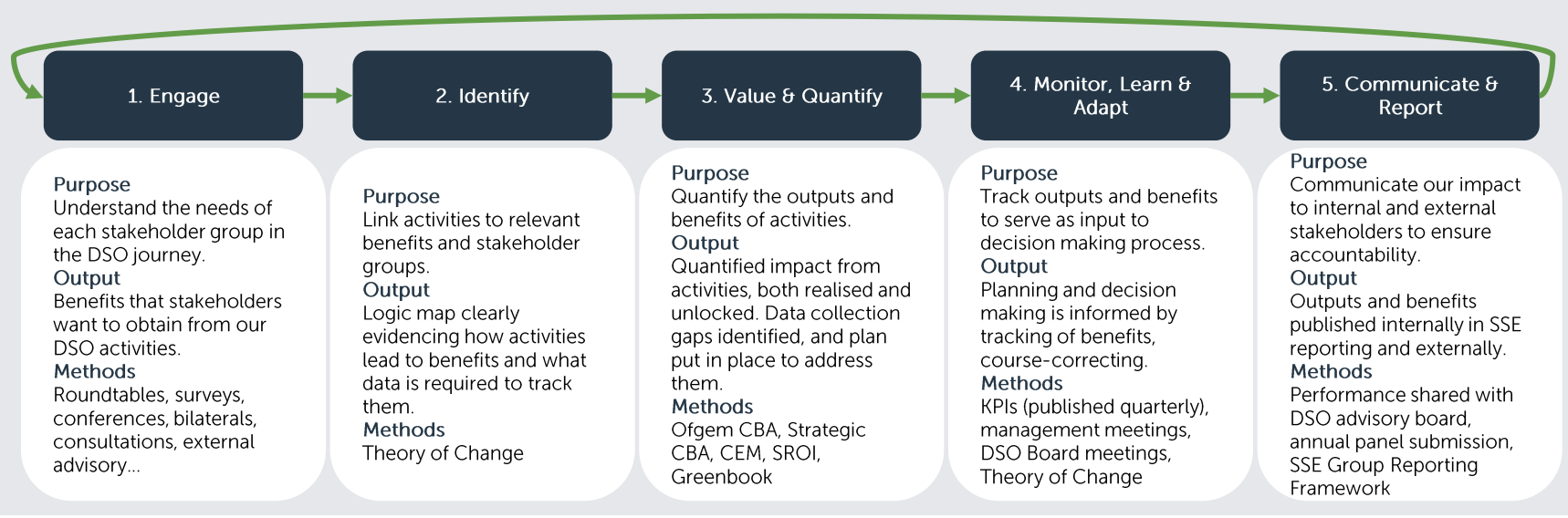
We apply established economic evaluation tools — including HM Treasury's Green Book guidance — to support credible and comparable analysis. Our methodology also ensures benefits are considered across a wide range of stakeholders, including customers, market participants, and local authorities.

This methodology supports our commitment to openness and continuous improvement. It helps stakeholders understand how we deliver value today, track progress through RIIO-ED2, and enable the fair and efficient transition to a smart, flexible, and decarbonised energy system.

1.2 SUMMARY OF OUR APPROACH

Our DSO Benefits Framework

Our DSO benefits framework consists of a 5-step process, with associated outputs and methods, as well as the roles and responsibilities required to implement it. It is iterative, allowing us to constantly engage, learn and improve on it each year, while ensuring year on year tracking and robust quantification.



Ensuring our Benefit Reporting is Robust and Well-Evidenced

First, we work with our internal teams and our DSO Board to validate the activities we believe are delivering benefits to different stakeholders.
Then we apply proven methodologies (Ofgem CBA, SROI, CEM) to value and monetise these benefits where possible, working with external consultancies to provide assurance of our calculations.
The publication of this methodology document is part of an enhanced benefit framework to share our key assumptions and methods. This will support the cross-sector work with other DSOs to agree on a common approach for Y3.

How we track benefits from our activities

As per the common DSO Collaboration Appendix, we track benefits across three categories (Realised, Unlocked and Ambition) – definitions on the right. For each activity explained in this document, we provide explanations of what we track under each category.

Realised
Realised benefits have **accrued to our stakeholders** from activities we've already delivered. For example, if a customer connects 3 years ahead of schedule due to our DSO actions, we record all benefits as **Realised** upon connection.

Unlocked
Unlocked benefits have not yet been Realised, but we have **high confidence** they will be, based on activities already delivered. If a customer has accepted an accelerated connection offer but has not yet connected, we record these benefits as **Unlocked.**

Ambition
Ambition benefits lack the certainty of Unlocked but represent **additional value we could achieve**. If we've made accelerated connection offers available in the market but these have not been accepted yet, we record the potential benefits from these connections as **Ambition**.

1.3 THEORY OF CHANGE

What is the Theory of Change

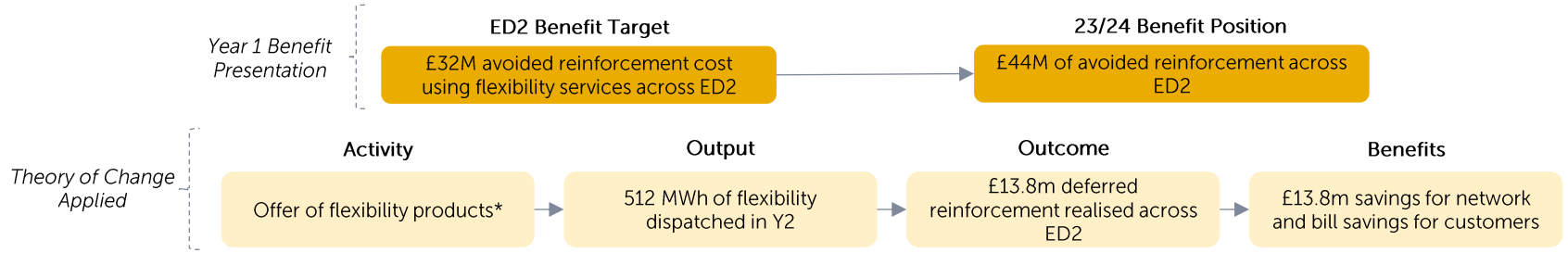
Theory of Change is a standard methodology for theory-based evaluations which clearly links activities to outputs, outcomes and benefits. It is often implemented during the planning stage of a new project, activity or initiative, providing a conceptual framework to plan, monitor and evaluate a project. In the context of DSO benefits it allows us to:

- Provide clarity about how benefits are delivered and the evidence for them
- Ensure each activity is worked through to identify all possible impacts and the stakeholders impacted

Activities & Enablers	Outputs	Outcomes	Benefits
Activities are what needs to be delivered to achieve the **outputs**. These are the easiest to identify alongside outputs since they are commonly tracked. **Enablers** are activities which do not deliver benefits directly but **contribute to the successful delivery of outcomes and benefits** from other activities.	Outputs are the **final product(s)** the initiative aims to deliver and are **necessary** to achieve its intended outcomes. They can take **many different forms**, from a signed agreement between companies, to the amount of flexibility procured.	Outcomes are the **change** networks are seeking to cause as a direct result of their activities. There are multiple outcomes that can arise from an initiative, and clearly defining these can enable networks to establish a **causal relationship** between these and other key components of the initiative.	Benefits are the **impact** that outcomes have on the **network, customers, other networks, society or the environment**. They can be direct or indirect depending on whether they are a direct result from the outcomes achieved by the network or whether they contribute to benefits elsewhere.

We have applied the Theory of Change to all our DSO activities, allowing us to improve the clarity of our reporting compared to last year as per the image shown on the right.

This also aligns with the DSO Collaboration Appendix, developed by the DSOs in an effort to standarise the methods for measuring DSO benefits.



Our framework in action – Theory of Change as a planning tool

In addition to using Theory of Change as a tool to identify, track and communicate benefits, we have also started using it as a planning tool. At our DSO Management Conference, we presented this approach to our teams and analysed the outcomes we have delivered to date, followed by a session to set out the outcomes and benefits we want to achieve before the end of ED2, giving us a different lens to our planning process. As we plan for Y3 and beyond, we will continue to use this approach to both to determine the outcomes we want to deliver as well as to identify and measure the impact this has on different stakeholders.

*for brevity the term "offer" is used in the general sense, i.e. present the opportunity to provide services

1.4 SUMMARY OF BENEFITS DELIVERED IN 2024/2025

Forecasting and planning future needs	• Our LENZA tool has contributed to cost efficiencies for Local Authorities • The integration of local plans into our own strategic planning ensures our network is fit for future local needs and therefore contributes to the decarbonisation of local communities and the societal benefits this leads to, such as better air quality, warmer homes and reduced congestion.
Developing and inclusive market	• Through our flexibility services we are reducing customer bills by efficiently meeting capacity needs whilst also providing revenue for Flexibility Service Providers • The use of flexibility in islands has also led to a reduction in use of diesel, and therefore a reduction in carbon emissions.
Developing network flexibility at scale	• Through our Access Products and Technical Limits we have avoided the cost of connection delays, as well as provided system benefits through connecting renewables quicker and reducing carbon emissions. • We have also provided wider societal and economic benefits through the acceleration of affordable housing in West London.
Data and insights	• The use of smart meter data and LV monitors leads to lower system costs through demand shifting and reduced consumer bills through reduced network spend (avoided site visits).

