

HOW DELIBERATIVE METHODS CAN BE USED TO SUPPORT ENERGY MODELLING

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"A big success of this project is that we managed to take a load of people off the street, and got them to say sensible stuff about what energy demand model runs should look like... it doesn't feel like that should be possible, because if I don't understand exactly how models work. How can we expect people to? So I feel there's something very, sort of, radically democratic about the fact that we tried that, and... to a large extent, were successful." (Delivery team)

A report based
on the
experiences of
the Our Energy
Futures Panel

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consulting.co.uk](http://www.a-b-consulting.co.uk)

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Contents

1	Executive summary.....	1
2	Methodology	2
3	Sharing the model with the public participants	3
3.1	Member's understanding of the modelling scenarios and their role	3
3.2	What worked / didn't work to communicate the modelling to the panel.....	7
4	Sharing public perspectives with the modellers.....	10
5	Impact.....	14

1 Executive summary

This short report is designed to highlight the key learnings from using the Our Energy Futures Panel to inform the development of a new Positive Low Energy Futures scenario; modelling a route to net zero likely to align with public interests and expectations. It draws on conversations and group discussions with the modellers, facilitators, designers and participants in the Our Energy Futures Panel, triangulating evidence from the different perspectives. For more information about the Panel and how it worked in practice, there is information on the [EDRC website](https://www.edrc.ac.uk/research/projects/public-support-and-engagement-for-low-energy-futures/)¹ and a full evaluation report is also available [here](https://a-b-consulting.co.uk/2025/11/03/case-study-positive-low-energy-futures/)².

The innovation embedded in the Our Energy Futures Panel meant there were plenty of opportunities for learning and iteration over the course of the two years. All of the people involved are very happy with how the process went, and while, with the benefit of hindsight, there are always things that could be done differently, nonetheless they made great progress in finding ways for deliberative research to meaningfully inform energy modelling.

All projects operate within time and budget constraints; in this work there were always tensions because the public wanted to meet more frequently while the team would have valued longer to fine tune materials and models within and between each wave. As such they struck a balance, learning as the Panel progressed and making sure the learning informed future waves. The top learnings are included in Figure 1 below.

Figure 1: Top tips for using deliberative methods to support modelling

- 1 Invest time up front to build a shared understanding and language about what is needed and how to get it
- 2 Agree how best to turn qualitative insights into numbers that the modellers have confidence in
- 3 Be ready to adapt and learn from each other as a team, recognising each other's expertise
- 4 Be ready to provide tiered information - high level for those who need it, in-depth for those who want more
- 5 Give it a go! A team with a positive can-do attitude can definitely add value to a model using deliberative engagement approaches

¹ <https://www.edrc.ac.uk/research/projects/public-support-and-engagement-for-low-energy-futures/>

² <https://a-b-consulting.co.uk/2025/11/03/case-study-positive-low-energy-futures/>

2 Methodology

The Our Energy Futures Panel was an ambitious programme of deliberative research, delivered in partnership between the Energy Demand Research Centre (workstream led by Lancaster University) and Involve. In total, the Panel (made up of members of the public) took part in 8 themed Blocks of deliberation over two years, with each Block consisting of two or three evenings of online information provision and discussion and one full-day face-to-face (F2F) event.

The Panel members were initially recruited by the Sortition Foundation to be broadly reflective of the UK population, but were geographically concentrated around Greater Manchester to facilitate in-person meetings. Some top-up recruitment was conducted after the first year to replace drop-outs. The springboard for deliberation was the [Positive Low Energy Futures \(PLEF\) model](#)³, and the outputs from each Block of deliberation informed new panel-inspired model runs, resulting in a new ‘citizens’ panel scenario’ at the end of the final Block. The overarching question for the Panel was *“As a nation we need to use less energy, to meet our climate targets, increase energy security, and save households money. How can we do this in ways that work for everyone?”*.

The independent evaluation worked alongside the Panel, to provide constructive feedback as the Panel developed while also capturing key learning for future projects. The evaluation was designed to be light touch, so rather than following every Block in depth, it captured high level feedback from panel members through a survey in every wave, and more in-depth feedback after three Blocks – Block 2, 6 and 8.⁴

This evaluation report is based on the following sources:

- Panel member feedback in telephone interviews after Block 8
- Facilitator feedback (mini-group discussion with the delivery team after Block 8)
- Delivery team reflections (mini-group discussion with the delivery team after Block 8)
- Modeller feedback (mini-group discussion with the delivery team after Block 8)
- Evaluator Observations of the F2F workshops (Block 2, 6 and 8) and online speaker presentations and panels (all Blocks)

In this report

- “Delivery Team” refers to the core team at Lancaster University (latterly Manchester University) and Involve who co-delivered the session design and analysis.
- “Facilitation Team” is the wider team brought in to help deliver the sessions.
- “Modellers” are the team involved in modelling the outputs (and participated in the sessions to support participant understanding).
- “Panel members” are the public who took part in the Panel.

³ <https://low-energy.creds.ac.uk/>

⁴ These Blocks were chosen because Block 2 was the first of four ‘in-depth’ sector-specific Blocks and so learning influenced delivery of Blocks 3-5 which followed a similar format. Block 6 was the block which brought all the previous work together for the first time, and Block 8 closed out the Panel’s work.

