



RES Advice and Support Hub 2017-18 Impact Evaluation

Summary report for SG-Energy team January 2019



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Contents

1	Executive Summary	3
2	Background and Context	5
2.1	About Zero Waste Scotland	5
2.2	About Resource Efficient Scotland	5
2.3	Which activities were included in the evaluation?	5
2.4	Which activities will be evaluated separately?	5
2.5	Summary of the evaluation methodology	6
3	Impacts of RES-Hub in-depth support	8
3.1	Interview coverage	8
3.2	Reasons for seeking RES advice	8
3.3	Types of recommendation and their status from interview	8
3.4	Implementation rates from in-depth support	8
3.5	The role of RES support where taking action	10
3.6	Reasons for not taking action	10
3.7	Quantified impacts	10
4	Impacts of RES-Hub light-touch support	13
4.1	Interview coverage	13
4.2	Action taken and the role of RES support	13
4.3	Reasons for not taking action	13
4.4	Quantified impacts	13
5	What have we learned from this year's evaluation?	15
5.1	Satisfaction with the RES service	15
5.2	The wider value of resource efficiency measures	15
5.3	Barriers to implementation	15
5.4	Challenges for the evaluation	15
6	Appendix 1 List of activities included in the evaluation	17
7	Appendix 2 Defining the resource efficiency metrics used in this report	18
8	Appendix 3 How we calculate annual and lifetime impacts	19
9	Appendix 4 How we calculate gross, influenced and attributed impacts	20
10	Appendix 5 Recommendation types from in-depth support and their status	21

1 Executive Summary

Resource Efficient Scotland (RES) is a Scottish Government-funded programme delivered by Zero Waste Scotland, which helps Scottish-based organisations to reduce costs and carbon emissions by implementing resource efficiency measures, covering energy, water, raw materials and waste. This report summarises the findings from an impact evaluation of RES support delivered in 2017-18. The evaluation was commissioned by ZWS's evaluation team and undertaken between August and December 2018 by a third-party contractor (Winning Moves Ltd). This summary report has been written by ZWS's evaluation team using Winning Moves findings.

The impact evaluation focused on quantifying the impacts of "in-depth" and "light-touch" support delivered by the RES-Hub between April 2017 and end of March 2018. During the same period, the RES programme has provided a wider range of support that was outside the scope of this impact evaluation (either because impacts will be more qualitative in nature, or quantified impacts will only be measurable over a longer time-frame than the current work).

The impact evaluation methodology consisted of two types of telephone interview and analysis with a sample of organisations. During interview respondents were asked about any actions taken since using RES support, the impact on their organisation and the degree to which they felt RES support had influenced the outcome. The report provides an overview of the methodology and further details are available on request.

For in-depth support, 68% of respondents had taken action or had definite plans to take action at the time of the evaluation and 38%¹ of recommendations made by RES advisors were implemented/had credible plans to be implemented. In total, 41% of quantified cost savings and 35% of quantified carbon savings were implemented/likely to be implemented. A large majority (83%) of organisations that had implemented recommendations following in-depth support credited RES with improving the outcome to some extent, and 53% state the changes were unlikely to have happened in the absence of RES advice and support.

For light-touch support, 71% of the organisations that had used light-touch support had taken or were planning to take action. Of those organisations taking action, 78% said that RES support had improved the outcome to some extent, whereas 22% thought that action would still have been taken in the absence of RES support.

The quantified impacts of in-depth and light-touch support combined are summarised below. The most meaningful measure of the value of the programme is to consider the lifetime attributed impacts of our interventions, which considers both the *extent* to which we have improved outcomes (and is thus a better measure of our additional value) and the *length of time* we think changes will persist for. The **attributed lifetime impacts** resulting from in-depth and light-touch support in 2017-18 were²:

- **130,000 MWh of energy savings**
- **£19 million in cost savings**, of which over £17 million comes from energy measures, £0.1 million from water measures and £1.4m million from material measures
- **71,000 tonnes of CO₂eq savings**, of which 63,000 tonnes come from energy measures, counted on a territorial basis, and 7,500 tonnes come from material savings, counted on a lifecycle basis
- **1,800 tonnes of reduced material consumption**
- **82,000 tonnes of waste prevention, recycling and reuse**
- **57,000 m³ of water savings**

¹ This figure is not directly comparable to previous years – for further details see Section 3.4.2.

² Summed impacts of light touch and in-depth support are rounded to two significant figures and therefore do not sum in all cases

Other notable quantified benefits from RES-ASS support in 2017-18 include:

- **Influencing around 520 jobs** – of which 110 were created and 410 safeguarded through our interventions.
- **Influencing over £17 million in capital investment**

Wider learning from this year's evaluation includes the following:

The evaluation contractor received overwhelmingly positive feedback about the support RES provided

Respondents often cited the professionalism, helpfulness and knowledge of the consultant, a high-quality report and associated advice. Where respondents were not as satisfied, this typically reflected an expectation of funding, additional support or it was felt recommendations were particularly difficult to implement.

