UK Government

RAF012/2324: Evaluation of non-domestic energy affordability support schemes

Annex C: Theory of Change and Contribution Analysis

September 2025

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Introduction

This Annex covers:

- **Theories of Change** for the non-domestic energy affordability schemes portfolio - outlining how the schemes' inputs and activities are expected to achieve intended outputs, outcomes and impacts. It also considers potential risks, assumptions, and external factors that may influence the achievement of benefits. The ToC underpinned the evaluation by setting out what outcomes and impacts are in scope for the evaluation to assess, and the ways in which the schemes are expected to contribute towards outcomes.
- **Approach to the Contribution Analysis** for the non-domestic energy affordability schemes portfolio. This section provides details on the Contribution Analysis method used for assessing the schemes' contribution to key impacts identified in the Theories of Change.

1. Theories of change

A Theory of Change (ToC) sets out the rationale for intervention and how the inputs and activities of a policy or programme are expected to lead to its intended outputs, outcomes and impacts – including both impacts perceived as positive (benefits) and negative (disbenefits). A ToC also sets out theory on potential risks, assumptions and external contributing factors which may influence the achievement of benefits.

This section presents the overarching ToC for the non-domestic energy affordability schemes portfolio. The ToC is first illustrated through logic models for the three main schemes.[1] Developing the ToC further, a narrative is presented to describe the causal pathways to impacts in the logic models, and the main assumptions and external factors or risks that may affect the ability of the scheme portfolio to achieve intended impacts. The ToC is presented in the following sections:

- An introductory summary section setting out the rationale for the objectives of the schemes.
- An overarching ToC for the policy portfolio is first presented that applies to EBRS, EBDS and NDAFP.
- This is followed by separate logic models for the EBRS, EBDS and NDAFP schemes.
- A description of the causal pathways from inputs, activities and outputs and the specific differences between the schemes and the associated risks and assumptions.
- A description of how causal pathways are expected to lead to outcomes and impacts and the associated assumptions and external factors or risks.

Given the nature of economic impacts in scope for the schemes, the ToC primarily builds upon economic theory. The economic theory underpins the expected and observed impacts on inflation, business uncertainty, redundancy, insolvency and maintaining a competitive energy market, which are explained in more detail within the Main Report (Chapter on Impacts) and the Quantitative Impact Report.

Rationale behind the non-domestic energy affordability schemes

Wholesale gas prices in the UK started increasing during the summer of 2021 before peaking in September 2022. This was initially caused by international supply chains readjusting when economies reopened after COVID-19 and was further exacerbated by the effect Russia's invasion of Ukraine had on international energy markets. Electricity bills also increased

[1] The ToC was first developed in the pre-fieldwork scoping stage of the evaluation, based on a review of the EBRS, EBDS and NDAFP programme documentation, including their Final Business Cases. It was further developed in consultation with a range of DESNZ representatives during a series of scoping interviews and a ToC workshop. The ToC was then further updated in light of evidence gathered from Stage 1 evaluation fieldwork, and a second workshop with DESNZ ahead of Stage 2 fieldwork.

because the wholesale price of electricity is set by the cost of producing the last unit of electricity needed to meet demand, which is often the cost of generating electricity using gas.

In addition, in July 2022 the Consumer Price Index (CPI) measured prices 10.1% higher than a year earlier and the Retail Price Index measures reached 12.3% – the highest rate since 1991. Although wholesale energy prices had been falling steadily since the peak in September 2022, these inflationary increases, coupled with continued rises in global energy prices, put additional pressure on the budgets of non-domestic organisations, which made it more difficult for them to afford their energy bills. Projected price fluctuations also risked creating uncertainty around investments and employment decisions.

Therefore, to mitigate the expected large-scale effects of increased energy costs on the non-domestic sector in Great Britain and Northern Ireland, the UK government created the support schemes to provide energy bill relief.

Objectives for the non-domestic energy affordability schemes

The business cases for the EBRS and EBDS outlined the overall objectives for the schemes, as follows:

- Support economic growth.
- Prevent unnecessary insolvencies.
- Protect jobs.
- Mitigate the effects of inflation.
- Preserve a viable competitive market structure for non-domestic energy contracting in UK.

In line with these objectives, an overarching ToC was developed, as presented in *Figure 1.1*, followed by more detailed logic models for the EBRS (*Figure 1.2*), EBDS (*Figure 1.3*) and NDAFP (*Figure 1.4*).

Figure 1.1 Non-domestic energy affordability support schemes (GB and NI) overarching logic model