3 Sharing the model with the public participants

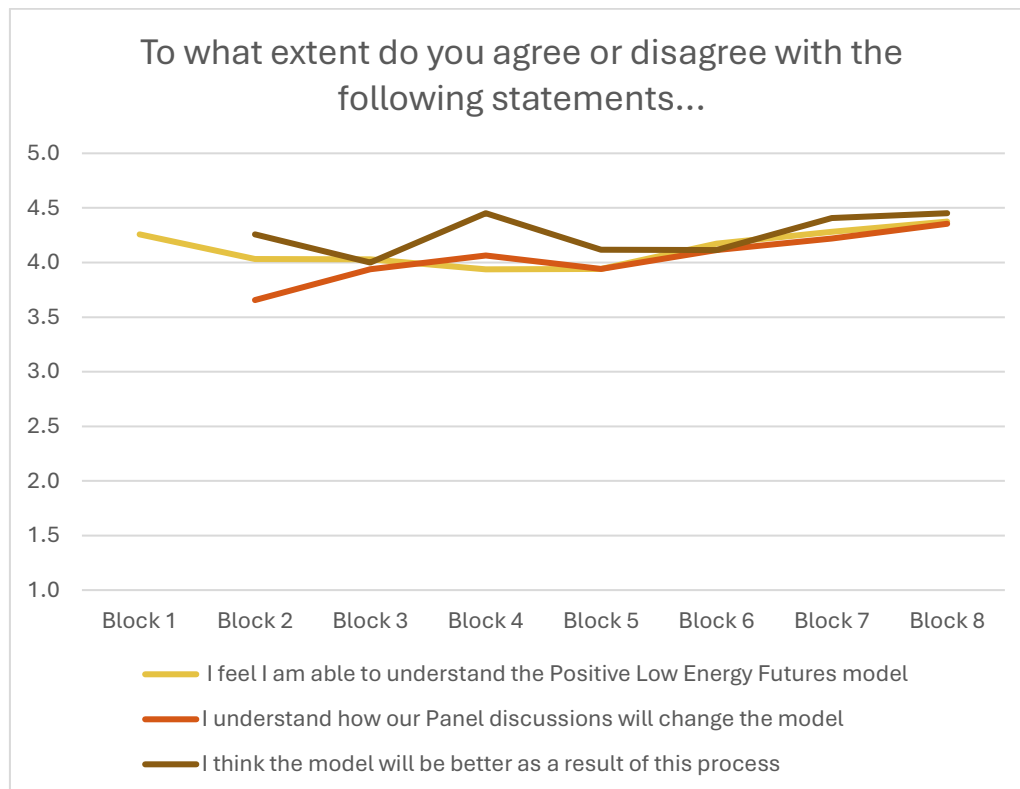
To the team's knowledge, this is the first time a deliberative panel has been used to help inform technical energy systems modelling, and from the start they understood it would not be a straightforward undertaking. The main advantage of using a panel approach was that the same participants came back each time, rather than starting afresh. In the past, models seeking to include information about public attitudes or behaviour may have drawn on quantitative surveys or one-off focus groups, where it is unlikely that participants will have had the time to understand exactly what their views would inform, or discussion with specific stakeholder groups (e.g. academics or policymakers). In contrast, with a 2-year panel, it was important to explain the purpose of the work, so panel Members understood what was happening to their deliberative inputs and were able to contribute fully. Throughout the Panel there were tensions between what Members thought was important and wanted to talk about, and what would be most useful for the modelling team.

3.1 Member's understanding of the modelling scenarios and their role

From the first Block of discussions, Members of the panel were told about the Positive Low Energy Futures model and four existing scenarios that had been built: ignore (do nothing), steer, shift and transform, each of which had different levels of ambition for reducing energy demand to 2050. The team then supported them to contribute their different perspectives to develop a new scenario that had a social mandate from Members.