Most businesses view the benefits of resource efficiency in terms of reductions in day-to-day energy or waste management costs

However, some respondents directly attribute the implementation of resource efficiency measures to creating or protecting jobs, increased competitiveness and additional customers.

Evidence suggests that typical barriers to implementation are inter-dependent and will change in their significance over time

For this year's evaluation, those measures that had been rejected outright tended to be harder to implement (e.g required a significant change), whereas those still under consideration tend to refer to financial or business planning constraints.

Quantifying impacts in some situations remains challenging

Where beneficiaries of light-touch support have taken action, a significant proportion are unable to provide supporting evidence. It's also challenging to quantify impact where implementation following in-depth support has occurred at additional sites, or where the recommendations taken forward are different to the original measures proposed.

We report job creation and job safeguarding as indicative. We think it is difficult to get a rich understanding using a relatively short telephone survey focused on quantified impacts.

2 Background and Context

2.1 About Zero Waste Scotland

Zero Waste Scotland Ltd (ZWS) is Scotland's resource efficiency and circular economy expert. Funded by The Scottish Government, we are a company limited by guarantee and governed by a Board of non-executive Directors.

Zero Waste Scotland exists to create a society where resources are valued, and nothing is wasted. Our goal is to help Scotland realise the economic, environmental and social benefits of making best use of the world's limited natural resources. We are funded to support delivery of the Scottish Government's circular economy strategy and the EU's 2020 growth strategy.

Zero Waste Scotland is committed to evaluating the outcomes and impacts resulting from our work. We have an in-house evaluation team that supports programme monitoring and manages our evaluation activity.

2.2 About Resource Efficient Scotland

Resource Efficient Scotland (RES) is a programme delivered by Zero Waste Scotland, our funding comes from the Scottish Government and the European Regional Development Fund. The programme offers free advice and technical support as well as the sharing of best practices and new technologies.

The programme helps organisations reduce costs by saving energy and water, reducing raw materials use and managing waste efficiently. Embedding resource efficiency within Scottish organisations makes a significant contribution to the achievement of the Scottish Government's strategic economic objectives, climate change, energy efficiency and zero waste targets.

2.3 Which activities were included in the evaluation?

The evaluation focused on resource efficiency advice delivered in 2017-18 via the RES-advice and support hub (RES-Hub). An overview of each support type is provided below, and a full list of the activities is provided in Appendix 1.

RES-Hub “in-depth” support, where a RES advisor provides detailed advice on resource efficiency measures to small and medium enterprises (SME's). Advice is provided through site visits or over the telephone. The advice generates a list of identified measures and associated savings, which are then used to produce a client report and a savings dataset for use during the evaluation. All the assessments produce a set of core recommendations. The advisor may also identify alternative recommendations (e.g install a different type of boiler or similar) and further recommendations (normally longer term and more speculative in nature).

RES-Hub “light-touch” support refers to a wide range of face-to-face training, web-based tools and telephone advice delivered by the RES-Hub. Targeted support is focused on SME's, but larger organisations are not restricted from accessing web tools. Activity is used to direct beneficiaries to in-depth support.

In contrast to in-depth support, advice tends to be more generic in nature and quantified savings for a specific company/site are not normally generated. We also have very little supporting information about the organisation prior to impact evaluation (e.g employee numbers, activity sector).

2.4 Which activities will be evaluated separately?

During 2018, Zero Waste Scotland completed a narrative evaluation of the activities undertaken through the RES Low Carbon Heat programme up to March 2017. This is likely to be updated in 2019 to include activities from April 2017 to March 2019.

2.5 Summary of the evaluation methodology

In July 2017 we commissioned an independent contractor (Winning Moves Ltd t/a Databuild) via a competitive tendering process to conduct an impact evaluation of the activities in Section 2.3. This report describes the second year of a two-year evaluation contract.

The current evaluation ran between August and December 2018 and beneficiary interviews were conducted between late September and November. The current evaluation built on our experience of previous impact evaluations of advice services since 2014. A key objective was to conduct a methodology that was comparable to previous years.

The evaluation methodology consisted of two types of telephone interview and analysis with a sample of supported organisations. Beneficiary contact lists go through a process of de-duplication; where duplication was found respondents were interviewed based on the most intensive support they received. Where a beneficiary has utilised both light touch and in-depth support any actions reported during interview will normally be counted under in-depth support³.

Interview sampling for in-depth support was driven by analysis of the identified savings dataset, enabling us to target and report on the coverage of the total identified savings “pool”. By contrast, for light touch support we normally have only basic contact details, which limits our sampling to trying to achieve a broadly similar percentage of the total population for each light-touch activity type.

