Research on the use of wind farm visualisations by the public and decision-makers: Phase 2 - 2014 guidance

COMMISSIONED REPORT

Commissioned Report No. 936

Research on the use of wind farm visualisations by the public and decision-makers: Phase 2 - 2014 guidance

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This report should be quoted as:

COMMISSIONED REPORT
Summary

Research on the use of wind farm visualisations by the public and decision-makers: Phase 2 - 2014 guidance

Keywords

Guidance; visualisations; wind farms; survey; planning and development.

Background

SNH commissioned Why Research to look at how visualisations based on the Visual Representation of Wind Farms Good Practice Guidance 2006 guidance are used in practice, in different settings. Phase 1 of this research was completed in April 2015 and the findings are described in Commissioned Report 935.

This was followed by phase 2 which looked at the use of visualisations based on the 2014 revised guidance to ascertain whether the updated guidance has led to improvements in wind farm visualisations. The research was also designed to gather feedback on the use of the visualisations to inform future revisions to the guidance. This work was part funded by the Landscape Institute Scotland and the Landscape Institute Technical and Professional Committee.

Main findings

The findings from this second wave of the Survey relating to SNH's Visual Representation of Wind Farms Good Practice Guidance (2014) show:

- Findings indicate that visualisations meet the needs of both professionals and members of the public. Percentages saying that visualisations meet their needs have increased since the first wave of research.
- Visualisations are seen by all professionals and most residents to be an accurate representation of the actual view of the landscape. All professionals and almost all residents think it is important that visualisations provide wider landscape and visual context.
- Almost all professionals felt that the new methodology has improved wind farm visualisations.

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1. EXECUTIVE SUMMARY

1.1 Key overview

In 2014, SNH commissioned Why Research to look at how visualisations based on the 2006 Visual Representation of Wind Farms Good Practice Guidance were used in practice, in different settings. This was followed by a second wave of research looking at revised guidance: Visual Representation of Wind Farms, published in December 2014. This report relates to the second wave of research which was completed between November 2015 and April 2016.

Two online surveys were carried out; amongst members of the general public living near wind farm developments (157 respondents) and amongst professionals who look at wind farm visualisations in Scotland (14 respondents).

Face to face interviews were carried out with 25 members of the general public at wind farm exhibitions. In addition, face to face or telephone interviews were carried out with one local authority landscape architect and 8 planning officers, along with 4 community councillors.

This provided a total sample of **209** people.

1.2 Usefulness of visualisations

As was the case in the previous wave of research, the majority of respondents said that the visualisations met their needs: 11 out of 14 professionals said yes as did 91% of residents.

The usefulness of the range of visualisations was consistent with the findings from the previous wave of research, with most residents (88%) choosing a panoramic photomontage as their preferred visualisation. Opinions were mixed amongst professionals with similar numbers choosing ZTV maps (11), panoramic photomontages (10) and baseline panorama photograph and wireline (9).

All of the professionals and 79% of residents felt that the visualisations were an accurate representation of the actual view of the landscape.

1.3 Use of visualisations

Almost all professionals (12 out of 14) and residents (97%) said that they found visualisations easy to use.

All 14 residents who had visited a site said they found it very easy (36%) or quite easy (64%) to match the actual view with the view in the visualisation. Similarly, all of the 12 professionals who had undertaken site visits said the visualisations were easy to use (three said very easy, nine said quite easy).

Almost all of the professionals (11 out of 12) said instructions provided with the visualisations were easy to follow, as did 79% of residents.

All of the professionals and almost all the residents (87%) felt it is important that the visualisations provide wider landscape and visual context, with only 8% saying this is not important. This compares to 93% of residents in the previous wave.

1.4 Opinions on the new guidance

Almost all professionals (13 out of 14) said that the new methodology has improved wind farm visualisations.

2. INTRODUCTION

Scottish Natural Heritage (SNH) is the government's adviser on all aspects of nature and landscape across Scotland and aims to help people understand, value and enjoy Scotland's nature, now and in the future. With regard to wind farm development, SNH's aim is to help achieve the right wind farms in the right places.

Most wind farm applications are subject to Environmental Impact Assessment (EIA) to ensure any environmental impacts are fully considered before a decision to proceed is made. A Landscape and Visual Impact Assessment (LVIA) forms part of the EIA and looks at the effect of any change in the landscape, including any potentially negative effects and how these can be avoided, reduced or offset. Studies indicate[1] that the visual impact of a wind farm can be a significant barrier to its acceptance and deployment.

Within the Visual Impact Assessment (VIA) aspect of the LVIA, visualisations are used to show how a development may appear and where it might be seen from. As well as photographs, visualisations also include wirelines (line diagrams illustrating the three-dimensional shape of the landscape) and photomontages (where an image of the proposed development is superimposed on a photograph or photographs).

2.1 Guidance

In 2006, SNH published Visual Representation of Wind Farms Good Practice Guidance. This was revised in 2014 to further improve the methodology, based on feedback and the development of improved techniques for producing photomontages. These visualisations have to meet the needs of a range of people with differing requirements, regardless of where and in what format the visualisations are viewed. This includes landscape practitioners, planning officers and decision makers and the general public.

2.2 Key changes

Key changes between the 2006 and the 2014 versions of the guidance are:

- Visualisations are to be presented at an increased, specified printed image size to provide a better representation of the proposal.
- Photomontages should be viewed at a comfortable arm's length and not at a specified viewing distance; images should be viewed on a flat surface.
- Printed photomontages should now be presented in planar projection (not cylindrical) which is easier to use both on site, on screen and in other locations.
- Camera and lens specifications have been standardised to provide a straightforward means of verifying the images produced and to provide high resolution prints.
- A Digital Viewer is being developed to make it easier for members of the public and decision makers to access images online and for landscape assessors to illustrate cumulative effects. However, this was not in use at the time of the survey.
- Applications will be supported by a Viewpoint Pack which includes a single frame image to make it easier to examine visualisations in the field and to improve public accessibility.
- Aspects of the guidance are prescriptive and must be complied with, whereas the 2006 version provided recommendations and a minimum requirement.

2.3 A need for research

SNH wished to commission research to look at how visualisations based on the 2006 guidance were used in practice, in different settings, and to follow this by looking at

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[1] http://www.sciencedirect.com/science/article/pii/S1364032105001255

visualisations based on the 2014 guidance to ascertain whether this updated guidance has delivered improvements in wind farm visualisations. This report summarises the findings from research carried out in relation to the 2014 guidance – phase 2 - and includes comparisons with the findings from the previous wave of research.

The research focussed on the use of wireframes, photomontages and other visualisations to illustrate the landscape and visual effects from viewpoints and tested whether:

- members of the public, decision-makers and other users understand the visualisations and how to use them;
- there are further ways to improve the materials described within the guidance.

The research took the form of:

- an online survey amongst members of the general public;
- an online survey amongst local authority planning officers and other professionals;
- face-to-face interviews with members of the public visiting public exhibitions set up by wind farm developers;
- telephone and face to face interviews with community councillors and local authority planning professionals.

2.4   Analysis and reporting

Responses to the online surveys were imported directly into SNAP software for analysis and this report details the findings from these analyses.

Where base sizes allow, responses from respondent sub-groups were analysed to look for any differences or commonalities between groups and these are mentioned wherever relevant.

It should be noted that figures and tables throughout this report may not add to 100% either due to rounding or because respondents were allowed to select more than one answer to a question. In addition, base sizes may vary as respondents could choose whether to answer a question or not. Comments made by respondents have been anonymised to preserve confidentiality.

3.   RESPONDENTS

A total of 209 respondents took part in this wave of research relating to SNH's Visual Representation of Wind Farms Good Practice Guidance (2014):

- Online survey amongst members of the general public living near wind farm developments (157 respondents).
- Online survey amongst professionals who look at wind farm visualisations in Scotland (14 respondents).
- Face to face interviews with members of the general public, conducted at wind farm exhibitions (25 respondents).
- Face to face or telephone interviews with relevant professionals (9 respondents).
- Face to face or telephone interviews with community councillors (4 respondents).

3.1   Online respondents

Residents: The survey amongst members of the general public living near a wind farm development was conducted between 11th and 21st March 2016 using an online panel. The survey was sent to residents of specific postcode areas; these areas were compiled using information on recent wind farm applications provided by SNH. 760 adults replied to the survey and 157 of them fulfilled the criteria required to complete the full questionnaire: they were aware of a recent wind farm development proposal in their area; and had looked at visualisations of a proposed wind farm development. While this low fulfilment rate of 20% is slightly higher that that seen in the previous survey (13%) we can assume that this indicates a continuing low awareness of wind farm developments; the planning process or the visualisations provided by applicants.

Professionals: Invitations to participate in an online survey were sent to key professionals who look at wind farm visualisations in Scotland. Invitations were sent both from Why Research and via SNH to Heads of Planning Scotland and other groups. The survey ran from the 8th January until the 21st March 2016. 14 out of the 20 respondents who replied completed the full survey as they had been involved in work related to wind farm developments in the past year and had viewed visualisations relating to wind farm developments. This low response is indicative of the far lower number of new wind farm applications seen over the past year due to various political developments, and the fact that some 'legacy' applications contained visualisations based on the previous 2006 guidance. As a result, far fewer applications with visualisations which comply with the SNH 2014 guidance are in circulation and this has reduced the number of responses.

3.2   Online respondent profile

All respondents were asked to provide a little background information and this information has been used to enable analysis as to whether any differences, or commonalities, appeared across the various different types of respondents that completed the surveys.

As can be seen in the following figure, more of the 157 residents who took part were male (62%) compared to female (38%). The greatest proportions of respondents were aged between 35 and 74 (104 individuals), with smaller numbers (24) aged under 34 and over 75.
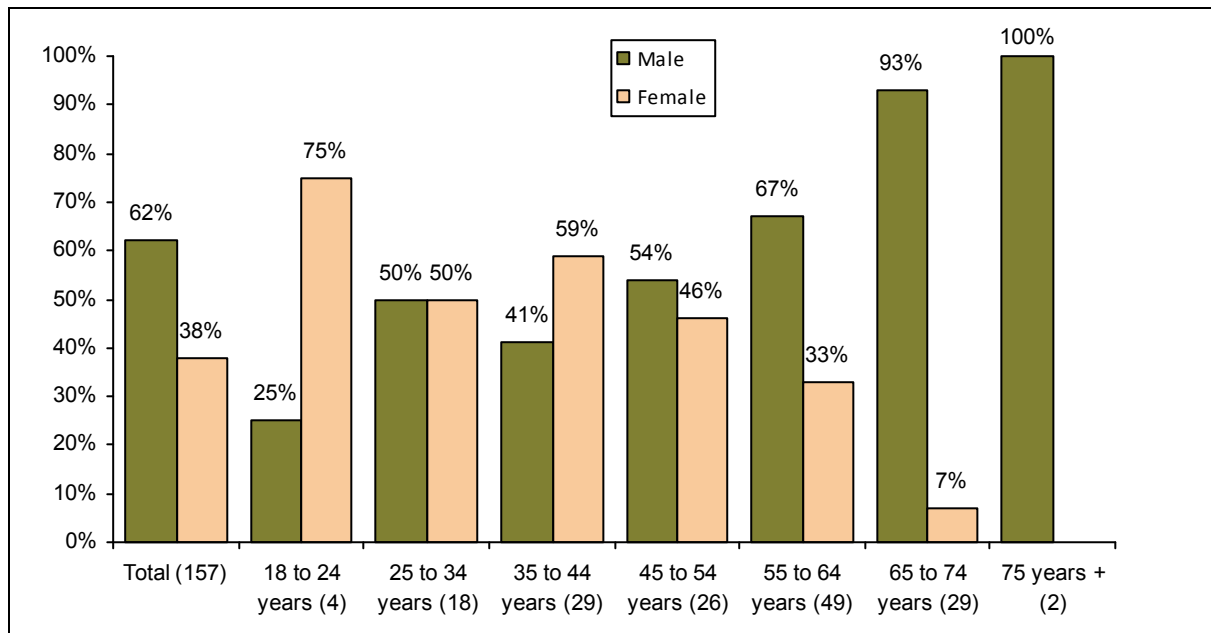
Figure 1. Resident profile

Looking at the 20 professionals who accessed the online survey:

- One did not progress to the full survey as they had not been involved in any wind farm developments in the past year.
- Five of those who had been involved in wind farm developments in the past year did not progress to the full survey, as the visualisations related to those developments had not been based on the 2014 guidance.
- 14 completed the full survey, 7 were local authority planning officers while 7 had other roles including:
  - Landscape advisers.
  - Landscape architects.
  - Renewable energy advisers.

