





Energy for **all** - **Innovate** for **all**

Project Inspire Summary Report

Innovation and consumer vulnerability - improving service and quality of life for energy customers in vulnerable situations

Sustainability *first*

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This report was written by Zoe McLeod (centre) with support from Judith Ward (left) and Maxine Frerk (right). It forms part of Sustainability First's Project Inspire, which aims to improve service delivery and quality of life for energy customers in vulnerable situations.

If you would like to be involved in Project Inspire, please contact:

zoe.mcleod@sustainabilityfirst.org.uk

+44 (0)7940 109631

About Sustainability First

Sustainability First is an environmental think tank focused on practical solutions for the energy and water sectors. We are a registered charity.

Chair: Ted Cantle CBE, DL.

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Registered company number: 3987720 **Registered charity number:** 1078994

Address: c/o IEEP, 11 Belgrave Road, 3rd Floor, London, SW1V 1RB

www sustainabilityFirst.org.uk

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Independence

It should be noted that this report is independent of the Project Group, with decisions on content and editorial control resting with Sustainability First.

Executive summary

> "Vulnerability and inclusive approaches including "design for all" are not yet properly embedded in most companies"

With more than 8.5 million smart meters now installed in homes in Great Britain[1], we are on the cusp of a digital revolution in energy. Powerful data-processing capability, artificial intelligence and new technologies are also combining to fundamentally change how we generate, store, provide, use, structure and pay for our energy.

In this transforming world, Sustainability First set up Project Inspire to help ensure that all consumers, including the millions who are potentially vulnerable, are not just protected but also experience the benefits of change. 'Innovation for all' is needed to meet the current, future and unarticulated needs of those in vulnerable situations and to do so more effectively and cost efficiently. There are of course potential benefits to business and wider society from 'vulnerability innovation'.



With Ofgem's move away from prescription to more principles-based regulation there is an expectation that competition will drive companies to be more flexible, targeted and innovative in how they identify, understand and respond to the different needs of consumers. For suppliers especially, outcomes-based regulation and the vulnerability principle signal an opportunity to refocus attention on the quality of service provided to those with diverse additional needs and to meet rising expectations in our smarter world.

Networks too are expected to innovate. The next round of the RIIO price control will play an important role in ensuring that companies put the needs of all consumers, including the most vulnerable, at the heart of their businesses. Alongside this, both networks and suppliers are encouraged, including by Ofgem and by government, to share learning and to collaborate where it is in the interests of those with additional needs.

Headline findings

Our research found that:

- There are pockets of real innovation to support energy customers in vulnerable situations but most progress is more incremental than transformative. Many energy companies, in particular some smaller suppliers, are still focused on getting the basics right rather than 'pushing boundaries'.
- The identification and sharing of good and innovative practice is increasing, but still limited, in part due to competition. Much vulnerability innovation isn't known about or shared. More still needs to be done to promote new services to customers who could benefit from them, and also to turn effective innovation into industry-wide practice.
- Competition alone is unlikely to deliver the supply-side innovation required – at least not in a timely way for all energy customers with additional needs. The noted exceptions to this are seen as: smart innovation for prepayment customers; new assistive living services for able-to-pay elderly and disabled people; and new approaches to help customers in or at risk of debt (though even the latter has been slow to progress). Some smaller companies actively try to avoid vulnerable customer market segments.
- Vulnerability innovation risks slipping further down energy suppliers' agendas due to: the weight of regulatory and systems change; political, economic and regulatory uncertainty; and increased competition. The latter is reportedly reducing margins and therefore also discretionary spend for vulnerability innovation.

[1] From the start of the smart metering programme up until 30 September 2017 around 8.54 million smart meters had been installed in domestic premises across Great Britain. To date more than 9.44 million smart and advanced meters have been installed in homes and businesses. Smart Meters: Quarterly Report to end September 2017, BEIS, 30 November 2017.

- Network incentives are needed and are effective at stimulating a focus on vulnerable customers and associated innovation. While not perfect they have been a clear driver of considerable innovation and focus on vulnerable customers.
- Supply chain innovators and service providers, such as product manufacturers and data analytics services, can face particular barriers to innovating in order to support customers with additional needs. Barriers include: lack of access to data; lack of customer demand; energy companies' inflexible IT systems; and overly prescriptive procurement processes.
- The wider political, media and regulatory climate is an important enabler for vulnerability innovation that should not be underestimated.
- Lack of vulnerability understanding is limiting innovation and needs to be addressed. This is also a theme picked up on in the National Audit Office's (NAO) Vulnerable consumers in regulated industries report and Scope's Extra Costs Commission.
- There is widespread recognition that smart meter data, and so-called 'big-data' offer new opportunities and challenges for customers in vulnerable situations. More should be done to unlock the power of data safely to improve service delivery and quality of life for customers with additional needs.
- Vulnerability and inclusive approaches, including 'design for all', are not yet properly embedded in most companies. This is limiting innovation.
- The 'smarter world' including the smart meter rollout offers real opportunities to benefit customers in vulnerable situations. However, benefits for some customers with additional needs are not guaranteed, or may be slow to develop unless further action is taken.