During interview all respondents were asked about any actions taken since using RES support, the impact on their organisation of actions taken, and the degree to which they felt RES support had influenced the outcome. For in-depth support we asked respondents about the status of core, alternative and further recommendations in the savings dataset and this was used as the basis for impact calculations. The identified savings associated with further recommendations are not used to calculate implementation rates⁴.

During all interviews we counted actions that were already implemented, partially implemented, or planned with a high degree of confidence. Where recommendations are planned, a downwards adjustment is made to account for some plans that may not progress⁵.

In the previous phase of evaluation (2016-17 support year), we found regular instances where respondents told us they had not outright rejected a recommendation, but they had no credible plan to implement at the time of the evaluation. For the current work, we used an additional category “under consideration”.

We do not estimate any impacts where a status of “under consideration”, “related action”, “rejected” or “don’t know” is reported.

The interview also captured quantitative and qualitative evidence on areas such as reasons for seeking advice, actions taken, impacts on jobs, barriers to taking action and feedback on support provided.

Post-interview analysis included the calculation of implementation rates (in-depth support only⁶), estimates of whole population impacts from sampled populations and the translation of primary metrics (e.g change in electricity or gas consumption) into our resource efficiency metrics (e.g the resulting change in carbon emissions).

³ In the great majority of cases we think it is unrealistic to expect respondents who have used both in-depth and light touch support to be able to disaggregate the impact of each support type.

⁴ We think the more speculative nature of further recommendations means they are less useful to combine with core recommendations when calculating implementation rates.

⁵ We conducted a small qualitative project with RES-Hub beneficiaries in early 2017 to identify the nature and scale of actions taken over a longer time frame than our current impact evaluation methodology. Evidence suggests that our downwards adjustment of 50% for planned actions is reflective of what happens over a 2-3-year period after support.

⁶ Identified savings and implementation rates are not available for light-touch support, as potential savings are not quantified at the point support is offered.

We report quantified impacts of RES-Hub support across several resource efficiency metrics. Further details of the metrics used in this report, including what is counted and excluded, are provided in Appendix 2.

We split cost savings into those attributed to energy, water or material actions taken. We have also provided the combined cost savings resulting energy, water and materials. The current evaluation is not a cost-benefit analysis, though the data collected could inform any future exercise of this type. We do not monetise non-financial benefits (such as carbon savings), so cost savings normally represent direct financial savings to the organisation⁷. We also count aspects such as cost savings in line with our strategic ask from government (for example landfill tax savings are a benefit to the businesses we target and are counted in our cost savings method).

Jobs and capital investment are considered as one-off impacts for the purposes of this impact assessment and we make no assumption about long-term impact. Job impacts are based on feedback from supported organisations, and no adjustment is made for either displacement or multiplier effects.

In Sections 3 and 4 we report quantified impacts on an annual and lifetime basis. Appendix 3 explains how we calculate annual and lifetime impacts. We also report quantified impacts as *gross*, *influenced* and *attributed*. Appendix 4 explains the basis of gross, influenced and attributed impacts.

A more detailed description of the methodology used in the evaluation is available on request.

⁷ In the case of increased recycling of a material, we assume a monetary value at the re-processor “in-gate”, but in practice this value is likely to fall in the wider economy, rather than with the beneficiary we supported.

3 Impacts of RES-Hub in-depth support

The following section summarises the impacts of all RES-Hub in-depth support delivered in 2017-18. For brevity we report combined impacts for all in-depth support listed in Appendix 1. Impacts for each support type are available on request.

3.1 Interview coverage

There were 858 unique organisations who had received in-depth support. In total 165 full telephone interviews were completed. A further 6 organisations were unable to carry out a full interview but were willing to complete a pre-completed note where they were asked a more limited set of questions around action taken. We therefore obtained information on the status of recommendations for 171 organisations.

Of approximately 3000 recommendations within the identified savings dataset, 694 were covered in the evaluation. Of the total identified savings quantified within the 2017-18 dataset, the evaluation covered approximately 39% of combined cost savings, 40% of combined carbon savings and 33% of energy savings.

3.2 Reasons for seeking RES advice

The most commonly reported reasons for seeking advice are summarised below (all %'s from 157 respondents to this question⁸):

- To help upgrade specific systems/equipment to improve energy efficiency (46%)
- To reduce their carbon footprint and improve energy savings (38%)
- To access funding (32%)

3.3 Types of recommendation and their status from interview

Appendix 4 provides a summary of the number and type of recommendations covered by the impact evaluation and their status from interviews.

Where more than 40 individual measures had been covered during interview, the most likely types of recommendations to be taken forward **in full** were general energy efficiency dominated by lighting / insulation (35% of 228), Space heating/hot water (32% of 99) and building fabric (18% of 90).