3.3   Wind farm developments

The 157 residents who said that they were aware of a proposed wind farm development in their area were asked to give its name:

- 78 gave the name of the development, those mentioned by the largest numbers (each by 2 respondents) were:
  - Allt Carach
  - Holy Isle wind turbine
  - Kilrubie
  - Tom nan Clach
- 17 gave the location, the name of the developer or some other descriptor.
- 62 did not answer or said they could not remember.

Residents were also asked whether the wind farm had already been built. As shown in the following figure, just over a quarter (26%) said 'yes', a fifth said the wind farm is currently under construction and just over half (54%) said it has not yet been built.
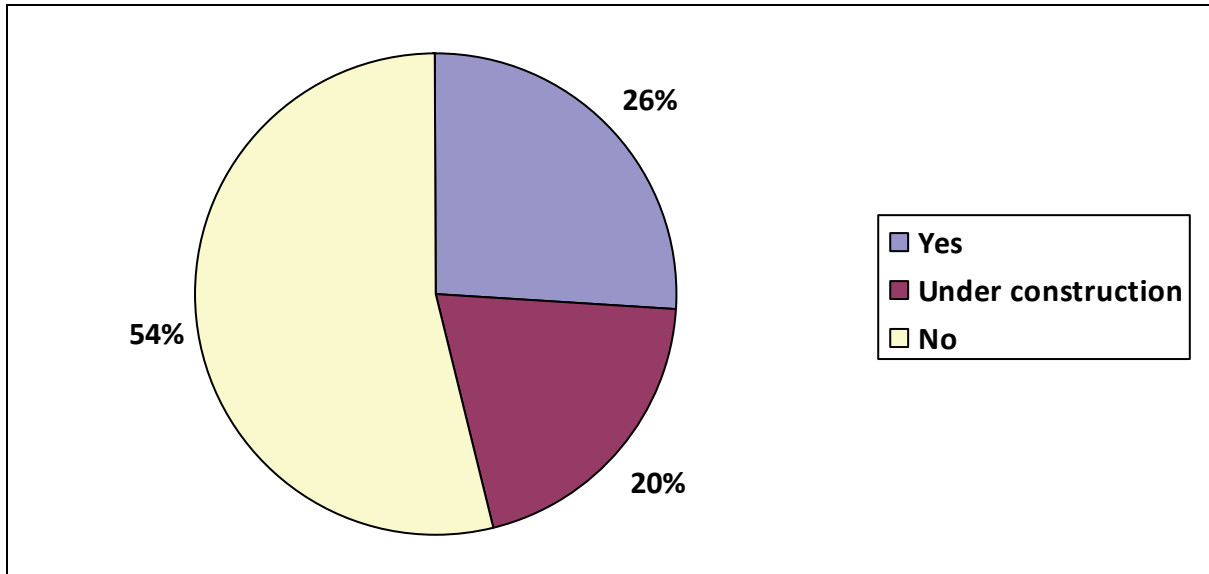
Figure 2. Whether wind farm had already been built

Q3b (Base = 157 residents)

When asked to name the most recent wind farm development that they have viewed visualisations of, the professional respondents mentioned:

- Allt Rubha
- Bankend Rig II
- Blair wind farm and Data centre
- California Wind farm
- Crossdykes wind farm
- Douglas West wind farm
- Cumberhead wind farm
- Druim Ba 2 wind farm
- Enoch Hill wind farm
- Gordonbush extension
- Inch Moor
- Kilrubie wind farm
- Lower Samsons
- Tom nan Clach
- Wether Hill extension

3.4   Qualitative Respondents

Researchers attended wind farm exhibitions between November 2015 and January 2016.

At all of these the developer displayed examples of visualisations as set out in section 4 below: a selection of single frame photos from viewpoint packs; panoramic photomontages; wirelines; and ZTV maps.

- Two wind farm exhibitions in the Borders.

  - Discussions were held with 18 members of the public and both developer teams.

- One wind farm exhibition in South Lanarkshire.

o Discussions were held with 7 members of the public and the developer team.

Most of the members of the public that researchers talked to at the wind farm exhibitions were local residents and, as was the case in the first wave of this research, many were against the idea of a wind farm in their area, with limited interest in the visualisations.

Telephone or face to face interviews were conducted with local authority professionals (one landscape architect and 8 planning officers) and 4 community councillors.

Findings and comments from these discussions are included in the relevant sections in the following chapters; these mainly relate to the usefulness of visualisations, comments on changes to visualisations following changes to the guidance, suggestions for further improvements and other comments.

4. VISUALISATIONS

Resident and professional online respondents were asked a series of questions about specific visualisations and about visualisations in general. The following images and information were provided within the residents' survey, the questionnaire for professionals contained an abbreviated version:

	A panoramic photomontage A photomontage combines a photograph of the real view with a computer generated image of the wind farm proposal.
	A single frame photomontage A single frame photomontage is derived from a single photograph. A panoramic photomontage involves stitching several photos together.
	A baseline panoramic photograph and wireline These show the existing view and a matching wireline with the wind farm proposal(s)
	A wireline A wireline is a computer generated image depicting how the wind farm would look with no surface screening or vegetation
	A zone of theoretical visibility (ZTV) map A ZTV map shows where it might be possible to see the wind farm, depending on screening such as buildings and vegetation

Figure 3. Examples of visualisations

5. AWARENESS OF VISUALISATIONS

Residents who had seen visualisations were asked some initial questions which had been added for this wave of research. The first of these questions asked residents where they had seen visualisations of the proposed wind farm development.

As the following figure shows, 41% said they had seen visualisations in newspapers or local newspapers; however it may be that these were more general pictures of wind farms rather than actual visualisations which are rarely printed in the press. The other responses are more likely to refer to actual visualisations and the highest proportions cited a public exhibition given by a developer (30%) or viewed online (28%). Around one in ten residents referred to information on the development in a library (15%), a community council meeting (12%) or a meeting of a local group (11%).
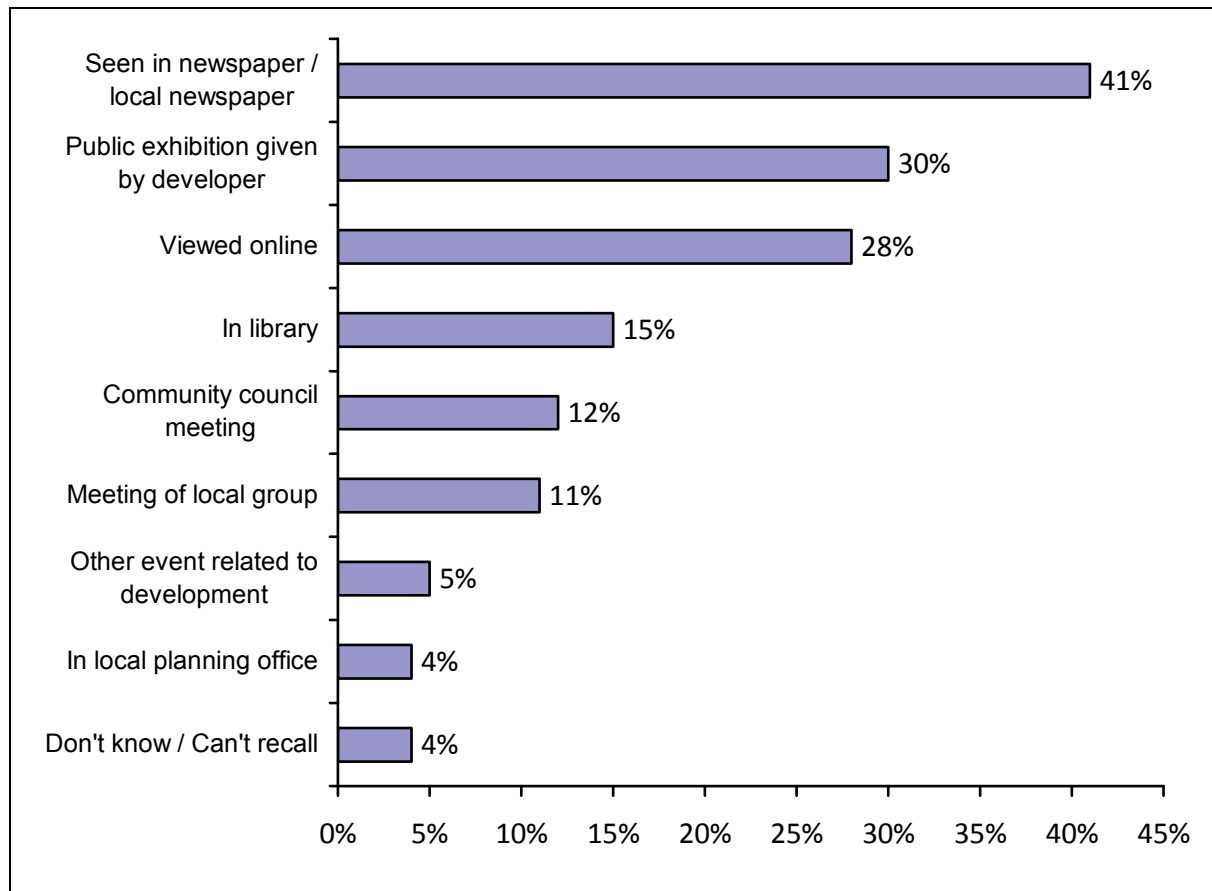
Figure 4. Where visualisations of the proposed wind farm were seen

Q4 (Base = 157 residents)

Residents were then asked their reasons for viewing the visualisations and the key reason given was because they are a local resident (86%). Much smaller proportions of residents referred to having another interest in the area / development (16%), being a community council member (5%), being a member of a wind farm action group (3%), or being a developer (1%) or a planning officer (1%).
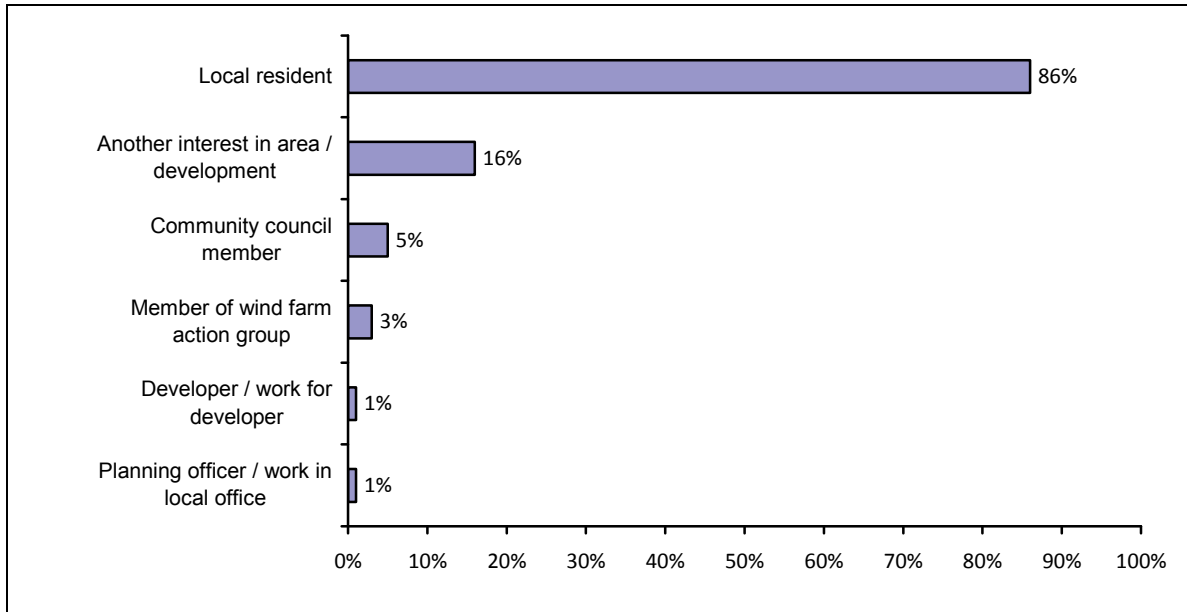
Figure 5. Why looked at visualisations

Q5 (Base = 157 residents)

Residents were also asked which visualisations they had seen from the set list as shown in section 4 of this report. The list was the same as that presented in the first wave of research with the addition of a mention of the Viewpoint Pack. The introduction of a Viewpoint Pack is one of the changes in the 2014 guidance and aims to make it easier to examine visualisations in the field and to improve public accessibility.

