

**ENERGY AND RESOURCE EFFICIENCY PROGRAMMES  
INTERIM EVALUATION - FINAL**



# ENERGY AND RESOURCE EFFICIENCY PROGRAMMES

## INTERIM EVALUATION

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## Glossary of Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AVR	Advisory Visit Report
BCR	Benefit Cost Ratio
CE	Circular Economy
CEC	Circular Economy Coalition
CEIF	Circular Economy Investment Fund
CESF	Circular Economy Strategic Framework
CGP	Collaborative Growth Programme
CIC	Community Interest Company
CPD	Construction and Procurement Delivery
COP	Conference of the Parties
CRM	Customer Relationship Management
DAERA	Department of Agriculture, Environment and Rural Affairs
DBEIS	Department for Business, Energy & Industrial Strategy
DfE	Department for the Economy
EAM	Economic Appraisal Methodology
EC	European Commission
EDO	External Delivery Organisation
EECG	Energy Efficiency Capital Grant
EEF	Energy Efficiency Finance
EELF	Energy Efficiency Loan Fund
EET	Economic Efficiency Test
EQIA	Equality Impact Assessment
ERE	Energy and Resource Efficiency
EREAP	Energy and Resource Efficiency Advisory Programme
ERILs	Energy and Resource-intensive industries
FTE	Full-time Equivalent
GB	Great Britain
GHG	Green House Gas
GVA	Gross Value Added
INI	Invest NI
MAC	Marginal Abatement Cost
NI	Northern Ireland
NIGEAE	Northern Ireland Guide to Expenditure Appraisal and Evaluation
NPSV	Net Present Social Values
PP	Percentage Point
PSM	Private Sector Median
RECEAP	Resource Efficient Circular Economy Accelerator Programme
RECG	Resource Efficiency Capital Grant
REF	Resource Efficiency Finance
RMIS	Resource Matching through Industrial Symbiosis
RNIA	Rural Needs Impact Assessment
SCC	Social Cost of Carbon
SDSP	Sustainable Development Support Programme
SIB	Strategic Investment Board
SMEs	Small and medium-sized enterprises
SPP	Sustainable Productivity Programme
TBL	Triple Bottom Line
TC	Technical Consultancy
UEL	Useful Economic Life
VFM	Value-for-Money
ZWS	Zero Waste Scotland



## EXECUTIVE SUMMARY

### Introduction

Invest NI has commissioned LMK Advisory Ltd to undertake an Interim Evaluation of its suite of Energy and Resource Efficiency (ERE) Programmes, covering the period 1st October 2019 to 31st March 2021. The interventions subject to review include the Energy and Resource Efficiency Advisory Programme (which includes Technical Consultancy (TC) and Resource Matching through Industrial Symbiosis (RMIS)), Resource Efficiency Finance (REF), and Energy Efficiency Finance (EEF).

The Evaluation has been completed in line with all national and regional requirements and guidance.

### The Wider Context

Energy and resource costs represent a significant proportion of businesses' operational and production costs, particularly for those businesses operating in Energy and Resource-intensive industries (ERIs). Understandably then, increasing productivity, efficiency and competitiveness through the reduction of energy and resource consumption is a core business priority. Moreover, there are wider societal benefits, in the form of environmental benefits, that can be realised from businesses engaging in energy and resource efficiency activities including (inter alia) the reduction in CO2 emissions, the diversion of waste from landfill and the reduction in virgin/raw materials and water usage.

Whilst energy and resource efficiency - the process of delivering an equivalent level of output with a reduction in the consumption of energy and/or scarce resources - is not new, the area has been garnering increasing attention from businesses in recent years due to (inter alia) the introduction of legislation and regulatory requirements, significant increases in business' cost base driven by higher energy costs and wider inflationary pressures, and greater pressure being placed on businesses and their supply-chains to demonstrate that they are taking climate change and energy and resource management seriously by taking steps to implement more environmentally-friendly production/operation methods.

However, a significant body of research indicates that there are a variety of barriers that are inhibiting the implementation of energy and resource efficiency measures by businesses, resulting in sub-optimal levels of energy and resource efficiency. Key amongst these include the availability of finance, the length of 'pay-back' periods, the capacity and capability of businesses to implement the measures, uncertainty in relation to the nature and scale of benefits that can be derived etc.

Accordingly, policymakers and economic development agencies (including Invest NI) have, and continue to, place significant focus on incentivising the uptake of energy and resource efficiency measures by the business base through the provision of financial and wider advisory support.

### Overview of Invest NI Suite of ERE Interventions

Alongside grant assistance, advisory services, and specific interventions, to support its aims and objectives, Invest NI provides a suite of specialist advice and capital support to enable Northern Ireland (NI) businesses to enhance their efficiency and resilience through green efficiencies.

Overview of the Invest NI ERE Interventions subject to the Review	
ERE Intervention	Overview
<b>Energy and Resource Efficiency Advisory Programme (EREAP)</b>	
Technical Consultancy (TC)	TC provides Account Managed Invest NI Clients and the wider business base with fully funded advisory support to undertake technical audits and feasibility studies and provide general advice in a range of ERE areas. Brokered by technical advisors from Invest NI's Energy and Resource Efficiency team, the support is administered through a framework of independent technical/sustainable development consultants.

Overview of the Invest NI ERE Interventions subject to the Review		
ERE Intervention		Overview
Resource through Symbiosis (RMIS)	Matching Industrial	Delivered by an External Delivery Organisation (EDO), the RMIS service is based on a circular economy approach which offers Invest NI clients and the wider business base opportunities to convert redundant materials into a resource for another business for mutual benefits, potentially adding value and reducing costs and the environmental impact of all businesses involved.
<b>Resource Efficiency Finance (REF)</b>		
Resource Efficiency Grant (RECG)	Capital	The REF/RECG scheme provides Account Managed Invest NI Clients with up to £40k to invest in resource efficiency equipment/technologies which will reduce the consumption of water and raw materials and minimize waste production thereby generating cost savings, driving productivity and reducing carbon emissions.
<b>Energy Efficiency Finance (EEF)</b>		
COVID-19 Efficiency (EECG)	Energy Capital Grant	The EEF/EECG scheme provides Account Managed Invest NI Clients with up to £80k to invest in energy efficiency equipment/technologies which will reduce the consumption of energy thereby generating cost savings, driving productivity and reducing carbon emissions.

### Strategic Context and Rationale

The review suggests that there was, and continues to be, a clear alignment between the aims and objectives of Invest NI’s suite of ERE Programmes and the strategic imperatives of the Northern Ireland Government (including DfE and Invest NI). Specifically, in line with the Government’s strategic focus, the activities supported through the Programme’s offered the potential to increase levels of productivity and competitiveness of the NI business base, as well as encourage the adoption of more environmentally sustainable operations, through the implementation of measures to enhance their energy and resource efficiency.

Our review indicates that the rationale for the Programme’s introduction was predicated (at that time) on the existence of a number of market failures and wider barriers that were inhibiting businesses from implementing ERE measures in the absence of receiving support. The continued existence of these market failures and barriers, the additional pressures currently being placed on businesses’ cost base and an increasing requirement to demonstrate that they are operating in an environmentally sustainable manner, provide a strong rationale for continued intervention.

Moving forward, Invest NI should continue to ensure that the nature and content of support provided through its suite of ERE interventions, as well as all future SMART targets, are wholly aligned with existing and emerging strategic imperatives most notably those articulated within the DfE 10X Economy Economic Vision (and its associated Key Metrics) and the emerging Circular Economy Strategy.

### Operation and Delivery

The suite of interventions’ delivery models was based around providing the necessary advisory and financial support to Invest NI Account Managed clients and the wider business base (advisory support only) to encourage businesses to identify opportunities and implement measures to enhance their energy and resource efficiency.

Given the demand-led nature of the support, the complexity of the ERE project ultimately taken forward under the TC, REF and EEF Programme very much depended on the stage of the ERE journey that the business resided. That is to say, businesses with previous knowledge and experience in implementing ERE measures were more likely to undertake a project examining the potential impact of implementing relatively more complex ERE measures (which often require more significant levels of investment), vis-à-vis a business with more limited knowledge and experience of implementing the measures.

Our review indicates that a number of exogenous changes in the operating environment (most notably the COVID-19 pandemic) combined to materially negatively impact on levels of demand and uptake of the Programmes (with the exception of REF), as well as inhibit the efficacy of the delivery models adopted under the advisory support (TC and the RMIS service) given the need to transition to virtual as opposed to in-person support.

Notwithstanding this, the feedback from businesses suggests that the models of delivery adopted were, in the main, effective in terms of meeting their specific needs. Whilst the Research Team would broadly concur with this view, we note the following:

- The nature and scale of targets established for the RMIS Service, were in retrospect, too heavily weighted towards maximising levels of activity as opposed to the outcomes from the Service. The nature of the targets, particularly the target relating to Advisory Visits (a key metric which the EDO received contract payments for), had therefore inadvertently served to encourage an overt focus being placed on maximising the quantity of business interactions (which served to identify potential cost savings), as opposed to the depth and quality of interactions (which would potentially have supported a greater realisation of actual cost savings) fostered by the EDO being able to spend more time developing business relationships and facilitating the negotiation of synergies;
- Whilst noting the historical contribution of the RMIS Service to embedding efficiency, and the integral role of industrial symbiosis in facilitating the circular economy model, there is a consensus that the current Service delivery model has served its stated purpose and it needs to evolve to provide the necessary support to embed the circular economy model in a more holistic, systemic manner that embeds innovative practices in an end-to-end, whole system approach (rather than just focusing on redundant materials and waste streams);
- Invest NI could potentially have generated additional demand for, and impact from, its suite of ERE Programmes had the pull-through of businesses across the pipeline line of ERE supports (and in particular from TC to the capital grant assistance provided through REF and EEF) operated in a more effective manner. Specifically, it appears that the ‘mechanics’ underpinning the capital funding schemes (which were administered using competitive (REF) and open calls (EEF) basis) did not facilitate the allocation of funding to recipients of TC support to support the implementation of the actions identified through their respective TC projects;

Whilst noting the merits of Invest NI adopting a competitive call process to administer its capital grant funding (including the ability to identify and select the projects that offer relatively higher levels of VFM, greater budgetary oversight and control, greater management of business’ expectations vis-à-vis a ‘first-come, first-served’ approach) such an administrative approach arguably operates more effectively in instances where discreet support is provided through a standalone intervention. Evidently, based on the feedback from businesses, the approach works less well in instances where there is a pipeline/pathway of support where the ultimate outcome is highly dependent on the receipt of support across interventions; and

- Given the reported affordability constraints that exist across the NI business base, it appears that the maximum aid ceilings that were available through the EEF Programme (20% of eligible costs) may have adversely impacted on both levels of demand for Programme support and the scale of the energy efficiency project that was ultimately implemented by businesses. It is noted however that Invest NI was utilising contingency measures under existing approvals to operate this in-year COVID response scheme. Thus, the level of support needs to be viewed in the context of scheme approvals and the associated grant rate permitted (both under the existing approved schemes, Regional and De Minimis Aid).

Based upon the feedback from businesses and bearing in mind the wider operational constraints placed on the Programmes resulting from the COVID-19 pandemic, we consider that the interventions were, in general, managed and delivered in a proactive and efficient manner by Invest NI and its EDO (in the case of the RMIS Service).

The full-economic cost of delivering the suite of Programmes (and the associated investment projects supported through REF and EEF) during the period under review was c. £8.4m.

### *Performance and Impact*

The calculated levels of Programme and impact additionality (which range from 62% (RMIS Service) to 83% (REF)) should be viewed positively, comparing favourably when benchmarked against other similar interventions including those designed to bring about efficiency improvements in businesses through the adoption of (more) sustainable working practices. Linked to this, whilst noting that many businesses indicated that they had historically invested in measures to enhance their energy and/or resource efficiency, the feedback indicates that the scale of projects implemented with the support of Programmes was considerably higher (particularly in the case where REF and EEF support was provided).

The feedback indicates that the majority of businesses have realised the motives/outcomes for which they availed of support through the suite of interventions, key amongst these including to enhance the business' operational efficiency and make cost savings, reduce the business' impact on the environment, enhance employees and the wider business' productivity, achieve better equipment performance and enhance the business' working environment

The analysis suggests that, to date, the suite of ERE Programmes has contributed £4.3m of net additional GVA to the NI economy. Linked to the discussion around the impact of exogenous changes in the operating environment, it is clear that the COVID-19 pandemic has also negatively impacted (to a greater or lesser extent) the scale of monetary impacts realised by businesses to date. In any such case, it is noted that the projects supported through the suite of ERE Programmes are at a very early stage in terms of the realisation of their lifecycle of benefits, particularly when the investments in ERE measures made through the REF and EEF programmes are examined in terms of their Useful Economic Life (UEL) rather than a standard persistence period (as was projected in the Economic Appraisal). Similarly, we note that the majority of businesses that have not yet implemented the actions identified through their respective TC project, intend to do so. As such, and illustrated in our VFM analysis, the Research Team anticipates that the level of net additional GVA associated with the projects supported will increase materially with the passage of time.

Moreover, the 'Triple Bottom Line' (TBL) and our wider research indicate that there needs to be a wider transition in the approach to assessing VFM in the context of investment decision-making with a greater focus needing to be placed on the monetisation of the environmental impacts made by investment decisions. Arguably, such an approach extends beyond Invest NI's suite of ERE interventions and is equally applicable and relevant to wider investment decision-making at a programme and project level.

From a longer-term sustainability perspective, the feedback from businesses suggests that the suite of Programmes has served to increase businesses' awareness and understanding of how energy efficiency measures can be employed to enhance their sustainability, growth, and competitiveness, the steps that can be taken to reduce its impact on the environment and overall resilience through Green efficiency.

Positively, the Programmes have also contributed to creating a broader attitudinal change to the role and importance of energy and resource efficiency with most businesses indicating that they are now more receptive and committed to adopting ERE measures as a result of the support provided through the suite of Programmes.

At this stage of the Programmes lifecycle (and the lifecycle of the individual projects supported through the Programmes), these non-monetary benefits should arguably be viewed as of equal importance to the aforementioned monetary impacts reported by businesses to date.

#### *Duplication and Complementarity*

Based on the Research Team’s review of other available support in the marketplace during the period under review and the feedback from businesses, there was little/no potential for Invest NI’s suite of ERE Programme to duplicate other support offerings available in the NI marketplace.

Notwithstanding this, our review indicates that there is a potential for Invest NI to better leverage the support available across the suite of ERE Programmes to ensure that businesses are more readily able to transition between the pipeline of advisory and financial supports that are required to meet their ERE needs. In this regard, careful consideration needs to be given to the ‘mechanics’ of how financial support is made available to businesses.

Equally, it appears that there are opportunities for the support available through the suite of Programmes to better support and add value to Invest NI’s wider suite of business supports, most notably the Operational Excellence Programme and the Collaborative Growth Programme (where a number of networks have an overt ‘Green Economy’ focus).

#### *Return-on-Investment and VFM*

The table below provides a summary of the return on investment provided by each of the ERE Programmes. At this interim stage, two of the Programmes (TC and RECG) are providing a positive return based on the investment made by Invest NI, with only one (TC) doing so when the returns are examined on a full-economic cost basis.

Return-on-Investment across the ERE Interventions					
Intervention	Net Additional GVA	Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
<b>EREAP</b>					
TC	£986,105	£614,777	£1: £1.60	£614,777	£1: £1.60
RMIS	£334,156	£524,200	£1: £0.64	£524,200	£1: £0.64
<b>EREAP</b>	<b>£1,320,261</b>	<b>£1,138,977</b>	<b>£1: £1.16</b>	<b>£1,138,977</b>	<b>£1: £1.16</b>
<b>REF</b>					
RECG	£2,592,519	£1,496,872	£1: £1.73	£5,531,484	£1: £0.47
<b>EEF</b>					
COVID-19 EECG	£424,736	£448,283	£1: £0.94	£1,751,103	£1: £0.24
<b>All Interventions</b>	<b>£4,337,516</b>	<b>£3,084,132</b>	<b>£1: £1.41</b>	<b>£8,421,564</b>	<b>£1: £0.52</b>

However, the Research Team would urge caution in placing an overt focus on the return on investment provided to date as an appropriate indicator of VFM on the basis that the businesses are at a relatively early stage in terms of the realisation of monetary benefits from the investment made. Whilst a fully informed assessment of the monetary return on investment can only be taken in the longer term, subject to the continued usage of the energy and resource efficiency measures, the identified return-on-investment ratios are likely to materially increase (as illustrated in the projections presented in the tables overleaf).

Projected Return-on-Investment across the ERE Interventions (5 years)					
Intervention	Net Additional GVA	Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
<b>EREAP</b>					
TC	£1,809,802	£614,777	£1: £2.94	£614,777	£1: £2.94
RMIS	£785,904	£524,200	£1: £1.50	£524,200	£1: £1.50
<b>EREAP</b>	<b>£2,595,706</b>	<b>£1,138,977</b>	<b>£1: £2.28</b>	<b>£1,138,977</b>	<b>£1: £2.28</b>
<b>REF</b>					
RECG	£9,072,716	£1,496,872	£1: £6.06	£5,531,484	£1: £1.64
<b>EEF</b>					
COVID-19 EECG	£1,765,957	£448,283	£1: £3.94	£1,751,103	£1: £1.01
<b>All Interventions</b>	<b>£13,434,379</b>	<b>£3,084,132</b>	<b>£1: £4.36</b>	<b>£8,421,564</b>	<b>£1: £1.60</b>

Whilst the Research Team's projections above have been limited to 5 years post-project implementation (in-line with the levels of persistence identified in the Economic Appraisal), the average payback periods identified (e.g., 4.4 years in the case of EEF) suggest that businesses anticipate deriving cost-saving benefits beyond the 5 years to realise a positive return on their investment. Reflecting this, consultation with Invest NI's ERE Team indicates that the UEL of the equipment/technology that businesses have invested in will, in the majority of cases, exceed 5 years (potentially 10+ years in many cases). The Research Team's longitudinal analysis of the impact made by the investments made through REF and EEF over the course of their UEL illustrates a positive return on investment both in terms of the costs to Invest NI and the full-economic cost (as illustrated below).

REF and EEF Projected Return-on-Investment over the measures UEL					
Intervention	Net Additional GVA	Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
<b>REF</b>					
RECG	£21,437,074	£1,496,872	£1: £14.32	£5,531,484	£1: £3.88
<b>EEF</b>					
COVID-19 EECG	£3,983,328	£448,283	£1: £8.89	£1,751,103	£1: £2.27

With this in mind, and mindful of the wider impacts made by each of the interventions (including their contributions towards Invest NI intervention principles), the review suggests that all 4 Programmes continue to offer the potential to provide VFM, albeit a fully informed assessment can only be taken in the longer term.

#### *Future Resourcing Needs of Invest NI's ERE Team*

In addition to the need to allocate appropriate levels of human and financial resources to administer any new energy efficiency scheme, its implementation is likely to place additional demand on the TC Programme given the interdependency between the interventions (with the latter supporting the implementation of the actions identified in the former).

Specifically, whilst noting that the parameters of any new energy scheme have yet to be fleshed out and approved, in the event that any new scheme is relatively larger in scale, broader in scope (in terms of the nature of energy efficiency measures supported) and open to the wider business base (who may be relatively less experienced in implementing ERE measures and hence more likely to require support in identifying potential ERE projects with TC support), the potential increase in demand is likely to have a material impact on both internal human resources (in terms of Technical Advisor time to undertake visits) and external consultancy support (to complete the TC projects). Equally, the Research Team is mindful that the allocation of additional resources to any new scheme and the TC programme cannot be at the expense of or displace the delivery of Invest NI's other ERE interventions or wider portfolio of programmes.

Accordingly, the issue of resourcing (both human and financial) across the breadth of ERE interventions warrant careful consideration as part of any future business case for the new scheme.

## *Equality and Rural Needs Considerations*

Based on the Research Team's review of Programme activity, monitoring information provided during the evaluation process and our discussions with recipients of support, the Research Team has identified no negative equality impacts and considers each of the ERE interventions to be accessible to all Section 75 groupings, people with disabilities and eligible businesses regardless of their location.

## **Recommendations**

### *Cross-cutting Recommendations*

1. Invest NI should continue to administer support through its suite of ERE interventions to enhance the energy and resource efficiency of NI businesses. Given their ability to provide discreet or, where needed, a pipeline of advisory and financial support to meet the needs of businesses, all four interventions should be retained (subject to their respective delivery models being amended in line with the recommendations outlined below).

In making this recommendation, the Research Team notes Invest NI's intention to replace the current EEF Programme (the COVID-19 Energy Efficiency Grant) with a new energy efficiency scheme (subject to the necessary approvals being gained).

2. By way of potentially supporting the 'pull-through' from businesses that received TC support to sources of ERE finance (for those businesses that require it), careful consideration should be given to the merits and demerits of adopting the various approaches to administering its ERE capital grant support including under competitive calls for applications, open calls and an 'evergreen' (constantly open) fund for applications. The Research Team notes that the adoption of such an evergreen scheme would deviate from Invest NI's current increasing corporate focus on administering assistance through calls.
3. Linked to Recommendation 2, in the event that Invest NI continues to administer its capital grant support via a call system (competitive or open in nature), consideration should be given to increasing the frequency and duration of calls to encourage greater levels of pull-through between the ERE interventions. The implementation of such an approach is likely to place a requirement for additional staff resources to be allocated to the ERE Team. Allied with this, Invest NI should review its processes for communicating the timing of calls. At a minimum, Technical Advisors should ensure to communicate the timing of REF and EEF calls to eligible businesses as part of the TC follow-up visit, with subsequent communication (e.g., by email) directly made to recipients of TC support closer to the opening of the call. As part of any continued use of calls, cognisance should also be taken of the need to apply the equitable treatment of all businesses through the application and approval process.
4. Noting the interdependency between Invest NI's suite of ERE interventions (and in particular between TC and the capital grant support), careful consideration needs to be given to identifying the scale of the financial and human resource requirements to facilitate the delivery of any new energy efficiency scheme across the breadth of the ERE Team's interventions (as opposed to considering the additional resource requirements associated with the administration of any new energy efficiency scheme in isolation). In doing so this may require amendments to be made to the extant approvals in place for the TC Programme.
5. Whilst acknowledging that the potential to realise cost savings has, and is likely to continue to be, *the* core motive for businesses to invest in ERE measures, given the reported pressures being placed on businesses and their supply chains to demonstrate that they are taking climate change, the associated decarbonisation agenda, and energy and resource management seriously (by taking steps to implement more environmentally-friendly production/operation methods), greater emphasis should be placed on promoting the contribution of implementing ERE measures to supporting businesses to meet their wider environmental/decarbonisation commitments, whilst also serving to maximise their competitiveness (which will, as a positive by-product, ultimately contribute to their profitability).

In supporting this shift in businesses' mindsets, the ERE Team should seek to manage the expectations of businesses as to the scale and timing of potential costs and benefits that can be generated from the adoption of ERE measures on the basis that whilst the adoption of more complex, capital intensive ERE measures may make a positive environmental contribution in the short term, the pay-back periods for these investments may be more prolonged.

6. In the context of Recommendation 5, Invest NI should be mindful that there is likely to be a requirement for a wider transition in the approach to assessing VFM in the context of investment decision-making across the organisation.

Of note and reflecting the increasing focus on monetising the wider environmental impact of interventions, consideration should be given to utilising the MAC approach to carbon valuation within the wider monetary impact analysis (including projected and realised Net Present Social Values (NPSVs), Benefit-Cost Ratios (BCRs) and non-discounted return on investment). If utilised, these values should be calculated by Invest NI at the application and post-project completion stages to inform programme and project investment decision-making.

The application of a MAC-based carbon valuation approach should not be limited to ERE interventions and should feature as a key VFM decision-making metric for all investment projects (where environmental/carbon reduction impacts are anticipated to arise). Accordingly, as part of a planned operational review of Invest NI's intervention principles for support, Economic Appraisal Methodology (EAM) and Economic Efficiency Test (EET) it is recommended that consideration is given to the merits of embedding such an impact metric within its wider intervention principles, project/programme appraisal methodology and assessment toolkit.

7. Looking beyond the requirement to enhance the nature of SMART targets to reflect the wider environmental objectives and outcomes of the ERE interventions, future business cases should focus on establishing a more appropriate mix of SMART activity, output and outcome targets that are more intrinsically focused and linked with the interventions respective Theory of Change. The findings of this evaluation should be used to inform the nature and scale of future target setting.
8. Consideration should be given as to how the suite of ERE Programmes can more appropriately support and add value to Invest NI's wider portfolio of business supports. At a minimum this should include the:
  - Operational Excellence Programme, where synergies appear to exist with the TC Programme (e.g., in terms of supporting the development of Sustainability Improvement Action Plans for businesses); and
  - Collaborative Growth Programme where a number of existing networks have an overt 'Green' and Circular Economy focus.
9. Invest NI should ensure that the nature and content of support provided through its suite of ERE interventions, as well as all future SMART targets, are wholly aligned with existing and emerging strategic imperatives most notably those articulated within the DfE 10X Economy Economic Vision (and its associated Key Metrics).

#### *Technical Consultancy Specific Recommendations*

10. Invest NI should consider the merits of expanding the quantum of support delivered on a project basis through the TC Programme in an effort to support a more strategic and holistic review of businesses' operations to identify opportunities to enhance their energy and resource efficiency in a more integrated manner and provide the necessary capacity and capability of support to businesses to aid the implementation of the actions identified in their TC reports.



11. Linked to Recommendation 10, given the reported high level of repeat usage of the Programme, Invest NI may wish to consider placing a cap on the number of times that a business can utilise the support within a pre-defined timescale (e.g., within a 2 or 3-year period). Whilst potentially supporting a more equitable distribution of support across the business base (which is particularly pertinent given the constraints on the availability of public finances), the implementation of such a cap may serve to increase levels of Programme additionality. On the basis that TC often represents a business' initial steps on its ERE journey, to mitigate any reduction in Programme demand, the Research Team would not advocate the introduction of a model of charging.
12. As part of the future target setting, consideration should be given to the reasonableness of including a target for net additional GVA for the TC Programme given its focus and the underpinning 'logic' of the Programme which is overtly focused on supporting businesses to identify ERE projects that could potentially generate cost savings and enhance business' environmental sustainability. Indeed, the subsequent realisation of these outcomes is conditional on the business ultimately implementing the project which will be highly dependent on a number of different variables (e.g., the availability of finance, businesses' other investment and non-investment priorities etc.) which the TC Programme have little/no control over.

In making this recommendation, future Interim and Post Programme Evaluations should continue to examine the level of project implementation and associated GVA impacts made by the Programme (where this is possible to do so given the reported limitations in businesses' ability to quantify the impact of partially implemented projects).

13. By way of meeting the potential increase in demand for TC support following the introduction of any new energy efficiency scheme, as well as stimulating additional competition between consultants for the provision of TC support, consideration should be given to increasing both the rates permissible to be submitted by TCs as part of the Framework and levels of ongoing engagement to encourage their participation.
14. Invest NI should increase the marketing and promotion of those TC categories that have historically been underutilised but have been identified as being of growing strategic importance (e.g., the Circular Economy).

#### *RMIS Service Specific Recommendations*

15. Careful consideration should be given to how the RMIS Service needs to evolve to provide the necessary support to embed the circular economy model in a more holistic, systemic manner that embeds innovative practices in an end-to-end, whole system approach (rather than just focusing on redundant materials and waste streams).

Depending on Invest NI's aspirations for the Service, this is likely to necessitate a need to provide a mixture of:

- Advisory/consultancy support to examine circularity in the context of both its own operations and wider opportunities to embed the model by working collaboratively with other businesses.
- Capital and operational financial support to enable businesses to:
  - Explore markets for new circular economy products;
  - Develop and adopt innovative business models for new circular economy products and services; and
  - Develop and utilise innovative technologies, products and services to support a circular economy.

By way of informing the structure and content of any new Service, consideration should be given to undertaking a premarket engagement exercise with the wider marketplace to identify potentially innovative delivery solutions. Ultimately, the nature of service provision should ensure any new phase of the service contributes to the strategic imperatives detailed within the new Circular Economy Strategy.

16. Invest NI should ensure that any future RMIS Service delivery model aligns with, and embeds any recommendations from, the Circular Economy Strategic Framework currently being developed by DfE and SIB with the support of a Circular Economy Coalition (which includes representation from Invest NI). This should include, but not be limited to, ensuring that support is directed towards the key product value chains and priority commercial/industrial sectors that have been identified where NI could potentially embed a circular economy approach.
17. Noting the potential for DfE to administer funding to encourage the adoption of the circular economy model across NI (albeit the nature, scale and scope of this funding are presently unknown), to avoid duplication and maximise the complementarity, Invest NI should be mindful of the potential availability of this funding when adapting the RMIS service delivery model to support the embedding of the CE approach across the NI business base.
18. By way of stimulating future demand for the Service, additional activities should be implemented to support its marketing and promotion both internally with Invest NI Client Executives and externally with the NI business base. This may be aided through (inter alia) the dissemination of case studies and updating of the Service's webpage in the Invest NI web portal.

#### *REF and EEF Specific Recommendations*

19. By way of stimulating demand and uptake of capital grant support (including any new energy efficiency scheme) careful consideration should be given to (inter alia) the:
  - Levels of financial incentivisation both in absolute terms and the applied aid ceilings particularly given the feedback that greater levels of support are likely to be required (vis-à-vis historic levels of support) to bridge the gap between the types of investment that will generate the greatest environmental returns whilst ensuring that the investment remains financially viable for businesses.
  - Extending the duration of payback periods within the eligibility criteria on the basis that whilst the adoption of more complex, capital-intensive ERE measures may make a positive environmental contribution in the short term, the pay-back periods for these investments may be more prolonged.
20. Careful consideration should be given to the 'mix' of energy efficiency projects supported under any new energy efficiency scheme, given the fact that the nature, scale and complexity of investments made by businesses (and the associated scale of benefits subsequently derived) will likely reflect the stage of the energy and/or resource efficiency journey that the business resides. Whilst such an approach may result in relatively lower levels of VFM in the short-term (vis-à-vis a scenario whereby funding is allocated to those projects making investments in equipment/technology yielding relatively higher returns), a balanced portfolio approach will likely support a wider and longer-term adoption of ERE measures across the business base, as well as encouraging businesses to implement more complex ERE measures (potentially yielding higher returns) over time.
21. In projecting future monetary benefits associated with the capital investment made, and informing decision-making at a project level, greater cognisance should be taken of the Effective Useful Life (EUL) of the technologies/equipment potentially acquired with the support of REF and EEF. This is likely to require:

- An extension to the levels of persistence in monetary benefits (which is likely to be beyond the 5-year period currently being utilised);
  - Invest NI to accurately record the UEL (or Measure Life Factor) of individual technologies supported at a project level; and
  - The application of appropriate savings persistence factors over the UEL of the technology/equipment to take account of issues that may impact the scale of benefits achieved including variances in operating hours, degradation in the efficiency of equipment/technology, inappropriate installation of equipment and manufacturer performance estimates not reflecting in-field operating conditions. Given the absence of sufficient empirical evidence to fully inform the scale of savings persistence factors, appropriate sensitivity analysis should be undertaken in any future business case to quantify the scale of potential variance in the level of project benefits.
22. By way of developing appropriate empirical evidence to inform that scale of savings persistence factors, longitudinal monitoring should be undertaken of the scale benefits derived by businesses to establish the scale of any variances in impacts/outcomes derived by businesses and the causal factors that have created these variances. In doing so, Invest NI should ensure that the levels of bureaucracy and administration placed on businesses to inform these monitoring activities are kept to a minimum.
23. As part of any future business case, careful consideration should be given to the totality of funding allocated to businesses on a project basis. Whilst noting the trade-off between the number and scale of projects supported, and the potential to focus on supporting a smaller number of higher-value projects, we are of the view that a more balanced portfolio approach is required to encourage businesses to transition along their respective ERE journey. That is to say, a business with limited experience in adopting ERE measures is unlikely to pursue a complex, capital-intensive ERE project. Rather, given the reported asymmetric information relating to the potential benefits of implementing the measure, these businesses' preference may initially be to engage in a smaller, relatively less complex and capital-intensive project. Thus, whilst such a balanced portfolio approach may inadvertently adversely impact levels of VFM in the short-term, it will potentially encourage a longer-term commitment towards implementing ERE measures, thereby generating greater VFM in the longer term.

#### *Other Operational Recommendations*

24. Invest NI should ensure that all monitoring information relating to anticipated project outcomes (e.g., cost savings at an individual business/project level) are reflective of the project that was implemented with any financial support that was ultimately drawn down (as opposed to the projected outcomes associated with funds committed).
25. Caution should be taken in basing any future SMART activity targets on the activity supported during the period under review given the reported impact of exogenous changes in the operating environment (most notably the COVID-19 pandemic) on levels of demand and uptake of the ERE interventions.
26. Invest NI should ensure that the assessment of monetary costs underpinning its interventions, and associated returns-on-investment/Benefit Cost Ratios (BCRs), are examined (at a minimum) on a full economic basis. In the context of the ERE interventions' capital grant support, this should include the private sector match funding provided to projects supported.
27. Taking cognisance of the historic delivery and impact of the interventions, Invest NI should ensure that all future targets are Specific, Measurable, Achievable, Realistic and Time-bound ('SMART'), set out as a hierarchy of anticipated programme inputs, activities, outputs and outcomes and intrinsically linked to the Theory of Change underpinning each intervention.

Linked to this, Invest NI should ensure that all SMART targets garner an appropriate balance between the quantity/breadth of business interactions and the quality/depth of these interactions.

## 1. INTRODUCTION AND BACKGROUND

### 1.1 Introduction

Invest NI has commissioned LMK Advisory Ltd (henceforth the 'Research Team') and its associate Tetra Tech (as Subject Matter Expert) to undertake three distinct, but interrelated, pieces of research. These being:

- a) An Interim Evaluation of its suite of Energy and Resource Efficiency (ERE) Programmes, covering the period 1st October 2019 – 31st March 2021. The interventions subject to review include the Energy and Resource Efficiency Advisory Programme (which includes Technical Consultancy (TC) and Resource Matching through Industrial Symbiosis (RMIS)), Resource Efficiency Finance (REF), and Energy Efficiency Finance (EEF) (LMK Advisory);
- b) A Market Review and GAP Analysis of the Energy Efficiency landscape in Northern Ireland, specifically to better understand the gaps in support currently available for NI businesses (Tetra Tech); and
- c) Subject to the findings of the Interim Evaluation and Market Review, a Business Case for a new Energy Efficiency support scheme for businesses to be delivered for a 5-year period (LMK Advisory).

**This report relates to the Interim Evaluation of the Invest NI suite of ERE Programmes.** The Evaluation has been completed in line with all national and regional requirements and guidance including:

- "The Green Book: Appraisal and Evaluation in Central Government", Current Edition, HM Treasury;
- "The Northern Ireland Guide to Expenditure Appraisal and Evaluation (NIGEA)", Current Edition, Department of Finance;
- "The Magenta Book: Guidance for Evaluation", Current Edition, HM Treasury; and
- Invest NI's Economic Appraisal Methodology (EAM) guidance.

Section 1 of the report considers the background to the suite of ERE Programmes and the overall objectives of the Evaluation.

### 1.2 The Wider Context

#### 1.2.1 Energy and Resource Efficiency in Context

Energy and resource costs represent a significant proportion of businesses' operational and production costs, particularly for those businesses operating in Energy and Resource-intensive industries (ERIs). Understandably then, increasing productivity, efficiency and competitiveness through the reduction of energy and resource consumption is a core business priority. Moreover, there are wider societal benefits, in the form of environmental benefits, that can be realised from businesses engaging in energy and resource efficiency activities including (inter alia) the reduction in CO2 emissions, the diversion of waste from landfill and the reduction in virgin/raw materials and water usage.

Whilst energy and resource efficiency - the process of delivering an equivalent level of output with a reduction in the consumption of energy and/or scarce resources - is not new, the area has been garnering increasing attention from businesses in recent years due to (inter alia) the introduction of legislation and regulatory requirements, significant increases in business' cost base driven by higher energy costs and wider inflationary pressures, and greater pressure being placed on businesses and their supply-chains to demonstrate that they are taking climate change and energy and resource

management seriously by taking steps to implement more environmentally-friendly production/operation methods.

However, a significant body of research<sup>1</sup> indicates that there are a variety of barriers that are inhibiting the implementation of energy and resource efficiency measures by businesses, resulting in sub-optimal levels of energy and resource efficiency. Key amongst these include the availability of finance, the length of ‘pay-back’ periods, the capacity and capability of businesses to implement the measures, uncertainty in relation to the nature and scale of benefits that can be derived etc.

Accordingly, policymakers and economic development agencies (including Invest NI) have, and continue to, place significant focus on incentivising the uptake of energy and resource efficiency measures by the business base through the provision of financial and wider advisory support.

### 1.2.2 Invest NI’s Historic Role in Incentivising the uptake of ERE Measures

Alongside grant assistance, advisory services, and specific interventions, to support its aims and objectives, Invest NI provides a suite of specialist advice and capital support to enable Northern Ireland (NI) businesses to enhance their efficiency and resilience through green efficiencies. From its inception in 2002 until 2012, Invest NI provided energy and resource efficiency support to businesses throughout NI either directly through its Sustainable Development team (renamed Energy and Resource Efficiency Team in 2016) or indirectly through Invest NI funded third parties and/or third-party programmes.

Since 2012, the Sustainable Productivity Programme (SPP) 2012-2015, and its successor programme, the Sustainable Development Support Programme (SDSP) 2015-2019 continued the delivery of this energy and resource efficiency support for businesses.

Approved for a five-year period (2019-2024), Invest NI’s current suite of ERE interventions provides specialist advisory and capital support to enhance businesses’ productivity and efficiency, competitiveness, and resilience, whilst boosting the development of the green economy.

### 1.3 Overview of the Suite of Invest NI ERE Interventions

Table 1.1. provides a high-level overview of the suite of ERE interventions currently delivered by Invest NI.

Table 1.1: Overview of Invest NI’s Suite of ERE Interventions	
ERE Intervention	Overview
<b>Energy and Resource Efficiency Advisory Programme (EREAP)</b>	
Technical Consultancy (TC)	TC provides Account Managed Invest NI Clients and the wider business base with fully funded advisory support to undertake technical audits and feasibility studies and provide general advice in a range of ERE areas. Brokered by technical advisors from Invest NI’s Energy and Resource Efficiency team, the support is administered through a framework of independent technical/sustainable development consultants.
Resource Matching through Industrial Symbiosis (RMIS)	Delivered by an External Delivery Organisation (EDO), the RMIS service is based on a circular economy approach which offers Invest NI clients and the wider business base opportunities to convert redundant materials into a resource for another business for mutual benefits, potentially adding value and reducing costs and the environmental impact of all businesses involved.

<sup>1</sup> For example, see Research to Assess the Barriers and Drivers to Energy Efficiency in Small and Medium Sized Enterprises (DECC, 2015).

Table 1.1: Overview of Invest NI's Suite of ERE Interventions	
ERE Intervention	Overview
<b>Resource Efficiency Finance (REF)</b>	
Resource Efficiency Capital Grant (RECG)	The REF/RECG scheme provides Account Managed Invest NI Clients with up to £40k <sup>2</sup> to invest in resource efficiency equipment/technologies which will reduce the consumption of water and raw materials and minimize waste production thereby generating cost savings, driving productivity and reducing carbon emissions.
<b>Energy Efficiency Finance (EEF)</b>	
COVID-19 Energy Efficiency Capital Grant (EECG)	The EEF/EECG scheme provides Account Managed Invest NI Clients with up to £80k to invest in energy efficiency equipment/technologies which will reduce the consumption of energy thereby generating cost savings, driving productivity and reducing carbon emissions.

Further details on each of the interventions, and their associated delivery model, are provided in the subsequent sections of this report.

#### 1.4 Intervention Aims and Objectives

The overarching aim of each of the ERE interventions is to *“Improve the productivity, competitiveness and sustainability of businesses in Northern Ireland through the identification and realisation of cost saving opportunities in the use of materials, water and energy.”*

Associated objectives of the EREAP Programme (TC and RMIS) are to:

- Increase businesses’ understanding of the role of energy and resource efficiency in contributing to their growth, development and sustainability;
- Enhance businesses’ commitment to embedding energy and resource efficiency within their longer-term strategy and operations; and
- Help businesses to implement resource efficiency projects that result in cost savings or increased sales.

Associated objectives of the REF and EEF capital schemes are to:

- Facilitate business investment in energy & resource efficiency measures;
- Enhancing businesses’ commitment to embedding energy and resource efficiency within their longer-term strategy and operations; and
- Support businesses in achieving cost savings, increased sales and environmental improvement.

<sup>2</sup> The £40k capital support was available throughout the period under review. However, the level of support was increased to £50k during the 2021/22 financial year.

## 1.5 Rationale for Intervention

The rationale for public intervention, as articulated in the Economic Appraisals<sup>3</sup>, was predicated on the potential contribution of the suite of Programmes to:

- **Support the realisation of a range of national and regional strategic imperatives** that existed at the time of approval. At a UK level, this was anticipated to include the UK Government's Industrial Strategy White Paper and Clean Growth Strategy<sup>4</sup> which identified the need to (inter alia) encourage society to address the clean growth grand challenge and boost levels of productivity by supporting businesses to review and invest in changes in their operations and processes (thereby contributing to the 'Ideas' and 'Business Environment' foundations identified in the White Paper).

At a regional level, it was suggested that the suite of ERE Programmes offered the potential to contribute to:

- A range of Outcomes identified in the Draft Programme for Government Framework 2016-21, most notably the 'Prospering through a Strong, Competitive, Regionally Balanced Economy' and 'Living & Working Sustainably, Protecting the Environment' Outcomes;
- Supporting the achievement of a number of priority pillars for growth identified in the NI Draft Industrial Strategy including 'Accelerating Innovation & Research' (Pillar 1), 'Driving Inclusive Sustainable Growth' (Pillar 3) and 'Building the Best Economic Infrastructure' (Pillar 5);
- Supporting the realisation of a number of long-term actions (including encouraging a 'Cultural Change' toward innovation and facilitating greater levels of 'Knowledge Generation' and 'Knowledge Exchange') required to stimulate levels of innovation in the NI business base, a key ingredient identified in the Northern Ireland Innovation Strategy 2014-2025 to enhancing levels of economic prosperity; and
- The achievement of a number of aims identified in Invest NI's Business Strategy for 2017-21. Most notably, the Appraisal identified this as including to:

- Support Invest NI customers to increase their sales;
- Support sustainable, balanced regional economic growth;
- Increase business expenditure on R&D (including between £64 million and £80 million in innovation between 2017 and 2021); and
- Help more companies to start to innovate by simplifying the innovation landscape, increasing awareness of sources of innovation and deepen capacity, capability and activity.

- **Address a range of market failures** that were combining to result in sub-optimal levels of investment by the private sector in ERE measures. Table 1.2 provides a high-level overview of these market failures and the specific ERE programmes that were deemed to be impacted by each market failure;

<sup>3</sup> See Appraisal of the Sustainable Development Support Programme: Revenue Projects, Hatch Regeneris (March 2019) Appraisal of the Energy & Resource Efficiency Finance Projects, Hatch Regeneris (August 2019).

<sup>4</sup> See The Clean Growth Strategy: Leading the Way to a Low Carbon Future (DBEIS, 2017) (Clean Growth Strategy - GOV.UK ([www.gov.uk](http://www.gov.uk))).

**Table 1.2: Nature of Market Failures inhibiting the implementation of ERE Measures**

Nature of Market Failure	Interventions Impacted by the Market Failure			
	EREAP		REF	EEF
	TC	RMIS	(RECG)	(EECG)
<b>Imperfect Information</b> - The Economic Appraisals suggested that uncertainties relating to the nature and scale of business benefits (in terms of cost savings and increased productivity) that could be derived from implementing ERE measures, the range of energy solutions available and the rate at which new solutions were being developed were collectively contributing to businesses underinvestment in ERE measures. It was suggested that this underinvestment would persist in the absence of public investment to raise awareness and provide support to incentivise the implementation of ERE measures by businesses.	✓	✓	✓	✓
<b>Positive Externalities</b> - The Economic Appraisals indicated that there is a range of economic and environmental benefits that result from investment in resource and energy efficiency, but which do not carry a market value. Left to itself, the market will underinvest as a result. The Economic Appraisal suggested that public funding was required to bring about benefits such as reduced waste and CO <sub>2</sub> , private investment, increased productivity and employment.	✓	✓	✓	✓
<b>Public goods</b> -The positive environmental benefits generated by investment in energy and resource efficiency are public goods, i.e., they are non-excludable (nobody can be excluded from the consumption of cleaner air or benefits associated with a reduction in greenhouse gases) and non-rivalrous (one person’s consumption does not limit consumption for others). As a result of these characteristics, public goods carry no market value and hence the private sector will typically underinvest in their supply. Accordingly, the Economic Appraisal suggested that public funding is required to support measures that deliver positive environmental outcomes.		✓	✓	✓
<b>Co-ordination Failures</b> – The Economic Appraisal indicated that there was a lack of incentive, or first-mover disadvantage, for a single business to absorb the joint costs (time and money) in initiating and coordinating resource matching through Industrial Symbiosis activities alone. As such, it was argued that public support was required to facilitate coordination and bring about shared benefits.		✓		

- **Enable businesses to access finance** (in the case of REF and EEF) in instances where:
  - The financial costs and benefits (and uncertainty attached to those benefits) did not present businesses (and finance providers) with a robust case to invest in ERE measures. The Appraisal suggested that this included providing lower-cost finance, where funds are either non-repayable or subsidise the cost associated with searching for and servicing commercial loan finance; and/or
  - Businesses are unable to access commercial finance. The Appraisal suggested that this issue was particularly prevalent for start-up, early-stage or research-intensive SMEs that may not have a sufficient trading record and/or credit history to obtain commercial bank lending.



## 1.6 Objectives of the Interim Evaluation

Invest NI requires an Interim Evaluation of the four ERE Programmes, covering the period 1<sup>st</sup> October 2019 to 31<sup>st</sup> March 2021.

Invest NI’s specific requirements are detailed in full in Appendix I.

## 1.7 Methodology

In completing the Interim Evaluation, the following primary and secondary research activities were completed by the Research Team:

- A desk-based analysis of pertinent approval and monitoring materials relating to the delivery of each of the ERE interventions;
- Virtual face-to-face and telephone consultations<sup>5</sup> with:

- Department for the Economy (Energy Management Branch);
- Invest NI Executive Director of the Business Solutions Group;
- Invest NI Director, Technology Solutions, Compliance and New Programme Development;
- Invest NI ERE Team (including the ERE Manager and Technical Advisors);
- A sample of Invest NI Client Executives;
- RMIS External Delivery Organisation;
- A sample (N=10) of Technical/Sustainable Development consultants on the TC Framework

- Telephone consultations with a sample of businesses that received support through an ERE intervention during the period under review and distribution of an online survey with the wider population of recipients of support. A total of 152 businesses provided feedback during the primary research process<sup>6</sup>. A summary of the primary research response rates and confidence intervals by Programme strand is provided below.

Table 1.3: Business response rates and Confidence Intervals				
ERE Intervention	Population of unique businesses	Sample of businesses	Response Rate	Confidence Interval (+/-)
Technical Consultancy	73	53	73%	7%
Resource Matching through Industrial Symbiosis	89 <sup>7</sup>	47	52%	10%
Resource Efficiency Finance (RECG)	45	34	75%	8%
Energy Efficiency Finance (EECG)	28	18	64%	14%

<sup>5</sup> Appendix II provides a summary of the consultees that were engaged in the primary research.

<sup>6</sup> 96 businesses provided feedback via telephone consultations and the remainder (N=56) provided feedback via the online survey.

<sup>7</sup> At the request of Invest NI, primary research was only completed with those businesses whose engagement had resulted in a successful synergy (i.e., those businesses identified in a match report).

## 2. TECHNICAL CONSULTANCY

### 2.1 Introduction

Section 2 presents the evaluation of the Technical Consultancy strand of the Energy and Resource Efficiency Advisory Programme (EREAP) for the period 1<sup>st</sup> October 2019 to 31<sup>st</sup> March 2021.

