Resource Efficient Scotland Impact Evaluation 2015-16

Fieldwork and Analysis: August 2016 - January 2017

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Contents

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 2015-16. The evaluation was commissioned by Zero Waste Scotland's evaluation team and undertaken between July and November 2016 by a third party contractor (Databuild Ltd). This report has been written by Zero Waste Scotland's evaluation team based on Databuild's findings.

The impact evaluation focused on quantifying the impacts of support delivered via the RES advice and support service (RES-ASS), and the RES public sector programme, between April 2015 and end of March 2016. During the same period the RES programme has provided a much wider range of resource efficiency support that was outside the scope of the 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 supported organisations. During interview beneficiaries were asked about any actions taken since using RES support, the impact on their organisation of taking action 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.

We have reported the impacts of the RES programme on an annual and lifetime basis since 2014 and we continue with this approach in this report. In practice we believe the most meaningful measure of the value of the programme is to consider the attributed lifetime impacts of our interventions, which takes into account 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 applicable programme spend in 2015-16 were[1]:

- **370,000 MWh of energy savings**
- **410,000 m^3 of water savings**
- **6,300 tonnes of reduced material consumption**
- **25,000 tonnes of reduced waste outputs -** of which 2,300 tonnes resulted from waste prevention and 830 tonnes was food waste
- **250,000 tonnes of CO_2eq savings** - of which 200,000 tonnes come from energy measures, counted on a territorial basis, and 49,000 tonnes come from material savings, counted on a lifecycle basis
- **£38 million in cost savings** - of which £34 million comes from energy measures, £1.8 million comes from water measures, and £2.0 million comes from material measures

Annual impacts are also provided to report the changes we have helped contribute to in a given financial year, and have been the headline measure for impact reporting to date.

The **annual influenced impacts** resulting from applicable programme spend in 2015-16 were:

- **56,000 MWh of energy savings**
- **120,000 m^3 of water savings**
- **3,400 tonnes of reduced material consumption**
- **11,000 tonnes of reduced waste outputs** - of which 1,800 tonnes resulted from waste prevention and 710 tonnes was food waste

[1] All figures rounded to two significant figures and therefore do not sum in all cases

- **47,000 tonnes of CO_2eq savings** - of which 32,000 tonnes come from energy measures, counted on a territorial basis, and 15,000 tonnes come from material savings, counted on a lifecycle basis
- **£6.7 million in cost savings** - of which £5.6 million comes from energy measures, £350,000 comes from water measures, and £740,000 comes from material measures

Other notable quantified benefits from RES-ASS[2] support in 2015-16 include:

- **Influencing around 420 jobs** – of which 70 were created and 350 safeguarded through our interventions[3].
- **Influencing around £44 million in capital investment**

The evaluation contractor received overwhelmingly positive feedback about the support RES provided. Perceived benefits included raising awareness of what was possible and the provision of expertise that helps make the case for funding. We also found evidence of beneficiaries using RES support as a way of disseminating information on resource efficiency to others. Some beneficiaries felt that the advice provided was unable to fully solve their particular "problem" (due to practical/technical constraints), or the advice provided by the RES advisor was inconsistent with that provided by other specialists e.g architects.

Stated barriers to resource efficiency were similar to previous evaluations – upfront investment costs are commonly cited. We thought that other contextual factors might have been raised by beneficiaries (e.g uncertainty around the European referendum, energy prices, living wage and pensions), but the evidence from interviews does not support this.

Evidence to date suggests that there remain challenges in maximising impacts when the focus of RES-ASS activity is supporting SME's. We are currently analysing historical records since 2013 in order to identify how the focus on SME's has impacted on the identified savings datasets.

Delivering material-related savings also continues to prove challenging. The pattern of identified savings (focused on energy measures) probably reflects a market preference for an advice service model, and simply means a significant scale of change on material use will be harder to achieve.

[2] We do not report jobs or capital investment from the public sector support we evaluated

[3] We would highlight that jobs figures are reliant on a relatively small number of interviewees making a link between implemented resource efficiency savings and safeguarding jobs. However, this has been a consistent finding in three separate annual impact evaluations. We would also highlight this is not our net benefit in employment terms, due to the likely hood of displacement.