As can be seen in the following figure, 7% said they had viewed the Viewpoint Pack. Looking at the other visualisations, the panoramic photomontage was again mentioned by the highest numbers; 68% of respondents to this wave of research said they had viewed these, compared to 66% in the first wave of research.
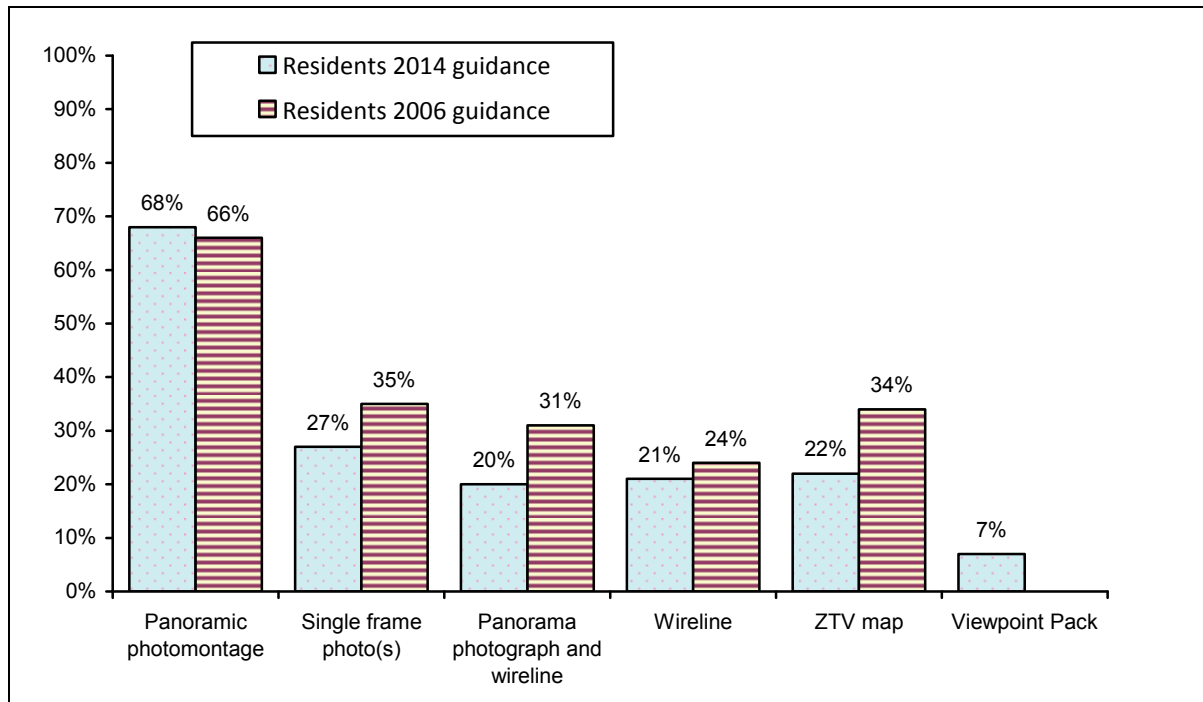
Figure 6. Visualisations seen

Q6 (2014 Base = 157: 2006 Base = 131)

Professionals were also asked which visualisations they had seen, all said they had seen a wireline and most had seen all of the other types of visualisations:

- A wireline (14).
- A panoramic photomontage (13).
- A zone of theoretical visibility (ZTV) map (13).
- A baseline panorama photograph and wireline (12).
- Single frame photo(s) (10).
- The Viewpoint Pack (10).

Professionals were then asked a series of questions about the visualisations they receive from developers. When asked: 'Did the developer provide copies of visualisations for the wind farm development?' all said 'yes':

- 3 had received these in hard copy.
- 1 received them electronically.
- 10 received the visualisations in both hard copy and electronic format.

Almost all of those who had received hard copies said that they received sufficient copies (12); one said they had had to request more copies.

Those professionals who had received visualisations in electronic format were asked whether they had printed any copies and two said that they had:

- Both printed them A3 size.
- Both printed them in colour.

11

Professionals were also asked: 'What would be your preference for receiving visualisations?' Most (12) said they would like to receive both hard copy and electronic copies.

Looking at responses in relation to the Viewpoint Pack:

- The 11 residents who had seen the Viewpoint Pack were asked whether it was clear they could obtain copies to take with them if they wanted to visit the viewpoint(s). Views were relatively polarised, with 6 residents saying they were aware and 5 saying they were not.

- The 10 professionals who had seen the Viewpoint Pack were asked whether it was clear that these were viewpoints that could be visited. Eight said yes and two said no. When asked if it was clear that the photos would match the views at the viewpoints, nine said it was clear while one thought it was not clear.

Qualitative respondents also commented on the viewpoint pack and the main theme to emerge in these responses was that the pack was seen as most useful for members of the public and elected members. While it was seen as less useful for professionals, nevertheless the change in format was welcomed by some. One commented that it is far easier to use *"you can take out the one you want and don't have to lug a big folder that takes 2 people to deal with!"* Another commented: *"Easier to use – more accessible"*.

Looking at responses in relation to the wirelines:

- The 54 residents who had seen the wirelines were asked to say whether the wireline showed all wind farms in the area. Views were relatively split with 43% of residents agreeing that the wireline showed all the wind farms in the area, compared to 57% who disagreed.

- Professionals were asked the same questions and 13 said yes, one said no.

The residents who had seen the wirelines were then asked to say whether on the wirelines, different colours were used to illustrate some of the wind farms and whether this was clear to them:

- Almost half (44%) said different colours were used; just under a quarter (23%) said that although different colours had been used, the different wind farms were not clear; a third (33%) said that different colours had not been used.

- Professionals were asked whether different colours had been used and whether it was clear why the wind farms were shown in different colours. Thirteen said different colours had been used, one said they had not. Eleven professionals felt it was clear why the wind farms were shown in different colours, three did not.

Qualitative respondents also commented on the wirelines and some felt that the use of colour can be problematic in areas with large numbers of developments: *"the colours tend to merge into each other and overlap"*. The importance of numbering or naming developments in these instances was stressed.

Others, however, found it easy to distinguish developments: *"very different colours, you'd have to be colour blind not to see the difference"*.

Other comments included:

"The new guidance makes it easier to see cumulative impacts. They need to use solid colours and different colours that contrast well."

"This is always handy and is more useful from my point of view. I can see the turbines clearly."

"Always handy. More useful from my point of view than for other people. Cumulative is useful."

At one exhibition, many of the attendees did not like the wirelines as they felt they gave no sense of the size of the turbines. Other comments included:

That wirelines are most helpful as there are no distractions so you can see exactly where the turbines are. *"This is an essential part of the exhibition and should be mandatory for all exhibitions."*

"I don't think the wirelines are very useful – they don't mean much to ordinary people"

6. USE OF VISUALISATIONS

Respondents, both professional and residents were asked a series of questions about the use of visualisations.

Residents were asked: 'Did you refer to the viewing instructions on the visualisations? As the following figure shows, almost half did not see any instructions (46%); this is an increase from the previous wave where 37% had not seen instructions. Consequently, fewer residents in this wave of the research said that they referred to viewing instructions (30%, compared to 40% in the previous wave). Almost a quarter saw instructions but chose not to use them (a similar finding to the 23% seen in the previous wave).
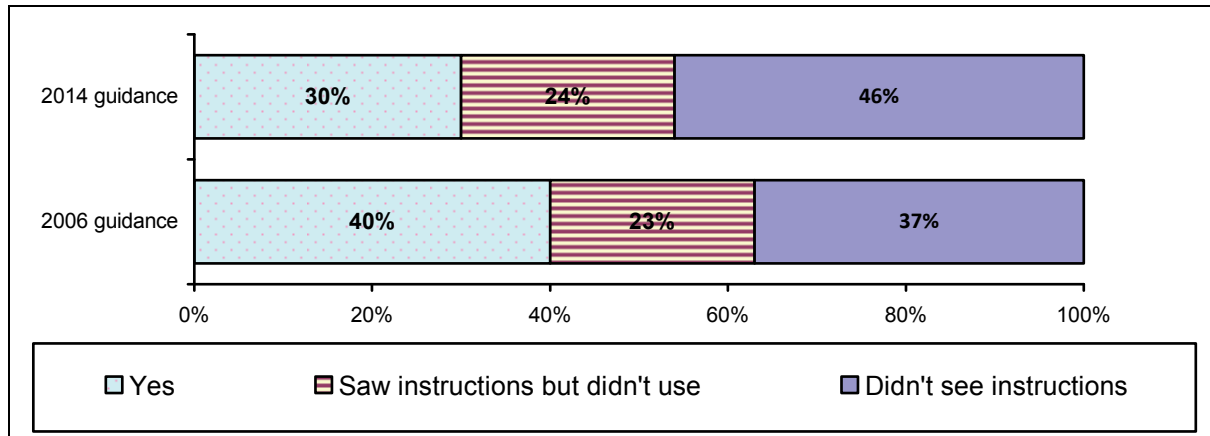
Figure 7. Whether referred to viewing instructions

Q9 (2014 Base = 157: 2006 Base = 131)

Professionals were asked the same question: 10 said yes, 3 said they had seen the instructions but had not used them, one said they had not seen any instructions.

During qualitative discussions, professionals showed little recollection of instructions. Comments included: *"they were probably in a technical appendix 'somewhere in the application'"* and *"there were probably instructions provided but there is so much irrelevant information provided that I don't read it all."*

Residents were then asked: 'Did you find the visualisations easy to use?' The figure below shows that almost all residents (97%) found the visualisations easy to use. This figure is the same for residents, regardless of whether the visualisations were based on the 2006 or the 2014 guidance.

14

Yes 97% No 3% (2014 guidance)
Yes 97% No 3% (2006 guidance)

0% 20% 40% 60% 80% 100%

☐ Yes   ⊟ No
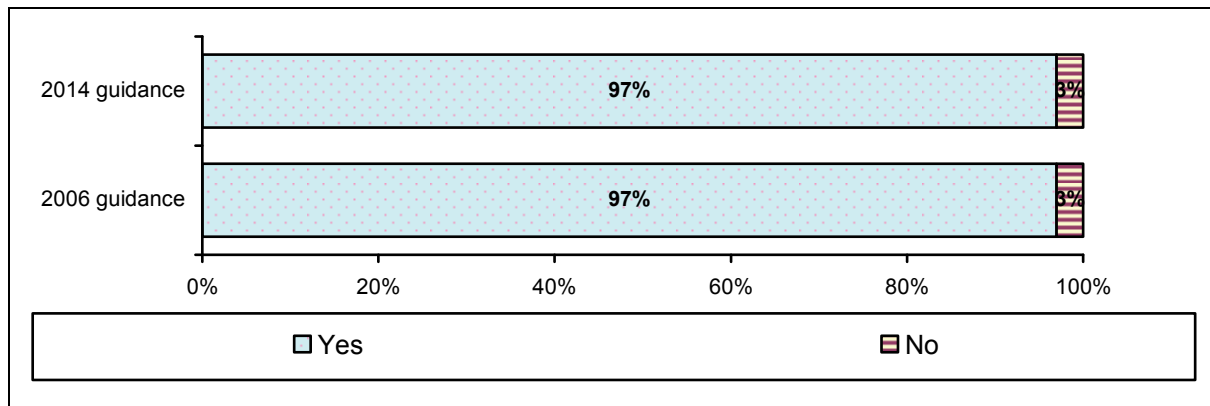
Figure 8. Whether visualisations easy to use

Q8a (2014 Base = 157: 2006 Base = 131)

Professionals were also asked whether they found the visualisations easy to use and most said that they did:

- Yes (12)
- No (2)

The five residents and two professionals who said they did not find the visualisations easy to use were asked to say why:

Comments from residents included:

- A lack of detail.
- That wirelines are not useful.
- That there were no maps to show where the wind farm would be built.
- That more information on the location would have been useful to help assess whether the visualisations were accurate.
- That the scale was incorrect.
- That the visualisations should show all developments either in planning, approved or built.