### 2.2 Overview of Technical Consultancy and its Delivery Model

#### 2.2.1 Overview of Support

Technical Consultancy provides businesses with fully funded, one-to-one advisory support to undertake technical audits and feasibility studies and provide general advice to identify projects that will, once implemented, increase levels of energy and/or resource efficiency and ultimately support businesses to realise cost savings whilst minimising their operational impact of the environment. The support is delivered in the following 9 specialist ERE areas including:

Table 2.1: Overview of Technical Consultancy Specialist ERE Areas	
Technical Consultancy Specialism	Nature of support provided
Energy Management and Efficiency	Consultancy support in this area covers all mechanical and electrical systems associated with buildings and manufacturing equipment including Refrigeration Systems, Compressed Air Systems, Energy Management Systems, Heat Recovery, Combined Heat and Power, Lighting Technologies, HVAC Systems, Energy Metering and Process Heating.
Renewable Technology Systems	This category covers all types of renewable energy systems including solar, wind, marine, bioenergy, and hydro energy.
Resource Efficiency and Waste Management Systems	TC support in this area covers all aspects of environmental management and efficiency including Waste Management, Environmental Management, Circular Economy, Cost Neutral Solutions, Water Efficiency, Effluent Treatment Systems and Rainwater Harvesting.
Investigation of New Technologies	Consultancy support in this area covers all new and emerging energy or resource-efficient technologies such as energy storage, fuel cells, second-generation biomass, and enabling technologies that reduce consumption and costs associated with energy and resources.
Clean Technology/Processing Systems	This category covers efficient technology/processes which reduce business consumption of energy, water and materials. For example, manufacturing systems, equipment, and digital technology.
Environmental Standards, Accreditations and Systems	Under this consultancy area, businesses are provided advisory support in relation to Environmental Standards, Accreditations and Systems. The category will cover, for example, Environmental Management Systems, Energy Management Systems, Circular Economy, Carbon Management, specific Product/Process Accreditations, Corporate Responsibility and Corporate Carbon Pressures within the supply chain.
Low Carbon Packaging Solutions	This category provides advisory support in relation to packaging design and solutions in terms of eco packaging, light-weighting, transit packaging and packaging innovations that can deliver cost savings from reduced use of materials, recycled content, or less packaging waste.
Transport and Logistics Efficiency	Consultancy support in this area will examine efficiencies relating to the transport and distribution of raw materials and manufactured products. For example, this may include efficient route planning, back haulage, void space, driving training in efficiency, vehicle aerodynamics, and alternative fuels (biofuels, electric, hydrogen).
Sustainable Business Collaborations (including Circular Economy)	TC support in this area will cover assessments to establish the feasibility of business collaborations, for example, circular economy projects, and micro-generation within hubs (e.g., industrial estates) for shared use of local heat and power generation.

Brokered by Technical Advisors from Invest NI's ERE team, the consultancy support is delivered through a framework of independent technical/sustainable development consultants and is available to all businesses (i.e., Account Managed Invest NI Clients and the wider business base) with an annual energy and resource expenditure over £30k.

### 2.2.2 *The Technical Consultancy Delivery Model*

On receipt of a Request for Development Service (RDS) from an Account Managed Invest NI Client or as a result of an enquiry for support from the wider business base, an Invest NI Technical Advisor will undertake a face-to-face visit at the business' premises<sup>8</sup> to gain an understanding of the business' specific ERE needs and identify potential projects which, if implemented, could generate energy and resource efficiencies which would result in financial cost savings and wider environmental benefits.

Subject to the project having the potential to deliver significant cost savings (if implemented) and the business having an annual energy and resource expenditure in excess of £30k, the Technical Advisor will prepare a Technical Specification/Terms of Reference (TOR) which provides a high-level description of the potential project that could be implemented, the scope of the Technical Consultancy project (including a categorisation of the nature of specialist ERE consultancy support to be delivered), a statement pertaining to the additionality of the Consultancy project and a De Minimis Declaration. The specification is then sent to the business and an ERE Team Manager<sup>9</sup> for review and approval.

Those projects that are considered not to have the potential to deliver significant savings, may receive general ERE advice from the Technical Advisor and/or be signposted to other solutions (e.g., the ERE Team's best practice guides, Nibusinessinfo etc.).

Once approval to proceed is provided by both Invest NI and the business, a secondary procurement competition is implemented by Invest NI using an established framework of independent technical/sustainable development consultants.

The appointed consultant will then work in conjunction with the business to complete the project in line with the requirements detailed in the Technical Specification with each project typically receiving 5 days of consultancy input over a six-week period<sup>10</sup>. The support culminates in participating businesses receiving a consultancy report identifying measures (including technologies/equipment) that could be implemented that would result in cost and carbon savings, the quantification of the potential cost and environmental savings (by source), the potential costs of implementing the measures and associated pay-back period, and an Action Plan detailing the actions/next steps required to implement the project.

The Technical Consultant will then submit the completed Consultancy report to Invest NI for review with the appointed Technical Advisor ultimately responsible for approval. The Technical Advisor will then facilitate a follow-up visit/meeting with the business to provide further advice and support to assist with the implementation of the action plan. Where deemed relevant, this may include sign-posting businesses to follow-on support through the wider portfolio of ERE interventions (e.g., EECG and/or RECG support).

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<sup>8</sup> Due to health and safety concerns associated with the COVID-19 pandemic, these visits were undertaken virtually during the period under review.

<sup>9</sup> Internal approval is required to be granted at Grade 7 level.

<sup>10</sup> It is noted that in most cases, timescales are influenced by the ability of the consultant to schedule a visit to the company.

## 2.3 Programme Activity

Table 2.2 provides an overview of the activity supported under the Technical Consultancy strand of the EREAP during the period under review.

Table 2.2: Overview of TC Activity			
Intervention Stage	Programme Year <sup>11</sup>		
	Year 1 Oct 2019 - Mar 2020 (6 months)	Year 2 Apr 2020 - Mar 2021 (12 months)	Total Oct 2019 - Mar 2021 (18 months)
RDS Raised	118	344	462
Advisory Visits	137 <sup>12</sup>	195	332
TC Projects Approved	69	64	133
<i>Of which were:</i>			
– Withdrawn/cancelled	11	3	14
– Completed	58	49	107
– Active/Live	-	12	12 <sup>13</sup>

Salient points to note include:

- A total of 332 Advisory visits were undertaken by Invest NI's Technical Advisors, with 133 projects subsequently approved for consultancy support;
- 107 TC projects (80% of approved projects) were completed during the period under review (at an average drawdown level of c. £3k per project). 14 approved projects (11%) were subsequently withdrawn by businesses due to business-specific reasons (typically due to the business not having the capacity to take the project forward due to wider business priorities at that time) and the remaining 12 projects (9%) were live/active;
- The 107 completed projects were undertaken by 73 unique businesses, with almost four-fifths (78%) of projects undertaken by Account Managed Invest NI clients and the remainder (22%) undertaken by the wider business base;
- One-third of businesses (33%) received TC support on multiple occasions during the 18-month period (with the majority of these businesses receiving 2 interventions<sup>14</sup> (Table 2.3));

Table 2.3: Levels of repeat TC Usage		
No. of TC Projects Completed	No. of businesses	% of businesses
1	49	67%
2	17	23%
3	4	5%
4	3	4%
<b>Total</b>	<b>73</b>	<b>100%</b>

<sup>11</sup> Activity has been presented to illustrate the outcomes of the projects approved in a given financial year, hence the projects may have been withdrawn/cancelled or completed in financial years subsequent to those presented.

<sup>12</sup> Depending on the circumstances, some businesses may have received more than one Advisory Visit at the various stages of a project's lifecycle, hence the number of Advisory Visits may be in excess of the number of RDS' raised. The number of visits was relatively more concentrated for the period October 2019 to March 2020 as the REF programme opened for six months. Typically, REF programme will require relatively more site visits than other schemes.

<sup>13</sup> 10 of these 12 TC projects subsequently completed during the April 2021-March 2022 financial year, leaving two live/active TC projects.

<sup>14</sup> The need for additional TC support, including associated levels of additionality, is examined by Invest NI Technical Advisors on a case-by-case basis.

- Energy Management and Efficiency was the most frequently utilised TC specialist area, with two-thirds (66%) of all projects providing support in this area. Just over one-quarter (26%) of projects were focused on Renewable Technology Systems, whilst one-fifth (20%) of projects received support in the area of Resource Efficiency and Waste Management Systems. Less than 10% of projects had an overt focus on each of the remaining 6 TC areas. No TC support was provided in the area of ‘Sustainable Business Collaborations’ (Table 2.4).

<b>Technical Consultancy Category (N=107)</b>	<b>No. of projects focused on the TC area</b>	<b>% of projects focused on the TC area<sup>15</sup></b>
Energy Management and Efficiency	71	66%
Renewable Technology Systems	28	26%
Resource Efficiency and Waste Management Systems	21	20%
Investigation of New Technologies	9	8%
Clean Technology/Processing Systems	6	6%
Environmental Standards, Accreditations and Systems	5	5%
Low Carbon Packaging Solutions	3	3%
Transport and Logistics Efficiency	3	3%
Sustainable Business Collaborations	-	-

Consultation with Invest NI suggests that, given the demand-led nature of the support, the complexity of the TC project ultimately undertaken under each category (and potentially subsequently implemented by a business) will very much depend on the stage of the ERE journey that the business resides. That is to say, businesses with previous knowledge and experience in implementing ERE measures are more likely to undertake a TC project examining the potential impact of implementing relatively more complex ERE measures (which often require more significant levels of investment), vis-à-vis a business with more limited knowledge and experience of implementing the measures.

- Levels of demand and uptake of TC support were significantly lower than anticipated at the outset (particularly in Year 2 (see Section 2.6)) and when viewed in the context of the Programme’s historic activity levels.

Whilst noting that demand for TC is rarely linear and often ‘lumpy’ reflecting businesses’ wider operating pressures and priorities (which are in certain cases driven by seasonal fluctuations<sup>16</sup>), consultation with Invest NI suggests that wider changes in the operating environment, principally created by the COVID-19 pandemic and the UK withdrawal from the EU (‘Brexit’) had had a material negative impact on levels of Programme demand.

In the case of the former, it was noted that the pandemic had served to close the onsite operations of many businesses for a significant period of time<sup>17</sup> and, for those businesses that continued to operate during the period, many were solely focused on the consolidation and

<sup>15</sup> Please note that TC projects were able to provide consultancy support across a number of specialist areas hence the total percentage of projects across each of the TC specialist areas may sum to more than 100%.

<sup>16</sup> For example, it was noted that food orientated businesses are reluctant to engage with the support in the months prior to Christmas due to the additional demands being placed on their operations.

<sup>17</sup> During February and March 2020, COVID-19 became a notifiable disease across the UK, with the global pandemic ultimately resulting in the UK and NI Governments imposing a ‘stay-at-home’ order with legislated ‘lockdowns’ banning all non-essential travel and contact with other people, and crucially from an economic perspective, shutting gathering places and businesses that could not reasonably operate from home, virtually overnight.

viability of their operations, with little/no capacity available to undertake wider business development projects such as a Technical Consultancy project.

Allied with this, it was noted that the pandemic had served to exacerbate the operational difficulties that many businesses had been experiencing as a result of the outworkings of the UK’s withdrawal from the EU (‘Brexit’). Combined, it was noted that these wider operating priorities/pressures were viewed to be of greater importance to businesses relative to implementing measures to enhance their energy and resource efficiency, particularly for many businesses that continue to view this business development area as more aspirational rather than a necessity.

- Since the period under review, feedback from Invest NI indicates that there has been a significant increase in demand and uptake of Technical Consultancy support which is likely to have resulted from:
  - The return to more normalised business operating patterns following the end of legislated ‘lockdowns’;
  - Significant recent increases in business’ cost base driven by higher energy costs and wider inflationary pressures;
  - Greater pressure being placed on businesses and their supply chains to demonstrate that they are taking climate change and energy and resource management seriously by taking steps to implement more environmentally friendly production/operation methods;
  - Greater awareness amongst businesses of issues relating to the ‘green agenda’ which has been stimulated by, amongst other things, greater attention being given to environmental sustainability in current affairs media (e.g., the significant coverage given to Conference of the Parties 2021 (COP 21)).

Given the reported increase in activity, caution should be taken in projecting forward potential levels of future demand for the Programme based on the activity delivered during the period under review.

## 2.4 The Technical Consultancy Delivery Model - The Business and Wider Stakeholder Perspective

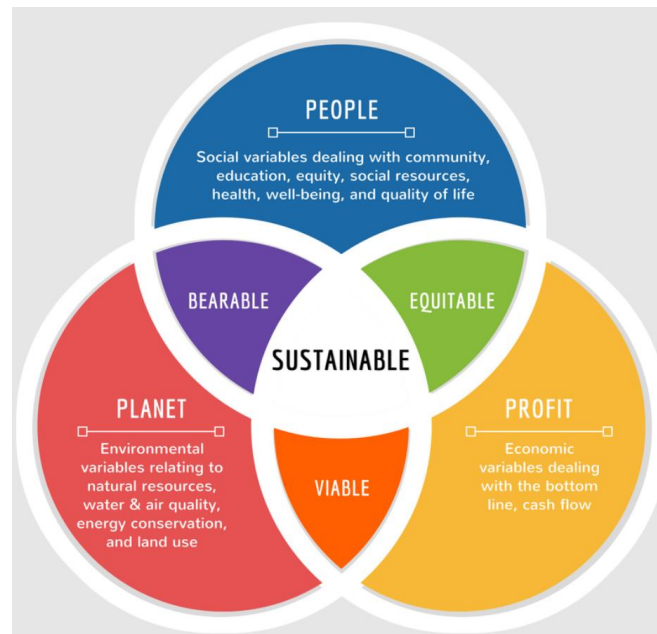
### 2.4.1 Programme Promotion

The feedback from businesses indicates that most businesses became aware of the TC Programme through a representative from Invest NI (e.g., typically their Client Executive or Business Advisor where they were an Account Managed Invest NI client). Just over a further one-quarter of businesses (26%) suggested that they had become aware of the Programme through Invest NI’s website (Table 2.5).

Table 2.5: Modes through which businesses became aware of TC support	
Mode of contact (N=54)	% of businesses
Through a representative from Invest NI	61%
Invest NI website	26%
You were signposted to the Scheme by a Supplier	5%
Attendance at an event/workshop/seminar	4%
Invest NI direct marketing (e.g., E-zine or newsletter)	2%
Word of mouth/business associate	2%
<b>Total (N=54)</b>	<b>100%</b>

During consultation, a number of stakeholders were of the view that Invest NI's promotion of its suite of ERE Programmes (including TC) was overtly, albeit not exclusively, framed around the cost savings that a business could potentially make from availing of the support. Whilst acknowledging that this has, and will continue to be, *the* core motive for businesses to invest in ERE measures (as it will ultimately impact on their profitability), moving forward it was suggested that greater emphasis should be placed on communicating the benefits of implementing ERE measures on the other two main indicators of success that constitute businesses 'Triple Bottom Line' (TBL)<sup>18</sup> - these being the 'Planet' (environment) and 'People' (human capital) (see Figure 2.1).

**Figure 2.1: The Triple Bottom Line Framework**



In relation to the environment, it was noted that businesses and their supply chains are coming under increasing pressure to demonstrate that they are taking climate change, the associated decarbonisation agenda, and energy and resource management seriously by taking steps to implement more environmentally-friendly production/operation methods rather than simply portraying an environmentally responsible public image (commonly referred to as 'greenwashing'). As such, it was recommended that greater emphasis is placed on promoting the contribution of implementing ERE measures to support businesses to meet their wider environmental/decarbonisation commitments, whilst also serving to maximise their competitiveness (which will, as a positive by-product, ultimately contribute to their profitability).

In supporting this shift in businesses' mindsets, it was also suggested that a greater role needs to be played in terms of managing the expectations of businesses as to the scale and timing of potential costs and benefits that can be generated from the adoption of ERE measures.

Specifically, it was noted that whilst the adoption of more complex, capital-intensive ERE measures may make a positive environmental contribution in the short term, the pay-back periods for these investments may be more prolonged. Indeed, whilst the implementation of ERE measures will often serve the dual purpose of reducing businesses' costs whilst minimising their impact on the environment, the two do not always go 'hand-in-hand'. For example, it was suggested that whilst

<sup>18</sup> TBL is an accounting framework that advocates businesses to look beyond purely financial prosperity (profits) and include other dimensions to measure their performance including the environment and people/social.

businesses' participation in a Circular Economy model may generate positive environmental impacts through the efficient use of resources, the acquisition of reprocessed materials and resources can be more costly vis-à-vis the cost of virgin raw materials. In such a scenario, therefore, there is a financial cost of the business acting in an environmental manner.

In addition to promoting the contribution of implementing ERE businesses to supporting businesses to meet their wider environmental/decarbonisation commitments, it was suggested that greater levels of financial incentivisation (both in absolute terms and the applied aid ceilings) may be required to bridge the gap between the types of investment that will generate the greatest environmental returns whilst ensuring that the investment remains financially viable for businesses.

In the context of the above, it was also suggested that there needs to be a transition in the approach to assessing levels of potential and actual/realised VFM in the context of ERE interventions (both at a programme and project level), with greater cognisance needing to be taken of the wider environmental impact made by an intervention, alongside the potential cost saving impacts.

The Research Team's review of previous economic appraisals and business cases relating to Invest NI's suite of ERE interventions suggests that the consideration of this impact has largely been examined through the use of non-monetary analysis techniques.

However, it is noted that Greenhouse gas emissions values ("carbon values") are used across the UK government for valuing impacts on GHG emissions resulting from policy interventions. They represent a monetary value that society places on one tonne of carbon dioxide equivalent (£/tCO<sub>2</sub>e). They differ from carbon prices, which represent the observed price of carbon in a relevant market. Government uses these values to estimate the monetary value of the greenhouse gas impact of policy proposals during policy design, and after delivery<sup>19</sup>.

Assigning a value to carbon helps to ensure that such choices are made in a transparent fashion and in a way that seeks to be cost-effective for NI/UK society as a whole. Valuing emissions impacts explicitly when making policy decisions helps to:

- Ensure the climate impacts of policies are fully accounted for;
- Ensure consistency in decision-making across policies; and
- Improve transparency and scrutiny of decision-making.

Current UK guidance<sup>20</sup> indicates that greenhouse gas emissions should be valued for all policies that may have an impact on emissions, whether these impacts are positive or negative. This includes policies whose primary objective is not related to progressing the net zero target, but where there are indirect impacts on emissions. The approach to monetising the impacts has transitioned from utilising a "social cost of carbon" (SCC) approach to a "target-consistent" or "Marginal Abatement Cost" (MAC) approach to carbon valuation<sup>21</sup>.

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<sup>19</sup> The fundamental purpose of assigning a value to the GHG emissions impacts that arise from potential government policies is to allow for an objective, consistent and evidence-based approach to determining whether such policies should be implemented. Carbon values are used in the framework of broader cost-benefit analysis to assess whether, taking into account all relevant costs and benefits (including impacts on climate change and the environment), a particular policy may be expected to improve or reduce the overall welfare of society.

<sup>20</sup> See Department for Business, Energy & Industrial Strategy (DBEIS) Policy Paper "Valuation of greenhouse gas emissions: for policy appraisal and evaluation" (September 2021) for further details.

<sup>21</sup> The SCC approach involves monetising the full effect on social welfare of emitting an extra tonne of carbon (as carbon dioxide) at some point in time, over the lifetime of that tonne in the atmosphere (i.e., it is the marginal damage cost of carbon (MDC)). The MAC approach reflects the cost of reducing emissions (rather than the damage imposed by creating emissions). At the UK level, emphasis shifted (in 2009) to focusing on the MAC or target consistent valuation rather than the SCC on the basis that adopting a damage cost-based approach would not necessarily lead to a carbon price in appraisal which is consistent with reaching a given emissions reductions target.



Reflecting the increasing focus on monetising the wider environmental impact of interventions, consideration should be given to utilising the MAC approach to carbon valuation within the wider monetary impact analysis (including projected and realised Net Present Social Values (NPSVs), Benefit-Cost Ratios (BCRs) and non-discounted return on investment). If utilised, these values should be calculated by Invest NI at the application and post-project completion stages to inform **programme and project** investment decision-making.

Indeed, as noted within DBEIS guidance, the application of this approach should not be limited to ERE interventions and should feature as a key VFM metric for all investment projects (where environmental/carbon reduction impacts are anticipated to arise). The Research Team notes that, at the time of drafting, Invest NI is about to embark on an Operational Review of Invest NI's intervention principles for support, Economic Appraisal Methodology (EAM) and Economic Efficiency Test (EET) and recommends that consideration is given to the merits of embedding such an impact metric within its wider intervention principles, project/programme appraisal methodology and assessment toolkit.

Whilst noted by some stakeholders as being potentially less important in businesses' decision-making process for implementing ERE measures, it was also recommended that the potential positive contribution of the measures on human capital should be promoted e.g., in terms of well-being, staff morale and productivity as a result of an enhanced working environment. As detailed in Section 2.5.2, these potential wider benefits played an influence in many businesses' decisions to ultimately take forward a TC project.

#### 2.4.2 *The Advisory Visit*

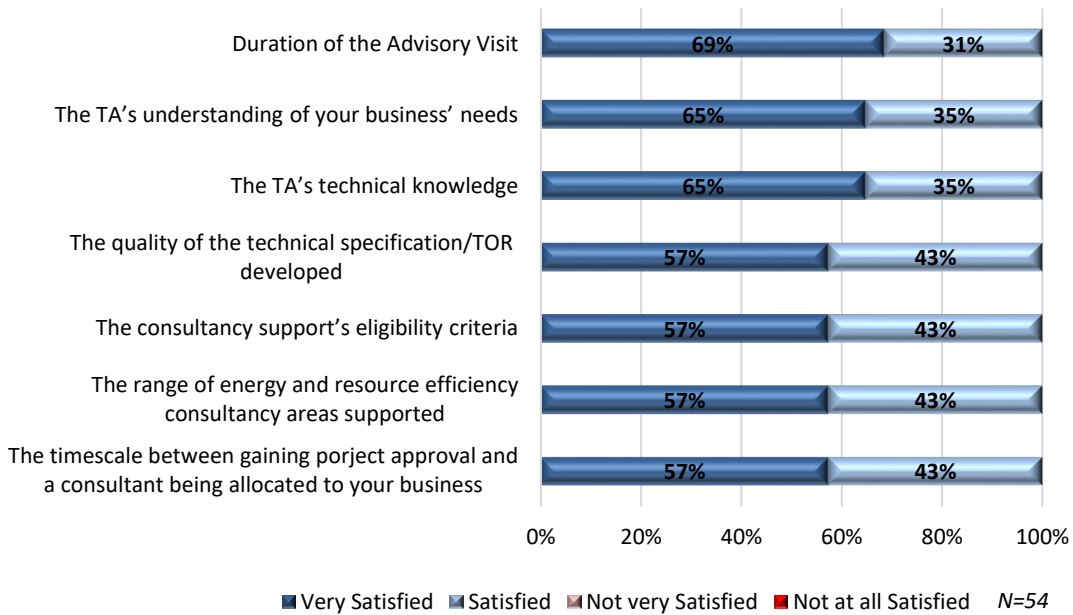
As noted, the TC process commences with an Invest NI Technical Advisor facilitating a meeting with the business to gain an understanding of their ERE needs and identify potential projects that could enhance their energy and resource efficiency.

Consultation with Invest NI indicates that whilst its Technical Advisor's sought to identify potential consultancy projects with businesses remotely/virtually as a result of the COVID-19 pandemic, the scoping of these projects was, on occasions, more difficult and arguably not as robust as might otherwise have been the case had they been able to undertake the Advisory Visit on-site.

Specifically, it was noted that during this period Technical Advisor's often had a more limited opportunity to undertake a visual inspection of a business' physical operations (including their equipment/technology) which was identified as being a critical step in scoping out the parameters of a project that could be subsequently taken forward by a consultant. It was further noted that, in a normal operating environment, the Advisory Visit can often serve to identify additional ERE measures that had not been considered by the business (and hence had not been part of the original rationale for the visit to the business). Opportunities to identify these potential additional measures were more limited as a result of undertaking the scoping work remotely/virtually.

Notwithstanding the constraints placed on Technical Advisors when completing the scoping of TC projects, all businesses expressed a high level of satisfaction with the support provided during and after the project scoping meeting including its duration, the Advisor's understanding of their business' needs, technical knowledge and ability to clearly articulate the business and environmental benefits that could potentially be derived from subsequently receiving the consultancy support.

**Figure 2.2: Business' Satisfaction with the support delivered during the Project Scoping Meeting**



Similarly high levels of satisfaction were expressed in relation to the:

- Quality of the technical specification/TOR subsequently developed by the Invest NI Technical Advisor including the degree to which it accurately reflected the business' specific ERE needs;
- Timescale between gaining approval to receive consultancy support and a consultant being allocated to the business; and
- Range of ERE consultancy areas supported through the Programme (i.e., the 9 specialist areas).

*"I was a little concerned that the support would not be as tailored to my business' needs because the Technical Advisor wasn't able to get out on site due to the pandemic. However, I found the meeting very useful and between us, we were able to scope out a good project that would increase our energy efficiency and ultimately contribute to our bottom line."*

*"The Technical Advisor that helped us was very knowledgeable. Through our discussions they quickly got to grips with the specific issues we were facing and identified a number of areas that should be considered through the project."*

*"Whilst I'm not fully aware of all the areas that you could get support in, the project that was scoped out with the Technical Advisor covered a range of different energy and resource areas that were relevant to my business' needs...during the meeting the Advisor was even able to identify several 'quick wins' that would improve our business' efficiency which didn't require any investment."*

*"The whole process was very straightforward, and it was less than three weeks from undertaking the initial meeting to being allocated a consultant."*

**TC Recipients of Support**

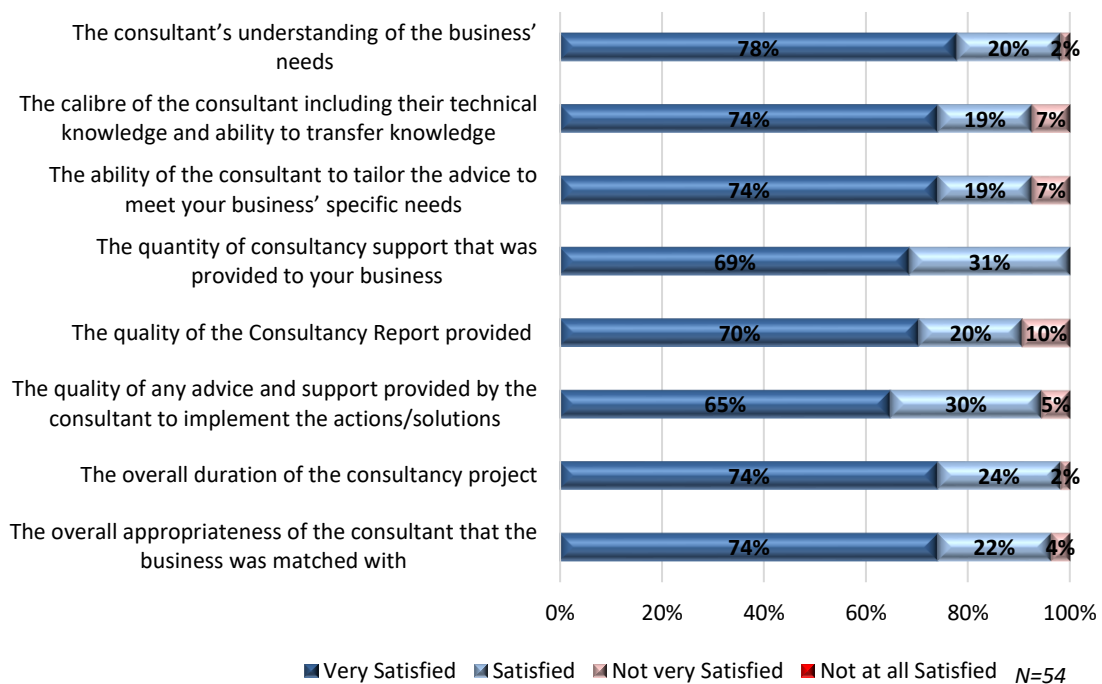
### 2.4.3 The Role of the Consultant and Quality of Consultancy Support

Nearly all businesses expressed satisfaction in relation to the support that they were provided with during their respective TC project. Of note, 90%+ of businesses indicated that they were 'very satisfied' or 'satisfied' with the:

- Calibre of the consultant including their technical knowledge of the specialist consultancy area, as well as their ability to transfer knowledge to the business and tailor any advice to meet their specific needs;
- Quantity of consultancy support that was provided to the business (i.e., up to 5 days) (100%);
- Quality of the Consultancy Report that they were subsequently provided with including the appropriateness of the actions/solutions identified and information provided in relation to the potential cost savings and environmental benefits that could be derived from their implementation (90%); and
- Quality of any advice and support provided by the consultant to implement the actions/solutions identified in the Consultancy report (95%).

A level of dissatisfaction was expressed by a small number of businesses<sup>22</sup> in relation to the support provided by their respective consultant, particularly in relation to the quality of the consultancy report that was provided (which was viewed to be overly generic) and the associated ability of the consultant to tailor the advice to the meet their specific needs.

**Figure 2.3: Business’ Satisfaction with the Consultancy support received**



*“Based on the specification that we had developed with the Technical Advisor, and an initial conversation, the consultant was quickly able to get to grips with what we needed to do to enhance our energy and resource efficiency. The actions that were provided were relevant, fully costed and some general advice was provided as to the next steps we should take to implement the project.”*

*“The consultant was very knowledgeable and was able to tailor the advice and support to meet our specific needs...overall I was very happy with both the quantity and quality of support provided by the consultant.”*

*“I was a little disappointed with the report that I received at the end of the process. It was generic, ambiguous in places and didn’t fully reflect what we needed. I had previously availed of the support through the Programme a number of years ago and I had received excellent help, so it hasn’t changed my overall view of the programme.”*

**TC Recipients of Support**

<sup>22</sup> It is noted that the same small number of businesses (typically two businesses) expressed dissatisfaction across the range of question posed.

Notwithstanding the positive feedback provided by businesses in relation to the quantity and quality of support received through the TC Programme, a number of Invest NI consultees and technical/sustainable development consultants suggested that consideration should be given to expanding the quantum of support delivered through the Programme to:

- Support a more strategic and holistic review of businesses' operations to identify opportunities to enhance their energy and resource efficiency in a more integrated manner, as opposed to the current project-specific approach which was viewed by some stakeholders as being piecemeal and not giving the business development area the importance that it requires. It was suggested that the high level of repeat usage of TC by businesses, in a relatively short time period<sup>23</sup> exemplified the view that the current level of support is insufficient to meet businesses' needs in a holistic manner. Linked to this, given the reported high level of repeat usage of the Programme, Invest NI may wish to consider placing a cap on the number of times that a business can utilise the support within a pre-defined timescale (e.g., within a 2 or 3-year period). Whilst potentially supporting a more equitable distribution of support across the business base (which is particularly pertinent given the constraints on the availability of public finances), the implementation of such a cap may serve to increase levels of Programme additionality. On the basis that TC often represents a business' initial steps on its ERE journey, to mitigate any reduction in Programme demand, the Research Team would not advocate the introduction of a model of charging; and
- Provide the necessary capacity and capability of support to businesses to aid the implementation of the actions identified in their TC reports. Indeed, anecdotal feedback from a small number of Invest NI stakeholders indicates that, on occasions, other Invest NI supports (e.g., the Technical Development Incentive (TDI) scheme) have been 'flexed' to provide this additional capacity and capability support to businesses.

It was suggested that a further positive by-product of expanding the scale of support may include the Programme being able to attract a greater number of technical/sustainable development consultants, with more diverse and specialist skill sets, to bid for, and subsequently deliver TC projects, for the benefit of business recipients. In this regard, it was noted that relatively few bids were being received from consultants at the Secondary Competition stage for individual TC projects and the delivery of TC support was inadvertently being facilitated by a relatively small number of the same consultants from the Framework<sup>24</sup>.

Anecdotal feedback from Invest NI, but confirmed by a number of technical/sustainable development consultants during the primary research, suggests that a disparity between the rates and overall level of revenue being provided to the consultants through the framework vis-à-vis what they were able to achieve through the private sector (with the former identified as being considerably lower than the latter), was a key factor for more consultants choosing not to bid to deliver TC projects through the Framework. To stimulate additional competition, it was recommended that Invest NI should give consideration to opening the Framework for new consultant applicants on a more frequent basis. The Research Team does however note that the utilisation of shorter framework timescales is likely to place additional resource (financial and human) requirements to design, approve, procure, assess and implement new frameworks on a more frequent basis. In our view, an amendment to the rates permissible to be submitted by TCs and greater ongoing engagement to encourage their participation is likely to make a more material impact on levels of engagement.

<sup>23</sup> Per Table 2.3, one-third of businesses (33%) received TC support on multiple occasions during the 18-month period under review.

<sup>24</sup> Data provided by Invest NI indicates that 4 of the 16 (25%) Technical Consultancy organisations did not bid for any work under the Framework during the period under review, with a further five organisations tendering on 5 or less occasions. Almost two-thirds (65%) of successful tenders (N=133) were submitted by two organisations.

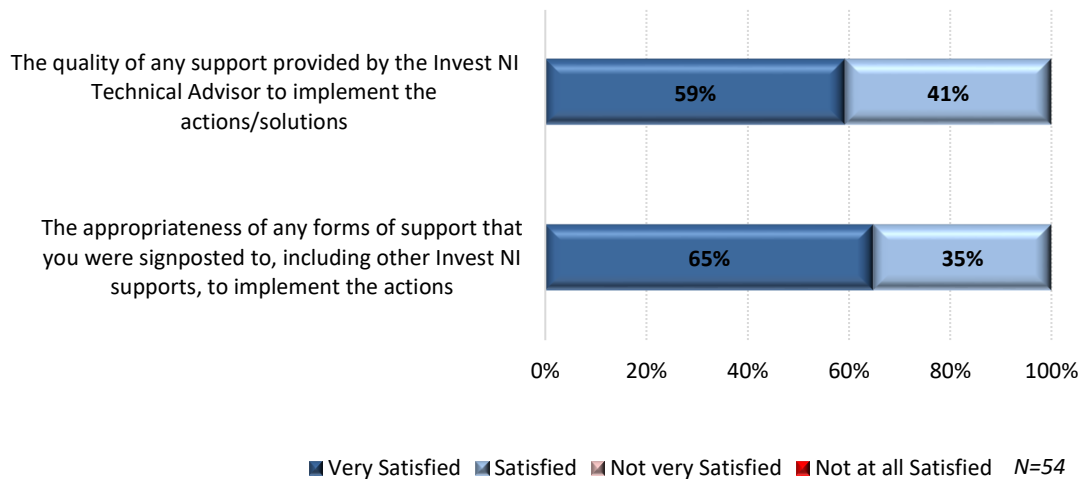
Whilst recognising the potential merits of expanding the TC Programme in terms of the quantum of support delivered to individual businesses, the Research Team also notes that the potential introduction of a new energy efficiency scheme is likely to place an increased demand amongst businesses for TC support, particularly if any new scheme is relatively larger in scale, broader in scope (in terms of the nature of energy efficiency measures supported) and open to the wider business base (who may be relatively more likely to require support in identifying potential ERE projects with TC support).

Whilst this is likely to have a material impact on the quantum of financial support required to be allocated to the programme to support consultancy activities, any expansion in the TC scheme, coupled with the additional administrative demands associated with implementing a new energy efficiency scheme, are likely to place significant additional human resource demands on the Invest NI ERE Team. Accordingly, and noting the interdependency between the interventions, careful consideration should be given to identifying the scale of the financial and human resource requirements to facilitate Programme delivery across the breadth of the ERE Team’s interventions (as opposed to considering the additional financial and human resource requirements associated with the administration of any new energy efficiency scheme in isolation).

2.4.4 The Follow-Up Visit Support

Building on the positive feedback provided by businesses in relation to the role played by the Technical Advisor during the initial Advisory Visit/scoping meeting, businesses expressed high levels of satisfaction with the support provided by the Advisor during the follow-up visit including the quality of any support provided to implement the actions/solutions that were identified in the TC report and appropriateness of the signposting that was provided to other forms of support to implement the actions.

Figure 2.4: Business’ Satisfaction with the support provided during the Follow-up Visit



*“When the consultancy project was completed, I was able to have another short meeting with the Technical Advisor who was able to provide some further advice on how we should go about implementing the project and the follow-on grant assistance that was potentially available from Invest NI.”*

*“The Technical Advisor gave us some options on potential suppliers that we could use to get the equipment needed to ultimately take the project forward. He also directed me to other support that was available to improve the business’ productivity by reorganising the layout of our production plant.”*

*“Whilst I haven’t yet got around to applying for it, the Technical Advisor was able to point me in the direction of some financial support that could help buy the equipment we need.”*

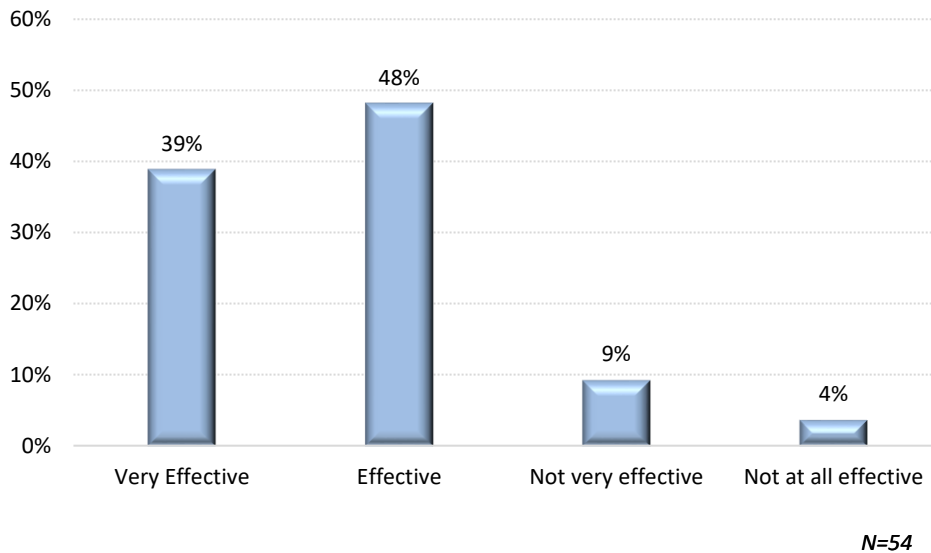
**TC Recipients of Support**

2.4.5 Overall Effectiveness of the Support and Continued Need

Unsurprisingly, given the positive feedback provided in relation to the TC delivery model, the quality of support received and its associated impact (per Section 2.5), most businesses (87%) indicated that the TC programme was ‘very effective’ (39%) or ‘effective’ (48%) in terms of supporting them to identify opportunities to enhance their energy and/or resource efficiency.

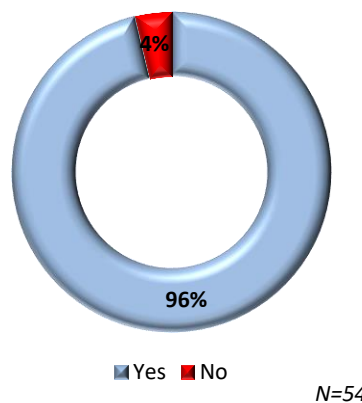
It should be noted that for those businesses that indicated that the support was not effective (13%), the majority of these businesses stressed that the reasoning behind their response was due to their dissatisfaction with the nature and quality of support that was provided by their respective consultant, as opposed to being reflective of their general views on the appropriateness and efficacy of the Programme and its delivery model (which was deemed by these businesses to be largely fit-for-purpose).

Figure 2.5: Overall Effectiveness of the TC support



Reflecting this view, almost all businesses (96%) indicated that they would recommend the TC Programme to other businesses that are potentially interested in exploring opportunities to enhance their energy and/or resource efficiency, whilst all businesses suggested that there was a continued need for the Programme.

Figure 2.6: Willingness to recommend TC Support



*“Soaring energy costs and increased pressure to undertake our operations as environmentally friendly as possible means that being energy efficient is more important than ever. This Programme doesn’t do everything, but it has started us on a journey and provided us with direction on the steps that we need to take to become more energy efficient.”*

*“I can’t speak highly enough about this Programme. From start to finish we were guided through the project with valuable advice provided along the way. We have been left with a number of tailored actions which, when implemented, will reduce our carbon footprint and save us money.”*

*“Whilst I wasn’t overly pleased with the final report that I received from the consultant, this isn’t a reflection of my views on the overall Programme which I think is well structured and should help most businesses that are interested in identifying opportunities to enhance their profitability and competitiveness by increasing their energy and resource efficiency.”*

*“This is an excellent Programme for those that have little or no understanding of how to improve their energy efficiency. I would happily recommend it to other businesses.”*

**TC Recipients of Support**

## 2.5 Programme Impact

### 2.5.1 Historic Actions to Enhance Levels of Energy and Resource Efficiency

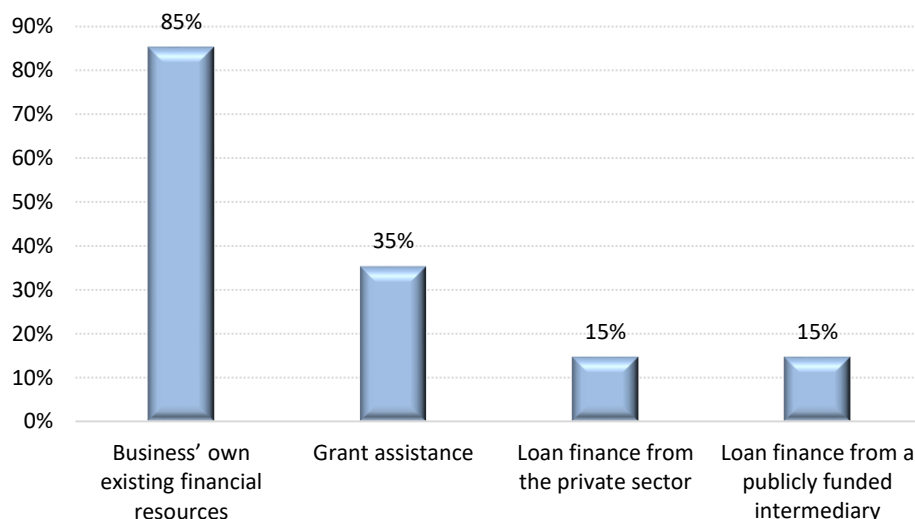
Just under two-thirds (63% - N=54) of businesses indicated that they had implemented measures within the last 5 years (prior to their TC project) to enhance their energy efficiency. Of these businesses, 62% (N=34) had made a capital investment to enhance their efficiency in this area, with the average investment equating to £16.2k over the period.

Implemented Actions to enhance the business'....	% of businesses (N=54)
– Energy Efficiency	63%
– Resource Efficiency	44%

Just over two-fifths (44%) of businesses indicated that they had implemented measures within the last 5 years (prior to their TC project) to enhance their resource efficiency. 58% (N=24) of these businesses suggested that they had made a capital investment, with these businesses making an average of £13.5k over the 5-year period.

Of those businesses that had made an energy and/or resource efficiency investment in the last 5 years, these businesses typically had done so using their own financial resources (85%) and/or grant assistance (35%) from a public body (most frequently cited as being Invest NI).

**Figure 2.7: Historic Financing of ERE Measures by TC recipients**



### 2.5.2 Achievement of Motives for undertaking a TC Project

Businesses identified a variety of objectives/motives to take forward a TC project with the most frequently cited including to identify opportunities and actions to:

- Enhance the operational efficiency of the business and make cost savings which was both the most frequently cited and single most important objective identified by businesses (identified by 93% of businesses);
- Reduce the business’ impact on the environment (81%);
- Realise process efficiencies (46%) and/or achieve better equipment performance (44%); and
- Enhance the business’ compliance with relevant legislative/regulatory requirements (43%).

Just over three-quarters of businesses (76%) also indicated that they wanted the TC project to provide them with information to ensure that any future business investment in ERE areas was ultimately made in the right areas thereby minimising the risk of wasted financial resources.

Table 2.7: Businesses’ Objectives for taking forward a TC project		
Motive/objective (N=54)	Tick all boxes that apply <sup>25</sup>	Single Most Imp.
<b>To identify opportunities and actions to....?</b>		
– Enhance the operational efficiency of the business and make cost savings	93%	93%
– Reduce the business’ impact on the environment	81%	2%
– Realise process efficiencies	46%	
– Achieve better equipment performance	44%	
– Enhance the business’ compliance with relevant legislative/regulatory requirements	43%	
– Enhance the business’ working environment	28%	
– Enhance environmental awareness among employees	28%	
– Realise the business’ corporate social responsibility commitments	22%	4%
– Enhance employee and wider business’ productivity	22%	
– Enhance the business’ image and corporate reputation with employees and the wider public	20%	
– Develop sustainable business collaborations	19%	
– Enhance employee morale and productivity	17%	2%
To ensure that any future business investment was made in the right areas and minimise the risk of wasted financial resources	30%	
To investigate new technologies and/or processes	76%	

Encouragingly, the majority of businesses (67%+) were of the view that they had ‘wholly’ or partially achieved their respective objectives for undertaking a TC project. Of note, and in keeping with the key tenets of the Programme:

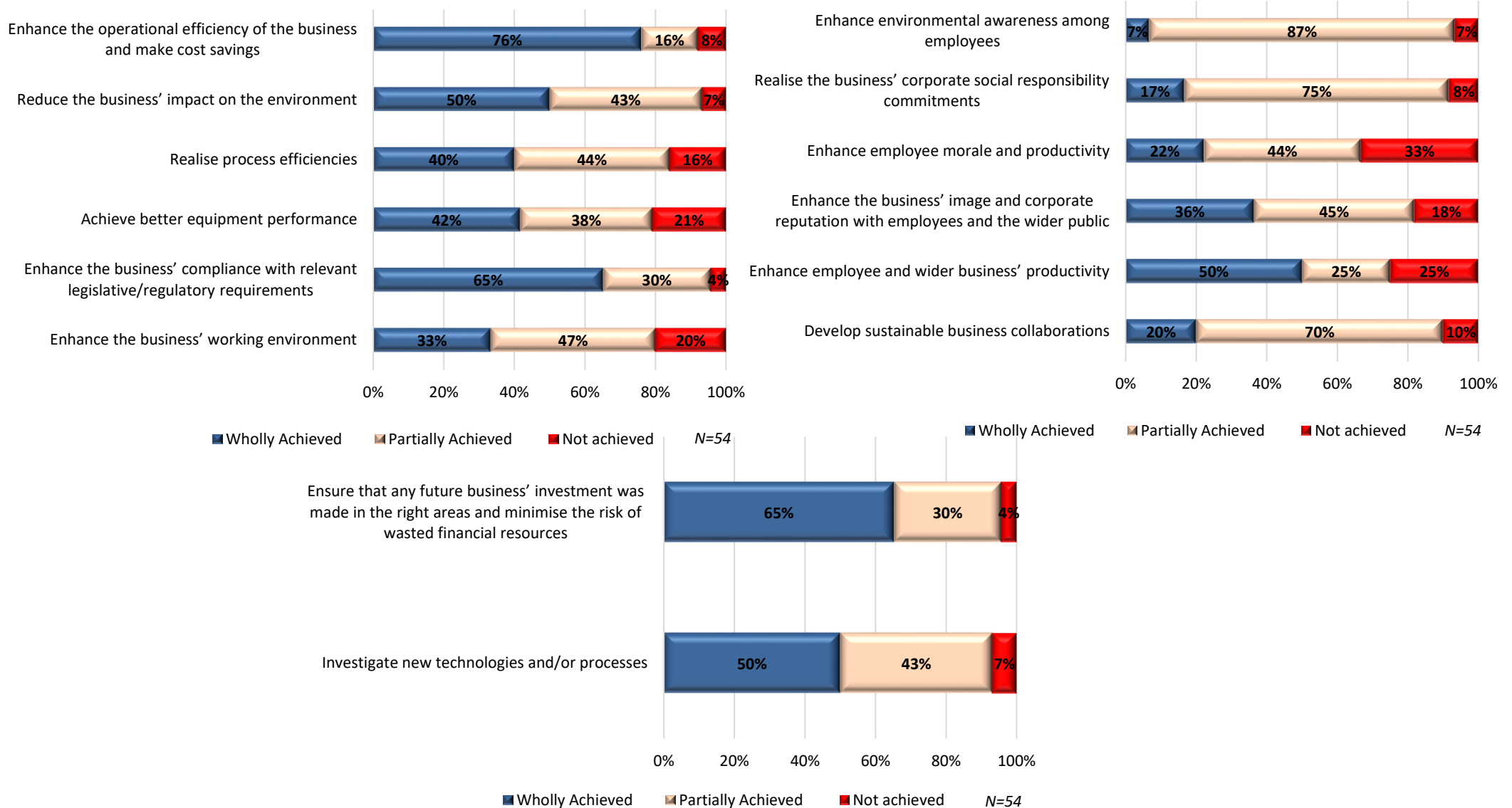
- 92% of businesses, that had indicated that they had undertaken their TC project to identify opportunities and actions to enhance the operational efficiency of their business and make cost savings, indicated that they had wholly (76%) or partially (16%) achieved this objective;
- 93% of businesses indicated that they had wholly or partially achieved their objective of identifying opportunities and actions to reduce any detrimental impacts of their business on the environment; and
- 96% of businesses were of the view that their TC project had provided them with the necessary information to ensure that any future business investment in ERE areas was ultimately made in the right areas, minimising the risk of wasted financial resources in the future.