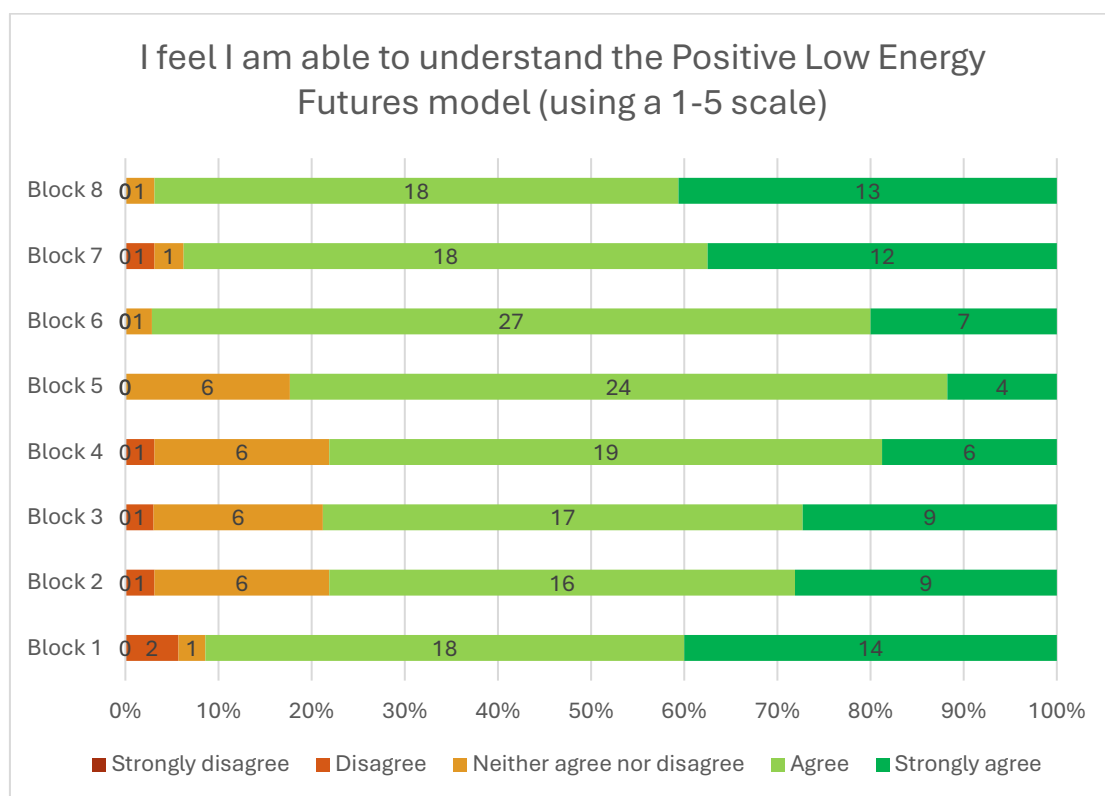
As shown in Figure 2, which shows the average score over time for different questions in the evaluation survey, participants agreed with the statement that they were able to understand the PLEF model, and this understanding increased across the Blocks. The average score for understanding how discussions changed the model, and feeling that the model was being improved by the process also increased over time.

Figure 2: Overall understanding of the model and views on process over time



Cutting the data about understanding the model in a different way (Figure 3) shows interesting variation below the average scores, specifically that following a drop in confidence after the initial Block, by Block 8 people had regained their initial confidence that they were able to understand the model, potentially reflecting their learning journey over the course of the Panel. The low in Block 5 may be driven by new people joining the Panel as part of the refresh process. The delivery partners also reflected that in their experience *“As people learn about complex topics they tend to report lower understanding as they become aware of the complexity” (Delivery partner)* so they were not necessarily surprised by this dip.

Figure 3: Participant ability to understand the PLEF model



Over the course of the panel it was clear through observations and discussion with Members that there were varying levels of understanding of how their discussions would inform the model, at least in part driven by their prior knowledge and experience outside of the process. There were also different levels of understanding of the science sitting beneath the model, although the delivery team worked hard with the modellers to make the information as accessible as possible. The quotes below demonstrate a range of views about how well people felt they understood what was being discussed during the sessions.

“...You don't want to say I'm not really sure what's going on here. It's not very easy to say that to people who are strangers.” (Panel member)

“I think most of the speakers broke everything down into layman's terms, which was really, really helpful. Because you're dealing with quite complex issues at times...I felt like it was most of the things were quite well explained.” (Panel member)

“What was easier for me to... understand is what I can do in terms of my home, my neighbourhood, those immediate sort of things, you know, gas,

“I was [telling] myself that you better go and learn more instead of asking them to simplify everything but with the time [of] life being so

electric, changing to like you say, heat pumps, solar, electric vehicles. When it came to like thinking about in the air and how it's made and it was a little bit sort of like I struggled with it a little bit..." (Panel member)

hectic and being busy with all sorts, and plus when you get older you don't have the patience for learning kind of thing so you just learn the things that you need to survive... there was a time that I felt like I wish they could have simplified this talk so I can understand it." (Panel member)

Not understanding the information provided or the model did not necessarily restrict the ability of Panel Members to make a meaningful contribution, but left some people feeling a little lost in some of the sessions. While they were told they did not need to worry about the details of the charts and data being shown to them, but rather to focus on the big picture (e.g. trends, trajectories, and comparisons between scenarios), nonetheless, some expressed frustration or disappointment that they could not follow some of these sessions. Similarly, the facilitators themselves appeared to have different levels of understanding of the model, which some did not necessarily feel was an essential part of their role.

"If I'm honest, I think that is quite mixed. ...I think some people did grasp the, this is a model, it's not very good at doing social stuff, that's what you're here for, that being their job. I think, obviously, some people completely got that and were, you know, absolutely ran with it and started, you know, more or less lobbying the modelers for what they wanted in and out. And other people, I think, just ... took what was thrown at them on that particular day." (Delivery team)

"We were never going to get everyone to completely understand what a model is... I've worked with modelers before as well in completely different contexts, and I think that, you know, they're just black boxes, aren't they? ...I think if you step back and say, did we need them to really understand the whole thing... and just go to, well, did they engage, and did we get them to respond and react and talk to the things that we were throwing at them, I think that's where I felt like it was surprisingly good." (Facilitator)

The delivery team reflected that it took time to work together effectively with the modellers. This was for several reasons:

- Different use of language. For example, both modellers and engagement specialists use the term 'bottom up' but they mean different things by this. *"I think we struggled a lot in the first maybe 6 months... They will have a particular way of describing certain things, and you listen, and the communication's clear, you hear certain words, they mean something to you, you internalize them, you kind of chat internally as modelers, and then you go back and say, okay, well, we can do this. But there's lots of lost in translation. I think we got a lot closer together over time, and we now understand each other a lot better." (Modeller)*
- Over time the delivery team came to understand how the model was constructed (brought together from a number of different sources) but this was not immediately apparent.
- Different modellers approached the task in different ways, and appeared to be able to model different things (e.g. they had different ways to model policies or outcomes and needed different information as an input)

"What was even more confusing, for me is that they all had slightly different ways of getting to what they needed, and slightly different things that they could or couldn't do, and could and couldn't measure and include... And I think that that was also something that made it a little bit trickier to communicate to the panel members, too." (Delivery team)

The modellers also reflected the process was more challenging than they had anticipated. For example, they spent a lot more time answering questions online from engaged Panel Members between sessions than they had anticipated. Equally, the time it took to distil their presentations down to something that would fit in the time available, and be accessible to the audience was more than expected.

"I think the biggest, or one of the challenges I found, was wanting to be transparent about everything. But it taking quite a lot of time and effort to do so... I was originally thinking about that in terms of reporting back to the panel on what we did in the modelling, and wanting to fully explain... how I modelled things and why, based on what they said. It was very hard to get away from a level of complexity." (Modeller)

An important moment for some Members was Block 6, where, after an introduction Block and four deep-dives into energy demand reduction in each sector, the Panel took a step back and looked at energy demand reduction in the context of other net-zero levers: clean electricity generation and carbon dioxide removals. While this full picture had been explained briefly in the first Block, it was only in Block six that they were able to more fully understand how energy demand reduction fitted within the wider picture, and the consequences of being more or less ambitious for energy demand reduction on the need for these other levers. They reflected that it would have been helpful to be reminded of this more frequently throughout the panel deliberations, so that they were properly considering the trade-offs throughout.

The sessions and the facilitation were designed to prioritise capturing feedback which could inform a model scenario. As such, some topics that were of interest to the Members but which were a lower priority to the modellers were not given much time or space, in line with best practice that it is not appropriate to deliberate on topics outside of the commissioner's control or sphere of influence. This required strong facilitation which sometimes frustrated participants and some facilitators.

- There were particular topics that some Members wished to discuss, including population change and the use of hydrogen, which were out of scope for the model; the team handled this in different ways and even found budget for an additional deep-dive into population specifically, to enable the Panel to make a recommendation related to this.

"I didn't find that you were innovative at all. The topics I covered weren't really, to me, very innovative. I mean, I brought up quite a few things which were not in the model and that was just ignored completely or given answers to say we're not going to discuss that." (Panel Member)

- Equally, there were some energy demand reduction measures that participants were less enthusiastic about, such as car clubs or changing diets which were used in the modelling but which Members felt took too much of the agenda, relative to their level of interest.

"I did feel slightly uncomfortable about a few times and again, I completely sympathise with the main process designer... (and I feel I would have been in the same place if I'd designed the process) was that balance between how much are we allowing people to deliberate in a fairly unstructured way on a broad topic, and how much are we requiring people to go through a fairly complicatedly designed, enclosed conversation that we're pushing them down. And always, always, that felt like it was because the amount that the project was trying to do was still too much. Even though it's the biggest, longest, most record-breaking deliberative process I've ever heard of! Maybe it's never solvable." (Facilitator)

"It's that tension between, you know, what works for people in terms of getting them to think about things and engage with the topic, versus what the modelers need as outputs. You know, those two things aren't... Aren't always that compatible." (Facilitator)

Observing the sessions, Members appeared most energised when they were discussing their ideas for how things could be. They enjoyed thinking about public information campaigns and how to share the information that they were learning as a Member of the panel. They also enjoyed hearing from different specialists, especially when they came from diverse backgrounds including a farmer who contributed in the food Block.

“When it came to, kind of, creating shared visions [during Block 7], people would come away really happy and proud of the shared vision at our table.” (Facilitator)

The team were good at ensuring after every Block they shared back the outcomes of the modelling work for ratification by the Panel, which demonstrated that they were listening and learning from the discussions. Ultimately, it appeared Members saw informing a model as a means to an end, rather than an end in itself; an indirect way for them to share their thoughts with policy-makers about the role and shape that energy demand reduction could play in achieving Net Zero.

3.2 What worked / didn’t work to communicate the modelling to the panel

The team used different approaches to communicate the modelling to the panel. Each modeller had their own personal style which influenced how they interacted with Members. Some described being surprised by the learning journey they went on with the support of the delivery team, reflecting that while they had experience communicating modelling to graduates interested in the topic, communicating their work with the general public was much more challenging.

“I was permanently scaling back the complexity of what I was presenting as results, and still the flow was too much for some of the participants, and others thought, oh no, that’s great.” (Modeller)

The table below (Figure 4) sets out some of the features of the Panel which worked well, and some where there was learning to be shared.