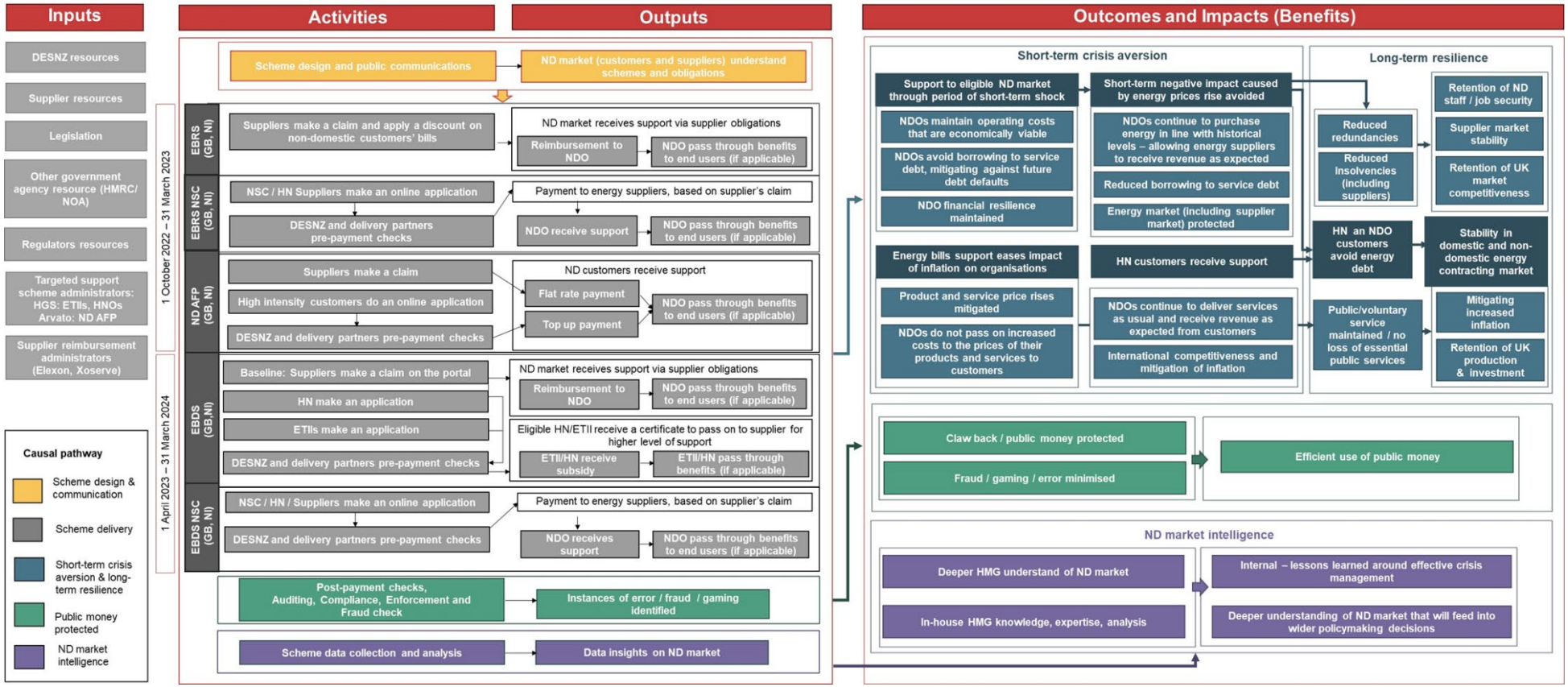


Figure 1.2 EBRS overarching logic model

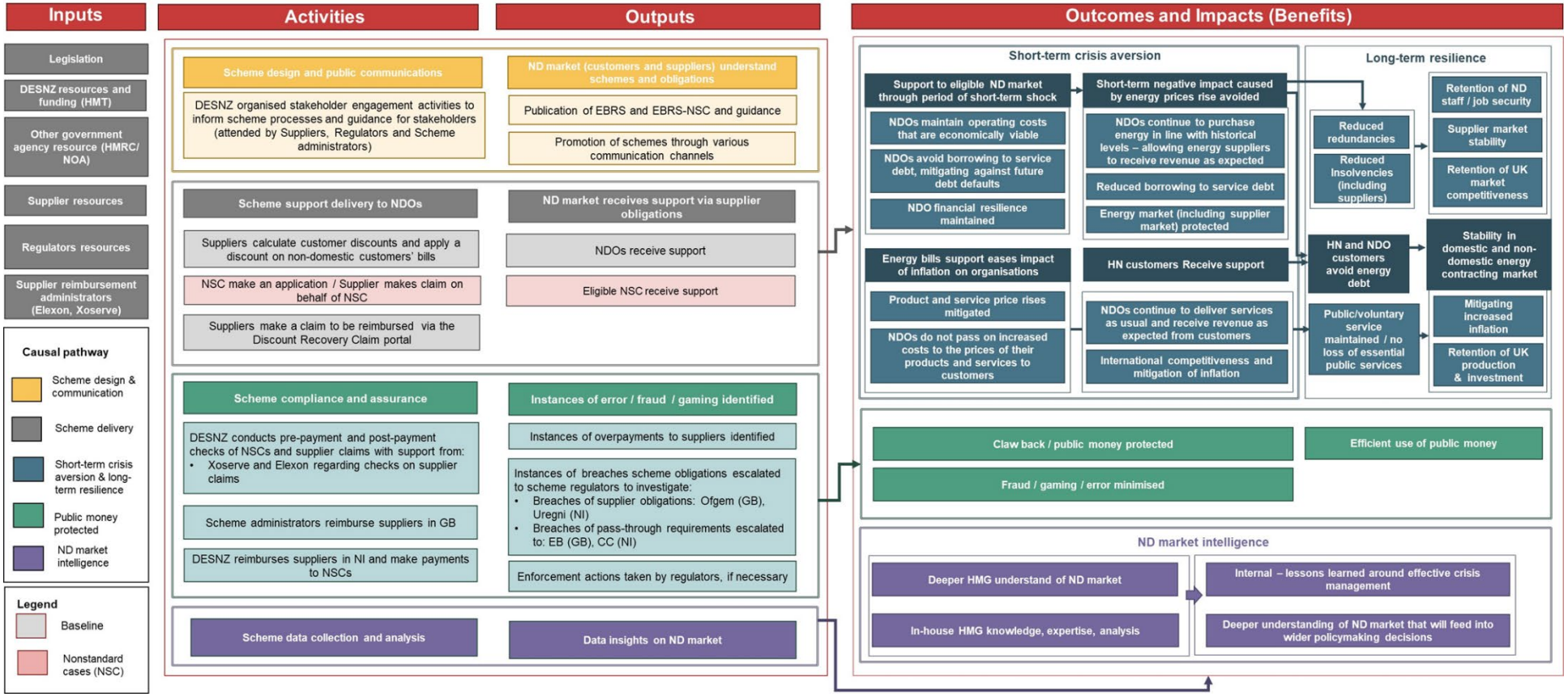


Figure 1.3 EBDS overarching logic model

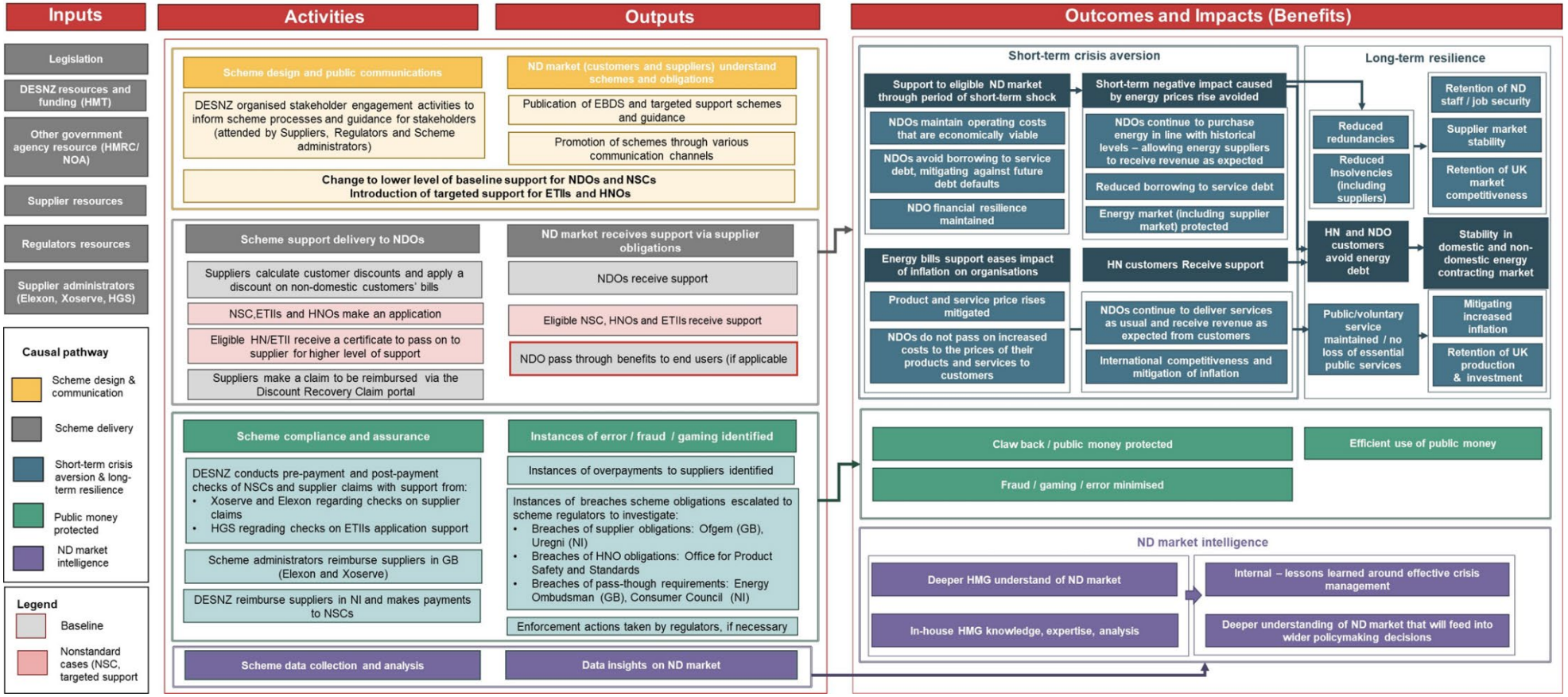
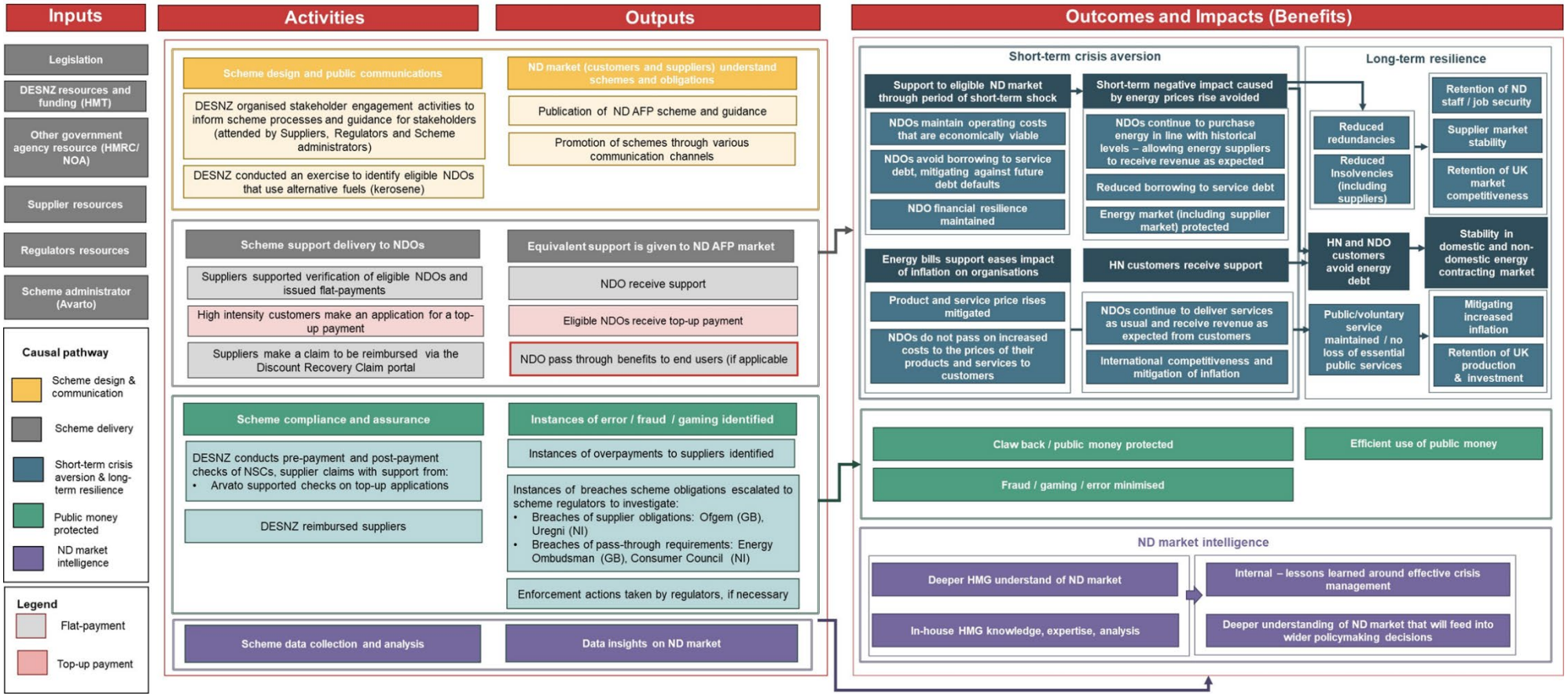