2 Background and Context

2.1 About Zero Waste Scotland

Zero Waste Scotland Ltd (Zero Waste Scotland) 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

The Resource Efficient Scotland (RES) programme is a Scottish Government-funded programme, managed by Zero Waste Scotland. The programme provides resource efficiency advice to organisations (private sector, third sector, and public sector, with a focus on SMEs).

2.3 Which RES activities were included in the evaluation?

The evaluation focused on resource efficiency advice delivered in 2015-16 via the RES advice and support service and the RES public sector programme. An overview of each support type is provided below and a full list of the activities is provided in Appendix 1.

RES-advice and support service (RES-ASS) "In-depth" support, where a RES advisor provides detailed advice on resource efficiency measures to organisations (primarily SMEs). In 2015-16 RES-ASS was co-funded by Scottish Government's Zero Waste Policy team and Energy and Low Carbon team. Advice is provided through site visits or over the telephone. Approximately 800 sites were provided with an assessment in 2015-16.

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 of 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 2015-16 support was more strongly focused on SME's when compared to previous years. We anticipate that this has resulted in changes to the type of recommendations identified and the scale and distribution of identified savings when compared to previous years of the service[4].

RES-advice and support service (RES-ASS) "Light-touch" support refers to a wide range of face-to-face training, web-based tools and telephone advice delivered by the RES-ASS and aimed primarily at SME's (larger organisations are not restricted from accessing some individual support types such as web tools). In contrast to in-depth support, advice tends to be more generic in nature and quantified

[4] We are currently reviewing savings datasets from RES-ASS in-depth support delivered during 2013-16 to identify any differences in the types of recommendations and the scale of identified savings.

savings for a specific company/site are not generated. We also have very little supporting information about the organisation prior to interview (e.g employee numbers, activity sector).

There were approximately 1500 unique users of light touch support in 2015-16. Provisional analysis of the population that were interviewed (288) suggests there were fewer large public sector organisations and a greater number of small private sector organisations using light-touch support in 2015-16 when compared to previous years.

RES-Public Sector "In-depth" support, which is broadly similar to that described for RES-ASS "In-depth", but targeted specifically at public sector organisations. The 2015-16 Public sector programme was co-funded by Scottish Government's Zero Waste Policy team and Energy and Low Carbon team.

The programme provided support to approximately 20 public sector organisations (representing a larger number of sites) through a set of RES advisors. All advice was provided on-site and produced quantified savings attributed to site-specific recommendations.

2.4 The evaluation methodology

In June 2016 we commissioned an independent contractor via a competitive tendering process (Databuild Ltd) to conduct an impact evaluation of the activities in Section 2.3. The evaluation ran between July and November 2016, beneficiary interviews were conducted between the start of September and end of October, providing time for organisations to have considered what action they may take.

The evaluation built on our experience of the evaluation of the RES programme during 2014 and 2015[5]. A key objective of the current work was to build on previous approaches, while obtaining a set of comparable results.

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 beneficiaries were interviewed on the basis of 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 support[6].

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 beneficiaries were asked about any actions taken since using RES support, the impact on their organisation of taking action and the degree to which they felt RES support had influenced the outcome.

For RES-ASS in-depth support we asked beneficiaries about the status of core, alternative and further recommendations in the savings dataset and this was used as the basis for impact calculations. This was the first year that we had a complete dataset of core, alternative and further recommendations. We only use core recommendations to calculate action taken and implementation rates[7].

The evaluation of public sector support is based on a set of core recommendations only. Alternatives may have been highlighted in the client report, but they were not routinely captured in the savings dataset.

[5] *RES Impact Evaluation Summary 2013-15 Support*, Zero Waste Scotland
[6] In the great majority of cases we think it is unrealistic to expect beneficiaries who have used both in-depth and light touch support to be able to disaggregate the impact of each support type.
[7] We think the nature of alternative and further recommendations means they are less useful to combine with core recommendations when calculating implementation rates.