Where more than 40 individual measures had been covered during interview, the least likely recommendations to be taken forward **in full** were water efficiency (17% of 58) and renewables (9% of 158).

3.4 Implementation rates from in-depth support

We measure and report implementation rates in the three distinct ways described below. Each method provides distinct information about patterns of implementation.

3.4.1 *The proportion of all respondents taking at least one action*

Of the 171 respondents for which we obtained the status of recommendations, 117 (68%) had taken action, partially taken action or had definite plans to take action.

⁸ Respondents can provide a multiple response to this question. A small number of respondents did not complete this question, so number do not match completed interviews exactly.

3.4.2 The proportion of recommendations that were implemented

Of the 694 recommendations covered by the evaluation, 263 (38%) had been implemented in full, part or there were credible plans to take action at the time of the evaluation.

In 2017-18 we used a new status of “under consideration” status, where respondents provided no evidence of credible plans in place to implement the recommendation, but they did not reject outright. We think this more accurately reflects the status of a significant number of measures at the time of the evaluation. The effect of this new category is to reduce the proportion of measures coded as either rejected or planned⁹.

We do not estimate impacts where recommendations are still under consideration or respondents have taken a related action. Gross savings are therefore likely an under-estimate of action taken.

Where respondents had taken action, we ask about roll-out of measures to other sites. For the current evaluation, roll-out was reported at six additional sites within Scotland. We do not estimate impacts where roll-out is reported.

3.4.3 The proportion of quantified savings implemented

The proportion of quantified cost, carbon and energy savings implemented/likely to be implemented are summarised in Table 3.1 below.

Combined cost and carbon savings are the result of the implementation of energy, water, waste and raw material-related recommendations within a client report.

Implementation rates for water and waste are subject to high year-on-year variability (due to the relatively small number of recommendations made).

Implementation rates based on quantified savings are also prone to the interactive effects of some recommendation types. For example, where renewable measures have been implemented, carbon and cost savings might result, but there is an increase in energy consumption. Therefore, the make-up of recommendation types identified in any given year is likely to drive some of the variation in implementation rates we obtain from evaluation.

Savings metric	Units	Implementation rate (%)
Proportion of organisations where at least one measure taken		68
Combined cost savings	£	41
Combined carbon savings	tCO ₂ eq	35
Energy savings	MWh	29
Waste savings	Tonnes	86
Raw materials savings	Tonnes	56
Water savings	Cubic metres	10

Table 3.1 Implementation rates (based on quantified savings implemented) for RES-Hub in-depth support in 2017-18

⁹ For example, in 2016-17 “planned” status made up 22% of all recommendations, versus 7% in 2017-18.

3.5 The role of RES support where taking action

Of the respondents taking action, 83% said that the support of RES had improved the outcome to some extent.

Over half (53%) reported that the changes made were unlikely to have happened in the absence of RES advice/support (full attribution). Implemented recommendations involving SME loan funding and the waste prevention grant were most likely to report full attribution.

Many respondents said that RES advice highlighted the options available to them, or provided the impetus for making changes:

“...we are so busy that we don't have time to review things and we sometimes are blind to what we see every day. When someone comes in from the outside it makes us realise and stimulates us into action”.

Where respondents reported they would have taken the action regardless of RES support, many still suggest it would have taken them longer to take action without the support.

3.6 Reasons for not taking action

Where recommendations were still under consideration (n=231), over half (58%) were suggested to be due to limited finances.

“Nothing has been rejected but we have to prioritise accordingly to our fund's availability”

Other common reasons for keeping recommendations under consideration were the need for additional work (e.g architects, planning permission or business planning).

Where recommendations had been rejected outright at the time of interview (n=146), 36% of those rejected were felt to be unsuitable in some way for the organisation. Other common reasons for outright rejection included not being sufficiently beneficial financially (19% of rejected measures). The above figures are not directly comparable to previous years, because of using the new status “under consideration” (Section 3.4.2).

From an initial review of verbatim comments, in practice we think it's unlikely there is a single definitive barrier in most circumstances.

We have also reviewed the status of recommendations by the quarter in which the report was delivered to the client. Recommendations in reports supplied in April-June 2017 were more likely to be fully or partially implemented, and less likely to be under consideration when compared to reports supplied in January-March 2018.

3.7 Quantified impacts

Table 3.2 below summarises the combined impacts of all RES-Hub in-depth support delivered in 2017-18.

We report based on *lifetime attributed* impacts (grey shading in Table 3.2 below), as this is the most meaningful measure of the value of the programme. Lifetime attributed impacts consider both the *extent* to which we have improved outcomes (and is thus a better measure of our additional value) and the *length of time* we think changes will persist for.