Figure 1.4 NDAFP overarching logic model



The following section describes the government inputs, activities and outputs for the schemes and how they are expected to contribute to intended scheme outcomes and impacts. The sections highlight the specific differences between the schemes and the associated risks and assumptions.

Inputs

HM Treasury allocated funding for DESNZ to operationalise and administer the schemes. The level of funding allocated was based on projections of costs. DESNZ presented a range of costs for each scheme to help its decision-makers and those at HM Treasury to consider the potential costs. Costs were approved within DESNZ by the Portfolio and Investment Committee and by HM Treasury. Actual costs can be found in section 7.2.1 of the Main Report.

The Energy Prices Act 2022[2] provided the legal basis to establish the schemes, which ensured scheme benefits were passed on to consumers, and provided for an effective compliance and enforcement regime. Subsequent regulations have been made under these powers.

Activities

Scheme design and communication activities

DESNZ policy and delivery expertise was used to develop the scheme delivery design and communication plan for the schemes.

DESNZ conducted rapid background research and stakeholder engagement to build an evidence base and gather feedback; this evidence supported scheme design to ensure mechanisms were in place to capture all target organisations. This revealed coverage gaps for some types of organisations in the initial proposed design for EBRS and further support was launched in response, including:

- **NDOs that procure their energy from license-exempt suppliers**: EBRS for Non-Standard (NS) customers was launched that provided comparable support to the general EBRS for NDOs that procured gas or electricity from license-exempt providers.
- **NDOs using alternative fuels**: the Non-Domestic Alternative Fuel Payment (NDAFP) scheme was launched to provide support for NDOs that used alternative heating fuels, such as kerosene.
- **NDOs based in Northern Ireland**: Although Northern Irish energy policy is devolved, a lack of a sitting executive during the energy crisis risked Northern Irish organisations being left without support. It was therefore decided that the energy support schemes should be extended to Northern Ireland (NI) to provide support that was equivalent to the schemes in Great Britian (GB).

As energy prices began to fall from their peak in early 2023 and forecasts predicted further cost reductions, a treasury-led review concluded that extending EBRS was not appropriate, and that a more targeted support scheme was a preferable option. The EBDS was introduced

[2] Energy Prices Act 2022: www.legislation.gov.uk/ukpga/2022/44/contents/enacted

to provide a lower level of support to NDOs, while continuing to limit exposure to volatile energy markets. It was also recognised that certain types of organisations may need higher levels of ongoing support. Targeted application-based sub-schemes were introduced to provide additional support to energy and trade intensive industries (ETIIs) and heat network operators (HNOs) that serve domestic customers. EBDS was designed to provide support to NDOs in Great Britian and Northern Ireland.

DESNZ organised supplier engagement activities which helped to inform a series of rules and guidance documents for the various stakeholders involved in, and benefitting from the schemes (energy suppliers, scheme administrators, scheme regulators and trade bodies). This guidance set out how the support levels were calculated, the schemes' operations and obligations, as well as the use of personal and business data, in relation to the administration of the schemes in both GB and NI.

DESNZ communicated, via gov.uk, information about the support schemes, including the eligibility criteria and application process details for targeted support. Suppliers, scheme regulators (Ofgem and UREGNI) and HNO trade bodies also supported communication of schemes through a variety of channels, including website content, social media and direct engagement via customer service teams.

Output: Non-domestic market is aware of the schemes and understands the benefits, resulting in suppliers and intermediaries meeting scheme obligations and eligible NDOs making applications for support to relevant schemes.

The main assumptions and external factors or risks that would have affected the ability of the schemes to achieve the intended output arising from scheme design and communication activities are presented below.

External factor / risks

- Data is not available to identify and contact all NDOs eligible for targeted support schemes.
- Data is not available to identify and contact all intermediaries (e.g. HNOs) to make them aware of the obligation to pass-through benefits to end users.
- Communication channels to broadcast the schemes may not reach all appropriate potential beneficiaries.
- Insufficient time in fast paced scheme design process to produce effective communications, raises potential risks in scheme rules, guidelines and obligations not being clear to NDOs, suppliers and intermediaries.

Assumptions:

- Suppliers have sufficient capacity and understanding of the schemes to respond to customer queries.

Delivery of support to NDOs activities

DESNZ oversaw the administration of the schemes and was supported by a number of external organisations.

EBRS support delivery activities

EBRS support was delivered through licensed energy suppliers that applied scheme discounts to non-domestic customer energy bills in line with scheme guidance. For EBRS NS, which provided comparable support to NDOs that procure energy through licence-exempt suppliers, eligible NDOs or their supplier needed to make an application to receive support and, if successful, NDOs received reimbursement in arrears from their energy supplier.

NDAFP support delivery activities

NDAFP scheme support was provided through two mechanisms. Energy suppliers issued a flat payment of £150 to eligible NDOs. DESNZ provided a list of potentially eligible NDOs based on existing data for off-gas grid properties and worked with electricity suppliers to validate eligibility. Higher levels of support were available through a top-up scheme, where customers could provide evidence (through an application) that their property consumed more than 10,000 litres of kerosene per year. This higher support level was applied across four tiers based on consumption level, from £750 to £5,800 (with higher payments for the highest users). DESNZ was supported by Arvato, who processed applications regarding NDAFP top-up payments, and edge cases for organisations that needed to apply for the flat payment. HMRC provided data on kerosene purchases made by NDOs.

EBDS support delivery activities

EBDS support was delivered through the same process as the EBRS, where suppliers applied discounts to non-domestic customer energy bills in line with scheme guidance. There were three additional elements of EBDS that targeted specific groups of NDOs not covered by the baseline EBDS support:

- **EBDS NS**: Support for those that received gas or electricity from license-exempt providers, comparable to the baseline level of support.
- **EBDS for ETIIs**: Provided a higher level of EBDS support for organisations particularly vulnerable to energy prices due to their intensive usage of energy and trade exposure. Eligible ETII organisations were ultimately defined using UK Standard Industrial Classification of economic activities codes (SIC codes), which provide a standardised classification of organisations based on their activity. To be eligible for additional funding under this sub-scheme, organisations needed to be able to evidence that at least 50% of their annual revenue (or, for public sector organisations, 50% of their floorspace usage) fell under at least one of a list of eligible SIC codes.
- **EBDS for HNOs**: Provided a higher level of EBDS support to HNOs to ensure that domestic heat network customers did not face disproportionately higher energy bills

than consumers in equivalent households who were supported by the Energy Price Guarantee.

HNOs and ETIIs needed to apply for targeted support, and if successful, received it in addition to baseline EBDS support. For EBDS NS, organisations also had to apply and if eligible received support. DESNZ was supported by Hinduja Global Solutions (HGS), who processed applications for ETIIs and HNOs under EBDS.

Pass-through support activities

Across all non-domestic support schemes, intermediaries (e.g. landlords or HNOs that hold an electricity or gas contract and pass on the costs of the energy supplied under the contract to end users) were required to pass this support on in a just and reasonable way to end users in a timely and practical manner.[3] Under EBDS, all HNOs with domestic end users were required to apply for the higher level of HNO support and pass-through the benefits to end-users.