Summary of our Year 2 Benefits Calculations

Action Plan Category	KPIs	Y2 Activities Identified	Y2 Outputs	Y2 Outcomes	Y2 Realised Benefit	Future Benefit to Date		Beneficiary	Type*
						Unlocked	Ambition		
Forecasting and planning future needs	• Number of active accounts in our Local Energy Net Zero Accelerator (LENZA) platform • Number of Strategic Development Plans consulted • Number of Distribution Network Option Assessments (DNOA) outcomes independently assured	Engagement with LAs through LENZA and Net Zero Engagement Specialists	Supported **2** LAs in developing an LAEP	Better and faster development of LAEPs to deliver net zero, with reduced efforts from LA	Avoided costs for LAs on LAEP planning and decarbonisation initiatives	**£746k**	**£20.9m**	Local Authorities	D
					Societal benefits from reaching net zero through LAEPs	**£2.5m**	**£70m**	Wider Society	I
Developing an inclusive market	• Flexibility services capacity contracted in ED2 (in MW) • Value reinforcement deferred, counted at the point flexibility is first contracted across ED2 (£M)	Offer of flexibility products	**512 MWh** of flexibility dispatched	**£13.8m** deferred reinforcement in the network across ED2	Reduced consumer bills - **£13.8m**	**£177.9m**		Domestic & Commercial Customers	D
					Revenue from participating in flex markets – FSPs - **£114k**			Flexibility Service Providers	D
					Revenue from participating in flex markets – Domestic Customers - **£82k**			Domestic & Commercial Customers	D
				Reduction in use of diesel generators of **60.1 MWh**	Reduced carbon emissions - **15** tons CO2e, equal to **£5k** in societal benefit			Wider Society	I
Developing Network Flexibility at Scale	• MW of connections accelerated using Access Products • Number of Near-real time and half-hourly data points routinely published or shared • % DSO- National Energy System Operator (NESO) risk-of conflict messages delivered to standard	Access Products and Technical Limits programme	**43.7 MW** of distribution and transmission constrained generation and demand to connect through ANM and Technical Limits	**43.7 MW** increase in renewables connected	Reduced carbon emissions – **34,859** tons CO2e, equal to **£12.6m** in societal benefit			Wider Society	I
				43.7 MW of accelerated connections	Avoided cost of delaying generation connection - **£29.8m**	**£433.2m**	**£230m**	Whole System	D
				300 affordable houses accessed sooner through the West London Initiatives	Societal benefits from affordable housing accelerated - **£11.8m**	**£179.5m**		Wider Society	I

*D= Direct Benefit, I= Indirect Benefit

Summary of our Year 2 Benefits Calculations

Action Plan Category	KPIs	Y2 Activities Identified	Y2 Outputs	Y2 Outcomes	Y2 Realised Benefit	Future Benefit to Date		Beneficiary	Type*
						Unlocked	Ambition		
Developing Network Flexibility at Scale	• MW of connections accelerated using Access Products • Number of Near-real time and half-hourly data points routinely published or shared • % DSO- National Energy System Operator (NESO) risk-of conflict messages delivered to standard	Refined field based ANM hardware	**0** additional ANM controllers installed (**2** in advanced development)	Avoided additional installations for capacity changes	Savings for connecting customers	**£20k**	**£100k**	DER	D
		ANM Improvements	**2** standardised ANM modules installed	**56.4 MW** of connections receiving ANMs faster	Reduced consumer bills due to reduced network spend - **£28k**		**£169k**	Domestic & Commercial Customers	D
			0 generators with remote access field-base devices (**4** in advanced development)	Reduced engineer site visits					
		PCNZ Fund	**£402k** awarded to vulnerable customers	Increase in renewable generation connected – **to be connected in 2025/26**	Reduced carbon emissions	**£104k**		Wider Society	I
				Increase in LCT demand connected – to be connected in 2025/26	Societal benefits from providing LCTs (energy savings)	**£180k**		Wider Society	D
					Societal benefits from providing LCTs (LCT value) - **£361k**	**£315k**		Wider Society	D
Data and Insights	• Increase in network visibility during ED2 • Number of data discovery workshops, events and engagement • % data sets published with additional insights	LV Monitoring Data and Access to half-hourly consumption data from smart meters	Communicated with **2.45m** smart meters and **1,516** increase in LV monitoring data points	Increased demand shifting leading to lower peak demand	Lower whole system costs - **£604k**			Whole System	I
				2,180 avoided site visits on voltage complaints.	Reduced consumer bills due to reduced network spend- **£52k**			Domestic & Commercial Customers	D

*D= Direct Benefit, I= Indirect Benefit

02 – ACTIVITIES AND BENEFITS METHODOLOGY

Scottish & Southern Electricity Networks

2.1 LENZA

Description

LENZA is a geospatial planning platform powered by Advanced Infrastructure Technology Limited's (AITL) LAEP+ software. It has been developed through SSEN Distribution's Project RESOP. LENZA is designed to support users in their strategic energy planning endeavours, including the creation of Local Area Energy Plans (LAEPs) and, where relevant, Local Heat and Energy Efficiency Strategies (LHEES). The platform provides local authorities and their delivery partners with data and modelling tools that support informed decision making, including information on network capacity, building stock, and energy consumption. The tool empowers users to plan decarbonisation pathways, which in turn drive SSEN Distribution's longer-term strategic network planning that will power local net zero ambition.

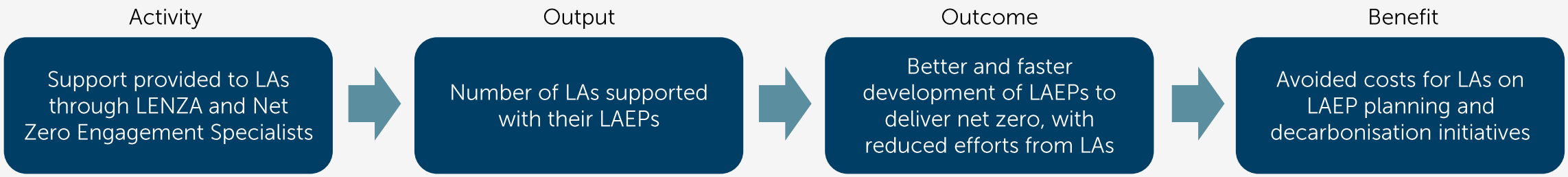
Benefits

2.1.1 Avoided Costs for LAs on LAEP Planning

2.1.2 Societal Benefit from Reaching Net Zero through LAEPs

2.1.1 Avoided Costs for LAs on LAEP Planning

Theory of Change



Gross Benefits (2024/25 prices)

N/A
Realised benefits in Y1

£746,178
Unlocked benefits

N/A
Realised benefits in Y2

£20,892,979
Benefits Ambition

Definitions

- **Realised**
  LA completes an LAEP using LENZA.
- **Unlocked**
  LA starts developing an LAEP using LENZA.
- **Ambition**
  LENZA is made available to LAs for their LAEPs.

Methodology

The engagement we provide to local authorities through our Net Zero Specialists and access to LENZA makes the LAEP process more cost-effective, leading to a direct benefit to LAs. In the absence of this support, LAs typically:

- Hire external consultancies
- Invest heavily in data processing

Incurring high costs to develop LAEPs.

To quantify the benefit, we follow a Social Return on Investment approach, based on the Energy Systems Catapult (2018)[2] study in which pilot studies were conducted in three local authorities (LAs) to assess the costs and impact of structured Local Area Energy Planning. The study reported planning-related expenses at £570k, including one-off costs and opportunities for efficiencies. Scaling Local Area Energy Planning efficiently across UK LAs was estimated to cost £100k–£250k per area. The efficiency savings of a structured approach are approximately £320k per area (calculated as £570k – £250k). Assumptions for impact estimations included in table below.

Assumptions and Adjustments

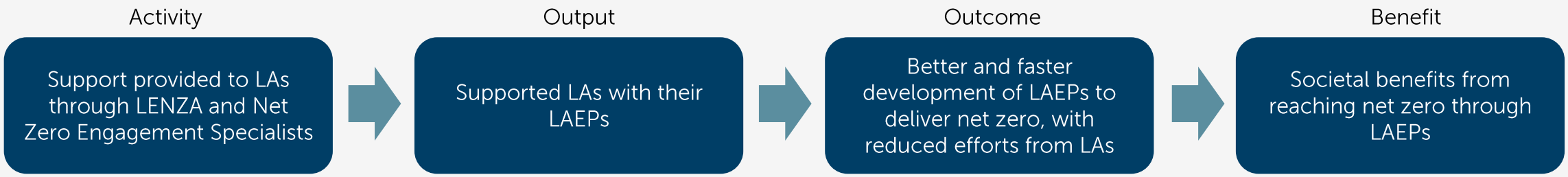
- Savings mainly from reduced consultancy and data costs
- Estimates reflect short-term impacts only (excludes long-term staffing)
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Avoided cost (£/LA)	Number of LAs in SSEN's license areas	Number of LAs who started developing an LAEP using LENZA	Number of LAs who completed an LAEP using LENZA	SROI assumptions
Y1	£320,000	58	0	0	Attribution - 100% Drop Off - 100%. Deadweight - 0%. Optimism Bias - 15%
Y2	£320,000	58	2	0	
Sources	Catapult - 'Local Area Energy Planning: The Method (July 2020)[2]	SSEN	SSEN	SSEN	

2.1.2 Societal Benefit from Reaching Net Zero through LAEPs

Theory of Change



Gross Benefits (2024/25 prices)

N/A
Realised benefits in Y1

£2,501,562
Unlocked benefits

N/A
Realised benefits in Y2

£70,043,740
Benefits Ambition

Definitions

Realised
Not applicable (given difficulty of tracking realised benefits).

Unlocked
LA starts developing an LAEP using LENZA.

Ambition
LENZA is made available to LAs for their LAEPs.