During all interviews we counted actions that were already implemented, partially implemented, or planned with a high degree of confidence. Where actions are planned, a downwards adjustment is made to account for the fact some plans may not progress[8]. The evaluation excludes actions where there is no evidence of plans in place; qualitative feedback suggests at least some of these cases will nonetheless result in action at a later date.

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

Post-interview analysis included estimates of whole population impacts from sampled populations and the translation of primary metrics (e.g tonnes of glass recycled) into our resource efficiency metrics (e.g the carbon impact of recycling glass).

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

2.5 How do we report impacts in this report?

Sections 3 and 4 focus on the quantified impacts of support delivered in 2015-16. We provide a summary of the qualitative impacts captured during the evaluation in Section 5.1, but we have prioritised quantitative analysis in order to produce a timely report to funders.

2.5.1 Implementation rates

We report implementation rates for in-depth support using the identified savings dataset produced at the time of support. We report implementation rates for cost, carbon and energy savings only. Material-related savings were much less common and are usually skewed towards a small number of companies that make up the bulk of identified material savings. As a result the average implementation rate is subject to high variability and thus a less reliable indicator. Identified savings and implementation rates are not available for light-touch support, as potential savings are not quantified at the point support is offered.

2.5.2 Resource efficiency metrics

We report quantified impacts of RES 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.

For the first time we have split cost savings into those attributed to energy, water or material recommendations. We have provided combined cost savings to aid comparison with previous evaluations. 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 organisation[9]. 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).

This is the first year we have tried to report waste outputs attributed specifically to food waste and the figures should be treated as indicative only. In future years we will refine our monitoring methodology to enhance reporting of this component.

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.

[8] We plan to conduct a small qualitative project going back to historical beneficiaries of RES-ASS support in order to identify the nature and scale of actions taken over a longer time frame.

[9] 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.

2.5.3 *Gross, influenced and attributed impacts*

We express each resource efficiency metric according to how beneficiaries 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 beneficiaries, 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. This is the first year we have reported gross impacts.

Influenced impacts are the proportion of gross impacts where beneficiaries 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 influenced and attributed impacts are summarised in Table 2.1.

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

Table 2.1 How we attribute RES impact based on beneficiary response from interview

2.5.4 *Annual and lifetime impacts*

We have reported the impacts of the RES programme on an annual and lifetime basis since 2014 and we continue with this approach in this report.

Annual influenced impacts are provided to give a sense of the changes we have helped contribute to in a given financial year, and have been the headline measure for impact reporting to date.

However, we believe the most meaningful measure of the value of the programme is to consider the *lifetime attributed* impact of our interventions, which takes into account 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.

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.

3 Impacts of RES-Advice and Support Service 2015-16

3.1 Introduction

The following section reports the findings of our evaluation of the RES-Advice and Support Service (RES-ASS), split into separate sections for in-depth and light-touch support.

For brevity we report combined impacts for all in-depth and light-touch support types listed in Appendix 1. Impacts for each support type are available on request, although evidence to date suggests that the variation in beneficiaries using a support type in a given year is likely to be at least as significant (in terms of action taken and calculated impacts) as the support type itself.

3.2 RES-ASS in-depth support

The following section summarises the impacts of in-depth support delivered by RES-advice and support service (RES-ASS) in 2015-16.

3.2.1 Action taken and the role of RES support

Following in-depth support delivered in 2015-16, 81% of beneficiaries had taken some action or had definite plans to take some action. This was an increase of 8% when compared to the evaluation findings for 2014-15 support. Of the organisations who took action, 87% said that RES support had improved the outcome to some extent, whereas 13% thought that action would still have been taken in the absence of RES support.

Appendix 4 provides a summary of the type of recommendations covered by the evaluation, and their status from interviews, for RES-ASS in-depth support in 2015-16.

The status of 738 individual recommendations were followed up during interviews, of which 225 (30%) had been taken in full or in part. For a further 161 recommendations (22%) there were definite plans in place to take action. The most likely types of measures (where there were more than 20 in total) to be taken forward in full were energy efficiency (38% of 279), space heating/hot water (24% of 115) and building fabric (19% of 103). The least likely measures to be taken forward in full were renewables (17% of 115) and water efficiency (16% of 64).