Suppliers' claim and reimbursement activities

The government compensated suppliers for providing scheme support to non-domestic customers. For gas and electric claims, suppliers made an application for reimbursement via the Discount Recovery Claim portal. DESNZ oversaw pre-payment and post-payment checks of suppliers' claims for reimbursement for EBRS and EBDS. This work was supported by two scheme administrators: Elexon, who processed supplier claims for electricity reimbursement in the GB and Xoserve, who processed supplier claims for gas reimbursement in the GB. DESNZ made payments directly to suppliers in NI. Xoserve and Elexon also assisted DESNZ with clawback of overpayments made to suppliers.

For the NDAFP scheme, suppliers provided DESNZ with a list of NDOs they believed to be eligible for the flat payment, and once confirmed by DESNZ, received a payment equal to the number of eligible customers multiplied by £150.

Outputs

- Payments are made to suppliers that apply the discount / provide payment on ND customer bills.
- Intermediaries pass-through benefits to end users.

The main assumptions and external factors or risks that may affect the ability of the schemes to achieve the intended outputs related to the delivery of support to ND organisations activities are presented below.

External factor / risks

- Scheme application requirements are too onerous and deterred organisations from applying.

[3] www.gov.uk/guidance/energy-bills-discount-scheme-heat-networks-support

- Scheme support is not delivered in timely manner to NDOs to mitigate against energy price rises.
- Suppliers are under-resourced and cannot mobilise quickly enough to provide payments / discounts to end users in sufficient time for them to still be operating.
- End users were unaware of entitlement on pass-through requirements / do not have resources or support to pursue civil court proceedings in cases where intermediaries do not pass-through benefits.

Assumptions:

- Intermediaries understood their legal obligations on pass-through requirements.
- Level of payment offered is sufficient to incentivise NS customers, ETIIs and high-intensity Alternative Fuel organisations to take the time to complete an application for support.

Scheme compliance and assurance activities

All schemes were designed to include processes to avoid overpayments being made to suppliers and have mechanisms for clawback if necessary. For EBRS and EBDS, compliance activities mainly revolved around suppliers meeting their obligations under the schemes. This typically related to ensuring that suppliers were claiming the correct amounts and then passing payments through to customers.

DESNZ carried out the compliance role for the schemes and where suppliers were in breach of their obligations, cases were referred to the regulators responsible for scheme enforcement (Ofgem in UK, and UREGNI in NI) to investigate and initiate enforcement action if needed. Under EBRS, in the early stages there were some over- or under-claims being made from suppliers. DESNZ determined an ‘acceptable buffer’ that was tracked using a RAG rating system for suppliers who over- or under-claimed. This allowed suppliers to have some flexibility to recalibrate claims in following payment rounds to account for over- or under-claims in a current round. This system helped DESNZ to identify suppliers that may become non-compliant in future, by noting potential over-claimants.

For cases where HNOs were in breach of their obligations, DESNZ referred non-compliance cases to OPSS (Office for Product Safety & Standards), who were responsible for enforcement of HNO obligations.

Pass-through requirements were legislated such that customers had legal redress if suppliers or intermediaries did not pass discounts through to them. The Energy Ombudsman was responsible for addressing complaints of heat network consumers in GB who raise a complaint that they had not received pass-through benefits of the schemes. The Consumer Council fulfilled a similar role in relation to heat network consumers in NI. EBDS added further protections for domestic HNO customers through a legal obligation placed upon all HNOs with domestic end consumers to apply for the higher level of support under EBDS.

For targeted application support (NS schemes, NDAFP top-up, ETIIs and HNOs) evidence needed to be provided by the NDO (or by the supplier in the case of the NS schemes), which was then verified by DESNZ and scheme administrators to check they were eligible before receiving support.

Output: Error, fraud and gaming data analysis activities lead to the identification and prevention of instances of error, fraud and gaming.

The main assumptions and external factors or risks that would have affected the ability of the schemes to achieve the intended outputs related to scheme compliance and assurance activities are presented below.

External factor / risks

- Gaming/Fraud is too sophisticated to be identified.
- Data quality issues affect ability to robustly carry out pre- and post-payment checks.

Assumptions:

- Spend on activities to reduce error, fraud and gaming is proportionate to the level of public money that is anticipated (and actually) protected.

Outcomes and Impacts (benefits)

The scheme activities and outputs were expected to lead to four main benefits relating to:

(1) Short-term crisis aversion and (2) long-term resilience

The support schemes are anticipated to positively impact short- and long-term financial health of NDOs, mitigating, to a certain extent, the adverse effects of escalating energy prices in seven main impact areas, as summarised below. Annex C: Contribution Analysis Framework Appendix provides updated contribution claims tailored to each scheme.

- **Protecting jobs**: Scheme support is expected to contribute to protecting jobs from termination by supporting organisations with high energy bills to maintain the operating costs at a level where redundancies are not necessary.
- **Preventing insolvencies**: Scheme support is expected to contribute to mitigating against businesses (with high energy costs) making short-term decisions to declare insolvencies by helping them to maintain their operating costs at a level which is economically viable.
- **Preventing borrowing**: Scheme support is expected to reduce the extent to which organisations make short-term decisions to increase borrowing to bridge gaps in cashflow that can translate into a rise of redundancies and insolvencies when debt repayments are expected in the future.

- **Mitigating inflation**: Scheme support is expected to mitigate against NDOs passing on increased costs to the prices of their products and services to their customers. This contributes to mitigating the effects of energy price rises on inflation of goods and services.
- **Preserving a viable market for energy contracting in NDO sectors**: Scheme support is expected to provide stability for suppliers and maintain a competitive structure through mitigating against unnecessary insolvencies among suppliers. The scheme support is anticipated to prevent a potential reduction in energy consumption by NDO customers and non-payment of bills to suppliers. Consequently, NDOs are able to continue to purchase energy in line with historical levels – allowing the energy market to retain resilience and suppliers to receive revenues as expected.
- **Maintaining international competitiveness of UK Energy and Trade Intensive (ETIIs)**: as other countries across Europe implemented energy subsidy schemes, support to UK firms helped to ensure increased energy costs did not put them at a competitive disadvantage**.**
- **Helping HN customers to avoid energy debt**, **fuel poverty and household borrowing**: Scheme support is expected to benefit heat network customers as a result of support being passed through from HNOs. This is expected to help domestic heat network customers avoid energy debt, fuel poverty and household borrowing.

Outcomes:

- NDOs with high energy bills maintain operating costs that are economically viable
- NDOs with high energy costs do not pass on increased costs to the prices of their products and services to customers
- NDOs avoid borrowing to service debt
- NDO financial resilience maintained
- NDOs continue to purchase energy in line with historical levels
- NDOs continue to deliver services as usual and receive revenue as expected
- Energy market (including supplier market) protected
- Protected jobs – reduced redundancies
- Reduced insolvencies (including suppliers)
- Public/ voluntary service is maintained / no loss of essential public services

Impacts:

- Retention of UK production and investment
- Retention of UK market competitiveness
- Retention of ND staff / job security
- Mitigating increased inflation
- HNO customers avoid energy debt
- Stability in non-domestic energy contracting market

The diagrams below focus on the causal pathways to impact related to protecting jobs, preventing insolvencies and preserving viable energy market (*Figure 1.5*) and mitigating increased inflation (*Figure 1.6*). While the pathways are indicated in the logic models for the schemes, these diagrams illustrate the external factors that may influence the intended impacts being achieved. This informed the consideration of which external factors needed to be explored in the Contribution Analysis.