Methodology

Electricity is central to the UK's net zero ambitions. Through our LENZA tool, SSEN supports local authorities by providing the data and tools needed to develop effective LAEPs and integrate them into network planning. Without this support, local authorities might:

- Lack access to granular network data
- Face challenges aligning LAEPs with infrastructure planning

We used a Social Return on Investment approach, drawing on an Innovate UK study[3] that compares place-specific net zero strategies—similar to LAEPs—with generic, national-level approaches. Using data from six UK city-regions, the study estimates the societal benefit of place-specific planning. These benefits were then scaled to the population of SSEN's licence areas, resulting in an estimated £46 million in gross societal benefits per local authority per year over a 28-year period.

Assumptions and Adjustments

- Estimates reflect 5 years of benefits, aligned with what is reasonably achievable in the next 10 years
- Attribution of 1% of total benefits to SSEN's support via LENZA – this is a starting assumption that we hope to validate as new research becomes available
- Benefits assumed constant annually (no data available on phased allocation of benefits)
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Societal Benefit (£/LA/year)	Number of LAs in SSEN's license areas	Number of LAs who started developing an LAEP using LENZA	Number of LAs who completed an LAEP using LENZA	SROI assumptions
Y1	£46, 372,909	58	0	0	Attribution - 1% Drop Off - 100%. Deadweight - 20%. Optimism Bias - 40%
Y2	£46, 372,909	58	2	0	
Sources	Innovate UK - 'Accelerating Net Zero Delivery (2022)[3]	SSEN	SSEN	SSEN	

2.2 FLEXIBILITY PRODUCTS

Description

SSEN offers a range of flexibility products designed to manage distribution network constraints and make more efficient use of existing and planned infrastructure. These products enable the network to respond dynamically to local changes in electricity demand and generation, reducing the need for immediate reinforcement. First introduced in 2018 to support urgent operational needs, including maintaining customer supply and reducing reliance on diesel generation, SSEN's flexibility products have since evolved to support proactive network management and project delivery. Products are procured through open market processes and are designed to suit a variety of use cases and provider capabilities.

Benefits

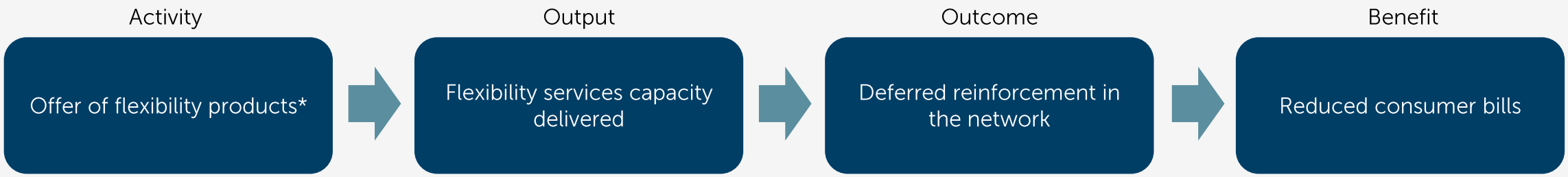
2.2.1 Reduced Consumer Bills from Deferred Reinforcement

2.2.2 Revenue from Participating in Flexibility Markets

2.2.3 Carbon Savings from Reduced Use of Diesel Generators

2.2.1 Reduced Consumer Bills from Deferred Reinforcement

Theory of Change



Gross Benefits (2024/25 prices)

- N/A
  Realised benefits in Y1
- £177,921,645
  Unlocked benefits
- £13,757,365
  Realised benefits in Y2
- N/A
  Benefits Ambition

Definitions

- **Realised**
  We assume this benefit is realised in the year when flexibility is first dispatched.
- **Unlocked**
  We assume this benefit is unlocked when flexibility is contracted.
- **Ambition**
  Not applicable.

*for brevity, the term "offer" is used in the general sense, i.e. present the opportunity to provide services

Methodology

Flexibility products allow a better use of the network, hence deferring reinforcement. Without flexibility products, network constraints would require earlier reinforcement investments, potentially leading to higher costs.

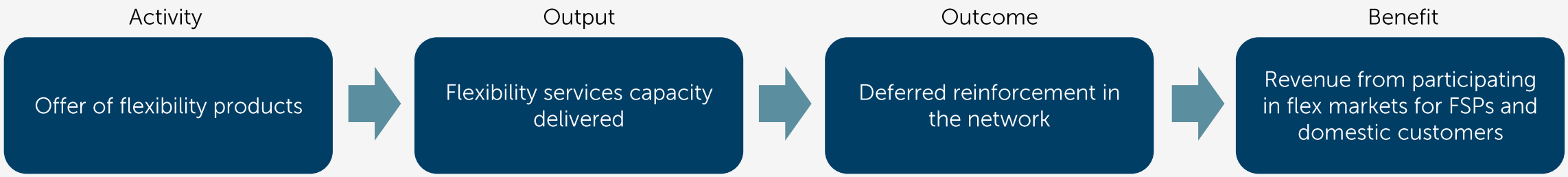
- The realised deferred reinforcement value to date is determined by summing the deferred reinforcement values for all zones where flexibility is assumed to have been dispatched, with the full deferral value recognised in the year flexibility dispatch begins—for example, if deferral spans three years and dispatch starts in 2024, the entire value is counted in 2024.
- The deferred value of reinforcement across ED2 is calculated using the CEM tool and is modelled at the point when flexibility is initially contracted.
- We calculate the average bill impact by using [the financial model] and adjusting to include the cost of reinforcement avoided and comparing it with published tariffs.
- Adjusting for the cost of purchasing these flexibility services, the time-cost value of money, and application of the Totex Incentive Mechanism (TIM), the net impact results in an average bill saving of £7.23 per customer in 2026-27 monies.

Data

	Value reinforcement deferred across ED2 (£M)	Value reinforcement deferred realised to-date (£M)
Y1	44	0
Y2	191.7	13.8
Assumptions		We assume the flexibility linked to deferred reinforcement has been dispatched
Sources	SSEN	SSEN

2.2.2 Revenue from Participating in Flexibility Markets

Theory of Change



Gross Benefits (2024/25 prices)

£276,527
Realised benefits in Y1

N/A
Unlocked benefits

£196,315
Realised benefits in Y2

N/A
Benefits Ambition

Definitions

Realised
We assume this benefit is realised when flexibility is paid to providers.

Unlocked
Not applicable.

Ambition
Not applicable.

Methodology

Spending on flexibility services not only benefits consumers but also creates economic value for providers. Without this procurement, FSPS and domestic consumers would miss out on an additional revenue stream.

The revenue to FSPs is obtained through paid invoices, with an estimation of how much is expected to go to domestic customers.

'The revenue paid to domestic customers is equal to the value paid to domestic asset aggregators who participate in the market on behalf of individual or groups of connected domestic assets. The revenue is calculated based on the ENA standardised settlement methodology and is implemented on the Flex Power platform.'

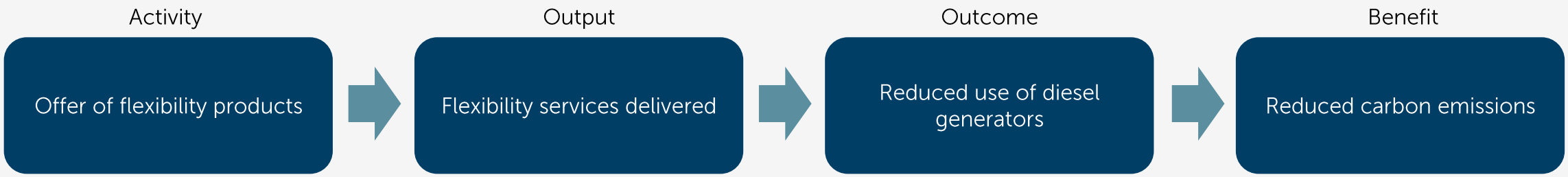
For purposes of benefits calculation, we have assumed all revenue paid to FSPs with a domestic portfolio is received by domestic customers

Data

	Revenue to FSPs (£)	Revenue expected to spend to domestic customers (£)
Y1	215,123	61,404
Y2	114,064	82,251
Sources	SSEN	SSEN

2.2.3 Carbon Savings from Reduced Use of Diesel Generators

Theory of Change



Gross Benefits (2024/25 prices)

£5,276
Realised benefits in Y1

N/A
Unlocked benefits

£5,237
Realised benefits in Y2

N/A
Benefits Ambition

Definitions

Realised
We assume this benefit is realised when flexibility is delivered.

Unlocked
Not applicable. We only consider benefits when flexibility is delivered.

Ambition
Not applicable. We only consider benefits when flexibility is delivered.

Methodology

Increased flexibility in the distribution network reduces reliance on diesel generators in the islands, resulting in lower carbon emissions. Flexibility enables cleaner, locally available resources to meet demand during constraint events, displacing the need for carbon-intensive backup generation. In the absence of flexibility products, diesel generators would be used more frequently to maintain supply security, leading to higher emissions and associated environmental costs.

- The reduction in diesel use is quantified in megawatt-hours (MWh) and converted into avoided carbon emissions using the UK Government's GHG Conversion Factors for Company Reporting[4], which provide an emission factor of 0.25403 $kgCO_2$ per kWh for 2024.
- The financial impact of these emissions savings is assessed using the non-traded price of carbon in 2024/2025 prices, as provided by DESNZ[5].