Professionals, from the online and qualitative elements, commented:

"The big long document is impractical to use – it's far too long and the information it contains can be gleaned from the other information. I feel it is an un-necessary additional requirement."

"Although it is good to have the panoramic montages as they are useful to enable understanding of the development impacts, they are a little unwieldy due to the size."

"The landscape architect has it – but it's HUGE – barely fitted in the boot of his car."

At the exhibitions, attendees commented on many of the visualisations available for them. Some of these comments were positive, for example:

- The panoramic photomontage was seen as most useful (although there was some scepticism about whether it was accurate in respect of the size of the turbines).

- Some attendees had viewed the visualisations online but felt that they got a better idea of the impact from the printed photos.

- At one exhibition, there were a lot of maps on display as well as the standard visualisations and people felt these were very useful (especially one which showed cumulative impact and one which showed access roads and other construction).

There were also concerns; some were similar to those seen in the previous wave of research (for example that the visualisations do not demonstrate the impact of moving turbines or the noise from turbines, or that the visualisations are taken in a way that serves to minimise the actual impact).

It is interesting to note that at one exhibition the developer had included a qualifying notice outlining the limitations of visualisations and this included the point that a static image cannot convey turbine movement.
Other concerns were new and these included:

- That the legends and information on the visualisations are in very small type that people find hard to read.

- A suggestion that a compass direction on photos and wirelines would be helpful (N.B these are required by the guidance and it is not clear whether this respondent missed the compass directions or whether they were missing from the visualisation).

- The need for some kind of comparators to help people understand how high the turbines will be (for example, that they will be twice as high as the Scott Monument or some landmark relevant to the area).

- In relation to very tall turbines, attendees said that these turbines would need lights on the tips but that this wasn't shown on the visualisations.

There was also a query from one of the developers in relation to the guidance. The guidance says that photomontages should be viewed at a comfortable arm's length and not at a specified viewing distance; images should be viewed on a flat surface. The developer said they had been unsure whether that meant lying flat on a table or pinned up on boards.

7. ONLINE VISUALISATIONS

In both the resident and professional surveys, residents were asked a series of questions about viewing visualisations online. Firstly: 'Did you view any of the images online?':

- 39% of residents and 50% of professionals had viewed the visualisations online.
- 61% of residents and 50% of professionals had not.

The 59 residents and 7 professionals who had viewed visualisations online were asked: 'Were they easy to download?:

The majority of these respondents (86% or residents and 6 out of the 7 professionals) said they were.

Respondents were also asked 'Were the instructions on how to use them clear?' Four professionals said they were clear while three had not seen any instructions.

The figure below shows that responses from residents remain similar to those seen in the previous wave of research.
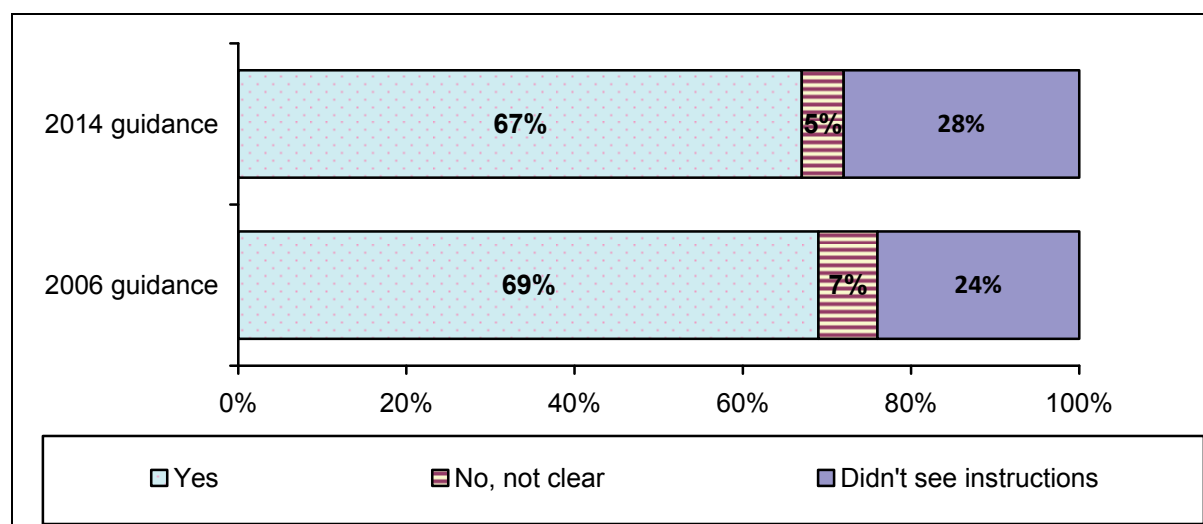
Figure 9. Whether referred to viewing instructions
Q10c (2014 Base = 157: 2006 Base = 131)

When asked 'Were they easy to use?' 98% of residents said yes (the comparable figure from the previous wave was 95%) and 2% said 'no' (compared to 5% from previously).

Respondents were also asked whether they had printed out any of the visualisations; seven residents and three professionals said that they had.   When asked 'What size did you print them?' 'fit to page' was clearly the most popular:

- Fit to page (six residents, one professional).
- At the size specified on the image (one professional).
- A3 (one resident, one professional).

Finally, respondents were asked 'Did you print them off in colour or black and white?' Most (8) residents and all three professionals had printed in colour. Only one resident had printed the visualisations in black and white.

8. USE IN FIELD

The questionnaires also included a section on the use of visualisations in the field. Respondents were asked: 'Did you visit any of the sites indicated on the visualisations to see the actual view?'

As was also the case in the previous wave, most professionals had visited some of the sites (12 had, two had not).

Looking at responses from residents, the following figure shows that the figures remain similar to those seen in the last wave of research, with around a third visiting any sites.
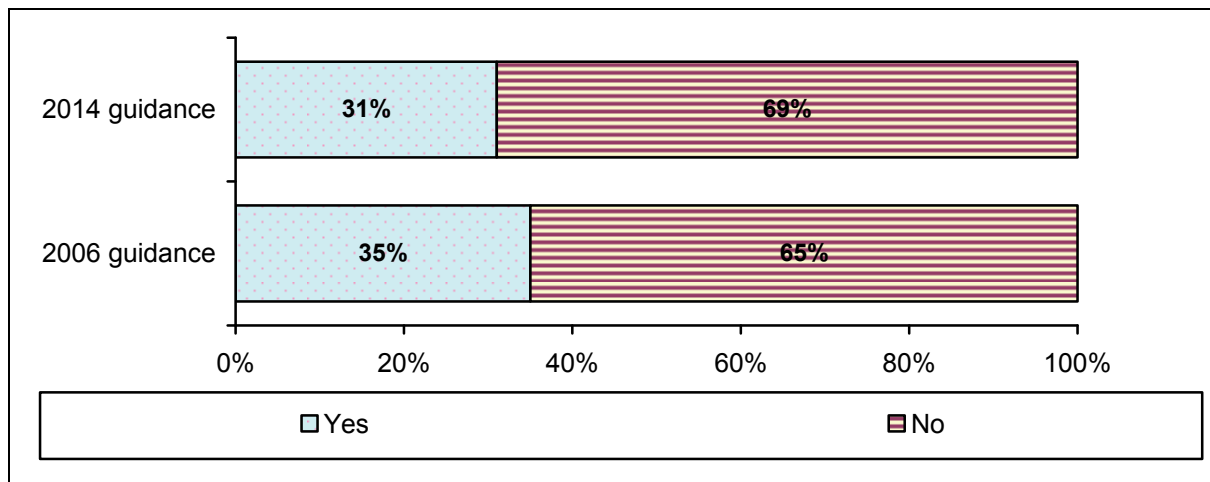
Figure 10. Whether visited any sites

Q12a (2014 Base = 157: 2006 Base = 131)

These residents were asked why they had visited the site and a majority (65%) said the site(s) was somewhere they visit regularly while 37% said they had gone specifically to see how the actual site compared to the visualisation.

Just under a third (29%) had taken a copy of the visualisation(s) with them.
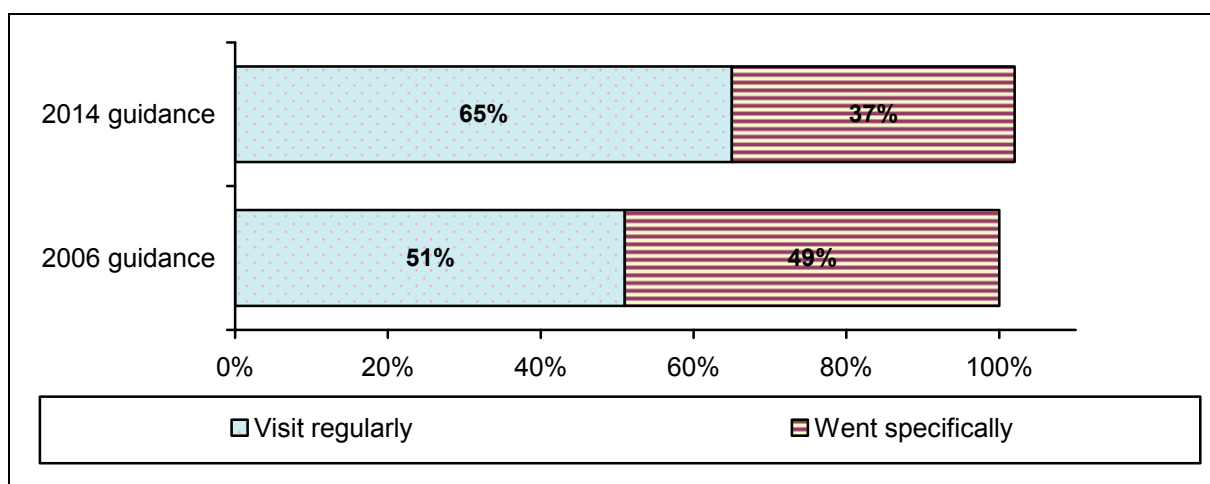
Figure 11. Reason for visiting site(s)

Q12b (2014 Base = 49: 2006 Base = 46)

The residents who had visited a site with a copy of the visualisation(s) were asked to say how easy they had found it to match the actual view with the view in the visualisation and all said they found it very easy (36%) or quite easy (64%). Similarly, all of the 12 professionals who had undertaken site visits said the visualisations were easy to use (three said very easy, nine said quite easy).