As in previous years, finance/return on investment was most commonly cited reason for not taking action. Comments were mainly on the initial investment required but for some measures the payback period was judged to be too long (interestingly where payback period is perceived to be too long the period varies from 3 to 85 years). In some cases beneficiaries felt the savings predicted by the RES advisor were too optimistic or the measures proposed were unrealistic.

3.2.2 Implementation rates

Appendix 3 provides implementation rates for each in-depth support type evaluated. Implementation rates are based on the proportion of all beneficiaries taking at least one action, the proportion of actions implemented, and the proportion of quantified cost, carbon and energy savings implemented/likely to be implemented.

The overall implementation rates for all RES-ASS in-depth support combined (based on quantified savings) are provided in Table 3.1 below. Combined cost and carbon savings are the result of the implementation of energy, water and material-related recommendations.

Savings metric	Implementation rate (%)
Combined cost savings	37
Combined carbon savings	41
Energy savings	35

Table 3.1 Implementation rates (based on quantified savings) for RES-ASS in-depth support 2015-16

It's important to note that implementation rates based on quantified savings are 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.

At the level of the individual support type, year-to-year variations are greater than when aggregated; this is as likely to be related to variation in individual beneficiaries in specific support streams rather than changes in the support itself.

3.2.3 Quantified impacts

Table 3.2 below summarises the combined impacts of all RES-ASS in-depth support delivered in 2015-16. For a description of gross, influenced and attributed impacts, and how we calculate lifetime impacts, please see Section 2.5. For a description of the resource efficiency metrics please see Appendix 2.

Energy-related cost savings dominated those identified by RES advisors at the time of support and approximately 97% of the combined cost savings implemented in 2015-16 were derived from energy recommendations. Further discussion of the skew towards energy-related measures is provided in Section 5.3.

It is also noteworthy that the proportion of impacts reported as influenced by RES support was higher in 2015-16 when compared to 2014-15 (this can be seen in the relatively small difference between gross and influenced impacts in Table 3.2 below[10]).

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 RES-ASS. This means the two streams of government financing have contributed to the same impacts and these impacts are counted in the totals for in-depth support above. To provide a sense of scale, of the £4.5m annual influenced cost savings, approximately £230,000 was via the loan scheme. Reduced energy use totalled 39,000 MWh, of which the loan scheme delivered 1,700 MWh.

[10] In some cases gross and influenced figures appear identical but this is a product of rounding to two significant figures

Resource efficiency metric	Units	Annual gross	Annual influenced	Lifetime attributed
Reduced energy use	MWh	42,000	39,000	220,000
Carbon savings from energy	tCO_2eq	30,000	28,000	160,000
Cost savings from energy	Pounds	4,500,000	4,500,000	24,000,000
Reduced water use	m3	99,000	98,000	350,000
Cost savings from water	Pounds	110,000	110,000	480,000
Reduced material consumption	Tonnes	600	600	700
Reduced waste outputs	Tonnes	520	520	920
….of which waste prevention	Tonnes	80	80	93
….of which food waste	Tonnes	0	0	0
Carbon savings from materials	tCO_2eq	600	600	1,000
Cost savings from materials	Pounds	33,000	33,000	98,000
Jobs created	FTEs	190	50	-
Jobs safeguarded	FTEs	560	270	-
Capital investment	Pounds	35,000,000	32,000,000	-
Combined cost savings[11]	Pounds	4,700,000	4,600,000	25,000,000

Table 3.2 Impacts of RES-ASS in-depth support delivered in 2015-16. All data rounded to two significant figures and therefore will not sum in all cases.

3.3 RES-ASS Light-touch support

The following section summarises the impacts of light-touch support delivered by RES-ASS in 2015-16. For brevity we report combined impacts across all light-touch activities (individual activity types are listed in Appendix 1).

[11] The summed total of cost savings resulting from energy, water and material related actions

3.3.1 *Action taken and the role of RES support*

There were approximately 1500 unique users of light touch support in 2015-16, of which we interviewed 288 (19%). Provisional analysis of the interview population suggests there were fewer large public sector organisations and a greater number of small private sector organisations using light-touch support in 2015-16 when compared to previous years.