Data

	Reduced Use of Diesel (MWh)	Emission Factor (kgCO2/kwh)	Reduced carbon emissions (tonnes CO2e)	Carbon Price (£/tonne of CO2)
Y1	61.45	0.25403	16	338
Y2	60.1	0.25403	15	343
Assumptions				Non-traded price of carbon in 2024/2025 prices
Sources	SSEN	UK Gov GHG Conversion Factors for Company Reporting (2024)[4]	Calculated	DESNZ – valuation of GHG emissions (2020)[5]

2.3 ACCESS PRODUCTS & TECHNICAL LIMITS

Description

SSEN's Access Products are designed to accelerate customer connections in constrained areas of the network, helping to unlock renewable generation and support the rapid decarbonisation of communities across our licence areas. By offering earlier connection options where full capacity isn't yet available, these products provide a practical alternative to waiting for traditional reinforcement. Introduced to address both distribution and transmission system limits, Access Products give customers a choice of tailored connection arrangements—balancing speed, cost, and curtailment risk. They are a key part of SSEN's strategy to make the most of existing network capacity while longer-term upgrades are delivered, ensuring access is provided efficiently and equitably.

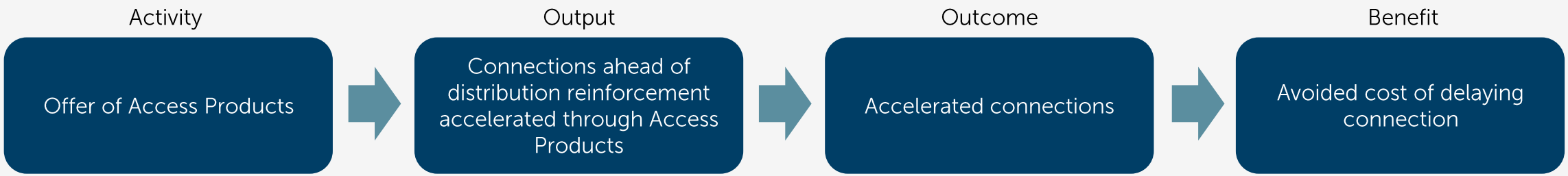
This approach is particularly relevant in areas like West London, which has seen a surge in large-scale electricity connection applications—especially from data centres—placing unprecedented pressure on the network. With National Grid Transmission now offering connection timelines that stretch into the 2030s, even for smaller projects, SSEN is using Access Products and targeted flexibility procurement to ease capacity constraints and enable faster, more efficient customer connections.

Benefits

- 2.3.1 Avoided Cost of Delaying Generation from Accelerated Connections through Access Products (ahead of distribution reinforcement)
- 2.3.2 Carbon Savings from Accelerated Renewable Connections through Access Products (ahead of distribution reinforcement)
- 2.3.3 Avoided Cost of Delaying Generation from Accelerated Connections through Access Products (ahead of transmission reinforcement)
- 2.3.4 Carbon Savings from Accelerated Renewable Connections through Access Products (ahead of transmission reinforcement)
- 2.3.5 Societal Benefits from Affordable Housing Accelerated

2.3.1 Avoided Cost of Delaying Generation from Accelerated Connections through Access Products (ahead of distribution reinforcement)

Theory of Change



Gross Benefits (2024/25 prices)

£8,803,840
Realised benefits in Y1

See page 34
Unlocked benefits

£0
Realised benefits in Y2

See page 34
Benefits Ambition

Definitions

Realised
Customers connect to the network through Access Products.

Unlocked
Connections for Access Products are accepted.

Ambition
Early grid access is offered through Access Products.

Methodology

Accelerating generation connections using Access Products delivers financial benefits by avoiding the costs associated with delayed grid access. Connecting customers are able to begin generating and selling electricity sooner than would be possible under standard reinforcement timelines. Without these access arrangements, generators would face delays due to distribution network constraints, resulting in lost revenue.

To quantify the benefit, we apply a Social Return on Investment method, based on the NERA SSEN Report (2023)[7], which estimates the financial impact of delayed connections.

- Foregone generator profits are valued at £87/MWh, reflecting missed revenue due to delayed generation.
- In Year 1, 23.2 MW of capacity connected ahead of reinforcement; 0 MW in Year 2.
- Output is calculated using a 10% capacity factor over 8,760 hours/year.

Assumptions and Adjustments

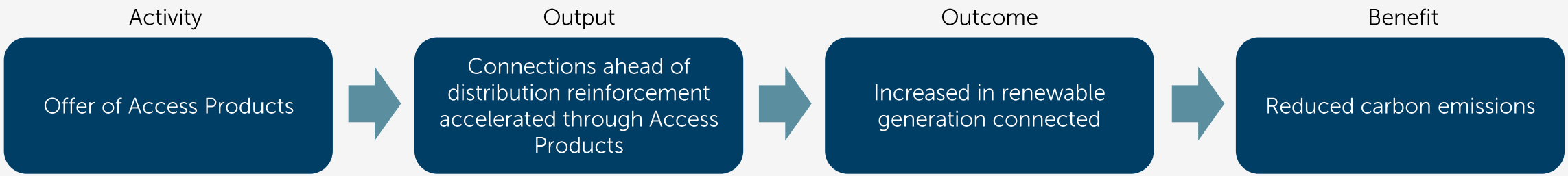
- All generation assumed to be solar PV, hence a capacity factor of 10% sourced from Scottish Renewable Electricity Output Calculator[6] is used.
- A 5-year average acceleration period is assumed based on SSEN data.
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Accelerated Connections ahead of Dist Reinforcement(MW)	Capacity Factor	Foregone Profits for Generators (£/MWH)	Average acceleration in connection time (years)	SROI assumptions
Y1	23.2	10%	87	5	Attribution - 100% Drop Off - 0%. Deadweight - 0%. Optimism Bias - 10%
Y2	0	10%	87	5	
Assumptions		All connections assumed to be solar PVs		Average of 4.5 years rounded-up to 5	
Sources	SSEN	Scottish Renewable Electricity Output Calculator (2020)[6]	NERA SSEN Report (2023)[7]	SSEN	

2.3.2 Carbon Savings from Accelerated Renewable Connections through Access Products (ahead of distribution reinforcement)

Theory of Change



Gross Benefits (2024/25 prices)

£4,646,182
Realised benefits in Y1

N/A
Unlocked benefits

£0
Realised benefits in Y2

N/A
Benefits Ambition

Definitions

Realised
Renewable customers connected to the network through Access Products.

Unlocked
Not applicable. We only considered carbon savings when renewables connect to the network.

Ambition
Not applicable. We only considered carbon savings when renewables connect to the network.

Methodology

Accelerating low-carbon generation through Access Products enables earlier displacement of fossil-fuel-based electricity, resulting in carbon savings. Without acceleration, projects would be delayed, and grid reliance on higher-carbon sources would persist longer.

To estimate avoided emissions, we apply an SROI approach using the following methodology:

- 23.2 MW of renewables connected ahead of reinforcement in Year 1.
- Output calculated using a 10% capacity factor over 8,760 hours/year.
- UK grid carbon intensity[8] applied:
  - 0.16 tCO_2e/MWh in Year 1
  - 0.14 tCO_2e/MWh in Year 2
- Emission reductions monetised using non-traded carbon prices from DESNZ[5]:
  - £338/tCO_2e in Year 1
  - £343/tCO_2e in Year 2

Assumptions and Adjustments

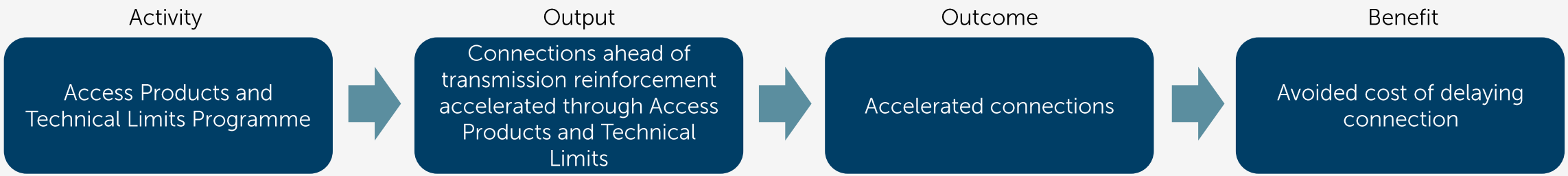
- All generation assumed to be solar PV, hence a capacity factor of 10% sourced from Scottish Renewable Electricity Output Calculator[6] is used.
- A 5-year average acceleration period is assumed based on SSEN data.
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Accelerated Renewable connections ahead of D. reinforcement(MW)	Capacity Factor	Average Grid Electricity Carbon Intensity (tCO2e/Mwh)	Carbon price £/tCO2e	Average acceleration in connection time (years)	SROI assumptions
Y1	23.2	10%	0.16	338	5	Attribution - 100% Drop Off - 0%. Deadweight - 0%. Optimism Bias - 0%
Y2	0	10%	0.14	343	5	
Assumptions		All connections assumed to be solar PVs	Amount of CO2 emitted per MWh of electricity generated.	Non-traded price of carbon in 2024/2025 prices	Average of 4.5 years rounded-up to 5	
Sources	SSEN	Scottish Renewable Electricity Output Calculator (2020)[6]	Ofgem – RIIO-3 Business Plan Guidance (CBA 2024) [8]	DESNZ – valuation of GHG emissions (2020)[5]	SSEN	

2.3.3 Avoided Cost of Delaying Generation from Accelerated Connections through Access Products (ahead of transmission reinforcement)

Theory of Change



Gross Benefits (2024/25 prices)

£366,118,316
Realised benefits in Y1

See page 34
Unlocked benefits

£29,849,572
Realised benefits in Y2

See page 34
Benefits Ambition

Definitions

Realised
Customers connect to the network through Access Products and technical limits.

