



# Ofgem: Understanding consumer attitudes on AI use in the energy sector

Report  
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# Foreword



Artificial Intelligence (AI) is reshaping Britain's energy sector, helping to transform the way energy companies interact with their customers, enhancing their experience, as well as improving how energy is transported to homes and enabling smarter solutions to household energy use.

As AI becomes more integrated into the energy sector, it is essential consumers' interests are protected by understanding AI's impact on consumer behaviour, choices and rights. This research focuses on two crucial areas:

- How do AI-driven systems in Britain's energy sector impact consumers?
- What must be done to ensure that these systems deliver safe, secure, fair and environmentally sustainable outcomes for consumers?

The importance of this research cannot be overstated. As AI continues to evolve, concerns have emerged regarding its potential to create unintended biases, reduce transparency and compromise consumer privacy. Whether it is through personalised recommendations on energy services and products, or automated decision-making on energy tariffs or customer service chatbots, AI now directly influences in ways that may not always be obvious to energy consumers.

As with any technological advancement, AI presents both opportunities and risks – especially for the vulnerable. It is imperative to examine the ways AI use in the energy sector may impact consumers and ensure that AI technologies are developed and implemented in ways that prioritise fair outcomes for consumers, with appropriate routes to contest and seek redress if AI fails.

These findings serve as a valuable resource for all stakeholders who are considering using AI in the energy sector, and for Ofgem in its considerations for AI policy development. Issues such as data privacy, algorithmic transparency, fairness and accountability are central to this discussion. This research offers actionable insights that can help inform ethical AI deployment in the energy sector. By identifying areas where energy consumers may be disadvantaged. We hope the findings contribute to the ethical integration of AI into energy consumer provision, supporting a balanced approach that promotes both innovation and fairness for all.

**Mark McAllister,**  
**Ofgem Chair**

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## Executive summary

# Background to the project

**In March 2023, the UK government published a white paper\* outlining its approach to the regulation of artificial intelligence. Existing market regulators, including Ofgem, will be implementing the AI principles-based approach framework. Ofgem has been considering what these regulations should look like within the gas and electricity markets.**

**AI has the potential to revolutionise the energy sector through its diverse applications. It could be used to actively manage complex processes, such as supply and demand on gas and electricity networks, through to more tangible energy consumer interactions with energy suppliers.**

**With the growing use of AI, Ofgem, as part of its duty to ensure consumers are treated fairly, wanted to better understand consumers views around the use of AI and its role in ensuring fair treatment for customers, as well as the potential actions they might take if they believed they had been treated unfairly.**

[\\*A pro-innovation approach to AI regulation - Gov.uk](#)

# Objectives and approach

## Research objectives

- Ofgem commissioned research to understand consumers' views and expectations around the use of AI in the energy sector, to inform its work on guidance on the application of, and communication about, AI in the energy sector.
- The objectives of this research included:
  - Assessing consumer understanding of AI, its benefits and opportunities.
  - Understanding consumer attitudes towards the application of AI in the energy sector.
  - Identifying any areas or topics of specific concern that may require further consideration.
  - Exploring concerns and perceptions of unfair treatment by AI system use, and the action consumers would take in this scenario.

## Approach and sample

- Three deliberative workshops with 36 domestic energy consumers:
  - In England, Scotland and Wales.
  - With participants from a wide range of backgrounds, ages and ethnicity, including those in vulnerable circumstances and varying levels of digital confidence.
- Each participant first completed a short pre-task to gather baseline views and understanding of AI.
- Workshops were then used to explore AI in more depth. 12 scenarios about AI use in the energy sector (based on real use cases and future use cases) were shared to further discussion and gather participant feedback.
- Please note these findings are indicative only, due to the relatively small sample size. Further research on key areas may be warranted.

# Key insights: General views on AI

1.

**Whilst awareness of AI is high, understanding of it is low.** Participants in this research saw AI as a 'hot topic', frequently discussed in the media and the news. Although most feel they know something about it, detailed understanding is limited. As a result, immediate associations with AI tend toward extreme examples of how it could be used in the future e.g. a growing use of robots.

2.

**Participants can readily outline their concerns about the application of AI. Their perceptions are heavily informed by a mix of external factors.** These factors include media stories highlighting the downsides of AI. Negative interactions with tools such as chatbots, where results are inconclusive or feel invasive, also shape views. There is also a perceived lack of regulation for AI.

3.

**Participants are typically concerned about the threat of human job loss as a result of the use of AI.** They also worry about their data being secure and kept private, AI not fully understanding a person's needs, and have a latent but not unsubstantial fear about 'AI taking over'.

4.

**Generally, participants can see that opportunities exist for the use of AI across all sectors. They see the key benefits as improving efficiencies and processes for both customers and organisations.** These benefits lead to a belief that AI use will be inevitable in key industries. These sentiments drive a sense of cautious comfort with, or for some even optimism about, the use of AI.

5.

**Negative perceptions and strength of concerns around AI are particularly heightened for older/ low digital confidence participants.** For this group, lower awareness means there is less consideration of the benefits AI can offer, while also leading to a fear of the unknown.

# Key insights: the use of AI in the energy sector

**AI integration and usage is seen as inevitable within the energy sector, due to AI tools already being used. It is also broadly acceptable, due to a recognition of potential benefits.**

Participants are positive about the benefits AI can offer to the customer and the supplier, such as helping share bill and tariff information and aiding employees with managing mass datasets. However, AI use is seen as 'high stakes' in the energy sector, due to the everyday reliance on energy in households. Participants are also wary of any change in the sector that could (negatively) impact their energy bills.

**When thinking about how AI could be used in energy, participants refer to six key factors\* to assess scenarios and determine their overall perspectives. Scenarios that are perceived to do well on these factors are more acceptable to participants. The factors are:**

Customer benefits: What are the benefits or perks for me, for example cost or time saving? Do these benefits outweigh any potential downsides?

Personal relevance: How much do these benefits impact me on a day-to-day basis?

Perceived quality: How well do I think the scenario would work in practice both in terms of the experience of using it and what it delivers for me?

Level of risk: What do I think the risk associated with this scenario is? How likely do I think it is that it will happen?