The two most common reasons for accessing support were to save money (27%) and general advice /information (26%). Overall just over 50% (145) of the organisations interviewed reported taking action since accessing light-touch support, of which 127 (88%) said that RES support had improved the outcome to some extent, whereas 18 (12%) thought that action would still have been taken in the absence of RES support.

Common reasons for not taking action included using the support for general advice on resource efficiency, insufficient funding and the information provided was not applicable to their circumstances. Some beneficiaries suggested they were already doing what was recommended to them, or they were using support as a means of disseminating resource efficiency information to others.

3.3.2 *Quantified impacts*

Table 3.3 below summarises the combined impacts of all RES-ASS light-touch support delivered in 2015-16. For a description of gross, influenced and attributed impacts, and how we calculate lifetime impacts, please see Section 2.5. For a description of the resource efficiency metrics please see Appendix 2.

Resource efficiency metric	Units	Annual gross	Annual influenced	Lifetime attributed
Reduced energy use	MWh	32,000	15,000	140,000
Carbon savings from energy	tCO_2eq	11,000	3,600	32,000
Cost savings from energy	Pounds	2,900,000	930,000	8,100,000
Reduced water use	m^3	17,000	16,000	26,000
Cost savings from water	Pounds	39,000	36,000	57,000
Reduced material consumption	Tonnes	4,400	2,400	5,100
Reduced waste outputs	Tonnes	16,000	8,200	22,000
….of which waste prevention	Tonnes	1,300	1,100	1,500
….of which food waste	Tonnes	0	0	0
Carbon savings from materials	tCO_2eq	30,000	14,000	47,000
Cost savings from materials	Pounds	1,300,000	670,000	1,900,000
Jobs created	FTEs	30	20	-

Jobs safeguarded	FTEs	370	80	-
Capital investment	Pounds	39,000,000	12,000,000	-
Combined cost savings[12]	Pounds	4,200,000	1,600,000	10,000,000

Table 3.3 Impacts of RES-ASS light-touch support delivered in 2015-16. All data rounded to two significant figures and therefore will not sum in all cases.

A practical challenge for the evaluation methodology was particularly evident this year. In our previous evaluation of 2014-15 light touch support, 34% of beneficiaries who took at least one energy-related action were able to provide usable energy consumption data. This dropped to 20% in the current evaluation. Where beneficiaries are unable to provide usable data (£ spent, kwh), we do not estimate impact using proxies or similar. We therefore think the reported impacts for light touch support in 2015-16 are likely to be conservative (but the methodology is consistent with previous years).

4 Impacts of RES-Public sector 2015-16

The following section summarises the impacts of in-depth support provided to public sector organisations in 2015-16. Further details of the support we included in the evaluation is provided in Section 2.3.

4.1 Action taken and the role of RES support

The relatively small number of interviews (9) conducted this year represents nearly 50% of contacts for 2015-16 support. Those nine interviews covered between 45-85% of total identified savings across the different metrics, which suggests that findings should be broadly representative of the population supported in 2015-16.

Of the nine organisations who were interviewed, seven had taken action and all seven said that RES support had improved the outcome to some extent.

In total the status of 162 recommendations were followed up in the evaluation, of which 33 (20%) had been taken in full or in part. For a further 25 recommendations (15%) there were definite plans in place to take action. The most likely measure types to be taken forward in full were water efficiency (36% of 14), space heating/hot water (26% of 46) and energy efficiency (18% of 49).

As in previous years, investment costs were most commonly cited as a reason for not taking action.

4.2 Implementation rates

Appendix 3 provides implementation rates for public sector support based on the proportion of all beneficiaries taking at least one action, the proportion of actions implemented, and the proportion of quantified cost, carbon and energy savings implemented/likely to be implemented.

Table 4.1 below provides implementation rates for public sector support (based on quantified savings) in 2015-16. Combined cost and carbon savings are the result of the implementation of energy, water and material-related recommendations.