Figure 1.5 Casual Pathway – protecting jobs, preventing insolvencies and preserving viable energy market

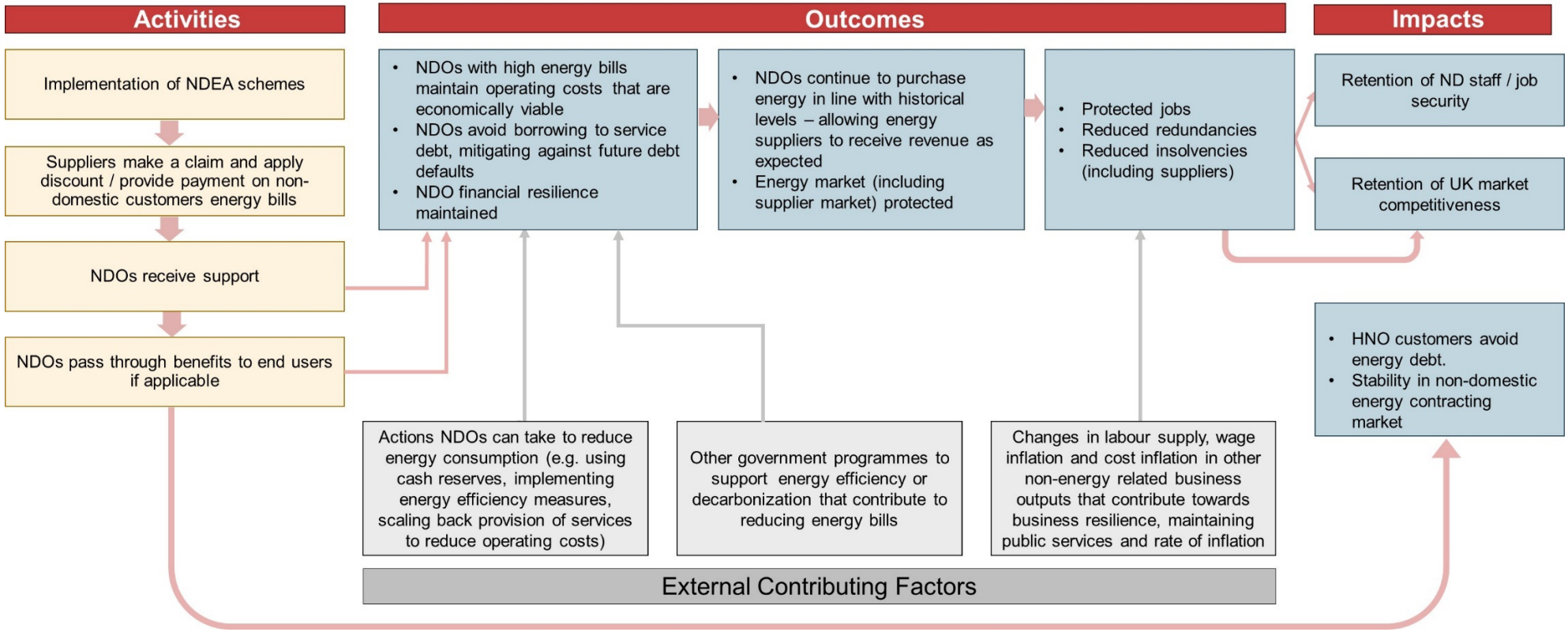
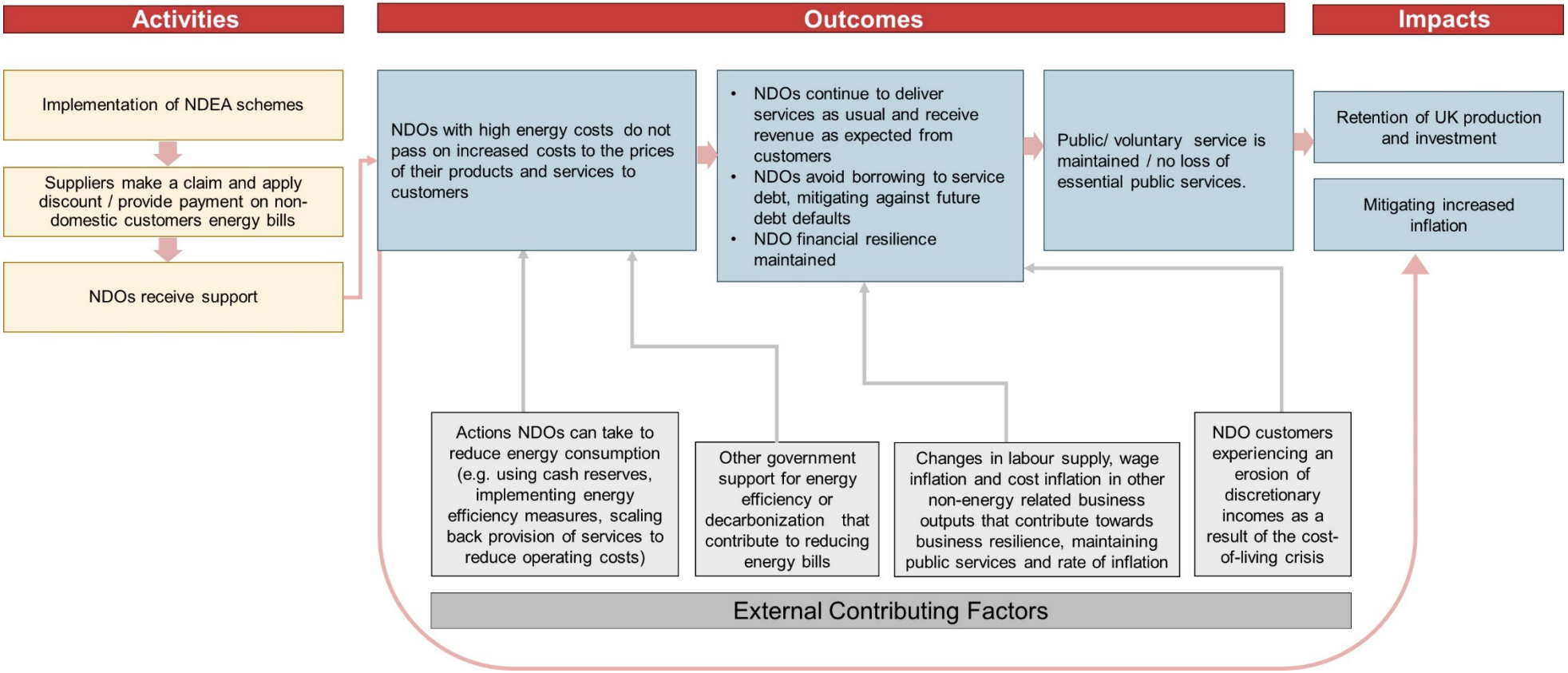


Figure 1.6 Casual Pathway – mitigating increased inflation



The main assumptions and external factors or risks that would have affected the ability of the schemes to achieve the intended outcomes and impacts related to short-term crisis aversion and long-term resilience are presented below.

External factor / risks

- Scheme support does not equate to a sufficient level of reduction in operating costs to influence decisions on redundancies.
- Scheme support does not equate to a sufficient level of reduction in operating costs to influence decisions on insolvencies.
- Scheme support does not equate to a sufficient level of reduction in operating costs to prevent borrowing to service debt.
- Level of scheme support is not sufficient value to a business/public sector organisation to materially affect longer term business investment decisions.
- Scheme support does not equate to a sufficient level of reduction in operating costs to prevent NDOs passing on increased costs to the prices of their products and services to customers.
- The cost-of-living crisis means customers experience an erosion of discretionary incomes. This results in NDO receiving less revenue from their customers than expected, affecting their financial resilience.

Assumptions:

- Scheme support is needed as NDOs do not have other means to mitigate against the energy crisis.
- Other larger, structural, or pre-existing shocks to longer term economic outlook exist that are unrelated to energy price shocks. For example, changes in labour supply, wage inflation and cost inflation of other non-energy related business inputs. These and sector specific trends contribute towards impacts such as business resilience, investment, maintaining public services and rate of inflation.

(3) Protecting public money

All support schemes were designed to include processes to avoid overpayments being made to suppliers and have mechanisms for clawback if necessary. Scheme compliance and assurance activities are expected to lead to the identification of instances of error, fraud and gaming.

Pre- and post- payment checks of supplier claims and assessment of eligibility for targeted support schemes allow for reduction in instances of gaming, fraud and funds allocated in error. Clawback recovers funding from suppliers that have been overcompensated in error. Together, fraud minimisation, reduced instances of gaming, and clawback, result in an efficient use of public money.

Outcomes:

- Public money protected
- Fraud / gaming / error minimised

Impact:

- Efficient use of public money

The main external factors or risks that would have affected the ability of the schemes to achieve the intended outcomes and impacts related to protecting public money identified:

- Compliance mechanisms were not sufficient to ensure suppliers and HNOs meet their obligations.
- Clawback is too late to recover funds. For example, some suppliers enter into insolvency.

(4) ND market intelligence

The analysis of data collected during scheme implementation by DESNZ is expected to lead to a deeper understanding of NDO behaviour during the period of support, including non-domestic consumption patterns, supplier behaviour, and fraud and gaming practices. Furthermore, conducting in-house analysis within government is also expected to improve knowledge, expertise and analytical tools for assessing non-domestic energy use and costs. Thus, the improved understanding, knowledge, expertise and analytical techniques should provide internal lessons for effective crisis management in the energy sector for the future. This deeper understanding of the non-domestic market and filling of existing data gaps within government understanding is expected to provide insights to inform wider policy making.