Unlocked
Connections for Access Products or technical limits are accepted.

Ambition
Early grid access is offered through Access Products or technical limits.

Methodology

Accelerating generation connections using Access Products delivers financial benefits by avoiding the costs associated with delayed grid access. Connecting customers are able to begin generating and selling electricity sooner than would be possible under standard reinforcement timelines. Without these access arrangements, generators would face delays due to transmission network constraints, resulting in lost revenue.

To quantify the benefit, we apply a Social Return on Investment method, based on the NERA SSEN Report (2023)[7], which estimates the financial impact of delayed connections.

- Foregone generator profits are valued at £87/MWh, reflecting missed revenue due to delayed generation.
- In Year 1, 536MW of capacity connected ahead of reinforcement; 43.7 MW in Year 2.
- Output is calculated using a 10% capacity factor over 8,760 hours/year.

Assumptions and Adjustments

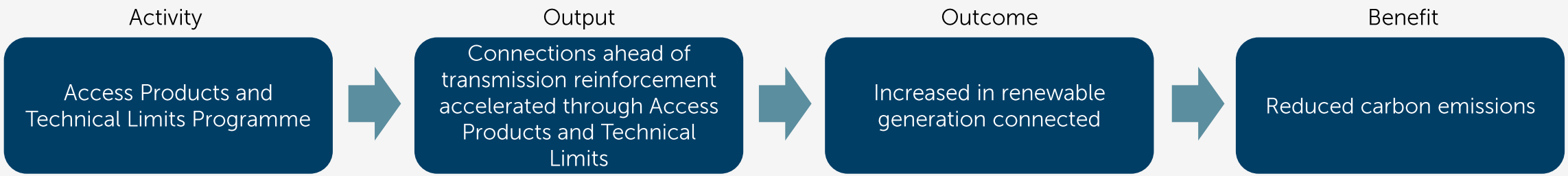
- All generation assumed to be solar PV, hence a capacity factor of 10% sourced from Scottish Renewable Electricity Output Calculator[6] is used.
- A 9-year average acceleration period is assumed based on SSEN data.
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Accelerated Connections ahead of Dist Reinforcement(MW)	Capacity Factor	Foregone Profits for Generators (£/MWH)	Average acceleration in connection time (years)	SROI assumptions
Y1	536	10%	87	9	Attribution - 100% Drop Off - 0%. Deadweight - 0%. Optimism Bias - 10%
Y2	43.7	10%	87	9	
Assumptions	Y1 everything is Access Products. For Y2, Technical Limits: 17MW and Access Products: 26.7MW	All connections assumed to be solar PVs		Weighted average assuming 10 years for SWANS and 5 for Minety rounded to closest whole number	
Sources	SSEN	Scottish Renewable Electricity Output Calculator (2020)[6]	NERA SSEN Report (2023)[7]	SSEN	

2.3.2 Carbon Savings from Accelerated Renewable Connections through Access Products (ahead of transmission reinforcement)

Theory of Change



Gross Benefits (2024/25 prices)

£167,045,005
Realised benefits in Y1

N/A
Unlocked benefits

£12,606,753
Realised benefits in Y2

N/A
Benefits Ambition

Definitions

Realised
Renewable customers connected to the network through Access Products and technical limits.

Unlocked
Not applicable. We only considered carbon savings when renewables connect to the network.

Ambition
Not applicable. We only considered carbon savings when renewables connect to the network.

Methodology

Accelerating low-carbon generation through Access Products enables earlier displacement of fossil-fuel-based electricity, resulting in carbon savings. Without acceleration, projects would be delayed, and grid reliance on higher-carbon sources would persist longer.

To estimate avoided emissions, we apply an SROI approach using the following methodology:

- 535 MW of renewables connected ahead of reinforcement in Year 1 and 43.7 in Year2
- Output calculated using a 10% capacity factor over 8,760 hours/year.
- UK grid carbon intensity[8] applied:
  - 0.16 tCO_2e/MWh in Year 1
  - 0.14 tCO_2e/MWh in Year 2
- Emission reductions monetised using non-traded carbon prices from DESNZ[5]:
  - £338/tCO_2e in Year 1
  - £343/tCO_2e in Year 2

Assumptions and Adjustments

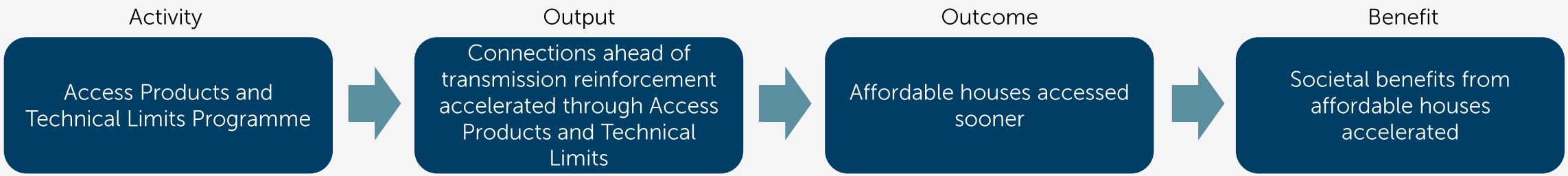
- All generation assumed to be solar PV, hence a capacity factor of 10% sourced from Scottish Renewable Electricity Output Calculator[6] is used.
- A 9-year average acceleration period is assumed based on SSEN data.
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Accelerated Renewable connections ahead of D. reinforcement(MW)	Capacity Factor	Average Grid Electricity Carbon Intensity (tCO2e/Mwh)	Carbon price £/tCO2e	Average acceleration in connection time (years)	SROI assumptions
Y1	535	10%	0.16	338	9	Attribution - 100% Drop Off - 0%. Deadweight - 0%. Optimism Bias - 0%
Y2	43.7	10%	0.14	343	9	
Assumptions	Y1 everything is Access Products. For Y2, Technical Limits: 17MW and Access Products: 26.7MW	All connections assumed to be solar PVs	Amount of CO2 emitted per MWh of electricity generated.	Non-traded price of carbon in 2024/2025 prices	Weighted average assuming 10 years for SWANS and 5 for Minety rounded to closest whole number	
Sources	SSEN	Scottish Renewable Electricity Output Calculator (2020)[6]	Ofgem – RIIO-3 Business Plan Guidance (CBA 2024) [8]	DESNZ – valuation of GHG emissions (2020)[5]	SSEN	

2.3.5 Societal Benefits from Affordable Housing Accelerated

Theory of Change



Gross Benefits (2024/25 prices)

£0
Realised benefits in Y1

£179,530,479
Unlocked benefits

£11,783,848
Realised benefits in Y2

N/A
Benefits Ambition

Definitions

- **Realised**
  Houses are built and connected through the West London Initiatives.
- **Unlocked**
  New houses connection offers are accepted through the West London Initiatives.
- **Ambition**
  Not applicable.

Methodology

The Ramping Solution allows customers to connect earlier and increase capacity by 1MW annually, up to 10MW, without triggering costly transmission upgrades. In its first two years, it enabled early connection for 11,115 homes and unlocked 14.96 MVA of capacity. Without this solution, these connections would have been delayed by an estimated four years, requiring traditional reinforcement and incurring higher costs.

We use an SROI to quantify social benefits:

1. *Benefits from Accelerated Connections*

Reducing connection delays yields substantial financial benefits. Ofgem's Time to Connect Incentive rewards DNOs for shortening connection times, which reduces costs and alleviates network congestion. According to the NERA SSEN Report (2023)[7], each MVA reduction in delay saves £450,000 per year, applying to all homes unlocked in Years 1 and 2.

2. *Affordable Housing Benefits*

Of the homes accelerated, 2,900 in Y1 and 1,562 in Y2 qualify as affordable housing, which we categorised as 53% Affordable or Intermediate Rent, 33% Affordable Home Ownership, 13% Social Rent, and 2% Discounted Homes for First-Time Buyers as per UK Government Fact Sheet 9: What is Affordable Housing?[9].

Affordable rental housing is priced 20% below market rent as per UK Government Fact Sheet 9: What is Affordable Housing?[9]. With average rents in Hounslow, Hillingdon, and Ealing at £1,826, £1,838, and £2,541 (home.co.uk (2024) [10,11,12]) respectively, the annual savings per home is £4,964.

Affordable homes are sold at 20% below market value as per UK Government Fact Sheet 9: What is Affordable Housing?[9], generating a one-time saving of £117,080 per home, while discounted first-time buyer homes, sold 40% below market value, yield £234,159 in one-time savings (Zoopla (2024)[13,14,15]).

3. *Social Benefits*

Beyond financial savings, social housing offers stability, reduces homelessness, and improves employment and education outcomes. Research on 90,000 social homes highlights benefits such as lower welfare spending, reduced NHS costs, higher employment, lower crime, and better educational attainment. Over 30 years, net economic and social benefits are estimated at £51.2 billion, equating to £18,963 per home per year (shelter.org (2024)[16]).