Savings metric	Implementation rate (%) 2015-16

[12] The summed total of cost savings resulting from energy, water and material related actions

Combined cost savings	12
Combined carbon savings	12
Energy savings	19

Table 4.1 Implementation rates (based on quantified savings) for public sector support for 2015-16

4.3 Quantified impacts

Table 4.2 summarises the combined impacts of public sector support delivered in 2015-16. For a description of gross, influenced and attributed impacts, and how we calculate lifetime impacts, please see Section 2.5. For a description of the resource efficiency metrics please see Appendix 2.

We do not report jobs or capital investment in the context of public sector support (though we do have this information available).

Resource efficiency metric	Units	Annual gross	Annual influenced	Lifetime attributed
Reduced energy use	MWh	2,100	1,600	12,000
Carbon savings from energy	tCO_2eq	910	780	6,000
Cost savings from energy	Pounds	250,000	210,000	1,800,000
Reduced water use	m3	6,000	6,000	30,000
Cost savings from water	Pounds	270,000	200,000	1,200,000
Reduced material consumption	Tonnes	390	390	450
Reduced waste outputs	Tonnes	1,800	1,800	2,100
….of which waste prevention	Tonnes	660	590	690
….of which food waste	Tonnes	470	710	830
Carbon savings from materials	tCO_2eq	490	490	660
Cost savings from materials	Pounds	37,000	37,000	41,000
Jobs created	FTEs	-	-	-
Jobs safeguarded	FTEs	-	-	-

Capital investment	Pounds	-	-	-
Combined cost savings[13]	Pounds	560,000	450,000	4,200,000

Table 4.2 Impacts of public sector in-depth support delivered in 2015-16. All data rounded to two significant figures and therefore will not sum in all cases.

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

5.1 Qualitative impacts of RES support

The following section summarises some of the qualitative impacts captured during the current evaluation. It is by no means a full analysis and we plan to conduct additional analysis of interview datasets to help inform future delivery. We also plan to conduct further qualitative research with a small number of historical RES beneficiaries to better understand the implementation of actions over a longer time frame than we allow for with annual impact assessment.

5.1.1 In-depth support

Many beneficiaries felt that the support provided had helped to raise awareness of resource efficiency opportunities in their organisation. Public sector organisations felt that their positive experience of previous RES support was a key reason for seeking advice again in 2015-16. Beneficiaries valued the expertise of the RES advisor, as it was felt that this strengthens the case for funding:

"We used their specialist knowledge and the experience of the consultant who put together a case study which could be presented to decision makers and which demonstrated that the action was sound"

Some loan recipients felt that the availability of dedicated finance for a specific recommendation helped them to make the case for implementing additional measures identified by the RES advisor.

Even where action was not taken, beneficiaries still felt that RES support meant they were better informed and able to plan for the future. However, some beneficiaries felt that the advice provided was unable to fully solve their particular "problem" (due to practical/technical constraints), or the advice provided by the RES advisor was inconsistent with that provided by other specialists e.g architects.

In general, feedback on the programme was similar to previous years. Where action had been taken following in-depth support, attribution of our support was higher compared to previous years. This may be a reflection of smaller organisations with less internal resource or expertise that would have been less able to undertake any measures without our support.

5.1.2 Light-touch support

Beneficiaries commonly reported improved awareness and knowledge about resource efficiency as a key benefit of light-touch support. Even when they were already aware of potential measures, it was felt that the support gave them extra impetus to plan and implement action:

"It provided a structure and made us set deadlines. Gave us the push in the right direction."

Along with helping a single organisation to plan and implement resource efficiency measures, we also found evidence of individuals using light-touch support as a way of disseminating information on resource efficiency to others:

[13] The summed total of cost savings resulting from energy, water and material related actions

"I was hoping to get some useful information to use and create some online learning tools for students on a hospitality course".

Where people indicated that the end result would have been the same in the absence of light-touch support, this was often because the support simply confirmed what they already knew.

5.2 External context to this year's findings

During the course of this evaluation we identified a number of external factors that might have been predicted to influence whether beneficiaries of support in 2015-16 took action.

We thought that an organisation's willingness to invest may have been impacted by the outcome of the European referendum (interviews were conducted during September and October 2016). We also considered that a relatively weak energy price "signal" in the last 12 months (complimented by a warmer than average 2015-16 winter period) could have influenced the prioritisation of energy-related investment decisions[14]. Finally, changes to living wage and pension requirements could be applying additional pressure to financial decision making.