<sup>25</sup> Please note that businesses were able to select multiple motive/objectives for taking forward a project hence the sum of the percentages across the barrier may be greater than 100%.



Figure 2.8: Businesses' Achievement of their Motives for undertaking a TC project

To Identify opportunities and actions to....?



However, a significant cohort of businesses indicated that their TC project had not supported them to realise several key objectives including identifying opportunities and actions to enhance:

- Employee morale (33%);
- Employee and wider business productivity (25%);
- Achieve better equipment performance (21%); and/or
- The business' working environment (20%).

Given the importance of these broader objectives for a significant cohort of businesses (20%+), per the discussion in Section 2.4.1, the Advisory Visit and subsequent consultancy support should ensure to fully explore the range of outcomes that businesses are seeking to achieve from implementing a TC project, ensuring that suitable ERE actions and solutions are identified to potentially realise these broader business objectives.

*"I have a much better knowledge and understanding of the nature and scale of costs and benefits from adopting greater energy and resource efficiency measures. Whilst still important to the business, the project has made me realise the importance of looking beyond the cost savings to the wider environmental benefits, to maintain my competitiveness."*

*"The project has supported my business to identify a number of opportunities to enhance its energy and resource efficiency, along with the potential cost and environmental savings that would arise from adopting the measures."*

*"The project showed us that the investment we were planning to make wouldn't generate the savings that we were hoping for, at least in the short to medium term. Therefore, we have turned our attention to a different project that will better suit our needs and ultimately make the investment viable for us."*

**TC Recipients of Support**

### 2.5.3 Potential Cost Savings Identified

As noted, the core objective of the Technical Consultancy Programme is to support businesses to identify ERE projects that would potentially result in the generation of cost savings for the business recipients<sup>26</sup> (subject to the implementation of the actions identified through the TC project). Based on monitoring information provided by Invest NI, Table 2.8 provides a summary of the potential annual cost savings identified by the 107 TC projects completed during the period under review.

Table 2.8: Gross Annual Potential Cost Savings Identified (N=107)				
Source of Saving		Potential Energy/Resource Saving (per annum)	Value of Potential Cost Saving (per annum)	% of Total cost Savings
Energy	Electricity	10,219,663 kWh	£1,225,857	37%
	Gas	18,279,980 kWh	£910,332	27%
	Oil	7,152,653 kWh	£572,076	17%
	<b>Sub-total</b>	<b>35,652,296 kWh</b>	<b>£2,708,265</b>	<b>81%</b>
Resources	Raw Materials	69,693 units	£379,959	11%
	Effluent	73,212 units	£120,537	4%
	Incoming Water	3,836,220 units	£111,454	3%
	Waste Disposal	114 units	£14,380	>1%
	<b>Sub-total</b>	<b>3,979,239 units<sup>27</sup></b>	<b>£626,330</b>	<b>19%</b>
<b>Total Potential Cost Savings</b>			<b>£3,334,595</b>	
<b>Average Potential Cost Savings</b>			<b>£31,164</b>	

<sup>26</sup> It is not the remit of the TC programme to provide the necessary support to businesses to implement the changes required to realise these cost savings (with this support being provided by other interventions including Invest NI's wider suite of ERE interventions e.g., EEF and REF).

<sup>27</sup> Variances in the reporting of units of measurement of individual resources by businesses precludes the identification of a common recognisable unit of measurement.

Salient points to note include:

- 94% of the completed projects (N=107) identified potential cost savings equating to £3.3m per annum (equivalent to an average of £31.1k per annum per completed TC project)<sup>28</sup>;
- Just over four-fifths of the total potential cost savings (81% or £2.7m) were anticipated to be achieved through the subsequent implementation of measures that would ultimately enhance the businesses energy efficiency, with the remainder potentially arising from the implementation of resource efficiency measures (19% or £626k);
- It was anticipated that the realisation of these cost savings would require £31.7m of capital investment by businesses;
- For those businesses where capital investment was required to achieve the potential cost savings identified (the case for 95 TC projects), the average payback years from making the investment was 7.1 years<sup>29</sup>; and
- 82% of projects completed offered the potential to reduce CO2 emissions equating to 12,454 tonnes of CO2 savings per annum<sup>30</sup>.

#### 2.5.4 *The Role of Technical Consultancy in Encouraging Businesses to Identify Opportunities to Enhance their Energy and/or Resource Efficiency*

Additionality is a key economic concept underpinning any assessment of the degree to which an intervention has delivered value-for-money (VFM). As the term suggests, ‘additionality’ refers to the real or ‘additional’ increase in activity and/or economic value that has been achieved as a result of the intervention (in this case, the Technical Consultancy Programme). Implicit within any assessment of additionality is the need to take account of the activity and/or economic value that would have been undertaken/achieved in the absence of the Programme (referred to as ‘Deadweight’).

Additionality is rarely an ‘all or nothing’ scenario (i.e., 100% or 0% additionality/deadweight) as an intervention may serve to influence the scale of activity/value realised and/or the timescale in which these have been realised. In such scenarios, the level of additionality/deadweight will fall somewhere between the upper (100%) and lower (0%) levels.

Our assessment of TC’s influence on encouraging businesses to take forward the activities to identify opportunities to enhance their energy and/or resource efficiency (commonly referred to as ‘Programme’ or ‘Activity’ additionality) involved using a participant self-assessment methodology that utilises a series of questions<sup>31</sup> within the participant survey to understand Technical Consultancy’s role in encouraging businesses to undertake the exploratory activities, assigning weightings to the individual responses.

The results of this analysis suggest that 66% of the business development activities undertaken to identify opportunities to enhance their energy/resource efficiency would not have gone ahead (or would not have gone ahead in the same timescale and/or at the same scale/level of intensity) in the absence of the support provided through the TC Programme.

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<sup>28</sup> Consultation with Invest NI suggests that the remaining TC projects were feasibility studies which served to identify a range of ERE options that the business could explore. In these cases, it was not the remit of the TC project to identify potential cost savings.

<sup>29</sup> 7 TC projects identified potential cost savings (equating to £112k) where no investment was required to realise these potential savings.

<sup>30</sup> The remaining projects were more overtly focused on identifying measure that would enhance business’ resource efficiency (as opposed to energy efficiency) and hence would not generate CO2 savings.

<sup>31</sup> In-line with DfE guidance, these questions focused on identifying the likelihood that the individual would have undertaken their project, what scale of project activities would have been undertaken in the absence of support (if relevant) and how much later would the project activities would have been undertaken (if relevant).

Table 2.9: Levels of TC Programme additionality/deadweight	
Programme Additionality	Programme Deadweight
65.6%	34.4%

The application of the calculated level of Programme additionality to the gross potential savings identified suggests that **the TC Programme directly supported businesses to identify c. £2.2m of potential cost savings per annum** through their respective consultancy projects.

Linked to this, the feedback suggests that the TC Programme has been successful in supporting businesses to overcome those barriers that were preventing them from exploring opportunities to enhance their energy/resource efficiency in the absence of receiving TC support, with the most frequently cited including (in order of relative importance):

- Affordability;
- A lack of understanding of the potential business benefits that could be derived from taking the exploratory activities forward (asymmetric information);
- A lack of internal capacity to take forward the project; and
- A lack of awareness of the external expertise that could provide the support (asymmetric information).

Table 2.10: Barriers to undertaking the activities in the absence of TC support		
Barrier (N=54)	% of businesses identifying the barrier <sup>32</sup>	Relative Importance Score (RIS) <sup>33</sup>
The business could not have afforded to take forward the project in the absence of receiving Technical Consultancy support	46%	65
Without knowing more about the potential benefits, the business would not have considered undertaking the business development activities	50%	64
The business did not have the time/had other relatively more important priorities (e.g., managing the day-to-day operations of the business)	46%	53
The business was not aware of the external expertise that could offer the support that was required to address their needs	43%	49
There was a lack of cultural commitment towards energy and resource efficiency and/or reluctance to implement change	22%	25
The consultancy project was viewed to be too risky to take forward without support	33%	22
The business was unwilling to take forward the project without receiving support	15%	18

*“Whilst recognising the importance of improving our energy and resource efficiency, without the support we simply wouldn’t have had the time or expertise to have given the project the same focus.”*

*“I wouldn’t have known where to go to get the support and I doubt that I would have had the finances to pay for it, especially given in the current environment.”*

*“If I’m being honest, in the wider list of business priorities, exploring opportunities to improve our energy and resource efficiency comes way down the list, especially if required money to do it.”*

**TC Recipients of Support**

<sup>32</sup> Please note that businesses were able to select multiple barriers hence the sum of the percentages across the barrier may be greater than 100%.

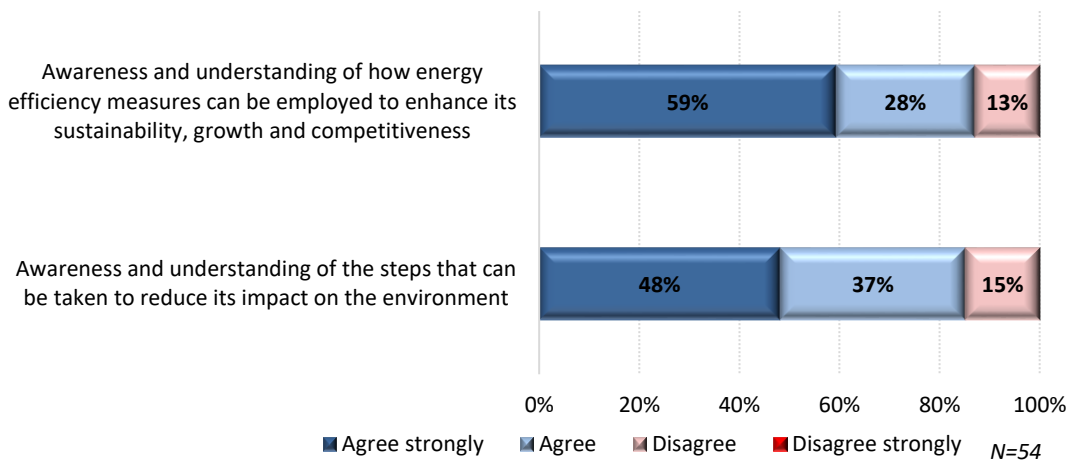
<sup>33</sup> The RIS has been calculated based on businesses ranking of the top 3 most important barriers.

2.5.5 Business' Awareness of the Role of Energy and Resource Efficiency

Given the nature and scale of a number of reported barriers that have historically prevented businesses from adopting ERE measures, it is positive to note that more than four-fifths of businesses indicated that the support provided through the TC Programme had served to increase their:

- Awareness and understanding of how energy efficiency measures can be employed to enhance its sustainability, growth and competitiveness (87%); and
- Awareness and understanding of the steps that can be taken to reduce its impact on the environment (85%).

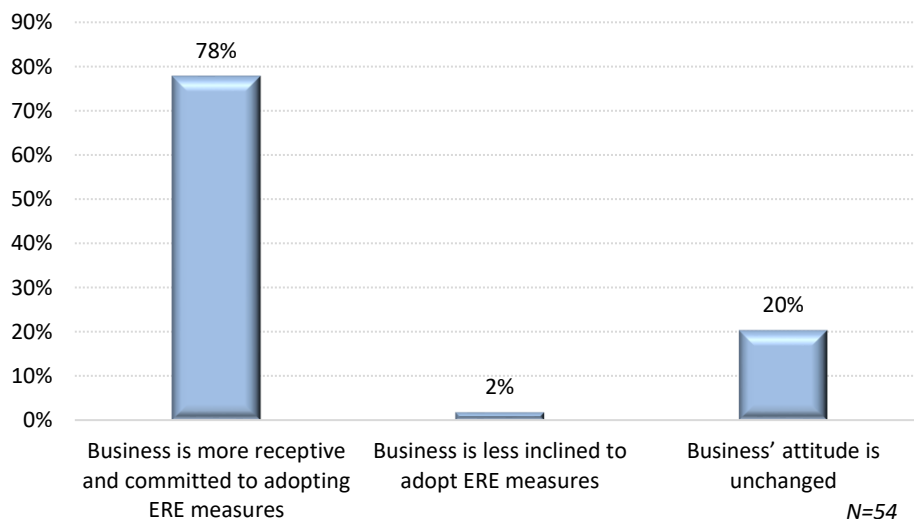
Figure 2.9: Impact of TC support on businesses' understanding of the role and importance of ERE



2.5.6 Attitudinal Changes to the Adoption of Energy and Resource Efficiency Measures

Positively, almost four-fifths of businesses (78%) indicated that they were now more receptive and committed to adopting ERE measures as a result of the support provided through their TC project (Figure 2.10). It should be noted that for most businesses that indicated that their receptiveness and commitment to adopting ERE measures had remained unchanged (20%), these businesses indicated that they were already committed to implementing these measures prior to receiving support.

Figure 2.10: Business' attitudes to the Adoption of ERE Measures following the receipt of TC support



*“Now that I have a better understanding of the costs and benefits that I could get from implementing these measures, I’m much more likely to make the investment.”*

*“Overall, I’d say that I am more likely to adopt measures to enhance my energy and resource efficiency as a result of the support.”*

*“Energy efficiency was always high on my business’ agenda. I think the project just reinforced the benefits of implementing the measures and gave me good direction on how I should go about doing it.”*

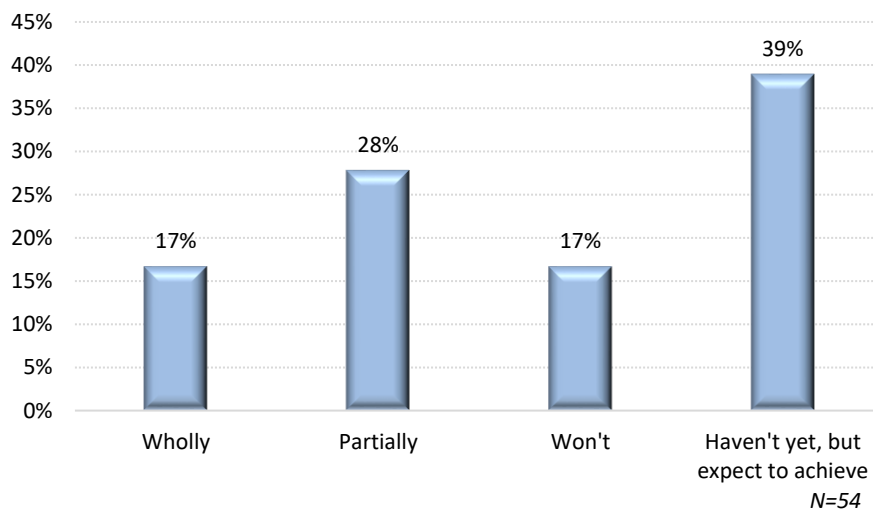
**TC Recipients of Support**

### 2.5.7 Implementation of Actions

Whilst noting that the core remit of the TC Programme is to support businesses to identify actions/projects that would reduce their cost base through the subsequent implementation of the ERE measures and that a variety of exogenous, business-specific factors are likely to influence the degree to which businesses ultimately implemented the identified actions, the Research Team sought to identify the progress made by businesses in implementing the actions that were identified through their respective TC projects.

Just under half of businesses (45%) indicated that they had wholly (17%) or partially (28%) implemented the actions that had been identified through the TC support. A further two-fifths of businesses suggested that whilst they had not yet implemented the actions, they anticipated doing so at some stage in the future. The remaining businesses (17%) indicated that they did not anticipate implementing the actions that had been identified.

**Figure 2.11: Implementation of Actions identified through the TC support**



The feedback (see Table 2.11) from businesses indicates that the main factors preventing businesses from fully implementing the actions included:

- Affordability constraints, which were identified by just over three-fifths (62%) of businesses.

The Research Team notes that whilst it was envisaged that the provision of capital grant support through Invest NI’s EEF and REF Programmes would contribute towards the capital costs of implementing the actions identified during TC project (where this financial support was required by businesses), the Research Team’s analysis indicates that there was a low level of ‘pull-through’ from businesses that received TC support to these sources of finance. Specifically, the Research Team’s analysis indicates that only 8 businesses that received TC support progressed to receiving support through EEF and/or REF<sup>34</sup>.

<sup>34</sup> Other businesses may have subsequently been provided with SFA support.

Consultation with Invest NI indicates that the low levels of pull-through between TC and REF are, in its experience, to be expected as there are relatively higher levels of awareness and understanding amongst the business base with regard to efficiencies that can be gained by adopting certain materials/resources vis-à-vis businesses' knowledge of the benefits of implementing energy efficiency measures. As such, it was noted that TC projects are much more likely to be focused on energy as opposed to resource efficiency.

Noting this, and whilst appreciating that not all of these businesses may have had the match funding to deliver the project identified with TC support at the time of its completion and/or may not have been potentially eligible to receive support through the capital grant schemes, during consultation, a number of businesses (N=11) (all of whom were Account Managed Clients) indicated that they had been unable to access the grant support because a competitive call for applications for support was not open for the schemes at the time of completing their TC project or soon after this. A number of these businesses reported that the emergence of other business priorities in the interim period resulted in focus being diverted away from the actions identified through the TC support and the businesses ultimately not applying for capital support when a subsequent call for applications was opened.

Whilst noting the merits of Invest NI adopting a competitive call process to administer its capital grant funding (including the ability to identify and select the projects that offer relatively higher levels of VFM, greater budgetary oversight and control, greater management of business' expectations vis-à-vis a 'first-come, first-served' approach) such an administrative approach arguably operates more effectively in instances where discreet support is provided through a standalone intervention. Evidently, based on the feedback from businesses, the approach works less well in instances where there is a pipeline/pathway of support where the ultimate outcome is highly dependent on the receipt of support across interventions.

On this basis and given the need to stimulate levels of demand and uptake of support through any new energy efficiency scheme, careful consideration should be given to the merits and demerits of adopting the various approaches to administering its ERE capital grant support including under competitive calls for applications, open calls and an 'evergreen' (constantly open) fund for applications. The Research Team notes that the adoption of such an evergreen scheme would deviate from Invest NI's current increasing corporate focus on administering assistance through calls.

In the event that Invest NI continues to administer its ERE capital grant support via a call system (competitive or open in nature), consideration should be given to increasing the frequency and duration of calls to encourage greater levels of pull-through between the ERE interventions. The implementation of such an approach is likely to place a requirement for additional staff resources to be allocated to the ERE Team. Linked to this, Invest NI should review its processes for communicating the timing of calls. At a minimum, Technical Advisors should ensure to communicate the timing of REF and EEF calls to eligible businesses as part of the TC follow-up visit, with subsequent communication (e.g., by email) directly made to recipients of TC support closer to the opening of the call. As part of any continued use of calls, cognisance should also be taken of the need to apply an equitable treatment of all businesses through the application and approval process.

- Businesses having more important investment (40%) and non-investment priorities (36%); and
- Businesses requiring additional advice and guidance to implement the solutions and actions (38%).

The analysis also suggests that caution should be taken in attributing any negative causal link between the quality of the support delivered through TC and businesses’ decision not to implement the actions that were identified through the support. Of the 9 businesses that indicated that they did not envisage implementing the actions, 6 of these businesses indicated that this was due to the fact that the outcomes of their respective TC project had indicated that the project would not generate the cost savings required to make the investment viable. Linked to the discussion in 2.5.2, the analysis, therefore, indicates that the TC programme is playing a positive role in mitigating the risk of businesses wasting their financial resources on projects that will not provide appropriate returns.

<b>Table 2.11: Factors preventing the implementation of the Identified Actions</b>	
<b>Factor (N=45)</b>	<b>% of businesses</b>
The business did not have the financial resources available to implement the solutions/actions	62%
The business had other more pressing investment priorities	40%
The business would have required additional advice and guidance to implement the solutions/actions	38%
Lack of time/the business had other more pressing non-investment priorities (e.g., overseeing the day-to-day running of the business)	36%
Sufficient time has not elapsed to implement the changes	16%
The solutions/actions were not appropriate for your business	13%
The business does not have the human resources with the capacity and/or capability to implement the solutions/action	13%
The outcomes of the TC project indicated that the project would not generate the cost savings required to make the investment viable	13%

*“Whilst we plan to implement the project, the business’ finances are just too tight at the minute.”*

*“There needs to be better connectivity between these supports (Invest NI’s ERE Programmes). Whilst I was made aware that financial support was potentially available to support the implementation of the actions, the Programme providing this wasn’t open and there was uncertainty as to when it would reopen, if at all. So, I put the project on hold, hoping to come back to it but other things have got in the way of this...I don’t know when I’ll get an opportunity to look at the project again.”*

*“The support concluded that the project would not provide the cost savings that would warrant the level of investment required to implement the measures, so we are not going to proceed with it.”*

**TC Recipients of Support**

### 2.5.8 Assessment of Gross Tangible Business and Environmental Outcomes

Taking cognisance of the levels of project implementation across the survey sample, the Research Team sought to identify the tangible impact of TC support on a range of business and environmental outcomes.

Whilst this process is straightforward for those businesses that had indicated that they had wholly implemented (17%) or had not implemented (56%) the actions and associated investment identified in their respective TC projects, the assessment is more problematic for businesses that had only partially implemented the actions (28% - N=54) as there are inherent difficulties for business in quantifying the cost savings and wider environmental impacts that have been achieved from partially implemented projects. Whilst recognising the potential limitations in accurately assessing the outcomes made by these projects, the Research Team has sought to quantify the potential impact based on the best information available.



## Investment

Based on the outcomes of the TC support, it was suggested that c. £31.7m was required to be invested across the 107 projects to realise the identified potential gross cost savings (of £3.33m)<sup>35</sup>. The feedback during the primary research process indicates that businesses had invested, on average, 22% of the investment required to realise the project cost savings.

<b>Table 2.12: Average Investment in TC projects</b>		
<b>Degree of Project Implementation</b>	<b>Range of Investment</b>	<b>Average Investment</b>
Fully Implemented (N=9)		100%
Partially Implemented (N=15)	5% to 40%	19%
Not Implemented (N=30)		0%
<b>All business (N=54)</b>	<b>0% to 100%</b>	<b>22%</b>

The application of this average level to the total investment identified across the completed projects suggests that businesses may have made £6.9m of investment in measures to enhance their energy and resource efficiency. This figure is likely to increase as businesses continue to implement the actions identified within their respective TC project.

<b>Table 2.13: Calculated levels of investment across all TC projects</b>		
<b>Total investment required to realise the projected cost savings</b>	<b>Average investment made, as a % of total investment required in survey sample</b>	<b>Potential investment made by businesses</b>
£31,704,212	22%	£6,922,086

## Cost savings

On the basis that the outcomes of the TC support indicated that £31.7m of investment would generate annual cost savings of c. £3.33m, the value of annual cost savings represented c. 10.5% of the investment required. The application of this proportion to the potential investment that was made by businesses (£6.92m), suggests that businesses would have generated c. £728k per annum.

The Research Team's analysis indicates that, on average, 15.8 months had passed since businesses had received their respective completed TC report. This would suggest that businesses would have generated c. £959k of cost savings. However, in the absence of information as to the potential timing of when the businesses made the investment in the ERE measures, for prudence, the Research Team has reduced the period by 6 months (to an average of 9.8 months). The application of this reduction suggests that businesses potentially derived £595k of cost savings in a 'normal' operating environment.

However, mindful that the COVID-19 pandemic may have impacted businesses' usage of their premises and the associated use of the resource efficiency measures, the Research Team sought to measure how changes in the wider operating environment and any other business-specific changes impacted businesses' usage of the measures (Table 2.14).

<sup>35</sup> It should be noted however that investment may not always be required to realise cost savings.

**Table 2.14: Impact of changes in the operating environment on business' usage of the ERE Measures**

N=24	% of businesses	Range	Average
The business used the business premises and resource efficiency measures <b>less</b>	17%	-10% to -30%	-21%
The business used the business premises and resource efficiency measures <b>more</b>	-	-	-
The business' usage of the premises and resource efficiency measures were <b>unchanged</b>	83%		

Of those businesses that had wholly or partially implemented the ERE measures identified through the TC support (N=24), just over four-fifths (83%) of businesses indicated that there had been no reduction in the usage of their business premises and ERE measures as a result of the COVID-19 pandemic or any other business-specific factors. The remaining businesses (17%) suggested that their usage had decreased by, on average, 21%.

The findings from across the sample of businesses (N=24) indicate that businesses utilised their business premises and resource efficiency measures by, on average, 3.5% less than they might otherwise have done in a normal operating environment. Whilst recognising that this reduction only applies to those businesses that had indicated they had wholly or partially implemented the actions identified through their respective TC, for prudence, the 3.5% reduction has been applied across the population of projects.

Taking account of this reduction in usage suggests that the TC Programme supported businesses to achieve c. £574k of gross cost savings (Table 2.15).

**Table 2.15: Calculation of potential Cost Savings derived by businesses**

Potential Investment made by businesses on ERE Measures	£6,922,086
Annual Cost savings (@10.5% of projected investment made in ERE Measures)	£728,053
Average Number of months since TC project was completed (with 6-month reduction sensitivity applied)	9.8 months
Cost savings in 'normal' operating period	£594,577
Cost savings taking account of the impact of the COVID-19 pandemic on business premises and ERE measure usage	£573,767

### **Environmental Outcomes**

The application of the same methodology to the CO2 emission savings identified with the TC support indicates that the subsequent implementation of ERE measures may have generated 2,143 tonnes of gross CO2 emissions savings (Table 2.16).

**Table 2.16: Calculation of potential CO2 Emissions Savings**

Potential Investment made by businesses on ERE Measures	£6,922,086
Annual CO2 savings	2,719 tonnes
Average Number of months since TC project was completed (with 6-month reduction sensitivity applied)	9.8 months
Cost savings in 'normal' operating period	2,221 tonnes
Cost savings taking account of the impact of the COVID-19 pandemic on business premises and ERE measure usage	2,143 tonnes

### **Other Tangible Business Outcomes**

Businesses indicated that they had not increased their sales and/or realised employment impacts (created or safeguarded) as a result of the TC support. Just under one-fifth (17%) of businesses were of the view that the support has served to increase their competitiveness.

### 2.5.9 Assessment of Net Additional Tangible Business Outcomes

The preceding analysis has quantified the gross tangible business benefits that have, at least in part, been derived as a result of receiving TC support. However, in order to determine the level of tangible business benefits, that can be directly attributed to the TC Programme (i.e. the ‘net additional impact’) these gross figures need to be adjusted to take account of impact deadweight/additionality and displacement.

#### **Impact Deadweight/Additionality**

The net impact of the TC support (i.e. its additionality) on recipients' tangible business benefits can only be measured after making allowances for what would have happened in the absence of the intervention. That is, the impact must allow for deadweight. ‘Deadweight’ refers to outcomes that would have occurred without the intervention.

On the basis that most Evaluations are undertaken after some time after an activity is implemented, it is not appropriate to apply the ‘Programme/activity additionality’ (calculated in Section 2.5.4) to outcome measures on the basis that, in the intervening period any variety of factors (and support interventions) may have had an impact on a business realising tangible business outcomes. Therefore, using a similar self-assessment methodology, an ‘impact additionality’ measure was calculated to ascertain the level of deadweight/additionality relating to business outcomes.

The Research Team’s analysis (see Appendix III for further details) indicates that 65% of the tangible business outcomes would not have been achieved or would not have been achieved on the same scale and/or within the same timescale, in the absence of the TC Programme.

<b>Table 2.17: Levels of TC Impact additionality/deadweight (N=54)</b>	
<b>Impact Additionality</b>	<b>Impact Deadweight</b>
65.4%	34.6%

The levels of impact deadweight/additionality compare favourably when compared to other similar interventions (Table 2.18). For example, the level of additionality is c. 11 percentage points (pp) higher than other UK regional ‘Business Development and Competitiveness’ interventions and c. 8pp higher than other initiatives designed to bring about efficiency improvements in business through the adoption of (more) sustainable working practices (the Sustainable consumption/production Sub Theme).

<b>Table 2.18: Benchmarking levels of Impact Additionality<sup>36</sup></b>	
<b>Intervention type</b>	<b>Average level of additionality</b>
<b>Technical Consultancy</b>	<b>65.4%</b>
Technical Consultancy (2018 SDSP Evaluation)	45.9% <sup>37</sup>
<b>UK Regional Interventions</b>	
– All interventions	57.0%
– Programme interventions only	56.2%
– Business development & competitiveness Theme	54.5%
– Sustainable consumption/production Sub Theme <sup>38</sup>	57.9%

<sup>36</sup> Source: Research to Improve the Assessment of Additionality (BIS, 2009).

<sup>37</sup> For comparative purposes the Research Team has utilised the inverse of the Evaluation’s deadweight calculation and not the stated additionality figure (as this appears to relate to net additionality, taking account of displacement).

<sup>38</sup> This category relates to initiatives designed to bring about efficiency improvements in business through the adoption of (more) sustainable working practices.

### Economic Displacement

Economic Displacement arises when a policy intervention, which causes the expansion of one economic activity or activity in one location, also has the effect of bringing about some degree of reduction in economic activity elsewhere. If we wish to measure the net gain from the policy or intervention (in this case, the TC Programme) we must take account of displacement effects.

In order to calculate levels of economic displacement, consideration was given to two interrelated variables:

- A. The proportion of the businesses that participants compete with that are based in their domestic market/GB market, keeping in mind the markets in which their business sells into; and
- B. Whether, in the participant’s area of business, market conditions have improved over the period since receiving support.

Based on a series of questions that sought to ascertain business respondents’ feedback on these two variables, the levels of displacement were calculated to be 20% at the NI level and 16% at the GB level.

<b>Table 2.19: Calculated levels of Displacement for TC recipients</b>	
<b>NI</b>	<b>GB</b>
20.3%	15.5%

Making allowances for the reductions required to take account of impact deadweight (34.5%<sup>39</sup>) and displacement (20.3%) indicates that the TC Programme has directly supported businesses to

- Make £3.6m investment in interventions to enhance their energy and/or resource efficiency;
- Derive c. £300k of cost savings; and
- Generate 1,404 tonnes of CO2 emission savings

<b>Table 2.20: Net Additional Business Benefits derived by TC recipients</b>			
	<b>Investment</b>	<b>Cost savings</b>	<b>CO2 Emissions Savings</b>
Gross Impact	£6,922,086	£573,767	2,143 tonnes
Deduction for Deadweight (@34.5%)	(£2,388,120)	(£197,950)	739 tonnes
Deduction for Displacement (@20.3%)	(£920,395)	(£76,291)	N/A
Net Additional Impact	£3,613,571	£299,526	1,404 tonnes

#### 2.5.10 Net Additional GVA Impacts

Taking sole account of the net additional cost savings derived by businesses as a result of the subsequent implementation of measures to enhance their energy and/or resource efficiency indicates that the TC Programme contributed c. £300k on net additional GVA to the NI economy.

<sup>39</sup> Given the fact that the ‘activity’ (34.4%) and ‘impact’ (34.6%) levels of deadweight are broadly equivalent, the Research Team has applied the mid-point between the two estimates.

The inclusion of wider supply chain benefits that potentially arose as a result of the investment made by businesses<sup>40</sup> to facilitate the implementation of the actions identified through the TC support indicates that the Programme contributed a further c. £687k in net additional GVA, equivalent to £986k in total net additional GVA.

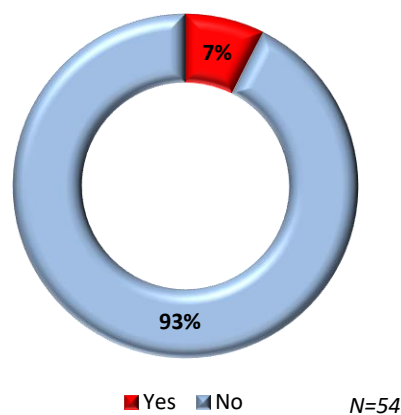
Table 2.21: Calculation of TC Net additional GVA			
Impact metric	Net additional Impact	Sectoral average level of GVA <sup>41</sup>	Net Additional GVA
Cost savings	£299,526	N/A <sup>42</sup>	£299,526
Investment in ERE measures	£3,613,571	19% <sup>43</sup>	£686,579
<b>Total</b>			<b>£986,105</b>

This figure is likely to increase as businesses continue to implement the actions identified within their respective TC project.

### 2.5.11 Duplication and Complementarity

Almost all businesses (93%) indicated that, in the absence of the TC Programme, they would not have been able to get the same or similar support elsewhere.

Figure 2.12: Businesses' Ability to get similar support in the absence of the TC Programme



<sup>40</sup> The appropriateness of the inclusion of the investment in the GVA calculation may vary depending on the viewpoint of the reader. Whilst noting that investment serves as an input to ultimately generate the costs savings from an ERE project, it does nonetheless represent supply-chain expenditure in the NI economy which has been brought about as a result of the project. Noting the potential differences in viewpoints as to whether this investment should be included in the calculation, the Research Team has calculated the net additional GVA (and associated return-on-investment) both inclusive and exclusive of the GVA impacts potentially brought about from this investment.

<sup>41</sup> Source: Annual Business Enquiry Reporting Unit Results 2020 (November 2021).

<sup>42</sup> GVA can be calculated by summing business' Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) which calculated by summing operating profit, depreciation and amortisation and wages and salaries. The analysis assumes that a pound of cost saving is equivalent to a pound of GVA on the basis that it will typically provide a direct impact on a business' operating profits. Cost savings have been included in the calculation on the basis that they will directly impact on the scale of a business' inputs.

<sup>43</sup> For prudence, the Research Team has reduced the NI average sectoral level of GVA from 38% to 19% (a 50% reduction) to convert the investment made by businesses to GVA. This approach has been applied to take account of businesses potentially having sourced equipment/technology directly from outside NI (which would represent a leakage) and/or businesses sourcing equipment/technology from a NI provider who had originally sourced it from outside NI (thereby creating a reduction in the value-added element in the supply chain).

As noted under Section 2.5.8, the TC Programme represents (at least in theory) an important feeder programme to Invest NI's wider ERE Programmes, most notably those interventions that provide capital grant support (EEF and REF) which could potentially provide the financial support required by businesses to support the implementation of the actions that are identified within their respective TC reports. However, as noted, the feedback from businesses indicates that the current process for administering this support (i.e., through competitive and open calls), is not currently supporting the pull-through of TC projects as effectively as anticipated at the outset and careful consideration should be given by Invest NI as to how its capital grant support is administered to ensure that businesses can access the continuum of support available along the ERE pipeline of offerings.

In addition, consultation with Invest NI indicates that there is the potential for greater interworking between its TC and Operational Excellence Programme, which is (like TC) overtly focused on supporting businesses to realise efficiency and productivity improvements in their operations. Most notably, it was suggested that greater cross-working between the Programmes could support the development of Sustainability Improvement Action Plans for businesses, an area identified to be of growing importance for businesses and this is an area that warrants further consideration by Invest NI moving forward.

## 2.6 Progress Towards Programme Targets

### 2.6.1 Appropriateness of Targets Established

Based on its review of the targets established for the TC Programme, the Research Team would make the following observations (many of which are equally applicable to the targets established for the other ERE interventions under review):

- Whilst referred to as 'targets' for the purpose of the Research Team's analysis, the presentation of anticipated activities and outcomes could have been more formally articulated, with greater attention being paid to the 'SMART' principles that underpin good practice in target-setting. For example, the presentation of information has resulted in a general level of uncertainty as to the specific nature of the targets that have been established for the Programme, the interlinkages between different metrics presented through the Economic Appraisal (particularly in relation to Programme outcomes) and the assumptions that have been adopted to inform the scale of the metrics established. Related to this, the outcome metrics do not appear to have been profiled in line with the anticipated timing of when they would potentially have been derived by businesses and the NI economy, bearing in mind the projected levels of persistence (thus not adhering to the 'time-bound' principle of SMART target setting);
- The Research Team would question the reasonableness of including a target for net additional GVA for the TC Programme given its focus and the underpinning 'logic' of the Programme which is overtly focused on supporting businesses to identify ERE projects that could potentially generate cost savings and enhance business' environmental sustainability. It is noted that the subsequent realisation of these outcomes is conditional on the business ultimately implementing the project which will be highly dependent on a number of different variables (e.g., the availability of finance, businesses' other investment and non-investment priorities etc.) which the TC Programme have little/no control over. As such, it is recommended that any future Business Case assesses the reasonableness of the inclusion of a GVA target in the context of the Programme's 'Theory of Change'. In making this recommendation, the Research Team would emphasise that future Interim and Post Programme Evaluations should continue to examine the level of project implementation and associated GVA impacts made by the Programme (where this is possible to do so given the reported limitations in businesses' ability to quantify the impact of partially implemented projects); and

- Linked to the previous point any future Economic Appraisal should focus on establishing a broader, more appropriate mix of SMART activity, output and outcome targets that are more intrinsically focused and linked with the overarching aims and anticipated outcomes of the TC programme, particularly given its advisory nature. The nature and scale of these targets should be linked to the reported outcomes reported by recipients of support (as documented through this Evaluation).

### 2.6.2 Progress towards Targets

Table 2.22 (overleaf) provides a summary of the progress made towards the targets established for the TC Programme for the period under review.

In reviewing the progress made towards the activity targets established for the Programme, the Research Team has presented the targets both in terms of anticipated activity that was documented in the Economic Appraisal and revised internal targets that were established by the ERE Team (which reduced the projected levels of activity) due to the actual budget and human resources that were ultimately available to be committed to the Programme during the period under review (particularly in Year 2).

Irrespective of which set of targets is utilised, the analysis indicates that the actual levels of activity were significantly below that anticipated at the outset. Specifically, we note that the number of Advisory Visits and Technical Consultancy projects delivered were 55% and 62% respectively below the levels projected in the Economic Appraisal (and 48% and 51% below the revised internal targets that were established).

As noted in Section 2.3, the feedback indicates that changes in the operating environment brought about by a number of exogenous factors, most notably the COVID-19 pandemic, served to reduce the capacity of many businesses to take forward wider business development projects such as a Technical Consultancy project. The feedback from Invest NI indicates that the return to more normalised operating conditions (at least in relative terms) has resulted in a significant increase in demand and uptake of Technical Consultancy support.

In terms of outcome targets, the Research Team's review of the Economic Appraisal indicates that it was anticipated that the Programme would generate £84.4m of Net Additional GVA Benefits, based on the persistence of benefits over a five-year period post support. Due to the aforementioned difficulties in making a direct comparison to the projections detailed within the Economic Appraisal, our analysis suggests that £986k in total net additional GVA has been derived to date.

Whilst noting that the projects reviewed are at an early stage of their persistence life cycle and levels of GVA are likely to increase as additional businesses implement the actions identified by their respective TC project, based on progress to date, a level of uncertainty exists as to whether the Programme will achieve the projected levels of net additional GVA. We do however note that a full assessment can only be taken in the longer term. Notwithstanding this, as noted, given the underpinning focus of the TC Programme on identifying potential cost savings, and the potential need for other interventions to support businesses to achieve these cost savings (including the other ERE interventions), we would question the relevance of including specific GVA targets for a programme of this nature.

Nature of Target	Year 1 Oct 2019 - Mar 2020 (6 months)			Year 2 Apr 2020 - Mar 2021 (12 months)				Total Oct 2019 - Mar 2021 (18 months)				
	Target		Actual	Variance from Revised Target	Target		Actual	Variance from Revised Target	Target		Actual	Variance from Revised Target
	Economic Appraisal	Revised Internal Target			Economic Appraisal	Revised Internal Target			Economic Appraisal	Revised Internal Target		
RDS raised	N/A	237	118	-50%	N/A	400	344	-14%	N/A	637	462	-27%
Advisory Visits	247	237	137	-42%	495	400	195	-51%	742	637	332	-48%
TC Projects Completed	94	94	34	-64%	188	125	73	-42%	282	219	107	-51%

## 2.7 Performance Against Budget

Table 2.23 provides a comparison of the actual and anticipated costs for the period under review. In doing so, cognisance has been taken of both the anticipated costs established as part of the Economic Appraisal and the revised internal budget established (for reasons stated under Section 2.6).

Nature of Cost	Year 1 Oct 2019 - Mar 2020 (6 months)			Year 2 Apr 2020 - Mar 2021 (12 months)					Total Oct 2019 - Mar 2021 (18 months)				
	Projected Costs	Actual	Variance from Budget	Projected Costs		Actual	Variance from Budget		Projected Costs		Actual	Variance from Budget	
				Economic Appraisal	Revised Internal Budget <sup>44</sup>		Economic Appraisal	Revised Internal Budget	Economic Appraisal	Revised Internal Budget		Economic Appraisal	Revised Internal Budget
Core Delivery	£244,120	£95,547	-61%	£498,005	£320,000	£230,318	-54%	-28%	£742,125	£564,120	£325,865	-56%	-42%
INI Staff	£119,590	£84,192	-30%	£243,964		£168,698	-31%		£363,554		£252,890	-30%	
Marketing	£6,527	£2,557	-61%	£13,316		£20,040	+51%		£19,843		£22,597	+14%	
Evaluation Costs <sup>45</sup>	-	-	-	£9,273		£13,425	+45%		£9,273		£13,425	+45%	
<b>Total</b>	<b>£370,237</b>	<b>£182,296</b>	<b>-51%</b>	<b>£764,558</b>	<b>£586,553</b>	<b>£432,481</b>	<b>-43%</b>	<b>-26%</b>	<b>£1,134,795</b>	<b>£956,790</b>	<b>£614,777</b>	<b>-46%</b>	<b>-36%</b>

<sup>44</sup> With the exception of core delivery costs, the anticipated costs associated with all other cost categories were not amended.

<sup>45</sup> Whilst it was anticipated that Evaluation costs would be incurred in Year 3, for comparative purposes these have been included in Year 2.



- Reflecting the lower than anticipated activity delivered, the full-economic cost of delivering the Programme (c. £614k) was 46% lower than anticipated in the Economic Appraisal and 36% lower than the revised internal budget that was established;
- Caution should be taken in drawing any relative comparison between the lower than anticipated number of advisory visits (which are delivered by Invest NI’s Technical Advisors) and the Invest NI staff costs (where the proportionate reduction from the anticipated level was relatively lower) on the basis that whilst core-targeted activity was lower than anticipated, consultation with Invest NI indicates that significant additional time was allocated to responding to ad-hoc requests for advisory support from the business base (which is not reflected in the core targeted activity)<sup>46</sup>; and
- Marketing costs were 14% higher than anticipated as a result of the need to implement a bespoke marketing campaign to promote the Programme’s services being delivered virtually as a result of the COVID-19 pandemic.

## 2.8 Assessment of Value-for-Money

The Research Team’s analysis indicates that depending on the reader’s viewpoint as to the appropriateness of the inclusion of any investment made by businesses in the GVA calculation, the Programme delivered a return on investment of between £0.49 and £1.60 in net additional GVA for every £1 invested in the Programme during the period under review.

<b>Table 2.24: Calculation of the Return-on-Investment provided by the TC Programme</b>			
<b>Net Additional GVA</b>		<b>Full Economic Cost</b>	<b>Return-on-investment</b>
Excluding Investment made in ERE Measures	£299,526	£614,777	<b>£1: £0.49</b>
Including Investment made in ERE Measures	£986,105		<b>£1: £1.60</b>

However, the Research Team would urge caution in placing focus on the return on investment provided to date as an appropriate indicator of VFM. Specifically, we note that:

- For those businesses that had wholly (17%) or partially (28%) implemented the actions identified through the technical consultancy project, these businesses had only recently completed their TC project (c. in the last 16 months). Given the anticipated levels of persistence in the realisation of monetary benefits (projected in the Economic Appraisal as being c. 5 years), these businesses are at a relatively early stage in terms of realising the monetary benefits associated with the investment made. Indeed, as noted in Section 4.8, in keeping with appraisal guidance, the costs and benefits of an investment, that may have been made by a business as a result of the TC support provided (with or without follow on REF/EEF grant assistance) should be examined over the course of its Useful Economic Life (UEL); thus requiring a more longitudinal approach to the potential impact made as a result of the actions taken by businesses following their TC project<sup>47</sup>; and

<sup>46</sup> Consultation with Invest NI’s TAs indicates that, on average, 12 cases of support would be provided to clients per month. This includes providing support and advice on areas including carbon management, energy generation, sustainability and circular economy, energy costs mitigation, Scope 3 Carbon Footprinting and signposting to funding options.

<sup>47</sup> Whilst an absence of information relating to which technologies/equipment were acquired by businesses in receipt of TC support (and their associated UEL) precludes the Research Team from applying a more longitudinal approach to the projections (beyond a 5-year period), the inclusion of these impacts is likely to positively impact on the monetary impact made by the Programme.

- A significant proportion of businesses (39%) indicated that whilst they had not yet implemented the actions identified through their respective TC projects, these businesses anticipated doing so. The future implementation of these actions is likely to have a material impact on the identified return-on-investment ratios.

In short, a fully informed assessment of the monetary return on investment can only be taken in the longer term. Subject to the continued usage of the ERE measures implemented, the Research Team’s analysis suggests that the projects supported through the TC Programme would potentially contribute c. £1.8, in net additional GVA by 5 years after their completion, equating to a minimum return on investment of £2.94 for every £1 invested through the Programme<sup>48</sup>.

Table 2.25: Projected Return-on-Investment provided by the TC Programme (post 5 years)		
Net Additional GVA <sup>49</sup>	Full Economic Cost	Return-on- investment
£1,809,802	£614,777	<b>£1: £2.94</b>

It should also be noted that the monetary return-on-investment ratios would be materially higher in a scenario in which the wider environmental impacts of ERE interventions (including the TC programme) are appropriately monetised (i.e., the quantification of carbon value savings using the MAC-based approach detailed previously)<sup>50</sup>.

In any such case, as noted in Section 2.6.1, whilst noting that the realisation of financial outcomes should be viewed positively, the Research Team would question the appropriateness of placing considerable focus on the monetary return-on-investment provided by the Programme given its focus and the underpinning ‘logic’ of the Programme on supporting businesses to identify ERE projects that could potentially generate cost savings and enhance business’ environmental sustainability. In this regard, whilst noting that levels of activity were significantly below that anticipated at the outset, based on the feedback from businesses, the Programme appears to have served its core purpose with c. £3.3m of potential gross cost savings per annum being identified across 107 TC projects (£2.2m of which were directly attributed to the support provided through the TC Programme).

In addition, we have considered TC’s performance in the context of Invest NI intervention principles in the table below:

Table 2.26: TC VFM in the context of Invest NI’s Intervention Principles	
VFM Indicator	Conclusion
<b>Strategic Fit</b>	The feedback from businesses suggests that the TC Programme has been successful in supporting businesses to overcome those market failures and wider barriers that were preventing them from exploring opportunities to enhance their energy/resource efficiency in the absence of receiving TC support.
<b>Need &amp; Market Failure</b>	
<b>Additionality</b>	Levels of programme and impact additionality have been calculated at 66% and 65% respectively. The levels of impact additionality compare favourably when compared to other similar interventions including initiatives designed to bring about efficiency improvements in business through the adoption of (more) sustainable working practices.
<b>Duplication and</b>	Whilst the TC Programme represents (at least in theory) an important feeder

<sup>48</sup> The analysis is based solely on businesses that had implemented ERE measures at the time of the primary research (i.e., it excludes those that had not yet implemented the measures but anticipated doing so).

<sup>49</sup> Projections have been calculated based on potential cost savings and the investment made in ERE measures. On average 16 months has passed since businesses had completed their respective TC project. The analysis is based solely on businesses that had implemented ERE measures at the time of the primary research (i.e., it excludes those that had not yet implemented the measures but anticipated doing so).

<sup>50</sup> At the request of the Evaluation Steering Group, these potential impacts have not been monetised as part of this Evaluation. Rather, the nature and scale of these impacts are to be examined as part of future business cases.

