



Department  
of Energy &  
Climate Change

# Green Deal Assessment Survey

Technical report for Waves 1, 2 and 3 and the Wave 1 Telephone follow-up survey

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# Green Deal assessments survey

## Background to the research

In April 2013, GfK NOP was commissioned by DECC to conduct research with a sample of households which had a Green Deal Assessment between the launch of the scheme on 28<sup>th</sup> January 2013 and 31<sup>st</sup> March 2013 (referred to as Wave 1 throughout this report). The research was commissioned in order to find out more about the profile of households having an assessment, their assessment experience, and to explore what households have done and plan to do since having the assessment.

Wave 2 of the research was commissioned to find out more about those households which had an assessment between 1<sup>st</sup> April and 30<sup>th</sup> June 2013 and Wave 3 was commissioned to find out more about those households which had an assessment between 1<sup>st</sup> July and 30<sup>th</sup> September.

In addition, GfK NOP was commissioned to conduct a telephone follow-up survey of Wave 1 respondents with fieldwork taking place in November 2013.

This technical report supports the published data and research reports from the Green Deal Assessments research programme. The report provides the technical details of the three waves of the main assessments survey with a separate chapter dealing with the follow-up survey. The survey reports are available at <https://www.gov.uk/government/collections/green-deal-assessments-research>.

## Objectives of the assessments research

The key objective of this programme of research is to provide evidence from households' experiences of having a Green Deal assessment including:

- Who is having a Green Deal assessment? What is the profile of these households
- How they heard about Green Deal assessments
- Reasons for having a Green Deal assessment
- Whether the household paid to have an assessment
- The clarity and usefulness of the recommendations made by the assessment
- Overall satisfaction with the assessment and likelihood to recommend to others, including reasons for dissatisfaction
- What households have done or intend to do since having the assessment (whether installed any recommended energy saving measures)
- Barriers to installation
- How they paid for installations

In addition, the research is required to understand how these measures, and the profile of 'early adopter' households vary by key demographics, geographic and situational factors, as

well as by the Green Deal segments which GfK NOP developed as part of a previous research project in 2012<sup>1</sup>. The research also aimed to understand how they varied over time.

## Survey methodology and sampling

GfK NOP drew the samples for each wave from a list of households which had had a Green Deal Assessment during each of the reference periods.<sup>2</sup> The sample for Waves 1 and 2 comprised households in England and Wales only; Scotland was added to the sample for Wave 3<sup>3</sup>.

The list provided contained addresses of the households that had an assessment, but no names or other contact details. To test the feasibility of a telephone research approach, it was attempted to match telephone numbers to the listed addresses using Experian<sup>4</sup>, but only 9% of addresses could be matched. A low response rate to a postal survey was anticipated, so a postal survey was not felt to be feasible. The only feasible remaining options were face to face or online research. It was decided that a mixed mode approach would be most appropriate and cost effective, writing to households to offer the chance to take part in an online survey and face to face interviewers visiting non-responders to encourage them to take part.

Only households which had had a Green Deal assessment which was lodged within the relevant quarter were included in the sample Universe. A small number of assessments were lodged outside of the relevant quarter, but these were excluded from the sample. This can explain why the total population of assessments up to the end of September covered by the research is different to the Official Statistics. The Official Statistics shows the total number of assessments up to the end of September as 85,178, whilst the research is representative of 76,648. Table 1 shows the number excluded at each wave together with the months when the excluded assessments were dated and can explain the 8530 difference in total assessment population numbers.

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<sup>1</sup> Detailed information about the Green Deal segments can be found at [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/49750/Green\\_Deal\\_segmentation\\_-\\_research\\_report.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/49750/Green_Deal_segmentation_-_research_report.pdf)

<sup>2</sup> The sample for each wave was provided by DECC and included permission to contact households for research purposes.

<sup>3</sup> This is due a data agreement not being in place at the times of waves 1 and 2 and therefore Scottish data only being available for wave 3.

<sup>4</sup> <http://www.experian.co.uk/assets/integrated-marketing/Offer-Summaries/t-append-lo.pdf>

**Table 1: Sample selection**

Survey reference period	Number of Assessments lodged in reference period	Number of households removed because assessment date outside of reference period or missing	Breakdown by month
<b>Wave 1: Jan-March 2013<sup>5</sup></b>	9,224	-	-
<b>Wave 2: April-June 2013</b>	33,953	3,573	Jan: 180* Feb: 415 Mar: 2,978
<b>Wave 3: July-September 2013</b>	40,668	3,624	Jan: 50** Feb: 63 Mar: 97 Apr: 288 May: 739 June: 1,916 Blank date: 471

\*Includes 89 with an assessment date prior to January 2013. These were removed from the wave 2 universe as we were unable to determine whether the assessment had been carried out within the reference periods.

\*\*Includes 32 with an assessment date prior to January 2013. These were removed from the wave 2 universe as we were unable to determine whether the assessment had been carried out within the reference periods.

The decision was taken to exclude these addresses because of the distance between assessment date and the lodgement date, and where there is a large delay between the two, lack of clarity on which date is correct<sup>6</sup>. In addition, it was felt that from the point of view of the respondent, who would not know the lodgement date, it was more important to be certain of the assessment date, as this is referred to in the interview.

Further, it was felt that it would be simpler and more accurate to report on assessments which we know were undertaken in the reference period for each wave, rather than those lodged within the reference period. Because of the 14 day lodgement requirement, there is a risk that assessments completed at the end of a month but lodged in the following month would be missing, but the number who were excluded was proportionately small (2% for Wave 1, 11% for Wave 2, 9% for Wave 3).

Following the exclusion of these 'out of period' addresses, GfK NOP analysed the lists of households in order to create efficient 'clusters' from which to draw the samples. For reasons stated above, and for the purposes of fieldwork efficiency, practicality, cost and timing, clusters were formed from addresses which were sufficiently close to other addresses. As a result, some households were excluded from the sampling frame at each wave because they were not in areas that could be clustered.