However, the findings in section 3.2 for RES-ASS in-depth support do not seem to support the above (the proportion of beneficiaries taking action was actually 8% higher in 2015-16 when compared to 2014-15). In addition, our analysis of the reasons for not taking action does not suggest significant differences to previous years.

5.3 Challenges of maximising impact

Consistent with previous years, it remains much easier to engage organisations on energy saving measures. For example, for RES-ASS in-depth support in 2015-16, energy-related identified cost savings associated with core recommendations totalled £8.6m (87% of total cost savings), compared with £670,000 (6.7%) for raw material-related measures, £500,000 (4%) on water-related measures and £190,000 (2%) on waste-related measures. Over a third of recommendations made in 2015-16 were energy efficiency measures, dominated by those related to lighting improvements. Space heating and building fabric recommendations made up the bulk of the remaining recommendations.

There appears to be far fewer companies that provide large savings opportunities for materials, which could at least partly reflect the programmes focus on SME's. More broadly, the pattern of identified savings probably reflects a market preference for the service, and simply means a significant scale of change on material use will be harder to achieve.

The identified savings for core recommendations derived from RES-ASS in-depth support in 2015-16 were broadly similar in scale to those identified in 2014-15. At the time of writing we are carrying out additional analysis of the identified savings dataset over the period 2013-16. We hope this will identify any changes in the pattern of savings distribution over the 3-year period. For example, the proportion of organisations classified as SME's and third sector is likely to have increased in recent years and this may be reflected in the median identified saving in a given year.

5.4 Challenges for the evaluation

5.4.1 RES-ASS Light-touch support

Energy-related actions make up the bulk of actions taken, but we know from previous evaluations that a relatively small proportion of beneficiaries are able to produce usable bill data (kwh,£) during interview. In our evaluation of 2014-15 light touch support, 34% of beneficiaries who took at least one

[14] According to the Department for Business, Energy and Industrial Strategy energy report (Sept 2016), prices (inc levies) for non-domestic consumers of electricity and gas have been relatively flat during the period in question. For example, the price paid by small electricity consumers was 12.35 pence in the first quarter of 2015, compared to 12.18 pence for the same quarter in 2016.

energy-related action were able to provide usable data. This dropped to 20% in the current evaluation. Where beneficiaries are unable to provide usable data, we do not estimate impact. The interview methodology (interviewer training, booking/preparation, topic guide) has not been altered in a way that we think would alter our ability to capture data.

5.4.2 RES-ASS In-depth support

During the current evaluation, we asked beneficiaries if they had taken any resource efficiency actions that were related to the original recommendations put forward by the RES advisor. For example, the advisor may have recommended three boilers, but the organisation had proceeded with two boilers of a different size. Alternatively, the related action was to carry out further assessment work (no implementation had occurred).

Of the 738 individual recommendations followed up during interviews, there were 45 where a beneficiary told us they had taken a related action. Where there was evidence of related actions being implemented it proved difficult to quantify impact, due to a lack of a revised technical assessment[15] or consumption data. In future evaluations we may look to develop a set of analytical principles to deal with these cases.

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[15] In effect a new technical assessment would be required that was beyond the scope of the evaluation interview

6 Appendix 1: List of activities included in the evaluation

RES- Advice and support service - in-depth support

- Multi-Day Support
- Large Savings Projects
- Telephone Audit
- Direct Technical Support
- RES-ASS/SG-SME loan scheme[16] - loan measure only
- RES-ASS/SG-SME loan scheme - loan measure & additional measures
- RES-ASS Implementation Support[17]
- Convenience store grant[18]
- Convenience store audit[19]

RES- Advice and support service - light-touch support

- Telephone advice enquiries
- Face-to-face training
- On-line savings finder
- Green champions – planning modules
- Green champions – practitioner modules
- Resource efficiency pledges
- Resource efficiency webinars
- On-site technical briefings