**Table 2.26: TC VFM in the context of Invest NI’s Intervention Principles**

VFM Indicator	Conclusion	
<p><b>complementarity</b></p>	<p>programme to Invest NI’s wider ERE Programmes (especially EEF and REF), the feedback from businesses indicates that the current process for administering this support (i.e. through competitive and open calls), is not currently supporting the pull-through of TC projects as effectively as anticipated at the outset and careful consideration should be given by Invest NI as to how its capital grant support is administered to ensure that businesses can access the continuum of support available along the ERE pipeline of offerings. In addition, opportunities for greater organisational cross-working (e.g., with the Operational Excellence Programme) should be explored moving forward.</p>	
<p><b>Economy Efficiency and Effectiveness</b></p>	<p><b>Indicator</b></p>	<p><b>Research Team’s Commentary</b></p>
	<p><b>Economy</b> measures are concerned with showing that the appropriate inputs (i.e., the resources used in carrying out the project) have been obtained at least cost</p>	<p>As noted, Technical Consultants are appointed through a secondary procurement competition using an established framework of independent consultants, with cognisance taken of TC’s professional ability, and proposed methodology to deliver the TOR established by the Technical Advisor) and delivery cost.</p> <p>In relation to Invest NI’s staff costs, the Research Team considers that the staff input appears reasonable, given the scale of activity undertaken by the ERE Team and its Technical Advisors.</p> <p>On this basis, it is the Research Team’s view that Invest NI made appropriate efforts to ensure that project inputs were obtained at least cost to the NI economy.</p>
	<p><b>Efficiency</b> relates to measures that are concerned with achieving the maximum output from a given set of inputs</p>	<p>The reasonableness of the proposed level of consultancy input from the Technical Consultant is assessed by the ERE Team at the secondary competition phase in the context of the TOR/specification that has been prepared by the Invest NI technical Advisor.</p> <p>Payment will only be made to a Technical Consultant following a Technical Advisor’s review of the Consultancy report which includes an assessment of the degree to which the established TOR/specification was appropriately addressed through the project.</p> <p>There is no evidence to suggest that Invest NI could have derived additional output from the financial inputs that were allocated to the TC Programme.</p>
	<p><b>Effectiveness</b> measures are concerned with showing the extent to which aims, objectives and targets of the project are being achieved</p>	<p>Per Section 2.6, as a result of a range of exogenous factors (most notably the COVID-19 pandemic) levels of TC activity were significantly below that anticipated at the outset. Accordingly, limited progress was made towards the activity targets established.</p> <p>In terms of outcomes, the Research Team’s review of the Economic Appraisal indicates that it was anticipated that the Programme would generate £84.4m of Net Additional GVA Benefits, based on the persistence of benefits over a five-year period post support. Due to the aforementioned difficulties in making a direct comparison to the projections detailed</p>

Table 2.26: TC VFM in the context of Invest NI's Intervention Principles	
VFM Indicator	Conclusion
	<p>within the Economic Appraisal, our analysis suggests that £986k in total net additional GVA has been derived to date. Based on progress to date, a level of uncertainty exists as to whether the Programme will achieve the projected levels of net additional GVA. We do, however, note that a full assessment can only be taken in the longer term. Notwithstanding this, given the underpinning focus of the TC Programme on identifying potential cost savings, and the potential need for other interventions to support businesses to achieve these cost savings (including the other ERE interventions), we would question the relevance of including specific GVA targets for a programme of this nature.</p>
<b>Cost-effectiveness</b>	<p>Cost effectiveness indicators include:</p> <ul style="list-style-type: none"> <li>• Cost per TC project supported (N=107) - £5,746</li> <li>• Cost per business supported (N=73) - £8,422</li> <li>• Cost per £ of <u>potential</u> net additional cost savings identified (£2,187,494) - £3.56</li> <li>• Cost per £ of net additional GVA - £0.49 - £1.60</li> </ul>

Taking all available evidence into consideration, the Research Team considers that Invest NI has derived value-for-money in respect of the public funds that have been invested through the TC Programme during the period under review.

## 2.9 Equality and Rural Needs Considerations

### 2.9.1 Equality Considerations

Section 75 of the Northern Ireland Act 1998 requires that Invest NI shall, *“in carrying out its function relating to Northern Ireland, have due regard to the need to promote equality of opportunity”* between the following nine Section 75 groups:

- Persons of different religious belief, political opinion, racial group, age, marital status or sexual orientation;
- Men and women generally;
- Persons with a disability and persons without; and
- Persons with dependents and persons without.

In addition, and without prejudice to these obligations, in carrying out its functions, Invest NI is also committed to promoting good relations between persons of different religious belief, political opinions or racial groups.

Whilst completed before the period under review and valid up to September 2019 (the month before the period under review commencing), The Research Team notes that Invest NI completed a Section 75 Policy Screening for its EREAP (which the TC Programme forms a component part). The Screening concluded (amongst other things) that:

- The policy was not anticipated to have an impact (positively or negatively) on the equality of opportunity for those affected by this policy, for each of the Section 75 equality categories, nor were there opportunities to better promote equality of opportunity for people in these categories (as the action was not deemed to provide opportunities to promote equality amongst particular groups);
- The policy was not anticipated to impact (positively or negatively) on good relations and no opportunities were identified to promote good relations between people of different religious beliefs, political opinions or racial groups;

Based on the completed screening, it was concluded that an Equality Impact Assessment (EQIA) was not required.

The Research Team's review of TC activity, monitoring information provided during the evaluation process and our discussions with recipients of support has identified:

- No evidence of higher or lower participation or uptake of different groups;
- No evidence to indicate that different groups had different needs, experiences, issues and priorities in relation to TC activity;
- No opportunities to better promote equality of opportunity or better community relations by altering the work of TC;
- No accessibility issues that might run contrary to the Disability Discrimination Act 1995.

On this basis, the Research Team concludes that whilst the TC Programme was not specifically targeted at any specific Section 75 categories, it does not appear to have had an adverse impact on any Section 75 group.

### *2.9.2 Rural Needs Considerations*

The Rural Needs Act (Northern Ireland) 2016 ('the Act') came into operation for Government Departments and District Councils during June 2017 and for public authorities (including Invest NI) during June 2018. The purpose of the Act is to ensure that public authorities have 'due regard' to the social and economic needs of people in rural areas and to provide a mechanism for ensuring greater transparency in relation to how public authorities consider rural needs when developing, adopting, implementing or revising policies, strategies and plans and when designing and delivering public services. The Act seeks to help deliver fairer and more equitable treatment for people in rural areas which will deliver better outcomes and make rural communities more sustainable.

By way of illustrating due regard for Rural Needs, Invest NI completed a Rural Needs Impact Assessment (RNIA) of its Energy and Resource Efficiency Advisory Programme (of which the TC Programme forms a component part).

The RNIA noted that specific steps/actions had been taken by Invest NI in relation to the Programme's marketing and delivery to ensure its accessibility to all businesses. Specific steps/actions included:

- The programme was promoted to the entire NI business base (irrespective of their location) with marketing and promotion of the Programme to rural businesses being supported through Invest NI's Regional Offices and other stakeholders (e.g., local Councils); and
- Due consideration was taken in the timing and location of elements of the Programme's delivery (e.g., workshops, events, presentations etc.) to ensure its accessibility to rural businesses.

Based on a review of the Programme's historic activity (at the time of the RNIA), it was concluded that the spread of uptake (where 45% of the Programme's interventions had been delivered to businesses based in rural locations) demonstrated that there were no barriers to delivery and uptake of the support in rural areas.

It was noted that Invest NI would continue to monitor the locational spread of uptake of the Programme's support via its Customer Relationship Management (CRM) on an ongoing basis to identify if any corrective action was required.

### 3. RESOURCE MATCHING THROUGH INDUSTRIAL SYMBIOSIS

#### 3.1 Introduction

Section 3 presents the evaluation of the Resource Matching through Industrial Symbiosis (RMIS) strand of the Energy and Resource Efficiency Advisory Programme (EREAP) for the period 1<sup>st</sup> October 2019 to 31<sup>st</sup> March 2021.

#### 3.2 Overview of the Resource Matching through Industrial Symbiosis Service and its Delivery Model

##### 3.2.1 Overview of Support

Based on a circular economy approach, industrial symbiosis seeks to create an interconnected network that strives to mimic the functioning of ecological systems within which energy and material cycle continually with no waste products produced. The process serves to reduce the environmental footprint of the industries involved by using materials in a more sustainable manner. Virgin raw materials are required to a lesser degree and the need for landfill waste disposal is reduced. It also allows value to be created from materials that would otherwise be discarded and so the materials remained economically valuable for longer than in traditional industrial systems.

Delivered by the EDO International Synergies (NI) Ltd (ISL)<sup>51</sup>, the RMIS service offers Invest NI clients and the wider business base opportunities to convert redundant materials into a resource for another business for mutual benefit, potentially adding value and reducing costs and the environmental impact of all businesses involved.

##### 3.2.2 The RMIS Service Delivery Model

Figure 3.1 provides an overview of the RMIS Service delivery model with further discussion provided in the succeeding paragraphs.

**Figure 3.1: Overview of the RMIS Service Delivery Model**



As part of the service's delivery model, the EDO will identify organisations with redundant resources and 'synergy' potential. Typically, this will involve an ISL practitioner undertaking an advisory visit to a business to gain an understanding of the business' needs including identifying the redundant materials they have and the materials that they potentially require (the 'haves' and 'wants'). The nature and scale of these resources, along with the potential cost savings that may be realised by the business exchanging any redundant materials, are subsequently documented in an Advisory Visit Report (AVR) which is provided to Invest NI and recorded on an ISL's bespoke database to facilitate future synergies between businesses.

The identification and exploration of potential synergy opportunities are facilitated both through the sharing of information directly between businesses and during one-to-many resource matching workshops facilitated by the EDO. The workshops also serve to:

<sup>51</sup> The RMIS service has been delivered by the current EDO since November 2007. The EDO was appointed following a competitive procurement process facilitated by Construction and Procurement Delivery (CPD).

- Provide businesses with an opportunity to examine the viability of the synergy and negotiate a deal to allow the synergy to progress<sup>52</sup>;
- Provide opportunities for businesses to declare resource ‘haves’ and ‘wants’;
- Enable the EDO to set up advisory visits (in the event that this was not done prior to the workshop);
- Provide networking opportunities;
- Educate businesses on industrial symbiosis and resource matching; and
- Strengthen the relationships between the practitioners and the participating businesses.

Where required, an ISL practitioner will participate in any technical or commercial negotiations as an impartial intermediary between the businesses to help ensure that any barriers to synergy completion can be overcome. This may include:

- Providing advice on segregation, pre-treatment, transport, values and logistics;
- Identifying other participants that need to be brought into the synergy (e.g., waste processors, logistics businesses or innovation partners); and/or
- Providing advice on compliance with environmental legislation and providing liaison between the businesses and the NI Environment Agency (NIEA).

Any required synergy trials are completed, and a deal is agreed upon, with resources/materials flowing between organisations thereafter.

Details of the outcomes of the synergy are reported by the businesses, with all data (e.g., cost savings, Co2 reductions, materials diverted from landfill, investment generated etc.) being collated and verified by the EDO and included in a ‘match report’. The collated information may be subsequently used as the basis for the development of a case study with agreement from both parties.

### 3.3 Programme Activity

Table 3.1 provides a high-level overview of the activity delivered as part of the Service during the period under review, with further detail provided in the succeeding paragraphs.

<b>Table 3.1: Overview of RMIS Service Activity</b>			
<b>Advisory Visits</b>	<b>Year 1 Oct 2019 - Mar 2020 (6 months)</b>	<b>Year 2 Apr 2020 - Mar 2021 (12 months)</b>	<b>Total Oct 2019 - Mar 2021 (18 months)</b>
Presentations	4	7	11
Exhibitions	1	1	2
Features	1	2	3
Advisory Visits	100	180	280
Workshops	2	4	6
Match Reports	23	51	74
<i>Of which were:</i>			
– ‘Small’ Match Reports	19	45	64
– ‘Large’ Match Reports	4	6	10
Written Case Studies	2	3	5
Video Case Studies	1	-	1

<sup>52</sup> These discussions and negotiations can also occur outside of the facilitated workshops.



Salient points to note include:

- By way of raising awareness of the Service and the role of RMIS in supporting businesses to improve their resource efficiency, the EDO delivered presentations at 11 events (Table 3.2), exhibiting at two of these (the NI Manufacturing & Supply Chain Exhibition on both occasions) and created three features which were distributed in the public/business domain<sup>53</sup>.

Table 3.2: Overview of Presentations delivered		
Event (date)	Venue	Businesses in attendance
<b>Year 1</b>		
Consultancy Framework Event (Nov 2019)	Invest NI	10+
NI Manufacturing & Supply Chain Exhibition (Feb 2020)	Titanic Exhibition Centre	100+
NI Science Festival - Sustainability Fair (Feb 2020)	Ulster University	10+
Ards and North Down event (March 2020)	Signal Centre	10
<b>Year 2</b>		
Ards and North Down webinar	Online	3
Energy Efficiency in Business (Action Renewables)	Online	50+
Northern Ireland Manufacturing and Supply Chain Conference & Exhibition	Online	500
Derry & Strabane District Council Webinar	Online	50+
Mid & East Antrim webinar as part of Global Entrepreneurship Week	Online	<10
ADS NI Space Special Interest Group	Online	Not Known
Climate Action	Online	

- 280 advisory visits were undertaken by the EDO to businesses (Invest NI Client businesses and the wider business base) to identify potential redundant resources/materials to potentially foster collaborative synergies, 12% less than anticipated at the outset (N=318) for the period under review.
- There were 139 business attendances across 6 Resource Matching Workshops, 2 of which were delivered in person and the remaining 4 were delivered online due to COVID-19 attendance restrictions (Table 3.3);

Table 3.3: Overview of Resource Matching Workshops delivered		
Workshop/Seminar (date)	Venue	Businesses in attendance
<b>Year 1</b>		
Stepping Stones to Greater Resource Efficiency Seminar (Feb 2020)	Lagan Valley Island	22
Craigavon Resource Matching Workshop (Feb 2020)	Craigavon Civic Centre	24
<b>Year 2</b>		
Resilience, Recovery and Resource Matching Webinar (June 2020)	Online	31
Food, Drink & Hospitality Focused Webinar (Sept 2020)	Online	31
Cross-Sectoral Resource Matching Workshop (Nov 2020)	Online	17
Spring Resource Matching Workshop (Feb 2021)	Online	14

<sup>53</sup> Features included an email circular with the NI Chamber of Commerce, an article published in Ulster Business and an infographic that was distributed in local Council e-zines.

- A total of 74 Match Reports were completed for collaborative synergies, involving 89 unique businesses, created as a result of the Service’s activities. 86% of the reports were ‘small’ match reports (individual synergies resulting in cost savings of up to £25k) and the remainder (14%) were ‘large’ match reports (individual synergies resulting in cost savings of over £25k). The outcomes of the resource matching activities are discussed in Section 3.5.
- By way of exemplifying the impact made by the Service to other businesses, in order to encourage their engagement with the Service and resource efficiency activities more generally, 6 written (N=5) and video (N=1) case studies were created by the EDO in conjunction with businesses that had benefited from the service.
- Consultation with Invest NI and the Service’s EDO indicates that the COVID-19 pandemic had a materially negative impact on the operation of the Service, levels of demand and uptake and its overall impact. Specific issues identified included:
  - Whilst it was noted that the visual inspection of a business premise during the Advisory Visit is an important part of the intervention model (as it allows the EDO to examine both the redundant materials and waste that businesses would like to exchange and identify other resources that they may not have considered exchanging), the legislated lockdowns during the pandemic prevented onsite visits from being undertaken for much of the period under review;
  - Linked to the previous point, it is understood that the EDO’s contract required the Advisory Visits to be undertaken on a face-to-face basis and hence special dispensation was requested and was subsequently approved, by Invest NI to administer these visits/meetings virtually. However, the Research Team understands that the approval to undertake the visits remotely took longer than initially anticipated resulting in the EDO being unable to facilitate advisory visits/meetings for a period of time;
  - Like the Advisory Visits, a number of the Resource Matching Workshops were required to be delivered virtually. Operationally, this prevented businesses from being able to present physical samples of their redundant materials to other businesses (which is understood to be a common approach adopted by businesses during in-person workshops) and resulted in limited/no opportunities for businesses to network with one another to facilitate interaction, develop relationships and explore potential resource matching opportunities/synergies. Consequently, the EDO indicated that the number of resource matches was significantly below the level that would typically be expected during an in-person workshop; and
  - Many businesses were not operational or were operating at a reduced capacity which served to reduce the potential quantum of redundant materials available to exchange. Linked to this it was noted that due to other competing operational priorities that had arisen as a direct result of the pandemic, businesses had considerably lower levels of capacity to engage with the Service.

### 3.4 Views on the RMIS Delivery Model - The Business and Wider Stakeholder Perspective

#### 3.4.1 Programme Promotion

It was largely the remit of Invest NI to undertake the day-to-day marketing and promotion of the RMIS Service with the EDO responsible for providing support to create marketing collateral (e.g., written and video case studies) and general awareness-raising through exhibitions and presentations at events.

It was the view of a number of consultees that despite the growing strategic importance of the Circular Economy (in which RMIS plays an integral role), there are low levels of awareness of the RMIS Service amongst Invest NI’s Client Executive base. For a small number of consultees, this low level of awareness was viewed as being a potentially wider reflection of, in their view, the limited importance attributed to the Service, particularly when viewed in the context of the organisation’s other ERE interventions. Ultimately, it was suggested by these consultees that this lack of awareness was inhibiting the promotion of the service to Invest NI’s client base and ultimately the demand for support.

It was suggested that the low levels of awareness and/or relative importance attributed to the Service were potentially reflected by:

- The number of referrals made by Invest NI to the Services EDO which were, in the EDO’s view, lower than might otherwise be expected given the Organisation’s reach with the NI business base.

Potentially providing credence to this view, the Research Team notes that three-quarters of businesses (74%) had become aware of the Service through direct contact from the EDO or its website. In contrast, only 8% of businesses suggested that they had become aware of the Service via Invest NI (specifically through its website or direct marketing activities) with no businesses awareness being raised by an Invest NI representative (e.g., a Client Executive, member of the ERE team etc.) (Table 3.4).

<b>Mode of contact</b>	<b>% of businesses</b>
Through a representative of International Synergies (NI) Ltd	72%
Through your local Council	11%
Word of mouth/business associate	6%
Invest NI website	4%
Invest NI direct marketing (e.g., E-zine or newsletter)	4%
International Synergies (NI) Ltd’s website	2%
International Synergies (NI) Ltd’s direct marketing	-
Through a representative from Invest NI	-
Other	-
<b>Total (N=47)</b>	<b>100%</b>

- The appropriateness of aspects of the Service’s marketing collateral in supporting demand for the Service. Specifically, it was suggested by a small number of consultees that the web page dedicated to the RMIS Service on Invest NI’s website was (is) dated, did not accurately reflect the Service’s potential added value to embedding resource efficiency in businesses and/or its contribution to embedding a Circular Economy model approach; and
- The lack of engagement of the Service and its EDO in other resource efficiency-focused interventions being delivered by Invest NI. Of specific note, it was highlighted that Invest NI’s Collaborative Growth Programme (CGP) is currently providing facilitation support to scope out the potential to establish a Circular Economy Network (CEN) and Waste Packaging Network (WPN) and it is understood that a number of other Collaborative Networks have a specific ‘Green Economy’ focus.

Ultimately, it was the view of the EDO that opportunities for greater interworking and cross-referrals are not currently being maximised to the mutual benefit of both organisations.

Related to this, it was suggested that greater focus should be placed during the monthly progress meetings, and through both organisation's general interactions through the contract period, on examining and discussing more strategic issues (including the marketing and promotion of the Service (to support cross-referrals), communications, identification of policy and legislative developments that the EDO could support Invest NI to respond to) that would add value to both organisations and the Programme's service offering.

Aligned with the discussion identified under Section 2.4.1, it was the view of a number of consultees that greater emphasis should be placed on highlighting the Service's contribution beyond purely financial cost savings to other measures of success including its impact on business' environmental sustainability (e.g., its contribution towards the net-zero carbon/decarbonisation agenda, ability to demonstrate that it is utilising virgin raw materials less and/or more sustainability, redundant materials being moved up the waste hierarchy) through the marketing and promotion of the programme, as well as through the nature of targets established for the Service.

#### 3.4.2 Support Provided through the RMIS Service

As detailed in Figure 3.2 overleaf, the majority of businesses indicated that they were 'very satisfied' or 'satisfied' with the support provided through each stage of the Service's delivery model including the Advisory Visit, Resource Matching Workshops and any ongoing facilitation support that was provided by the EDO.

However, a cohort of businesses expressed a level of dissatisfaction in relation to the:

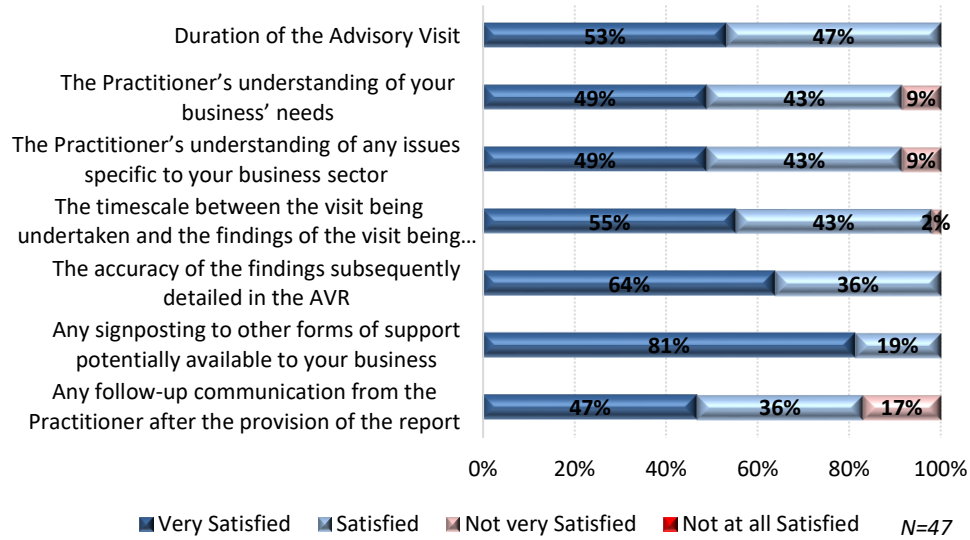
- Opportunities that were provided to network with other businesses to explore potential resource matching opportunities during the workshops (31% - N=29). As noted previously, this element of the Service's delivery model was significantly constrained due to the requirement to deliver the Resource Matching workshops virtually due to in-person restrictions created by the COVID-19 pandemic;
- Any follow-up communication from the EDO following the completion of the Advisory Visit (17% - N=47) and/or Resource Matching Workshop (21% - N=29); and
- Ongoing facilitation support provided to negotiate the resource matching and exchange process (24% - N=47).

Consultation with the EDO and Invest NI indicates that the nature and scale of targets established for the Service, were in retrospect, too heavily weighted towards maximising levels of activity as opposed to the outcomes from the Service. The nature of the targets, particularly the target relating to Advisory Visits (a key metric which the EDO received contract payments for), had therefore inadvertently served to encourage an overt focus being placed on maximising the quantity of business interactions (which served to identify potential cost savings), as opposed to the depth and quality of interactions (which would potentially have supported a greater realisation of actual cost savings) fostered by the EDO being able to spend more time developing business relationships and facilitating the negotiation of synergies.

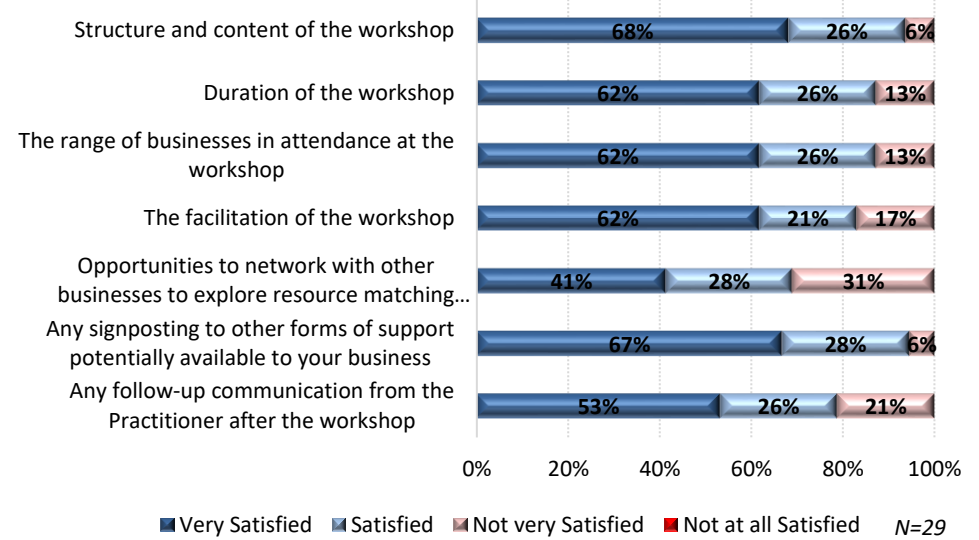
Linked to this, it was the view of the EDO that the completion of an Advisory Visit serves to create an expectation with a business that the Service will provide ongoing facilitation support to assist the business to realise the cost savings identified. However, given the nature of the targets and the budget available to appoint the necessary expertise to deliver the facilitation support, the Service is not suitably resourced to deliver the depth of facilitation support required nor are there the contractual drivers to do so.

Figure 3.2: Business' Satisfaction with RMIS Delivery Model

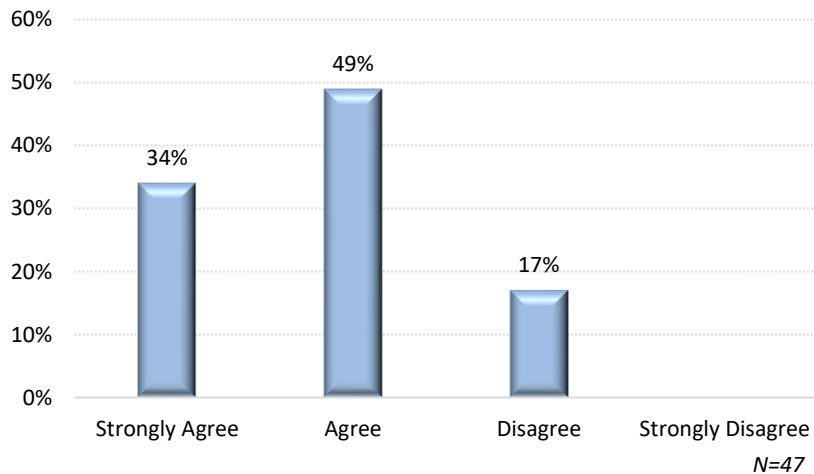
**Advisory Visit**



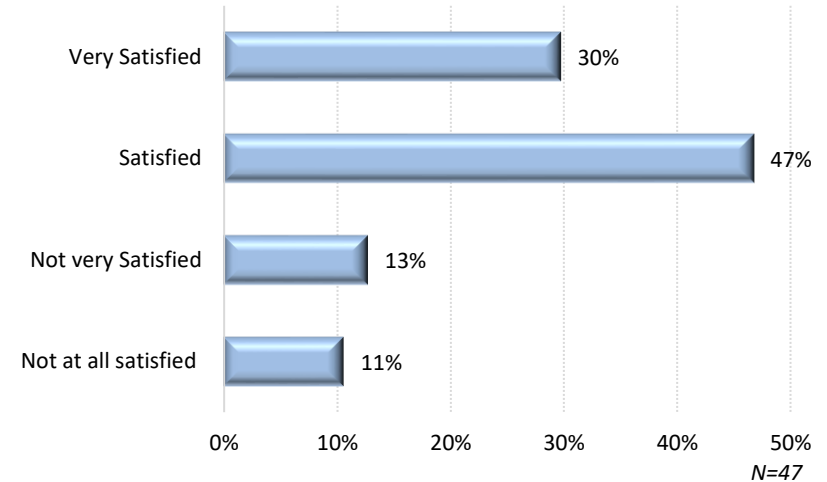
**Resource Matching Workshops**



**Appropriateness of potential resource matching opportunities**



**Ongoing facilitation support**



*“We were really happy with the support that was provided. This area was very new to us and thankfully the team were on hand to guide us through the process and address any queries that arose.”*

*“This is a no-nonsense, straightforward Service that has really helped us to more effectively dispose of materials and waste that we didn’t need...since making the initial exchange, we are still working with the other business to identify other opportunities.”*

*“Apart from a few minor technical issues that arose when starting the online workshops, the support was delivered efficiently and professionally throughout....my only reservation was that we didn’t get enough time with the team to explore and negotiate the opportunities more fully.”*

*“After the workshop, we were largely left to carry on the negotiations ourselves. We would have benefited from an honest broker in the mix.”*

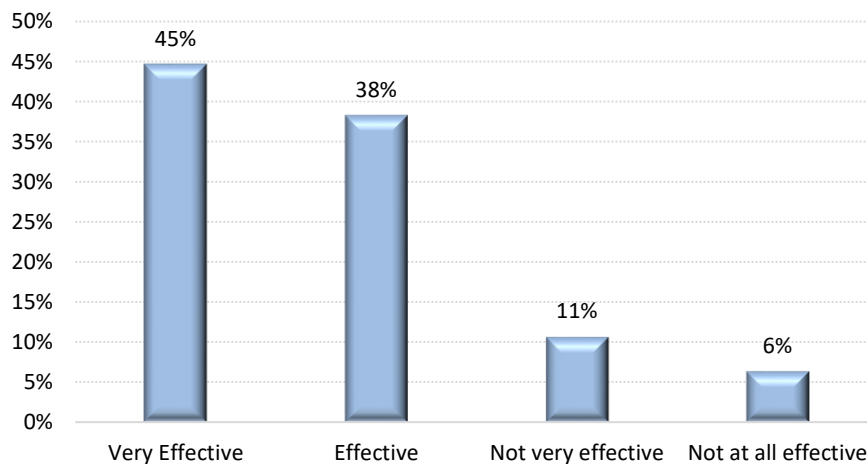
*“With the workshops having to be delivered online, there wasn’t the time to network with businesses and explore potential opportunities.”*

**RMIS Service Recipients of Support**

### 3.4.3 Overall Effectiveness of the Support and Continued Need

More than four-fifth of businesses (83%) indicated that the RMIS Service was ‘very effective’ (45%) or ‘effective’ (38%) in terms of supporting them to explore opportunities to exchange their redundant materials and/or waste with other businesses

**Figure 3.3: Overall Effectiveness of the RMIS support**



N=47

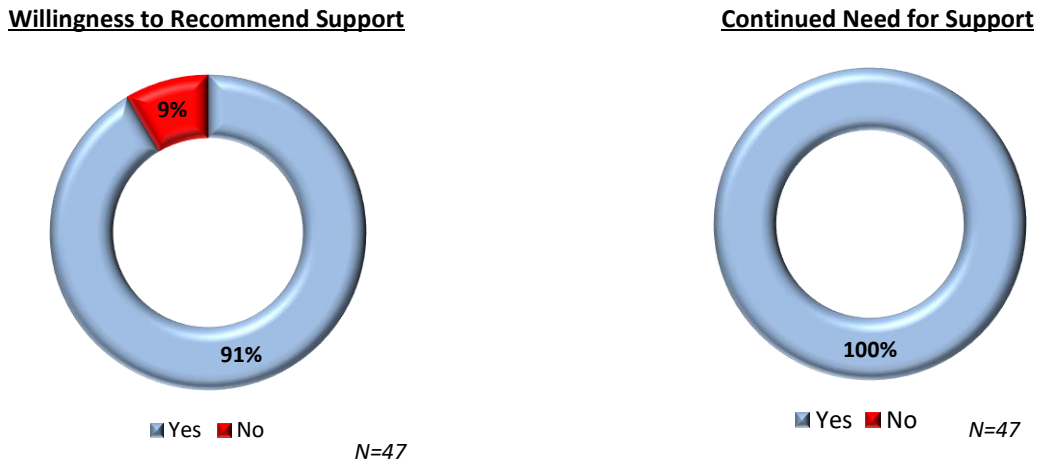
Reflecting this view, almost all businesses (93%) indicated that they would recommend the RMIS Service to other businesses that are potentially interested in enhancing their resource efficiency, whilst all businesses suggested that there was a continued need for the Service.

*“The need for support like this has never been more required. Every business is looking for opportunities to increase their profitability and if doing that increases our environmental sustainability, all the better.”*

*“The Service was very helpful to us, albeit we would have liked additional support to navigate the negotiation process...I’ve already recommended the support to two other businesses who have subsequently received support and gained a lot of benefits too.”*

**RMIS Service Recipients of Support**

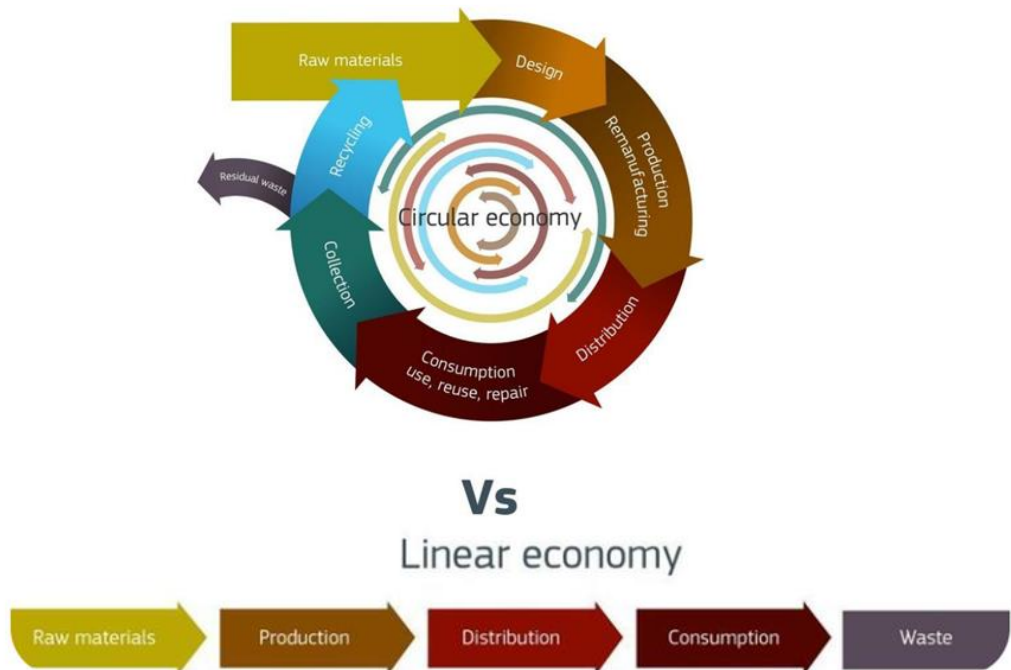
Figure 3.4: Willingness to Recommend Support and Continued Need for Support



3.4.4 Future Direction of the RMIS Service Delivery Model

As noted, resource matching through industrial symbiosis is based on a circular economy approach which refers to an economy that uses a systems-focused approach and involves industrial processes and economic activities that are restorative or regenerative by design, enabling resources used in such processes and activities to maintain their highest value for as long as possible, whilst aiming for the elimination of waste through the superior design of materials, products, and systems (including business models). It is a change to the linear model in which resources are mined, made into products, and then become waste. A circular economy reduces material use, redesigns materials to be less resource-intensive, and recaptures “waste” as a resource to manufacture new materials and products.

Figure 3.5: The Circular Economy in Context



Whilst acknowledging that industrial symbiosis will continue to form an integral component of facilitating the circular economy model (on the basis that it encourages input and output is circled perpetually amongst industries, and ‘waste’ is not discarded as waste but rather is used as a resource), there was a broad consensus amongst stakeholders (including the Service’s current EDO)

that the Service needs to evolve to provide the necessary support to embed the circular economy model in a more holistic, systemic manner that embeds innovative practices in an end-to-end, whole system approach (rather than just focusing on redundant materials and waste streams).

In terms of potential support that should be provided, it was recommended that the service evolves to provide support akin to that delivered by Zero Waste Scotland (ZWS<sup>54</sup>) through its Resource Efficient Circular Economy Accelerator Programme (RECEAP) which aims to maximise both the economic and environmental value of resources used in Scotland, delivering a transformative approach to supporting a resource-efficient circular economy in support of both Scottish Government and wider EU policies on sustainability and economic development. In doing so, the programme aims to deliver a step-change in the scale, range and depth of Circular Economy and existing resource efficiency work across all business and social economy sectors in Scotland.

**Table 3.5: Overview of ZWS’s RECEAP Support**

**Support to Establish a Circular Economy Business Plan**

At its most basic level, Zero Waste Scotland seeks to stimulate businesses' thought processes to determine circular opportunities within its own operations through the provision of free downloadable worksheets in which the business is required to:

- **Map its current product journey (Worksheet 1)** in terms of inputs, outputs and the products lifecycle (including what happens to it, and any associated waste streams and redundant materials, at the end of its useful life);
- **Identify opportunities for change (Worksheet 2)** e.g.:
  - **Inputs** - Could any of the business’ inputs be sourced more sustainably? Could any of them be swapped for a more sustainable alternative? Could any of the inputs be sourced as an output from someone else’s business?
  - **Outputs** - Could any of the business’ outputs be useful to other businesses? Could its waste streams hold untapped value?
  - **End-of-life** - How could the business extend the product life of its products? Could the business extend its useful life? Could it redesign them to be easier to repair? Can the business design a better end-of-life for its products (e.g., could they be easier to dismantle, allowing elements to be re-used, repurposed, or recycled)?
- **Examine Circular Strategies (Worksheet 3)** - As part of its support, ZWS has created Circular Economy Strategy Cards which aim to get businesses acquainted with common types of circular business strategies and models. An overview of these Strategies and Business Models is detailed below.

Strategy	Overview of Strategy/Business Model
Circular design	Developing products or services with consideration for repair, re-use, recycling and repurposing. Designing with the whole lifecycle in mind, so products, materials and energy stay in use for as long as possible. This means gaining the maximum value from them and enabling deconstruction, repair and repurposing at end-of-life.
Resource recovery	Creating new, higher-value uses for by-products and co-products. Unlocking hidden value in existing processes by reintroducing energy, materials, products and resources back into the product lifecycle – or into the lifecycles of other products.
Enabling technologies	Using advanced tools and systems like data collection, sharing platforms, machine learning, asset management and tracking systems and dynamic modelling to enable circular business approaches and behaviours. Sophisticated asset tracking is the backbone of improved logistics, knowledge sharing and collaboration.
Product as a service	Customers pay for the service while ownership, management and responsibility of the asset remain with the manufacturer. This turns the relationship upside down, incentivising manufacturers to understand product use so they can maximise ongoing value, durability and performance.

<sup>54</sup> ZWS is a not-for-profit environmental company limited by guarantee. The organisation’s board is comprised of six non-executive directors (one of whom is the chair, and one executive director, who is the chief executive officer). Company membership includes Scottish ministers alongside its non-executive directors.



**Table 3.5: Overview of ZWS's RECEAP Support**

Leasing	Customers pay regularly for the continued use of a product over an agreed time span, after which they return the product so that it can be remanufactured, repaired, re-used or recycled. The manufacturer retains ownership and responsibility for delivery, maintenance and take-back, which encourages circular design.
Remanufacture	Dismantling a product and refurbishing, repairing or replacing each part to produce a new product, with a warranty, that matches or exceeds the quality of the original. This extends the life and inherent value of the product.
Re-use	Retaining a product or component's inherent value for longer by continuing to use it for its primary intended purpose for as long as possible. Keeping a product or component in use extracts a far higher ongoing value than recycling it could.
Repair	Extending the life of products by maintaining or improving them through repairing or upgrading. This extends the product's economic usefulness and value, reduces waste and saves on materials.
Sharing economy	Treating products as assets that can be used by multiple customers, multiple times. Manufacturers can retain ownership and provide shared access, or customers can create peer-to-peer sharing marketplaces. Both lead products to be thought of as long-term asset investments

This worksheet encourages businesses to look back at their opportunities for change and identify if any of them align with these circular strategies/business models. Businesses are then required to list their potential circular strategies, prioritising these based on factors including ease of implementation, revenue potential and circular/sustainable advantages. Opportunities to combine multiple circular strategies to create a plan unique to the business are then encouraged.

- **Make a Commitment (Worksheet 4)** – Having generated ideas on what circular strategies could be applied, this worksheet encourages businesses to make plans to investigate them more robustly. In doing so, the worksheet encourages businesses to identify the time, human resources and funding that could be applied to investigating the implementation of the strategies and their potential outcomes.

**Circular Economy Business Support Service**

Zero Waste Scotland's Circular Economy Business Support Service delivers tailored, expert, one-to-one consultancy directly to SMEs across all sectors in Scotland looking to develop circular business models. The service is designed to help companies explore more circular ways of doing business that can result in resource efficiencies, improved profitability, higher quality products, increased customer base and alternative supply chains for your business.

The service is open to businesses and organisations across all sectors in Scotland seeking to develop and/or implement new business models, technologies, practices, products or services that can embed circular economy principles. Areas of support delivered through the Service include:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Innovation/opportunities identification</li> <li>• Market assessment</li> <li>• Stakeholder engagement</li> <li>• Business plan support</li> <li>• Lifecycle analysis</li> </ul> | <ul style="list-style-type: none"> <li>• Business case development</li> <li>• Commercial case development</li> <li>• Support in identifying funding opportunities</li> <li>• Communications and marketing support</li> <li>• Implementation support</li> </ul> |
|---|--|

Upon completion of the service, actions recommended to businesses may be eligible for funding – which can be applied for via the Circular Economy Investment Fund.

**Circular Economy Investment Fund**

Opened to SMEs, Third Sector organisations and Community Interest Companies (CICs), the Circular Economy Investment Fund (CEIF) is an £18 million fund that seeks to provide the necessary capital and operational (including for staffing and overheads) financial support to enable businesses to:

- Explore markets for new circular economy products;
- Develop and adopt innovative business models for new circular economy products and services; and
- Develop and utilise innovative technologies, products and services to support a circular economy.

The specific objectives of the Fund are to:

**Table 3.5: Overview of ZWS's RECEAP Support**

- Stimulate the development and uptake of innovative and resource-efficient technologies, products and services to support a circular economy in Scotland;
- Encourage the collaboration of organisations across value chains, including enterprises and academia, to exploit the opportunities, and confront the challenges, of a circular economy in Scotland;
- Provide support and capacity building to enable the development and adoption of innovative and creative business models for a circular economy in Scotland;
- Provide funding for resource efficiency and circular economy projects in Scotland that have demonstrated proof of concept and have the potential for commercial exploitation within five years, to enable them to progress to a stage at which they are attractive to follow-on funders or investors; and
- Achieve significant carbon savings by enabling projects to proceed which contribute toward a resource-efficient circular economy in Scotland.

There are two funding strands – one for funding applications of £50,000 to £99,999 and another for higher-value applications from £100,000 to £1,000,000<sup>55</sup> -

Businesses interested in receiving financial support are required to complete a two-staged application process (Outline Project Proposals (OPP) and Detailed Project Proposals) where applications are assessed against the following criteria<sup>56</sup>:

- **Contribution to the Circular Economy** - Applications for support must demonstrate how the proposed project will actively contribute to the development of the circular economy in Scotland through:
  - a) Demonstrating that the project will result in a carbon saving, leveraging investment, job creation or add value to a 'waste' product or material;
  - b) Meeting at least one of the objectives of the Fund (as above).

The type of projects anticipated to be supported include those focusing on innovative CE business models, remanufacturing, re-use, repair, reprocessing, recycling and innovation in the collection of products and materials;

- **Project development stage and innovation** - Projects must be well advanced along the development pathway with support only being provided to those beyond Technology Readiness Level<sup>57</sup> (TRL) 4 (i.e., at Pilot Scale and above). Early-stage research or basic science projects will not be supported. Projects must plan to take a product, model, service, technology or invention toward commercial-scale development. Projects must deliver an innovative solution in the theme or sector where the potential benefit has been demonstrated;
- **Significant potential for carbon savings**- The project must outline the circular economy benefits of the project, this may be a carbon saving or through adding value to a 'waste' product or material. Wherever possible, ZWS indicates that it would like to see the proposed projects demonstrate how they will offer significant carbon savings and an estimation of what these will be in tCO<sub>2</sub>e (tonnes of carbon dioxide equivalent).

<sup>55</sup> Recipients of funding are subject to State Aid rules, these will be specifically applicable to De Minimis Regulations (EC 1407/2013) or ZWS's General Block Exemption Regulation (GBER) (EC Scheme No. SA.39221) (businesses cannot apply for both).

<sup>56</sup> From initial application to contract offer can take between 3 - 6 months.

<sup>57</sup> Technology Readiness Level (TRL) is a measure of the maturity of evolving technologies prior to incorporating that technology into a system or subsystem. An overview of the TRLs is presented in Appendix V. It is noted that ZWS has also historically administered a Circular Economy Development Grant which supported practical development costs including (inter alia) prototyping, lab testing and / or field testing of CE concepts to generate real-world data). In comparison, the CEIF is overtly focused on projects nearing commercialisation.

**Table 3.5: Overview of ZWS's RECEAP Support**

- **Commercial or industrial sector** - The following commercial or industrial sectors have been identified as key targets for funding: the Bio-economy, Built environment, Energy infrastructure, Food systems, Heat and energy and Waste<sup>58</sup>.

Some examples of investments made through the Fund include:

- Angus 3D Solutions Ltd. a leading prototype and 3D printing company are being funded £175k to support an additive manufacturing project for the development of metal printing in the local Scottish engineering community.
- 3F Bio, a biotechnology company specialising in sustainable protein, is being funded £318k to demonstrate at scale a new manufacturing technology to produce bulk high-protein food, ethanol and animal feed using a zero-waste fermentation process.
- Hamilton Waste is using £118k of circular economy investment in their mattress recovery operation involving the deconstruction and reprocessing of used mattresses in Edinburgh. The aim is to recover 2,000 tonnes of end-of-life mattresses with identified end markets for the constituent parts.
- Hydroklear with an investment of £177k is now ready to bring to market a new innovative process that will recover copper from spent lees in whisky production, which will then be used to manufacture copper-based chemicals.
- Impact Laboratories in Grangemouth is developing an online portal and testing for the standardisation of polymer recycling in Scotland, as part of the Scottish Plastics Recycling Centre with an award of £108k.
- Xanthella in Oban with a £582k investment is looking at algal production from whisky by-products. This project will enable new industry in rural areas that simultaneously increases the strength of the rural circular economy by enabling better use of stranded timber and distillery co-products.

**Circular Cities and Regions Programme**

For Scotland to fully embrace a circular economy, ZWS suggests that a variety of support approaches will be required. As such, the Organisation is delivering support using a place-based approach, to nurture the development of the circular economy at a local level. By concentrating on a specific geographical area, ZWS is seeking to raise awareness of the benefits of a circular approach, support opportunities in 'horizontal' sectors, build relationships with local stakeholders and link with other relevant activities taking place on a regional and local level. e.g., City Region Deals, regional economic development priorities, and sustainability goals.

A place-based approach to developing the circular economy in Scotland is thought to encourage and enable local flexibility to respond to issues and opportunities in different places. It is anticipated by ZWS that this will help overcome organisational and sectoral boundaries, encouraging collaboration and community involvement. It is also anticipated that a collaborative, place-based approach with a shared purpose will allow the public and private sectors across Scotland to support a clear way forward for circular economy policies, developments and investments.

Due to the population and resource density in a small geographic area, cities are ideal locations for new circular business models. As such, ZWS is working in partnership with organisations in five areas (Edinburgh, North East Scotland, Tayside, Glasgow and Highlands and Islands), as part of its Circular Cities and Regions programme, to deliver a tailored programme of business engagement to identify and exploit the key sectors and businesses for circular growth.

***Circular Edinburgh in Focus***

Delivered in partnership with the Edinburgh Chamber of Commerce, this research seeks to identify circular economy opportunities which are of particular relevance to the capital city, Edinburgh. In order to identify these opportunities, ZWS analysed the material flows and waste generated within the city; the current

<sup>58</sup> ZWS may, at its discretion provide support for organisations engaged in other sectors provided the project meets the organisation's core aims and objectives. Energy from waste projects are not eligible for funding under the CEIF, unless the technology employed produces a high-value end product. Fundable projects are likely to be those that can also demonstrate innovation using difficult waste streams and/or have the potential for transformational change. EfW utilising mixed wastes and bulking of waste materials, such as RDF & SRF, are not within scope of this programme.

**Table 3.5: Overview of ZWS’s RECEAP Support**

economic make-up of the city; and relevant local policies and strategies. Engagement with local stakeholders was undertaken to understand where circularity could complement other activities and offer opportunities for business growth, economic resilience, and carbon reduction. Opportunities identified from initial research were prioritised based on set criteria including; job creation potential, carbon savings, and scalability – and a short list of five ‘target’ opportunities.

The five most beneficial opportunities were selected for further investigation to determine the potential benefits for the Edinburgh region. These opportunities cross many of the significant sectors of the Edinburgh economy from tourism (festivals), information communication technology (ICT) and manufacturing.