Level of understanding: Do I understand the scenario? Does this impact how comfortable I am with it as an idea?

Energy sector benefits: What benefits are there for the sector (or supplier)? Does this help me understand why the scenario is being proposed?

**\*These factors were generated spontaneously by participants and were used only in an informal manner to assess scenarios.**



# Key insights: Feedback on scenarios (1/2)

Participants were shown 12 different scenarios for AI use in the energy sector under four headings for feedback and discussion.

## Customer-led interactions e.g., a customer getting in touch with a supplier

- Making an enquiry / Asking about other tariffs / Seeking financial support / Making a complaint
- Support for vulnerable customers
- Contestability and redress mechanisms



- Participants are open to AI for 'low-risk' tasks such as making an enquiry/ asking about tariffs, but see complaints/ financial support as too complex and emotive for AI.
- AI providing information to vulnerable customers is acceptable, but there is caution about AI classifying consumers as vulnerable; and action being taken based on this, in case of errors.
- Concerns around contestability and redress are heightened for older/ low digital confidence participants, but otherwise most are open to this use. However, they stress a need for human oversight to monitor and take accountability for discrepancies.

## AI-led interactions e.g., a supplier getting in touch with a customer

- Smart meters and energy consumption optimisation
- Automated emails
- Personalised energy plans



- Younger participants are comfortable with smart meters using AI but there is some reluctance from older participants, who are more sceptical about smart meters generally and therefore more likely to reject this idea.
- Automated content and personalised plans are seen as acceptable use of AI. This is providing they are subject to human checks to ensure the quality of content and that stringent GDPR processes are in place, as well as robust security, given the greater amount of data understood to be stored to enable this AI use, e.g. smart meter data.

# Key insights: Feedback on scenarios (2/2)

Participants were shown 12 different scenarios for AI use in the energy sector under four headings for feedback and discussion.

## Networks

- Smart grid transformation



- Smart grids are seen to deliver far reaching benefits including improving efficiencies and reducing wastage (which is assumed to reduce customer bills) and better incorporation of renewable energy sources to deliver sustainability benefits more broadly. As such they are readily accepted.
- However, the expansive reach of energy networks means concerns about something going wrong (e.g., systems being hacked or failing) are heightened, meaning participants want to see checks in place e.g., human oversight and governance.

## Future scenarios

- Dynamic pricing and real time adjustments
- Virtual energy audits and AI-driven sustainability initiatives



- Once explained, the concept of real-time energy pricing systems is understood by participants and generally viewed positively, providing an 'override' system is in place. Being able to customise the ways in which the AI works (i.e., being able to opt out, and options around sharing of data), is considered essential.
- Virtual energy audits and sustainability initiatives are viewed favourably, although privacy and security reassurances are key, as is an opt out option.

# Key insights: Consumer needs when developing AI systems

Participants identify a series of needs that are required to ensure the fairness of AI systems overall. The development of these needs was informed both by discussions on scenarios for AI use in the energy sector and pre-existing views and concerns about AI more generally.

**Clear customer  
benefits**

**Human + AI  
together**

**Watertight security**

**Strong privacy laws**

**The ability to opt  
out**

**Consumer control**

**Smart use cases**

**Transparency**



## Objectives and methodology

# Objectives

The objectives of this project were to:

**Assess consumer understanding of AI, its benefits and opportunities**

**Understand consumer attitudes towards the application of AI in the energy sector**

**Identify any areas or topics of specific concern that may require consideration for addressing**

**Explore concerns and perceptions of unfair treatment by AI system use, and the action consumers would take in this scenario**

# Methodology: Overview

**Thinks Insight and Strategy conducted three deliberative workshops with 36 domestic energy consumers from a wide range of backgrounds, ages and ethnicity, including those in vulnerable circumstances and varying levels of digital confidence in England, Scotland and Wales.**

## **Two face-to-face sessions (England and Wales)**

- Two hours of engagement per workshop
- One workshop in Watford and one workshop in Wrexham
- Delivered with two breakout groups per workshop, with participants split by age and digital confidence
- 12 x participants per workshop

## **One online (Scotland)**

- Two hours of engagement
- Participants from a range of locations in Scotland
- Delivered with two breakout groups, with participants split by age and digital confidence
- 12 x participants

**All participants completed a pre-task prior to joining the workshops, exploring their baseline views, perceptions and attitudes towards AI and fair treatment.**

***Research fieldwork was conducted between 4 – 12 June 2024***

# Methodology

The following approaches were used in this research:

## **Pre-task**

A pre-task was used to gather additional data and to engage participants on the topic of AI ahead of the workshops.

The pre-task asked participants how they feel when they are treated fairly vs unfairly by organisations, to share images portraying their perceptions of AI and a series of questions relating to their level of comfort with and understanding of AI.

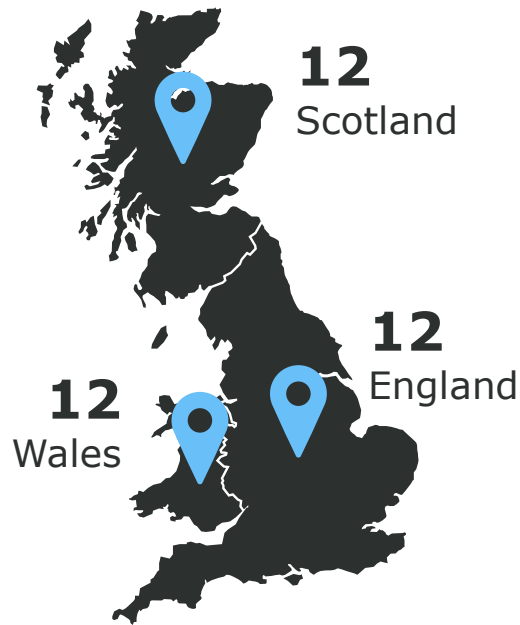
## **Qualitative approach**

A qualitative approach was used to allow more in-depth discussion. Qualitative research addresses how and why questions, enabling exploration of motivations and complex concepts from the participants' own perspective. This means that the research did not produce hard data or stats e.g. the number or percentage of participants who held a certain point of view.