<sup>5</sup> The January to March sample included 181 addresses with a claimed assessment prior to January 2013. As the Green Deal was not launched until 28<sup>th</sup> January 2013 this was assumed to be an administrative error and these addresses were retained within the sampling universe for Wave 1.

<sup>6</sup> Green Deal assessments should be entered onto the Landmark database ("lodged") within 14 days of the date of the assessment.

Ten addresses were required to form a cluster. At Wave 1, a cluster was formed where there were 8 or more addresses in a single postcode sector (plus further addresses available in a single neighbouring postcode sector to form a cluster of ten, where necessary). At Waves 2 and 3, a cluster was formed where there were ten or more addresses in a single postcode sector: the change was made because the larger number of households in the sampling frame for Waves 2 and 3 meant that this slightly more clustered approach was viable.

Table 2 below shows the number of addresses that had had a Green Deal assessment during the relevant time period (the universe), the number of addresses that could be clustered into interviewing points and the proportion of addresses that were therefore covered by the sampling process at each wave. The profile of the clustered addresses was checked against key variables (see below) to see if it was broadly representative of the sample universe. Therefore, even though large parts of the overall assessment population were excluded from the sample, analysis was undertaken to make sure the sample profile was close to the population.

**Table 2: Sample selection**

Reference period	Wave 1	Wave 2	Wave 3
	28 <sup>th</sup> Jan – 31 <sup>st</sup> March	1 <sup>st</sup> April – 30 <sup>th</sup> June	1 <sup>st</sup> July – 30 <sup>th</sup> September
Universe	9,224	30,380	37,044
Number of addresses that could be clustered into interviewing points	1,982	14,406	18,186
Proportion of addresses that could be clustered into interviewing points	21%	47%	49%

In order to draw a representative sample for each survey, all potential ‘eligible’ addresses were stratified by Region, Core City vs. Non-Core City<sup>7</sup>, Urbanity<sup>8</sup>, Tenure, Property Type and Energy Performance Certificate (EPC) rating.

Following stratification, a random sample of 90 starting addresses was selected from the eligible sample. The 90 sectors in which these addresses fell were then used as the ‘points’ from which to draw the full sample. These points were stratified in exactly the same as described above and a random selection of 10 addresses per point was made, giving 900 addresses in total in the issued sample.

<sup>7</sup> In 2012 eight cities across England were awarded funding of around £13 million to help them kick-start the Green Deal in their regions. The cities also sought matching funding and/or providing direct support themselves. The focus of the Core Cities is upon raising awareness of the Green Deal through community engagement and show homes, and providing support to local supply chains including trained Green Deal advisors and registered installers. See <https://www.gov.uk/local-authorities-and-the-green-deal>

<sup>8</sup> The urbanity stratifier is broken down into three groups; Urban, Suburban and Rural. Urban areas are defined as those in which the population density is greater than 7 persons per hectare, Suburban areas are defined as those in which the population density is greater than 1.5 persons per hectare but less than 7 and rural areas are defined as those in which the population density was less than 1.5 persons per hectare.

At Wave 1, there were a large number of addresses in particular postcode sectors which meant that multiple interviewing points would be selected from a single postcode sector: resulting in a heavily clustered sample in certain areas. As a result, a decision was taken to cap the number of interviewing points that could be selected in a single postcode sector to four, to ensure that the selected sample was not overly skewed towards these areas. Given that there was a much higher number of addresses from which to sample at Wave 2 and Wave 3, this issue did not arise and therefore no capping was required.

Table 3 shows how the profile of the clustered samples differed from the sample universe at each wave. This is included to show the effect of clustering on the key variables.

At all waves, the sampled addresses over-represented tenants and households in flats, and under-represented owner-occupiers and those living in houses/bungalows. Otherwise, it appears that the profile of the clustered sample (shown in columns marked sampled % in the table) was generally similar to the profile of the sample universe. The only exception was at Wave 3 where the clustered sample over-represented households in urban areas, and under-represented those in rural areas (at Wave 3, 67% of sampled addresses were in urban areas, compared with 61% of the universe of all households having a Green Deal assessment).

**Table 3: Sample selection**

	WAVE 1		WAVE 2		WAVE 3	
	Universe %	Sampled %	Universe %	Sampled %	Universe %	Sampled %
	9,224	900	30,380	900	37,044	900
<b>Region</b>						
North	33	34	27	27	29	30
Midlands (inc. Wales)	26	26	31	31	31	30
South	41	41	42	42	30	30
Scotland	-		-	-	10	10
<b>Urbanity</b>						
Urban	56	57	66	64	61	67
Mixed urban/rural	31	31	25	26	27	26
Rural	13	12	10	10	12	8
<b>Core Cities</b>						
Core	18	23	22	20	24	26
Not core city	82	77	78	80	76	74



	WAVE 1		WAVE 2		WAVE 3	
	Universe %	Sampled %	Universe %	Sampled %	Universe %	Sampled %
	9,224	900	30,380	900	37,044	900
<b>Pioneer Places<sup>9</sup></b>						
Pioneer place	44	46	47	48	33	33
Not Pioneer place	56	54	53	52	67	67
<b>Tenure</b>						
Owner-occupied	83	61	75	64	76	65
Tenant	15	38	24	35	24	35
<b>Property type</b>						
House/ bungalow	92	84	14	23	13	13
Flat	8	16	86	77	87	87
<b>Energy rating</b>						
A-D	64	65	66	70	64	69
E-G	36	35	34	30	36	31

The profiles of those interviewed at each wave are shown in Table 4.

- The 'universe' column shows the profile of all households which had had a Green Deal assessment during the relevant time period
- The 'unweighted' column shows the profile of all households interviewed at each wave
- At each wave, data were weighted to the known profile of all households which received a Green Deal assessment in the corresponding sampling periods using the following characteristics: region, property type and tenure. The profiles following weighting are shown in the 'Weighted' column.