For a description of gross, influenced and attributed impacts, and how we calculate annual and lifetime impacts, please see Appendix 3 and 4 respectively. For a description of the resource efficiency metrics please see Appendix 2.

It's worth noting that we do not account for the impacts of related actions¹⁰, implementation of measures at additional company sites, or recommendations still under consideration at the time of the evaluation.

Resource efficiency metric	Units	Annual gross	Annual influenced	Lifetime gross	Lifetime attributed
Reduced energy use	MWh	18,000	16,000	180,000	120,000
Carbon savings from energy	tCO ₂ eq	8,900	8,000	83,000	62,000
Cost savings from energy	Pounds	2,400,000	2,100,000	23,000,000	16,000,000
Reduced water use	m ³	11,000	11,000	67,000	48,000
Cost savings from water	Pounds	19,000	19,000	140,000	100,000
Reduced material consumption	Tonnes	90	80	400	370
Reduced waste outputs	Tonnes	17,000	17,000	81,000	79,000
....of which waste prevention	Tonnes	16,000	16,000	76,000	75,000
Carbon savings from materials	tCO ₂ eq	910	760	5,800	4,200
Cost savings from materials	Pounds	290,000	250,000	1,500,000	1,100,000
Jobs created	FTEs	90	70	-	-
Jobs safeguarded	FTEs	420	360	-	-
Capital investment	Pounds	7,300,000	6,200,000	-	-
<i>Combined cost savings¹¹</i>	Pounds	2,800,000	2,400,000	24,000,000	17,000,000
<i>Combined carbon savings</i>	tCO ₂ eq	9,800	8,800	89,000	66,000

Table 3.2 Impacts of RES-Hub in-depth support delivered in 2017-18. All data rounded to two significant figures and therefore will not sum in all cases. n/a denotes where we do not measure on a lifetime basis.

The findings in Table 3.2 overlap to some extent with the impact of the Scottish Government SME loan scheme delivered by the Energy Savings Trust (EST). In these cases, financing was provided via EST, but our evaluation has included the technical review delivered by the RES-Hub. This means the two

¹⁰ Where a resource efficiency recommendation had been implemented but was significantly different from the original one made the RES advisor. We cannot reliably estimate impacts in these cases.

¹¹ The total cost savings resulting from energy, water and material

streams of government financing have contributed to the same impacts and these impacts are counted in the totals above for in-depth support. To provide a sense of scale, of the £17m lifetime attributed cost savings from in-depth support, just over £700,000 was associated with measures funded via the SME loan scheme. Reduced energy use totalled 120,000 MWh on a lifetime attributed basis, of which the SME loan scheme delivered 8,000 MWh.

Consistent with previous years a relatively small proportion of respondents taking action reported positive impacts on job creation or safeguarding. We know from previous evaluation work that the respondent's viewpoint on this benefit is likely to change over time. However, verbatim comments do highlight respondents make a clear link in some cases:

"We have a healthier surplus - we are spending less on fuel, so we can spend that money on staff."

Where respondents report new job creation or jobs safeguarded we are careful to avoid extrapolation from a relatively small number of responses to the general population. For example, three companies reported much higher jobs safeguarded (82, 80 and 20) following the implementation of recommendations by RES. We treat these as outlier cases to avoid extrapolation to the non-interview sample.

While it remains challenging to reliably quantify improved competitiveness since implementing resource measures, 53% of those taking action reported that they had enjoyed a benefit of this nature or believed they would in the future. Alongside keeping prices competitive and improved customer experience/footfall, verbatim comments also highlight improved manufacturing processes:

"...a major house builder was not happy with the paint finish and had stopped using our products, but they have started taking them again now that the finish quality has improved." (Support to install an infra-red drier for the paint line)

4 Impacts of RES-Hub light-touch support

The following section summarises the impacts of light-touch support delivered by RES-Hub in 2017-18. For brevity we report combined impacts across all light-touch activities. The individual activity types are listed in Appendix 1 and separate impacts are available on request.

4.1 Interview coverage

Prior to interview and subsequent analysis, the light-touch beneficiary contact details provided are firstly checked for the validity of contact details and duplication with the in-depth support datasets. Organisations using both light-touch support and in-depth support are interviewed based on in-depth support they received and are removed from all subsequent light-touch analysis.

The total number of unique organisations with valid contact details accessing light-touch support was 1,514. The population is then further adjusted for interview call outcomes that we wish to exclude from scaling estimates (e.g. no longer in business, line disconnected, do not recall accessing support). Following the removal of organisations based on call outcomes, full interviews were completed with 168 unique organisations who collectively had 220 instances of light-touch support (some organisations utilise more than one support type).

4.2 Action taken and the role of RES support

In total, 119 (71%) of the organisations that had used light-touch support had taken or were planning to take action. The most common types of action taken following RES support were related to reducing energy consumption (53%) and improvements to waste management (29%).