Assumptions and Adjustments

- A 4-year average acceleration period is assumed.
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

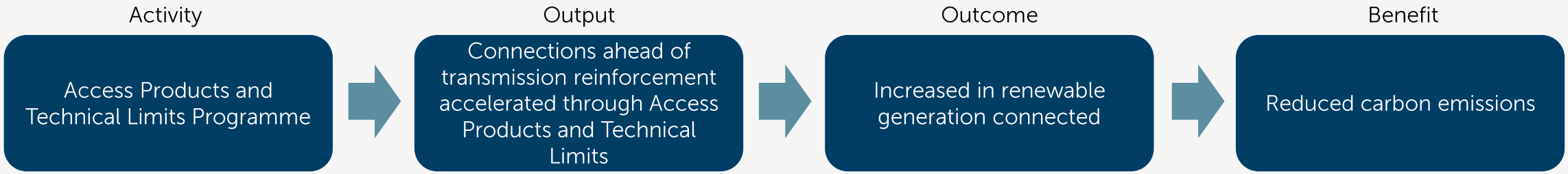
Data

	Houses unlocked	Affordable homes unlocked	Affordable homes built	Average acceleration in connection time (years)	Time to connect incentive (£/MVA/year)	Reduction in Rent (£/house/year)	Reduction in home ownership (£/house)	Discounted homes for first time buyers (£/house)	Social Benefits (£/house/year)
Y1	7,800	2,900	0	4	450,000	4,964	117,080	243,159	18,963
Y2	3,315	1,562	300	4	450,000	4,964	117,080	243,159	18,963
Assumptions	We assume this is the equivalent of 10.5 MVA in Y1 and 4.46 in Y2			Some would have connected in 2027, others in 2030. As we don't have a breakdown, an average of 4 years is assumed	This applies to all houses unlocked.	Calculated using an average monthly rent and assuming 20% discount over 12 months. This is applied to 53% of the affordable houses.	Calculated using an average home cost and assuming 20% discount. This is applied to 33% of the affordable houses.	Calculated using an average home cost and assuming 40% discount. This is applied to 2% of the affordable houses.	This is applied to 13% of the affordable houses.
SROI Assumptions					Attribution – 100% Drop Off - 0% Deadweight - 0%. Optimism Bias - 10%	Attribution – 100% Drop Off - 0% Deadweight - 0%. Optimism Bias - 15%	Attribution – 50% Drop Off - 100% Deadweight - 0%. Optimism Bias - 15%	Attribution – 50% Drop Off - 100% Deadweight - 0%. Optimism Bias - 15%	Attribution – 100% Drop Off - 0% Deadweight - 0%. Optimism Bias - 15%
Sources	SSEN	SSEN	SSEN	SSEN	NERA SSEN Report (2023)[7]	UK GOV (2023)[9] and home.co.uk (2024) [10,11,12]	UK GOV (2023)[9] and Zoopla (2024)[13,14,15]	UK GOV (2023)[9] and Zoopla (2024)[13,14,15]	UK GOV (2023)[9] and shelter.org (2024)[16]

Summary: Avoided Cost of Delaying Connection from Accelerated Connections through Access Products and Technical Limits

Merging all avoided costs from accelerated connections due to Access Products and Technical Limits, and adding unlocked and ambition (ahead of distribution + transmission reinforcement).

Theory of Change



Gross Benefits (2024/25 prices)

£374,922,256
Realised benefits in Y1
See pages 24 & 28 for methodology

£433,195,609
Unlocked benefits

£29,849,572
Realised benefits in Y2
See pages 24 & 28 for methodology

£229,555,577
Benefits Ambition

Definitions

Realised
Customers connect to the network through Access Products.

Unlocked
Connections for Access Products are accepted.

Ambition
Early grid access is offered through Access Products.

Methodology

Accelerating generation connections using Access Products delivers financial benefits by avoiding the costs associated with delayed grid access. Connecting customers are able to begin generating and selling electricity sooner than would be possible under standard reinforcement timelines. Without these access arrangements, generators would face delays due to transmission network constraints, resulting in lost revenue.

To quantify the unlocked and ambition, we apply a Social Return on Investment method, based on the NERA SSEN Report (2023)[7], which estimates the financial impact of delayed connections.

- Foregone generator profits are valued at £87/MWh, reflecting missed revenue due to delayed generation.
- In ED2, 486.9 MW of curtailable connection offers were made through Access Products but not accepted, and 118 MW through Technical Limits. The total 604.9 MW is used to calculate the ambition. For the unlocked benefits, we use 1,141.6 MW of offers accepted but not yet connected (562.6 MW via Access Products and 579 MW via Technical Limits).
- Output is calculated using a 10% capacity factor over 8,760 hours/year.

Assumptions and Adjustments

- All generation assumed to be solar PV, hence a capacity factor of 10% sourced from Scottish Renewable Electricity Output Calculator[6] is used.
- A 5-year average acceleration period is assumed as most offers are assumed to connect ahead of distribution reinforcement, to avoid overestimating due to shorter average acceleration times.
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Offers made but not accepted (MW) - Ambition	Offers accepted but not connected (MW) Unlocked	Capacity Factor	Foregone Profits for Generators (£/MWH)	Average acceleration in connection time (years)	SROI assumptions
To Date	604.9	1,141.6	10%	87	5	Attribution - 100% Drop Off - 0%. Deadweight - 0%. Optimism Bias - 10%
Assumptions	486.9 MW of curtailable connection offers were made and not accepted through Access Products and 118 MW through Technical Limits	562.6 MW of curtailable connection offers were accepted but not connected through Access Products and 579 MW through Technical Limits	All connections assumed to be solar PVs		Assuming most offers are connected ahead of distribution, hence avoiding overestimation	
Sources	SSEN	SSEN	Scottish Renewable Electricity Output Calculator (2020)[6]	NERA SSEN Report (2023)[7]	SSEN	

2.4 REFINED FIELD-BASED ANM HARDWARE

Description

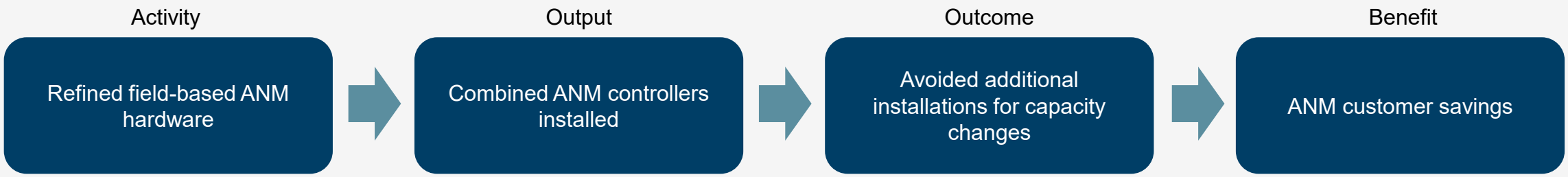
SSEN is now deploying combined ANM controllers as part of its connection strategy, removing the need for further installations when customers increase their generation capacity post-connection. By integrating functionality into a single unit from the outset, every generator connected is ANM-ready—enabling consistent, real-time communication with SSEN's control room. This approach ensures all customers benefit from a future-proofed solution that supports flexible growth, minimises installation disruption, and aligns with our commitment to efficient, scalable network access.

Benefits

2.4.1 ANM Customer Savings from Installing Combined ANM Controllers

2.4.1 ANM Customer Savings from Installing Combined ANM Controllers

Theory of Change



Gross Benefits (2024/25 prices)

N/A
Realised benefits in Y1

£20,000
Unlocked benefits

N/A
Realised benefits in Y2

£100,000
Benefits Ambition

Definitions

Realised
Customers with combined ANM controllers are connected.

Unlocked
Combined ANM controllers are installed.

Ambition
A target is set for the number of combined ANM controllers to be installed.

Methodology

The deployment of combined ANM controllers delivers direct cost savings to customers by eliminating the need for additional installations when expanding generation capacity. In the absence of this approach, generators would require separate ANM installations at the point of expansion—resulting in higher overall costs. In Year 3, two generators are expected to benefit from this and in the next 18 months, 8–14 generators are projected to adopt this technology.

To quantify this benefit, we apply a straightforward cost-saving model based on the number of generators adopting the combined ANM approach, multiplied by an estimated saving per unit.

Assumptions and Adjustments
- Saving of £10,000 per connection.
- Over the next 18 months, adoption is projected across 8–14 generators, a mid-point estimate of 10 generators is used to calculate ambition-level impact

Data

	Number of Combined ANM Controllers	Customer Savings (£/unit) in 2024-2025 prices
Y3	2	£10,000
Ambition	10	£10,000
Assumptions	2 generators next year will benefit from this with a target of 8-14 in the next 18 months	
Sources	SSEN	SSEN

2.5 ANM IMPROVEMENTS

Description

SSEN has implemented a series of enhancements to ANM systems to improve the speed, efficiency, and cost-effectiveness of network access, in response to increasing demand for capacity and flexibility.

Standardisation of ANM modules has been introduced to streamline delivery and reduce deployment times. This shift away from bespoke design has resulted in lower costs and more consistent implementation across projects.

Secure remote access for field-based devices has also been deployed, reducing reliance on engineer site visits and improving response times. These measures contribute to lower operational costs and enhanced network resilience.

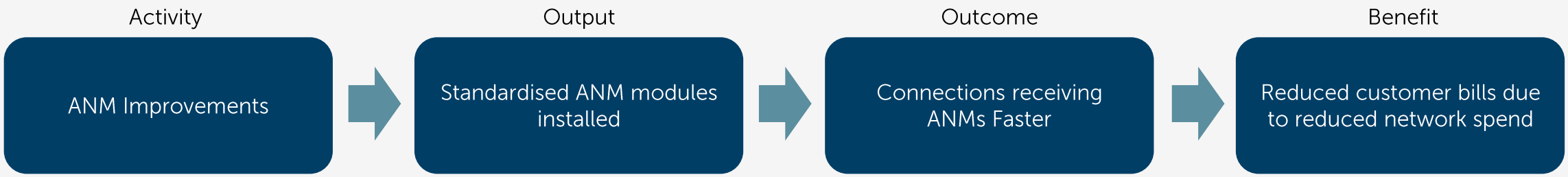
Benefits

2.5.1 Reduced Customer Bills from Network Savings due to ANM Modules Standardisation

2.5.2 Reduced Customer Bills from Network Savings due to Remote Access Software for Field-Based Devices

2.5.1 Reduced Customer Bills from Network Savings due to ANM Modules Standardisation

Theory of Change



Gross Benefits (2024/25 prices)

N/A
Realised benefits in Y1

N/A
Unlocked benefits

£27,563
Realised benefits in Y2

£165,375
Benefits Ambition

Definitions

Realised
Standardised ANM modules are installed.