When asked about instructions provided with the visualisations, residents were very positive, with 79% saying they were easy to follow. Almost all of the professionals (11 out of 12) said the instructions were easy to follow; the other said no instructions had been provided.
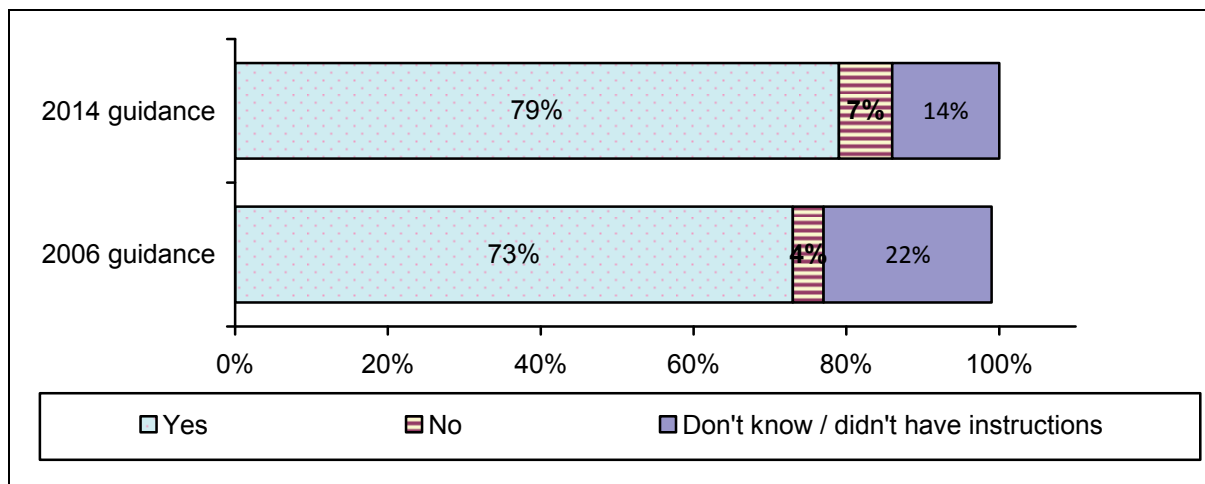
Figure 12. Whether instructions easy to follow

Q12e (2014 Base = 14: 2006 Base = 13)

Finally, in this section, respondents were asked: 'Was the visualisation an accurate representation of the actual view of the landscape?'

All of the professionals said yes and, as shown in the following figure, and most residents also felt that it was.
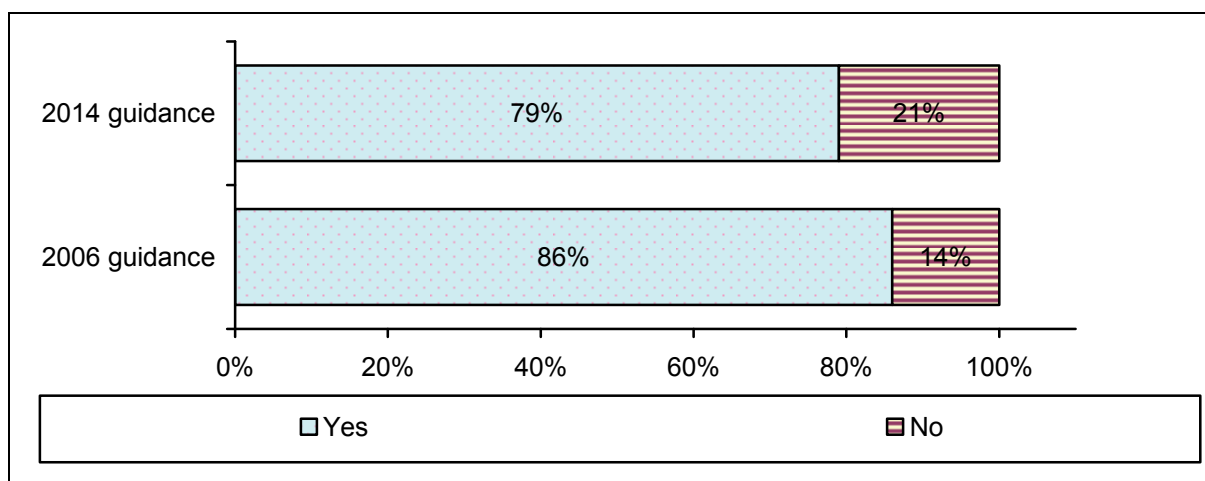
Figure 13. Whether visualisation was accurate representation of the landscape

Q12f (2014 Base = 14: 2006 Base = 13)

Residents who had chosen not to visit a site were asked their reason for this. As the following figure shows, the two key reasons given by residents were that they already knew the view well enough or that the visualisation was enough for them.
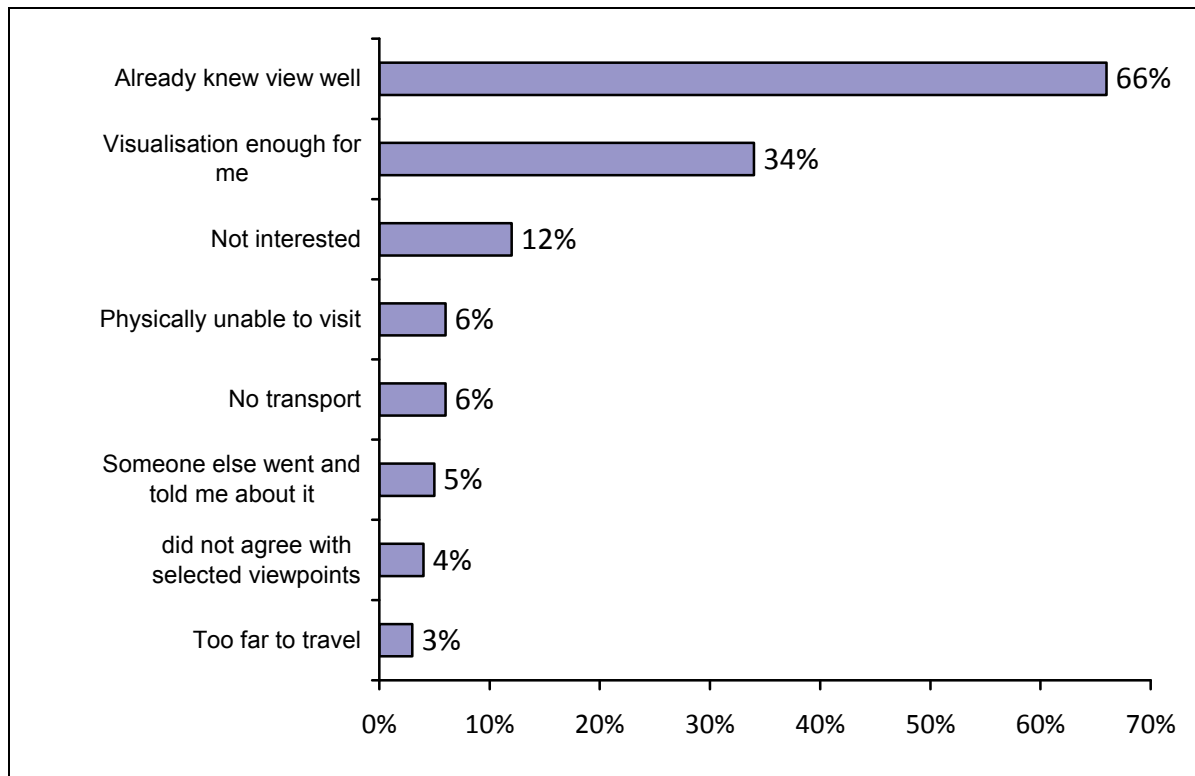
Figure 14. Why did not visit site

Q12g (Base = 108 residents)

At the exhibitions and in discussions with community councillors, the main recurring comment was one that was heard in the previous wave of research and this related to the selection of viewpoints, with comments that local people should be given more input into this process or that viewpoints are selected to benefit the developer's application rather than to give a realistic picture of impact.

Many of the residents felt that the photomontages used were taken from 'meaningless' viewpoints that are not relevant to residents.

There were comments at one exhibition that the pictures had been taken from the point that shows the least turbines or that shows the development in the most favourable way. However, it did seem attendees were not making the link between the map showing the particular viewpoint and the actual pictures. When it was explained that the picture had not been taken, as they had thought, "in the middle of a field, pointing uphill at a load of trees" but actually from a major crossroads, attendees simply commented this should be made more clear. Comments may, therefore be more indicative of an opposition to the actual development rather than specific to the visualisations themselves.

There were still, however, many comments on a perceived lack of input from local people on viewpoint selection. This issue arose at all of the exhibitions visited; as it had in the previous wave of research. While developers pointed out that viewpoints are generally selected in conjunction with the local authorities, attendees commented that local authorities do not have the local knowledge required to make this selection. There were comments from some

attendees that they were not convinced their local authority would consider the views of local people or that that the local authority would consult with local people over the selections. The most common suggestion from attendees was that the local community councils should always be involved, rather than the local authority.

One community councillor felt that of the viewpoints used in respect of one application, only 2 were acceptable, although none were really very good. Comments included: that the visualisations do not illustrate clearly enough just how high the turbines will be; that some of the pictures include features that will disappear if the turbines are built – eg forestry will be lost which will make the turbines much more visible to everyone; and that the perspectives are not useful in giving local residents a clear picture of how the development will look.

Another community councillor reported that they had discussed unrealistic viewpoints at a council meeting and felt that this issue needed far more guidance, and perhaps scrutiny, from SNH.

Other comments included:

"It's hard to see the wind turbines. They are often hidden in the clouds. There is a lack of sense of movement. The pictures seem to indicate that the turbines won't be visible. I've studied the maps carefully and the north direction doesn't relate to the picture in terms of map orientation. This should be the same as the picture."

In the online survey and during the qualitative discussions, professionals offered some comments on site visits and the viewpoint packs and these included:

"I believe the range of visualisations used reduces the need to visit each of the Viewpoint sites. However, the introduction of the A3 viewpoint pack has not added any value to my consideration of the application."

"Viewpoint pack is a useful idea although in practice for most viewpoints the full ES viewpoints are still used. The less prescriptive viewing distance guidance is helpful."

The Viewpoint pack is really helpful when out on site."

9. USEFULNESS

As was the case in the previous wave of research, the majority of respondents said that the visualisations had met their needs:

- 80% (11 out of 14) professionals said yes, 20% said no.
- 91% of residents said yes, 9% said no.

Both of these figures have increased since the last wave when 75% of professionals and 89% of residents said yes, but the small base size for professionals in this wave should be borne in mind.

The small number who said that the visualisations had not met their needs were asked to say why. Reasons given by the 3 professional respondents who said 'no' were:

"They only just met my needs and that is because:
1. I had to make my own viewpoint pack
2. The quality of the photography was very poor - photographs taken at dawn and dusk in the winter, very poor image resolution."

"The photomontages were unclear in places, due either to print quality or contrasting used. In at least one photomontage the turbines were invisible, which would definitely not have been the case. We approached the applicants about this and got some new information, but it was not much better."

"Very good visualisations but cropped views in the viewpoint pack could not show the full extent of the wind farm from near viewpoints; would have needed to take the large panoramic images on site too."

The 14 residents who said 'no' gave the following reasons:

- Need for more clarity as to the actual location (3).
- That the visualisation did not give an accurate impression: in general or specifically of the size of the development (3).
- The need for the view to be shown from different angles at each viewpoint (2).
- Disagreement with location of wind farm.
- Need to include information about access roads.
- That the visualisation did not clearly show the vegetation.
- That the visualisation did not include other developments either in planning or approved.
- "Proposed turbines were in black and not the white colour they would be. Did not give a true indication of visual impact."
- "It was a relatively narrow field of view."

Professionals were also asked whether they felt that the new methodology has improved wind farm visualisations:

- 13 said yes (although one qualified their answer).
- One said no.