When asked about the role of light-touch support when taking action, 78% said that RES support had improved the outcome to some extent. Where respondents credited the role of light-touch support when taking action, typically this focuses on RES providing ideas, impetus and the confidence to implement them.

“I think the advice was very valuable, they really did give me a kick start to get things moving.”

Around 22% of respondents taking action thought that action would still have been taken in the absence of RES support. Organisations typically commented on the use of their own resources to fund and implement changes, or highlight that changes were part of normal planned improvements.

4.3 Reasons for not taking action

Consistent with previous evaluations, frequently cited reasons for not taking action following the use of light-touch support included lack of finance, using the support for more general advice on resource efficiency, a reluctance from decision makers to take action, and the information provided was not applicable to their circumstances. Some respondents suggested they were already doing what was recommended to them.

4.4 Quantified impacts

Table 4.1 below summarises the combined impacts of all RES-ASS light-touch support delivered in 2017-18. We report impacts to SG-Energy team based on *lifetime attributed* impacts (grey shading in Table 4.1 below), as this is the most meaningful measure of the value of the programme. Lifetime attributed impacts consider both the *extent* to which we have improved outcomes (and is thus a better measure of our additional value) and the *length of time* we think changes will persist for.

For a description of gross, influenced and attributed impacts, and how we calculate annual and lifetime impacts, please see Appendix 3 and 4 respectively. For a description of the resource efficiency metrics please see Appendix 2.

Resource efficiency metric	Units	Annual gross	Annual influenced	Lifetime gross	Lifetime attributed
Reduced energy use	MWh	6,100	3,100	45,000	6,400
Carbon savings from energy	tCO ₂ eq	1,800	1,000	13,000	2,000
Cost savings from energy	Pounds	890,000	530,000	6,200,000	1,100,000
Reduced water use	m ³	4,300	4,300	15,000	9,700
Cost savings from water	Pounds	18,000	18,000	62,000	37,000
Reduced material consumption	Tonnes	4,700	620	20,000	1,500
Reduced waste outputs	Tonnes	7,800	1,200	35,000	3,100
....of which waste prevention	Tonnes	250	250	980	690
Carbon savings from materials	tCO ₂ eq	3,000	2,100	12,000	3,400
Cost savings from materials	Pounds	710,000	90,000	3,200,000	220,000
Jobs created	FTEs	40	40	-	-
Jobs safeguarded	FTEs	50	50	-	-
Capital investment	Pounds	12,000,000	11,000,000	-	-
<i>Combined cost savings</i> ¹²	Pounds	1,600,000	630,000	9,400,000	1,400,000
<i>Combined carbon savings</i>	tCO ₂ eq	4,800	3,100	25,000	5,300

Table 4.1 Impacts of RES-Hub light-touch support delivered in 2017-18. All data rounded to two significant figures and therefore will not sum in all cases. n/a denotes where we do not measure on a lifetime basis.

¹² The total cost savings resulting from energy, water and material

5 What have we learned from this year's evaluation?

5.1 Satisfaction with the RES service

The evaluation contractor received overwhelmingly positive feedback about the support RES has provided. For in-depth support, a large majority (86%) of respondents were satisfied or very satisfied with the service they received. Respondents often cited the professionalism, helpfulness and knowledge of the consultant, a high-quality report and associated advice.

Where respondents were not as satisfied, this typically reflected some form of association with anticipated funding¹³, or they felt the recommended measures were inappropriate to their circumstances. Some respondents would have liked more follow-up after receiving a written report, or when utilising light-touch support. Consistent with previous years some respondents felt that advice was unable to fully solve their problem (due to practical/technical constraints).

5.2 The wider value of resource efficiency measures

Most businesses view benefits in terms of reductions in day-to-day energy or waste management costs. However, some businesses directly attribute the implementation of resource efficiency measures to creating or protecting jobs, increased competitiveness or attracting additional customers.

5.3 Barriers to implementation

Overall, financial constraints are typically cited as the reason for not implementing recommendations. However, barriers are inter-dependent and probably best viewed against the status of recommendations (which changes over time). For example, outright rejection of a recommendation tends to be on the grounds of perceived unsuitability, whereas those still under consideration at the time of evaluation tend to be based on investment required.

We found higher levels of implementation for clients supported in the period April to June 2017, when compared to those from July 2017 to March 2018. In the current work a significant number of measures were reported as still under consideration (rather than outright rejection). This reflects the findings from a previous study of RES beneficiaries over a longer period than the one used in the current evaluation, which suggested additional implementation does take place. The timing of impact evaluation is a necessary trade-off between timely reporting to funders and what we know of implementation timescales.