Unlocked
Standardised ANM modules have been approved to be installed.

Ambition
A target is set for the number of standardised ANM modules to be installed.

Methodology

Standardising ANM modules reduces design and implementation time, enabling faster and more cost-effective deployment that benefits both customers and network operations. Without standardisation, longer delivery times increase costs.

To quantify the savings, a cost model is applied based on reduced project management time per module.

Assumptions and Adjustments

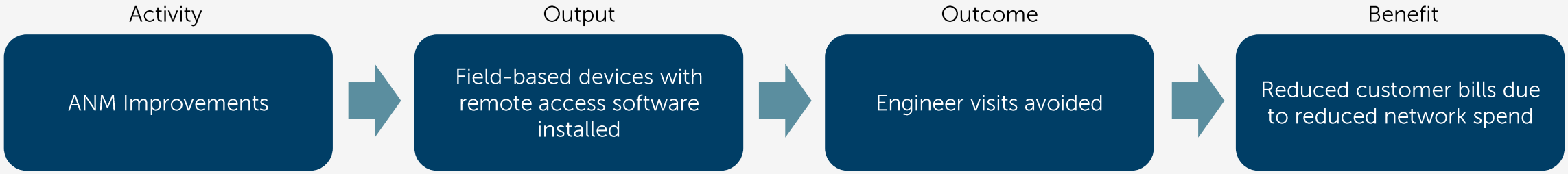
- Delivery time reduced by 65 working days per module (equivalent to three months).
- Project manager salary averaged at £63,000, with total employment costs estimated at £110,250 per year (£424 per day).
- Based on a TIM sharing factor, 50% of savings are passed on to customers
- Over the next 18 months, 8–14 modules are targeted for installation, with a mid-point estimate of 12 modules used to project savings

Data

	Number of Standardised Modules	Reduction in Delivery Time (days per standardised module)	Project Manager Salary (£/year)
Y2	2	65	£110,250
Ambition	12	65	£110,250
Assumptions	2 standardised modules were delivered in Year 2 with a target of 8-14 in the next 18 months	Estimated 3 months which is 65 working days effort for an FTE.	The salary band of a project manager FTE is £58,000 - £68,000 in 2025. For modelling purposes, an average of £63,000 is assumed. On average in the UK, an employee cost around 1.75 their salary, so £110,250
Sources	SSEN	SSEN	SSEN and Occupop (2025)[17]

2.5.2 Reduced Customer Bills from Network Savings due to Remote Access Software for Field-Based Devices

Theory of Change



Gross Benefits (2024/25 prices)

N/A
Realised benefits in Y1

£618
Unlocked benefits

N/A
Realised benefits in Y2

£4,081
Benefits Ambition

Definitions

Realised
Field-based devices with remote access software are installed.

Unlocked
Field-based devices with remote access software have been approved to be installed.

Ambition
A target is set for the number of field-based devices with remote access software to be installed.

Methodology

Installing remote access software on field-based generation devices reduces the need for engineer site visits, resulting in quicker issue resolution, lower operational costs, and improved efficiency for both the network and customers. Without this solution, site visits—particularly in remote areas—are time-intensive and costly.

To quantify the benefit, savings are estimated based on reduced engineering time.

Assumptions and Adjustments

- In Year 3, remote access will be installed at four Shetland generator sites. Each avoided Shetland trip saves 30 hours (including 12-hour ferry journeys each way and 6 hours on-site).
- Across the wider ANM fleet (66 sites total), typical avoided travel time is 3 hours per visit (1.5 hours each way). One site visit per location per year is assumed.
- Engineer salary assumed at £49,000, with total employment cost of £87,750 (1.75x multiplier), equivalent to £41/hour.
- Based on a TIM sharing factor, 50% of savings are assumed to be passed

Data

	Number of Field-based devices with Remote Access Software	Engineer Visits Avoided (hours per year)	Engineer Salary (£/year)
Y3	4	30	£85,750
Ambition	66	198	£85,750
Assumptions	By the end of the year SSEN will have access to 4 remote generators (in Shetland) with the ambition in Y3 to roll-out the solution to the fleet of 66.	For the 4 sites in Shetland, we can assume 1 saved trip, saving a total of 30 hours (12 hours ferry there and back + 6 hours on site). For Y3, we assume one site visit with a travel time of 3 hours return.	The salary band of an engineer qualified for these visits is £44,000 - £54,000 in 2024. For modelling purposes, an average of £49,000 is assumed. On average in the UK, an employee cost around 1.75 their salary, so £85,750
Sources	SSEN	SSEN	SSEN and Occupop (2025)[17]

2.6 PCNZ FUND

Description

SSEN's "Powering Customers to Net Zero" fund supports customers through community-led LCT accessibility initiatives, environmental and resilience schemes, prioritising communities which would be considered vulnerable. The scope of the fund has deliberately been widened to recognise emerging challenges around the adoption of LCTs. In Year 2, the fun distributed £401,616 to support 6 heat pump projects, 19 battery storage projects, and 21 solar PV projects.

Benefits

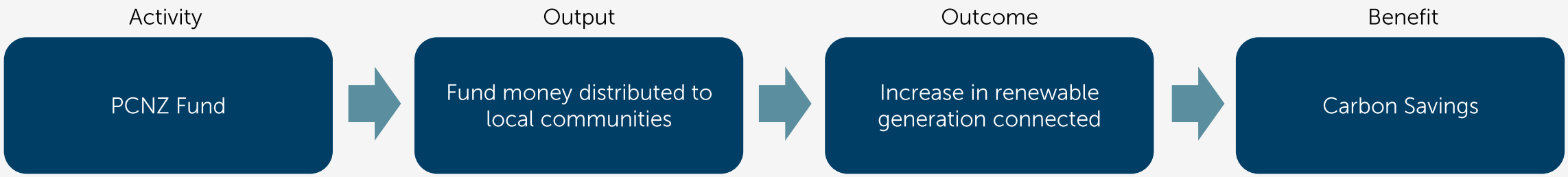
2.6.1 Reduced Carbon Emissions from Increased Renewable Generation Connected

2.6.2 Societal Benefits from Providing LCTs through our Powering Customers to Net Zero (PCNZ) fund (Financial Savings)

2.6.3 Societal Benefits from Providing LCTs through our Powering Customers to Net Zero (PCNZ) fund (LCT Value)

2.6.1 Reduced Carbon Emissions from Increased Renewable Generation Connected

Theory of Change



Gross Benefits (2024/25 prices)

N/A
Realised benefits in Y1

£104,000
Unlocked benefits

N/A
Realised benefits in Y2

N/A
Benefits Ambition

Definitions

- **Realised**
  LCTs provided through the PCNZ Fund are connected.
- **Unlocked**
  Funding is allocated to projects.
- **Ambition**
  Not applicable.

Methodology

The PCNZ Fund improves access to low-carbon technologies for local communities, helping to reduce emissions and enhance energy resilience. In Year 2, the fund distributed £401,616 to support the installation of 6 heat pumps, 19 battery storage systems, and 21 solar PV systems. Without this targeted support, many vulnerable communities would lack the resources to adopt LCTs, delaying associated decarbonisation.

A Social Return on Investment approach is used to quantify avoided carbon emissions from the funded technologies. Emission savings are monetised using the DESNZ GHG valuation (2024/25 prices).

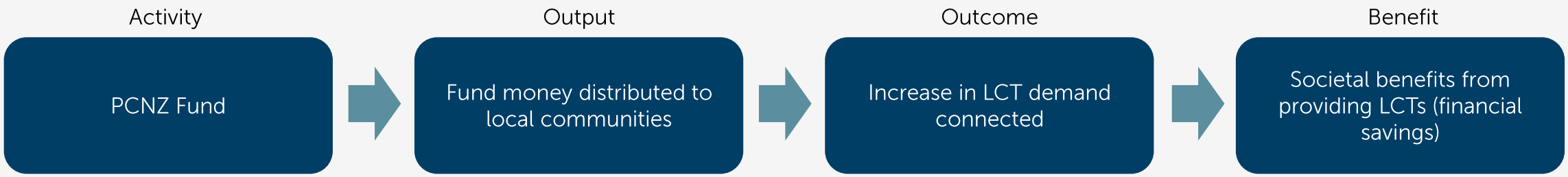
Assumptions and Adjustments
- A 10-year period is assumed
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Number of LCT awarded in Y2	Carbon Benefits per Technology (Tco2/customer/year)	Carbon Price (£/Tco2) Y2	SROI assumptions
Heat Pumps	6	3.2	£349	Attribution - 100% Drop Off - 0%. Deadweight - 10%. Optimism Bias - 5%
Battery Storage	19	0.3	£349	
Solar PV	21	0.5508	£349	
Assumptions			Non-traded price of carbon in 2024/2025 prices. For every year the model is run, the corresponding price is used	
Sources	SSEN	DNO CVI Rulebook (2025)[18]	DESNZ – valuation of GHG emissions (2020)[5]	

2.6.2 Societal Benefits from Providing LCTs to Local Communities (Financial Savings)

Theory of Change



Gross Benefits (2024/25 prices)

- N/A
  Realised benefits in Y1
- £180,415
  Unlocked benefits
- N/A
  Realised benefits in Y2
- N/A
  Benefits Ambition

Definitions

- **Realised**
  LCTs provided through the PCNZ Fund are connected.
- **Unlocked**
  Funding is allocated to projects.
- **Ambition**
  Not applicable.