Figure 4: Ways to communicate the modelling

What worked well?	What had more mixed results?
✓ Hearing from specialists in person (compared with online), where it was easier for the specialist to ‘read’ their audience, Q&A felt more spontaneous, and they could contribute to ongoing discussions <i>“What I remember being productive was having the modelers in the room and calling them over to the table, talking through. They could clear up or reinforce what the participants were saying and say, like, yeah, that’s exactly the sort of thing we’re looking for.” (Facilitator)</i>	❖ Developing a dashboard (discussed more below) – was useful to demonstrate overall concept of making trade-offs but tried to communicate too much in addition <i>“I don’t feel like the kind of hands-on looking at the model, I don’t think that added anything for people. I don’t know that they necessarily understood any better, or were able to comment any more deeply for having that experience.” (Facilitator)</i>
✓ Providing a ‘drafting table’ (a separate table where interested Members could seek further information and clarification from specialists) which they could approach and then bring information back to their table discussion without disrupting the flow.	❖ Some Members felt less confident understanding and interpreting charts, so found content that relied on this approach to communicating information challenging.

<i>“There was lots of good stuff.. Just the practicalness of having them [modellers] in the room and keeping them there to... to be part of it [was good].” (Facilitator)</i>	
✓ Having four named scenarios which helped some participants to understand there were different options to explore with different levels of ambition behind them.	❖ The team decided mostly not to provide materials to Members in advance (with a few exceptions for people with accessibility requirements), to mitigate against the most engaged people pre-reading and getting further ahead. The downside of this is that some more reflective Members who did not receive prior copies and who did not ask felt they did not have the time they needed to develop a personal view and as such contributed less than they might have otherwise.

It is interesting to note that as Members came to understand the modelling better, some became more frustrated about the limitations they perceived to be underpinning the process, while others were proud to be informing the process. The delivery team reflected that perhaps some people pushed back harder because they disagreed with the premise underpinning the model which was that energy demand reduction is required, and wondered whether anchoring discussions in achieving net zero would have been helpful, but given the duration of the panel and rapid policy-change they were not sure this could have worked.

“All they've done is create a graph with numbers in it and then prove the graph with the numbers and it works. The fact we voted this, that and the other is irrelevant because we can't change anything...Even though I'm sometimes negative, I still appreciated being involved in this. And I think that some [good will] come out of it, I just don't understand exactly how.” (Panel member)

An important consideration was the different starting knowledge of the Members. This became particularly apparent in question and answer (Q&A) sessions, where some Members would ask highly complex or technical questions which other Members did not necessarily understand. Providing sufficient information to reassure these more informed Members, while not alienating those with a less in-depth knowledge was an ongoing trade-off across the Panel. One of the delivery team reflected that it was difficult to strike a good balance: *“I think we tried to convey a lot more detail than we needed to... There's ... a lot of detail it could be gone into, and a really sort of high-level stuff, and we often ended up going to an uncomfortable place in the middle. Where we didn't give them enough detail to understand, really, how you went from panel outputs to new modelling but kind of tried to, so that muddled the waters.” (Delivery team)*

Delivering a dashboard

One particularly ambitious element of the Panel was the work to develop a dashboard to help Members understand the trade-offs and how different decisions interact. The dashboard enabled Members to change certain levers (i.e. how ambitious they wanted to be regarding energy demand reduction) and it would show the impact this would have on the country's trajectory to net zero. The dashboard was first introduced in an online session, and then revisited in a face to face session, in which Members worked in small groups with a task book and a laptop to explore different combinations of options.

"I can remember not finding that session very easy to understand, to be quite honest. I think what I felt perhaps all the way along, and I think I did feed this back a little bit, that some of the language I found a bit difficult to understand. I [could tell] some people didn't know what was going on, other people did know what was going on, and I think it was okay for them because they, you know, they could then quite easily express their views and understand things." (Panel member)

Unfortunately the dashboard did not work as well as initially hoped. The team had high ambitions for it as a tool, but found that constraints introduced in the building of the dashboard meant it was not able to do the job as well as they intended; for example only enabling people to explore a limited number of scenarios and combinations. In turn, some participants found the number of charts and options bewildering and so let those with a greater understanding step forward. For the panel members who did understand it, the dashboard was an interesting way to visualise some of the options and their impacts.

"One of the tricky bits I remember would probably be the dashboard and trying to illustrate the trade-offs, and I think some people engaged with that, but then others just hated having to click through this thing, and I think there were some, you know, last minute edits with it, and a kind of worksheet to follow, so I think that that method struggled, I think, in terms of getting everyone to be able to engage with the modelling, but.. it's hard to get everyone in the same place." (Facilitator)

"The social research and facilitation team started off with an idea of what we would be able to do with this and it became apparent as we went along that what we thought we would be able to do bore no resemblance whatsoever to what was actually what we were capable of doing. So, for this particular process, to be honest, I think once we had established that, we should have pulled the plug..." (Delivery team)

Nonetheless, some of the team thought that the idea was sound, and that playing with the dashboard did help people to visualise the trade-offs and see how things were inter-connected. They therefore would not want to rule out doing something similar in future.