RES-Public Sector – in-depth support

[16] Scottish Government SME loans scheme - where financing was provided via the EST and the technical review was delivered by RES-ASS. The technical review either focuses solely on the loan measure, or might also identify additional measures (i.e those not funded by the loan).
[17] Where a RES-ASS beneficiary has utilised both an initial assessment and follow up implementation support in 2015-16.
[18] All applicants to the convenience store grant scheme (includes grants awarded and grants funds drawn down)
[19] All convenience stores which received an audit via RES-ASS but did not subsequently apply for a grant

7 Appendix 2: Defining our resource efficiency metrics

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, 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: Implementation rates for in-depth support

Implementation rates can be calculated in a number of ways. In the following tables we report implementation rates for in-depth support delivered by RES-ASS and RES-Public Sector in 2015-16, using three distinct calculations:

- Measure 1 – (Second column from left) - *the proportion (%) of all beneficiaries taking at least one action*.

- Measure 2 (Third column from left) - *the proportion (%) of all recommendations that have been implemented and are likely to be implemented, based on a count of actions.*

- Measure 3 (Fourth column from left) - *total quantified savings implemented and likely to be implemented, as a proportion of total identified savings.*

Activity	Beneficiaries taking at least one action (%)	Number of actions implemented/likely to be implemented (%)	Savings implemented/likely to be implemented (%)[20]
RES-ASS Multi-Day Support	77	50	Cost = 23 Carbon = 30 Energy = 25
RES-ASS Large Savings Projects	100	56	Cost = 33 Carbon = 44 Energy = 33
RES-ASS Telephone Audit	81	50	Cost = 31 Carbon = 31 Energy = 43
RES-ASS Direct Technical Support	81	41	Cost = 45 Carbon = 45 Energy = 44
RES-ASS/SG-SME loan scheme - loan measure only[21]	100	100	Cost = 100 Carbon = 100 Energy = 100
RES-ASS/SG-SME loan scheme - loan measure & additional measures	89	68	Cost = 84 Carbon = 41 Energy = 85
RES-ASS Implementation Support	87	35	Cost = 31 Carbon = 24 Energy = 31
Convenience store grant	100	41	Cost = 69 Carbon = 65 Energy = 63
Convenience store audit	36	32	Cost = 26 Carbon = 25 Energy = 24

Table 8.1 RES-ASS implementation rates for 2015-16, expressed as the proportion of all beneficiaries taking at least one action, the proportion of actions implemented, and the proportion of quantified cost, carbon and energy savings implemented/likely to be implemented

[20] Figures for cost and carbon are combined totals resulting from the implementation of energy, water and material-related recommendations.

[21] For loan-only measures we use the loans database to determine status of measures, hence 100% implementation.

Activity	Beneficiaries taking at least one action (%)	Number of actions implemented/likely to be implemented (%)	Savings implemented/likely to be implemented (%)
RES-Public sector	78%	32%	Cost = 12 Carbon = 12 Energy = 19

Table 8.2 ***RES-Public Sector implementation rates for 2015-16, expressed as the proportion of all beneficiaries taking at least one action, the proportion of actions implemented, and the proportion of quantified cost, carbon and energy savings implemented/likely to be implemented***

9 Appendix 4: The status of recommendations from RES-ASS in-depth support

Type of recommendation	Number of recommendations covered by interview	Taken in full	Partly taken the action	Definite plans to take the action	Not taken the action and no plans to take action	Don't know
Building fabric	103	19%	3%	33%	41%	4%
Energy efficiency	279	38%	4%	18%	37%	3%
Renewables	115	17%	0%	17%	66%	1%
Space heating/hot water	115	24%	3%	24%	43%	4%
Waste	19	37%	0%	26%	37%	0%
Water efficiency	64	16%	3%	22%	58%	2%
Contract review (energy, waste and water)	4	50%	0%	0%	50%	0%
Environmental management system	5	80%	0%	0%	20%	0%
Measuring and monitoring	12	17%	0%	33%	42%	8%
Staff training and engagement	12	25%	8%	42%	17%	8%
Other	10	30%	0%	10%	60%	0%

Table 9.1 ***The type of recommendation, the number covered during interview and their status from evaluation, for RES-ASS in-depth support in 2015-16***

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