Table 4 is included to show the impact of weighting on the profile of key variables. It shows that the profile of the achieved sample (shown in the columns labelled 'unweighted' in the table below) was very similar to the overall population for most of the key variables. The only exceptions were:

- At all waves, tenants were over-represented in the achieved sample, with proportionately fewer interviews achieved with owner-occupiers. For example at Wave 1, 83% of households having a Green Deal assessment were owner occupiers, compared with 67% of the achieved sample. Conversely, while 15% of those receiving

<sup>9</sup> Further information about Pioneer Places is available at <https://www.gov.uk/decc-local-authority-competition>

a Green Deal assessment were tenants, compared with 33% of the achieved sample. This pattern was also evident at Waves 2 and 3, though the differences were less pronounced. This is likely to be explained by the clustering approach, as private and social renters are more likely to be in more clustered areas (that is more urban areas).

- At Wave 1, the achieved sample somewhat over-represented the North of England and Midlands, with the South somewhat under-represented. Urban areas were also over-represented, with proportionately fewer interviews in mixed/areas. Households living in houses were also somewhat under-represented, with proportionately more flats. As with tenure, this could be explained by the clustering approach and flats being in more clustered (urban) areas.
- The larger number of assessments and greater coverage of clusterable addresses at Waves 2 and 3 (see Table 2) meant that differences were generally less pronounced and the achieved sample was similar to the sample universe for most variables (with the exception of tenure, as described above). The only exception to this was the regional breakdown at Wave 3, where proportionately more interviews were again conducted in the North of England: following a similar pattern to Wave 1.

**Table 4: Sample profiles**

	WAVE 1			WAVE 2			WAVE 3		
	Universe %	Un-weighted %	Weighted %	Universe %	Un-weighted %	Weighted %	Universe %	Un-weighted %	Weighted %
	9,224	507	507	30,380	499	499	37,044	500	500
<b>Region</b>									
North	33	37	34	27	28	27	29	35	29
Midlands	26	32	26	31	31	31	31	38	30
South	41	32	40	42	41	42	30	19	30
Scotland	-	-	-	-	-	-	10	8	10
<b>Urbanity</b>									
Urban	56	61	58	65	63	65	61	65	65
Mixed	31	27	31	25	26	27	27	25	25
Rural	13	12	11	10	11	9	12	10	9
<b>Core Cities</b>									
Core	26	32	26	22	21	21	24	29	23
Not core city	74	68	74	78	79	79	76	71	77
<b>Pioneer Places<sup>10</sup></b>									
Pioneer	44	42	50	47	49	48	33	30	33

<sup>10</sup> Further information about Pioneer Places is available at <https://www.gov.uk/decc-local-authority-competition>

	WAVE 1			WAVE 2			WAVE 3		
	Universe %	Un-weighted %	Weighted %	Universe %	Un-weighted %	Weighted %	Universe %	Un-weighted %	Weighted %
	9,224	507	507	30,380	499	499	37,044	500	500
Not Pioneer	56	58	50	53	51	52	67	70	67
<b>Tenure</b>									
Owner-occupied	83	67	83	75	68	76	76	68	76
Tenant	15	33	17	24	32	24	24	32	24
Unknown	2	-	-	*	-	-	*	-	-
<b>Property type</b>									
House/bungalow	92	88	92	86	84	86	87	89	87
Flat	8	12	8	14	16	14	13	11	13
<b>Energy rating</b>									
A-D	64	66	67	66	72	72	65	69	68
E-G	36	34	33	34	28	28	35	31	32

\* denotes a percentage greater than zero but less than 0.5%

## Fieldwork

The same mixed-mode interviewing approach was used for each wave of the survey. The approach enabled respondents to either complete the survey either online or face-to-face. Households were sent an advance letter to introduce the survey and to invite them to complete the survey online (see Appendix). Following a short 'online only' fieldwork period of four days, GfK NOP's face-to-face interviewers began calling at sampled addresses that hadn't completed the survey online. To reduce the impact of mode effects the questionnaires were exactly the same, with face-to-face interviews being self-completed by respondents rather than interviewer administered. On average, the questionnaire took 17½ minutes to complete.

### Wave1

Wave 1 fieldwork was conducted between 26<sup>th</sup> April and 2<sup>nd</sup> June 2013. 507 of the 900 sampled households took part in the research (123 online interviews and 384 face-to-face interviews), equating to an unadjusted response rate of 56%. The adjusted response rate (that is where inaccurate and ineligible addresses are removed from the sample) was 59%.

**Table 5: Wave 1 response rate**

Outcome	N	Unadjusted response (%)	Adjusted response (%)
<b>Total issued addresses</b>	<b>900</b>	<b>100</b>	<b>-</b>
Ineligible	37	4	-
<b>Total eligible addresses</b>	<b>863</b>	<b>96</b>	<b>100</b>
Non contacts	253	28	29
Refusals	84	9	10
<b>Completes</b>	<b>507</b>	<b>56</b>	<b>59</b>
<i>Online</i>	<i>123</i>	<i>14</i>	<i>14</i>
<i>Face to face</i>	<i>384</i>	<i>43</i>	<i>44</i>
Partials	19	2	2
<i>Online</i>	<i>17</i>	<i>2</i>	<i>2</i>
<i>Face to face</i>	<i>2</i>	<i>*</i>	<i>*</i>

\* denotes a percentage greater than zero but less than 0.5%

## Wave 2

Wave 2 took place between 26<sup>th</sup> July and 26<sup>th</sup> August 2013. 499 households of the 900 sampled took part in the research (114 online interviews and 385 face-to-face interviews), an unadjusted response rate of 55%. The adjusted response rate (i.e. where inaccurate and ineligible addresses are removed from the sample) was 59%.