Outcome:

- Deeper HMG understanding of the ND energy market. The improved in-house HMG knowledge, expertise, and analysis helps to inform future policy development.

Impact:

- Internal – lessons learnt around effective crisis management.
- Deeper understanding of ND market that will feed into wider policymaking decisions.

The main assumptions that would have affected the ability of the schemes to achieve the intended outcomes and impacts related to ND market intelligence are presented below.

Assumptions:

- Data accuracy – sufficient metering and sub-metering data exists and data on consumption and contracts (including contract type - fixed/variable/flex, tariff and dates) is accurately reported by suppliers to enable accurate reporting of energy consumption patterns and billing across industrial and public sectors, and within different business units of the same organisation.
- Data collected can provide the answers to questions that wider policy makers want regarding ND consumption patterns.
- Institutional knowledge within government is retained following new data around energy schemes.
- Data can be leveraged over the longer term beyond the lifetime of the support i.e., assumes data does not become obsolete as time elapses since support ended and wider market dynamics evolve.

2. Contribution Analysis

2.1 Methodology for contribution analysis

The Contribution Analysis (CA) assesses the contribution that the schemes have made to the impacts identified in the Theory of Change (ToC), at portfolio and scheme level. This provides a framework to support triangulation of evidence to address the high-level impact evaluation questions below.

- *To what extent have the schemes achieved their stated objectives? To what extent have the schemes been effective in supporting stakeholders (non-domestic organisations, suppliers) through the energy crisis?*
- *What were the impacts of the interventions? For each of these impacts, how do they vary by different sub-groups of the population (including based on which scheme they are eligible for, organisation type, size, industry, and those vulnerable to energy price rises i.e. energy intensive industries)?*

As an impact evaluation method, the CA was focused on evaluating the contribution of the schemes to their intended impacts and benefits. It was not used to address all the evaluation questions. The process evaluation questions were addressed through a more inductive analysis (drawing conclusions from the results, without testing a prior theory). For example, a process evaluation question sought to understand an ETII organisation's experience of applying for support online and how this application process might be improved. In this case, the interviews obtained views from participants on suggestions for improvement. Findings were analysed "bottom-up" to code them into emerging common themes. This did not require developing a prior hypothesis or contribution claim to test in advance.

The CA focused on the evaluation questions which relate to whether the intended impacts and core objectives of the schemes have been realised. As outlined in the scheme's original business cases, these include:

- Support economic growth.
- Prevent unnecessary insolvencies.
- Protect jobs.
- Mitigate the effects of inflation.
- Preserve a viable competitive market structure for non-domestic energy contracting in UK.

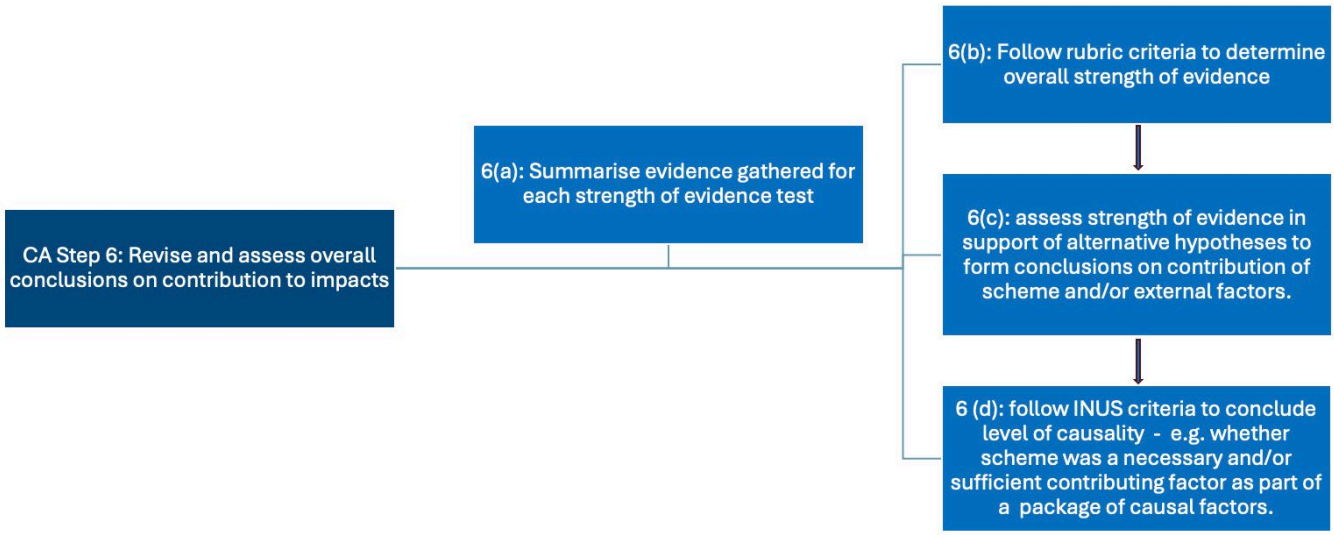
The CA did not involve additional strands of data collection. It is an analytical approach to triangulate evidence across the other strands of primary data collection and secondary sources. CA consists of six iterative steps to develop, test, and refine causal claims within the ToC as set out below.

- **Step 1 - Set out the cause-effect issues and evaluation questions to be addressed.** The high-level evaluation questions to be addressed are summarised in the introduction to this chapter.
- **Step 2 - Develop a postulated Theory of Change (ToC) and risks to it, including rival explanations**. An initial ToC was developed in the scoping stage of the evaluation and then updated ahead of Stage 2 fieldwork in summer 2024. The section below elaborates on the causal pathways further, with a series of 'contribution claims' to be tested through the evaluation. Contribution claims describe how the policy mechanisms are expected to lead to specific outcomes. A series of bespoke evidence tests were developed. These set out what evidence (from which source) should be observed if a contribution claim or hypothesis holds true (i.e., that a change in outcomes was driven by the schemes). CA recognises that interventions exist within an external context which will affect their contribution to impacts. External factors may contribute to, or limit, the intervention's impact. As such, alternative explanations were also formulated alongside the contribution claims.
- **Step 3 - Gather evidence to assess the strengths and weaknesses of the links in the ToC.** Stage 1 fieldwork (winter 2023/24) was the first round of primary data collection. This included surveys of beneficiary organisations and a programme of qualitative interviews with various stakeholder groups, plus analysis of a range of secondary sources.
- **Step 4 - Assemble and assess evidence on the contribution claims and challenges to it.** This involved assessing the strengths and weaknesses in the ToC in light of findings from Stage 1 fieldwork, the relevance of the other influencing factors, and the evidence gathered to assess rival explanations. The interim findings from Stage 1 informed revisions to the ToC and contribution claims ahead of Stage 2 fieldwork. Where there were evidence gaps at Stage 1, these were factored into the next round of fieldwork. Annex C: Contribution Analysis Framework Appendix was updated to provide revised contribution claims for Stage 2.
- **Step 5 – Seek out additional evidence to fill gaps in assessing the contribution claims.** Stage 1 provided an interim assessment of outcomes the schemes contributed to and a summary of the strength of evidence to date. The follow-up Stage 2 research and analysis explored this further, to fill gaps, before overall conclusions were made on the extent to which the schemes contributed to observable benefits or disbenefits (see Main Report for findings and conclusions).
- **Step 6 – Revise and strengthen the contribution story.** The Stage 2 impact evaluation formed overall conclusions on the contributions the schemes made to assessed impacts. The final contribution claims are essentially a verified theory on whether the schemes contributed to intended impacts, with other influencing factors accounted for.

The final step of the CA mapped out the evidence supporting the contribution claims and alternative explanations alongside a summary of the assessed strength of this evidence. This fed into overall conclusions about the necessity and sufficiency of each of the schemes' contribution to their intended impacts alongside the contribution of other factors. The sequence

of steps taken within this final stage (6) of Contribution Analysis are illustrated in the figure below. The section below the diagram explains each step.

Figure 2.1 Steps taken to assess evidence and form conclusions



Step 6(a) - The approach to assessing the strength of evidence and synthesising data across multiple sources has been informed by a framework developed by Delahais & Toulemonde (2017).[4] This framework uses four criteria to assess the strength of evidence as set out below. These have been considered in terms of how they can be applied to the specific context of this evaluation and the nature of the evidence available.