"I think, given that this was always all about the model a similar project in the future should have had a much bigger budget for making that more interactive and more directly usable by the participants as we went along." (Facilitator)

"I think it's done something extremely interesting, and some panel members did find it kind of useful and enjoyed, like, using it... it's partly a time thing, ... I think we needed more time for them to explore it, and to do it, like, on their own. And to have facilitated exploration, like, facilitated as in having someone to explain to them what this is, what that is, what this shows." (Delivery team)

In the future, some facilitators reflected it would have been good to have had the funding for a role, like a classroom assistant, who could have supported some of the Members who needed it, so that they were able to develop their understanding.

Ultimately however, the team ensured that Members did not need to fully understand the modelling in order to contribute, but efforts to communicate what was being done with their discussions were valued. When options were presented back to people to vote on, based on the analysis, they were mostly able to express a view, thus helping to quantify support for different conclusions.

4 Sharing public perspectives with the modellers

For the Panel to be successful, a two-way exchange of information was required. Members needed to understand what was being asked of them, and modellers needed to understand what they were being told. It was clear that there was a sizable gap between how the public would typically choose to talk about reaching net zero and energy demand reduction, and how the modellers needed the information to be structured.

"[The modeller] was seeking a kind of okay, if they were saying they want to see this level, why isn't it that level? Like, what's the justification for not that? So starting, I guess, from a numbered point, quantified point, and trying to see why it would shift from that quantified point, whereas I was trying to describe qualitatively, okay, what will actually change out there in the world, rather than in here in the model, which will lead to a different outcome... I think that sort of thing happened quite a lot. And we managed to find our way through things ..." (Delivery team)

A related challenge was that, by definition, a model requires numerical inputs, while qualitative research is not designed to deliver numbers but rather to explore the depth, breadth, and variety of public views. This tension was potentially heightened because the choice of deliberative delivery partner. Involve reflected on this:

"Involve, prioritise shared decision-making power so that everyday citizens are able to have a say on the issues that impact them. The Citizens' Panel was not run as an extractive social research process that may lend towards quantification more readily. Rather, by centring the voice and views of participants with in depth dialogue, this work brought together what is traditionally seen as two very distinct methods. In addition to the methodological innovation this demanded, it sometimes led to tensions in the group, when the issues that people wanted to discuss, or the ways they wanted to discuss them, did not fit with the outputs needed to inform the model."

Ultimately, this points to a broader trade-off between ease of analysis and democratic authenticity: while translating deliberation into model-ready outputs demands real methodological compromise, the lesson is that preserving space for participants to speak on their own terms is what gives the process its legitimacy, and any quantification that comes at the cost of that voice risks producing numbers the model can use but the public don't recognise as their own." (Delivery team)

As shown above, participant feedback demonstrates that most Panel members agreed that they understood how their discussions had influenced the model in line with these aims.

Over the course of the Panel, the team used different approaches to move from qualitative insight to quantitative input (see Figure 5).

Figure 5: Different approaches translating panel outputs to model inputs

	Strengths	Weaknesses
Qualitative analysis by delivery team	✓ Enabled more nuanced insight into strength of feeling and drivers of views. ✓ Traditionally considered most methodologically appropriate given not a large-scale nationally representative sample.	❖ Provided to modellers in narrative format so relied on modellers deciding how to describe the narrative using numbers ❖ Less transparent to Members where the numbers came from. <i>"More art than a science" (Modeller)</i>

	<i>"I think that their attitude towards our expertise was interesting ... They were great at accepting our expertise in what people do and how people think. But... didn't quite trust it enough... The whole thing about how much you chase numbers and I feel like they were really wanting to chase numbers, because it would give them a sort of obvious evidence base to change the models. And, an alternative approach would be to, just use judgment based on The deliberative research about what is and isn't possible in different areas." (Delivery team)</i>	<i>"Voting was very useful. Was without that, you'd might get a sort of... In the write-up of it 'X was thought of as important, or a key constraint' or something, but it was very difficult to know, was this one person who made that point strongly? Was it, you know, the majority of people involved? So... without some level of quantification. It was very difficult to know what, you know, should or shouldn't be represented in the model, because, you know, there's always going to be a range of opinions." (Modeller)</i>
Analogue methods (e.g. dot voting)	✓ Engaging to take part in, energised room and good to capture strength of feeling ✓ Opportunity to discuss/clarify any questions	❖ Not always clear if Members followed the instructions / considered all the ideas when spread around the room ❖ Not clear if some people voted twice or not at all ❖ Concerns about social-desirability bias <i>"there was a voting exercise in person... I think there were some obvious drawbacks with that. You didn't know if people had voted. They could have voted twice if they wanted to, you know, you couldn't track how people voted on different things" (Modeller)</i>
Tech-enabled voting (e.g. using Menti / online surveys)	✓ More clarity on who did/didn't vote and increased likelihood of considering all options. ✓ Less social pressure as completed in private ✓ Quick to do and analyse <i>"The really good use of things like voting, like the Menti-meter stuff and other voting, is that you get, you get a sense of where people are... their own private views more than you might get around the table, so it sort of stops group... wanting to say the right thing, and obviously it forces the quieter people to have a view." (Delivery team)</i>	❖ Some participants had difficulties using the tech-enabled voting, and needed additional help / support to complete it. ❖ Outputs appear quantitative in nature but the number of panel members present and some differential attrition means numbers are only representative of attending Panel members' views, not necessarily the wider public (no weighting was applied).