## **Deliberative techniques including scenario testing**

These techniques were used due to the complex and emotionally charged nature of the topic. This allows participants more space and time to consider a topic from different angles and with new information they may not have considered before. 12 scenarios about AI use in the energy sector (based on real use cases and future use cases) were shared to further discussion and gather participant feedback.

# Sample of energy consumer participants\*



| Demographics            | Nº        |   | Nº        |
|-------------------------|-----------|---|-----------|
| <b><u>Gender</u></b>    |           | <b><u>Digital confidence</u></b> (i.e. self-assessed level of confidence in using technology) |           |
| Women                   | <b>19</b> | High confidence   | <b>28</b> |
| Men                     | <b>17</b> | Medium confidence   | <b>2</b>  |
| <b><u>Ethnicity</u></b> |           | Low confidence  | <b>6</b>  |
| White                   | <b>29</b> | <b><u>Priority service register****</u></b>   |           |
| Ethnic minority         | <b>7</b>  | Not on the PSR  | <b>22</b> |
|                         |           | On the PSR  | <b>14</b> |
| <b><u>Age</u></b>       |           | <b><u>Vulnerability</u></b>   |           |
| 18-30                   | <b>10</b> | Long term health condition  | <b>10</b> |
| 31-45                   | <b>11</b> | Financial vulnerability**   | <b>9</b>  |
| 46-69                   | <b>13</b> | Digitally disengaged***   | <b>2</b>  |
| 70+                     | <b>2</b>  |   |           |

\*Referred to as 'participants' throughout the research.

\*\*Financial vulnerability was calculated based on responses to a number of criteria such as household income, proportion of income spent on bills and significant life events that would have an impact on personal finances (e.g., a bereavement, sudden loss of income etc.) in the past 12 months.

\*\*\*Digital disengagement was calculated based on self-reported confidence in doing a range of different activities that involve using the internet.

\*\*\*\*This was a self-reported quota. The Priority Services Register (PSR) is a free support service offered by energy suppliers to ensure extra help is available to people in vulnerable situations.





## **Awareness, understanding and perceptions of use of artificial intelligence**

# While awareness of AI is high, understanding of it is low

- Participants have high awareness (i.e., recognition and some familiarity of the term) of AI and recognise it as a 'hot topic' that is frequently discussed in the media and news.
  - Top of mind associations with AI largely relate to robots, machines, and ideas of 'Big Brother'.
- Despite high awareness of AI technology and some evidence of comfort using it (e.g., tools such as Alexa and ChatGPT), most participants struggle to fully understand what constitutes AI. It is often conflated with other technological capabilities or advancements.
  - For some older/ less digitally confident participants, AI is often associated with automatic email replies, 'algorithms\*' or the Cloud.
  - Participants aged 18-35 are more likely to give examples of AI, such as using ChatGPT to write essays or help with work. However, they still have difficulty in defining what AI is more specifically.
- As a result of low understanding, AI feels big, broad and undefined. This has implications for how participants approach conversations about AI in the context of this research.

*"I feel a bit scared of AI in a physical form as I believe this may mean the end of the human race eventually as we will likely be rendered useless in the working world."*

Wales, younger

*"AI can send emails and you don't know sometimes if it's from the company or not, because they can mimic it. So, when you get threatening letters you don't know if it's from the company... it's very stressful if you don't understand it."*

England, digitally disengaged

*"I know very little on AI, I know you can generate fake images, but never really thought of what else it can offer."*

Scotland, younger

\*Algorithms is a term that is widely known, although many struggle to define exactly what it is. For some, it is understood in terms of social media newsfeeds (i.e. what information is shown to them), while others refer to it more generally in terms of being the background workings of digital tools.

# Perceptions of AI are informed by many factors, including media, personal experience, and pre-existing distrust

*Participants bring to the research pre-existing thoughts and experiences around AI, which include...*

Recent news stories are felt to predominately highlight the downsides of AI, including job loss (explored on the next slide) and the risks of AI-generated content and/or deep fakes.

*"I've seen cases of it on Facebook with someone famous talking, but their words have been changed [to say something else]."*

England, digitally disengaged

Personal interactions with AI (tools such as Alexa, customer service chatbots or ChatGPT) have given mixed results e.g., inaccurate responses to questions.

*"When you're trying to get through to customer service but it's a chatbot it makes me mad. I just want to talk to a real human."*

Scotland, younger

Distrust in private organisations/businesses, which makes many feel AI will be used solely for cost saving purposes for the organisation, not for customer benefits.

*"It just benefits the company mostly, it's a lot cheaper to use AI than it is to hire x amount of people."*

England, younger

A perceived absence in evidence of regulation and careful management of AI, and tech more broadly. This can feed a latent but not unsubstantial fear of 'AI taking over the world'.

*"I just worry about there not being accountability. Once you set up these services in the ether they're not actually controlled by people."*

England, digitally disengaged

# Participants can readily outline their concerns about the application of AI

*Participants named the following concerns around AI as things that could potentially happen:*

Most frequently mentioned

Least frequently mentioned

Job loss: AI making certain roles obsolete, e.g., ones that are perceived to be 'low skilled' and/or in creative fields.

AI being used for the 'wrong' tasks i.e., fun/creative ones that humans would prefer to do themselves, as opposed to dangerous or cumbersome ones.

AI is assumed to require more personal data: data security and privacy concerns, in terms of being hacked, manipulated, data shared or misused.

AI not fully understanding a person's needs, particularly in terms of human emotion, which could lead to misunderstanding or offence being caused.

The pace of change and being left behind, which could leave some feeling cut-off from certain parts of society where the need to use technology is essential.

A lack of control over AI: concerns it could become a 'physical entity' and/or becoming self-aware and 'taking over'.

*"While in some respect you're removing human errors, at the same time there are technology errors and hacking. If we're giving everything to AI what will we have left?"*

England, younger

*[Talking about getting left behind] "If you're not computer literate, how are you supposed to navigate these things? It's not easy for people with disabilities like myself."*

England, digitally disengaged

# Participants can see potential benefits in the application of AI – key is using AI to make their lives easier and more enjoyable

While participants do not necessarily think all benefits are yet being realised, they cite a number of areas where they think AI could have a positive impact:

Most frequently mentioned

Least frequently mentioned

Improving efficiencies, in terms of the speed and resources required for tasks e.g., condensing information to save time and resource.