**Table 6: Wave 2 response rate**

Outcome	N	Unadjusted response (%)	Adjusted response (%)
<b>Total issued addresses</b>	<b>900</b>	<b>100</b>	<b>-</b>
Ineligible	54	6	-
<b>Total eligible addresses</b>	<b>846</b>	<b>94</b>	<b>100</b>
Non contacts	258	29	30
Refusals	68	8	8
<b>Completes</b>	<b>499</b>	<b>55</b>	<b>59</b>
<i>Online</i>	<i>114</i>	<i>13</i>	<i>13</i>
<i>Face to face</i>	<i>385</i>	<i>43</i>	<i>46</i>
Partials	21	2	2
<i>Online</i>	<i>13</i>	<i>1</i>	<i>2</i>
<i>Face to face</i>	<i>8</i>	<i>1</i>	<i>1</i>

**Wave 3**

Wave 3 took place between 24<sup>th</sup> October and 1<sup>st</sup> December 2013. 500 of the 900 sampled households took part in the research (85 online interviews and 415 face-to-face interviews), an unadjusted response rate of 56%. The adjusted response rate (that is where inaccurate and ineligible addresses are removed from the sample) is 59%.

**Table 7: Wave 3 response rate**

Outcome	<i>N</i>	Unadjusted response (%)	Adjusted response (%)
<b>Total issued addresses</b>	<b>900</b>	<b>100</b>	<b>-</b>
Ineligible	50	6	-
<b>Total eligible addresses</b>	<b>850</b>	<b>94</b>	<b>100</b>
Non contacts	261	29	31
Refusals	80	9	9
<b>Completes</b>	<b>500</b>	<b>56</b>	<b>59</b>
<i>Online</i>	<i>85</i>	<i>9</i>	<i>10</i>
<i>Face to face</i>	<i>415</i>	<i>46</i>	<i>49</i>
Partials	9	1	1
<i>Online</i>	9	1	1
<i>Face to face</i>	-	-	-

## Questionnaire development

The survey questionnaires were designed by DECC and GfK NOP and included questions from the 2012 Green Deal segmentation research to enable the recreation of the Green Deal segments<sup>11</sup>.

### Cognitive piloting

Questions were refined through piloting prior to conducting Wave 1. Eight cognitive interviews were conducted via telephone by researchers from GfK NOP on the 18<sup>th</sup> and 19<sup>th</sup> April 2013.

The aim of the cognitive testing was to see whether respondents:

- understood the meaning of the questions;
- were able to answer the questions;
- were willing to answer the questions.

Following the cognitive interviews, GfK NOP provided DECC with feedback from the exercise and made recommendations for amendments to the questionnaire. Final questionnaire changes were agreed by DECC ahead of Wave 1 main stage fieldwork.

### Questionnaire changes at Wave 2

Although no further piloting was conducted, a number of questionnaire changes were made prior to Wave 2. The main changes are summarised below.

**Question 10:** This question was amended at Wave 2 in order to understand whether those who had not received their Green Deal Advice Report had at least seen a copy or expected to see a copy.

**Questions 11-16:** At Wave 1, questions about the assessment experience were only asked of those who were involved in the Green Deal assessment process (that is excluding those whose assessment was arranged by their landlord/housing association and their Green Deal Advice report was sent directly to their landlord/housing association). At Wave 2 and 3 these questions were asked of all respondents, but to allow comparability with Wave 1 are presented in the report based only on those who were involved in the Green Deal assessment process.

**Questions 17-32:** At Wave 1, questions about post assessment actions and intentions were only asked of households that had received their Green Deal Advice Report (GDAR). Following Wave 1, it became apparent that some households had measures installed despite not receiving their report. As a result, households that had not received their report were asked about their post-assessment intentions at Wave 2, meaning all households were asked about their post assessment actions and intentions.

This necessitated additional codes at Q18, (for example. “Not made a decision because I’ve not received my Green Deal Advice Report yet”, “The assessor did not recommend this”, “I don’t know/can’t remember if the assessor recommended this” and “Don’t know”) to allow those

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<sup>11</sup>

The technical report relating to the development of the Green Deal segments can be found at [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/49751/Green\\_Deal\\_segmentation\\_-\\_technical\\_report.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/49751/Green_Deal_segmentation_-_technical_report.pdf)

that had not yet received a Green Deal Advice Report to answer this section of the questionnaire.

**New questions added:** Q31a, Q32a and Q32b.

### Questionnaire changes at Wave 3

All of the changes mentioned above were retained for Wave 3. A small number of additional changes were made, as summarised below.

**Amended question:** On Q19, the “Energy company” code was amended to “Energy company – Energy Company Obligation (ECO)”.

**New questions added:** Q29a and Q29b.

Please refer to the individual questionnaires for full details, these are available at <https://www.gov.uk/government/collections/green-deal-assessments-research>.

## Data processing and analysis

### Data tables

A single set of data tables was produced for each wave of the Green Deal assessments survey. Crossbreaks are added to data tables to allow for sub-group analysis by a number of variables including standard respondent demographics (for example age, gender, ethnicity), housing characteristics (for example house/flat, tenure, Energy Performance Certificate rating), assessment outcomes (for example whether installed any energy saving measures, whether received a Green Deal Advice Report) and Green Deal segments.

### Coding

Each questionnaire contained a number of open-ended questions and questions which included ‘other’ answers which required coding. In order to get the most out of these open responses codeframes were developed by executives working on the project with reference to the objectives of the question. GfK NOP’s team of coders were fully briefed by project executives about the objectives of each individual question in advance of starting work.

### Post survey weighting

At each wave, data were weighted to the known profile of all households which received a Green Deal assessment in the corresponding sampling periods using the following characteristics: region, property type and tenure. Weighting is the adjustment of the relative importance or influence that each response has on the total survey responses generated in a way so that the profile of the total sample matches some pre-defined criteria or target.

Each respondent was assigned a weight based on the findings from region, property and tenure which was calculated to ensure that the results represented the universe of all properties which had had a Green Deal assessment in the corresponding sampling period. The decision to weight to the three key variables (property type, tenure and region) and not the six stratification variables (three key variables, plus EPC rating, urbanity and core city vs non core city) was to strike a balance between the effective sample size (which decreases as the number of weighted variables increase) and accuracy. Property type, tenure and region were deemed to be the most important variables and hence these were chosen for weighting.



The effective sample size was calculated. This describes the effect of the weighting on the accuracy of survey estimates. The effective sample size is dependent upon the size of weights applied to respondents: the more the weights deviate from 1, the smaller the effective sample size and the less accurate estimates will be. At Wave 1, the effective sample size for this survey was 76.1% of the interviewed sample size; at Wave 2 it was 95.3% and at Wave 3 it was 84.7%.