On balance, the modelling team favoured the tech enabled voting as they felt this mitigated their concerns about having to 'translate' qualitative findings to quantitative inputs, although they recognised there were trade-offs for all the approaches. Also, they highlighted the importance of quantifying the

right questions, and spending time thinking carefully about what data would be most helpful; they found simple surveys worked better than more sophisticated ones, but developing them took longer.

“if I was doing this again, I think I would want a more explicit kind of numbers strand alongside, and maybe attached to a sort of bigger polling sample, like in my dreams...Then you would have numbers for the modules, you'd also have judgment for the modules, and then you'd also have a chance to do a bit more, sort of, segmentation between different views” (Delivery team)

Additionally, the team explored getting to the insights through different routes: in some Blocks they asked what Members would *like* to see happen (desirable), in others they asked what panel members thought *could* happen (feasible) or what they personally would do. These different framings were all considered to be helpful by the modelling team, and it was not clear if one was more helpful than another to support modelling decisions. Although modellers tended towards wanting to ask what people would personally do, the methodology was not necessarily the best way to collect this information.

“It did fluctuate a bit between, yeah, people just giving their views on stuff, and then whether... asking them to make a judgement about what was feasible in what circumstances.” (Facilitator)

“The reason that we switched between those kind of categories of questioning was based on the discussions that we had with each individual modeler at the start of each individual block. So we weren't, kind of, starting from the same starting point, so we were trying to work out, okay, what are the outputs that you need from this? And we worked back from that to get the sort of questions that we ended up asking them, which meant that there wasn't consistency across the blocks.” (Delivery team)

A design decision made by the team was to mainly use table facilitators with a good understanding of the overall theme, rather than extensive experience facilitating deliberative activities. This was a trade-off, and as outlined in the main evaluation report, it had benefits but also meant that the styles of facilitation were potentially more variable than would normally be expected.

Across the Blocks, the delivery team were experimenting with different approaches to getting the information that the modellers needed. It may have been the case that the facilitators were not always clear about the outputs required, as some facilitators were less familiar with the model themselves. An ongoing tension, as in all deliberative sessions, was the amount of time available, with some facilitators believing that if people had longer to explore and discuss a topic they might have landed somewhere different as exemplified by the following quote: *“I honestly don't know how reflective, the outputs are of... what people actually thought. In part because the process was just maybe a bit, too bloated to allow the time to really dig into that.” (Facilitator)*. The fact the team checked back in with participants on the changes made to the model each Block helped to mitigate this concern to some extent.

Another interesting impact of the Panel methodology was that Members were conscious that their views changed over the course of the Panel. At the start they were intentionally selected to have a cross-section of different viewpoints, but some of those who were initially less concerned about climate found themselves becoming increasingly interested in making changes over the course of the Panel, to the extent that some wished they could go back to the first Block (food) and be more ambitious, given their improved understanding of the need for change and the available levers.

“I would have preferred to have said right from the start, if we don't do carbon capture, we've got to be radical...It was just so eye-opening to think that we might have to bury stuff under the ground or whatever to capture CO2 if we didn't reduce our emissions.” (Panel member)

The modellers felt that this informed input had value, compared with a one-off survey. They felt more assured that the panel had a better understanding of the issues and inter-connected nature of their

decisions, compared with a survey respondent, and as such felt the insight held more value. They would have been interested to capture the overall shift in attitudes they suspect occurred over the course of the two years.

“Having a larger scale survey would have advantages in perhaps being more representative, and being able to look at various statistics around, people's thoughts about various issues, and some sort of... I guess, more, sort of, codified way of what gets included or not. But I think the key you'd miss there would be the... the panel, sort of, learning about these things before... it was discussed and decisions were made.” (Modeller)

“I'm very sceptical of surveys, particularly when they're talking about things that are quite new to people. How strong and how useful, or how... yeah, how useful those opinions are that people get or make on those, state on those surveys...Are they very reliable? Do they speak to anything in general, really?” (Modeller)

While it was important to deep dive into the topics so one topic had to go first, this raises interesting questions about order effects, and how to manage them. It also opens up the question of what exactly the Panels' role was; as over time they potentially became less reflective of the UK public as a whole, mainly as a result of learning more about energy demand reduction. While people learned differently; with some people taking detailed notes and absorbing a lot of what they were told or doing additional research between sessions, others appeared to let the information 'wash over them' and then shared their opinions on different topics.