Comments included:

- *"It is now easier for a layperson to understand and use correctly."*
- *"Greater clarity."*

- *"Wider field of view for baseline. More representative and better quality images numbering of turbines."*
- *"Much better (i.e. more realistic) representation of the scale of proposals."*
- *"More accurate depictions, which planners and third parties can measure and demonstrate compliance with."*
- *"Images are more representative and do not depend on detailed instructions for viewing."*
- *"I believe the range of visualisations used reduces the need to visit each of the Viewpoint sites. However, the introduction of the A3 viewpoint pack has not added any value to my consideration of the application."*
- *"Viewpoint pack is a useful idea although in practice for most viewpoints the full ES viewpoints are still used. The less prescriptive viewing distance guidance is helpful."*
- *"The Viewpoint pack is really helpful when out on site. Overall the quality of the visualisations has improved following the updated guidance."*
- *"I have more confidence in the quality of the visualisations if I know that they comply with the guidance. The View Point pack has been very useful."*
- *"The combination of large-sized panoramic views and close views to be used in the field are helpful. These provide a more reliable reference than previous standards."*
- *"Bigger images. Clearer standards on portraying cumulative developments."*
- *"..and no. Yes because they provide a truer representation of the proposal to the viewer in relation to the landscape. No because they are very unwieldy & expensive documents to produce and handle and I have noticed a greater reluctance for additional sets to be provided by the applicant where the case officer and adviser may be located in different offices."*

The usefulness of the range of visualisations available to residents was consistent with the findings from the previous wave of research, with most residents choosing a panoramic photomontage.
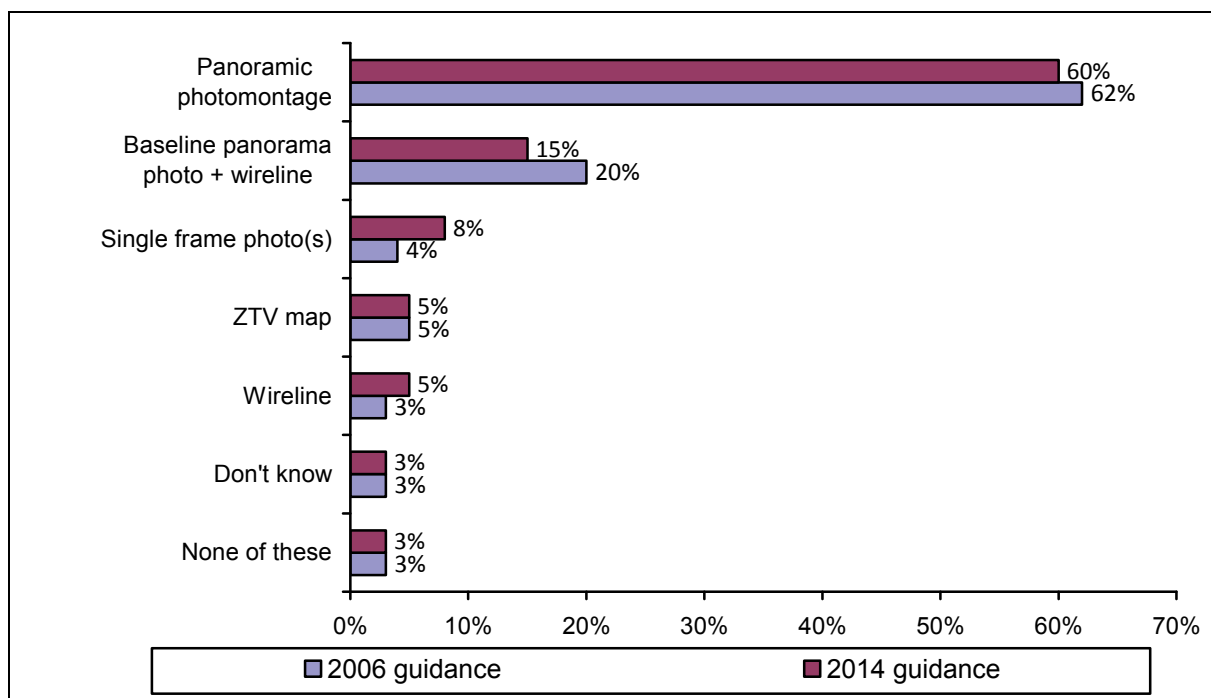
Figure 15. Which one type of visualisation is most useful?

Q13a (2014 Base = 157: 2006 Base = 131)

In the online survey, professionals said:

- A panoramic photomontage (4).
- A baseline panorama photograph and wireline (3).
- A zone of theoretical visibility (ZTV) map (2).
- The Viewpoint Pack (2).
- A wireline (0).
- Single frame photo(s) (0).
- Don't know (2).
- One commented: *"I do not think just one of the above on its own is useful. However if you take the ZTV out of the list and ask, alongside the ZTV which is the most useful, then I would say "baseline panorama photograph and wireline". I'd also say that although the viewpoint pack has its uses it's very limited re assessing cumulative impacts and to use it on its own would be of limited use."*

Responses from qualitative respondents indicate a difference in opinion on which one visualisation they find most useful. However, the main comment from professionals was that they need the full range of visualisations; that all are important in their own way. For example: "*They all come together and I would use them all. No one is more critical than the others.*"

Residents were also asked which other visualisations they found useful and the following figure shows the total percentages selecting each type of visualisation at either the previous question or this question. Across both waves of research, most residents had a preference for panoramic photomontage (81%+), followed by a baseline panorama photograph and wireline (57%+).
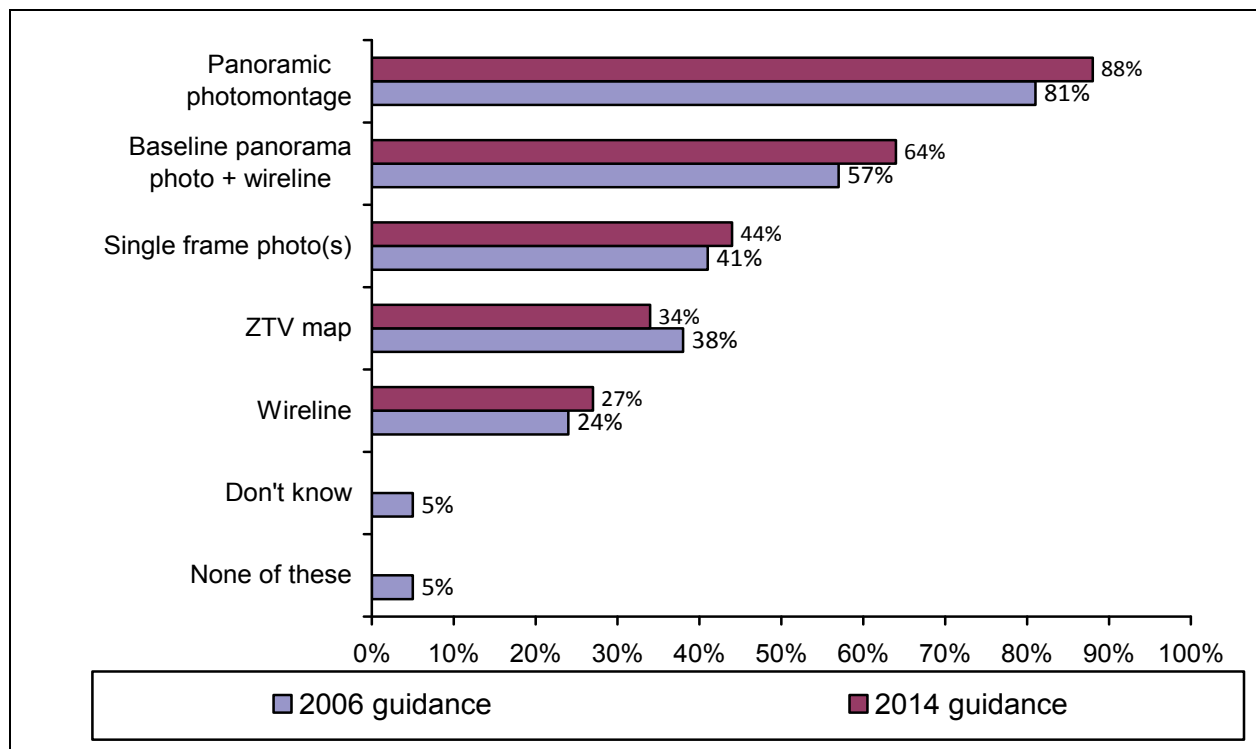
Figure 16. Most useful visualisations – all choices

Q13a/Q13b (2014 Base = 157: 2006 Base = 131)

24

The picture was slightly different for professionals:

- A zone of theoretical visibility (ZTV) map (11).
- A panoramic photomontage (10).
- A baseline panorama photograph and wireline (9).
- A wireline (6).
- Single frame photo(s) (3).
- The Viewpoint Pack (3).
- Don't know (2).

Comments from professionals we interviewed showed that different visualisations are important for different reasons. Some examples included:

- That the panoramic photomontage is most useful because of the amount of information provided.

- In relation to the ZTV maps: *"Another bugbear is that some of what is important isn't always clear enough. We have our own specific guidance eg the ZTV has to be on a scale of 1:50,000 so that we can get grid references to see where properties etc are."*

At the exhibitions it appeared that residents lacking in any technical background preferred the photomontages and disliked the wirelines; residents with some technical knowledge felt that the wirelines were quite useful. Those who were used to using maps for hillwalking thought the ZTV was useful.

A community councillor felt that once he had been given an explanation of the ZTV he thought this was very useful and suggested that developers should provide a written explanation or instructions for the ZTV. *"Once I understood what this was showing me, I thought it was really useful, but what happens when there isn't someone to offer an explanation?"* A similar point was made in relation to wirelines by an attendee at one of the exhibitions.

10. AWARENESS OF GUIDANCE AND CHANGES TO GUIDANCE

Residents were asked whether they were aware of the new guidance on the visual representation of wind farms. Only 7% were aware.
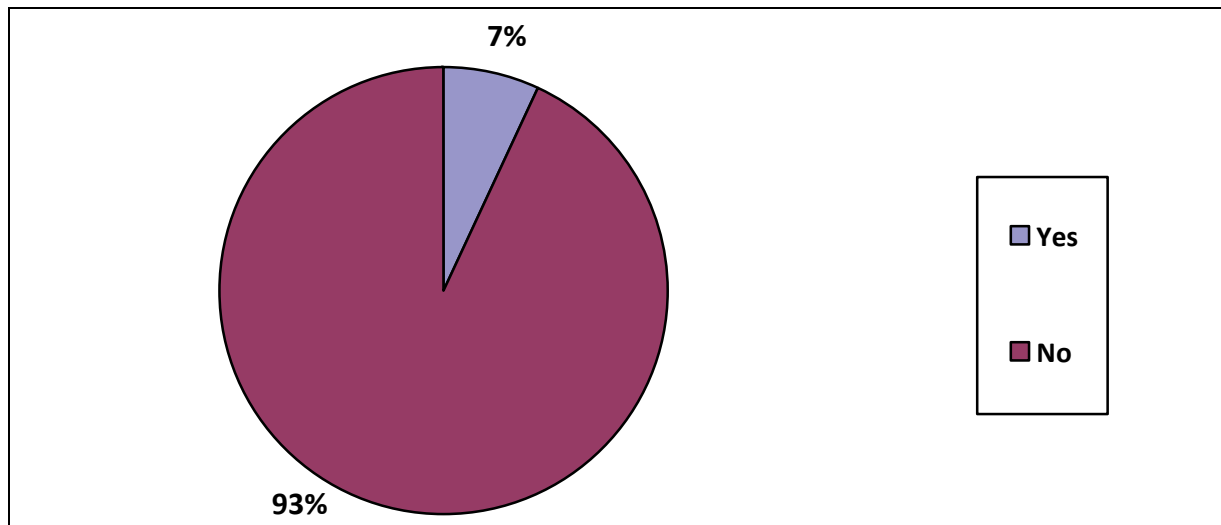
Figure 17. Whether aware of new SNH guidance on visual representation of wind farms

Q14a (Base = 156 residents)

The 11 residents who were aware of this new guidance were then asked whether they thought the new methodology has improved wind farm visualisations and 55% said yes, giving the following reasons:

- General comments that visualisations have improved (3).
- *"Standard form of presentation."*
- *"Clarity and consistency."*
- *"Made the impact clearer."*

During qualitative interviews, respondents were asked specifically about each of the changes to guidance and the impact these had had:

Applications will be supported by a Viewpoint Pack which includes a single frame image to make it easier to examine visualisations in the field and to improve public accessibility.