## Reporting conventions

All survey reports use the following conventions:

- All differences commented upon are statistically significant at the 95% confidence level (unless otherwise stated).
- Significant differences between waves are indicated by arrows (↑↓) within charts and tables
- All base sizes quoted in the report are unweighted
- All reported data are weighted.
- A finding of less than 0.5% but greater than zero is indicated by an asterisk (\*).

## Confidence intervals

We conduct surveys because it is much more practical and cost effective than interviewing an entire population. However, we need to know how close our survey estimates are to the 'true' figures if we had interviewed the entire population. Confidence intervals are a statistical device which allow us, using our survey results, to estimate the variation that might be anticipated because a sample rather than an entire population was interviewed. In general, the larger the sample, the more sure we can be of the accuracy of our survey estimates, though subject to diminishing returns at larger sample sizes. In other words, if we were to conduct the same survey again we would be more likely to get a similar result if we had a large sample than a smaller sample.

The table below indicates the confidence intervals associated with different sample sizes and survey estimates.

When calculating confidence intervals, we typically use a 95% confidence interval. This means that we can be 95% sure that the survey estimate reflects the true figure for the entire population.

**Table 8: Confidence intervals**

Sample size	Survey response		
	10% / 90%	30% / 70%	50% / 50%
100	5.9	9.0	9.8
200	4.1	6.3	6.9
300	3.4	5.2	5.6

Sample size	Survey response		
	10% / 90%	30% / 70%	50% / 50%
400	2.9	4.5	4.9
500	2.6	4	4.4

The table shows that for a total sample of 500 respondents, the confidence interval for a 50% response would be up to  $\pm 4.3\%$  (so if the survey found that 50% of respondents held a certain view, we could be 95% sure that the true proportion of people in that population who hold that view would be between 45.7% and 54.3%).

## Approach to analysis

The analysis was designed to answer the key research objectives. In order to answer objectives related to households' post assessment intentions and actions, responses to a number of questions were combined to provide summary statistics as follows:

- Household level data: Where households had been recommended more than one measure as part of their Green Deal assessment, they were often at different stages in the decision. The variable 'most action taken' was calculated at the household level, to take this into account and provides information at a household level (for example if a household had installed one measure, and was in the process of installing another, the 'most action taken' for that household would be 'already installed')
- Measure level data: Other statistics were provided on the basis of recommended measures, rather than at a household level. At Wave 2 of the survey, the 499 households had 1,259 measures recommended, and at Wave 3 the 500 households had 1,179 measures recommended. Some charts and tables are therefore reported on the basis of 'all measures recommended' (for example at Wave 2, 28% of all measures recommended had been installed, and 37% of all recommended measures had been installed at Wave 3).
- Further, some statistics are provided based on the individual measure recommended (for example at Wave 3 43% of recommended boilers had been installed).

Tables are clearly labelled to show whether findings are based on household or measure-level data.

The analysis aimed to understand how views, experiences, actions and intentions varied:

- over time
- between key sub-groups. Analysis was carried out to understand variation between key sub-groups (subject to minimum sample size), though in some cases it was noted if patterns in response were not consistent across all three waves. The key variables for which differences were noted were:

- Tenure: owner-occupiers v tenants (private rented or social tenants)
- Receipt of benefits and how well the household was getting on financially: mainly for questions related to how installed measures were financed
- Green Deal segment
- Measure recommended

While the process of analysis also investigated whether there were any significant differences in response based on other characteristics (for example age, gender, region, property type), there were no consistent patterns in response so individual differences were not reported.

## Green Deal assessments telephone follow-up survey

This section of the report provides the technical details of the Wave 1 telephone follow-up survey which GfK NOP conducted between 19th November and 1st December.

### Objectives of the follow-up survey

The survey followed-up respondents from Wave 1 of the assessments survey who had consented to further contact. The survey aimed to assess:

- Whether intentions which were stated in the initial assessment survey turn into actions
- The post-assessment intentions and actions of the customers who had not received their Green Deal Advice Report at the time they were first interviewed
- Motivations for taking action after the assessment, and barriers to taking action
- Experiences of installation amongst those who had taken action after the assessment.

Further, the study aimed to test potential methods for follow up research amongst assessment customers, including understanding potential response rates, developing question sets, and assessing the levels of recall of experiences after the assessment.

Only customers from Wave 1 of the assessment Survey were followed up: these customers had their assessment in January – March 2013, and follow up interviews were conducted in November-December 2013 (approximately 9-10 months after the Green Deal assessment). The decision was taken to follow up only Wave 1 customers because the 9-10 month period was felt to be sufficient to give customers time to take action.

### Survey methodology and sampling

The sample frame for the follow-up survey was made up of those respondents from Wave 1 who had given permission to be recontacted. Of the 507 households interviewed in the Wave 1 survey, 338 consented to recontact and provided a telephone number. Because of the small number of leads, no actual sampling was undertaken and all 338 households were sent an advance letter before the start of fieldwork.

A key difference between the follow-up survey and Wave 1 is that all interviewing was conducted by telephone rather than using the same mixed mode approach as used in the assessments research. Interviews were conducted by a small team from GfK NOP's Telephone Interviewing Service (TIS), who were briefed by researchers before starting work.

The table below shows the profile of those who agreed to be recontacted compared with the profile of the universe (households which had a Green Deal assessment in January-March 2013) and the achieved sample for Wave 1. The profile of the available leads for the follow-up was broadly comparable with that of the achieved sample at Wave 1 and while the proportion of households living in houses/bungalows was higher than in the achieved profile (93% vs. 88%) this is still in line with the profile of the universe. The table also shows the profile of those who were actually interviewed in the follow-up survey compared with the Wave 1 profile. In general, these unweighted profiles are very similar, though the follow-up survey somewhat over-represented respondents in the South of England and under-represented those from the Midlands (including Wales).