On reflection, the delivery team and modellers both thought there might have been better ways to 'translate' from qualitative findings into quantitative inputs although their ideas were very different:

- The delivery team thought it might be better to rely more heavily on high quality qualitative analysis, for example, developing a scale (e.g. 1 to 4) which could be applied as a result of the analysis to turn panel sentiment into numerical inputs. A challenge of this would be to turn around the analysis quickly.
- The modellers suggested an alternative approach that relied more on technology. Specifically, one suggested *“In a perfect world AI-powered, technology-rich, sort of unlimited funds, you would have an online tool that connects all of the modelling dynamically and immediately. You'd have people with, tablets that are able to vote dynamically on different questions, and as they vote, the modelling adjusts and change, and the results shift, and they see that, and they're able to kind of talk about it. And all of that's recorded.” (Modeller).*
- Typically the modellers described feeling quite uncomfortable using qualitative inputs to decide how to change the model as there were still many decisions to be made. For example; *“The first time we showed [the Panel] the systems modelling they didn't like the amount of bioenergy with carbon capture and storage, or the amount of engineered removals, really, and so we had to reduce that ... and it was my job to go away and figure out how much to reduce it by... Because right now, you're removing this much carbon from the atmosphere, and it has to go down. But where... how far down?... I'm very used to that, actually. I don't mind taking qualitative stuff and putting it in ...but still, that's a challenge” (Modeller).* They reflected that while modellers always have to make assumptions based on evidence, they felt the importance of fairly representing the Panel views in their work and being impartial, so were holding themselves to high expectations.

Ultimately, spending more time during set-up for the two teams to find common language and understanding would have been valuable, and could have allowed for greater consistency across the process. Quite fundamental questions like what exactly could be modelled; e.g. behaviour assumptions

or policy impacts, led the team in different directions. By the later Blocks the team had a better understanding of each other's work and it became easier to work together.

"There could have been ways, even though it might have taken longer, somehow, for us to... to agree with the modelers in advance, how we would turn the outputs into numbers without necessarily requiring numbers direct from the panel. [With hindsight] and thinking about doing this again, that would need to be kind of pinned down in advance with the modelling team." (Delivery team)

5 Impact

As a result of the Panel, the modelling team have developed a new scenario grounded in the Member's views. This scenario looks different to those developed previously, and the team are confident it more closely reflects what might be considered the most desirable and feasible route to net zero from a public perspective. Over the coming months they plan to publish papers based on the new scenario, and to share it with policy-makers in Climate Change Committee and Department of Energy Security and Net Zero. They are hopeful that including the public perspective will encourage interest, while the accompanying Panel recommendations will support understanding of the Panel perspectives.

"[The modellers] went from a scenario where they had no idea whether people would support it, to a scenario that they sort of feel gets, you know, they can say to decision makers, you know, people would be behind this if you tried to do it, and that's a massive leap forward." (Delivery team)

Time pressures were a constant issue throughout the Panel – from the need to prepare for Panel sessions, to turn around the analysis and remodel then feed back and then producing the final outputs. Everyone was conscious that climate policy and technologies change quickly, so the scenarios can quickly become outdated and discussions move on.

"I thought it was a great project, although I also thought it shouldn't have taken two years because we were getting a bit out of date by the time we got to the end...the world just changed such a lot in two years... I suppose by the end I felt like some of the things that we were talking about maybe weren't quite so relevant any longer." (Panel member)

This was a very intensive process, and modellers were surprised how much time and effort it took to translate their work to be accessible to the public, and to take the public insights back into the model. Compared with a traditional survey or focus group, the depth of insight was much greater, but ultimately was reduced back to numbers in order to include it in the model. However, unlike the more traditional approaches, they could be confident that people had taken into consideration important evidence around the different decisions to be made, and were considering the best trajectory to net zero in the context of their own lived experiences.

"I hope that we're able, with the paper, to create a more lasting conversation with stakeholders in... different government departments, in different NGOs, or in different groups that talk about energy, maybe at National Grid, or... I don't know where, but that it demonstrates that people are, A, prepared to talk about this, and able to debate and talk about it constructively and produce meaningful commentary on Future energy policy in particular sectors that affect their everyday life. And that when asked sensible questions about their level of willingness to change they're prepared to give sensible answers. They're not what you want to hear, necessarily, but they're sensible, and they talk about change, and they're able to shift." (Modeller)

The team have learned a lot from this process, including communication skills that will be valuable in future work. Just by being in the room with members of the public and talking about their work, the

modellers were able to develop new insight which they can take back into their day jobs. They also have a new panel scenario that they can promote widely as ultimately they were able to do something meaningful with the insight they generated.

"I just think that it is incredibly impactful for anyone, like, in research or policy, to spend a day with a representative sample of people." (Delivery team)

"I think that [the modellers] learned a lot to inform the way they do their job by just being there. So I thought that was quite a finding. It's a difficult one, because how do you reproduce that? I mean, I'm a massive fan of policy makers, decision makers generally sitting in on these things, because it gives them a really good sense in a way that a report doesn't. (Delivery team)

Overall, the panel successfully managed to inform the modelling. There was learning along the way, and things that could be done differently next time, which reflects the positive, learning mindset adopted by the team. The delivery team, facilitators, modellers and panel Members were very proud of what they had achieved, and through two years of hard work have demonstrated that modellers can work with a deliberative panel and find it a useful input to their work.

"A big success of this project is that we managed to take a load of people off the street, and got them to say sensible stuff about what energy demand model runs should look like... it doesn't feel like that should be possible, because if I don't understand exactly how models work. How can we expect people to? So I feel there's something very, sort of, radically democratic about the fact that we tried that, and... to a large extent, were successful." (Delivery team)

"I really love just thinking about things and deciding what I think about things based on evidence and fact and stuff. And it was such a privilege to be able to do that and to know that other people were taking my words seriously. It really hit home to me how important that is as a concept and I don't think lots of people get that opportunity in their lives." (Panel member)