- **Authoritative source:** indicates "a piece of evidence which has already passed a thorough test under the responsibility of credible authorities (e.g., peer reviewed papers) in so far as the point at issue is not in dispute among differing authorities". For this evaluation, we considered the following to be examples of authoritative sources: data on rates of insolvencies and redundancies based on ONS published statistical series, data on employment trends based on official statistics sources such as the Labour Force Survey or the Quarterly Public Sector Employment Survey, and the scheme administration data sources, such as data on numbers of claimants to a scheme and the £value of support provided through each scheme.
- **Triangulation:** sources that are independent from one another in so far as they stem from stakeholders having different vested interests. Pieces of evidence originating from such sources are mutually reinforcing as far as they converge. For example, (i) interview findings with business representatives of an energy intensive sector suggest the scheme enabled them to maintain operating costs at an affordable level to prevent job losses, then (ii) analysis of employment rates by energy intensive sector verifies this trend.
- **Consistent chronology:** this is never a sufficient argument for confirming a contribution claim, but it may be used for refuting an assumed contribution or theory. This is similar

[4] Thomas Delahais, Jacques Toulemonde (2017) Making rigorous causal claims in a real-life context: Has research contributed to sustainable forest management? In Evaluation, Vol 23, Issue 4, pp. 370 – 388.

to the 'Hoop test' commonly used in Process Tracing. For example, if EBRS had an impact on mitigating against insolvency among businesses struggling to pay energy bills, then we would expect to observe a trend in the rate of insolvency reducing after introduction of the scheme. However, if the rate of insolvency was reducing at a rate consistent with months prior to EBRS being introduced, this would suggest trends were driven by other market forces.

- **Signature:** this occurs when X (the intervention) causes Y and leaves a trace/signature that points unequivocally back to X. This is similar to the 'Smoking Gun' test commonly used in Process Tracing. For example, a business with high energy costs provides a convincing account of how they were at risk of insolvency due to the spike in energy prices in 2022 and had begun reducing or winding down their operations. Subsequently, the level of discount provided by EBRS was sufficient to make operating costs economically viable again, and level of production reverted to pre-crisis levels. Evidence of the winding down, followed by resuming the level of production, would demonstrate this signature.

The four tests of causal inference above share similarities with the four tests commonly used in Process Tracing, which was an alternative method considered. These are known as; "Hoop test, Straw-in-the-wind, Smoking Gun and Double Decisive". A paper by David Collier (2011)[5] provides a helpful description of their use in Process Tracing (PT). The overall aim is to trace the sequence of events that led to an observable outcome and assess the extent to which a policy intervention was a necessary and sufficient causal factor and/or whether outcomes were driven by external factors. This shares some similar aims with the framework developed by Delahais and Toulemonde, in terms of developing and testing hypotheses to demonstrate what evidence we would expect to see if programme contribution claims are true (based on a ToC), as well as evidence that could disprove the ToC or support alternative explanations.

One benefit of the Delahais and Toulemonde framework is that the terminology used is more intuitive and straightforward to communicate to non-specialist audiences, compared with PT tests terms (Hoops, Straw-in-the-Wind, Smoking Gun and Double Decisive).

Process Tracing was considered as an approach for the evaluation, but does not provide as good a fit as Contribution Analysis. An inherent feature of PT is that it is intended as a case-based approach – to assess the causal mechanisms that drive outcomes within a given a case (e.g., a case study) or as part of a qualitative cross-case comparative design (Beach and Pederson, 2011).[6] It works best in policy or programme evaluations based on small-n sample designs – where the causal steps that lead to an outcome can be unpicked within each case. The schemes provided universal support to large populations of non-domestic organisations. Key data sources to be used include large scale surveys, a programme of interviews, programme level data on support provided, and large data sets such as energy meter data. Case studies were not a feature of the commissioned approach. Any approach based primarily on case studies or small-n qualitative cross-case comparison would have limitations of weak

[5] David Collier (2011). Understanding Process Tracing. Political Science and Politics 44, No. 4 (2011): 823-30
[6] Beach and Pederson (2011). What is Process-Tracing Actually Tracing? The Three Variants of Process Tracing Methods and Their Uses and Limitations. APSA 2011 Annual Meeting Paper.

external validity given the large and highly diverse population of beneficiary organisations. We therefore opted for a Contribution Analysis, without Process Tracing.

Step 6(b) - Using the Delahais and Toulemonde framework alongside Contribution Analysis, each strand of evidence collected was categorised as authoritative, triangulated (in combination with other pieces of evidence), chronological and/or signature. A framework with a set of criteria was then used as a rubric to consider the overall strength of different pieces of evidence to one contribution claim or alternative explanation. The table below provides an overview of these criteria.

Table 2.1 ***Criteria for assessing the strength of multiple pieces of evidence relating to one contribution claim/alternative explanation.***

Overall Strength of evidence category	Criteria
Strong evidence in support of contribution claim	Criteria met IF: A) Consistent Chronology tests passed. AND: B) Based on Authoritative source PLUS Triangulated evidence. OR: C) Based on Signature PLUS Triangulated evidence.
Moderate evidence in support	Criteria met IF: A) Consistent Chronology tests passed. AND: B) Authoritative source evidence, OR: C) Triangulated evidence across most sources. However, some inconsistency in findings. Some sources point towards different conclusions - evidence does not Triangulate across all sources.
Limited or weak evidence in support	Criteria met IF: A) Consistent Chronology tests passed. AND: B) Evidence from Signature sources is mixed - for example, findings from interviews show some stakeholders' views support claim, with some evidence to refute it. C) Evidence not based on Authoritative source.
No evidence in support.	Criteria met IF: A) Consistent chronology tests fail. AND/OR: B) No evidence in support of contribution claim across other sources.

The CA framework and strength of evidence criteria were initially developed prior to evaluation fieldwork. The final categorisation of evidence and classification of strength of evidence, was made at the analysis stage of the impact evaluations (step 6 of CA). It was to be expected that evidence, which were unknown prior to fieldwork, could emerge. For example, interview respondents providing convincing reasons to explain why (or why not) certain schemes resulted in benefits to them, which could not be foreseen prior to analysis.

Step 6(c) - Contribution Analysis acknowledges that (at least for some hypotheses), there may some evidence in support of both the contribution claims and related alternative hypothesis to explain the drivers of outcomes. This was anticipated given many of the impacts in the ToC are not expected to be solely attributable to the energy affordability schemes; for example, mitigating against inflation is difficult to attribute to one factor given changes in the rate of inflation are driven by multiple macro-economic factors. The aim was to provide conclusions on the extent to which the programme was a contributing causal factor, whether outcomes would have happened in the absence of the schemes, or whether the programme contributed alongside other factors to either achieve or expand the scale of outcomes.

The concepts of necessity and sufficiency are commonly used by theory-based evaluation practitioners as a means of analysing the causal contribution of different factors (e.g., aspects of an intervention and the wider context) to an outcome of interest. This recognises that the intervention on its own may not be sufficient to cause an outcome, but rather acts together as part of a causal package of factors to contribute to an outcome. In summary, a ‘sufficient’ condition is a causal factor with enough explanatory power to cause the outcome on its own. A necessary condition is one that must be present for the outcome to occur but may be part of a wider causal package of influencing factors that work in combination to produce an outcome. This is known as the “INUS causal field”,[7] where contributing factors are: an insufficient (I) but necessary (N) part of a causal package, which is in itself unnecessary (U) but sufficient (S).

Step 6(d) - Drawing upon the INUS concept, a framework was developed with a four-point scale for making conclusions on levels of causality that the intervention of the schemes had in contributing to impacts, as outlined in the table below.

[7] Models of Causality and Causal Inference. Barbara Befani. 2012.

Table 2.2 ***Levels of causality to be used to categorise CA conclusions.***

Level of causality	Description
1	Intervention was sufficient on its own to lead to the intended outputs/outcomes/impacts – they would not have happened without the intervention's inputs and resources and no additional inputs were necessary. In this case the intervention caused the results.
2	Intervention was essential but not sufficient on its own - results would not have been possible without additional support factors – including other resources, pre-existing institutional capacities and capabilities, networks, or other contributing programmes etc. In this case the intervention contributed in a necessary way to the results.
3	Intervention was neither sufficient nor necessary but still contributed – for example it accelerated or increased the scope of an investment that might already have been underway, such as business plans to invest in recruitment. In this case the intervention contributed in a supplementary way to results.
4	Intervention was neither sufficient or necessary – it was likely that something similar would have happened anyway e.g., organisations maintained their levels of energy consumption, or staff headcount, as the levels of energy bill discounts were not large enough to make a material difference to their operating costs and profit margins. In this case the intervention did not cause the observed results.