**Table 9: Follow-up survey sample profiles**

	Wave 1 Universe	Wave 1 Achieved sample	Follow-up universe	Follow-up Achieved sample
Base	9,224	507	338	<b>190</b>
	%	%	%	%
<b>Region</b>				
North	33	37	38	33
Midlands (inc. Wales)	26	32	35	36
South	41	32	28	32
<b>Urbanity</b>				
Urban	56	61	59	58
Mixed urban/rural or rural	44	39	41	42
<b>Core cities</b>				
Core	26	32	32	28
Not core city	74	68	68	72
<b>Pioneer places</b>				
Pioneer place	44	42	40	46
Not Pioneer place	56	58	60	54
<b>Tenure</b>				
Owner-occupied	83	67	70	74
Tenant	15	33	30	26
Unknown	2	-	-	-

	Wave 1 Universe	Wave 1 Achieved sample	Follow-up universe	Follow-up Achieved sample
<b>Property type</b>				
House/ bungalow	92	88	93	64
Flat	8	12	7	36
<b>Energy rating*</b>				
A-D	64	66	64	33
E-G	36	34	36	67

\* Households that had participated in the follow up survey were matched using address and postcode information to a database held by DECC of households that had an energy saving measure installed under the Energy Company Obligation (ECO) up to the end of September 2013. The Energy Companies Obligation (ECO) is an energy efficiency programme that was introduced into Great Britain at the beginning of 2013. It replaces two previous schemes, the Carbon Emissions Reduction Target (CERT) and the Community Energy Saving Programme (CESP). ECO places legal obligations on the larger energy suppliers to deliver energy efficiency measures to domestic energy users. It operates alongside the Green Deal and is intended to provide additional support in the domestic sector, with a particular focus on vulnerable consumer groups and hard-to-treat homes. Further information about ECO is available at <https://www.ofgem.gov.uk/environmental-programmes/energy-companies-obligation-eco>

## Fieldwork

All available leads were provided to interviewers. In order to maximise response a number of measures were implemented:

- Advance letters were sent to respondents informing them of the survey
- All respondents were offered a conditional £5 incentive for participating
- Interviewers made multiple calls (8+) to each household until a final outcome (for example productive interview, refusal etc.) was obtained
- The interview was relatively short (11 minutes)

Fieldwork took place between 19<sup>th</sup> November and 1<sup>st</sup> December 2013. In total, 190 households took part in the research, an unadjusted response rate of 56%. The adjusted response rate (that is where ineligible addresses and addresses where an incorrect phone number are removed from the sample) was 60%.

**Table 10: Follow-up survey response rate**

Outcome	N	Unadjusted response (%)	Adjusted response (%)
<b>Total issued addresses</b>	<b>338</b>	<b>100</b>	<b>-</b>
Incorrect telephone number	7	2	-
Ineligible (i.e. moved since baseline interview)	12	4	-
<b>Total eligible addresses</b>	<b>319</b>	<b>94</b>	<b>100</b>
Non contacts	92	27	29
Refusals	37	11	12
<b>Completes</b>	<b>190</b>	<b>56</b>	<b>60</b>

## Questionnaire development

The questionnaire for the follow-up survey was designed by DECC and GfK NOP and covered the following topics:

- Receipt of the Green Deal Advice Report (only asked of those who had not received theirs at the time of the initial interview)
- Post-interview actions
- Follow-up questions to see if intentions led to actions
- Understanding the wider impacts of Green Deal assessments on customer behaviour

## Data processing and analysis

### Data tables

A single set of data tables was produced for the follow-up survey. Although the overall sample size was relatively small at 190 respondents crossbreaks were included in the data tables to allow for sub-group analysis by a number of variables including standard respondent demographics (for example age, gender, ethnicity), housing characteristics (for example house/flat, tenure, Energy Performance Certificate rating), actions taken and Green Deal segments.

## Coding

The questionnaire featured one open-ended question and 12 questions which included 'other' answers which required coding. In order to get the most out of these open responses codeframes were developed by executives working on the project with reference to the objectives of the question. GfK NOP's team of experienced in-house coders were fully briefed by project executives about the objectives of each individual question in advance of starting work.

## Post survey weighting

As with the Wave 1 sample, data were weighted to the known profile of all households which received a Green Deal assessment in January to March 2013 using the following characteristics: region, property type and tenure. Weighting is the adjustment of the relative importance or influence that each response has on the total survey responses generated in a way so that the profile of the total sample matches some pre-defined criteria or target.

Each respondent was assigned a weight based on the findings from region, property and tenure which was calculated to ensure that the results represented the universe of all properties which had had a Green Deal assessment in the corresponding sampling period. As with the three waves of assessment research, the decision to weight to the three key variables (property type, tenure and region) and not the six stratification variables (three key variables, plus EPC rating, urbanity and core city vs non core city) was to strike a balance between the effective sample size (which decreases as the number of weighted variables increase) and accuracy. Property type, tenure and region were deemed to be the most important variables and hence these were chosen for weighting.

The effective sample size was calculated. This describes the effect of the weighting on the accuracy of survey estimates. The effective sample size is dependent upon the size of weights applied to respondents: the more the weights deviate from 1, the smaller the effective sample size and the less accurate estimates will be. The effective sample size for the follow-up survey was 92.8%.

## Approach to analysis

As for the assessment surveys, the analysis was designed to answer the key research objectives. In order to answer objectives related to households' post assessment intentions and actions and how these had changed over time, responses to a number of questions were combined to provide the same summary statistics as described for the Assessment Survey:

- Household level data: Where households had been recommended more than one measure as part of their Green Deal assessment, they were often at different stages in the decision. The variable 'most action taken' was calculated at the household level, to take this into account and provides information at a household level (for example if a household had installed one measure, and was in the process of installing another, the 'most action taken' for that household would be 'already installed')
- Measure level data: Other statistics were provided on the basis of recommended measures, rather than at a household level. In the follow up survey, the 114 respondents who were asked about their intentions at both interviews were recommended a total of 410 measures. Some charts and tables are therefore 'all measures recommended'. While some statistics are provided based on the individual measure recommended, base sizes were generally too small for detailed analysis at this level.