1. **Knowledge Hub:** It was found that there is a significant opportunity to leverage the world-class tertiary education institutions of Edinburgh to create a CE Knowledge Hub which would be a focal point for providing solutions to many of the material flows currently deemed to be ‘waste’;
2. **ICT refurbishment and remanufacture:** The ICT sector is expanding and through the use of refurbished components it was identified that this sector can benefit economically and reduce the environmental impact of the industry. Reclaiming precious metals and materials from obsolete stock can also be achieved through the use of cutting-edge technology and processes.
3. **Alcohol by-products:** Edinburgh is home to many breweries and distilleries where the current practice is to transfer the by-products of these processes to animal feed. The research identified that there are numerous opportunities to maximise the economic benefits of these products through extracting proteins and using spent grains in human food production.
4. **Hospitality, events and festivals:** The twelve festivals held annually in Edinburgh were also identified as providing the opportunity for these to be held in a more circular fashion, from reducing single-use cups and containers to identifying opportunities for surplus food as well as re-use of stage props and costumes.
5. **Facilities management:** Edinburgh houses significant office space and through the incorporation of servitisation of products such as light and furniture it was identified that a more circular supply chain could be created which improves economic performance.

Whatever delivery model is ultimately adopted through any future phase of the RMIS service, it was recommended that it will need to align with, and embed any recommendations from, the Circular Economy Strategic Framework (CESF) which is currently being developed by the Department for the Economy (DfE), with strategic advice and project support being provided by the Strategic Investment Board (SIB) and an established Circular Economy Coalition (which includes representation from Invest NI). Consultation with SIB indicates that work completed as part of the development of the Strategic Framework to date has included:

- Research to understand the status quo in terms of the degree of the current ‘circularity’ of the NI economy;
- A detailed policy review to identify opportunities to embed the concept and guiding strategic principles of the circular economy model in key policy documentation;
- The identification of the material streams or key product value chains and priority commercial/industrial sectors where NI could potentially embed a circular economy approach. These have been identified as including:

<b>Table 3.6: Key Product Value Chains and Priority Industrial Sectors for Circularity</b>	
<b>Key Product Value Chains<sup>59</sup></b>	<b>Priority Commercial/Industrial sectors</b>
<ul style="list-style-type: none"> <li>• Electronics and ICT</li> <li>• Batteries and Vehicles</li> <li>• Packaging</li> <li>• Plastics</li> </ul>	<ul style="list-style-type: none"> <li>• Construction and the built environment;</li> <li>• Advanced Manufacturing (with Industry 4.0 Technologies and Artificial Intelligence having been identified as key enablers of circularity);</li> </ul>

<sup>59</sup> Consultation with SIB indicates that the material streams/key product value chains have been informed by the European Commission’s (EC) Circular Economy Action Plan for a Cleaner and More Competitive Europe.

<ul style="list-style-type: none"> <li>• Textiles</li> <li>• Construction and Buildings,</li> <li>• Food, water and nutrients</li> </ul>	<ul style="list-style-type: none"> <li>• Tourism and tourism hospitality; and</li> <li>• Bioeconomy</li> </ul>
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- The issuing of a ‘Call for Evidence’ to identify barriers and opportunities to embedding circularity in the areas identified in Table 3.6. Consultation with SIB indicates that key barriers and opportunities that have been identified through the Call for Evidence have included:

Table 3.7: Examples of Barriers and Opportunities identified to embedding circularity
<b>Barriers</b>
<ul style="list-style-type: none"> <li>• Lack of leadership, vision and funding from government;</li> <li>• Our systems for measuring material use are not fit for purpose;</li> <li>• Public procurement currently supports linear business models;</li> <li>• Lack of awareness and skills;</li> <li>• Collaboration across sectors is not possible without proper networks in place;</li> <li>• Circularity is not embedded within the education system;</li> <li>• No incentives for industry to source regenerative materials as virgin materials are cheaper; and</li> <li>• Lack of investment in research and innovation</li> </ul>
<b>Opportunities</b>
<ul style="list-style-type: none"> <li>• Increase coordination and leadership within NI government to create an enabling policy, legislative and regulatory structure that supports a CE and addresses the causes of negative linear practices. CE should be a core principle of all government programmes and plans;</li> <li>• Public procurement to increase demand for circular practices, with the necessary market engagement to build capacity;</li> <li>• Education/communication campaigns to raise awareness of the negative impacts of current linear practice and the benefits of CE;</li> <li>• Embed CE principles in the curriculum at all levels of education;</li> <li>• Support the development of skills that will support the transition to CE and ensure it is just and fair;</li> <li>• Establish and administer funding that supports businesses and the third sector to adopt CE business models;</li> <li>• Foster collaboration with governments in the RoI and UK to share learning and participate in innovation and research networks;</li> <li>• Provide dedicated support to sectors through networks that increase CE knowledge, understanding and practices in particular the construction/built environment sector, manufacturing, agri-food and bioeconomy;</li> <li>• Support research and development of CE solutions across sectors, supply chains, technologies and societal structures;</li> <li>• Set up a framework to measure progress with the right data and metrics;</li> <li>• Develop and grow capacity within Local Councils to adopt a CE whole system approach to economic growth; and</li> <li>• Work with the waste management sector to increase the circularity of materials and grow the reuse/repair sector.</li> </ul>

- Commissioning of a NI-specific Circularity Gap report (currently being undertaken); and
- Developing recommendations for the CESF and the policy goals promote a whole system approach (progress ongoing). It is understood that these recommendations and goals will consider levers for change including communication; procurement; policy and regulation; data and measurement.

It was noted that, depending on the outworkings of the development of the Strategic Framework, DfE and the Department of Agriculture, Environment and Rural Affairs (DAERA) may administer funding to encourage the adoption of the circular economy model across NI. Whilst the nature, scale and scope of this funding are presently unknown, to avoid duplication and maximise the complementarity, Invest NI should be mindful of the potential availability of this funding when adapting the RMIS service delivery model to support the embedding of the CE approach across the NI business base.

### 3.5 Programme Impact

#### 3.5.1 Historic Actions to Enhance Levels of Energy and Resource Efficiency

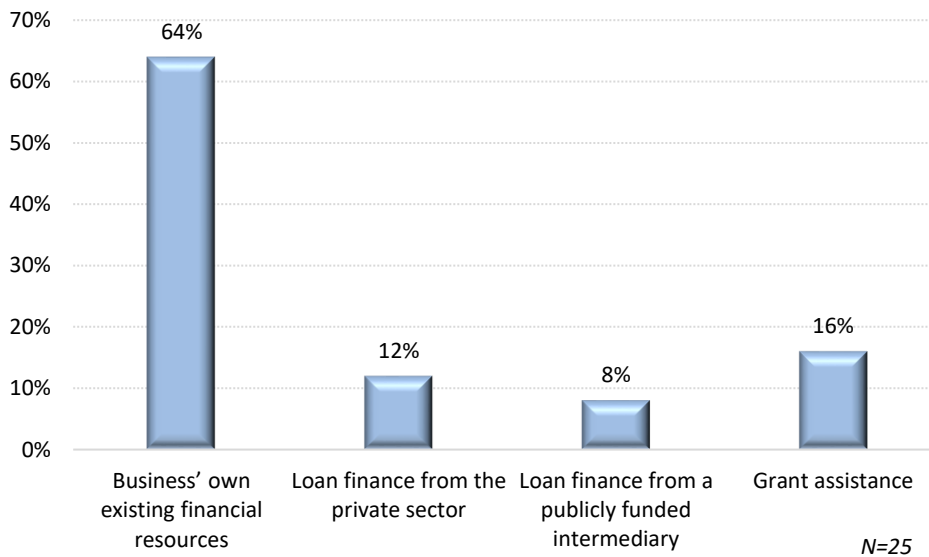
Just over half (53%) of businesses indicated that they had implemented measures within the last 5 years (prior to receiving RMIS support) to enhance their resource efficiency. Of these businesses, 68% (N=25) had made a capital investment to enhance their efficiency in this area, with the average investment equating to £11.3k over the period.

Table 3.8: Historic Actions undertaken to enhance levels of ERE prior to receiving RMIS support	
Implemented Actions to enhance the business'....	% of businesses (N=47)
– Resource Efficiency	53%
– Energy Efficiency	43%

Just over two-fifths (43%) of businesses indicated that they had implemented measures within the last 5 years (prior to receiving RMIS support) to enhance their energy efficiency. Half (50% - N=20) of these businesses suggested that they had made a capital investment, with these businesses making an average investment of £14.9k over the 5-year period.

Of those businesses that had made an energy and/or resource efficiency investment in the last 5 years, these businesses typically had done so using their own financial resources (64%) and/or grant assistance (16%) from a public body (most frequently cited as being Invest NI).

Figure 3.6: Historic Financing of ERE Measures by RMIS Service recipients



#### 3.5.2 The Role of the Service in Encouraging Businesses to Explore Opportunities to enhance their Resource Efficiency

Utilising the same participant self-assessment methodology outlined in Section 2.5.4, the Research Team's analysis indicates that 59% of the activities undertaken by businesses to explore opportunities to enhance their resource efficiency through RMIS would not have gone ahead (or would not have gone ahead in the same timescale and/or at the same scale/level of intensity) in the absence of the support provided through the Service.

Table 3.9: Levels of RMIS Programme additionality/deadweight	
Programme Additionality	Programme Deadweight
59.4%	40.6%

A range of barriers was identified by businesses that were preventing them from taking forward the activities to enhance their resource efficiency in the absence of receiving RMIS support, with the most frequently cited including (in order of relative importance):

- A lack of awareness of the businesses that they could potentially exchange resources and waste with (asymmetric information) (identified by 59% of businesses)
- Affordability (50%);
- The business having more relatively important priorities (31%) and/or
- There was a lack of cultural commitment towards resource efficiency and/or reluctance to implement change (31%).

Table 3.10: Barriers to undertaking the activities in the absence of RMIS support		
Barrier (N=32 <sup>60</sup> )	% of businesses identifying the barrier <sup>61</sup>	Relative Importance Score (RIS) <sup>62</sup>
The business was unaware of the businesses that you could potentially exchange resources and waste with	59%	57
The businesses could not have afforded to take forward the activities in the absence of receiving the support	50%	48
The business had relatively more important priorities	31%	36
There was a lack of cultural commitment towards resource efficiency and/or reluctance to implement change	31%	30
Without knowing more about the potential benefits, the business would not have considered undertaking the business development activities	22%	-
The activities were viewed to be too risky to take forward without support	6%	-
The business was unwilling to take forward the project without receiving support	-	-

*“Without this Service, we simply would not have known which businesses would be interested in using the by-products of our operations. As a result of the support, we have identified two businesses that we can work with on an ongoing basis to our mutual benefit.”*

*“I think it’s a mixture of a few things. We didn’t know who we could provide the redundant materials to, the practical steps needed to make the exchange happen and I just don’t think we would have looked into it without being approached as we just have so much going on.”*

*“We just wouldn’t have had the time or even the awareness of businesses that we would exchange our waste with.”*

**RMIS Service Recipients of Support**

<sup>60</sup> 15 businesses stated that they would have ‘definitely’ or ‘probably’ have undertaken the resource matching business development activities in the absence of the Service and hence were not required to provide feedback in relation to this survey question.

<sup>61</sup> Please note that businesses were able to select multiple barriers hence the sum of the percentages across the barrier may be greater than 100%.

<sup>62</sup> The RIS has been calculated based on businesses ranking of the top 3 most important barriers.

### 3.5.3 Achievement of Motives for undertaking Resource Matching Activities

Businesses identified a variety of objectives/motives for undertaking resource matching activities with the support of the RMIS service, with the most frequently cited including to:

- Identify businesses that it could potentially exchange redundant materials and waste with (identified by 94% of businesses) and the single most important objective identified by businesses;
- Reduce operational costs (81%);
- Identify businesses that it could potentially share assets, logistics and expertise with (36%); and
- Reduce the business’ impact on the environment (34%).

Motive/objective (N=47)	% of businesses <sup>63</sup>	Single Most Imp.
Identify businesses that it could potentially exchange redundant materials and waste with	94%	64%
Reduce operational costs	81%	25%
Identify businesses that it could potentially share assets, logistics and expertise with	36%	-
Reduce the business’ impact on the environment	34%	11%
Increase sales	30%	-
Develop sustainable business collaborations	19%	-
Enhance the business’ supply chain	19%	-
Enhance employee and wider business’ productivity	15%	-
Ensure the business’ compliance with all relevant legislative/regulatory requirements	6%	-
Ensure the business’ compliance with all customer/client requirements	6%	-
Realise process efficiencies	4%	-
Enhance the business’ image and corporate reputation with employees and the wider public	4%	-
Realise the business’ corporate social responsibility commitments	4%	-
Enhance environmental awareness among employees	4%	-

As illustrated in Figure 3.3 overleaf the majority of businesses were of the view that they had achieved (in most cases partially), their respective objectives for undertaking Resource Matching Activities through the RMIS Service. Whilst almost all businesses (95%) had successfully identified businesses that they could potentially exchange redundant material and/or waste, just over one-third (36%) of businesses indicated that they had not achieved a reduction in their operational costs (nor did they anticipate doing so) as a result of the support provided through the Service.

*“We’ve made over £3k of savings by giving it to other businesses rather than paying for a waste company to dispose of it in landfill. I’m hopeful that the relationship can continue with the businesses we met as part of the service.”*

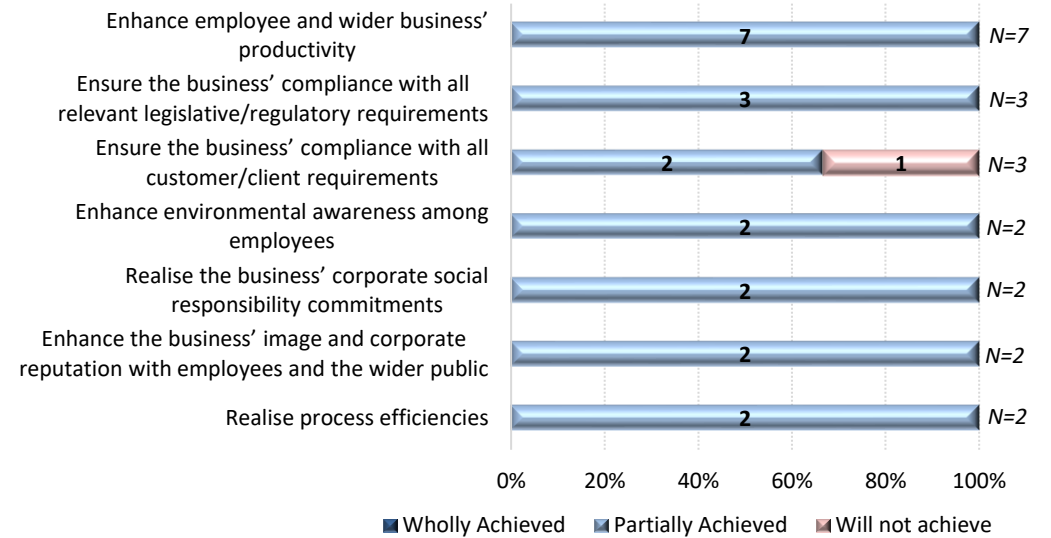
*“It’s terrible to think about how much waste we’ve just sent to landfill when we could have been providing it to other businesses. Leaving aside any financial benefits for us, the environmental benefits were the main driver for getting the support.”*

**RMIS Service Recipients of Support**

<sup>63</sup> Please note that businesses were able to select multiple motive/objectives for taking forward the resource matching activities hence the sum of the percentages across the barrier may be greater than 100%.



Figure 3.7: Achievement of their Objectives for undertaking RMIS Activities through the Service



### 3.5.4 Gross Tangible Service Impacts

As noted, the outcomes of successful synergies are collated and verified on an ongoing basis by the EDO and documented in the AVRs (potential cost savings only) and Match Reports (all other outcome metrics)<sup>64</sup>. A review of the verified outcomes indicates:

- £2m of potential cost savings were identified in the 279 businesses that completed an Advisory Visit through the Service;
- Just under one-quarter (24%) of businesses that undertook a visit, subsequently realised cost savings as a result of a successful collaborative synergy<sup>65</sup>. The monitoring information indicates that these businesses realised £611k of gross cost savings; and
- £221k of sales were derived by businesses and £63k of investment was made in implementing resource efficiency measures.

<b>Table 3.12: Gross Monetary Business Impacts<sup>66</sup></b>			
	<b>Value</b>	<b>Unique Businesses realising impact/outcome</b>	<b>% of businesses realising the benefit<sup>67</sup></b>
<b>Business Monetary Benefits</b>			
Potential Cost savings Identified	£2,046,798	279	100%
Cost savings realised	£610,724	67	24%
Increased sales <sup>68</sup>	£220,921	32	11%
Investment	£62,550	10	4%
<b>Environmental Outcomes</b>			
CO2 Reduction	13,865 tonnes	57	20%
Waste diverted from landfill	1,753 tonnes	36	9%
Virgin Raw Material Saved	2,093 tonnes	39	14%

In terms of wider environmental outcomes, the support delivered c. 14k tonnes of gross CO2 emission savings, diverted 1.8k gross tonnes of waste from landfill and saved 2k gross tonnes of virgin raw materials being utilised by businesses.

The level of gross cost savings realised (£611k) represents 30% of the potential cost savings identified (£2m). Linked to the discussion under Section 3.4.2, the EDO was of the view that whilst the conversion ratio appeared reasonable given the scale of delivery challenges that had been brought about as a result of the COVID-19 pandemic, the scale of cost savings realised could potentially have been higher had the nature of its contract (and associated targets) been more heavily weighted towards outcome (as opposed to activity) targets which would have resulted in greater depth and quality of facilitation support being provided to businesses.

### 3.5.5 Net Additional Tangible Service Impacts

In order to determine the level of tangible business benefits and environmental outcomes that can be directly attributed to the RMIS Service (i.e., the 'net additional impact') the aforementioned gross figures need to be adjusted to take account of impact deadweight/additionality and displacement.

<sup>64</sup> It should be noted that all business and wider environmental outcomes identified in the AVRs and Match Reports were confirmed as being accurate during the primary research process.

<sup>65</sup> Consultation with the Service's EDO suggests that the conversion rate (of 24%) compares favourably to its other international industrial symbiosis projects, which typically achieve a conversion rate of 10%.

<sup>66</sup> Potential cost savings have been drawn from completed AVRs. All other monitoring information has been drawn from completed Match Reports.

<sup>67</sup> Calculations based on 279 unique businesses that received a completed AVR following their visit/meeting.

<sup>68</sup> Sales figure principally relate to rebate.

Utilising the same participant self-assessment methodology outlined in Section 2.5.9, the Research Team’s analysis indicates that 62% of the tangible business benefits and environmental outcomes would not have been achieved or would not have been achieved on the same scale and/or within the same timescale, in the absence of the RMIS Service.

Table 3.13: Levels of RMIS Service Impact additionality/deadweight	
Impact Additionality	Impact Deadweight
61.5%	38.5%

The levels of impact deadweight/additionality compare favourably when compared to other similar interventions (Table 3.14). For example, the level of additionality is c. 7 percentage points (pp) higher than other UK regional ‘Business Development and Competitiveness’ interventions and c. 4pp higher than other initiatives designed to bring about efficiency improvements in businesses through the adoption of (more) sustainable working practices (the Sustainable consumption/production Sub Theme).

Table 3.14: Benchmarking levels of Impact Additionality <sup>69</sup>	
Intervention type	Average level of additionality
<b>RMIS Service</b>	<b>61.5%</b>
<b>UK Regional Interventions</b>	
– All interventions	57.0%
– Programme interventions only	56.2%
– Business development & competitiveness Theme	54.5%
– Sustainable consumption/production Sub Theme <sup>70</sup>	57.9%

Adopting the same approach outlined in Section 2.5.9 to measuring levels of economic displacement, Research Team’s analysis indicates that the level of economic displacement in the NI market is 23%.

Table 3.15: Calculated levels of Displacement for RMIS Service recipients	
NI	GB
23.1%	8.9%

Making allowances for the reductions required to take account of impact deadweight and displacement indicates that the RMIS Service has directly supported businesses to derive £289k of cost savings, £104k of sales and encouraged them to make £30k of investment in resource efficiency measures.

Table 3.16: Net Additional Business Monetary Benefits						
	Business Monetary Benefits			Environmental Outcomes		
	Cost Savings	Increased Sales	Investment	CO2 Reduction	Waste diverted from landfill	Virgin Raw Material Saved
Gross Impact	£610,724	£220,921	£62,550	13,865T	1,753T	2,093T
Deduction for Deadweight <sup>71</sup>	£235,129	£85,055	£24,082	5,629T	712T	850T
Deduction for Displacement (@23.1%)	£86,763	£31,385	£8,886	N/A <sup>72</sup>		
Net Additional Impact	£288,833	£104,481	£29,582	8,236T	1,041T	1,243T

<sup>69</sup> Source: Research to Improve the Assessment of Additionality (BIS, 2009).

<sup>70</sup> This category relates to initiatives designed to bring about efficiency improvements in business through the adoption of (more) sustainable working practices.

<sup>71</sup> The activity/Programme level of deadweight (40.6%) has been applied to all environmental outcomes and the impact deadweight (38.5%) has been applied to all monetary benefits/outcomes.

<sup>72</sup> On the basis that carbon emission savings represent a wider environmental outcome from the EEF supported activity, and not a direct tangible business benefit, there is no potential for economic displacement (and hence a reduction has not been applied under this metric). On the basis that the energy savings ultimately generate the cost savings for businesses, displacement has been applied to this metric so that the reader has an understanding of the scale of energy savings required to generate the new additional cost savings.

In terms of wider environmental outcomes, the Service directly supported c. 8.2k tonnes of CO2 emission savings, diverted 1k tonnes of waste from landfill and saved 1.2k tonnes of virgin raw materials being utilised by businesses.

### 3.5.6 Net Additional GVA Impacts

Taking account of the direct and indirect cost savings and sales derived by businesses, the Research Team’s analysis indicates that the RMIS Service contributed c. £329k of net additional GVA to the NI economy.

The inclusion of wider supply chain benefits that potentially arose as a result of the investment made by businesses<sup>73</sup> in resource efficiency measures indicates that the Programme contributed a further c. £6k in net additional GVA, equivalent to £334k in total net additional GVA.

Impact metric	Net additional Impact	Sectoral average level of GVA <sup>74</sup>	Net Additional GVA
Cost savings	£288,833	N/A <sup>75</sup>	£288,833
Sales/Turnover	£104,481	38%	£39,703
<b>Sub-total</b>	<b>£393,314</b>		<b>£328,536</b>
Investment	£29,582	19% <sup>76</sup>	£5,621
<b>Sub-total</b>	<b>£29,582</b>		<b>£5,621</b>
<b>Total</b>	<b>£422,896</b>		<b>£334,156</b>

### 3.5.7 Business’ Awareness of the Role of Energy and Resource Efficiency

Given the nature and scale of a number of reported barriers that have historically prevented businesses from adopting ERE measures, it is positive to note that almost four-fifths of businesses (79%) indicated that the support provided through the RMIS Service had served to increase their:

- Awareness and understanding of how resource efficiency measures can be employed to enhance its sustainability, growth and competitiveness; and
- Awareness and understanding of the steps that can be taken to reduce its impact on the environment.

The same proportion of businesses was of the view that the support had served to build their business’ resilience through green efficiency.

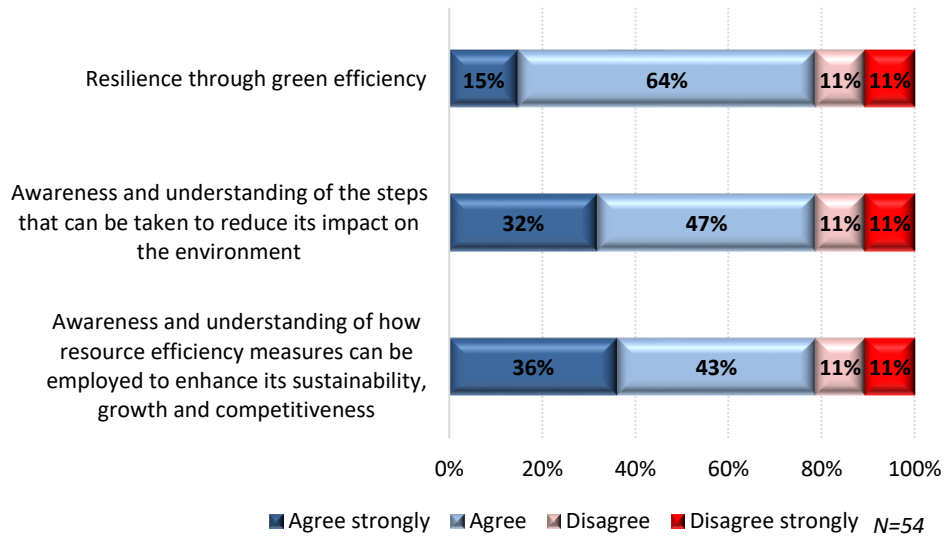
<sup>73</sup> The appropriateness of the inclusion of the investment in the GVA calculation may vary depending on the viewpoint of the reader. Whilst noting that investment serves as an input to ultimately generate the costs savings from an ERE project, it does nonetheless represent supply-chain expenditure in the NI economy which has been brought about as a result of the project. Noting the potential differences in viewpoints as to whether this investment should be included in the calculation, the Research Team has calculated the net additional GVA (and associated return-on-investment) both inclusive and exclusive of the GVA impacts potentially brought about from this investment.

<sup>74</sup> Source: Annual Business Enquiry Reporting Unit Results 2020 (November 2021).

<sup>75</sup> GVA can be calculated by summing business’ Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) which calculated by summing operating profit, depreciation and amortisation and wages and salaries. The analysis assumes that a pound of cost saving is equivalent to a pound of GVA on the basis that it will typically provide a direct impact on a business’ operating profits. Cost savings have been included in the calculation on the basis that they will directly impact on the scale of a business’ inputs.

<sup>76</sup> For prudence, the Research Team has reduced the NI average sectoral level of GVA from 38% to 19% (a 50% reduction) to convert the investment made by businesses to GVA. This approach has been applied to take account of businesses potentially having sourced equipment/technology directly from outside NI (which would represent a leakage) and/or businesses sourcing equipment/technology from a NI provider who had originally sourced it from outside NI (thereby creating a reduction in the value-added element in the supply chain).

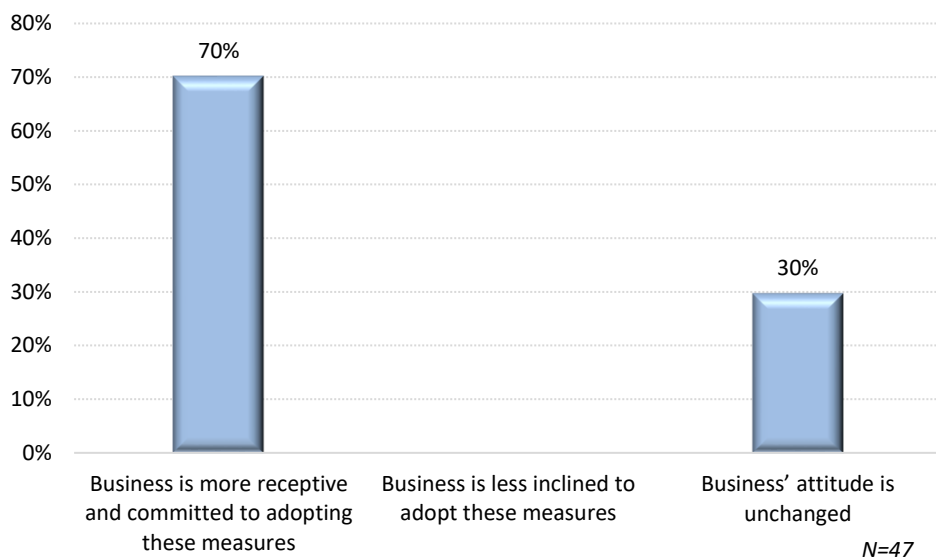
Figure 3.8: Impact of RMIS support on businesses' understanding of the role and importance of ERE



### 3.5.8 Attitudinal Changes to the Adoption of Energy and Resource Efficiency Measures

Positively, more than two-thirds of businesses (70%) indicated that they were now more receptive and committed to adopting ERE measures as a result of the support provided through the RMIS service (Figure 3.9). It should be noted that for most businesses that indicated that their receptiveness and commitment to adopting ERE measures had remained unchanged (30%), these businesses indicated that they were already committed to implementing these measures prior to receiving support.

Figure 3.9: Business attitudes to the Adoption of ERE Measures following the receipt of RMIS support



*"We are much more committed to working with other businesses to exchange materials that we don't need anymore. It saves us money, benefits the environment and boosts our credibility with clients."*

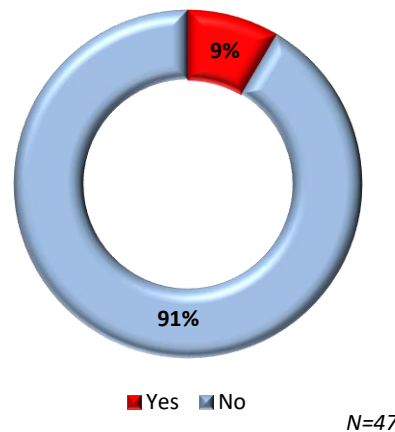
*"We have a much better understanding of how being resource efficient can enhance our growth and competitiveness, as well as serving to reduce our impact on the environment."*

**RMIS Service Recipients of Support**

### 3.5.9 Duplication and Complementarity

Almost all businesses (91%) indicated that, in the absence of the RMIS Service, they would not have been able to get the same or similar support elsewhere.

**Figure 3.10: Businesses' Ability to get similar support in the absence of the RMIS Service**



In terms of complementarity, as noted previously, it appears that the support delivered through the Service could have been more appropriately levered to support other Invest NI interventions (and vice versa), most notably the CGP where a number of networks have an overt Circular and Green economy focus. It is recommended that these opportunities are fully explored by Invest NI moving forward.

### 3.6 Progress Towards Programme Targets

Table 3.18 (overleaf) provides a summary of the progress made towards the targets established for the RMIS Service for the period under review<sup>77</sup>.

Reflecting the impact that the COVID-19 pandemic had on levels of demand and uptake of the service, levels of activity were generally below that anticipated at the outset. Of note, the number of advisory visits/meetings was 12% below that anticipated and the number of completed match reports was 18% lower. Consultation with the Service's EDO also indicates levels of activity were impacted as a result of a short delay in getting contractual obligations agreed upon with Invest NI and changes in its staff complement, with time being required to upskill a new member of staff following the departure of an experienced team member.

Notwithstanding the progress made towards the activity targets, as noted, there is a consensus (which is shared by the Research Team) that the established targets were too overtly focused on maximising the quantity of interactions with the business base as opposed to the depth and quality which potentially would have delivered greater outcomes and VFM from the Service.

In terms of outcomes, the Research Team's review of the Economic Appraisal indicates that it was anticipated that the Programme would generate £4.9m of Net Additional GVA Benefits, based on the persistence of benefits over a five-year period post support. Due to the aforementioned difficulties in making a direct comparison to the projections detailed within the Economic Appraisal, our analysis suggests that £334k in total net additional GVA has been derived to date. We do however note that a full assessment can only be taken in the longer term.

<sup>77</sup> Whilst the Economic Appraisal had identified activity targets solely relating to advisory visits and match reports, the nature of the activity targets was extended by the ERE Team prior to the appointment of the EDO.

RMIS Activity	Year 1 Oct 2019 - Mar 2020 (6 months)			Year 2 Apr 2020 - Mar 2021 (12 months)			Total Oct 2019 - Mar 2021 (18 months)		
	Target	Activity	Variance	Target	Activity	Variance	Target	Activity	Variance
	Advisory Visits	106	100	-6%	212	180	-15%	318	280
Small Match Reports	26	19	-27%	52	45	-13%	78	64	-18%
Large Match Reports	4	4	-	8	6	-25%	12	10	-17%
Workshops	2	2	-	4	4	-	6	6	-
Presentations	4	4	-	8	7	-13%	12	11	-1 presentation
Exhibitions	1	1	-	2	1	-50%	3	2	-1 exhibition
Written Case Studies	2	2	-	3	3	-	5	5	-
Video Case Studies	1	1	-	3	-	-100%	4	1	-3 video case studies <sup>78</sup>
Features	1	1	-	2	2	-	3	3	-

### 3.7 Performance Against Budget

Table 3.19 provides a comparison of the actual and anticipated costs for the period under review.

Nature of Cost	Year 1 Oct 2019 - Mar 2020 (6 months)			Year 2 Apr 2020 - Mar 2021 (12 months)			Total Oct 2019 - Mar 2021 (18 months)		
	Projected Costs	Actual	Variance from Budget	Projected Costs	Actual	Variance from Budget	Projected Costs	Actual	Variance from Budget
	Core Delivery	£157,250	£146,940	-7%	£320,790	£285,900	-11%	£478,040	£432,840
INI Staff	£33,689	£24,705	-27%	£68,726	£40,892	-40%	£102,415	£65,597	-36%
Marketing	£6,527	£3,160	-52%	£13,316	£7,175	-46%	£19,843	£10,335	-48% <sup>79</sup>
Procurement	£5,205	£2,003	-62%	-	-	-	£5,205	£2,003	-62%
Evaluation <sup>80</sup>	-	-	-	£9,273	£13,425	45%	£9,273	£13,425	45%
<b>Total</b>	<b>£202,671</b>	<b>£176,808</b>	<b>-13%</b>	<b>£412,105</b>	<b>£347,392</b>	<b>-16%</b>	<b>£614,776</b>	<b>£524,200</b>	<b>-15%</b>

<sup>78</sup> Linked to discussion detailed previously as to the shortfall in Advisory Visits, Invest NI has confirmed that the legislated 'lockdowns' at the height of the COVID-19 pandemic prevented the creation of video case studies.

<sup>79</sup> Consultation with Invest NI indicates that marketing and procurement costs are only utilised as and when is deemed necessary to promote its ERE schemes. The initial estimates were deemed to be unnecessary to effectively deliver the Service.

<sup>80</sup> Whilst it was anticipated that Evaluation costs would be incurred in Year 3, for comparative purposes these have been included in Year 2.

The full-economic cost of delivering the RMIS Service was £524k, which was 15% lower than anticipated at the outset principally as a result of lower than projected core delivery costs (which Invest NI was able to secure from the EDO through the competitive tendering process at 9% lower than projected) and lower Invest NI staff administration costs (which were 36% lower than anticipated).

### 3.8 Assessment of Value-for-Money

The Research Team’s analysis indicates that depending on the reader’s viewpoint as to the appropriateness of the inclusion of any investment made by businesses in the GVA calculation, the Programme delivered a return on investment of c. £0.64 in net additional GVA for every £1 invested in the Service during the period under review.

<b>Table 3.20: Calculation of the Return-on-Investment provided by the RMIS Service</b>			
<b>Net Additional GVA</b>		<b>Full Economic Cost</b>	<b>Return-on-investment</b>
Excluding Investment made in ERE Measures	£328,536	£524,200	<b>£1: £0.63</b>
Including Investment made in ERE Measures	£334,156		<b>£1: £0.64</b>

Furthermore, the Research Team would urge caution in placing an overt focus on the return on investment provided to date as an appropriate indicator of VFM. Specifically, we note that just over two-thirds of businesses were of the view that they would continue to realise monetary benefits (in the form of cost savings/and or sales) by continuing the collaborative synergies that were established with the support of the Service. The continued realisation of the impacts/outcomes is likely to have a material impact on the identified return-on-investment ratios. As such, a fully informed assessment of the monetary return on investment can only be taken in the longer term.

Subject to the continued exchange of redundant materials and waste through the collaborative synergies established during the period under review, the Research Team’s analysis suggests that the RMIS Service would potentially contribute c.£786k, in net additional GVA within 5 years, equating to a minimum return on investment of £1.50 for every £1 invested through the Programme.

<b>Table 3.21: Projected Return-on-Investment provided by the RMIS Service</b>			
<b>Time period</b>	<b>Net Additional GVA<sup>81</sup></b>	<b>Full Economic Cost</b>	<b>Return-on- investment</b>
5 years	£785,904	£524,200	<b>£1: £1.50</b>

In addition, we have considered RMIS Service’s performance in the context of Invest NI intervention principles in the table below:

<sup>81</sup> Given the tendency for businesses to potentially overstate the degree to which they would continue to realise monetary benefits (both in terms of the quantum of benefits and the duration in which the benefit may be realised) from the support received, for prudence the Research Team has divided the historic annual benefits derived by businesses by 50%. Furthermore, given the uncertainty that exists in relation to the duration of the collaborative relationship, the analysis has been limited to 5 years. The analysis is based solely on businesses that had realised monetary benefits at the time of the primary research.



**Table 3.22: RMIS VFM in the context of Invest NI’s Intervention Principles**

VFM Indicator	Conclusion								
<b>Need &amp; Market Failure</b>	The feedback from businesses suggests that the RMIS Service has been successful in supporting businesses to overcome those market failures and wider barriers that were preventing them from exploring opportunities to enhance their resource efficiency in the absence of the Service. Of note, these included a lack of awareness of the businesses that they could potentially exchange resources and waste with (asymmetric information), affordability constraints and businesses having a lack of cultural commitment towards resource efficiency and/or reluctance to implement change.								
<b>Additionality</b>	Levels of programme and impact additionality have been calculated at 59% and 62% respectively. The levels of impact additionality compare favourably when compared to other similar interventions.								
<b>Duplication and complementarity</b>	<p>Based on the Research Team’s review of other available support in the marketplace during the period under review and the feedback from businesses, there was little/no potential for the RMIS Service to duplicate other support offerings in the NI marketplace.</p> <p>In terms of complementarity, as noted previously, it appears that the support delivered through the Service could have been more appropriately levered to support other Invest NI interventions (and vice versa), most notably the CGP where a number of networks have an overt Circular and Green economy focus. It is recommended that these opportunities are fully explored by Invest NI moving forward.</p>								
<b>Economy Efficiency and Effectiveness</b>	<table border="1"> <thead> <tr> <th>Indicator</th> <th>Research Team’s Commentary</th> </tr> </thead> <tbody> <tr> <td><b>Economy</b> measures are concerned with showing that the appropriate inputs (i.e. the resources used in carrying out the project) have been obtained at least cost</td> <td> <p>The EDO was appointed through a competitive tendering process with the appointment of the successful contractor based on an assessment of their professional ability, the proposed approach to delivering the Service and cost.</p> <p>In relation to Invest NI’s staff costs, the Research Team considers that the staff input appears reasonable, given the scale of activity undertaken by the ERE Team.</p> <p>On this basis, it is the Research Team’s view that Invest NI made appropriate efforts to ensure that project inputs were obtained at least cost to the NI economy.</p> </td> </tr> <tr> <td><b>Efficiency</b> relates to measures that are concerned with achieving the maximum output from a given set of inputs</td> <td>There is a general consensus (which is shared by the Research Team) that the established targets were too overtly focused on maximising the quantity of interaction with the business base as opposed to the depth and quality which potentially would have delivered greater outcomes and VFM from the Service.</td> </tr> <tr> <td><b>Effectiveness</b> measures are concerned with showing the extent to which aims, objectives and targets of the project are being achieved</td> <td>Per Section 3.6, as a result of the COVID-19 pandemic levels of RMIS activity were below that anticipated at the outset which had a tangible impact on the outcomes realised. Accordingly, limited progress was made toward the activity targets established for the Service during the period under review.</td> </tr> </tbody> </table>	Indicator	Research Team’s Commentary	<b>Economy</b> measures are concerned with showing that the appropriate inputs (i.e. the resources used in carrying out the project) have been obtained at least cost	<p>The EDO was appointed through a competitive tendering process with the appointment of the successful contractor based on an assessment of their professional ability, the proposed approach to delivering the Service and cost.</p> <p>In relation to Invest NI’s staff costs, the Research Team considers that the staff input appears reasonable, given the scale of activity undertaken by the ERE Team.</p> <p>On this basis, it is the Research Team’s view that Invest NI made appropriate efforts to ensure that project inputs were obtained at least cost to the NI economy.</p>	<b>Efficiency</b> relates to measures that are concerned with achieving the maximum output from a given set of inputs	There is a general consensus (which is shared by the Research Team) that the established targets were too overtly focused on maximising the quantity of interaction with the business base as opposed to the depth and quality which potentially would have delivered greater outcomes and VFM from the Service.	<b>Effectiveness</b> measures are concerned with showing the extent to which aims, objectives and targets of the project are being achieved	Per Section 3.6, as a result of the COVID-19 pandemic levels of RMIS activity were below that anticipated at the outset which had a tangible impact on the outcomes realised. Accordingly, limited progress was made toward the activity targets established for the Service during the period under review.
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Table 3.22: RMIS VFM in the context of Invest NI's Intervention Principles	
VFM Indicator	Conclusion
Cost-effectiveness	<p>Cost effectiveness indicators include:</p> <ul style="list-style-type: none"> <li>• Cost per business supported through a successful synergy (N=89) - £5,890</li> <li>• Cost per £ of net additional GVA - £0.63 - £0.64</li> <li>• Cost per net additional tonne of environmental benefit (N= 10,520T) - £48.82</li> </ul>

Taken from a purely monetary perspective, the calculated return-on-investment suggests that Invest NI has arguably not derived VFM in respect of the public funds that have been invested through the RMIS Service during the period under review. As noted, a combination of the COVID-19 pandemic (which reduced levels of demand for the Service and the availability of redundant materials that could be exchanged as part of collaborative strategies), coupled with the nature and scale of targets established for the Service are likely to have played a significant role in the scale of the monetary returns provided by the Service to date.

However, noting the wider non-monetary benefits reported by businesses, coupled with the expectation that businesses will continue to derive monetary benefit from the synergies that have been established, the likelihood is that the Service will provide a positive return-on-investment and VFM, albeit a fully informed assessment can only be made in the longer term.

### 3.9 Equality and Rural Needs Considerations

Key conclusions drawn in relation to equality and rural needs considerations for the EREAP (of which the RMIS Programme forms a component part) are detailed in Section 2.9.

## 4. RESOURCE EFFICIENCY FINANCE

### 4.1 Introduction

Section 4 presents the evaluation of the Resource Efficiency Finance Programme for the period 1<sup>st</sup> October 2019 to 31<sup>st</sup> March 2021.

### 4.2 Overview of the Resource Efficiency Finance Programme and its Delivery Model

#### 4.2.1 Overview of Support

Managed and administered by the Invest NI ERE Team, Resource Efficiency Finance (REF<sup>82</sup>) provides Invest NI Account Managed Clients with capital grant funding to support the purchase and installation of equipment that would result in greater resource efficiencies (the process of using scarce resources such as water and raw materials more sustainably and reducing associated levels of waste whilst delivering the same level of output) that go beyond regulatory requirements. Through the achievement of greater levels of resource efficiency, the scheme seeks to support businesses to realise cost savings whilst minimising their impact on the environment.

During the period under review, up to £40k of capital grant support was available<sup>83</sup>, with the maximum rate of grant support for small, medium and large businesses not exceeding 30%, 20% and 10% respectively of eligible project costs<sup>84</sup>. Businesses were required to contribute all remaining project costs.

Costs eligible for support under the REF scheme include capital costs directly associated with the third-party design, purchase, delivery, installation and commissioning of material and/or water efficiency-saving processes<sup>85</sup>. Costs/activities that are ineligible for support include (inter alia):

- Projects with payback periods of one year or less or four years or greater;
- Projects that solely meet compliance or other waste/ water licensing requirements;
- Projects with a higher level of energy efficiency savings than the total of water, materials and/or waste materials;
- Equipment that delivers resource efficiency beyond the business premises;
- Projects that solely provide local waste infrastructure projects and do not demonstrate resource efficiency;
- Projects that cover ongoing software licensing costs; and
- In-house personnel costs associated with the project.

<sup>82</sup> Internally referred to as the Resource Efficiency Capital Grant (RECG).

<sup>83</sup> As part of the Casework Submission for the REF Scheme, approval was sought and subsequently granted for the ERE team to be given the operational flexibility to increase the level of grant assistance up to a maximum of £100k (in line with Regional Aid rules) in order to respond to changes in the economic landscape, business operating environment and levels of demand. Whilst outside the period under review, it is noted that the level of support was increased from £40k to £50k during the 2021/22 financial year.

<sup>84</sup> Grant offers made to small and medium-sized business are made in accordance with the General Block Exemption, Article 14 Regional Investment Aid rates and offers to large businesses are made in accordance with De-Minimus Aid rules. Per the EU Business Size definitions, a small business is an Enterprise that has fewer than 50 employees and has either an annual turnover and/or an annual balance sheet total not exceeding €10m; a Medium-sized business is an enterprise that has between 50 employees and 249 employees and has either an annual turnover not exceeding €50m or an annual balance sheet total not exceeding €43m and a large business is an enterprise that does not fall into either the small or medium-sized categories.

<sup>85</sup> If a project has separate elements, for example a process which relies on the integration of the separate elements, the business is required to demonstrate a clear linkage between these elements in order for the project to be eligible for support. An element cannot be independent from the other elements; otherwise, the project will be ineligible as this will be considered as two separate projects.

#### 4.2.2 The Resource Efficiency Finance Delivery Model

The administration of the REF Programme commences with Invest NI issuing a call for proposals (typically open for 4 weeks) through its client teams with applicants required to submit an online application (which requires businesses to provide, amongst other things, a description of the proposed project (including its fit on the waste/water hierarchy), associated costs, anticipated cost savings, project risks and evidence of project need, viability and additionality), a quotation for eligible project expenditure<sup>86</sup> and evidence that they have access to the balance of funding for the project should their application proceed to a Letter of Offer.

Following the closure of the call for applications, a panel of four Invest NI Technical Advisors will appraise the applications, scoring and ranking them on a competitive basis against the following criteria:

<b>Table 4.1: Criteria Utilised to Appraise REF Applications</b>	
<b>Criteria</b>	<b>Scoring Approach</b>
The ability of the business to claim by a specified date	Pass/Fail
Whether the business provided all essential accompanying documentation	Pass/Fail
Project payback period <sup>87</sup>	Scored out of 50
The fit of the projects on the Waste/Water Hierarchy <sup>88</sup>	Scored out of 50
Completeness and accuracy of application form	Scored out of 50

Consultation with Invest NI indicates that as part of the appraisal of applications, the Technical Advisor panel will examine the accuracy and reasonableness of all information provided by the business applicant (including projected cost savings and associated payback periods), with suitable adjustments made (where these are required) to support the competitive scoring and ranking of applications.

Projects shortlisted through the competitive call process are then subject to internal casework approval<sup>89</sup> with the project ultimately subject to the approval by the delegated authority (typically the relevant Grade 7 within the ERE Team). A Letter of Offer is then provided to the successful business, specifying key dates for commissioning/installation. Once the capital equipment has been purchased and fully installed, businesses are required to submit a claim<sup>90</sup> which is technically vouched by an Invest NI Technical Advisor<sup>91</sup>. Upon successful verification, the claim is then paid by Invest NI to the business.

<sup>86</sup> Businesses are required to obtain at least three quotations for eligible expenditure, with the preferred quotation submitted with the application (the other two quotations are required to be retained by the business applicant for corroboration, if needed during the assessment of the application). At least one of the quotations is required to come from a supplier based in NI (if such a supplier exists). For second-hand equipment, one quotation is required and must be certified by an independent valuer approved by Invest NI.

<sup>87</sup> The simple payback is used to appraise all applications using the following formula: eligible capital expenditure (before grant) divided by annual savings. To be eligible for support a project must have a payback greater than one year but less than four years.

<sup>88</sup> Appendix IV provides an overview of the Waste Hierarchy. Projects focused higher up the hierarchy (i.e., towards 'Prevention') received a relatively higher score to those focused lower down on the hierarchy (i.e., towards 'Disposal').

<sup>89</sup> Submitted by the Technical Advisor, the casework paper appraises the project in line with Invest NI's key Principles of Intervention which includes examining (inter alia) Strategic fit, Economic Efficiency, Cost Effectiveness & Control Calculations, Additionality & Mobility, Affordability, Viability, Risks, Displacement etc.

<sup>90</sup> Claims must be accompanied by a Fixed Assets Register. an Auditor's certificate is also required if the grant claim is for more than £25k.

<sup>91</sup> During the period under review, as part of the technical vouching process businesses were required to provide photos of equipment, serial numbers and machine details. Prior to the COVID-19 pandemic, the vouching process was carried by a Technical Advisor during a site visit.

### 4.3 Programme Activity

Table 4.2 provides an overview of the activity supported through the REF Programmes during the period under review.