Annex C: Contribution Analysis Framework Appendix maps the contribution claims to sources of evidence for each contribution claim (hypotheses on how the energy affordability schemes contributed to intended outcomes), as well as corresponding 'alternative explanations' (hypotheses on how outcomes may be caused by external factors). Using the criteria for judging strength of evidence of each claim in Table 2.2 above, this helped determine whether outcomes were primarily driven by programme levers or external factors, or a mix of both.

2.2 Contribution claims

Contribution claims provide a suite of hypotheses on how a programme (or elements of it) leads to outcomes or impacts. They also set out underlying assumptions to be tested, including how observed outcomes may be driven by external factors. The contribution claims have been formulated using the structure that: *X type of energy affordability scheme leads to Y type of impact because of Z underlying programme mechanism*. An example is provided below to illustrate; a) a contribution claim and alternative hypotheses, b) an assessment of the strength

of evidence used to assess these claims and c) an overall conclusion on the contribution of the scheme.

Annex C: Contribution Analysis Framework Appendix provides a set of contribution claims for each of the main impacts/intended benefits outlined in the ToC. In addition, it includes the data sources that were used to assess them, and how evidence was triangulated across sources to draw conclusions. The example below provides a summary of overall strength of evidence and conclusions for one contribution claim.

Example Contribution claim:

EBRS contributes to protecting jobs from termination because the level of discount applied is sufficient to maintain the operating costs of NDOs at a level where redundancies are not necessary.

Alternative hypotheses for any evidence showing an increase in levels of redundancy were:

EBRS did not protect jobs from termination because the level of discount applied was insufficient to avoid organisations having to reduce operating costs through job terminations. Or:

Levels of employment were maintained or increased in some sectors, but this was due to non-energy related market forces (or additional forms of public funding for public sector organisations).

Assessment of overall strength of evidence - contribution claim: EBRS and mitigating risk of redundancies

The first step was to consider whether there are any indicators of the outcome of reduced redundancies being observed (without establishing causality). ONS time series data[8] on the rate of redundancies showed that after the increase in wholesale energy prices, the UK redundancy rate increased from March through to September 2022. After EBRS was introduced, the rate of redundancies began to slightly decrease – from 3.4 per 1000 employees (October 2022) to 2.9 per 1000 employees (February 2023). Whilst this is not evidence of attribution, it is indicative of a trend we may expect to observe for EBRS to have a stabilising effect on redundancies. This is indicates passing the *consistent chronology* test from an *authoritative source*.

The next step was to consider evidence available, across sources, of the EBRS having contributed to reduced redundancies. Findings from the Stage 1 and 2 surveys and qualitative interviews with NDOs *triangulate* with time series trends to suggest that, for certain types of organisations, the EBRS contributed to protecting jobs and mitigating the risk of redundancies - particularly for energy intensive industries and organisations in the voluntary sector. IDBR-Meter analysis indicates the scheme appears to have had greater impact for certain types of energy-intensive sectors (such as manufacturing, chemicals, food products and water

[8] ONS redundancy rate time series UK.

transport), enabling stabilisation and growth of employment and turnover where energy costs are a significant operational factor.

IO modelling was used to analyse the economic impacts of both the energy crisis and the disbursements of the schemes at sectoral level. Two scenarios were conducted: one in which the energy costs shock was introduced by translating changes in energy prices to changes in demand using sector-specific elasticities (in the absence of the schemes), and a second scenario where the schemes were distributed across the economy. For each of these scenarios, the impact on overall economic output, employment, and gross value added (GVA) was estimated across the sectors in the economy.

The amount of support received under the schemes' discount for electricity had a statistically significant relationship with employment at the 99% significance level. This indicates that the schemes were associated with avoided reductions in employment (compared to a counterfactual scenario in which the energy crisis occurred without support), with less than one per cent probability that this relationship occurred by chance.

IO modelling suggests that the NDEA schemes helped to protect around 134,000 jobs, with around 130,000 of these attributable to EBRS. There is a significant relationship between £amount of energy bill discount provided to sectors and their employment rate.

Following the framework's rubric criteria, the overall strength of evidence is considered **strong.**

Assessment of overall strength of evidence – alternative hypotheses

Following the framework's rubric criteria, the overall strength of evidence is considered **limited** when assessing alternative hypotheses that EBRS had no impact on redundancies, or where levels of redundancy reduced, this was driven by other external factors.

Some consistent chronology tests failed. As above, ONS time series data is consistent with EBRS having an effect on redundancy rates. However, there is triangulated evidence from survey/interviews in support of external contributing factors for some types of NDO (e.g. NDOs took other actions to introduce energy efficiency measures or reduced operating costs in other ways and did not have to implement redundancies) or that discounts received were too small to make a difference to them. A few NDOs also stated they did have to make redundancies despite receiving the discount, as energy bills were still high. However, evidence does not support alternative hypotheses that EBRS did not project jobs from termination overall, at a macro-economic level.

Conclusions on causality - contribution to mitigating redundancy (EBRS).

The final step was to provide conclusions on level of causality i.e. whether the EBRS was a necessary contributing factor to reducing redundancies. The level of causality depends on context and characteristics of different types of NDO. For some types of NDOs (including smaller businesses, businesses operating in sectors with high energy usage and low profit margins, and charities) we can reasonably conclude that EBRS contributed to mitigating redundancies. This is considered Level 2 on the causality scale - i.e. EBRS is one contributing factor (necessary), but reduced risk of insolvency is not wholly attributable to EBRS (not

sufficient on its own). Evidence from Alternative hypotheses shows some NDOs also took other actions in response to the rise in energy bills (including adopting energy efficiency measures, or lowering operating costs through other means), which they could undertake before implementing staff redundancies.

For other types of NDO, where energy bills represent a low proportion of operating costs, the discount had no substantive impact on their likelihood of implementing staff redundancies (Level 4).

Assessing impacts for schemes targeting specific groups

The pre-fieldwork evaluation scoping considered applying a similar contribution analysis framework for two other schemes targeting specific groups of NDOs:

- **Non-Domestic Alternative Fuel Payments (NDAFP):** provided support to NDOs that used fuels other than electricity and gas between February and June 2023. The scheme provided support through two mechanisms: a flat payment of £150 (issued automatically) and a top-up payment of between £750 to £5,800 for the largest users of kerosene (organisations needed to apply for this support). Under this scheme, 407,411 organisations received payments, amounting to £62 million. This included £61 million for flat payments to eligible recipients and an additional £1 million for top-up payments.
- **EBDS for Heat Network Operators (HNOs):** Heat network operators (HNOs) supplying domestic customers needed extra support. While most households benefited from schemes like the Energy Price Guarantee (EPG), those using heat networks would have been left unprotected after EBRS ended and therefore required further support. Although HNOs qualified for baseline EBDS support, it was insufficient compared to domestic schemes. Therefore, higher support for HNOs was necessary to ensure their customers received equivalent aid. Around £113 million of support was given to HNOs under the EBDS for HNO scheme.

The approach to Contribution Analysis used for EBDS and EBRS does not fit well for evaluating the impacts within the NDEA ToC when disaggregated by the NDAFP and HNO schemes. The level of discount provided through the schemes is not expected to have a measurable effect on the economic impacts within scope. Payments of £150 account for the majority of NDAFP spend. This level of support is not likely to make a material difference on NDO's risk of redundancy, insolvency, or passing on costs of energy to prices of goods and services. The same point applies to the HNO scheme, in relation to the level of support being too small to impact risks of insolvency or redundancy among HNOs, particularly when energy costs are primarily borne by the tenants of heat network building rather than the HNO organisation.

In addition, the approach to Contribution Analysis involved triangulating findings across multiple data sources to form overall conclusions on contribution to impacts. Data sources include; surveys and interviews with NDOs or wider stakeholders, ONS time series data on economic indicators, analysis of IBDR, energy meter data and IO modelling. Aside from

interviews and surveys it is not feasible to disaggregate outcomes by the NDAFP and HNO schemes specifically from most data sources, leaving limited scope for triangulation.

Evidence on the impacts of NDAFP and HNO schemes is relatively limited (in comparison to EBRS and EBDS). Findings are primarily based on self-reported survey and qualitative interview findings. However, these do provide useful insights on benefits of the schemes, as detailed in the findings in the Main Report.

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