Tables are clearly labelled to show whether findings are based on household or measure-level data.

The analysis aimed to understand how views, experiences, actions and intentions varied over time. In particular, the analysis looked in detail at changes in actions and intentions between the Wave 1 survey and the follow up. A key objective was to see if intentions to install led to households actually installing measures. This analysis could only be completed amongst the 114 households which had been asked about their intentions and actions at the Wave 1 survey. The 76 households who had not received their Green Deal Advice Report at Wave 1 were not asked about their actions and intentions at Wave 1 and therefore could not be included in this analysis. However, the 76 households not asked about their actions and intentions were asked similar questions in the follow up survey, so an estimate could be made of most action taken across all respondents to the follow up survey.

The base size for most demographic or geographic sub-groups was too small for separate analysis, and comments could only be made on sub-group differences where those differences were very large.

There were some differences in the responses for those that had already received their Green Deal Advice Report given by the *total sample* at Wave 1 and the Wave 1 responses given by *those completing the follow up interview*. For example, while 31% of all those who had received their Green Deal Advice report at Wave 1 claimed to have installed at least one recommended measure, the same proportion amongst those asked about their actions and intentions at both Wave 1 and the follow up interview was 24%. The difference can be explained by this being a follow up survey of an initial sample. Because of the nature of this being a follow up it was not designed to be representative of the overall population (unlike the initial wave 1 research). This is explained further below.

## Important note on the findings included in the report

Because the objective of this research was to see if intentions turned into actions and to gather further evidence on the customer experience, the study did not aim to be representative of the whole assessment population.

Only households that had received their Green Deal Advice Report were asked about their actions and intentions in the initial (Wave 1) survey. Of the 507 households that took part in Wave 1 of the research, 285 had received their advice report, 194 of these gave permission to be re-contacted and 114 completed a follow up interview. Therefore the number of households to follow up actions and intentions with is fairly low, so findings should be treated as indicative and caution should be exercised with how results are used. This means that results from this survey should not be used to extrapolate to the number of households installing measures or installing individual measures.

While the survey response rate is fairly high for a study of this type, the fact that only a fifth of those who were originally sampled to participate in the Wave 1 research went on to complete both the Wave 1 and follow up surveys should be noted.

In addition, small base sizes limit opportunities for sub-group analysis, so the report does not look in detail at patterns of response by demographics, region, etc. in this report. In some cases, where results are shown broken down into sub-groups, raw figures are shown rather than percentages.



## Reporting conventions

The report uses the following conventions:

- All differences commented on are statistically significant at the 95% confidence level.
- Different significance tests are used depending on the type of analysis being conducted.
  - When looking at differences between demographic groups, standard Z-tests are used. This is simply a statistical test that checks to see if the difference is an observed difference and not just survey error.
  - When looking at changes over time (between the Wave 1 and follow up surveys), differences between the two points in time have been tested using a paired test.
- Significant difference are indicated by arrows within charts (↑↓)
- Unless otherwise specified all base sizes quoted in the report are unweighted

## Methodology and notes on grossing up estimates

As part of the analysis, estimates were made of the proportions of all households interviewed who had installed or planned to install measures. As the research was designed to be representative of the overall population, estimates were made on the numbers of households that had installed, were in the process or intended to install at least one measure. This is shown in Table 11.

In order to estimate the number of customers in each category, findings (for example the proportion saying they have installed at least one measure) and the minimum and maximum proportions calculated were multiplied by the number of assessments within the particular time period (shown at the top of the table). The numbers of customers shown in Table 11 are therefore shown as estimates and as ranges which account for these confidence intervals. The relatively small sample size for the survey means that these estimates should be treated with caution.

Because confidence intervals were calculated for each finding, and confidence intervals vary based on the finding (for example confidence intervals associated with a finding closer to 50% are wider than those associated a finding of 90%), it is not appropriate to add together the minimum or maximum proportions or grossed up estimates shown in Table 11. This explains why adding up all the minimum of the range will not equal the overall minimum (42,365 plus 2,721 plus 8,557 is not equal to 58,070). This also applies to the maximum.

Households interviewed at Wave 1 who had not received their Green Deal Advice Report were not asked about their actions and intentions, and because of differences in response over time, grossed up estimates each wave were calculated separately. Where the table shows estimates grossed up across all three waves, these were calculated separately for each wave, and added together to provide an overall estimate. For reasons of space, the table has been split across two pages: the first page shows grossed up estimates from the Follow up survey to Wave 1 and from Wave 2, and the second page shows grossed up estimates from Wave 3 and across all three waves.

However, it should be noted that, because estimates from Wave 1 are based on findings from the Follow Up survey, it is not directly comparable with estimates from Waves 2 and 3. This is

because respondents to the Follow Up Survey had had extra time to install measures, and we know that, amongst those who completed both the Wave 1 and Follow up surveys, there were some changes in stated actions/intentions. For example, amongst those asked about their actions and intentions at both waves, the proportion who had installed at least one recommended measure increased from 24% at the time of the Wave 1 survey to 51% by the time of the Follow Up survey<sup>12</sup>.

Because the survey only interviewed a samples of assessment customers (and in the case of the follow up survey, a sample of a sample), estimates are subject to confidence intervals, which are calculated based on the effective sample size for the survey<sup>13</sup>. 95% confidence intervals were calculated for each finding, and the minimum and maximum ranges are shown in Table 11.

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<sup>12</sup> Please note that the proportion of Wave 1 respondents which had installed at least one measure at Wave 1 as shown in Table 11 is higher at 54%. This is because it includes responses from those who had not received their Green Deal Advice Report at Wave 1 and were not asked at that time about their actions/intentions, but were asked about this in the Follow Up survey. When responses from both groups are added together, the survey found that 54% of all those completing the Follow Up survey had installed at least one measure

<sup>13</sup> See page 17 and page 24 of this technical report for more details.