Opinions were mixed with some professionals calling these "fantastic" and others feeling they are of limited use for professionals but very useful for members of the public and elected members.

Comments from professionals included:

- *"It's much easier to deal with than the big long ones they had before. It makes it much more realistic at what you are looking at and it's more accurate."*

- That this probably has made it easier to examine visualisations in the field. There has been an improvement in standards although you can only ever work with what is provided by the developer.

- That the loose leaf pack is useful because viewpoints are hard to get to so this is easy to take and so much more practical in field. *"It is very valuable – the loose leaf especially - so you can just take the one you want."*

- That it is much better because of the size. *"You can actually hold the photo and see where the turbine will sit – positive!*

- That the viewpoint pack is useful as a quick document for reference but this respondent prefers to rely on the main submission. The pack might be more useful to the general public or others but this respondent has the technical knowledge not to find these overly useful.

- Another felt that from his perspective, the pack doesn't have enough information for him. This respondent described it as 'light touch'.

- That the new guidance has helped although there can still be variation in the visualisations submitted. This respondent had one well-presented pack with laminated A3 images and it worked well. Councillors took it out on site and were impressed with it. However, the second application was less usable. It was bound into a report and the way it was copied wasn't so usable. So, there still isn't complete accessibility. This respondent doesn't think the pack should be on the website as people don't copy to the correct size and the photographs can be open to misinterpretation.

Visualisations are to be presented at an increased, specified printed image size to provide a better representation of the proposal.

Respondents felt that visualisations are much clearer and that it is much easier to understand the actual scale of the turbines now.

There were comments that the amount of information requested is excessive, making the whole collection of documents difficult to transport and to share.

Other comments included that this has helped to an extent although it's a bit difficult to tell how much. One respondent had received an application from a developer who, he felt, had not in the past submitted good quality visualisations. *"The good thing about this new guidance is they have had to produce better quality visualisations".* However, the first visualisations provided were bad and he asked for a replacement. *"They did produce a better visualisation but it still wasn't great and the images they used were unclear."* He summarised: *"It does depends on the quality of the production and the way contrast is used."*

Printed photomontages should now be presented in planar projection (not cylindrical) which is easier to use both on site, on screen and in other locations.

This was widely welcomed, particularly for professionals:

- *"Makes it a lot easier – the scale shown and perception of what you see when you are onsite is much better. It's more accurate than previously."*

- *"Yes, these have made it easier. They are more user-friendly and more useful, particularly to a non-expert. They didn't cause a huge problem before but they are definitely better now."*

- That these printed photomontages are more useful for specialists.

- Scale comparisons and other things in the landscape work well with these.

- That these are useful in the office rather than in field. *"They are more representative but very unwieldy."*

Photomontages should be viewed at a comfortable arm's length and not at a specified viewing distance; images should be viewed on a flat surface.

Most respondents felt this had made the visualisations more user-friendly, although one had not realised this requirement had been changed. Comments included:

- *"There is no worry over the distances and it is an improvement."*

- *"An improvement. There is nothing you have to do with the images to make them work and they work more logically than before."*

- However, one commented: *"It's all academic. I tend to take the images I've been given and go to the viewpoints. I find out where the photo has been taken from and compare that with what I actually see and then take it from there. I don't trust visualisations; they are only ever an approximation."*

Camera and lens specifications have been standardised to provide a straightforward means of verifying the images produced and to provide high resolution prints.

Several respondents commented that print quality appears to have improved. This change gave most respondents confidence that each submission will be the same:

- *"This is sensible. It makes it all simpler."*

Aspects of the guidance are prescriptive and must be complied with, whereas the 2006 version provided recommendations and a minimum standard.

Respondents felt it important to know that all applications were being produced to the same standards. While some felt that there had not been many problems before the change, nevertheless they welcomed this change:

- *"Much better now. A lot of consultants did their own thing previously and there was no consistency."*

- *"It reduces the possibility of arguments."*

- *"There is a greater onus on the applicants, which is great."*

- *"It's good that all can work on the same system."*

- *"It is very important that everyone is presenting to the same standard."*

Comments on overall changes to guidance

Some respondents commented on the impact of the changes overall. Several felt that visualisations were now more user-friendly, standardised and more representative as well as being clearer:

- *"You get the feeling that the developer had to put in more effort – you get a more healthy and honest range of materials to look at. I'm pleased with it – it gives us greater accuracy."*

- *"There were too many variables before eg the focal length of lenses etc. But I still don't trust them. You still get distortions in the image. There is only ever a kind of guidance as to what the impacts are, although they give you an idea of the proposed wind farm. It is definitely an improvement on what we had before."*

- *"Definitely, they are much more representative. The difficulty before was that they were fine for people who were used to using them, but for the public, some elected members etc, they weren't enough on their own to give a proper representation. I'm much more comfortable that what we're showing them now is representative."*

The online surveys asked: 'Do you think it is important that the visualisations provide wider landscape and visual context?'

All of the professionals and almost all the residents (87%) felt it is important that the visualisations provide wider landscape and visual context, with only 8% saying this is not important. This compares to 93% of residents in the previous wave.

Professionals were also asked: 'Have you seen examples of visualisations being used for other (non LVIA) assessment, such as cultural heritage?' Four said no and ten said yes, giving the following examples:

- *"Cultural heritage sections of wind farm ES."*
- *"Cultural heritage and residential amenity."*
- *"Cultural heritage and tourism resources. Similar to LVIA but contained in other chapters of the ES.*
- *"Potential impact on designed landscapes and cultural heritage features."*
- *"ZTVs for cultural resources/ assets."*
- *"Listed buildings and heritage assets."*
- *"To demonstrate the view from SMs."*
- Specific named examples (5)

These professionals were also asked 'Do you think further guidance is required on visualisations to support other aspects of EIA?' Five said yes and five said no.

11. SUGGESTIONS FOR IMPROVEMENTS

Finally, online respondents were invited to give any suggestions they might have on how wind farm visualisations might be improved. Their suggestions and other comments are set out below and, where a similar point was made by other interviewees this is also mentioned:

Nine of the professionals commented:

"Although I'm not a great fan of the viewpoint pack images (to assess re cumulative you have to take the larger images as well anyway) I do like the location map that is generally provided with them and it would be good if we specified that this is at A3 and has the ZTV on it too - the ones that have the map to fill the reverse with ZTV info on are very helpful, e.g, following theoretical visibility on walking route to/from viewpoint. It would be helpful if the documents were bound so that the booklet was still flexible and foldable to A3 (very difficult to transport and also turn the pages of a hardback A1 booklet in the field), although I realise that the hard back is probably so that it can be viewed flat. LVIAs have started to come in with ZTV clipped to radius rather than extending across the page (not from main consultancies involved in his type of work) and because of the way our guidance is now then then technically this is okay, because we now refer to extent of ZTV and keep it to the radius. But in practice it's not great; for example I've seen ZTVs on a lower distance (30km instead of recommended 35km, or even 40km for the turbine height) simply to avoid having the NSAs in the ZTV, and the ZTV clipped so there is no indication of visibility in the areas outside that 30km ring, for elevated viewpoints where the ZTV distance is inadequate then it would be useful to know this, particularly at scoping and in areas of multiple wind farms."

"ZTVs – Asking that these are to the edge of the page rather than cut-off at the study area radius (not explicit in the guidance but would be sensible); also our large fold out A1 ZTV could potentially be broken into separate maps to see more detail, and / or providing it at A0 may work better."

"The current guidelines have resulted in better but bulky and difficult to handle and navigate through EIAs. This makes work physically and practically more difficult when compared with previous EIAs. Possible ways to address these problems 1. Consider reducing the number of image types per viewpoint. 2.Ensure EIAs are easy to handle in the field ie produce guidelines on physical document size promoting sections of documents etc."

"As mentioned, viewpoint packs have cropped images which may not show the full array of turbines from nearby viewpoints; if this is the case then the pack should include a series of cropped images to cover all parts of the development from that viewpoint. This would ensure consistency of image size/format to be used on-site, whilst enabling the observer to see all potential turbine effects without having to take the panoramic views on site - which is totally unfeasible at A2!"

"Guidance on visualisations for when the wind farm is located within woodland. Images should show the removal of trees where appropriate."

"Highland Council to follow the same approach as everyone else."

"They need to be simplified - the whole process now feels overly complicated....."

"More information for the general public on how best to view such material on line."

"3 dimensional modelling?"

There were also comments from 49 of the residents:

- Negative comments on wind farms or wind farm developers or comments on the need for smaller/camouflaged wind farms (13)
- General positive comments on visualisations / happy with visualisations provided (8)
- Requests for animations / CGI (5)
- Requests for aerial photos / ability to see the location from 360 degrees (3)
- That visualisations are not accurate depictions/ the need to ensure scale and perspective are correct (3)
- Requests for 3D images (2)
- The need for close-up depictions / closer detail (2)
- The need to show the viewpoints from a range of different angles (2).
- The need for more labelling (for example of local landmarks) (2)
- The need for scale models (1)
- That visualisations did not give an accurate representation of a wind farm which has now been built (N.B. This comment is unlikely to refer to visualisations based on the 2014 guidance as few schemes using this will have been built yet). There needs to be approval given to visualisations by the local authority to ensure they are accurate (1)
- The need for larger images (1)
- The need for more panoramic images (1)
- That photographs should be taken by properly qualified photographers (1)
- Other general comments (4)

APPENDIX: THE QUESTIONNAIRES

Online survey amongst members of the general public

Q1. Are you aware of a recent wind farm development proposal in your area?

1	Yes	ASK Q2
2	No	THANK AND CLOSE

ALL CODED 1 at Q1

Q2. Did you see any photos, drawings or maps showing how the proposed development would look in the local landscape once it was built?

1	Yes	
2	No	THANK AND CLOSE

ASK ALL CODED 1 at Q2

Q3a. Please write in the name of the proposed wind farm development

(If you've attended meetings, or seen information about more than one, please write in the name of the most recent)

Please answer the remaining questions thinking about this particular development

Q3b. Has this wind farm already been built?

1	Yes
2	It is under construction
3	No

The photos and line drawings which are used to show how a wind farm development will look once it is built are called 'visualisations'.

Q4. Where did you see the visualisations of the proposed wind farm development?
PLEASE TICK ALL THAT APPLY

1	A public exhibition given by the developer
2	A community council meeting about the development
3	A meeting of a local group about the development
4	Another event related to the development
5	I saw information about the development in the library
6	I saw information about the development in the local planning office
7	I saw them in a newspaper / local paper
8	I viewed them online
9	I borrowed them from somewhere else
10	Don't know / Can't remember
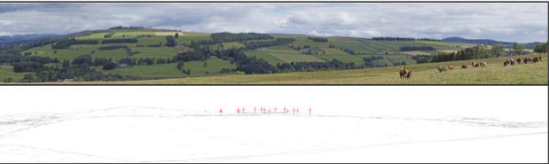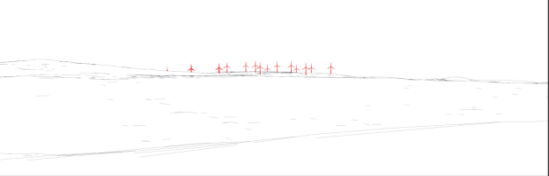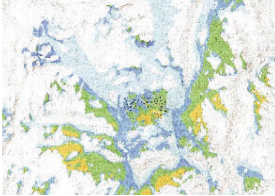
Q5. What was your reason for looking at the visualisations?
PLEASE TICK ALL THAT APPLY

1	I am a local resident
2	I am a community council member
3	I am a member of a wind farm action group
4	I am a developer / work for a developer
5	I am a planning officer / work in the local planning office
6	I have another interest in the area / development

Examples of visualisations

These are examples of the types of visualisations you might have seen.