5.4 Challenges for the evaluation

5.4.1 *Quantifying the impacts of light-touch support*

The nature of the light-touch support means that we don't have detailed information available during the evaluation interview on the scale of potential savings. Where respondents are unable to provide usable data (bills etc) regarding the impacts of action taken, we do not estimate impacts. This has been a consistent approach in our evaluation methodology for several years. This means the reported impacts of light-touch activity are likely to be an underestimate.

During the evaluation of support year 2016-17 (completed 2017) we explored the use of proxies (e.g staff numbers, turnover) to estimate impacts where respondents are unable to provide supporting evidence. We found relatively weak relationships between the factors we considered and concluded the approach was not sufficiently reliable to use in the evaluation of light-touch support.

¹³ e.g Unsuccessful application, ruled out due to ineligibility or the availability of funding

5.4.2 *Quantifying the impacts of in-depth support*

Quantifying impacts where recommendations have been rolled out to additional sites remains a challenge. In this year's evaluation, similar recommendations were implemented at a further six sites managed by the organisations RES had originally supported. It's not possible to conduct a revised technical assessment over the telephone, as the evaluation interviewers do not possess the technical expertise to do this.

For just under twenty recommendations we also found evidence of organisations implementing a related action¹⁴. Like roll out at additional sites, it's difficult for us to reliably quantify the impact of related recommendations that are taken forward.

For the reasons above we think the figures we report for in-depth support are likely to underestimate impacts.

5.4.3 *Jobs figures should be treated as indicative only*

We know from previous evaluation that the respondent's perspective regarding the role of resource efficiency measures in creating or safeguarding jobs changes over time.

It continues to be challenging to get a rich understanding of job creation and safe-guarding in the context of what is a relatively short telephone survey focused on quantified impacts. We have attempted to improve the information captured during interview, but there is probably a natural limit without additional qualitative follow-up where jobs are claimed.

¹⁴ For example, the advisor might recommend new lighting, but the beneficiary installs sensors to better manage existing lighting.

6 Appendix 1 List of activities included in the evaluation

RES-Hub in-depth support

- Multi-Day Support
- Large Savings Projects
- Telephone Audit
- Direct Technical Support
- RES-Hub/SG-SME loan scheme¹⁵ - loan measure only
- RES-Hub/SG-SME loan scheme - loan measure & additional measures
- RES-hub Implementation Support¹⁶

RES-Hub light-touch support

- Hub enquiries
- Savings finder
- Resource Efficiency pledges
- RES Webinars
- RES Workshops – supply chain
- RES Green Champions workshops
- RES Green Champions online
- RES Breakfast briefings
- RES Showcase tours

¹⁵ Scottish Government SME loans scheme - where financing was provided via the EST and the technical review was delivered by RES-Hub. The technical review focuses solely on the loan measure or might also identify additional measures (i.e those not funded by the loan). For the 2017-18 evaluation, some respondents also accessed the cashback element of the loan scheme.

¹⁶ Where a RES-Hub beneficiary has utilised both an initial assessment and follow up implementation support

7 Appendix 2 Defining the resource efficiency metrics used in this report

Further details of the individual resource efficiency metrics used in this report are provided below.

Reduced energy use - organisations we support use less electricity, gas, oil or other fuels. We count the reductions in energy consumption by Scottish businesses at their premises. We do not consider transmission losses, primary energy consumption, embedded energy, energy savings outside Scotland and transport.

Carbon savings from energy - organisations we support reduce their carbon footprint as a result of reduced energy use and changes in fuel types. We follow the same principles as reduced energy use. We use UK government carbon conversion factors (energy source) used in UK climate change reporting.

Cost savings for energy - organisations we support pay less for energy (reduced consumption or changed fuel mix). This includes income streams where appropriate (e.g. feed-in tariff) but may be offset by changes to running costs.

Reduced water use – organisations we support use less water. We consider on-site savings in Scotland only. We exclude transmission losses and any energy and carbon savings associated with water savings (e.g. water treatment and pumping). Any on-site savings from pumping/treatment should be measured directly as reduced energy use and associated cost savings.

Cost savings from water - organisations we support pay less for water (based on changes above). We use the charges levied on a business by Scottish water for both potable water consumption and waste water treatment.

Reduced material consumption - organisations we support use less raw material, and/or the material recycled by organisations we support reduces global demand for raw material. May include reduced inputs on-site in Scotland (reduced consumption or use of recycled material), and displacement of virgin materials as a result of increased recycling/movement of materials up the waste hierarchy.

Reduced waste outputs – our support results in less material going to waste. This includes outputs on-site in Scotland, even if tonnages are ultimately managed elsewhere. We include changes to products (such as light-weighting or design for longevity), recycling, composting, anaerobic digestion, reuse, preparation for reuse and waste prevention. We count materials that do not go to waste (this is broader than the legal definition of “material managed as waste”). We exclude transitions from landfill to incineration as this is beyond our remit.