Table 4.2: Overview of REF Activity			
Stage	Programme Year <sup>92</sup>		Total Oct 2019 - Mar 2021 (18 months)
	Year 1 Oct 2019 - Mar 2020 (6 months)	Year 2 Apr 2020 - Mar 2021 (12 months)	
Applications submitted	34	35	69
<i>of which were:</i>			
– Unsuccessful <sup>93</sup>	11	5	16
– Successful	23	30	53
Projects Withdrawn	3	1	4
Completed projects	20	29	49

Salient points to note include:

- Invest NI administered two competitive REF calls for applications during the period under review, one in Year 1 (opening October 2019) and the other in Year 2 (opening in May 2020), with each call open for a 1-month period;
- 69 applications for support were submitted during the two calls, with 77% of these approved for support. The remaining 23% of applications were rejected due to a lack of adherence to the Programme’s core eligibility criteria;
- 92% of applications approved were ultimately completed, with 4 projects being withdrawn by businesses due to business-specific reasons<sup>94</sup>;
- The 49 REF projects were completed by 45 unique businesses<sup>95</sup>. 71% of businesses in receipt of REF support were small businesses, 22% were medium-sized and the remainder (N=3) were large;

Table 4.3: Business Size of REF recipients		
Business Size	No. of businesses	% of businesses
Small	32	71%
Medium	10	22%
Large	3	7%
<b>Total</b>	<b>45</b>	<b>100%</b>

- £1.34m of REF funding was committed to the 49 projects (equivalent to an average of £25.4k per project), representing 24% of total eligible project costs (£5.6m);
- 91% of funding committed was ultimately drawn down by businesses, with businesses drawing down an average of £24.9k per REF project;

<sup>92</sup> Activity has been presented to illustrate the outcomes of the projects approved in a given financial year, hence the projects may have been withdrawn/cancelled or completed in financial years subsequent to those presented.

<sup>93</sup> Consultation with Invest NI indicates that the quality of applications submitted during Year 1 was of a relatively lower standard to those submitted during Year 2.

<sup>94</sup> Reasons included the businesses being unable to provide the project match funding (2 projects), an inability to source equipment during the stipulated timescales (1 project) and operational difficulties being faced as a result of the COVID-19 pandemic.

<sup>95</sup> 4 businesses completed 2 REF projects each.

Table 4.4: REF commitment to business recipients				
	Approved projects <sup>96</sup>		Completed projects <sup>97</sup>	
	Eligible Project Costs	REF Committed	Eligible Project Costs	REF Drawdown
Total	£5,562,652	£1,344,236	£5,253,292	£1,218,681
Range <sup>98</sup>	£13k-£399k	£3.9k-£40k	£19.3k-£399k	£4.4k-£40k
Average (per project)	£104,956	£25,363	£107,210	£24,871
Average (per business)	£115,889	£28,005	£116,740	£27,082

- Consultation with Invest NI indicates that the implementation of a number of REF (and EEF) projects was delayed as a result of difficulties in procuring equipment/technology (typically from outside NI) due to the COVID-19 pandemic<sup>99</sup>.

#### 4.4 Views on the REF Delivery Model - The Business and Wider Stakeholder Perspective

As illustrated in Figure 4.1 (overleaf) businesses expressed a high level of satisfaction in relation to the REF delivery model including the:

- Programme’s application and claims process, which was viewed by businesses to be unbureaucratic and user-friendly, with the outcomes of the process being communicated in a timely manner;
- Nature and scale of support available including the levels of funding available, the Programme’s aid ceilings and the nature of projects/costs eligible for support; and
- Any support provided by Invest NI in administering the Programme.

*“It was a very simple application which took no more than an hour to complete...we heard that we were successful about a fortnight after submitting it.”*

*“A few minor queries arose during the application process which were quickly addressed by my Client Executive. The whole process, from submitting the application right through to making the claim, was very straightforward. I have no complaints at all.”*

*“Given the pressures on our finances, the support was very welcomed. Without the support, we would have had to put the project on hold which would have risked the funds being swallowed up by other emerging priorities.”*

**REF Recipients of Support**

<sup>96</sup> Figures relate to 53 approved projects for 48 unique businesses.

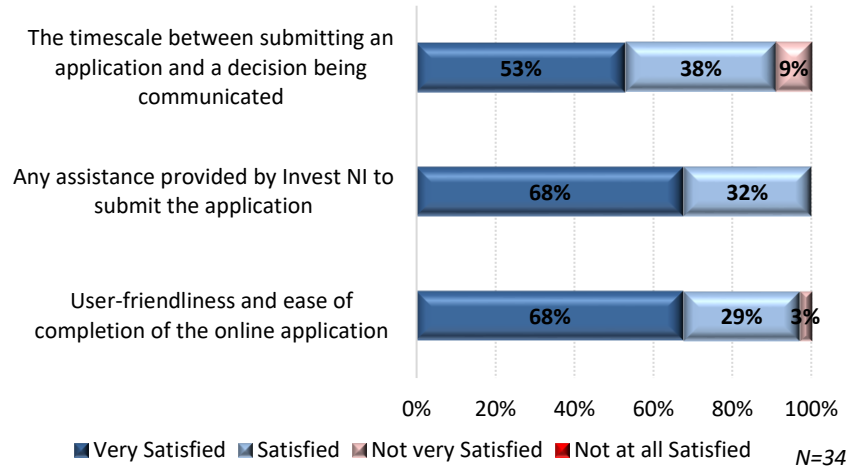
<sup>97</sup> Figures relate to 49 completed projects by 45 unique businesses.

<sup>98</sup> Figures are representative of the range in individual project costs.

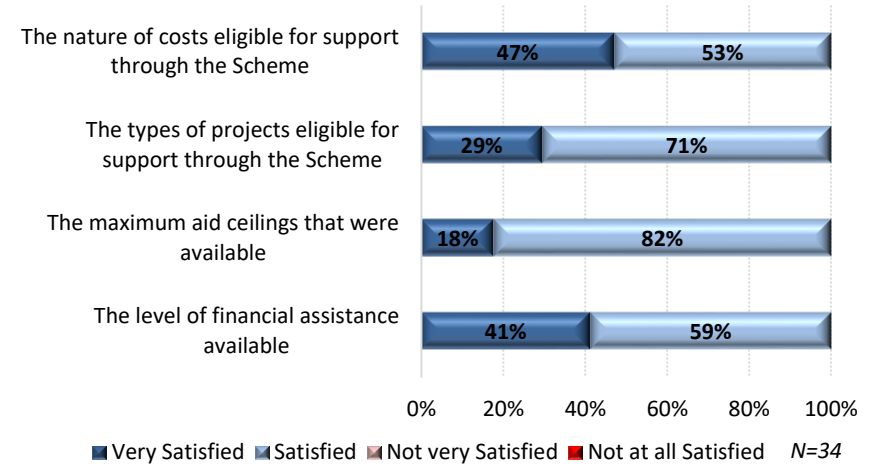
<sup>99</sup> Operationally, the resulted in (on occasions) Invest NI issuing extensions to Letters of Offer to individual businesses.

Figure 4.1: Businesses' Perspective of the REF Programme Delivery Model

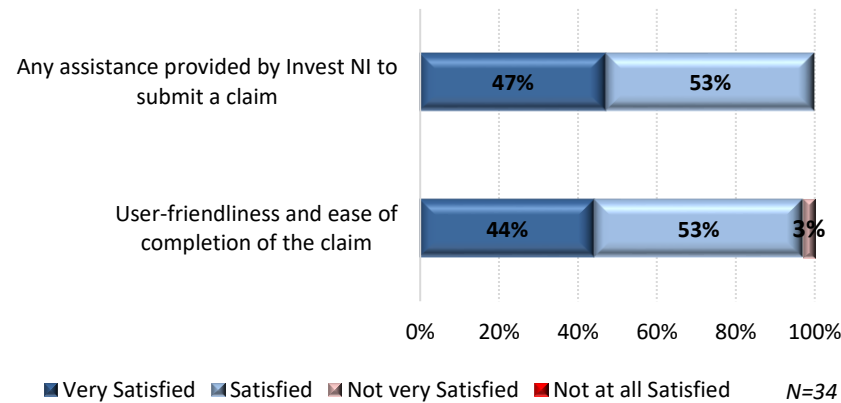
**Application Process**



**Nature and Scale of Support**



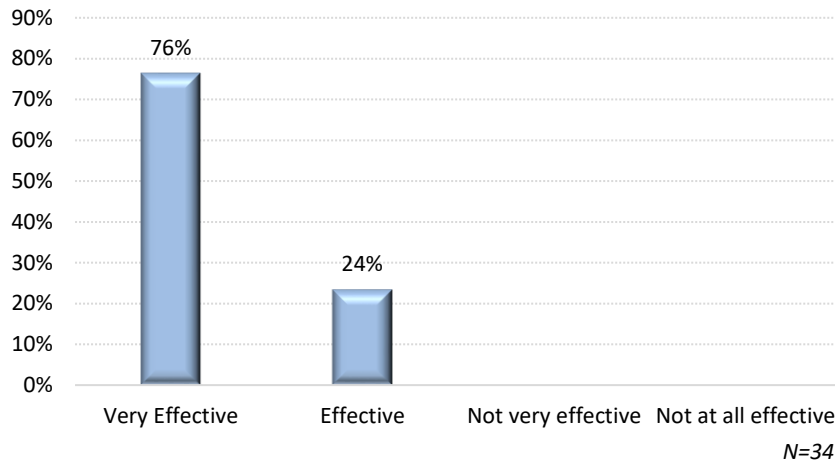
**Claims Process**



4.4.1 Overall Effectiveness of the Support and Continued Need

Unsurprisingly, given the positive feedback provided in relation to the REF delivery model, the quality of support received and its associated impact (per Section 4.5), all businesses indicated that the REF programme was ‘very effective’ (76%) or ‘effective’ (24%) in terms of supporting them to implement resource efficiency measures.

Figure 4.2: Overall Effectiveness of REF support



All businesses indicated that they would recommend the REF Programme to other businesses that are potentially interested in implementing resource efficiency measures and that there was a continued need for the Programme’s support.

*“This is an excellent Programme that has delivered tangible results for our business in a very short space of time. I’d have no hesitation in recommending it to any business looking to reduce their cost base by implementing resource efficiency measures.”*

*“NI businesses need more programmes like this, particularly given the significant operational challenges facing businesses at the minute. It’s easy to apply for, provides a good level of financial support and ultimately contributes to our bottom-line...we’ve already started to look at other potential resource and energy efficiency projects that we could take forward.”*

*“It’s a win-win. As a business, we get to reduce our costs and increase our competitiveness whilst also contributing to protecting the environment.”*

**REF Recipients of Support**

4.5 Programme Impact

4.5.1 Historic Actions to Enhance Levels of Energy and Resource Efficiency

Just over half (56%) of businesses indicated that they had implemented measures within the last 5 years (prior to their REF project) to enhance their resource efficiency. Of these businesses, 68% (N=19) had made a capital investment to enhance their efficiency in this area, with the average investment equating to £47.7k over the period.

Table 4.5: Historic Actions undertaken by businesses to enhance levels of ERE prior to their REF project	
Implemented Actions to enhance the business’....	% of businesses (N=34)
– Energy Efficiency	47%
– Resource Efficiency	56%

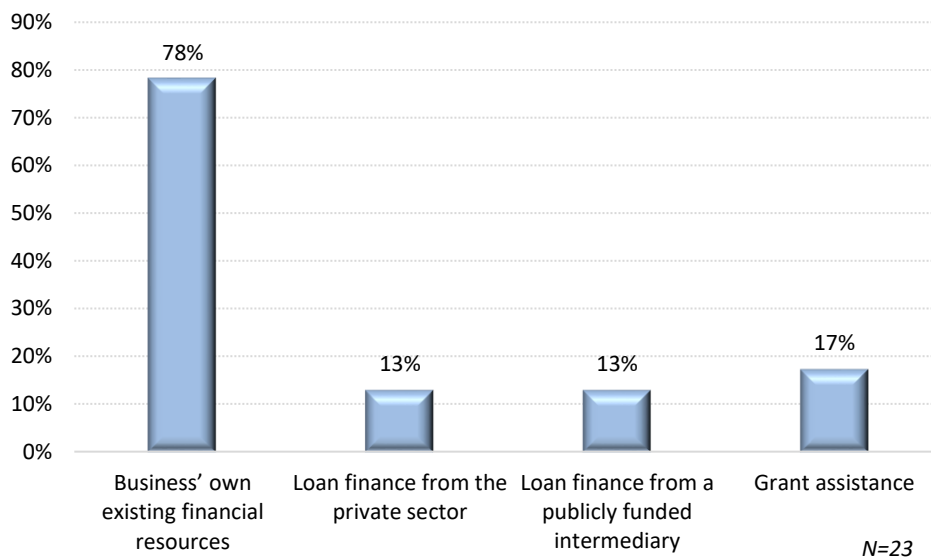


Conversely, just under half (47%) of businesses indicated that they had implemented measures within the last 5 years (prior to their REF project) to enhance their energy efficiency. 75% (N=16) of these businesses suggested that they had made a capital investment, with these businesses making an average of £58.7k over the 5-year period.

All businesses, who had made an investment in implementing energy and/or resource efficiency measures in the last 5 years (N=23), indicated that the scale of investment that was made with the support of REF was significantly higher (83%) or higher (17%) compared to other historic investments made by the business in these areas.

Of those businesses that had made an energy and/or resource efficiency investment in the last 5 years, these businesses typically had done so using their own financial resources (79%).

**Figure 4.3: Historic Financing of ERE Measures by REF recipients**



#### 4.5.2 Achievement of Motives for undertaking a REF Project

Businesses identified a variety of objectives/motives for taking forward a REF project with the most frequently cited including to:

- Enhance the operational efficiency of the business and make cost savings which were both the most frequently cited (by 94% of businesses) and the single most important objective identified by businesses;
- Realise process efficiencies (85%);
- Reduce the business' impact on the environment (71%); and
- Enhance employees and the wider business' productivity (68%).

Interestingly, despite the Programme not supporting activities that would support business compliance with relevant legislative/regulatory requirements, just under one-quarter of businesses identified this as a motive for undertaking their respective REF project.

**Table 4.6: Businesses’ Objectives for taking forward the REF project**

Motive/objective (N=34)	% of businesses <sup>100</sup>	Single Most Imp.
Enhance the operational efficiency of the business and make cost savings	94%	88%
Realise process efficiencies	85%	-
Reduce the business’ impact on the environment	71%	12%
Enhance employees and the wider business’ productivity	68%	-
Achieve better equipment performance	62%	-
Support the preservation of products	59%	-
Enhance the business’ working environment (e.g., to make it more comfortable for employees, improve lighting or air quality etc.)	41%	-
Enhance employee morale and productivity	41%	-
It was convenient as the business was replacing existing equipment/technology	29%	-
Ensure your business’ compliance with all customer/client requirements	26%	-
Realise the business’ corporate social responsibility commitments	26%	-
Enhance environmental awareness among employees	26%	-
Ensure your business’ compliance with all relevant legislative/regulatory requirements	24%	-
Enhance the business’ image and corporate reputation with employees and the wider public	24%	-

With the exception of a small number of businesses, most businesses (86%+) indicated that they had either wholly or partially achieved the objectives for which they had taken forward a REF project. Of note, all businesses indicated that they had achieved the two most important reasons for why they had implemented a REF project; these being to enhance the operational efficiency of the business and make cost savings and reduce the business’ impact on the environment (Figure 4.4).

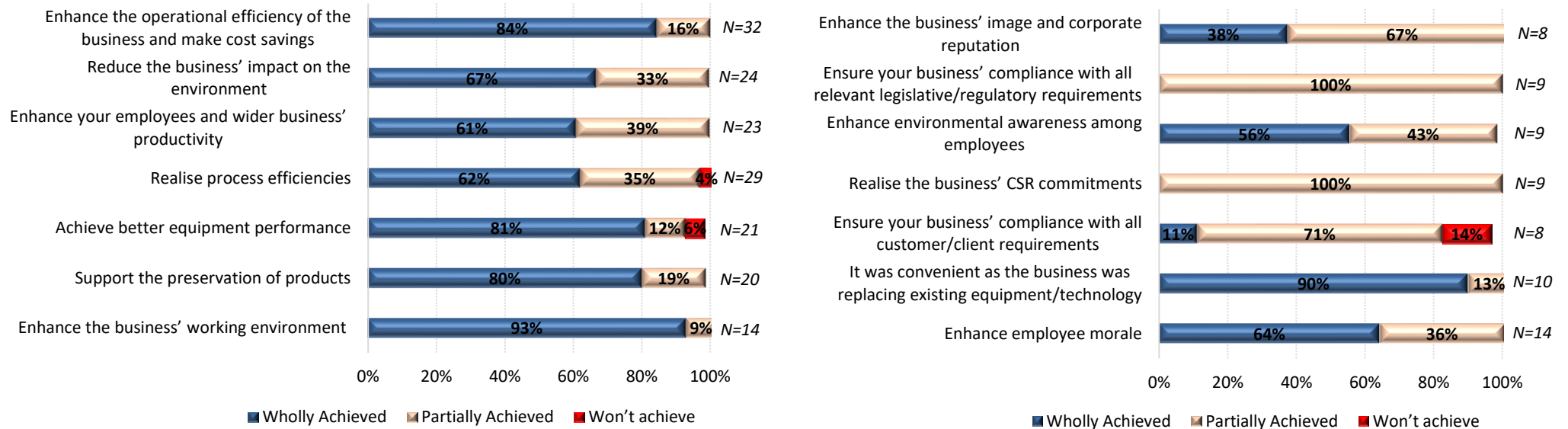
*“Whilst protecting the environment was a positive by-product of taking the project forward, the main reason was to make cost savings. Whilst it’s still early days and it will take quite a bit longer to see a meaningful return on our investment, we’re already beginning to see some good savings.”*

*“There were a number of reasons why we wanted to undertake the project, but the most important was to achieve cost savings by improving our resource efficiency and we are seeing the financial benefit of having done so.”*

**REF Recipients of Support**

<sup>100</sup> Please note that businesses were able to select multiple motive/objectives for taking forward a project hence the sum of the percentages across the barrier may be greater than 100%.

Figure 4.4: Businesses' Achievement of their Motives for undertaking a REF project



#### 4.5.3 The Role of REF in Encouraging Businesses to Invest in Resource Efficiency Measures

Utilising the same participant self-assessment methodology outlined in Section 2.5.4, the Research Team’s analysis indicates that 81% of the investment in resource efficiency measures would not have gone ahead (or would not have gone ahead in the same timescale and/or at the same scale/level of intensity) in the absence of the support provided through the REF Programme.

Table 4.7: Levels of REF Programme additionality/deadweight	
Programme Additionality	Programme Deadweight
81.1%	18.9%

The application of the calculated levels of Programme additionality to the gross investment levered indicates that the REF Programme directly levered c. £3.27m of private sector investment in resource efficiency measures (which equates to £2.69 of net additional investment for every £1 of funding).

Table 4.8: Investment undertaken as a result of the REF Programme	
Eligible Project Costs <sup>101</sup>	£5,253,292
REF Drawdown	£1,218,681
Gross Investment levered <sup>102</sup>	£4,034,611
Programme Additionality	81.1%
<b>Net Additional Investment Levered</b>	<b>£3,272,070</b>

The feedback suggests that the REF Programme has been successful in supporting businesses to overcome those market failures and wider barriers that were preventing them from investing in resource efficiency measures in the absence of receiving REF support, with the most frequently cited including (in order of relative importance):

- Affordability (identified by 76% of businesses);
- A lack of understanding of the potential business benefits that could be derived from investing in resource efficiency measures (asymmetric information) and/or the businesses having relatively more important investment priorities (47%); and
- Potential payback periods from making the capital investment being viewed as being too long in the absence of receiving financial support (56%).

*“With so many other competing priorities, I don’t think that we would’ve ever got to a point of undertaking the project had financial support not been available.”*

*“There would have been a lack of appetite to make the investment because of the pay-back period. The availability of financial support definitely served to reduce the scale of this issue for the business’ leadership and made the project work from a financial perspective.”*

*“I don’t think the business’ management was fully bought into the merits of resource efficiency as a means to improve our profitability, particularly when money is so tight.”*

**REF Recipients of Support**

<sup>101</sup> Based on the monitoring information, it is unclear if any wider ineligible investment was made as part of the project. As such the gross and net additional have been calculated based on eligible project costs only.

<sup>102</sup> By way of illustrating the net impact of the support, REF funding has been excluded from the calculation (i.e., the investment figures are net of the grant support).

<b>Table 4.9: Barriers to investment in the absence of REF support</b>		
<b>Barrier (N=34)</b>	<b>% of businesses identifying the barrier<sup>103</sup></b>	<b>Relative Importance Score (RIS)<sup>104</sup></b>
<b>Financial</b>		
The business could not have afforded to take forward the project in the absence of receiving the financial support	76%	66
The potential payback period from making the capital investment was viewed to be too long without receiving financial support	56%	26
The business had other more important investment priorities which prevented the business from making the full investment without receiving support	47%	31
The business did not own premises and the payback period would not have been feasible without receiving financial support	18%	2
<b>Information</b>		
Without knowing more about the potential benefits, the business would not have considered making the investment	47%	31
You were unaware of other sources of finance to implement the energy efficiency measures	26%	21
<b>Management Buy-In</b>		
The project was viewed to be too risky to take forward without financial support	32%	4
There was a lack of cultural commitment toward resource efficiency and/or reluctance to implement change without the financial support	24%	11
The business was unwilling to take forward the project without receiving financial support	38%	-
The business had relatively more important priorities (e.g., managing the day-to-day operations of the business)	29%	12
The adverse operating environment would have prevented the business from making an investment	47%	-

#### 4.5.4 Gross and Net Additional Direct Cost Savings Realised

Based on the Invest NI Technical Advisors appraisal of REF applications submitted, it was calculated that the 49 completed projects would generate c. £2.5m of cost savings per annum. Given the anticipated costs of implementing the projects, the average payback period associated with the completed projects was estimated to be c.2.3 years<sup>105</sup>.

Based on the time period since each project was fully implemented<sup>106</sup>, indicates that the projects would, in a normal operating environment, have generated c. £2.8m of gross cost savings. However, mindful that the COVID-19 pandemic may have impacted on businesses' usage of their premises and the associated use of the resource efficiency measures, the Research Team sought to measure how changes in the wider operating environment and any other business-specific changes had impacted on businesses' usage of the measures (Table 4.10).

<sup>103</sup> Please note that businesses were able to select multiple barriers hence the sum of the percentages across the barrier may be greater than 100%.

<sup>104</sup> The RIS has been calculated based on businesses ranking of the top 3 most important barriers.

<sup>105</sup> The payback periods ranged from 1.1 to 3.9 years.

<sup>106</sup> For prudence, and in agreement with Invest NI, the implementation date has been based as the 'Claim Paid' date as the investment will have been vouched at this stage by an Invest NI's Technical Advisor. On average 13.5 months had passed for businesses since their respective claim paid date and the timing of the primary research (December 2021). During consultation, all businesses indicated that they continued to utilise the equipment/technology that was implemented as part of the REF project.

<b>Table 4.10: Impact of changes in the operating environment on cost savings realised by REF recipients</b>			
	<b>% of businesses</b>	<b>Range</b>	<b>Average</b>
The business used the business premises and resource efficiency measures <b>less</b>	23%	-15% to -50%	-32%
The business used the business premises and resource efficiency measures <b>more</b>	15%	+10% to +30%	+16%
The business' usage of the premises and resource efficiency measures were <b>unchanged</b>	62%		

Just over three-quarters (77%) of businesses indicated that there had been no reduction in the usage of their business premises and resource efficiency measures as a result of the COVID-19 pandemic or any other business-specific factors. Indeed, 15% of businesses indicated that their usage had increased (by 16% on average), typically as a result of increased demand for their goods and services that had been generated as a direct result of the pandemic. The remaining businesses (23%) suggested that their usage had decreased by, on average, 32%.

The findings from across the sample of businesses indicate that businesses utilised their business premises and resource efficiency measures by, on average, 5% less than they might otherwise have done in a normal operating environment<sup>107</sup>. Taking account of this reduction in usage suggests that the REF Programme supported businesses to achieve c. £2.68m of gross cost savings (Table 4.12).

Making allowance for reductions required to take account of deadweight and displacement (which has been calculated at 16.2% for the NI market using the same approach outlined in Section 2.5.9) indicates that the **REF Programme has directly supported businesses to realise £1.82m of cost savings**.

<b>Table 4.11: Calculated levels of Displacement for REF recipients</b>	
<b>NI</b>	<b>GB</b>
16.2%	20.4%

<b>Table 4.12: Calculation of gross and net additional cost savings made by the REF Programme</b>	
Gross cost savings in a normal operating environment	£2,803,339
Reduction applied to take account of changes in the wider operating environment	(£127,613) <sup>108</sup>
<b>Gross cost savings</b>	<b>£2,675,726</b>
Deduction for Deadweight (@18.9% <sup>109</sup> )	(£505,712)
Deduction for Displacement (@16.2%)	(£350,576)
<b>Net Additional Cost Savings</b>	<b>£1,819,438</b>

<sup>107</sup> Please note that, where relevant, all business (N=10) confirmed that it was, in their view, reasonable to apply the proportionate increase or decrease in utilisation level to the appraised cost savings to take account of these changes in the wider operating environment.

<sup>108</sup> For accuracy, the Research Team has applied the specific increases and reductions (where relevant) reported by business to their respective appraised cost savings (under normal operating environment), with the 5% average reduction applied to all other businesses (that did not engage in the primary research). As such, the overall reduction may not exactly equate to 5% of the Gross cost savings appraised for a normal operating environment.

<sup>109</sup> On the basis that the cost savings have been generated as a direct result of the resource efficiency measures implemented (which have been supported by REF funding), the Research Team has utilised the activity/programme level of additionality/deadweight as opposed to impact additionality/deadweight.

#### 4.5.5 Wider Gross and Net Additional Business Outcomes Realised

In addition to the direct cost savings achieved by businesses with REF support, businesses reported deriving a range of other monetary and non-monetary benefits (Table 4.13). Amongst the most frequently cited benefits included:

- Increased business competitiveness (93%);
- Other cost savings not directly related to the resource savings made (56%) which the business reported as being achieved as a result of (inter alia) a reduction in equipment replacement/purchasing costs, savings from waste diversion and disposal etc.; and
- Increased sales (41%) which businesses reported were achieved as a result of securing contracts based on their business' ability to demonstrate its focus on resource efficiency and environmental sustainability.

Impact/outcome	% of businesses realising impact/outcome	Gross Value	
		Survey Sample (N=34 projects)	Population (N=49 projects)
Any other cost savings <u>not</u> directly related to the resource savings	56%	£78,700	£113,421
Wider investment in energy efficiency measures	19%	£32,500	£46,838
Wider investment in resource efficiency measures	30%	£15,300	£22,050
Increased sales	41%	£165,000	£237,794
Increased employment	-	-	-
Employment Safeguarded/Retained	30%	20	29
Increased your business' competitiveness	93%		
<b>Wider Environmental Benefits</b>			
Waste diverted from landfill	44%	Unable to Quantify	
Virgin Materials saved	44%		

The Research Team's grossing-up analysis indicates that the support provided through the REF Programme supported businesses to derive a further £113k of indirect cost savings and £238k of sales, as well as serving to encourage businesses to make a further £69k of investment in wider measures to enhance their resource and energy efficiency.

In order to determine the level of tangible business benefits that can be directly attributed to the REF Programme (i.e. the 'net additional impact') the aforementioned gross figures need to be adjusted to take account of impact deadweight/additionality and displacement.

Utilising the same participant self-assessment methodology outlined in Section 2.5.9, the Research Team's analysis indicates that 83% of the wider tangible business outcomes would not have been achieved or would not have been achieved to the same scale and/or within the same timescale, in the absence of the REF Programme.

Impact Additionality	Impact Deadweight
83.3%	16.7%

The levels of impact deadweight/additionality compare favourably when compared to other similar interventions (Table 4.15). For example, the level of additionality is c. 29 percentage points (pp) higher than other UK regional ‘Business Development and Competitiveness’ interventions and c. 25pp higher than other initiatives designed to bring about efficiency improvements in businesses through the adoption of (more) sustainable working practices (the Sustainable consumption/production Sub Theme).

Intervention type	Average level of additionality
<b>REF (RECG)</b>	<b>83.3%</b>
RECG (2018 SDSP Evaluation)	88.2% <sup>111</sup>
<b>UK Regional Interventions</b>	
– All interventions	57.0%
– Programme interventions only	56.2%
– Business development & competitiveness Theme	54.5%
– Sustainable consumption/production Sub Theme <sup>112</sup>	57.9%
– Individual enterprise support Sub Theme <sup>113</sup>	52.7%

Making allowances for the reductions required to take account of impact deadweight (16.7%) and displacement (16.2%) indicates that the REF Programme has directly supported businesses to derive a further £79k of indirect cost savings and £166k of sales, as well as serving to encourage businesses to make a further £48k of investment in wider measures to enhance their resource and energy efficiency.

	Indirect cost savings	Wider investment in ERE measures	Increased sales	Employment Safeguarded
Gross Impact	£113,421	£68,888	£237,794	29 FTEs
Deduction for Deadweight (@16.7%)	(£18,941)	(£11,504)	(£39,712)	(5 FTEs)
Deduction for Displacement (@16.2%)	(£15,306)	(£9,296)	(£32,089)	N/A
Net Additional Impact	£79,174	£48,088	£165,993	24 FTEs

<sup>110</sup> Source: Research to Improve the Assessment of Additionality (BIS, 2009).

<sup>111</sup> For comparative purposes the Research Team has utilised the inverse of the Evaluation’s deadweight calculation and not the stated additionality figure (as this appears to relate to net additionality, taking account of displacement).

<sup>112</sup> This category relates to initiatives designed to bring about efficiency improvements in business through the adoption of (more) sustainable working practices.

<sup>113</sup> This category relates to initiatives designed to provide access to finance for SMEs.



#### 4.5.6 Net Additional GVA Impacts

Taking account of the direct and indirect cost savings and sales derived by businesses, the Research Team’s analysis indicates that the REF Programme contributed c. £1.96m of net additional GVA to the NI economy. The inclusion of wider supply chain benefits that potentially arose as a result of the investment made by businesses<sup>114</sup> (both to deliver the project and wider investment in ERE measures) indicates that the Programme contributed a further £630k in net additional GVA, equivalent to £2.59m in total net additional GVA.

**Table 4.17: Calculation of REF Net additional GVA**

Impact metric	Net additional Impact	Sectoral average level of GVA <sup>115</sup>	Net Additional GVA
Direct cost savings	£1,819,438	N/A <sup>116</sup>	£1,819,438
Indirect cost savings	£79,174	N/A	£79,174
Sales/Turnover	£165,993	38%	£63,077
<b>Sub-total</b>	<b>£2,064,605</b>		<b>£1,961,689</b>
Investment Levered	£3,272,070	19% <sup>117</sup>	£621,693
Wider investment in ERE measures	£48,088		£9,137
<b>Sub-total</b>	<b>£3,320,158</b>		<b>£630,830</b>
<b>Total</b>	<b>£5,384,763</b>		<b>£2,592,519</b>

#### 4.5.7 Business’ Awareness of the Role of Energy and Resource Efficiency

Given the nature and scale of a number of reported barriers that have historically prevented businesses from adopting ERE measures, it is positive to note that nearly all businesses (97%) were in agreement that the support provided through the REF Programme had served to increase their:

- Awareness and understanding of how energy efficiency measures can be employed to enhance its sustainability, growth and competitiveness;
- Awareness and understanding of the steps that can be taken to reduce its impact on the environment; and
- Resilience through the Green efficiency.

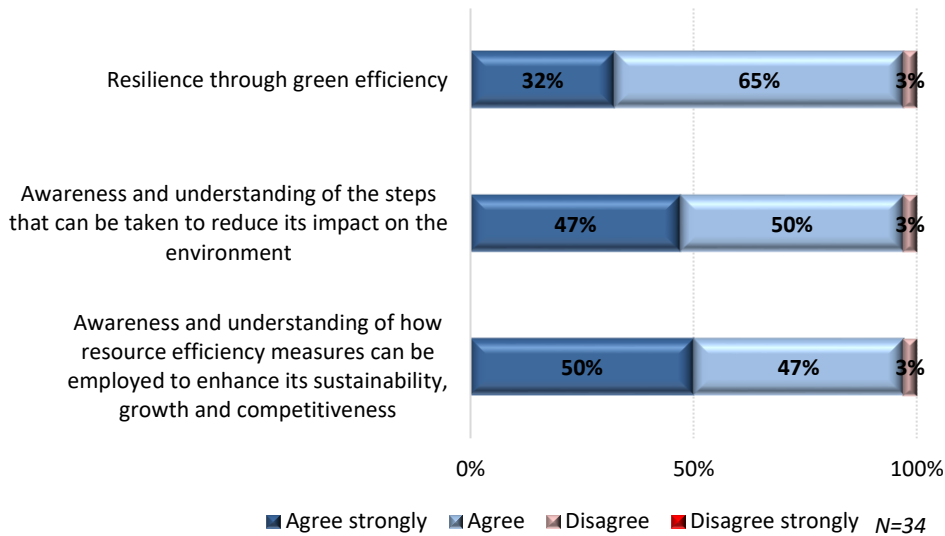
<sup>114</sup> The appropriateness of the inclusion of the investment in the GVA calculation may vary depending on the viewpoint of the reader. Whilst noting that investment serves as an input to ultimately generate the costs savings from an ERE project, it does nonetheless represent supply-chain expenditure in the NI economy which has been brought about as a result of the project. Noting the potential differences in viewpoints as to whether this investment should be included in the calculation, the Research Team has calculated the net additional GVA (and associated return-on-investment) both inclusive and exclusive of the GVA impacts potentially brought about from this investment.

<sup>115</sup> Source: Annual Business Enquiry Reporting Unit Results 2020 (November 2021).

<sup>116</sup> GVA can be calculated by summing business’ Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) which calculated by summing operating profit, depreciation and amortisation and wages and salaries. The analysis assumes that a pound of cost saving is equivalent to a pound of GVA on the basis that it will typically provide a direct impact on a business’ operating profits. Cost savings have been included in the calculation on the basis that they will directly impact on the scale of a business’ inputs.

<sup>117</sup> For prudence, the Research Team has reduced the NI average sectoral level of GVA from 38% to 19% (a 50% reduction) to convert the investment made by businesses to GVA. This approach has been applied to take account of businesses potentially having sourced equipment/technology directly from outside NI (which would represent a leakage) and/or businesses sourcing equipment/technology from a NI provider who had originally sourced it from outside NI (thereby creating a reduction in the value-added element in the supply chain).

Figure 4.5: Impact of REF support on businesses' understanding of the role and importance of ERE



*"We definitely have a better understanding of the financial and wider environmental benefits of being more resource efficient and would be much more inclined to explore the area further as a direct result of the project."*

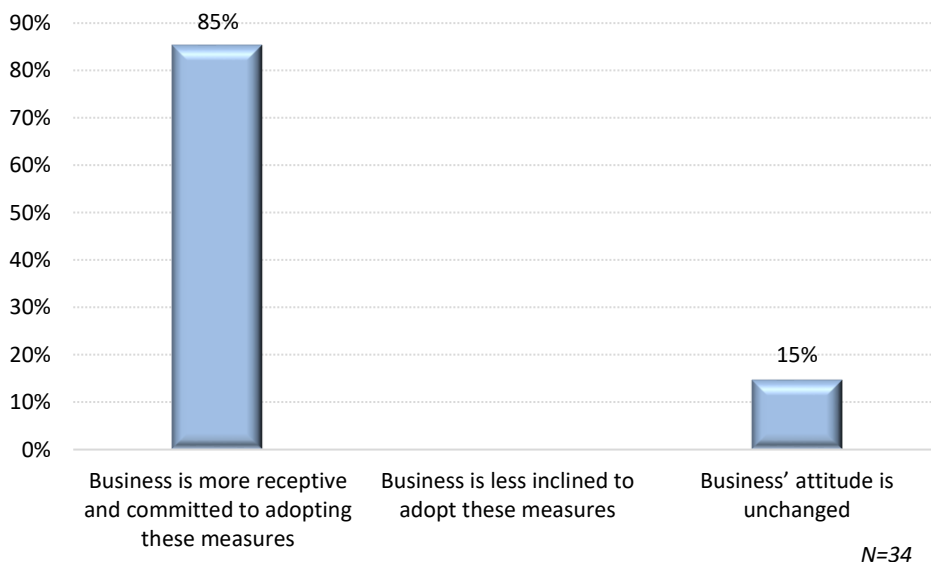
*"Whilst we will only see the full benefits of the project in the coming years, I'm in no doubt that measures like these enhance business' profitability, competitiveness and resilience to address the challenges facing them in the wider operating environment."*

**REF Recipients of Support**

#### 4.5.8 Attitudinal Changes to the Adoption of Energy and Resource Efficiency Measures

Positively, more than four-fifths of businesses (85%) indicated that they were now more receptive and committed to adopting ERE measures as a result of completing their respective REF-supported projects (Figure 4.6).

Figure 4.6: Business' attitudes to the Adoption of ERE Measures following the receipt of REF support



*“As a result of this project, we’re in the process of looking at our business’ wider operations to identify other areas that we could improve our resource and energy efficiency...the business is definitely more bought-in to the area as a result of the project.”*

*“Having seen the benefits, we are much more inclined to invest in equipment that increases our resource efficiency.”*

**REF Recipients of Support**

#### 4.5.9 Duplication and Complementarity

All businesses suggested that they would have been unable to gain the same/similar support to implement resource efficiency measures in the absence of the REF Programme.

As noted in Section 2, whilst the REF Programme represents (at least in theory) an important follow-on programme from TC support, the feedback from businesses indicates that the current process for administering this support (i.e. through competitive calls), is not currently supporting the pull-through of TC projects as effectively as anticipated at the outset and careful consideration should be given by Invest NI as to how its capital grant support is administered to ensure that businesses can access the continuum of support available along the ERE pipeline of offerings.

#### 4.6 Progress Towards Programme Targets

As noted in Section 2.6.1, based on the information presented in the Economic Appraisal, a lack of clarity exists as to the precise nature of targets that were established for the REF Programme<sup>118</sup>. As such, the Research Team has (in conjunction with Invest NI) identified those metrics deemed to be most representative of a Programme target. The progress towards these targets is presented in Table 4.18 below.

Nature of Target	Year 1 Oct 2019 - Mar 2020 (6 months)			Year 2 Apr 2020 - Mar 2021 (12 months)			Total Oct 2019 - Mar 2021 (18 months)		
	Target	Actual	Variance	Target	Actual	Variance	Target	Actual	Variance
	Grants to businesses	17	20	+18%	33	29	-12%	50	49
Business investment levered	£1.23m	£1.75m	+42%	£2.46m	£2.28m	-7%	£3.69m	£4.03m	9%

The analysis indicates that:

- Despite the adverse operating environment created by the COVID-19 pandemic, just 1 less grant was administered than was anticipated at the outset; and
- The Programme levered c. £4m of gross investment, which was £340k (or 9%) more than anticipated at the outset.

In terms of outcome targets, the Research Team’s review of the Economic Appraisal indicates that it was anticipated that the Programme would generate £13.94m of Net Additional GVA Benefits, based on the persistence of benefits over a four/five-year period post support. Due to the aforementioned difficulties in making a direct comparison to the projections detailed within the Economic Appraisal, our analysis suggests that £2.6m in total net additional GVA has been derived to date. The Research Team’s projections (see Section 4.8) indicate that the projects supported during the period under review may provide c. £9m of net additional GVA over a 5-year period or £21.4m over their respective UEL. Under the adoption of either scenario (5 years post-project completion or their UEL), the analysis indicates that the original target will be exceeded.

<sup>118</sup> For example, there are metrics included under the ‘Core Programme Outputs’ (e.g., average grant value and total finance provided) that relate to the underpinning costs of delivering the activity as opposed to a ‘typical’ SMART target that would be established for a project or programme.

#### 4.7 Performance Against Budget

Table 4.19 provides a summary of the anticipated and actual costs of delivering the REF Programme during the period under review. In doing so, the Research Team has included the match funding provided by the private sector to calculate the full-economic costs<sup>119</sup>.

Nature of Cost	Year 1 Oct 2019 - Mar 2020 (6 months)			Year 2 Apr 2020 - Mar 2021 (12 months)			Total Oct 2019 - Mar 2021 (18 months)		
	Projected Costs	Actual Costs	Variance	Projected Costs	Actual Costs	Variance	Projected Costs	Actual Costs	Variance
	Core Delivery	£378,486	£495,721	31%	£772,111	£722,960	-6%	£1,150,597	£1,218,681
INI Staff	£107,403	£101,777	-5%	£219,102	£159,888	-27%	£326,505	£261,665	-20% <sup>120</sup>
Marketing	£6,527	£1,248	-81%	£13,316	£1,853	-86%	£19,843	£3,101	-84% <sup>121</sup>
Evaluation <sup>122</sup>	-	-	-	£9,273	£13,425	45%	£9,273	£13,425	45%
<b>Costs to Invest NI</b>	<b>£492,416</b>	<b>£598,746</b>	<b>22%</b>	<b>£1,013,802</b>	<b>£898,126</b>	<b>-11%</b>	<b>£1,506,218</b>	<b>£1,496,872</b>	<b>-1%</b>
Private Sector Match Funding	£1,230,000	£1,750,233	42%	£2,460,000	£2,284,379	-7%	£3,690,000	£4,034,612	9%
<b>Full-Economic Costs</b>	<b>£1,722,416</b>	<b>£2,348,979</b>	<b>36%</b>	<b>£3,473,802</b>	<b>£3,182,505</b>	<b>-8%</b>	<b>£5,196,218</b>	<b>£5,531,484</b>	<b>6%</b>

Salient points to note include:

- The full-economic cost of completing the 49 REF projects was £5.5m, 27% (or £1.5m) of which was incurred by Invest NI and the remainder (73% or £4m) was provided by the private sector. The full economic costs were £336k (or 6%) higher than anticipated at the outset;
- Despite 1 less REF grant being administered than anticipated at the outset, core delivery costs (grant funding) were 6% higher than anticipated as a result of the average grant rate (£24.9k) that was drawn down was relatively higher than the level projected at the outset (c. £22.5k). To ensure that Invest NI has a sufficient budgetary cover to deliver anticipated levels of activity, it would be prudent that all projections are based on the maximum level of funding available (as opposed to an assumed average level);
- The level of staff costs associated with administering the Programme was 20% lower than anticipated at the outset; and
- Marketing costs were 84% lower than anticipated.

<sup>119</sup> Whilst the Economic Appraisal projected the investment that would be levered from businesses, this investment was not included within the Programme's costs (which are required to calculate the full-economic cost).

<sup>120</sup> Consultation with Invest NI indicates that the development of the REF Programme was largely carried out during Year 1, with less time required for development during Year 2. Whilst not to the detriment to the delivery of the REF Programme, staff resources were also diverted to support the development and implementation of the EEF Programme.

<sup>121</sup> Consultation with Invest NI indicates that marketing and procurement costs are only utilised as and when is deemed necessary to promote its ERE schemes. The initial estimates were, in hindsight, deemed to be unnecessary to effectively deliver the Programme.

<sup>122</sup> Whilst it was anticipated that Evaluation costs would be incurred in Year 3, for comparative purposes these have been included in Year 2.

#### 4.8 Assessment of Value-for-Money

The Research Team’s analysis indicates that depending on the reader’s viewpoint as to the appropriateness of the inclusion of any investment made by businesses in the GVA calculation, the Programme delivered a return on investment of between £1.31 and £1.73 in net additional GVA for every £1 invested by Invest NI in the Programme during the period under review. These ratios fall to £0.36 and £0.47 respectively, when the return on investment is examined based on the full economic costs (i.e., including the private sector match funding).

Table 4.20: Calculation of the Return-on-Investment provided by the REF Programme					
Net Additional GVA		Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
Excluding Investment made in ERE Measures	£1,961,689	£1,496,872	<b>£1: £1.31</b>	£5,531,484	<b>£1: £0.36</b>
Including Investment made in ERE Measures	£2,592,519		<b>£1: £1.73</b>		<b>£1: £0.47</b>

However, the Research Team would urge caution in placing an overt focus on the return on investment provided to date as an appropriate indicator of VFM on the basis that, on average, only 13.5 months had passed since the businesses had completed their respective REF project, which is significantly less than both:

- The average payback period associated with the investments made (2.3 years); and
- The anticipated levels of persistence associated with the realisation of monetary benefits (projected in the Economic Appraisal as being c. 5 years).

Indeed, whilst noting that levels of persistence were limited to a period of 5 years reflecting the required payback period (of greater than 1 year and less than 5 years) and concerns regarding levels of attribution (additionality) beyond a 5-year period, the Research Team notes that in keeping with appraisal guidance the costs and benefits of a capital asset should be examined over the course of its Useful Economic Life (UEL). In the case of the equipment/technology acquired with the support of REF, the UEL ranged from 7 years to 30 years (with the average equating to 14.2 years)<sup>123</sup>.

Whilst noting common concerns relating to programme attribution timeframes, in the context of this programme, the cost savings have arisen as a direct result of the equipment/technology implemented with the support of the REF grant (i.e., as opposed to other wider business level decisions/investments that may have generated cost-saving impacts).

As such, these businesses are at a relatively early stage in terms of the realisation of monetary benefits from the investment made and a fully informed assessment of the monetary return on investment can only be taken in the longer term.

Notwithstanding these points, the Research Team’s analysis indicates that, subject to the continued usage of the energy efficiency measures over their UEL, there will be a material increase in the levels of net additional GVA and associated return-on-investment ratios (see Table 4.21).

<sup>123</sup> The UEL of the equipment/technologies has been informed by Invest NI.

Table 4.21: Projected Return-on-Investment provided by the REF Programme <sup>124</sup>					
Time period (post-project implementation)	Net Additional GVA	Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
5 years	£9,072,716	£1,496,872	£1: £6.06	£5,531,484	£1: £1.64
UEL of the resource efficiency measures Implemented <sup>125</sup>	£21,437,074		£1: £14.32		£1: £3.88

The projections indicate that the resource efficiency measures implemented with the support of the REF Programme would potentially provide c £9.1m of net additional GVA after 5 years generating a return-on-investment of £6.06 for every pound of Invest NI’s investment or £1.64 based on the full-economic cost.

The Programme would potentially generate £21.44m of net additional GVA over the measures’ respective UEL, resulting in a return-on-investment of £14.32 for every pound of Invest NI’s investment or £3.88 based on the full-economic cost.

It should also be noted that the monetary return-on-investment ratios would be materially higher in a scenario in which the wider environmental impacts of ERE interventions (including the REF programme) are appropriately monetised (i.e., the quantification of carbon value savings using the MAC-based approach detailed previously).

In addition, we have considered REF’s performance in the context of Invest NI intervention principles in the table below:

Table 4.22: REF Programme VFM in the context of Invest NI’s Intervention Principles	
VFM Indicator	Conclusion
<b>Need &amp; Market Failure</b>	The feedback from businesses suggests that the REF Programme has been successful in supporting businesses to address those market failures and wider barriers that were preventing them from exploring opportunities to enhance their resource efficiency in the absence of receiving capital grant support. Key amongst these include affordability, a lack of understanding of the potential business benefits that could be derived from investing in resource efficiency measures (asymmetric information) and/or potential payback periods from making the capital investment being viewed as being too long in the absence of receiving financial support.
<b>Additionality</b>	Levels of programme and impact additionality have been calculated at 81% and 83% respectively. The levels of impact additionality compare favourably when compared to other similar interventions including initiatives designed to bring about efficiency improvements in business through the adoption of (more) sustainable working practices.
<b>Duplication and complementarity</b>	Whilst the REF Programme represents (at least in theory) an important follow-on programme from TC support, the feedback from businesses indicates that the current process for administering this support (i.e. through competitive calls), is not currently

<sup>124</sup> In calculating the Savings Persistence Factor, the Research Team has (for prudence) reduced the annual savings by 2.5% compound annually to take account of those factors that may potentially impact on the longitudinal realisation of savings (e.g., the degradations in the efficiency of the equipment, variances in usage due to changes in operating hours and conditions, inappropriate installation of equipment, manufacturer performance estimates not appropriately reflecting in-field operating conditions). For prudence, the wider cost savings and potential additional sales have not been extrapolated over the respective UEL of the technologies/equipment (i.e., they solely relate to actual impacts generated to date per Table 4.17).

<sup>125</sup> For accuracy, the projections have been examined at an individual project level (as opposed to applying the average UEL).