Taking over dangerous or cumbersome tasks, so humans don't have to do them.

Tailoring services and information, based on understanding of customer needs and behaviours, to provide better, tailored results.

Mitigating human error, to make data or information more reliable.

Being always available, for example 24/7 customer service, to make it easier for customers to get a response.

Generating new ideas, to help prompt human brainstorming.

While cited as a top benefit, there is a view that AI is not yet being used to fully capitalise on these opportunities.

*"[Tailoring] is technically what my phone bill does and it's actually quite useful. Some places ask what you like to use your phone for or how often, and it tailors the information you've given it to a deal that would best suit you."*

Wales, younger

*[Talking about generating new ideas] "Even my tattoo artist uses AI for tattooing exactly the ideas I was telling him. He's done it with AI and it made my tattoo unique."*

England, younger

# There is an expectation that the use of AI will become more commonplace, and some are enthusiastic about how it could be used in the future

Many participants understand AI use to already be widespread in many industries, such as in banking, retail and marketing. They have either experienced this directly through their interactions with certain organisations or have heard via the media or people they know, about its use.

Based on the increased use of AI in recent years, there is an assumption that AI will continue to be utilised and developed rapidly, meaning AI use across all industries feels inevitable.



There is also an expectation that AI capabilities and quality of service will improve over time, as the technology gets smarter.

These sentiments drive a sense of cautious comfort with, or for some even enthusiasm for, the use of AI.



**As a result, the use of AI within the energy sector specifically is expected and generally considered acceptable.**



## **Energy sector: Awareness, understanding and perceptions of use of AI**

# Participants recognise the benefits of using AI in the energy sector, unprompted, and believe that the sector will do this in a safe and sensible manner

## Participants in this research trusted the sector to use AI in a safe and sensible way

The energy sector is largely viewed as being comparable to other key industries such as banking, retail and broadband, which are all seen to have the scale, resource and skill to be developing and improving their AI capabilities.

Although less top of mind compared to other sectors, for many, knowing that the energy sector is regulated generally helps reassure that rules will be put in place to manage AI.

As many participants describe saving costs on their energy bills since getting a smart meter, smart meters can, for some, demonstrate a positive way in which technology can be used in the sector and be of benefit for the customer.

*"I would trust them as much as I trust any big company. Like with any big company, they're regulated so there's an assumed level of trust."*

Scotland, younger

## Furthermore, participants recognise ways in which AI could benefit the energy sector, including:

Supporting vulnerable people, e.g. with meter readings if they do not have a smart meter.

Sharing tailored bill and tariff information with customers i.e. automated updates.

Allowing employees to manage mass datasets and outsource repetitive tasks freeing up their time to work on other important tasks.

Making energy networks more efficient and reliable (note, knowledge on the specifics of how this would work is low).

*"I think in places where, repetitive jobs, where a person would have to do it. They would probably benefit from that (AI) rather than having to do it over and over."*

England, digitally disengaged



# There are some sector specific concerns about the use of AI in energy, including a general sense of 'high stakes'

There are unprompted concerns from participants that AI may 'fail' or not work as it should (i.e., break, or lead to an error), which could cause significant issues:

The biggest and most detrimental perceived risk is of supply interruptions or networks being damaged. This is deemed a high stakes issue not comparable to other sectors, due to the potential far reaching impacts.

Participants do not necessarily have a view as to whether or not this would be more or less likely with AI (compared to completely manual operations), nor do they have an understanding of how this might happen either way. They simply register it as a potential risk.

*"When you're dealing with someone not having electric that's literally life or death, especially when you have people with specific needs."*

England, younger

There are also concerns about potential risks relating to:

- Inaccurate bills caused by unchecked miscalculations from AI, which raises concerns given a perception of energy bills being high (compared to other household bills);
- AI not understanding a person's specific situation or needs, for example during a customer service interaction, which could lead to further problems relating to bills or payment,
- Data privacy/security on sensitive information required for energy bills and payment.

*"When you go to a chatbot for, say the electric company, if you type in some personal information, is it safe?"*

England, digitally disengaged



## Feedback on AI use cases

# Participants were shown 12 different scenarios for AI use in the energy sector under four headings for feedback and discussion

Scenarios were used to generate deeper discussion and understanding of participant views of AI. Participants were asked to consider the pros and cons of each scenario, and overall whether it was felt to be an acceptable use case.

| Customer-led interactions e.g., a customer getting in touch with a supplier   | AI-led interactions e.g., a supplier getting in touch with a customer   |
|---|---|
| <ul style="list-style-type: none"> <li>• Making an enquiry</li> <li>• Asking about other tariffs</li> <li>• Seeking financial support</li> <li>• Making a complaint</li> <li>• Support for vulnerable customers</li> <li>• Contestability and redress mechanisms</li> </ul> | <ul style="list-style-type: none"> <li>• Smart meters and energy consumption optimisation</li> <li>• Automated emails</li> <li>• Personalised energy plans</li> </ul>   |
| Networks  | Future scenarios  |
| <ul style="list-style-type: none"> <li>• Smart grid transformation</li> </ul>   | <ul style="list-style-type: none"> <li>• Dynamic pricing and real time adjustments</li> <li>• Virtual energy audits and AI-driven sustainability initiatives</li> </ul> |

Scenarios tested included use cases in which AI is already being used, as well as potential future scenarios.

# Factors used by participants to assess appeal and acceptability

Most important

## Customer benefits

What are the benefits or perks for me, for example cost or time saving? Do these benefits outweigh any potential downsides?

## Personal relevance

How much do these benefits impact me on a day to day basis?

## Perceived quality

How well do I think the scenario would work in practice both in terms of the experience of using it and what it delivers for me?

## Level of risk

What do I think the risk associated with this scenario are? How likely do I think it is that it will happen?

## Level of understanding

Do I understand the scenario? Does this impact how comfortable I am with it as an idea?

## Energy sector benefits

What benefits are there for the sector (or supplier)? Does this help me understand why the scenario is being proposed?