Methodology

The PCNZ Fund improves access to low-carbon technologies for local communities, helping to reduce emissions and enhance energy resilience. In Year 2, the fund distributed £401,616 to support the installation of 6 heat pumps, 19 battery storage systems, and 21 solar PV systems. Without this targeted support, many vulnerable communities would lack the resources to adopt LCTs, delaying associated energy savings.

A Social Return on Investment methodology is applied to quantify financial benefits from reduced energy costs. Annual bill savings per technology are based on values from the 2025 DNO Common Evaluation Methodology (Rulebook)[18].

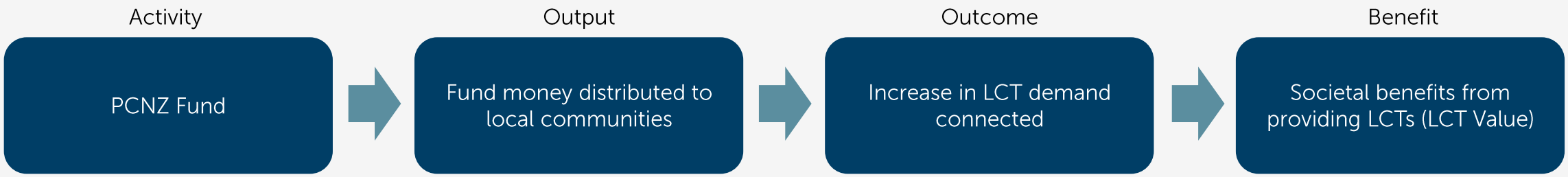
Assumptions and Adjustments
- A 10-year period is assumed
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Number of LCT awarded in Y2	LCT Uptake Financial Saving per Technology (£/customer/year)	SROI assumptions
Heat Pumps	6	630	Attribution - 100% Drop Off - 0%. Deadweight - 10%. Optimism Bias - 5%
Battery Storage	19	335.8	
Solar PV	21	521	
Sources	SSEN	DNO CVI Rulebook (2025)[18]	

2.6.3 Societal Benefits from Providing LCTs to Local Communities (LCT Value)

Theory of Change



Gross Benefits (2024/25 prices)

N/A
Realised benefits in Y1

£315,000
Unlocked benefits

£361,454
Realised benefits in Y2

N/A
Benefits Ambition

Definitions

- **Realised**
  Funding is allocated to projects.
- **Unlocked**
  Funding is reserved.
- **Ambition**
  Not applicable.

Methodology

In 2024/2025, the PCNZ fund allocated £401,616 to the purchase of LCTs. £350,000 are reserved for this initiative in 2025/2026

Data

	PCNZ fund allocated to LCTs	SROI assumptions
Y1	£401,616	Attribution - 100% Drop Off - 100%. Deadweight - 10%. Optimism Bias - 5%
Y2	£350,000	
Sources	SSEN	

2.7 SMART METER DATA

Description

As the only DNO publishing daily HH smart meter consumption data, we're setting a benchmark for transparency and innovation in the energy sector. Combining smart meter and LV monitoring data enhances network visibility, reducing reliance on costly modelling and equipment. We've used this position to improve our operations, guide the industry and provide granular insights to our customers. Our daily upload of HH smart meter consumption data to our open data portal, provides upwards of 1.6 billion data points – the most historical records available across all DSOs for our stakeholders. We've harnessed the benefit of third-party data for our own operational needs and making it available to all customers in the common standard now adopted across GB DNOs.

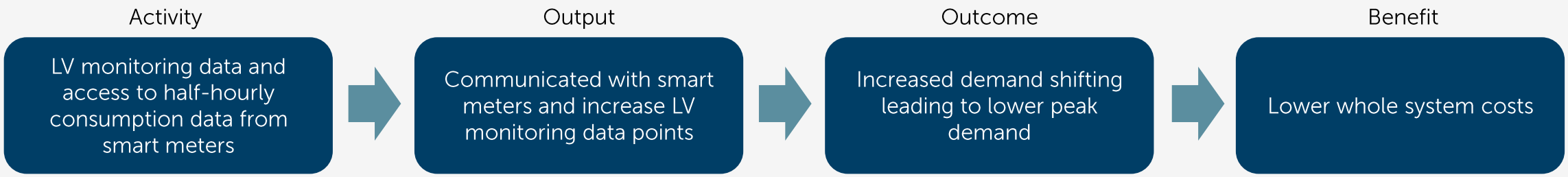
Benefits

2.7.1 Lower Whole System Costs due to Increased Demand Shifting

2.7.2 Reduced Consumer Bills from Network Savings due to Avoided Site Visits on Voltage Complaints

2.7.1 Lower Whole System Costs due to Increased Demand Shifting

Theory of Change



Gross Benefits (2024/25 prices)

£534,636
Realised benefits in Y1

N/A
Unlocked benefits

£603,621
Realised benefits in Y2

N/A
Benefits Ambition

Definitions

Realised
Smart meters with which SSEN has communicated with on a given year.

Unlocked
Not applicable.

Ambition
Not applicable.

Methodology

Smart meters support behavioural change by encouraging consumers to shift electricity use from peak to off-peak periods, particularly when low-carbon, lower-cost energy is available. This reduces peak demand, cuts network losses, and supports a more efficient electricity system.
Without smart meter-enabled behaviour change, peak demand would remain higher, placing additional strain on the grid and increasing losses.

A Social Return on Investment approach is used to quantify system-wide benefits from demand shifting. The analysis draws on the DBEIS Cost-Benefit Analysis of the Smart Meter Rollout[19], which estimates £1,363 million in benefits over 15 years across Great Britain—equivalent to £91 million per year.Based on a rollout of 43 million smart meters, the average benefit equates to £2.11 per meter per year.

Assumptions and Adjustments

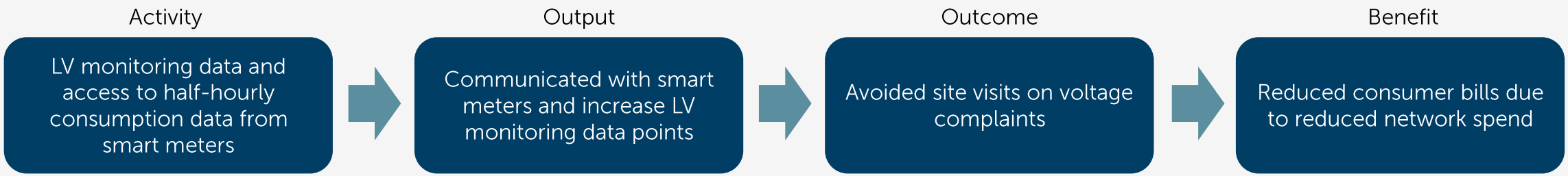
- Demand-shifting benefits are categorised as enhanced (but not wholly dependent) on access to high-resolution data (Imperial College London, Balancing Privacy and Access to Smart Meter Data, 2022[21]). Demand shifting is primarily enhanced, rather than fundamentally dependent, on high-resolution data, and as a result, a 10% success rate is applied to this benefit estimate.
- All figures updated to 2024/25 prices Ofgem's RIIO-ED2 Price Control Financial Model[1]

Data

	Smart Meters Communicated with	Demand Shifting Benefit (£/smart meter/year)	SROI assumptions
Y1	2.17m	2.11	Attribution -100% Drop Off - 0%. Deadweight - 0%. Optimism Bias - 15%
Y2	2.45m	2.11	
Assumptions		DBEIS estimates £91m of benefits per year which divided by the UK smart meter target (43m) gives us 2.11	
Sources	SSEN	DBEIS - Smart Meter Roll-out CBA (2019)[19] and UK GOV – Smart Meter Statistic (2024)[20]	

2.7.2 Reduced Consumer Bills from Network Savings due to Avoided Site Visits on Voltage Complaints

Theory of Change



Gross Benefits (2024/25 prices)

£63,549
Realised benefits in Y1

N/A
Unlocked benefits

£51,858
Realised benefits in Y2

N/A
Benefits Ambition

Definitions

Realised
Smart meter data is used to and a site visit on voltage complaint is avoided.

Unlocked
Not applicable.

Ambition
Not applicable.

Data

	Avoided site visits on voltage complaints	Reduced network spend (£)	Reduced consumer bills (£)
Y1	2,762	127,098	63,549
Y2	2,180	103,716	51,858
Assumptions			50% sharing factor applied
Sources	SSEN	SSEN	

03 – REFERENCES AND ABBREVIATIONS

Scottish & Southern Electricity Networks

3.1 REFERENCES

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3.2 ABBREVIATIONS

Abbreviation	Meaning
ANM	Active Network Management
CBA	Cost Benefit Analysis
CEM	Common Evaluation Methodology
DER	Distributed Energy Resources
DNO	Distribution Network Operator
DNOA	Distribution Network Options Assessment
DSO	Distribution System Operator
FSP	Flexibility Service Provider
FTE	Full-Time Equivalent
HH	Half-Hourly
LA	Local Authority
LAEP	Local Area Energy Plan
LCT	Low Carbon Technology
LHEES	Local Heat and Energy Efficiency Strategies
LV	Low Voltage
Solar PV	Solar Photovoltaic
SROI	Social Return on Investment
TIM	Totex Incentive Mechanism