**Table 4.22: REF Programme VFM in the context of Invest NI's Intervention Principles**

VFM Indicator	Conclusion	
	<p>supporting the pull-through of TC projects as effectively as anticipated at the outset and careful consideration should be given by Invest NI as to how its capital grant support is administered to ensure that businesses can access the continuum of support available along the ERE pipeline of offerings.</p>	
<p><b>Economy Efficiency and Effectiveness</b></p>	<p><b>Indicator</b></p>	<p><b>Research Team's Commentary</b></p>
	<p><b>Economy</b> measures are concerned with showing that the appropriate inputs (i.e. the resources used in carrying out the project) have been obtained at least cost</p>	<p>As noted, as part of the appraisal of applications, the Technical Advisor panel will examine the accuracy and reasonableness of all information provided by the business applicant (including projected costs), with suitable adjustments made (where these are required) to support the competitive scoring and ranking of applications. Projects shortlisted through the competitive call process are then subject to internal casework approval with the project ultimately subject to the approval by the delegated authority</p> <p>In relation to Invest NI's staff costs, the Research Team considers that the staff input appears reasonable, given the scale of activity undertaken by the ERE Team and its Technical Advisors.</p> <p>On this basis, it is the Research Team's view that Invest NI made appropriate efforts to ensure that project inputs were obtained at least cost to the NI economy.</p>
	<p><b>Efficiency</b> relates to measures that are concerned with achieving the maximum output from a given set of inputs</p>	<p>The REF Programme was administered through a competitive call process that sought to direct grant support to those projects offering the greatest potential to deliver against the objectives of the Programme and VFM.</p> <p>There is no evidence to suggest that Invest NI could have derived additional output from the financial inputs that were allocated to the REF Programme.</p>
	<p><b>Effectiveness</b> measures are concerned with showing the extent to which aims, objectives and targets of the project are being achieved</p>	<p>Per Section 4.6, positive progress has been made against the targets established for the REF Programme during the period under review.</p> <p>The Research Team's projections indicate that the projects supported during the period under review may provide c. £9m of net additional GVA over a 5-year period or £21.4m over their respective UEL. Under the adoption of either scenario (5 years post-project completion or their UEL), the analysis indicates that the original target (of c. £14m) will be exceeded.</p>

**Table 4.22: REF Programme VFM in the context of Invest NI's Intervention Principles**

VFM Indicator	Conclusion
Cost-effectiveness <sup>126</sup>	<p>Cost effectiveness indicators include:</p> <ul style="list-style-type: none"> <li>• Cost per REF project supported (N=49) - £112,887</li> <li>• Cost per business supported (N=45) - £122,921</li> <li>• Cost per £ of net additional GVA - £0.36 - £0.47</li> </ul> <p>It is noted that the GVA cost-effectiveness indicator will materially improve over time as businesses realise the cost-saving benefits from their respective capital investments.</p>

Taking all available evidence into consideration, the Research Team considers that Invest NI has derived value-for-money in respect of the public funds that have been invested through the REF Programme during the period under review.

## 4.9 Equality and Rural Needs Considerations

### 4.9.1 Equality Considerations

Whilst completed prior to the period under review and valid up to September 2019 (the month prior to the period under review commencing), The Research Team notes that Invest NI completed a Section 75 Policy Screening for its REF Programme. The Screening concluded (amongst other things) that:

- The policy was not anticipated to have an impact (positively or negatively) on the equality of opportunity for those affected by this policy, for each of the Section 75 equality categories, nor were there opportunities to better promote equality of opportunity for people in these categories (as the action was not deemed to provide opportunities to promote equality amongst particular groups);
- The policy was not anticipated to impact (positively or negatively) on good relations and no opportunities were identified to promote good relations between people of different religious beliefs, political opinions or racial groups;

On the basis of the completed screening, it was concluded that an EQIA was not required for the policy.

The Research Team's review of REF activity, monitoring information provided during the evaluation process and our discussions with recipients of support has identified:

- No evidence of higher or lower participation or uptake of different groups;
- No evidence to indicate that different groups had different needs, experiences, issues and priorities in relation to REF activity;
- No opportunities to better promote equality of opportunity or better community relations by altering the work of the REF Programme;
- No accessibility issues that might run contrary to the Disability Discrimination Act 1995.

On this basis, the Research Team concludes that whilst the REF Programme was not specifically targeted at any specific Section 75 categories, it does not appear to have had an adverse impact on any Section 75 group.

<sup>126</sup> Cost effectiveness indicators have been calculated based on the full-economic costs of administering the support.



#### 4.9.2 Rural Needs Considerations

By way of illustrating due regard for Rural Needs, Invest NI completed an RNIA of its REF Programme.

The RNIA noted that specific steps/actions had been taken by Invest NI in relation to the Programme's marketing and delivery to ensure its accessibility to all businesses. Specific steps/actions included:

- The programme was promoted to the entire NI business base (irrespective of their location) with marketing and promotion of the Programme to rural businesses being supported through Invest NI's Regional Offices and other stakeholders (e.g., local Councils); and
- Due consideration was taken in the timing and location of elements of the Programme's delivery (e.g., workshops, events, presentations etc.) to ensure its accessibility to rural businesses.

Based on a review of the Programme's historic activity (at the time of the RNIA), it was concluded that the spread of uptake (where 69% of the Programme's interventions had been delivered to businesses based in rural locations) demonstrated that there were no barriers to delivery and uptake of the support in rural areas.

It was noted that Invest NI would continue to monitor the locational spread of uptake of the Programme's support via its CRM tools on an ongoing basis to identify if any corrective action was required.

## 5. ENERGY EFFICIENCY FINANCE

### 5.1 Introduction

Section 4 presents the evaluation of the Energy Efficiency Finance Programme for the period 1<sup>st</sup> October 2019 to 31<sup>st</sup> March 2021.

### 5.2 Overview of the Energy Efficiency Finance Programme and its Delivery Model

#### 5.2.1 Background to the Development of the Programme

Between 2003 and 2018, Invest NI administered financial support to encourage businesses to implement energy efficiency measures through its Energy Efficiency Loan Fund (EELF), which was operated by the Carbon Trust. Following the closure of the Fund to new applications in June 2018, the Carbon Trust took the decision not to accept an extension to its contract beyond the initial two-year period due to a significant reduction in the uptake of loans by businesses<sup>127</sup> which was, by association, impacting on the viability of the EDO to deliver the Fund.

The subsequent Economic Appraisal considered a number of different options for administering financial support to businesses to implement energy efficiency measures with the preferred option identified as being the creation of a scheme that would deliver support through a hybrid loan-grant model and would be administered by an EDO<sup>128</sup>. However, the Economic Appraisal identified that there was a risk that Invest NI may not be able to appoint an EDO with the requisite skills and experience to deliver a hybrid fund. In the event of this risk arising, the Appraisal recommended that Invest NI reverted to a contingency option that would involve the Invest NI ERE Team administering financial support through a 'pure grant solution'.

Based on the findings of the Economic Appraisal, Invest NI sought and was subsequently granted, approval to deliver a new EEF Programme which would commence with the procurement of an EDO that would have responsibility for administering the hybrid loan-grant scheme. However, as part of the procurement phase, feedback from a pre-market engagement exercise undertaken in January 2020 identified a number of risks/issues in relation to the adoption of the proposed hybrid loan-grant model<sup>129</sup>.

<sup>127</sup> The Appraisal of the Energy & Resource Efficiency Finance Projects (August 2019) indicated that, between 2015 and 2018, the EELF provided 127 (23%) fewer loans to businesses than was initially anticipated. Key reasons that were cited by businesses and stakeholders for the lower than anticipated uptake of the loans included economic uncertainty related to Brexit, some general mistrust of energy initiatives following the suspension of the Renewable Heat Initiative and the decarbonisation of the grid and difficulties in businesses meeting the Fund's eligibility criteria (particularly relating to the need to generate 1.5tCO<sub>2</sub> for every £1k of lending).

<sup>128</sup> It was proposed that the hybrid loan-grant model would provide a grant of up to 20% of the average loan value of £22,870. Other options assessed within the Economic Appraisal included a return to the delivery of interest free loans (as was previously delivered by the Carbon Trust), an amended interest free loan scheme that would potentially address the issues that had been identified in relation to the previous Carbon Trust delivered model and an option that would entail the delivery of financial support solely through grant assistance.

<sup>129</sup> A number of distinct but interrelated issues were identified during the pre-market engagement exercise including concerns in relation to the reasonableness of the output targets that had been established, the reasonableness of the projected fund management fees (the structure and scale of which were deemed by the marketplace to place the burden of financial risk on the appointed EDO), and the limited anticipated role of the EDO in marketing the programme (which would be undertaken by Invest NI) and its associated impact on being able to stimulate levels of Programme demand.

Taking cognisance of the risks/issues identified during the pre-market engagement exercise, the availability of low-interest and interest-free finance in the market place<sup>130</sup> and taking account of the changing operating environment and business landscape due to the COVID-19 pandemic, the UK withdrawal from the EU and evolving business priorities, Invest NI halted the progression of implementing a hybrid loan-grant model; instead choosing to revert to the approved contingency option of delivering financial support through a pure grant-based model<sup>131</sup>. This support was subsequently administered through the COVID-19 Energy Efficiency Capital Grant (EECG).

### 5.2.2 Overview of Support

Managed and administered by the Invest NI ERE Team, Energy Efficiency Finance (EEF) provided Invest NI Account Managed Clients with capital grant funding to support the purchase and installation of equipment that would result in greater energy efficiencies (the process of using less energy, such as electricity, oil and gas, to deliver the same level of output) that go beyond regulatory requirements. Through the achievement of greater levels of energy efficiency, the scheme seeks to support businesses to realise cost savings whilst minimising their impact on the environment, recover from the impacts of the COVID-19 pandemic, and build resilience and productivity through green efficiency.

The Programme provided up to £80k of capital grant support, with the maximum rate of grant support not exceeding 20% of eligible project costs<sup>132</sup> regardless of the business' size. Businesses were required to contribute all remaining project costs.

Costs eligible for support under the EEF scheme included capital costs directly associated with the purchase, delivery, installation and commissioning of the energy-efficiency equipment. Examples of eligible activities included, but were not limited to:

- **LED lighting systems** including LED luminaires, and lighting controls such as occupancy and daylight sensors.
- **Heating and cooling equipment** including high-efficiency boilers, intelligent heating controls, heat recovery projects, heating, ventilation, and air conditioning (HVAC) equipment, and refrigeration equipment.
- **Replacement drives or motors** including variable speed drives (VSD), and high-efficiency motors.
- **Process insulation** including extruder insulation, and pipework insulation.
- **Renewable energy generation** including solar PV.
- **Other energy efficiency equipment** including high-efficiency compressors, energy storage, combined heat and power (CHP), building energy management systems (BEMS), and voltage optimisation.

To be eligible for support, projects were required to:

- Provide a simple financial payback (before any grant is applied) between one and six years through energy cost savings achieved on-site;
- Incur capital expenditure of between £4k and £400k; and
- Demonstrate carbon emissions savings of at least 10% on baseline carbon emissions relevant to the technology, process or upgrade being implemented.

Costs/activities that were ineligible for support include (inter alia):

<sup>130</sup> This was identified as including the Coronavirus Large Business Interruption Loan Scheme (CLBILS), COVID-19 Corporate Financing Facility (CCFF), Coronavirus Business Interruption Loan Scheme (for small and medium-sized businesses) (CBILS) and the Bounce Back Loan scheme.

<sup>131</sup> Formal approval to revert to the contingency option was granted by Invest NI's Board on 24.09.20.

<sup>132</sup> Grant offers made to small and medium-sized business were made in accordance with the General Block Exemption, Article 14 Regional Investment Aid rates and offers to large businesses are made in accordance with De-Minimis Aid rules.

- Projects that solely meet compliance or other legislative energy efficiency requirements.
- Projects that cover ongoing software licensing costs.
- In-house personnel costs associated with the project.
- Transport-related projects, for example, relating to vehicles, charging points, etc.
- Building fabric projects.
- Equipment leasing or hire purchase agreements.
- Second-hand equipment.
- Ancillary works or additional infrastructure works
- Projects where indirect energy savings occur as a result of process or material efficiency improvements.

### 5.2.3 The Energy Efficiency Finance Delivery Model

Akin to the REF delivery model, the administration of the EEF Programme commenced with Invest NI issuing a call for proposals through its client teams with applicants required to submit an online application requiring businesses to provide:

- Information on the business background;
- Proposed project description, including the purpose and anticipated benefits of the proposed project(s);
- Calculations of proposed energy savings using 12 months of typical energy consumption data for the business' specific project and details as to how energy consumption would reduce as a result of implementing the energy-efficient equipment;
- Information on project costs, including itemised expenditure<sup>133</sup>;
- Information as to how the business planned to fund the balance of the project
- A completed cost and carbon saving calculator sheet<sup>134</sup>, ensuring the proposed energy efficiency equipment fulfilled the eligibility criteria set out above (i.e., the project would generate a minimum of 10% carbon emissions saving and a simple payback of between 1 year and 6 years)

Multiple energy efficiency projects could be included as part of one application as long as each project fulfilled the eligibility criteria and the total spend for the multiple projects was between £4k and £400k.

Unlike REF, where applications were scored and ranked on a competitive basis, EEF support was issued to eligible businesses on a first-come, first-served basis<sup>135</sup>. Projects that adhered to the Programme's eligibility criteria proceeded directly to internal casework approval<sup>136</sup> with the project ultimately subject to the approval by the delegated authority (typically the relevant Grade 7 within the ERE Team).

A Letter of Offer is then provided to the successful business, specifying key dates for commissioning/installation. Once the capital equipment has been purchased and fully installed,

<sup>133</sup> Businesses were required to obtain at least three quotations for eligible expenditure, with the preferred quotation submitted with the application (the other two quotations are required to be retained by the business applicant for corroboration, if needed during the assessment of the application). At least one of the quotations was required to come from a supplier based in NI (if such a supplier exists).

<sup>134</sup> Utilising industry standard information the cost and carbon saving calculator calculates (inter alia) the cost and carbon savings that would be generated from the implementation of the project.

<sup>135</sup> The call for applications close to applications either when the available budget of £500k was fully allocated or on the stipulated closing date (whichever came first).

<sup>136</sup> Submitted by the Technical Advisor, the casework paper appraises the project in line with Invest NI's key Principles of Intervention which includes examining (inter alia) Strategic fit, Economic Efficiency, Cost Effectiveness & Control Calculations, Additionality & Mobility, Affordability, Viability, Risks, Displacement etc.

businesses are required to submit a claim<sup>137</sup> which is technically vouched by an Invest NI Technical Advisor<sup>138</sup>. Upon successful verification, the claim is then paid by Invest NI to the business.

### 5.3 Programme Activity

Table 5.1 provides an overview of the activity supported through the EEF Programme during the period under review.

Table 5.1: Overview of EEF Activity		
Stage	Programme Year <sup>139</sup>	
	Year 1 Oct 2019 - Mar 2020 (6 months)	Year 2/Total Apr 2020 - Mar 2021 (12 months)
Applications submitted	EECG Not operational	42 (for 60 EEF projects)
<i>of which were:</i> <sup>140</sup>		
– Withdrawn		3 EEF projects
– Unsuccessful		5 EEF projects
– Successful		52 EEF projects
Projects Withdrawn		13 EEF projects
Completed projects		39 EEF projects

Salient points to note include:

- 42 EEF applications, covering 60 different energy efficiency projects, were submitted during the single competitive call undertaken during the period under review;
- Of the total number of projects submitted, 87% were approved for support (52 projects for 37 businesses). The remaining projects (13%) were either unsuccessful (typically because the project did not meet the required payback periods stipulated in the eligibility criteria) or withdrawn due to business-specific reasons;
- Of the 52 approved projects, three-quarters were subsequently completed. The remaining one-quarter of approved projects were withdrawn by businesses.
- The 39 EEF projects were completed by 28 unique businesses.

Table 5.2: No. of EEF projects completed by individual businesses	
No. of EEF projects	No. of businesses
1	19
2	8
3	-
4	1

<sup>137</sup> Claims must be accompanied by a Fixed Assets Register. an Auditor's certificate is also required if the grant claim is for more than £25k.

<sup>138</sup> During the period under review, as part of the technical vouching process businesses were required to provide photos of equipment, serial numbers and machine details. Prior to the COVID-19 pandemic, the vouching process was carried by a Technical Advisor during a site visit.

<sup>139</sup> Activity has been presented to illustrate the outcomes of the projects approved in a given financial year, hence the projects may have been withdrawn/cancelled or completed in financial years subsequent to those presented.

<sup>140</sup> On the basis that a project may have been rejected within a multi-project application, the progress of the applications has been assessed on submitted projects (as opposed to applications).

- 50% of businesses in receipt of EEF support were small businesses (including micro-sized businesses), 29% were medium-sized and the remainder (21%) were large;

Business Size	No. of businesses	% of businesses	No. of projects	% of projects
Micro	4	14%	5	13%
Small	10	36%	15	39%
Medium	8	29%	10	25%
Large	6	21%	9	23%
<b>Total</b>	<b>28</b>	<b>100%</b>	<b>39</b>	<b>100%</b>

- £638k of EEF funding was committed to the 52 approved projects (equivalent to an average of £12.3k per project or £17.2k per business), representing 20% of total eligible project costs (£3.2m);
- 66% of funding committed was ultimately drawn down by businesses (equivalent to an average of £10.8k per project or £15k per business);

	Approved projects <sup>141</sup>		Completed projects <sup>142</sup>	
	Eligible Project Costs	EEF Committed	Eligible Project Costs	EEF Drawdown
Total	£3,214,979	£638,093	£2,190,032	£422,298
Range	£2.1k - £396k <sup>143</sup>	£0.8k - £79.2k <sup>144</sup>	£2.1k - £396k <sup>145</sup>	£0.8k - £79.2k <sup>146</sup>
Average (per project)	£61,827	£12,271	£56,155	£10,828
Average (per business)	£86,891	£17,246	£78,215	£15,082

The Research Team notes that the average drawdown per business (£15k) is substantially below (by 81%) the maximum grant available under the EEF scheme. Consultation with strategic stakeholders and businesses suggests that the levels of drawdown are potentially a reflection of a number of interrelated factors including:

- The stage of the energy efficiency journey that business recipients resided, with support required in relatively less complex and investment-intensive areas;
  - Affordability constraints (particularly given the adverse operating environment created by the COVID-19 pandemic and Brexit) and the associated requirement for businesses to contribute 80% of eligible costs; and
  - For many businesses, it was noted that energy efficiency continues to be a relatively less important investment priority and hence there is a reluctance on the part of businesses to utilise a significant proportion of their De Minimis aid allowance on this investment area<sup>147</sup>.
- Consultation with Invest NI indicates that the implementation of a number of EEF projects was delayed as a result of difficulties in procuring equipment/technology (typically from outside NI) due to the COVID-19 pandemic<sup>148</sup>.

<sup>141</sup> Figures relate to 52 approved projects for 37 businesses.

<sup>142</sup> Figures relate to 39 completed projects by 28 businesses.

<sup>143</sup> Figures are representative of the range in individual project costs.

<sup>144</sup> Figures are representative of the range in individual business awards. Available monitoring information did not allow enable an examination of the range at project level.

<sup>145</sup> Figures are representative of the range in individual project costs.

<sup>146</sup> Figures are representative of the range in individual business awards.

<sup>147</sup> The maximum amount of de minimis aid a company can receive in any period of three years is €200,000.

<sup>148</sup> Operationally, the resulted in (on occasions) Invest NI issuing extensions to Letters of Offer to individual businesses.

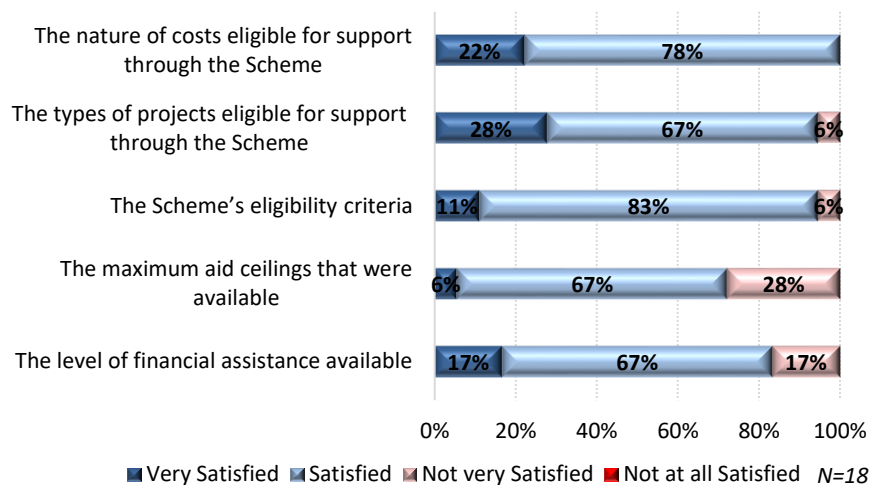
#### 5.4 Views on the EEF Delivery Model - The Business and Wider Stakeholder Perspective

As illustrated in Figures 5.1 and 5.2 the majority of businesses expressed a high level of satisfaction in relation to the EEF delivery model including its application and claims process, the nature and scale of support available and any support provided by Invest NI in administering the Programme.

However, a cohort of businesses indicated that they were not satisfied with the:

- User-friendliness and ease of completion of the online application (where 22% indicated they were not very satisfied). The feedback from these businesses suggested that the application process was overly bureaucratic, particularly the need to complete the Cost and Carbon Calculator which was viewed by a number of businesses as being overly complex and time-consuming to complete. Whilst noting the concerns of these businesses, consultation with Invest NI indicates that the level of input required from businesses is at the minimum level required to enable the validation of the potential project’s impact and VFM;
- The maximum aid ceilings (20% of eligible costs) that were available through the Programme (28%) and the level of financial assistance available (Up to £80k). Due to affordability constraints and the associated availability of match funding to contribute to implementing a potential energy efficiency project, a number of these businesses noted that the aid ceiling had served to constrain the potential scale of the project that could have been implemented had the aid ceiling been set at a higher level. These businesses indicated that they would have welcomed an aid ceiling of, on average, 40% of total eligible project costs<sup>149</sup>.

**Figure 5.1: Businesses' Perspective on the Nature and Scale of EEF Programme Support**



*“Apart from needing a bit of guidance in places, which Invest NI was more than happy to provide, I found the application process largely straightforward.”*

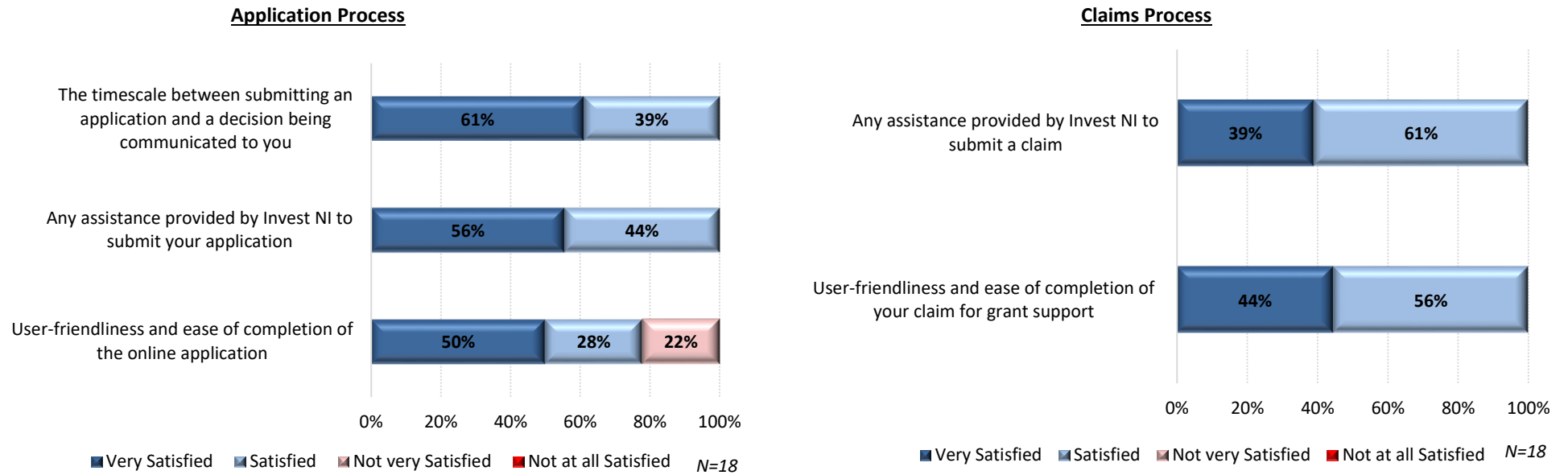
*“I found the calculator sheet you had to complete tricky in places but overall, it was definitely worth it to get the support.”*

*“To get the maximum level of support (£80k), a business would have needed to contribute a significant amount (£320k) towards the project. The simple fact is that very few SMEs would have that sort of money just lying around to invest, particularly toward energy efficiency...had the aid ceilings been higher it would have been a good saving for us, or we could have made our money go further by taking forward a relatively bigger project.”*

**EEF Recipients of Support**

<sup>149</sup> It is noted that Invest NI was utilising contingency measures under existing approvals to operate this in-year COVID response scheme. Thus, the level of support needs to be viewed in the context of scheme approvals and the associated grant rate permitted (both under the existing approved schemes, Regional and De Minimis Aid).

Figure 5.2: Businesses' Perspective on the EEF Application and Claims Process

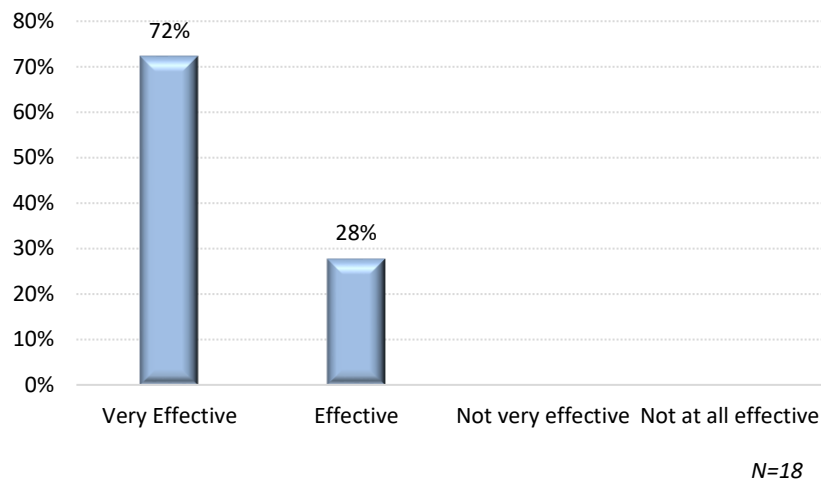




#### 5.4.1 Overall Effectiveness of the Support and Continued Need

Unsurprisingly, given the broadly positive feedback provided in relation to the EEF delivery model, the quality of support received and its associated impact (per Section 5.5), all businesses indicated that the EEF programme was ‘very effective’ (72%) or ‘effective’ (28%) in terms of supporting them to implement resource efficiency measures.

**Figure 5.3: Overall Effectiveness of EEF support**



All businesses indicated that they would recommend the EEF Programme to other businesses that are potentially interested in implementing energy efficiency measures and that there was a continued need for the Programme’s support.

*“This is an excellent scheme. I just wish additional financial support had been available and the aid ceilings had been a bit higher as we are really struggling with our finances because of the pandemic.”*

*“This is a well-administered scheme that supports businesses to reduce their costs whilst protecting the environment by reducing energy usage.”*

**EEF Recipients of Support**

## 5.5 Programme Impact

### 5.5.1 Historic Actions to Enhance Levels of Energy and Resource Efficiency

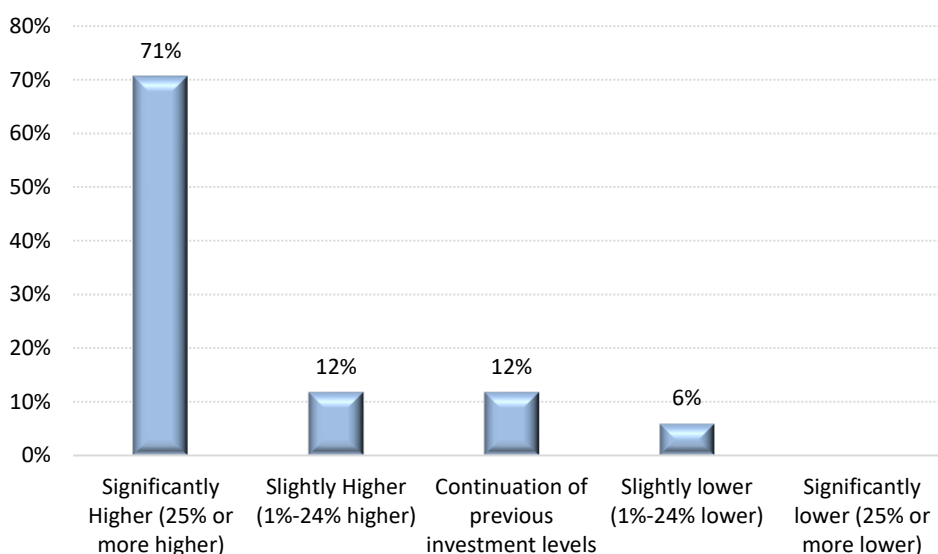
Just over four-fifths (83%) of businesses indicated that they had implemented measures within the last 5 years (prior to their EEF project) to enhance their energy efficiency. Of these businesses, 73% (N=28) had made a capital investment to enhance their efficiency in this area, with the average investment equating to £45.4k over the period.

Table 5.5: Historic Actions undertaken to enhance levels of ERE prior to their EEF project	
Implemented Actions to enhance the business’ ....	% of businesses (N=34)
– Energy Efficiency	83%
– Resource Efficiency	67%

Just under two-thirds (67%) of businesses indicated that they had implemented measures within the last 5 years (prior to their EEF project) to enhance their resource efficiency. 58% (N=23) of these businesses suggested that they had made a capital investment, with these businesses making an average of £23.6k over the 5-year period.

More than four-fifths of businesses (83%), who had made an investment in implementing energy and/or resource efficiency measures in the last 5 years, indicated that the scale of investment that was made with the support of EEF was significantly higher (71%) or higher (12%) compared to other historic investments made by the business in these areas.

**Figure 5.4: Relative Scale of Historic Investments made by businesses in ERE measures**



Of those businesses that had made an energy and/or resource efficiency investment in the last 5 years, these businesses typically had done so using their own financial resources (76%).

Table 5.6: Sources of finance used to fund ERE investments	
Source	% of businesses (N=17)
Business' own existing financial resources	76%
Loan finance from the private sector	29%
Loan finance from a publicly funded intermediary	12%
Grant assistance	29%

### 5.5.2 Achievement of Motives for undertaking an EEF Project

Businesses identified a variety of objectives/motives for taking forward an EEF project with the most frequently cited including to:

- Enhance the operational efficiency of the business and make cost savings which were both the most frequently cited (by all businesses) and the single most important objective identified by businesses;
- Reduce the business’ impact on the environment (100%); and
- Achieve better equipment performance (83%).

With the exception of one business, all other businesses indicated that they had either wholly or partially achieved each of the objectives for which they had taken forward an EEF project. Of note, all businesses indicated that they had achieved the two most important reasons for why they had implemented an EEF project; these were to enhance the operational efficiency of the business and make cost savings and reduce the business’ impact on the environment (Table 5.7).

Table 5.7: Businesses’ Achievement of their Objectives for taking forward an EEF project					
Motive/objective (N=18)	% of businesses identifying the motive		Level of Achievement		
	% of businesses	Single Most Imp.	Wholly	Partially	Did not achieve
Enhance the operational efficiency of the business and make cost savings	100%	83%	61%	39%	-
Reduce the business’ impact on the environment	100%	-	56%	44%	-
Achieve better equipment performance	83%	6%	73%	20%	7%
Enhance the business’ working environment	61%	-	91%	9%	-
It was convenient as the business was replacing existing equipment/technology	61%	-	91%	9%	-
Realise the business’ corporate social responsibility commitments	56%	-	50%	50%	-
Enhance the business’ image and corporate reputation with employees and the wider public	50%	-	44%	56%	-
Realise process efficiencies	50%	-	78%	22%	-
Support the preservation of products	39%	-	71%	29%	-
Enhance your employees and wider business’ productivity	39%	11%	86%	14%	-
Enhance employee morale and productivity	39%	-	86%	14%	-
Ensure your business’ compliance with all relevant legislative/regulatory requirements	28%	-	80%	20%	-
Ensure your business’ compliance with all customer/client requirements	22%	-	50%	50%	-
Enhance environmental awareness among employees	17%	-	67%	33%	-

### 5.5.3 The Role of EEF in Encouraging Businesses to Invest in Energy Efficiency Measures

Utilising the same participant self-assessment methodology outlined in Section 2.5.4, the Research Team’s analysis indicates that 74% of the investment in energy efficiency measures would not have gone ahead (or would not have gone ahead in the same timescale and/or at the same scale/level of intensity) in the absence of the support provided through the EEF Programme.

Table 5.8: Levels of EEF Programme additionality/deadweight	
Programme Additionality	Programme Deadweight
73.7%	26.3%

The application of the calculated levels of Programme additionality to the gross investment levered in completed projects (c. £1.77m), indicates that the EEF Programme directly levered c. £1.3m of private sector investment in energy efficiency measures (which equates to £3.09 of net additional investment for every £1 of funding).

Table 5.9: Investment undertaken as a result of the EEF Programme	
Eligible Project Costs <sup>150</sup> (N=39)	£2,190,032
EEF Drawdown	£422,298
Gross Investment levered <sup>151</sup>	£1,767,734
Programme Additionality	73.7%
<b>Net Additional Investment Levered</b>	<b>£1,302,820</b>

The feedback suggests that the EEF Programme has been successful in supporting businesses to overcome those market failures and wider barriers that were preventing them from investing in energy efficiency measures in the absence of receiving support, with the most frequently cited including (in order of relative importance):

- Affordability (identified by 82% of businesses);
- The businesses having relatively more important investment priorities (82%); and
- Potential payback periods from making the capital investment being viewed as being too long in the absence of receiving financial support (59%).

Table 5.10: Barriers to making the investment in the absence of EEF support		
Barrier (N=17)	% of businesses identifying the barrier <sup>152</sup>	Relative Importance Score (RIS)
<b>Financial</b>		
The business could not have afforded to take forward the project in the absence of receiving the financial support	82%	42
The business had other more important investment priorities which prevented the business from making the full investment without receiving support	82%	20
The potential payback period from making the capital investment was viewed to be too long without receiving financial support	59%	13
The business did not own premises and the payback period would not have been feasible without receiving financial support	6%	-
<b>Information</b>		
Without knowing more about the potential benefits, the business	41%	10

<sup>150</sup> Based on the monitoring information, it is unclear if any wider ineligible investment was made as part of the project. As such the gross and net additional have been calculated based on eligible project costs only.

<sup>151</sup> By way of illustrating the net impact of the support, REF funding has been excluded from the calculation (i.e., the investment figures are net of the grant support).

<sup>152</sup> Please note that businesses were able to select multiple barriers hence the sum of the percentages across the barrier may be greater than 100%.

Table 5.10: Barriers to making the investment in the absence of EEF support		
Barrier (N=17)	% of businesses identifying the barrier <sup>152</sup>	Relative Importance Score (RIS)
would not have considered making the investment		
You were unaware of other sources of finance to implement the energy efficiency measures	35%	4
<b>Management Buy-In</b>		
The business had relatively more important priorities (e.g., managing the day-to-day operations of the business)	76%	9
The project was viewed to be too risky to take forward without financial support	35%	-
There was a lack of cultural commitment toward resource efficiency and/or reluctance to implement change without the financial support	29%	6
The business was unwilling to take forward the project without receiving financial support	53%	-
The adverse operating environment would have prevented the business from making an investment	59%	-

#### 5.5.4 Gross and Net Additional Direct Cost and Carbon Emissions Savings Realised

Based on the projected outcomes of each project (as calculated using the cost and carbon calculator), and the time period since each project was fully implemented<sup>153</sup>, it was calculated that the 39 completed projects would, in a normal operating environment, generate c. 8.23m kWh of energy savings resulting in c. £504k of cost savings for businesses per annum. Given the anticipated costs of implementing the projects, the average payback period associated with the completed projects was estimated to be c.4.4 years<sup>154</sup>. It was also projected that the implementation of the measures would result in 12.6k tonnes of carbon dioxide emissions savings per annum (Table 5.11).

Table 5.11: Anticipated Annual Savings from completed EEF projects		
Cost Savings	Energy Savings	Carbon Emissions Savings
£503,946	8,228,889 kWh	12,550 tonnes

However, similar to the approach adopted as part of the review of the REF Programme, the Research Team sought to measure how changes in the wider operating environment (including the COVID-19 pandemic) and any other business-specific changes had impacted on businesses' usage of their premises and the associated use of the energy efficiency measures (Table 5.12).

Table 5.12: Impact of changes in the operating environment on cost savings realised by EEF recipients			
	% of businesses	Range	Average
The business used the business premises and energy efficiency measures <b>less</b>	28%	-25% to -50%	-39%
The business used the business premises and energy efficiency measures <b>more</b>	11%	+10% to +20%	+15%
The business' usage of the premises and energy efficiency measures were <b>unchanged</b>	61%		

<sup>153</sup> For prudence, and in agreement with Invest NI, the implementation date has been based as the 'Claim Paid' date as the investment will have been vouched at this stage by an Invest NI's Technical Advisor. On average 6.6 months had passed for businesses since their respective claim paid date and the timing of the primary research (December 2021). During consultation, all businesses indicated that they continued to utilise the equipment/technology that was implemented as part of the REF project.

<sup>154</sup> The payback periods ranged from 1.1 to 5.9 years.

Just under three-quarters (72%) of businesses indicated that there had been no reduction in the usage of their business premises and energy efficiency measures as a result of the COVID-19 pandemic or any other business-specific factors. The remaining businesses (28%) suggested that their usage had decreased by, on average, 39%.

The findings from across the sample of businesses indicate that businesses utilised their business premises and energy efficiency measures by, on average, 8% less than they might otherwise have done in a normal operating environment<sup>155</sup>. Taking account of this reduction in usage suggests that the EEF Programme supported businesses to generate c. 2.56m kWh of gross energy savings resulting in c. £210k of cost savings for businesses, with the projects also providing 2,538 tonnes of carbon dioxide emissions savings (Table 5.14).

Table 5.13: Calculated levels of Displacement for EEF recipients	
NI	GB
16.8%	20.7%

Table 5.14: Calculation of gross and net additional savings made by the EEF Programme			
	Cost Savings	Energy Savings	Carbon Emissions Savings
Gross savings in a normal operating environment	£224,528	2,728,734 kWh	2,841 tonnes
Reduction applied to take account of changes in the wider operating environment <sup>156</sup>	£14,982	167,827 kWh	303 tonnes
<b>Gross savings realised</b>	<b>£209,546</b>	<b>2,560,907 kWh</b>	<b>2,538 tonnes</b>
Deduction for Deadweight (@26.3% <sup>157</sup> )	(£55,111)	(673,519 kWh)	(667 tonnes)
Deduction for Displacement (@16.8%)	(£25,945)	N/A	N/A <sup>158</sup>
<b>Net Additional Savings</b>	<b>£128,490</b>	<b>1,890,388 kWh</b>	<b>1,871 tonnes</b>

Making allowance for reductions required to take account of deadweight and displacement (which has been calculated at 16.8% for the NI market using the same approach outlined in Section 2.5.9) indicates that the **EEF Programme has directly supported businesses to realise £128k of cost savings and reduced the businesses carbon emissions by 1,871 tonnes.**

<sup>155</sup> Please note that, where relevant, all business (N=7) confirmed that it was, in their view, reasonable to apply the proportionate increase or decrease in utilisation level to the appraised cost savings to take account of these changes in the wider operating environment.

<sup>156</sup> For accuracy, the Research Team has applied the specific increases and reductions (where relevant) reported by businesses to their respective cost savings (under normal operating environment), with the 8% average reduction applied to all other businesses (that did not engage in the primary research). As such, the overall reduction may not exactly equate to 8% of the Gross cost savings appraised for a normal operating environment.

<sup>157</sup> On the basis that the cost savings have been generated as a direct result of the resource efficiency measures implemented (which have been supported by EEF funding), the Research Team has utilised the activity/programme level of additionality/deadweight as opposed to impact additionality/deadweight.

<sup>158</sup> On the basis that carbon emission savings represent a wider environmental outcome from the EEF supported activity, and not a direct tangible business benefit, there is no potential for economic displacement (and hence a reduction has not been applied under this metric). On the basis that the energy savings ultimately generate the cost savings for businesses, displacement has been applied to this metric so that the reader has an understanding of the scale of energy savings required to generate the new additional cost savings.

### 5.5.5 Wider Gross and Net Additional Business Outcomes Realised

In addition to the direct cost savings achieved by businesses with EEF support, businesses reported deriving a range of other monetary and non-monetary benefits (Table 5.15). Amongst the most frequently cited benefits included:

- Increased business competitiveness (83%);
- Other cost savings not directly related to the resource savings made (33%) which the business reported as being achieved as a result of (inter alia) a reduction in equipment replacement/purchasing costs, savings from waste diversion and disposal etc.; and
- Increased sales (17%) which businesses reported were achieved as a result of securing contracts based on their business' ability to demonstrate its focus on resource efficiency and environmental sustainability.

<b>Table 5.15: Wider Business Outcomes realised by EEF Business Recipients</b>			
<b>Impact/outcome</b>	<b>% of businesses realising impact/outcome</b>	<b>Gross Value<sup>159</sup></b>	
		<b>Survey Sample (N=18 businesses)</b>	<b>Population (N=28 businesses)</b>
Any other cost savings <u>not</u> directly related to the resource savings	33%	£41,250	£64,167
Wider investment in energy efficiency measures	6%	£4,500	£7,000
Wider investment in resource efficiency measures	-	-	
Increased sales	17%	£22,500	£35,000
Increased employment	-		
Employment Safeguarded/Retained	11%	3 FTEs	5 FTEs
Increased your business' competitiveness	83%		
<b>Wider Environmental Benefits</b>			
Waste diverted from landfill	11%	Unable to Quantify	
Virgin Materials saved	22%		

The Research Team's grossing up analysis indicates that the support provided through the EEF Programme supported businesses to derive a further c. £64k of indirect cost savings and £35k of sales, as well as serving to encourage businesses to make a further £7k of investment in wider measures to enhance their energy efficiency.

In order to determine the level of tangible business benefits that can be directly attributed to the EEF Programme (i.e. the 'net additional impact') the aforementioned gross figures need to be adjusted to take account of impact deadweight/additionality and displacement.

Utilising the same participant self-assessment methodology outlined in Section 2.5.9, the Research Team's analysis indicates that 74% of the wider tangible business outcomes would not have been achieved or would not have been achieved to the same scale and/or within the same timescale, in the absence of the EEF Programme.

<b>Table 5.16: Levels of EEF Impact additionality/deadweight</b>	
<b>Impact Additionality</b>	<b>Impact Deadweight</b>
74.3%	25.7%

The levels of impact deadweight/additionality compare favourably when compared to other similar interventions (Table 5.17). For example, the level of additionality is c. 20 percentage points (pp)

<sup>159</sup> Given the high incidence of businesses undertaking multiple energy efficiency projects under a single grant offer, grossing up has been undertaken based on the population of businesses (as opposed to EEF projects).

higher than other UK regional ‘Business Development and Competitiveness’ interventions and c. 16pp higher than other initiatives designed to bring about efficiency improvements in business through the adoption of (more) sustainable working practices (the Sustainable consumption/production Sub Theme).

Intervention type	Average level of additionality
<b>EEF (EECG)</b>	<b>74.3%</b>
<b>UK Regional Interventions</b>	
– All interventions	57.0%
– Programme interventions only	56.2%
– Business development & competitiveness Theme	54.5%
– Sustainable consumption/production Sub Theme <sup>161</sup>	57.9%
– Individual enterprise support Sub Theme <sup>162</sup>	52.7%

Making allowances for the reductions required to take account of impact deadweight (25.7%) and displacement (16.8%) indicates that the EEF Programme has directly supported businesses to derive a further £40k of indirect cost savings and £22k of sales, as well as serving to encourage businesses to make a further £48k of investment in wider measures to enhance their resource and energy efficiency.

	Indirect cost savings	Wider investment in ERE measures	Increased sales	Employment Safeguarded
Gross Impact	£64,167	£7,000	£35,000	5 FTEs
Deduction for Deadweight (@25.7%)	(£16,491)	(£1,799)	(£8,995)	(1 FTE)
Deduction for Displacement (@16.8%)	(£8,010)	(£874)	(£4,369)	N/A
Net Additional Impact	£39,666	£4,327	£21,636	4 FTEs

### 5.5.6 Net Additional GVA Impacts

Taking account of the direct and indirect cost savings and sales derived by businesses, the Research Team’s analysis indicates that the EEF Programme contributed c. £176k of net additional GVA to the NI economy.

The inclusion of wider supply chain benefits that potentially arose as a result of the investment made by businesses (both to deliver the project and wider investment in ERE measures) indicates that the Programme contributed a further £248k in net additional GVA, equivalent to £425k in total net additional GVA.

<sup>160</sup> Source: Research to Improve the Assessment of Additionality (BIS, 2009).

<sup>161</sup> This category relates to initiatives designed to bring about efficiency improvements in business through the adoption of (more) sustainable working practices.

<sup>162</sup> This category relates to initiatives designed to provide access to finance for SMEs.



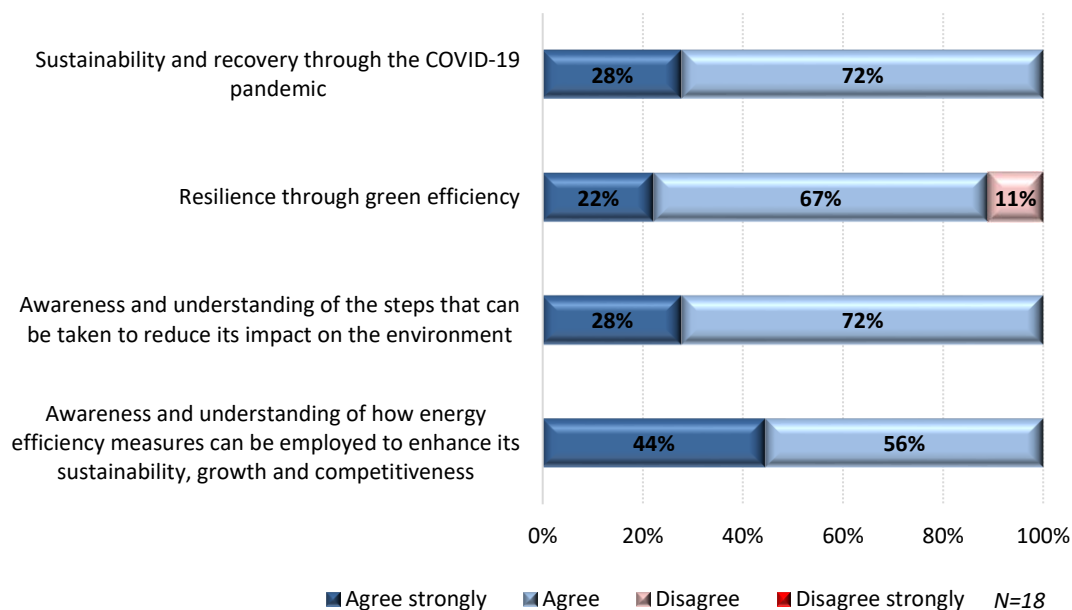
Table 5.19: Calculation of EEF Net additional GVA			
Impact metric	Net additional Impact	Sectoral average level of GVA <sup>163</sup>	Net Additional GVA
Direct cost savings	£128,490	N/A <sup>164</sup>	£128,490
Indirect cost savings	£39,666	N/A	£39,666
Sales/Turnover	£21,636	38%	£8,222
<b>Sub-total</b>	<b>£189,792</b>		<b>£176,378</b>
Investment Levered	£1,302,820	19% <sup>165</sup>	£247,536
Wider investment in ERE measures	£4,327		£822
<b>Sub-total</b>	<b>£1,307,147</b>		<b>£248,358</b>
<b>Total</b>	<b>£1,496,939</b>		<b>£424,736</b>

### 5.5.7 Business Awareness of the Role of Energy and Resource Efficiency

Given the nature and scale of a number of reported barriers that have historically prevented businesses from adopting ERE measures, it is positive to note that nearly all businesses were in agreement that the support provided through the EEF Programme had served to increase their:

- Awareness and understanding of how energy efficiency measures can be employed to enhance its sustainability, growth, and competitiveness;
- Awareness and understanding of the steps that can be taken to reduce its impact on the environment;
- Resilience through Green efficiency; and
- Sustainability and recovery through the COVID-19 pandemic.