Least important

**Note: These factors were generated spontaneously by participants and were used only in an informal manner to assess scenarios.**



## **Detailed feedback on scenarios tested**

# In discussing AI interactions broadly, two key factors emerge: Quality and transparency

Throughout the research, these themes underpinned perceptions around AI, both broadly and in relation to the energy sector:

## Quality

In general, participants hold the view that the quality of AI content is currently of a low standard compared to human writing. It is perceived to be prone to spelling and grammar mistakes, as well as often not being accurate or factual. Similarly, AI chatbots are viewed to be lacking the nuance and correct emotional tone of a human conversation.

This being said, there is recognition that AI generated content is improving rapidly and will likely become much higher quality in the near future.

*"I ordered a book off Amazon and it was written by AI - it didn't make any sense. That's what AI writing is like."*

Wales, younger

## Transparency

Transparency of the information from AI is also key. For younger participants, they are keen for information to be clearly labelled as 'AI generated', however they are confident in their ability to spot AI content or chatbots despite this.

For older/less digitally confident participants, labelling AI content or chatbots may raise concerns to them that otherwise would be unlikely to arise, due to their pre-conceived associations with AI more broadly.

*"You can always tell when its AI but you should always give people an option and be transparent about being AI."*

England, younger

# Making an enquiry and/or asking about a tariff are considered a low-risk interaction, meaning AI use feels acceptable

**Making an enquiry and/or asking about a tariff are considered to be simple and straightforward interactions, with little risk of something going wrong. Therefore, whilst the customer benefit feels limited, so too do any potential negative impacts.**

- AI is viewed as well suited to completing basic tasks such as directing users to relevant web pages, answering questions or completing numerical based tasks.
- There is positivity around the use of AI in triaging customer enquiries, freeing-up human agents' time to deal with more complex interactions and simplifying and visualising information on tariffs.

- However, there is an expectation that more advanced requests or enquiries will be redirected to a human agent. This may include tasks where emotional sensitivity is required, making account changes or interacting with customers with low digital confidence.
- There is a need for AI to play a more active role in, rather than simply re-sharing website information, which most participants feel confident they could find themselves already, e.g., providing a personalised and interactive service by responding to questions and clarifications and making recommendations.

*"This should be straightforward, it's just like comparison websites."*

Wales, older

*"This should be just the basics. As soon as you have a query, you don't want to speak to AI."*

England, younger

# Complaints and conversations about financial support are seen as too complex and emotive for AI to manage

**Whilst a small number praise the idea of AI offering a 'judgement free' conversation, for most, financial interactions are seen as complex and sensitive, and therefore not suitable for AI.**

**Similarly, complaints processes are viewed as emotionally charged issues that require context and a detailed understanding of the issue for them to be resolved.**

- Participants worry that AI's lack of emotional capability and inability to understand complex problems will result in robotic or generic responses to issues they perceive to be sensitive and nuanced.
- Most participants view themselves as competent at self-managing problems, therefore by the time they need to contact their energy provider, they consider the issue as complex and want a service that reflects this.

*"You've got no chance because it (AI) doesn't understand the intricacies. It's not going to be a straightforward thing... it's going to be something like "I don't understand the bill".*

England, digitally disengaged

- For most, this means there is a hesitancy about divulging too much information to a chatbot function, with many feeling that sharing this information over the phone to a human agent feels safer (both emotionally and in terms of the security of information).
- In terms of complaints, a feeling that they have been heard and acknowledged is an important step in resolution. Diverting this step to an AI tool is, therefore, considered to be disrespectful.

*"It would be a sad state of the world if it gets to a point of complaint and your energy provider doesn't even speak to you. That would be really depressing."*

Wales, younger



## Generally, there is an appreciation for AI providing information to vulnerable customers

### Non-judgemental conversations:

- Participants feel there may be a reluctance from vulnerable customers in asking for support from organisations such as their energy provider.
- There is, therefore, positivity about the role AI can play in identifying vulnerable energy customers without them explicitly asking for support or in offering a non-judgmental space for vulnerable customers to have these conversations and explore their options.

*"A lot of people won't feel comfortable to say it to an operator on the phone if they're in a vulnerable situation."*

Wales, younger

### Information provision:

- Participants recognise the value of using AI to streamline and simplify processes for vulnerable customers.
- For example, this could be through collating and tailoring information to enable consumers to check their eligibility for tariffs or extra support, which is seen as particularly helpful for those who may not be able to research this themselves.
- In turn, if this allows vulnerable customer greater access to finding appropriate tariffs and support, this has the potential to save these customers money on their bills.

*"If AI monitors your efficiency when you're using energy, if it can recommend energy saving tips for people that are less savvy or vulnerable."*

Wales, older

# Participants are cautious about the idea of AI classifying energy consumers as vulnerable; and action being taken based on classification

## Key issues highlighted:

**The accuracy of information**, which is dependent on what a customer tells the AI system and therefore, may not give the whole picture, potentially resulting in misclassification. There is a need for reassurance that AI could fully probe on all key areas (such as household income, living situation) to ensure accurate classification.

*"What would you have to show the AI? A medical form or something? You can show a person your details but how do you tell an AI something?"*  
Scotland, older

**The impact of misclassification**, which could lead to issues and stress for customers. There are questions as to how this would be managed e.g., what would happen if a customer then underpaid a bill.

*"What if it did this and it was wrong? Or if it skipped something out and didn't recognise a vulnerable person?"*  
Wales, younger

**The scope for misuse**, where customers could purposefully feed AI incorrect information to receive additional support that they are not eligible for, therefore, taking away resource from those who need it.

*"People could take advantage of it and make it seem like they're vulnerable to get a quicker response time."*  
England, younger

## **The need for sensitivity in conversations:**

- For some, there is concern vulnerable customers will not come forward without encouragement from human agents and AI may act as a barrier for customers in asking for support.
- For others, there is scepticism about AI's ability to have compassionate conversations, and a concern about the emotional impact of being identified as vulnerable, if not done so with sensitivity.

*"I think AI and vulnerability is a big 'no no'. I think vulnerable people need a human touch."*

Wales, older

# Concerns around contestability and redress are heightened for older and/or low digital confidence participants

## Younger participants

For most participants, there is little concern around redress on AI-generated data. For these participants, AI data is viewed through the same lens as other data uses, meaning they assume sufficient checks and balances will be in place by their energy provider around the use, contestability, redress and security of AI data.