	A panoramic photomontage A photomontage combines a photograph of the real view with a computer generated image of the wind farm proposal.
	A single frame photomontage A single frame photomontage is derived from a single photograph. A panoramic photomontage involves stitching several photos together.
	A baseline panoramic photograph and wireline. These show the existing view and a matching wireline with the wind farm proposal(s)
	A wireline A wireline is a computer generated image depicting how the wind farm would look with no surface screening or vegetation.
	A zone of theoretical visibility (ZTV) map A ZTV map shows where it might be possible to see the wind farm, depending in screening such as buildings and vegetation

Q6. Please say which of the following visualisations you saw?
PLEASE TICK ALL THAT APPLY

1	A panoramic photomontage	
2	Single frame photo(s)	
3	A baseline panorama photograph and wireline	
4	A wireline	
5	A zone of theoretical visibility (ZTV) map	
6	The Viewpoint Pack	
7	Other (write in)	
8	None of the above	THANK AND CLOSE
9	Don't know	THANK AND CLOSE

ASK ALL WHO SAW VIEWPOINT PACK
Q6a. Thinking about the Viewpoint Pack, was it clear where you could obtain copies to take with you if you wanted to visit the viewpoint(s)

| 1 | Yes |
| 2 | No |

ASK ALL WHO SAW WIRELINES
Q6b. Did the wireline show all wind farms in the area?

| 1 | Yes |
| 2 | No |

ASK ALL WHO SAW WIRELINES
Q6c. On the wireline, were different colours used to illustrate some of the wind farms and was this clear?

1	Yes - different colours used and different wind farms clear
2	Yes - different colours used but different wind farms were not clear
3	No - no different colours used

Q7a. Did the visualisations meet your needs?

| 1 | Yes |
| 2 | No |

IF NO
Q7b. Please tell us why the visualisations did not meet your needs

| |

Q8a. Did you find the visualisations easy to use?

| 1 | Yes |
| 2 | No |

IF NO
Q8b. Please tell us why the visualisations were not easy to use

| |

Q9. Did you refer to the viewing instructions on the visualisations?

1	Yes
2	I saw the instructions but did not use them
3	I didn't see any instructions

Q10a. Did you view any of the images online?

| 1 | Yes |
| 2 | No |

IF YES at Q10a
Q10b. Were they easy to download?

| 1 | Yes |
| 2 | No |

IF YES at Q10a
Q10c. Were the instructions on how to use them clear?

1	Yes
2	No they weren't clear
3	I didn't see any instructions

IF YES at Q10a
Q10d. Were they easy to use?

| 1 | Yes |
| 2 | No |

IF NO
Q10e. Please tell us why the online visualisations were not easy to use

Q11a. Did you print any copies of the visualisations for your own use?

| 1 | Yes |
| 2 | No |

IF YES
Q11b. What size did you print them?
PLEASE TICK ALL THAT APPLY

1	Fit to page
2	Just hit print and let the computer decide
3	At the size specified on the image
4	A4
5	A3

Q11c. Did you print them off in colour or black and white?

1	Colour
2	Black and white
3	Both

ASK ALL
Q12a. Did you visit any of the sites indicated on the visualisations to see the actual view?

| 1 | Yes |
| 2 | No |

If YES at Q12a
Q12b. Why did you visit the site?

1	It's somewhere I visit regularly
2	I went specifically to see how the actual view compared to the photograph
3	Other reason (please write in)

If YES at Q12a
Q12c. Did you take a copy of the visualisation with you?

| 1 | Yes |
| 2 | No |

If YES at Q12c
Q12d. How easy did you find it to match the actual view with the view in the visualisation?

1	Very easy
2	Quite easy
3	Not very easy
4	Not at all easy

IF YES at Q12c
Q12e. Were the instructions provided with the visualisation easy to follow?

1	Yes
2	No
3	Don't know / didn't have instructions

IF YES at Q12c
Q12f. Was the visualisation an accurate representation of the actual view of the landscape?

1	Yes
2	No

IF NO at Q12a
Q12g. Why did you not visit one of the sites?

1	I didn't want to / wasn't interested
2	I already know the view well enough
3	I didn't have transport
4	The photograph / other visualisation was enough for me
5	Someone else went and told me about their experience
6	Too far for me to travel to
7	I was physically unable to visit the viewpoint
8	I couldn't find the viewpoint(s)
9	Did not agree with the selected viewpoints
10	Other

Q13a. Which ONE type of visualisation do you think is the most useful?
PLEASE SELECT ONE ONLY

1	A panoramic photomontage
2	Single frame photo(s)
3	A baseline panorama photograph and wireline
4	A wireline
5	A zone of theoretical visibility (ZTV) map
6	The Viewpoint Pack
7	Other
8	None of the above
9	Don't know

Q13b. Which other types of visualisation are useful?
PLEASE SELECT ALL THAT APPLY

1	A panoramic photomontage
2	Single frame photo(s)
3	A baseline panorama photograph and wireline
4	A wireline
5	A zone of theoretical visibility (ZTV) map
6	The Viewpoint Pack
7	Other
8	None of the above
9	Don't know

Q14 Do you think it is important that the visualisations provide wider landscape and visual context?

1	Yes
2	No
3	Don't know

Q14a. Are you aware of the new SNH guidance on the visual representation of wind farms?

| 1 | Yes |
| 2 | No |

IF YES
Q14b. Do you think the new methodology has improved wind farm visualisations?

| 1 | Yes |
| 2 | No |

IF YES
Q14c. Please say how the new methodology has improved wind farm visualisations.

| |
| |

Q15. Do you have any suggestions on how wind farm visualisations could be improved?

| |
| |

Q16. Are you:

| 1 | Male |
| 2 | Female |

Q17. Please tick your age range

1	18 to 24
2	25 to 34
3	35 to 44
4	45 to 54
5	55 to 64
6	65 to 74
7	75 or over

Online survey amongst professionals

Q1. Are you …?

1	Planning officer
2	Other (please write in)

Q2. Have you been involved in any work related to wind farm developments in the past year?

1	Yes	ASK Q3
2	No	THANK AND CLOSE

Q3a. Have you viewed any visualisations relating to wind farm developments?

1	Yes	ASK Q3b
2	No	THANK AND CLOSE

Q3b. Were these based on the updated guidance published in December 2014?

1	Yes	ASK Q3c
2	No	THANK AND CLOSE

Q3c. Do you think the new methodology has improved wind farm visualisations?

1	Yes
2	No

IF YES AT Q3c
Q3d. Please say how the new methodology has improved wind farm visualisations

Q4. Please write in the name of the most recent wind farm development that you have viewed visualisations of. Please also write in the name of the nearest town or settlement to this development.
Please answer all remaining questions in relation to your experiences with visualisations for this development.

Q5a. Please say which of the following visualisations you saw?
PLEASE TICK ALL THAT APPLY

1	A panoramic photomontage	
2	Single frame photo(s)	
3	A baseline panorama photograph and wireline	
4	A wireline	
5	A zone of theoretical visibility (ZTV) map	
6	The Viewpoint Pack	
7	Other (write in)	
8	None of the above	THANK AND CLOSE
9	Don't know	THANK AND CLOSE

Q5b. Did the developer provide copies of visualisations for the wind farm development?

1	Yes – they sent hard copies
2	Yes – they sent electronic copies
3	Yes – they send both hard copy and electronic copies
4	No

IF NO
Q5c. How did you get copies of the visualisations?
Please write in

FOR THOSE WHO SAID DEVELOPER SENT HARD COPIES
Q5d. Did you receive sufficient copies?

1	Yes
2	No – I had to photocopy more
3	No – I had to request more

FOR THOSE WHO PHOTOCOPIED
Q5e. What size did you copy them?
PLEASE TICK ALL THAT APPLY

1	At the size specified on the image
2	A4
3	A3
4	Other

Q5f. Did you copy them in colour or black and white?

1	Colour
2	Black and white
3	Both

FOR THOSE WHO SAID DEVELOPER SENT ELECTRONIC COPIES
Q5g. Did you print any copies of the electronic visualisations?

1	Yes
2	No

IF YES
Q5h. What size did you print them?
PLEASE TICK ALL THAT APPLY

1	Fit to page
2	Just hit print and let the computer decide
3	At the size specified on the image
4	A4
5	A3
6	Other

Q5i. Did you print them off in colour or black and white?

1	Colour
2	Black and white
3	Both

ASK ALL
Q5j. What would be your preference for receiving visualisations?

1	Hard copies
2	Electronic copies
3	Both hard copy and electronic copies

ASK ALL WHO SAW THE VIEWPOINT PACK
Q5k. Thinking about the Viewpoint Pack, Was it clear these were viewpoints you could visit?

1	Yes
2	No

Q5l. Was it clear the photos would match the views you would see if you visited the viewpoint?

1	Yes
2	No

Q5m. Was it clear where you could obtain copies to take with you if you wanted to visit the viewpoint(s)

1	Yes
2	No

ASK ALL WHO SAW WIRELINES
Q5n. Did the wireline show all wind farms in the area?

1	Yes
2	No

ASK ALL WHO SAW WIRELINES
Q5o. Were different colours used to illustrate some of the wind farms?

1	Yes
2	No

ASK ALL WHO SAW WIRELINES
Q5p. Was it clear why the wind farms were shown in different colours?

1	Yes
2	No

ASK ALL
Q6a. Did the visualisations meet your needs?

1	Yes
2	No

IF NO
Q6b. Please tell us why the visualisations did not meet your needs

ASK ALL
Q7a. Did you find the visualisations easy to use?

1	Yes
2	No

IF NO
Q7b. Please tell us why the visualisations were not easy to use

ASK ALL
Q8. Did you refer to the viewing instructions on the visualisations?

1	Yes
2	I saw the instructions but did not use them
3	I didn't see any instructions

Q9a. Did you view any of the images online?

1	Yes
2	No

IF YES
Q9b. Were they easy to download?

1	Yes
2	No

IF YES
Q9c. Were the instructions on how to use them clear?

1	Yes
2	No they weren't clear
3	I didn't see any instructions

IF YES
Q9d. Were they easy to use?

1	Yes
2	No

IF NO

Q9e. Please tell us why the online visualisations were not easy to use

ASK THOSE WHO VIEWED ONLINE

Q10a. Did you print any copies of the visualisations for your own use?

1	Yes
2	No

IF YES

Q10b. What size did you print them?

PLEASE TICK ALL THAT APPLY

1	Fit to page
2	Just hit print and let the computer decide
3	At the size specified on the image
4	A4
5	A3

Q10c. Did you print them off in colour or black and white?

1	Colour
2	Black and white
3	Both

ASK ALL

Q11a. Did you visit any of the sites indicated on the visualisations to see the actual view?

1	Yes
2	No

IF YES

Q11b. How easy did you find it to match the actual view with the view in the visualisation?

1	Very easy
2	Quite easy
3	Not very easy
4	Not at all easy

IF YES

Q11c. Were the instructions provided with the visualisation easy to follow?

1	Yes
2	No

IF YES

Q11d. Was the visualisation an accurate representation of the actual view of the landscape?

1	Yes
2	No

Q12a. Which ONE type of visualisation do you think is the most useful?

1	A panoramic photomontage
2	Single frame photo(s)
3	A baseline panorama photograph and wireline
4	A wireline
5	A zone of theoretical visibility (ZTV) map
6	The Viewpoint Pack
7	Other (write in)
8	None of the above
9	Don't know

Q12b. Which other types of visualisation are useful?
PLEASE SELECT ALL THAT APPLY

1	A panoramic photomontage
2	Single frame photo(s)
3	A baseline panorama photograph and wireline
4	A wireline
5	A zone of theoretical visibility (ZTV) map
6	The Viewpoint Pack
7	Other (write in)
8	None of the above
9	Don't know

Q13 Do you think it is important that the visualisations provide wider landscape and visual context?

1	Yes
2	No

Q14a. Have you seen examples of visualisations being used for other (non LVIA) assessment, such as cultural heritage?

1	Yes
2	No

IF YES
Q14b. Please could you give examples?

Q14c. Do you think further guidance is required on visualisations to support other aspects of EIA?

1	Yes
2	No

Q14. Do you have any suggestions on how wind farm visualisations could be improved?

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