**Figure 5.5: Impact of EEF support on Businesses’ understanding of the role and importance of ERE**



<sup>163</sup> Source: Annual Business Enquiry Reporting Unit Results 2020 (November 2021).

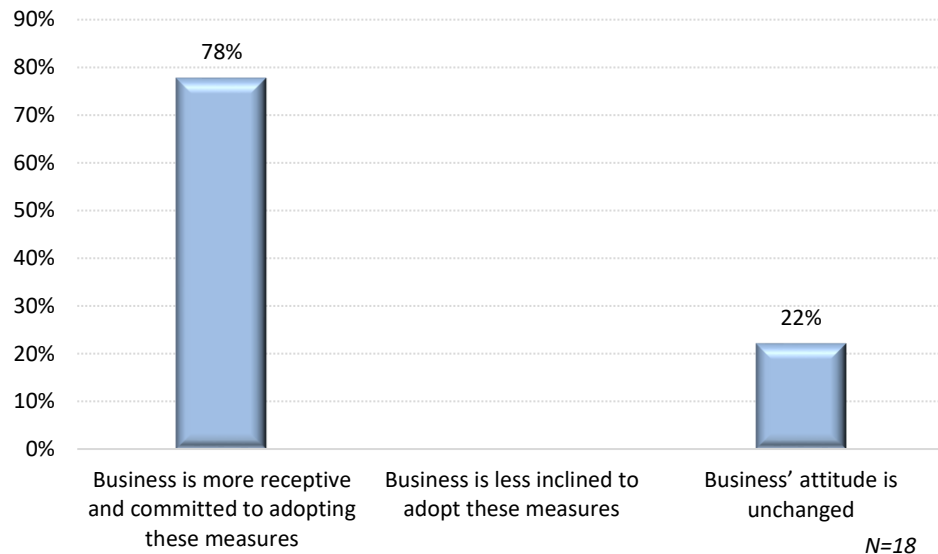
<sup>164</sup> GVA can be calculated by summing business’ Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) which calculated by summing operating profit, depreciation and amortisation and wages and salaries. The analysis assumes that a pound of cost saving is equivalent to a pound of GVA on the basis that it will typically provide a direct impact on a business’ operating profits. Cost savings have been included in the calculation on the basis that they will directly impact on the scale of a business’ inputs.

<sup>165</sup> For prudence, the Research Team has reduced the NI average sectoral level of GVA from 38% to 19% (a 50% reduction) to convert the investment made by businesses to GVA. This approach has been applied to take account of businesses potentially having sourced equipment/technology directly from outside NI (which would represent a leakage) and/or businesses sourcing equipment/technology from a NI provider who had originally sourced it from outside NI (thereby creating a reduction in the value-added element in the supply chain).

5.5.8 Attitudinal Changes to the Adoption of Energy and Resource Efficiency Measures

Positively, almost four-fifths of businesses (78%) indicated that they were now more receptive and committed to adopting ERE measures as a result of completing their respective EEF project (Figure 5.6). It should be noted that for most businesses that indicated that their receptiveness and commitment to adopting ERE measures had remained unchanged (22%), these businesses indicated that they were already committed to implementing these measures prior to receiving EEF support.

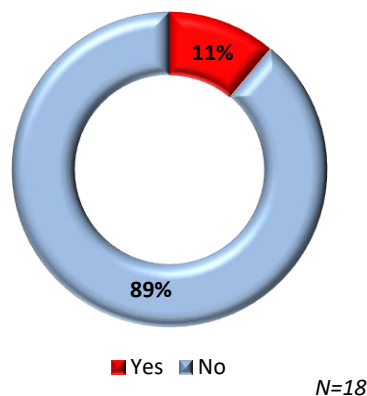
Figure 5.6: Business' attitudes to the Adoption of ERE Measures following the receipt of EEF support



5.5.9 Duplication and Complementarity

Most businesses (89%) suggested that they would have been unable to gain the same/similar support to implement energy efficiency measures in the absence of the EEF Programme.

Figure 5.7: Businesses' Ability to get similar support in the absence of the EEF Programme



As noted in Section 2, whilst the EEF Programme represents (at least in theory) an important follow-on programme from TC support, the feedback from businesses indicates that the current process for administering this support, is not currently supporting the pull-through of TC projects as effectively as anticipated at the outset and careful consideration should be given by Invest NI as to how its capital grant support is administered to ensure that businesses can access the continuum of support available along the ERE pipeline of offerings.

## 5.6 Progress Towards Programme Targets

As noted in Section 2.6.1, based on the information presented in the Economic Appraisal, a lack of clarity exists as to the precise nature of targets that were established for the EEF Programme<sup>166</sup>. As such, the Research Team has (in conjunction with Invest NI) identified those metrics deemed to be most representative of a Programme target. The progress towards these targets is presented in Table 5.20 below.

Table 5.20: Progress towards EEF Programme Activity Targets			
Nature of Target	Year 2 / Total Oct 2019 - Mar 2020		
	Target	Actual	Variance
Grants to businesses	69	39	-44%
Business investment levered	£2,000,000	£1,302,820	-35%

The analysis indicates that:

- Levels of uptake of EEF support were significantly lower (by 44%) than anticipated at the outset. Affordability constraints and competing business priorities (both brought about to a greater or lesser scale by the COVID-19 pandemic) coupled with the maximum aid ceiling available (20% of eligible costs) are likely to have played a role in the lower-than-anticipated levels of uptake; and
- The Programme levered c. £1.3m of gross investment, which was c. £697k (or 35%) less than anticipated at the outset.

## 5.7 Performance Against Budget

Table 5.21 provides a summary of the anticipated and actual costs of delivering the EEF Programme during the period under review. In doing so, the Research Team has included the match funding provided by the private sector to calculate the full economic costs<sup>167</sup>.

Table 5.21: Progress toward EEF Budget			
Nature of Cost	Year 2 / Total Apr 2020 - Mar 2021		
	Projected Costs	Actual Costs	Variance
Core Delivery	£500,000	£422,298	-16%
INI Staff	£45,776	£12,560	-73%
Evaluation <sup>168</sup>	£9,273	£13,425	45%
<b>Costs to Invest NI</b>	<b>£555,049</b>	<b>£448,283</b>	<b>-19%</b>
Private Sector Match Funding	£2,000,000	£1,302,820	-35%
<b>Full-Economic Costs</b>	<b>£2,555,049</b>	<b>£1,751,103</b>	<b>-31%</b>

<sup>166</sup> For example, there are metrics included under the 'Core Programme Outputs' (e.g., average grant value and total finance provided) that relate to the underpinning costs of delivering the activity as opposed to a 'typical' SMART target that would be established for a project or programme.

<sup>167</sup> Whilst the Economic Appraisal projected the investment that would be levered from businesses, this investment was not included within the Programme's costs (which are required to calculate the full-economic cost).

<sup>168</sup> Whilst it was anticipated that Evaluation costs would be incurred in Year 3, for comparative purposes these have been included in Year 2.

Salient points to note include:

- The full-economic cost of administering the EEF Programme was £1.75m, 26% (or £448k) of which was incurred by Invest NI and the remainder (74% or £1.3m) was provided by the private sector. The full economic costs were £804k (or 31%) lower than anticipated at the outset, reflecting the lower-than-projected levels of activity;
- The variance in core delivery costs (-16%) was materially lower than the variance in EEF grants administered (-44%) reflecting a relatively higher than anticipated level of drawdown at an individual project level (£10.8k compared to the £7.2k projected at the outset); and
- The level of staff costs associated with administering the Programme was 73% lower than anticipated at the outset. Consultation with Invest NI suggests that the projected staff costs were based on the original approval for a hybrid grant/loan scheme which was required to be developed. However, as noted, such a scheme was ultimately not implemented with the EEF programme modelled on the existing REF programme which considerably reduced the amount of development work/time required.

## 5.8 Assessment of Value-for-Money

The Research Team’s analysis indicates that depending on the reader’s viewpoint as to the appropriateness of the inclusion of any investment made by businesses in the GVA calculation, the Programme delivered a return on investment of between £0.39 and £0.94 in net additional GVA for every £1 invested by Invest NI in the Programme during the period under review. These ratios fall to £0.10 and £0.24 respectively, when the return on investment is examined based on the full economic costs (i.e., including the private sector match funding).

Net Additional GVA		Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
Excluding Investment made in ERE Measures	£176,378	£448,283	<b>£1: £0.39</b>	£1,751,103	<b>£1: £0.10</b>
Including Investment made in ERE Measures	£424,736		<b>£1: £0.94</b>		<b>£1: £0.24</b>

However, the Research Team would urge caution in placing an overt focus on the return on investment provided to date as an appropriate indicator of VFM on the basis that, on average, only 6.6 months had passed since the businesses had completed their respective EEF project, which is significantly less than the:

- Average payback period associated with the investments made (4.4 years<sup>169</sup>);
- Anticipated levels of persistence associated with the realisation of monetary benefits (projected in the Economic Appraisal as being c. 5 years); and
- Anticipated UEL of the energy efficiency measures implemented by businesses with the support of the programme<sup>170</sup>.

<sup>169</sup> The payback period suggests that businesses anticipated deriving cost-saving benefits beyond the 5 years to realise a positive return on their investment.

<sup>170</sup> As noted in Section 4, it is the Research Team’s view that the benefits associated with the Programme should be examined over the UEL of the energy efficiency technologies/equipment invested in with the support of the Programme. The UEL of the measures acquired ranged from 7 years to 25 years (at an individual project level) and the average (across all projects) was c. 16 years. The UEL of the equipment/technologies has been informed by Invest NI.

As such, these businesses are at a relatively early stage in terms of the realisation of monetary benefits from the investment made. Whilst a fully informed assessment of the monetary return on investment can only be taken in the longer term, subject to the continued usage of the energy efficiency measures, as illustrated in Table 5.23, the identified return-on-investment ratios are likely to materially increase.

Time period (post-project implementation)	Net Additional GVA <sup>171</sup>	Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
5 years	<b>£1,765,957</b>	£448,283	<b>£1: £3.94</b>	£1,751,103	<b>£1: £1.01</b>
UEL of the energy efficiency measures Implemented <sup>172</sup>	<b>£3,983,328</b>		<b>£1: £8.89</b>		<b>£1: £2.27</b>

The projections indicate that the energy efficiency measure implemented with the support of the EEF Programme would provide c £1.77m of net additional GVA after 5 years generating a return-on-investment of £3.94 for each pound of Invest NI’s investment or £1.01 based on the full-economic cost.

The Programme would potentially generate £3.98m of net additional GVA over the measures’ respective UEL, resulting in a return-on-investment of £8.89 based on Invest NI’s investment or £2.27 based on the full-economic cost. It should also be noted that the monetary return-on-investment ratios would be materially higher in a scenario in which the wider environmental impacts of ERE interventions (including the EEF programme) are appropriately monetised (i.e., the quantification of carbon value savings using the MAC-based approach detailed previously).

In addition, we have considered EEF’s performance in the context of Invest NI intervention principles in the table below:

VFM Indicator	Conclusion
<b>Need &amp; Market Failure</b>	The feedback from businesses suggests that the EEF Programme has been successful in supporting businesses to address those market failures and wider barriers that were preventing them from exploring opportunities to enhance their energy efficiency in the absence of receiving capital grant support. Key amongst these include affordability, a lack of understanding of the potential business benefits that could be derived from investing in energy efficiency measures (asymmetric information) and/or potential payback periods from making the capital investment being viewed as being too long in the absence of receiving financial support.
<b>Additionality</b>	Levels of programme and impact additionality have been calculated at 74%. The levels of impact additionality compare favourably when compared to other similar interventions including initiatives designed to bring about efficiency improvements in businesses through the adoption of (more) sustainable working practices.
<b>Duplication and complementarity</b>	Whilst the EEF Programme represents (at least in theory) an important follow-on programme from TC support, the feedback from businesses indicates that the current process for administering this support (i.e. through competitive calls), is not currently

<sup>171</sup> Projections have been calculated based on potential cost savings and the investment made in ERE measures.

<sup>172</sup> Per the approach detailed in Section 4, in calculating the Savings Persistence Factor, the Research Team has (for prudence) reduced the annual savings by 2.5% compound annually to take account of those factors that may potentially impact on the longitudinal realisation of savings (e.g., the degradations in the efficiency of the equipment, variances in usage due to changes in operating hours and conditions, inappropriate installation of equipment, manufacturer performance estimates not appropriately reflecting in-field operating conditions).

**Table 5.24: EEF Programme VFM in the context of Invest NI's Intervention Principles**

VFM Indicator	Conclusion								
	supporting the pull-through of TC projects as effectively as anticipated at the outset and careful consideration should be given by Invest NI as to how its capital grant support is administered to ensure that businesses can access the continuum of support available along the ERE pipeline of offerings.								
<b>Economy Efficiency and Effectiveness</b>	<table border="1"> <thead> <tr> <th>Indicator</th> <th>Research Team's Commentary</th> </tr> </thead> <tbody> <tr> <td><b>Economy</b> measures are concerned with showing that the appropriate inputs (i.e. the resources used in carrying out the project) have been obtained at least cost</td> <td> <p>Projects that adhered to the Programme's eligibility criteria were assessed through an internal casework process which assessed, amongst other things, the reasonableness of the project's costs proposed.</p> <p>In relation to Invest NI's staff costs, the Research Team considers that the staff input appears reasonable, given the scale of activity undertaken by the ERE Team and its Technical Advisors.</p> <p>On this basis, it is the Research Team's view that Invest NI made appropriate efforts to ensure that project inputs were obtained at least cost to the NI economy.</p> </td> </tr> <tr> <td><b>Efficiency</b> relates to measures that are concerned with achieving the maximum output from a given set of inputs</td> <td> <p>A cost and carbon calculator, which was based on industry-standard data, was utilised to assess and standardise the likely outputs that would be generated from each potential EEF project.</p> <p>There is no evidence to suggest that Invest NI could have derived additional output from the financial inputs that were allocated to the EEF Programme.</p> </td> </tr> <tr> <td><b>Effectiveness</b> measures are concerned with showing the extent to which aims, objectives and targets of the project are being achieved</td> <td>Per Section 4.6, levels of uptake of EEF support were significantly lower than anticipated at the outset. Affordability constraints and competing business priorities (both brought about to a greater or lesser scale by the COVID-19 pandemic) coupled with the maximum aid ceiling available are likely to have played a role in the lower-than-anticipated levels of uptake.</td> </tr> </tbody> </table>	Indicator	Research Team's Commentary	<b>Economy</b> measures are concerned with showing that the appropriate inputs (i.e. the resources used in carrying out the project) have been obtained at least cost	<p>Projects that adhered to the Programme's eligibility criteria were assessed through an internal casework process which assessed, amongst other things, the reasonableness of the project's costs proposed.</p> <p>In relation to Invest NI's staff costs, the Research Team considers that the staff input appears reasonable, given the scale of activity undertaken by the ERE Team and its Technical Advisors.</p> <p>On this basis, it is the Research Team's view that Invest NI made appropriate efforts to ensure that project inputs were obtained at least cost to the NI economy.</p>	<b>Efficiency</b> relates to measures that are concerned with achieving the maximum output from a given set of inputs	<p>A cost and carbon calculator, which was based on industry-standard data, was utilised to assess and standardise the likely outputs that would be generated from each potential EEF project.</p> <p>There is no evidence to suggest that Invest NI could have derived additional output from the financial inputs that were allocated to the EEF Programme.</p>	<b>Effectiveness</b> measures are concerned with showing the extent to which aims, objectives and targets of the project are being achieved	Per Section 4.6, levels of uptake of EEF support were significantly lower than anticipated at the outset. Affordability constraints and competing business priorities (both brought about to a greater or lesser scale by the COVID-19 pandemic) coupled with the maximum aid ceiling available are likely to have played a role in the lower-than-anticipated levels of uptake.
	Indicator	Research Team's Commentary							
	<b>Economy</b> measures are concerned with showing that the appropriate inputs (i.e. the resources used in carrying out the project) have been obtained at least cost	<p>Projects that adhered to the Programme's eligibility criteria were assessed through an internal casework process which assessed, amongst other things, the reasonableness of the project's costs proposed.</p> <p>In relation to Invest NI's staff costs, the Research Team considers that the staff input appears reasonable, given the scale of activity undertaken by the ERE Team and its Technical Advisors.</p> <p>On this basis, it is the Research Team's view that Invest NI made appropriate efforts to ensure that project inputs were obtained at least cost to the NI economy.</p>							
	<b>Efficiency</b> relates to measures that are concerned with achieving the maximum output from a given set of inputs	<p>A cost and carbon calculator, which was based on industry-standard data, was utilised to assess and standardise the likely outputs that would be generated from each potential EEF project.</p> <p>There is no evidence to suggest that Invest NI could have derived additional output from the financial inputs that were allocated to the EEF Programme.</p>							
<b>Effectiveness</b> measures are concerned with showing the extent to which aims, objectives and targets of the project are being achieved	Per Section 4.6, levels of uptake of EEF support were significantly lower than anticipated at the outset. Affordability constraints and competing business priorities (both brought about to a greater or lesser scale by the COVID-19 pandemic) coupled with the maximum aid ceiling available are likely to have played a role in the lower-than-anticipated levels of uptake.								
<b>Cost-effectiveness<sup>173</sup></b>	<p>Cost effectiveness indicators include:</p> <ul style="list-style-type: none"> <li>• Cost per EEF project supported (N=39) - £44,900</li> <li>• Cost per business supported (N=28) - £62,540</li> <li>• Cost per net additional CO2 emissions savings (N= 1,871T) - £936</li> <li>• Cost per £ of net additional GVA - £0.10 - £0.24</li> </ul> <p>It is noted that the outcome cost-effectiveness indicators will materially improve over time as businesses realise the cost-saving benefits from their respective capital investments.</p>								

When viewed from a purely monetary perspective, the EEF Programme is not yet demonstrating VFM with respect to the public funds invested through the Programme. However, as noted, this is reflective of the short passage of time since the projects (supported during the period under review), have been completed. Taking a more longitudinal approach, the analysis indicates that the Programme is on track to deliver VFM in the longer term.

<sup>173</sup> Cost effectiveness indicators have been calculated based on the full-economic costs of administering the support.

## 5.9 Equality and Rural Needs Considerations

### 5.9.1 Equality Considerations

Invest NI completed a Section 75 Policy Screening for its EEF Programme. The Screening concluded (amongst other things) that:

- The policy was not anticipated to have an impact (positively or negatively) on the equality of opportunity for those affected by this policy, for each of the Section 75 equality categories, nor were there opportunities to better promote equality of opportunity for people in these categories (as the action was not deemed to provide opportunities to promote equality amongst particular groups);
- The policy was not anticipated to impact (positively or negatively) on good relations and no opportunities were identified to promote good relations between people of different religious beliefs, political opinions or racial groups;

On the basis of the completed screening, it was concluded that an EQIA was not required for the policy.

The Research Team's review of EEF activity, monitoring information provided during the evaluation process and our discussions with recipients of support has identified:

- No evidence of higher or lower participation or uptake of different groups;
- No evidence to indicate that different groups had different needs, experiences, issues and priorities in relation to EEF activity;
- No opportunities to better promote equality of opportunity or better community relations by altering the work of the EEF Programme;
- No accessibility issues that might run contrary to the Disability Discrimination Act 1995.

On this basis, the Research Team concludes that whilst the EEF Programme was not specifically targeted at any specific Section 75 categories, it does not appear to have had an adverse impact on any Section 75 group.

### 5.9.2 Rural Needs Considerations

By way of illustrating due regard for Rural Needs, Invest NI completed an RNIA for its EEF Programme.

The RNIA noted that specific steps/actions would be taken by Invest NI in relation to the Programme's marketing and delivery to ensure its accessibility to all businesses. Specific steps/actions included:

- The programme would be promoted to the entire NI business base (irrespective of their location) with marketing and promotion of the Programme to rural businesses being supported through Invest NI's Regional Offices and other stakeholders (e.g., local Councils); and
- Due consideration would be taken in the timing and location of elements of the Programme's delivery (e.g., workshops, events, presentations etc.) to ensure its accessibility to rural businesses.

Based on a review of other ERE interventions (EREAP) historic activity (at the time of the RNIA), it was concluded that the spread of uptake (where 45% of the Programme's interventions had been delivered to businesses based in rural locations) demonstrated that there were historically no barriers to delivery and uptake of ERE support in rural areas.

It was noted that Invest NI would continue to monitor the locational spread of uptake of the Programme's support via its CRM tools on an ongoing basis to identify if any corrective action was required.

## 6. OVERARCHING CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Introduction

Section 6 presents the Research Team's conclusions and recommendations arising from the evaluation of each of the interventions.

### 6.2 Conclusions

#### 6.2.1 *Strategic Context and Rationale*

The review suggests that there was, and continues to be, a clear alignment between the aims and objectives of Invest NI's suite of ERE Programmes and the strategic imperatives of the Northern Ireland Government (including DfE and Invest NI). Specifically, in line with the Government's strategic focus, the activities supported through the Programme's offered the potential to increase levels of productivity and competitiveness of the NI business base, as well as encourage the adoption of more environmentally sustainable operations, through the implementation of measures to enhance their energy and resource efficiency.

Our review indicates that the rationale for the Programme's introduction was predicated (at that time) on the existence of a number of market failures and wider barriers that were inhibiting businesses from implementing ERE measures in the absence of receiving support. The continued existence of these market failures and barriers, the additional pressures currently being placed on businesses' cost base and an increasing requirement to demonstrate that they are operating in an environmentally sustainable manner, provide a strong rationale for continued intervention.

Moving forward, Invest NI should continue to ensure that the nature and content of support provided through its suite of ERE interventions, as well as all future SMART targets, are wholly aligned with existing and emerging strategic imperatives most notably those articulated within the DfE 10X Economy Economic Vision (and its associated Key Metrics) and the emerging Circular Economy Strategy.

#### 6.2.2 *Operation and Delivery*

The suite of interventions' delivery models was based around providing the necessary advisory and financial support to Invest NI Account Managed clients and the wider business base (advisory support only) to encourage businesses to identify opportunities and implement measures to enhance their energy and resource efficiency.

Given the demand-led nature of the support, the complexity of the ERE project ultimately taken forward under the TC, REF and EEF Programme very much depended on the stage of the ERE journey that the business resided. That is to say, businesses with previous knowledge and experience in implementing ERE measures were more likely to undertake a project examining the potential impact of implementing relatively more complex ERE measures (which often require more significant levels of investment), vis-à-vis a business with more limited knowledge and experience of implementing the measures.

Our review indicates that a number of exogenous changes in the operating environment (most notably the COVID-19 pandemic) combined to materially negatively impact on levels of demand and uptake of the Programmes (with the exception of REF), as well as inhibit the efficacy of the delivery models adopted under the advisory support (TC and the RMIS service) given the need to transition to virtual as opposed to in-person support.



Notwithstanding this, the feedback from businesses suggests that the models of delivery adopted were, in the main, effective in terms of meeting their specific needs. Whilst the Research Team would broadly concur with this view, we note the following:

- The nature and scale of targets established for the RMIS Service, were in retrospect, too heavily weighted towards maximising levels of activity as opposed to the outcomes from the Service. The nature of the targets, particularly the target relating to Advisory Visits (a key metric which the EDO received contract payments for), had therefore inadvertently served to encourage an overt focus being placed on maximising the quantity of business interactions (which served to identify potential cost savings), as opposed to the depth and quality of interactions (which would potentially have supported a greater realisation of actual cost savings) fostered by the EDO being able to spend more time developing business relationships and facilitating the negotiation of synergies;
- Whilst noting the historical contribution of the RMIS Service to embedding efficiency, and the integral role of industrial symbiosis in facilitating the circular economy model, there is a consensus that the current Service delivery model has served its stated purpose and it needs to evolve to provide the necessary support to embed the circular economy model in a more holistic, systemic manner that embeds innovative practices in an end-to-end, whole system approach (rather than just focusing on redundant materials and waste streams);
- Invest NI could potentially have generated additional demand for, and impact from, its suite of ERE Programmes had the pull-through of businesses across the pipeline line of ERE supports (and in particular from TC to the capital grant assistance provided through REF and EEF) operated in a more effective manner. Specifically, it appears that the ‘mechanics’ underpinning the capital funding schemes (which were administered using competitive (REF) and open calls (EEF) basis) did not facilitate the allocation of funding to recipients of TC support to support the implementation of the actions identified through their respective TC projects;

Whilst noting the merits of Invest NI adopting a competitive call process to administer its capital grant funding (including the ability to identify and select the projects that offer relatively higher levels of VFM, greater budgetary oversight and control, greater management of business’ expectations vis-à-vis a ‘first-come, first-served’ approach) such an administrative approach arguably operates more effectively in instances where discreet support is provided through a standalone intervention. Evidently, based on the feedback from businesses, the approach works less well in instances where there is a pipeline/pathway of support where the ultimate outcome is highly dependent on the receipt of support across interventions; and

- Given the reported affordability constraints that exist across the NI business base, it appears that the maximum aid ceilings that were available through the EEF Programme (20% of eligible costs) may have adversely impacted on both levels of demand for Programme support and the scale of the energy efficiency project that was ultimately implemented by businesses. It is noted however that Invest NI was utilising contingency measures under existing approvals to operate this in-year COVID response scheme. Thus, the level of support needs to be viewed in the context of scheme approvals and the associated grant rate permitted (both under the existing approved schemes, Regional and De Minimis Aid).

Based upon the feedback from businesses and bearing in mind the wider operational constraints placed on the Programmes resulting from the COVID-19 pandemic, we consider that the interventions were, in general, managed and delivered in a proactive and efficient manner by Invest NI and its EDO (in the case of the RMI Service).

The full-economic cost of delivering the suite of Programmes (and the associated investment projects supported through REF and EEF) during the period under review was c. £8.4m.

### 6.2.3 Performance and Impact

The calculated levels of Programme and impact additionality (which range from 62% (RMIS Service) to 83% (REF)) should be viewed positively, comparing favourably when benchmarked against other similar interventions including those designed to bring about efficiency improvements in businesses through the adoption of (more) sustainable working practices. Linked to this, whilst noting that many businesses indicated that they had historically invested in measures to enhance their energy and/or resource efficiency, the feedback indicates that the scale of projects implemented with the support of Programmes was considerably higher (particularly in the case where REF and EEF support was provided).

The feedback indicates that the majority of businesses have realised the motives/outcomes for which they availed of support through the suite of interventions, key amongst these including to enhance the business' operational efficiency and make cost savings, reduce the business' impact on the environment, enhance employees and the wider business' productivity, achieve better equipment performance and enhance the business' working environment

The analysis suggests that, to date, the suite of ERE Programmes has contributed £4.3m of net additional GVA to the NI economy. Linked to the discussion around the impact of exogenous changes in the operating environment, it is clear that the COVID-19 pandemic has also negatively impacted (to a greater or lesser extent) the scale of monetary impacts realised by businesses to date. In any such case, it is noted that the projects supported through the suite of ERE Programmes are at a very early stage in terms of the realisation of their lifecycle of benefits, particularly when the investments in ERE measures made through the REF and EEF programmes are examined in terms of their Useful Economic Life (UEL) rather than a standard persistence period (as was projected in the Economic Appraisal). Similarly, we note that the majority of businesses that have not yet implemented the actions identified through their respective TC project, intend to do so. As such, and illustrated in our VFM analysis, the Research Team anticipates that the level of net additional GVA associated with the projects supported will increase materially with the passage of time.

Moreover, the 'Triple Bottom Line' (TBL) and our wider research indicate that there needs to be a wider transition in the approach to assessing VFM in the context of investment decision-making with a greater focus needing to be placed on the monetisation of the environmental impacts made by investment decisions. Arguably, such an approach extends beyond Invest NI's suite of ERE interventions and is equally applicable and relevant to wider investment decision-making at a programme and project level.

From a longer-term sustainability perspective, the feedback from businesses suggests that the suite of Programmes has served to increase businesses' awareness and understanding of how energy efficiency measures can be employed to enhance their sustainability, growth, and competitiveness, the steps that can be taken to reduce its impact on the environment and overall resilience through Green efficiency.

Positively, the Programmes have also contributed to creating a broader attitudinal change to the role and importance of energy and resource efficiency with most businesses indicating that they are now more receptive and committed to adopting ERE measures as a result of the support provided through the suite of Programmes.

At this stage of the Programmes lifecycle (and the lifecycle of the individual projects supported through the Programmes), these non-monetary benefits should arguably be viewed as of equal importance to the aforementioned monetary impacts reported by businesses to date.

#### 6.2.4 Duplication and Complementarity

Based on the Research Team’s review of other available support in the marketplace during the period under review and the feedback from businesses, there was little/no potential for Invest NI’s suite of ERE Programme to duplicate other support offerings available in the NI marketplace.

Notwithstanding this, our review indicates that there is a potential for Invest NI to better leverage the support available across the suite of ERE Programmes to ensure that businesses are more readily able to transition between the pipeline of advisory and financial supports that are required to meet their ERE needs. In this regard, careful consideration needs to be given to the ‘mechanics’ of how financial support is made available to businesses.

Equally, it appears that there are opportunities for the support available through the suite of Programmes to better support and add value to Invest NI’s wider suite of business supports, most notably the Operational Excellence Programme and the Collaborative Growth Programme (where a number of networks have an overt ‘Green Economy’ focus).

#### 6.2.5 Return-on-Investment and VFM

Table 6.1 provides a summary of the return on investment provided by each of the ERE Programmes. At this interim stage, two of the Programmes (TC and RECG) are providing a positive return based on the investment made by Invest NI, with only one (TC) doing so when the returns are examined on a full-economic cost basis.

Table 6.1: Return-on-Investment across the ERE Interventions <sup>174</sup>					
Intervention	Net Additional GVA	Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
<b>EREAP</b>					
TC	£986,105	£614,777	£1: £1.60	£614,777	£1: £1.60
RMIS	£334,156	£524,200	£1: £0.64	£524,200	£1: £0.64
<b>EREAP</b>	<b>£1,320,261</b>	<b>£1,138,977</b>	<b>£1: £1.16</b>	<b>£1,138,977</b>	<b>£1: £1.16</b>
<b>REF</b>					
RECG	£2,592,519	£1,496,872	£1: £1.73	£5,531,484	£1: £0.47
<b>EEF</b>					
COVID-19 EECG	£424,736	£448,283	£1: £0.94	£1,751,103	£1: £0.24
<b>All Interventions</b>	<b>£4,337,516</b>	<b>£3,084,132</b>	<b>£1: £1.41</b>	<b>£8,421,564</b>	<b>£1: £0.52</b>

However, the Research Team would urge caution in placing an overt focus on the return on investment provided to date as an appropriate indicator of VFM on the basis that the businesses are at a relatively early stage in terms of the realisation of monetary benefits from the investment made. Whilst a fully informed assessment of the monetary return on investment can only be taken in the longer term, subject to the continued usage of the energy and resource efficiency measures, the identified return-on-investment ratios are likely to materially increase (as illustrated in the projections presented in Tables 6.2 and 6.3).

<sup>174</sup> The net additional GVA and associated returns on investment are inclusive of the calculated investment made by businesses in ERE measures.

Table 6.2: Projected Return-on-Investment across the ERE Interventions (5 years) <sup>175</sup>					
Intervention	Net Additional GVA	Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
<b>EREAP</b>					
TC	£1,809,802	£614,777	£1: £2.94	£614,777	£1: £2.94
RMIS	£785,904	£524,200	£1: £1.50	£524,200	£1: £1.50
<b>EREAP</b>	<b>£2,595,706</b>	<b>£1,138,977</b>	<b>£1: £2.28</b>	<b>£1,138,977</b>	<b>£1: £2.28</b>
<b>REF</b>					
RECG	£9,072,716	£1,496,872	<b>£1: £6.06</b>	£5,531,484	<b>£1: £1.64</b>
<b>EEF</b>					
COVID-19 EECG	£1,765,957	£448,283	<b>£1: £3.94</b>	£1,751,103	<b>£1: £1.01</b>
<b>All Interventions</b>	<b>£13,434,379</b>	<b>£3,084,132</b>	<b>£1: £4.36</b>	<b>£8,421,564</b>	<b>£1: £1.60</b>

Whilst the Research Team’s projections above have been limited to 5 years post-project implementation (in-line with the levels of persistence identified in the Economic Appraisal), the average payback periods identified (e.g., 4.4 years in the case of EEF) suggest that businesses anticipate deriving cost-saving benefits beyond the 5 years to realise a positive return on their investment. Reflecting this, consultation with Invest NI’s ERE Team indicates that the UEL of the equipment/technology that businesses have invested in will, in the majority of cases, exceed 5 years (potentially 10+ years in many cases). The Research Team’s longitudinal analysis of the impact made by the investments made through REF and EEF over the course of their UEL illustrates a positive return on investment both in terms of the costs to Invest NI and the full-economic cost (as illustrated in Table 6.3).

Table 6.3: REF and EEF Projected Return-on-Investment over the measures UEL					
Intervention	Net Additional GVA	Costs to Invest NI	Return-on-investment	Full Economic Cost	Return-on-investment
<b>REF</b>					
RECG	£21,437,074	£1,496,872	<b>£1: £14.32</b>	£5,531,484	<b>£1: £3.88</b>
<b>EEF</b>					
COVID-19 EECG	£3,983,328	£448,283	<b>£1: £8.89</b>	£1,751,103	<b>£1: £2.27</b>

With this in mind, and mindful of the wider impacts made by each of the interventions (including their contributions towards Invest NI intervention principles), the review suggests that all 4 Programmes continue to offer the potential to provide VFM, albeit a fully informed assessment can only be taken in the longer term.

#### 6.2.6 Future Resourcing Needs of Invest NI’s ERE Team

In addition to the need to allocate appropriate levels of human and financial resources to administer any new energy efficiency scheme, its implementation is likely to place additional demand on the TC Programme given the interdependency between the interventions (with the latter supporting the implementation of the actions identified in the former).

Specifically, whilst noting that the parameters of any new energy scheme have yet to be fleshed out and approved, in the event that any new scheme is relatively larger in scale, broader in scope (in terms of the nature of energy efficiency measures supported) and open to the wider business base (who may be relatively less experienced in implementing ERE measures and hence more likely to require support in identifying potential ERE projects with TC support), the potential increase in demand is likely to have a material impact on both internal human resources (in terms of Technical Advisor time to undertake visits) and external consultancy support (to complete the TC projects). Equally, the Research Team is mindful that the allocation of additional resources to any new scheme

<sup>175</sup> The net additional GVA and associated returns on investment are inclusive of the calculated investment made by businesses in ERE measures.

and the TC programme cannot be at the expense of or displace the delivery of Invest NI's other ERE interventions or wider portfolio of programmes.

Accordingly, the issue of resourcing (both human and financial) across the breadth of ERE interventions warrant careful consideration as part of any future business case for the new scheme.

### 6.2.7 *Equality and Rural Needs Considerations*

Based on the Research Team's review of Programme activity, monitoring information provided during the evaluation process and our discussions with recipients of support, the Research Team has identified no negative equality impacts and considers each of the ERE interventions to be accessible to all Section 75 groupings, people with disabilities and eligible businesses regardless of their location.

## 6.3 **Recommendations**

### 6.3.1 *Cross-cutting Recommendations*

1. Invest NI should continue to administer support through its suite of ERE interventions to enhance the energy and resource efficiency of NI businesses. Given their ability to provide discreet or, where needed, a pipeline of advisory and financial support to meet the needs of businesses, all four interventions should be retained (subject to their respective delivery models being amended in line with the recommendations outlined below).

In making this recommendation, the Research Team notes Invest NI's intention to replace the current EEF Programme (the COVID-19 Energy Efficiency Grant) with a new energy efficiency scheme (subject to the necessary approvals being gained).

2. By way of potentially supporting the 'pull-through' from businesses that received TC support to sources of ERE finance (for those businesses that require it), careful consideration should be given to the merits and demerits of adopting the various approaches to administering its ERE capital grant support including under competitive calls for applications, open calls and an 'evergreen' (constantly open) fund for applications. The Research Team notes that the adoption of such an evergreen scheme would deviate from Invest NI's current increasing corporate focus on administering assistance through calls.
3. Linked to Recommendation 2, in the event that Invest NI continues to administer its capital grant support via a call system (competitive or open in nature), consideration should be given to increasing the frequency and duration of calls to encourage greater levels of pull-through between the ERE interventions. The implementation of such an approach is likely to place a requirement for additional staff resources to be allocated to the ERE Team. Allied with this, Invest NI should review its processes for communicating the timing of calls. At a minimum, Technical Advisors should ensure to communicate the timing of REF and EEF calls to eligible businesses as part of the TC follow-up visit, with subsequent communication (e.g., by email) directly made to recipients of TC support closer to the opening of the call. As part of any continued use of calls, cognisance should also be taken of the need to apply the equitable treatment of all businesses through the application and approval process.
4. Noting the interdependency between Invest NI's suite of ERE interventions (and in particular between TC and the capital grant support), careful consideration needs to be given to identifying the scale of the financial and human resource requirements to facilitate the delivery of any new energy efficiency scheme across the breadth of the ERE Team's interventions (as opposed to considering the additional resource requirements associated with the administration of any new energy efficiency scheme in isolation). In doing so this may require amendments to be made to the extant approvals in place for the TC Programme.

5. Whilst acknowledging that the potential to realise cost savings has, and is likely to continue to be, *the* core motive for businesses to invest in ERE measures, given the reported pressures being placed on businesses and their supply chains to demonstrate that they are taking climate change, the associated decarbonisation agenda, and energy and resource management seriously (by taking steps to implement more environmentally-friendly production/operation methods), greater emphasis should be placed on promoting the contribution of implementing ERE measures to supporting businesses to meet their wider environmental/decarbonisation commitments, whilst also serving to maximise their competitiveness (which will, as a positive by-product, ultimately contribute to their profitability).

In supporting this shift in businesses' mindsets, the ERE Team should seek to manage the expectations of businesses as to the scale and timing of potential costs and benefits that can be generated from the adoption of ERE measures on the basis that whilst the adoption of more complex, capital intensive ERE measures may make a positive environmental contribution in the short term, the pay-back periods for these investments may be more prolonged.

6. In the context of Recommendation 5, Invest NI should be mindful that there is likely to be a requirement for a wider transition in the approach to assessing VFM in the context of investment decision-making across the organisation.

Of note and reflecting the increasing focus on monetising the wider environmental impact of interventions, consideration should be given to utilising the MAC approach to carbon valuation within the wider monetary impact analysis (including projected and realised Net Present Social Values (NPSVs), Benefit-Cost Ratios (BCRs) and non-discounted return on investment). If utilised, these values should be calculated by Invest NI at the application and post-project completion stages to inform programme and project investment decision-making.

The application of a MAC-based carbon valuation approach should not be limited to ERE interventions and should feature as a key VFM decision-making metric for all investment projects (where environmental/carbon reduction impacts are anticipated to arise). Accordingly, as part of a planned operational review of Invest NI's intervention principles for support, Economic Appraisal Methodology (EAM) and Economic Efficiency Test (EET) it is recommended that consideration is given to the merits of embedding such an impact metric within its wider intervention principles, project/programme appraisal methodology and assessment toolkit.

7. Looking beyond the requirement to enhance the nature of SMART targets to reflect the wider environmental objectives and outcomes of the ERE interventions, future business cases should focus on establishing a more appropriate mix of SMART activity, output and outcome targets that are more intrinsically focused and linked with the interventions respective Theory of Change. The findings of this evaluation should be used to inform the nature and scale of future target setting.
8. Consideration should be given as to how the suite of ERE Programmes can more appropriately support and add value to Invest NI's wider portfolio of business supports. At a minimum this should include the:
  - Operational Excellence Programme, where synergies appear to exist with the TC Programme (e.g., in terms of supporting the development of Sustainability Improvement Action Plans for businesses); and
  - Collaborative Growth Programme where a number of existing networks have an overt 'Green' and Circular Economy focus.

9. Invest NI should ensure that the nature and content of support provided through its suite of ERE interventions, as well as all future SMART targets, are wholly aligned with existing and emerging strategic imperatives most notably those articulated within the DfE 10X Economy Economic Vision (and its associated Key Metrics).

### 6.3.2 Technical Consultancy Specific Recommendations

10. Invest NI should consider the merits of expanding the quantum of support delivered on a project basis through the TC Programme in an effort to support a more strategic and holistic review of businesses' operations to identify opportunities to enhance their energy and resource efficiency in a more integrated manner and provide the necessary capacity and capability of support to businesses to aid the implementation of the actions identified in their TC reports.
11. Linked to Recommendation 10, given the reported high level of repeat usage of the Programme, Invest NI may wish to consider placing a cap on the number of times that a business can utilise the support within a pre-defined timescale (e.g., within a 2 or 3-year period). Whilst potentially supporting a more equitable distribution of support across the business base (which is particularly pertinent given the constraints on the availability of public finances), the implementation of such a cap may serve to increase levels of Programme additionality. On the basis that TC often represents a business' initial steps on its ERE journey, to mitigate any reduction in Programme demand, the Research Team would not advocate the introduction of a model of charging.
12. As part of the future target setting, consideration should be given to the reasonableness of including a target for net additional GVA for the TC Programme given its focus and the underpinning 'logic' of the Programme which is overtly focused on supporting businesses to identify ERE projects that could potentially generate cost savings and enhance business' environmental sustainability. Indeed, the subsequent realisation of these outcomes is conditional on the business ultimately implementing the project which will be highly dependent on a number of different variables (e.g., the availability of finance, businesses' other investment and non-investment priorities etc.) which the TC Programme have little/no control over.

In making this recommendation, future Interim and Post Programme Evaluations should continue to examine the level of project implementation and associated GVA impacts made by the Programme (where this is possible to do so given the reported limitations in businesses' ability to quantify the impact of partially implemented projects).

13. By way of meeting the potential increase in demand for TC support following the introduction of any new energy efficiency scheme, as well as stimulating additional competition between consultants for the provision of TC support, consideration should be given to increasing both the rates permissible to be submitted by TCs as part of the Framework and levels of ongoing engagement to encourage their participation.
14. Invest NI should increase the marketing and promotion of those TC categories that have historically been underutilised but have been identified as being of growing strategic importance (e.g., the Circular Economy).

### 6.3.3 RMIS Service Specific Recommendations

15. Careful consideration should be given to how the RMIS Service needs to evolve to provide the necessary support to embed the circular economy model in a more holistic, systemic manner that embeds innovative practices in an end-to-end, whole system approach (rather than just focusing on redundant materials and waste streams).

Depending on Invest NI's aspirations for the Service, this is likely to necessitate a need to provide a mixture of:

- Advisory/consultancy support to examine circularity in the context of both its own operations and wider opportunities to embed the model by working collaboratively with other businesses.
- Capital and operational financial support to enable businesses to:
  - Explore markets for new circular economy products;
  - Develop and adopt innovative business models for new circular economy products and services; and
  - Develop and utilise innovative technologies, products and services to support a circular economy.

By way of informing the structure and content of any new Service, consideration should be given to undertaking a premarket engagement exercise with the wider marketplace to identify potentially innovative delivery solutions. Ultimately, the nature of service provision should ensure any new phase of the service contributes to the strategic imperatives detailed within the new Circular Economy Strategy.

16. Invest NI should ensure that any future RMIS Service delivery model aligns with, and embeds any recommendations from, the Circular Economy Strategic Framework currently being developed by DfE and SIB with the support of a Circular Economy Coalition (which includes representation from Invest NI). This should include, but not be limited to, ensuring that support is directed towards the key product value chains and priority commercial/industrial sectors that have been identified where NI could potentially embed a circular economy approach.
17. Noting the potential for DfE to administer funding to encourage the adoption of the circular economy model across NI (albeit the nature, scale and scope of this funding are presently unknown), to avoid duplication and maximise the complementarity, Invest NI should be mindful of the potential availability of this funding when adapting the RMIS service delivery model to support the embedding of the CE approach across the NI business base.
18. By way of stimulating future demand for the Service, additional activities should be implemented to support its marketing and promotion both internally with Invest NI Client Executives and externally with the NI business base. This may be aided through (inter alia) the dissemination of case studies and updating of the Service's webpage in the Invest NI web portal.

#### 6.3.4 REF and EEF Specific Recommendations

19. By way of stimulating demand and uptake of capital grant support (including any new energy efficiency scheme) careful consideration should be given to (inter alia) the:
  - Levels of financial incentivisation both in absolute terms and the applied aid ceilings particularly given the feedback that greater levels of support are likely to be required (vis-à-vis historic levels of support) to bridge the gap between the types of investment that will generate the greatest environmental returns whilst ensuring that the investment remains financially viable for businesses.
  - Extending the duration of payback periods within the eligibility criteria on the basis that whilst the adoption of more complex, capital-intensive ERE measures may make a positive environmental contribution in the short term, the pay-back periods for these investments may be more prolonged.



20. Careful consideration should be given to the ‘mix’ of energy efficiency projects supported under any new energy efficiency scheme, given the fact that the nature, scale and complexity of investments made by businesses (and the associated scale of benefits subsequently derived) will likely reflect the stage of the energy and/or resource efficiency journey that the business resides. Whilst such an approach may result in relatively lower levels of VFM in the short-term (vis-à-vis a scenario whereby funding is allocated to those projects making investments in equipment/technology yielding relatively higher returns), a balanced portfolio approach will likely support a wider and longer-term adoption of ERE measures across the business base, as well as encouraging businesses to implement more complex ERE measures (potentially yielding higher returns) over time.
21. In projecting future monetary benefits associated with the capital investment made, and informing decision-making at a project level, greater cognisance should be taken of the Effective Useful Life (EUL) of the technologies/equipment potentially acquired with the support of REF and EEF. This is likely to require:
- An extension to the levels of persistence in monetary benefits (which is likely to be beyond the 5-year period currently being utilised);
  - Invest NI to accurately record the UEL (or Measure Life Factor) of individual technologies supported at a project level; and
  - The application of appropriate savings persistence factors over the UEL of the technology/equipment to take account of issues that may impact the scale of benefits achieved including variances in operating hours, degradation in the efficiency of equipment/technology, inappropriate installation of equipment and manufacturer performance estimates not reflecting in-field operating conditions. Given the absence of sufficient empirical evidence to fully inform the scale of savings persistence factors, appropriate sensitivity analysis should be undertaken in any future business case to quantify the scale of potential variance in the level of project benefits.
22. By way of developing appropriate empirical evidence to inform that scale of savings persistence factors, longitudinal monitoring should be undertaken of the scale benefits derived by businesses to establish the scale of any variances in impacts/outcomes derived by businesses and the causal factors that have created these variances. In doing so, Invest NI should ensure that the levels of bureaucracy and administration placed on businesses to inform these monitoring activities are kept to a minimum.
23. As part of any future business case, careful consideration should be given to the totality of funding allocated to businesses on a project basis. Whilst noting the trade-off between the number and scale of projects supported, and the potential to focus on supporting a smaller number of higher-value projects, we are of the view that a more balanced portfolio approach is required to encourage businesses to transition along their respective ERE journey. That is to say, a business with limited experience in adopting ERE measures is unlikely to pursue a complex, capital-intensive ERE project. Rather, given the reported asymmetric information relating to the potential benefits of implementing the measure, these businesses’ preference may initially be to engage in a smaller, relatively less complex and capital-intensive project. Thus, whilst such a balanced portfolio approach may inadvertently adversely impact levels of VFM in the short-term, it will potentially encourage a longer-term commitment towards implementing ERE measures, thereby generating greater VFM in the longer term.

### 6.3.5 Other Operational Recommendations

24. Invest NI should ensure that all monitoring information relating to anticipated project outcomes (e.g., cost savings at an individual business/project level) are reflective of the project that was implemented with any financial support that was ultimately drawn down (as opposed to the projected outcomes associated with funds committed).
25. Caution should be taken in basing any future SMART activity targets on the activity supported during the period under review given the reported impact of exogenous changes in the operating environment (most notably the COVID-19 pandemic) on levels of demand and uptake of the ERE interventions.
26. Invest NI should ensure that the assessment of monetary costs underpinning its interventions, and associated returns-on-investment/Benefit Cost Ratios (BCRs), are examined (at a minimum) on a full economic basis. In the context of the ERE interventions' capital grant support, this should include the private sector match funding provided to projects supported.
27. Taking cognisance of the historic delivery and impact of the interventions, Invest NI should ensure that all future targets are Specific, Measurable, Achievable, Realistic and Time-bound ('SMART'), set out as a hierarchy of anticipated programme inputs, activities, outputs and outcomes and intrinsically linked to the Theory of Change underpinning each intervention.

Linked to this, Invest NI should ensure that all SMART targets garner an appropriate balance between the quantity/breadth of business interactions and the quality/depth of these interactions.



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