Many draw on experience of times they have previously contested information provided by their energy provider, which while frustrating, was a straightforward process.

*"It happened to me and my husband, the bill was a crazy amount and when we looked at the usage it was less, so when we got through to the person we got a refund, we just had to fight to prove it."*

Scotland, younger

## Older/low digital confidence participants

However, others hold the view that AI-generated data or information will be seen as incontrovertible, meaning customers will struggle to contest it unless they have concrete evidence to disprove it. This is particularly true for older/less digitally confident participants, where:

- Low trust in technology as a whole creates a perception of AI data being impenetrable.
- Low trust in their energy provider drives a perception that resolution is purposefully hard to achieve.

*"Good luck with that. It's very difficult to get a refund from these people. It's like getting blood out of a stone."*

England, digitally disengaged

# Participants want human oversight to monitor data and take accountability for discrepancies

Participants believe maintaining human oversight is crucial in building trust in AI-generated data. There is a sense that AI is unable to be accountable for its own outputs, meaning it is very important a human remains in the loop throughout, and to take responsibility for miscalculations. This includes:

**A willingness to accept flaws and inaccuracies in AI generated data**

*"I don't think it would matter if it was AI as long as it's right. And if it's wrong you just get your money back."*

Scotland, older

**A commitment to conducting human/manual checks on the dispute**

*"Maybe there could be a fail-safe, if someone's bill is drastically larger then is there a chance for a human to intervene before that bill goes out."*

Wales, younger

**A commitment to the dispute being handled and managed by a human customer service agent, not an AI chatbot**

*"I would probably believe (the AI data) but if I was to dispute it, I'd like to speak to a human."*

England, younger

## Younger participants are comfortable with smart meters using AI but there is some reluctance from older participants

### For younger participants:

- Many already have smart meters in their home, making this use case feel familiar and comfortable.
- Personalised recommendations around the best time for energy use and suggestions for suitable tariffs are well received for their potential to save costs on energy. Many also state that AI using data collected from their smart meter feels less personal compared to other protected data, therefore feeling less invasive.

*"Smart meters and tariffs are okay because its really black and white."  
England, younger*

### For older/less digitally confident participants:

- A resistance towards smart meters generally and questions around the value-add they offer customers, leads to scepticism around this use case. This means the idea of recommendations around energy use or tariff suggestions drawn from smart meters is rejected. For these participants, some who are on pre-payment meters, there is a preference for manually sending meter readings, which is felt to give a greater sense of control compared to automated alternatives.
- This is driven by a broader view that the energy sector has been 'pushing' smart meters onto households. These participants often struggle to square the idea of energy suppliers actively trying to support customers to use less energy and, therefore, spend less, as this feels at odds with their view of them as profit-driven entities.

*"They're selling [smart meters] so hard but I've had chats with people that sound like they've been briefed to really sell this hard. I'm always suspicious when people try to sell you something hard because there's always a reason but it might not be for me."  
England, older*

# Automated content and personalised plans are seen as acceptable use of AI, providing it is subject to human checks

**Most are positive about receiving automated emails with AI generated content, such as energy saving tips, and personalised energy plans based on historical data use from their energy company:**

For many participants, there is an assumption that the communication they receive from their energy company is already generated by AI. Automated content, therefore, feels like an acceptable use of AI.

- There is positivity around the potential for further personalisation of content, based on historical use of data, relating to energy saving tips. There is particular positivity if this offers cost saving benefits to the energy consumer.
- This is viewed to be a low-risk use case. The data being used is not considered to be too personal, and the potential for something to go wrong is perceived to be low.

**However, there is a need to ensure:**

- AI-driven content is proofed by a human to avoid writing errors and inaccuracies.
- The frequency of emails does not increase due to the ease of content creation. Most feel every few months is sufficient.
- That emails generated with the support of AI look legitimate. This is most important for older and/or less digitally confident participants who are wary of scam emails.
- Customers can easily opt-out if required.
- There are stringent GDPR processes in place, as well as robust security, given the greater amount of data being stored to enable this AI use, e.g., smart meter data.

*"I think they already do this. I think because of the cost of living and bills being high, I think everyone's getting this information already."*

Scotland, older

*"I'm completely okay with this because it can save me money."*

England, younger

*"I think it's fine as long as it's not spam, not every two days. I'd say maybe every six months."*

Wales, younger

# While less relevant to their day-to-day use of energy, smart grids are felt to deliver greater rewards but also greater risks

While there is broad recognition AI could be used to support the running of energy networks, for most this feels somewhat vague in nature, due to the complexity of this type of AI use, as well as it being less visible in participants day to day lives. However, participants largely trust the energy sector to use AI in this way, feeling that they have the expertise to do so.

**Participants recognised Smart grids as delivering far reaching benefits to the public and as such they were readily accepted**

Improving efficiencies and reducing wastage is assumed to deliver cost saving benefits to energy customers on their energy bills.

Better incorporation of renewable energy sources is seen to deliver sustainability benefits more broadly.

*"Something like this would be ideal for AI. It would be more conducive and there's less chance of error.*

Wales, older

**However, the expansive reach of energy networks means concerns about something going wrong are heightened, meaning customers want to see checks in place e.g., human oversight and governance**

Participants fear external threats in terms of systems being hacked.

There is also a concern AI could fail or go wrong in some way, creating a perceived need for human checks and oversight at every stage.

*"If this all works then it's great. If it doesn't? Then it's catastrophic."*

Wales, younger



# In considering future scenarios, participants are most keen to see vulnerable customers supported – but are also cautious about exposing them to risk

**Vulnerable customers are felt to be a key group that can benefit most from AI-led energy services, and the area that participants are most keen to see developments in.** Participants envisage AI use such as monitoring appliances and switching them off in the case of unusual action, as well as tailored support on bills and tariffs. This could help vulnerable customers save money, avoid unexpected high bills, and live independently for longer.

## **However:**

**Vulnerable energy customers are also the group that are feared to be most at risk should something go wrong.** For example, participants with children with Special Educational Needs (SEN), highlight specific concerns relating to needing to have full control of their heating and energy appliances in order to care for their children.