Carbon savings from materials – organisations we support reduce waste or material consumption, as a result Scotland’s carbon footprint from material use is reduced. We use the Scottish Carbon metric (Global footprint lifecycle benefits), for a given material and intervention type.

Cost savings from materials - organisations we support pay less for materials or disposal. Depending on the nature of the intervention we include the price of recycled and virgin raw materials, waste management gate fees, landfill tax and transport costs. Cost savings may be offset by changes to running costs.

Jobs created – organisations we support create a new role, either through a specific resource efficiency post, or via competitive advantage/growth resulting from efficiency savings. We do not consider public sector employment and net employment (e.g. multipliers/displacement).

Jobs safeguarded – jobs that would have been at risk are secured due to cost savings/competitive advantages gained from resource efficiency measures or other interventions. We do not consider public sector employment and net employment (e.g. multipliers/displacement).

Capital investment - organisations we support invest in resource efficiency measures through one-off expenditure. We exclude public sector investment from our reporting. Ongoing running costs (both positive and negative) are reflected in cost savings described above.

8 Appendix 3 How we calculate annual and lifetime impacts

Annual impacts are the quantified benefits of implementing resource efficiency measures, for a single year following implementation. For example, we provide advice to upgrade a heating system and the client implements the changes. The energy, cost and carbon savings resulting from implementation are then calculated for a single year after implementation. Annual impacts do not make any assumptions about how long the heating system upgrade will continue to deliver savings.

Lifetime impacts consider the length of time we think implemented savings will persist for. To calculate lifetime impacts we apply assumptions about the persistence of an intervention. Typically, this is one to two years for behaviour change measures alone; five years in most other cases; and 10 years for investments in infrastructure or physical kit. We stop claiming credit for impacts after 10 years; while benefits may accrue beyond this period, our claim to have “caused” them becomes weaker over time, irrespective of the actual lifespan of the change. Net present value is accounted for in lifetime cost savings.

Lifetime attributed impacts consider both the *extent* to which RES support has improved outcomes (and is thus a better measure of additional value) and the *length of time* we think changes will persist for.

9 Appendix 4 How we calculate gross, influenced and attributed impacts

We report each resource efficiency metric according to how respondents report the role of RES support in helping them take action. A brief description of gross, influenced and attributed impacts is provided below.

Gross impacts are those associated with all resource efficiency actions undertaken by respondents, regardless of whether our support is credited with influencing the outcome or not. We use gross impacts to calculate implementation rates for in-depth support.

Influenced impacts are the proportion of gross impacts where respondents credit our support with improving outcomes to any extent. Where a beneficiary tells us that our support did not help them, or they would have taken action regardless of RES support, we do not count those impacts here.

Attributed impacts apply a higher burden of proof regarding the role of RES support where action was taken – essentially making an allowance for the *extent* to which our support made a difference.

The differences between gross, influenced and attributed impacts are summarised in the table below.

Beneficiary view on the extent to which RES has contributed to outcomes	Gross impacts (%)	Extent to which we claim "influence" (%)	Extent to which we claim "attribution" (%)
Unlikely to have happened without RES support	100	100	100
A lot better as a result of RES support	100	100	50
A little better as a result of RES support	100	100	25
Likely to have happened in the absence of RES support	100	0	0

Table 9.1 How we attribute RES impact based on beneficiary response from interview

10 Appendix 5 Recommendation types from in-depth support and their status

Type of recommendation	Number covered in evaluation	Taken in full	Partly taken the action	Definite plans to take the action	Under consideration ¹⁷	No plans to take action	Don't know	Related action taken
Building fabric	90	18%	4%	17%	43%	16%	0%	2%
Energy efficiency ¹⁸	228	35%	11%	7%	31%	11%	3%	3%
Renewables	158	9%	1%	6%	34%	49%	0%	1%
Space heating/hot water	99	32%	4%	5%	37%	17%	2%	2%
Waste	33	27%	3%	15%	36%	15%	0%	3%
Water efficiency	58	17%	3%	5%	41%	16%	12%	5%
Contract review (all RE)	4	75%	0%	0%	0%	25%	0%	0%
Measuring and monitoring	3	33%	0%	0%	0%	67%	0%	0%
Staff training and engagement	11	27%	22%	0%	18%	18%	9%	9%
Other	10	40%	0%	0%	30%	10%	20%	0%

Table 10.1 *The type of recommendation, the number covered during interview and their status from evaluation, for RES-Hub in-depth support in 2017-18*

¹⁷ New status introduced for 2017-18 to reflect experience from previous year's responses. Further details see Section 3.4.2.

¹⁸ In practice this category is typically dominated by lighting. Other categories will also deliver energy efficiency (e.g "building fabric"). The recommendation categories used during data capture and impact evaluation will be reviewed as part of lessons learned from this project.