**Table 11: Grossed up estimates**

	Wave 1 <sup>14</sup> (Effective Sample size = 178) Jan-March 2013)						Wave 2 (Effective Sample size = 475) (April-June 2013)					
	%			Number (Grossed up)			%			Number (Grossed up)		
	%	Min	Max	Number	Min	Max	%	Min	Max	Number	Min	Max
Number of households which have had an assessment	100			9,224			100			30,380		
% of households which have installed at least one measure/are in the process/definitely/probably will install	78	71.9	84.1	7,195	6,632	7,757	80	76.4	83.6	24,304	23,210	25,398
% of households which have installed at least one measure	54	46.7	61.3	4,981	4,308	5,654	56	51.5	60.5	17,013	15,646	18,380
% of households which are in the process of installing	5	1.8	8.2	461	166	756	6	3.9	8.1	1,823	1,185	2,461
% of households which definitely/probably will install	19	13.2	24.8	1,753	1,218	2,288	19	15.5	22.5	5,772	4,709	6,836

	Wave 3 (Effective Sample size = 424) (July – Sept 2013)						Across all three waves (Jan-March 2013)		
	%			Number (Grossed up)			Number (Grossed up)		
	%	Min	Max	Number	Min	Max	Number	Min	Max
Number of households which have had an assessment	100			37,044			76,648		
% of households which have installed at least one measure/are in the process/definitely/probably will install	80	76.2	83.8	29,635	28,228	31,043	61,134	58,070	64,198
% of households which have installed at least one measure	65	60.5	69.5	24,079	22,412	25,746	46,072	42,365	49,780
% of households which are in the process of installing	6	3.7	8.3	2,223	1,371	3,075	4,507	2,721	6,292
% of households which definitely/probably will install	10	7.1	12.9	3,704	2,630	4,779	11,229	8,557	13,902

<sup>14</sup> Estimates from Wave 1 are taken from the follow up survey because those who had not received their Green Deal Advice Report at the time of the Wave 1 interview were not asked about their actions and intentions.

# Appendix

## Advance letter (assessment survey - Wave 3 example shown)



Date 23<sup>rd</sup> October 2013

Ref: 14500403/[SERIAL]

Dear householder

### GREEN DEAL ASSESSMENTS – HAVE YOUR SAY

I am writing to ask for your help and to offer you a £10 gift voucher to say thank you.

I understand that your household has recently had a Green Deal Home Energy Assessment which was carried out by <ASSESSMENT COMPANY> on <DATE>. We would like to know your views and experiences of this assessment and what you intend to do next.

The Department of Energy and Climate Change (DECC) is the Government department responsible for household energy efficiency and the Green Deal. DECC has asked an independent research company called GfK NOP to conduct a survey of households which have had an assessment recently.

Your address has been chosen at random from a list of such households and we would like to ask for some information from the person/people who were there when the assessment took place. The survey should take around **10 minutes** to complete, and as a thank you for taking part we will send you a **£10 gift voucher**.

You can take part in one of two ways:



You can visit <https://www.surveys.com/GD3> and when prompted, please enter your ID <ID> and password <Password> - this will take you to the survey. Please complete it by 28<sup>th</sup> October. Your voucher will be sent to you in the post after you complete the survey.



An interviewer will visit your address to invite you to take part in the survey. He/she will make an appointment to return at a more convenient time if you're unable to do it when they first call.

Your responses will be treated in the strictest of confidence and in line with the Data Protection Act. They will not be passed to your assessor or installers, and you will not be contacted again without permission.

If you have any more questions about the research, you can ask the interviewer when they call or you can contact GfK NOP by email at [GDSurvey@gfk.com](mailto:GDSurvey@gfk.com) or on 0800 5280722. If you have any concerns or want to contact an official at DECC you can contact Oliver Anderson at [oliver.anderson@decc.qsi.gov.uk](mailto:oliver.anderson@decc.qsi.gov.uk) / on 0300 068 6131.

I hope that your household will be able to take part. The information from this research will be a valuable input to services for households in Britain, and we will use it to try to make the Green Deal better for all.

**Thank you in advance for your help.**

Yours sincerely,

Richard Mellish  
Deputy Director for Green Deal

## Advance letter (Follow-up survey)



Date: 13<sup>th</sup> November 2013

Ref: 408 / <SAMPLE\_ID>

Dear <NAME>

### GREEN DEAL ASSESSMENTS – HAVE YOUR SAY

I am writing to ask for your help and to offer you a £5 gift voucher to say thank you should you be involved.

You may remember taking part in a short survey in <MONTH\_OF\_INTERVIEW> about the Green Deal Home Energy Assessment that you had on <ASSESSMENT\_DATE>.

The survey, which you would have completed online or following a home visit from an interviewer, was conducted by GfK NOP, an independent research company. At the end of the survey you agreed that GfK NOP could contact you again to invite you to participate in further research about this subject.

GfK NOP has been asked to conduct a second survey of households which took part in the original survey to ask them some more questions about their experiences. The research is being conducted on behalf of the Department of Energy and Climate Change (DECC), which is the Government department responsible for household energy efficiency and the Green Deal.

### How to take part



An interviewer will contact you by telephone during the next few days to invite you to take part in the survey. He/she will make an appointment to call back at a more convenient time if you're unable to do it when they first call.

The survey should take around **10 minutes** to complete, and as a thank you for taking part we will send you a **£5 gift voucher**.

Your responses will be treated in the strictest of confidence and in line with the Data Protection Act. They will not be passed to your assessor or installers, and you will not be contacted again without permission.

If you have any questions about the research, you can ask the interviewer when they call or you can contact GfK NOP by email at [GDSurvey@gfk.com](mailto:GDSurvey@gfk.com) or on 0800 5280722. If you have any concerns or want to contact an official at DECC you can contact Oliver Anderson at [oliver.anderson@decc.qsi.gov.uk](mailto:oliver.anderson@decc.qsi.gov.uk) / on 0300 068 6131.

The information from the first survey was invaluable and we very much hope that you will be able to take part again, as we will use the information you give us to try and make the Green Deal better for all.

Thank you in advance for your help.

Yours sincerely,

Richard Mellish  
Deputy Director for Green Deal