Therefore, ensuring that AI use does not put such groups at risk, for example, restricting their access to energy appliances they need, is seen as paramount.

*"If all of this stuff worked really well, it might enable someone who needed to live with someone else to live independently for longer."*

Wales, younger

*"Personally, I don't go for things like this - my heating is timed and it's because my son has autism... When the house is cold we put it on, I don't even look at how much I pay."*

Wales, older



## Once explained, the concept of real-time energy pricing systems is understood by participants and generally viewed positively, providing an 'override' system is in place

Participants view dynamic pricing systems positively, and understand the potential benefits it could offer, such as helping customers to save money.

*"It's nice to have this as an option, it's saving me money. But at the same time, I want an option, even if the AI thinks it's cheaper."*

England, younger

Such AI systems are seen to help support customers in awareness and understanding of their energy behaviour by providing them with specific information on which behaviours cost more and when.

*"If you could opt in for that, into them helping you or controlling or regulating your system. As long as it wasn't mandatory."*

England, digitally disengaged

**However, the ability to override and have customisation options is key to ensure ultimate control. Being able to customise the ways in which the AI works (i.e., being able to opt out, and options around sharing of data), is considered essential.**

**Older/less digitally confident participants, in particular, question AI's ability to properly understand their needs and act accordingly.**

*"I'm also concerned because people who are disabled or on benefits are finding things difficult to cope with. How do we know they won't just turn the system off."*

England, digitally disengaged

**Participants understood future scenarios from their explanations, but due to a lack of personal experience in actually using or interacting with them, could not provide as much feedback as other scenarios, considering them instead on a more theoretical level.**

## Virtual energy audits and sustainability initiatives are viewed favourably, although privacy and security reassurances are key

There is a desire for improved sustainability in homes, however for many any subsequent cost savings are the primary motivator. Participants therefore generally welcome AI being used to support this, however older/less digitally confident groups struggle to understand the idea.

*However, this initiative does feel rather 'invasive' in nature due to its role in understanding both energy consumption/behaviours and the home more broadly, meaning participants want to see:*

**The option for a one-off monitoring or review, rather than on an ongoing basis.**

**Strict privacy and security systems in place.**

**The option to opt out at any time.**

**Participants understood future scenarios as they were described, but due to a lack of personal experience in actually using or interacting with them, could not provide as much feedback as other scenarios, considering them instead on a more theoretical level.**



## Consumer needs and considerations



**Following discussions on the 12 scenarios, participants were asked to identify a series of needs that are required to ensure the fairness of AI systems overall.**

**The development of these needs were informed by information received via the 12 scenarios and the discussions surrounding them, as well as broader views on AI.**

**A series of considerations were then developed around these needs.**



# Clear customer benefits

**Consumer need:** Participants want AI initiatives to be designed with them in mind, as opposed to just benefiting the sector in terms of cost or resource saving. They are particularly wary of AI use that delivers a perceived worse experience to a human doing the same job (e.g., customer service).

**Consideration:** AI initiatives should deliver customer benefits that:

- Help them save money on their bills.
- Are useful, helpful and/or informative e.g., have tips and tricks on how to reduce their bills.
- Improves their user or customer experience in comparison to a human doing the same role e.g., when getting in touch with their energy supplier.
- Help them be more sustainable e.g., recommending ways to reduce energy consumption or better protect their home.

*"It's got to work both ways, for [the energy company] and for the consumer."*

England, older

*"If they [the energy company] can show you where you're going wrong. If it could reach out to you and tell you 'here's where you can save money' and it's giving recommendations."*

Scotland, younger



# Human & AI together

**Consumer need:** While participants are accepting and even open to AI use, they fear the idea of AI acting independently of humans and want to see that humans remain involved in any AI initiatives. This is felt to be most pertinent in relation to AI use on the grid/the broader energy network, where the idea of something going wrong is felt to be the most significant.

**Consideration:** Reassurances should be given of human oversight across all areas of AI use to identify potential problems, and the ability for humans to quickly and easily override any AI functions should something go wrong if it hasn't been spotted and mitigations not applied.

*"Who's controlling it all? There's got to be someone at the back of the AI controlling it all."*

Scotland, older

*"It needs a person to regulate it [AI]. It's got to be overseen by someone at every stage almost - that's how I would feel more comfortable about it."*

Wales, younger



A top-down photograph of a desk setup. A smartphone is the central focus, displaying a teal screen with a white padlock icon and a 'Secured' notification with a checkmark. To the right of the phone is a black pencil and a pair of glasses. To the left are white earbuds. The background is a light-colored wooden desk.

# Watertight security

**Consumer need:** Security is an underlying concern when thinking about AI and its use cases, but also emerges as being important in the energy sector due to suppliers holding customer data. Participants fear:

- Hacking, including from overseas or in the form of international warfare.
- Manipulation of data, which could then be used against customers or the public more broadly.

They therefore have a strong need to see watertight security demonstrated.

**Consideration:** While there is general trust the energy sector will have strong security measures in place, participants want to know that these are tested, updated and improved upon on an ongoing basis, with significant resource put towards this. This should be central to any broader customer communication on AI use.

*"Privacy and security, that's what scares me the most about it - it being misused. Like where that data goes and who can access it and that it's not hackable."*

Wales, younger

*"It's all about how secure your information is. With all the hacking scandals you hear in the news every other week."*

Scotland, younger



# Strong privacy laws

**Consumer need:** Privacy is also a strong concern for participants. As with security, this is a general fear around AI use (rather than being directly tied to the energy sector) but is deemed important due to the amount of customer data known to be held in the energy sector. Despite not feeling that their energy data is sensitive, they still want reassurance that it is kept private.

Many have an underlying assumption that large companies pass on their data to third parties and therefore fear the use of AI initiatives (which may benefit from further customer data) may exacerbate this.

**Consideration:** Reassurances on privacy – in terms of both where data is stored and who has access to it – should be given at the point in which any customer data is required.

*"Security of your data and knowledge of how it's being used and some sort of confirmation that it's not going to be used for things you haven't given it permission for."*

Scotland, younger

*"There needs to be regulation that's separate in order to keep people safe."*

England, digitally disengaged





# The ability to opt out

**Consumer need:** With varying degrees of interest in AI initiatives, ensuring they are non-compulsory is key.

**Consideration:** While participants do not expect to be able to opt out of broader AI use cases such as AI use in networks, when discussing some of the scenarios such as energy audits, dynamic pricing and sustainability support, as well as customer support, it was felt to be crucial.

Emphasis should either be on opting in, or opting out should be clearly highlighted as an option, and easy for customers to implement themselves at any time e.g., through their online account. In the case of customer support, opting out would mean easy access to a human customer service agent (e.g., through typing 'agent'.)

*"The ability to withdraw and opt out if you want to rather than being forced to have it. The choice is really really important."*

Wales, younger

*"Its very hard to opt out. Someone of an older generation might find it hard. You shouldn't be opted in unless you've chosen to be opted in."*

England, younger



# Consumer control

**Consumer need:** Participants are keen that humans manage AI, and not the other way around. This is felt to be particularly key for AI use in the energy sector, as it relates to people's households and their everyday lives.

**Consideration:** Not only do they want reassurances the energy sector parties using AI are in control, through human oversight at every stage, they also want their own control in terms of the ability to customise.

Customisation would mean, for example, that in scenarios such as dynamic pricing, customers can easily change default settings, so it only alters the appliances they want, to the level they want e.g. setting a minimum household temperature.

*"AI shouldn't control me, I should control AI."*

Wales, older

*"It's about tailoring things... you need to have that choice. Like when I got the smart meter you could see it going up when you boil the kettle and it was a bit scary, so I turned it [the smart meter] off. You need to have that option."*

Scotland, younger





# Smart use cases

**Consumer need:** Participants are most excited about the use of AI when considering applications and use cases that they deem 'smart', as well as appropriate and suitable for use. These use cases are ones that solve modern day problems and/or provide opportunities to improve daily lives.

**Consideration:** Key to smart use is the application of AI for tasks that are cumbersome, dangerous, or ones that simply cannot easily be done manually e.g., analysis of large datasets. Participants see use cases for tasks they believe are inherently human as not fitting into the definition of smart use cases. This includes tasks that require human emotion and understanding such as more complex customer service interactions e.g., complaints.

*"I would be quite happy with it. Some of the things we discussed today I'm quite onboard with... They're all quite good ideas."*

Scotland, older

*[Post scenario discussions] "AI would be really good for price comparisons, controlling the grid too and protecting the environment."*

Wales, older



# Transparency

**Consumer need:** Participant views vary somewhat in terms of the level of information they expect the energy sector to give them about AI use:

- Some (predominately older/less digitally confident participants) feel that full transparency (i.e., being told during every interaction that AI is being used) would likely raise more questions and concerns for them than if they were unaware.
- The majority however, feel the sector has a duty to be transparent about when AI is in use, particularly in terms of customer service and customer email communication.

**Consideration:** Participants feel an optimal solution is to make the information available to the public for those who do wish to know more (e.g., a webpage), but not necessarily actively pushing communication directly to energy consumers in this area.

*"It should say if you're speaking to an AI chatbot. You can kind of tell but it should be explicit."*

Scotland, younger

*"There's the point about transparency, so we know what it's (AI) being used for and can agree to it."*

Scotland, younger





# Thank you

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## Appendix

# **Consumer-led interactions**

# AI chatbots/AI phone systems

**Making an enquiry about your tariff/bill e.g. amount, meter reads etc**

**Making a complaint**

**Asking about other tariffs**

**Seeking financial support**



# Support for vulnerable customers

**You contact your energy supplier with a question. In the course of the conversation you unintentionally reveal some personal information about yourself.**

**The AI chatbot you are speaking to recognises some of the information you have shared and classifies you as a customer in a vulnerable situation, meaning you may be eligible for extra support.**

# Contestability and Redress Mechanisms

**You receive an unusually high bill, and upon contacting your energy supplier, you are told the bill calculations have been generated by AI.**

**You wish to contest the bill, and potentially receive a refund for the amount you have been over-charged by.**

# **AI-led interactions**

# Smart meters and energy consumption optimisation

**A smart meter is installed in your home. The device uses AI to analyse your energy usage patterns and provide personalised recommendations on how to reduce how much energy you use.**

**It may also tell you when the best time to use your energy is and suggest a suitable tariff in order to do this. For example, the smart meter could suggest you use your washing machine, or charge your car, during off peak hours to save money.**

# Automated/personalised content and energy tips

**Your energy company gets in touch to either:**

- **Send you automated emails with content generated by AI. These emails include seasonal energy saving tips, reminders to adjust your thermostat settings and provides suggestions for energy efficient appliances.**
- **Offer you a new personalised energy plan based on your historical data usage. The plan promises lower rates during your peak usage times. This plan will have been created by AI.**

# Networks

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# Smart Grid Transformation

**Imagine your energy network has started using AI technology more frequently.**

**The AI systems are designed to enhance the reliability, efficiency and sustainability of the energy grid (i.e., reducing power outages and 'wasted' energy), particularly by integrating renewable energy sources like solar power and wind power.**

**AI could manage the network, predict demand, bring on renewable energy, and look at maintenance and managing load (i.e., making sure there is enough energy in the system to meet demand).**

# **Future scenarios**



# Dynamic pricing and real time adjustments

**Your home could be equipped with AI-driven smart devices in the future. These can respond to real-time energy pricing signals from the network, based on the amount of demand on your local energy network. Peak usage = higher prices.**

**During high demand periods, your AI system automatically lowers your thermostat and delays running high-energy appliances to save costs and reduce strain on the local network.**

# Virtual energy audits and AI-driven sustainability initiatives

- **AI could be used to look at your energy consumption patterns and suggest eco-friendly practices. This would support you to become more energy efficient in your home, for example installing energy-efficient appliances or investing in home renewable energy sources. It could suggest renewable energy tariffs and suggest local/regional energy-saving initiatives that you could participate in.**
- **AI could also track your progress and provides incentives to encourage you to participate in these initiatives.**
  - **Energy data and images from your home to where energy efficiency improvements could be made (e.g., insulation).**