Our five vulnerability tools

This is *Energy for All – Innovate for All*'s summary report. Our main report includes our full research findings plus five practical outputs to help build understanding and ensure innovation delivers improvements for all consumers:

1. A set of **18 recommendations** outlined below. Taken together, these form a new framework that can catalyse effective innovation for energy customers in vulnerable situations.
2. A Sustainability First ***Vulnerability Innovation Flight Path***. This new tool will help companies and others think about their internal processes and company governance arrangements to embed vulnerability and enable innovation for energy customers with additional needs.
3. Four **practical guides** to standard, good and innovative practice to help companies and others improve service delivery and quality of life for customers in the following areas:
   - Identifying customers with additional needs
   - Improving access
   - Affordability – supporting customers on low incomes and in debt
   - Security and peace of mind.

   Innovation and good practice are illustrated with more than 70 case studies. A selection of these case studies and our award-winning innovations are included in this report.
4. A high-level overview of the current ***regulatory framework*** as it applies to innovation for customers in vulnerable situations predominantly written by Maxine Frerk. Each good practice guide also includes an overview of the main vulnerability regulatory obligations relating to that area.
5. A practical look (including case studies) at how ***smart innovation*** can better serve vulnerable customers, both today and tomorrow. Being aware of the potential opportunities that exist is intended to focus attention on ensuring future benefits are delivered.

Our research and case studies show that there are significant improvements, including 'quick wins' (QW), that many companies could and should make to the way in which they identify, support and empower customers in vulnerable situations. Our findings also identify that there is much that can and should be done to enable 'innovation for all' – by companies, government, regulators, charities and consumers themselves. This is essential if all energy customers are to benefit in our 'smarter world'. While this research is focused on the energy sector, many of the approaches outlined could, and in some cases already are, being used in other regulated markets. Our intention is that our five vulnerability tools, including scores of case studies in our full report will be both a resource and a cross-sector inspiration for utilities.



Recommendations

> A strong evidence base is needed to understand vulnerable customers experiences in the energy market, and their market value

Identifying and sharing innovative practice

> Recommendation 1

We welcome recent initiatives by Ofgem, Energy UK (EUK), the UK Regulators Network (UKRN) and Citizens Advice in identifying and sharing good practice. All parties, including companies, consumer and disability groups and regulators, should build on this work and consider what more they can do to identify and share vulnerability innovation and learning, including what doesn't work, between:

- Electricity and gas suppliers
- Energy companies and disability/consumer groups
- Across sectors and internationally.

Improving the vulnerability evidence base

> Recommendation 2

In line with the findings of both the National Audit Office and Scope's Extra Costs Commission, we found that a stronger evidence base is needed to understand vulnerable customers' experiences in the energy sector and their market value. This would help inform where innovation is most needed and investment might be most profitable. In order to improve the collection and availability of data about customers in vulnerable situations:

a) Industry should commission research into the commercial and market opportunities to retailers of different vulnerable energy customer segments, including potential impact on reducing overall cost-to-serve. This is in support of a market-led case for more innovation to focus on vulnerable customers.

b) Energy networks and suppliers should:

- Proactively monitor and research the experience of their vulnerable customers e.g. capture complaints data and satisfaction data broken down by key vulnerability demographics.
- Develop effective and strategic working relationships with organisations working with vulnerable customers. This includes 'co-designing' solutions to problems with those who experience them.
- Draw upon staff experience so that their staff become principle 'agents of change'.
- Review how they evaluate the impact of vulnerability initiatives to see where improvements can be made. This should explain the benefits of approaches in terms of the customer experience, the business and wider societal benefits (both monetised and non-monetised).

c) We welcome Ofgem's new Vulnerable consumers in the retail market report: 2017, which provides useful information and benchmarks. We support this being further developed in 2018, to draw upon a wider evidence base including from network companies, consumer and disability groups, and the Energy Ombudsman. We also support Energy UK's proposed Vulnerability Commission, which has the potential to make a significant contribution to the gaps in the vulnerability evidence base outlined.

> Focus funding on where there are weak commercial drivers for innovation but high customer need...

Mitigating additional risk from vulnerability innovation

> Recommendation 3

Ofgem should *further* promote The Innovation Link[1], including to small suppliers and non-energy communities. This includes adding a vulnerability link on the Innovation Link page.

> Recommendation 4

Energy UK and ENA should continue to offer, and increase the visibility of, their 'open door policy' to any innovator who seeks energy company engagement to deliver an initiative that benefits vulnerable customers. This should include promoting a clear channel on their website.

[1] This is a service that offers feedback to innovators on the regulatory implications of their idea. It provides innovators with a Case Manager and helps them to understand how the regulation may impact on them, and enables Ofgem to consider how the regulations should change going forward. The Innovation Link also provides a space for innovators to trial their ideas, ensuring that consumers are protected.

Small supplier innovation

> Recommendation 5

Prior to grant of a supply licence Ofgem should require new market entrants to demonstrate their understanding of the vulnerability principle and their related current and future responsibilities in relation to customers in vulnerable situations. This would help embed the needs of vulnerable customers into small supplier business activities from day one – facilitating company growth and related innovation with the needs of all consumers in mind.



Network vulnerability incentive

> Recommendation 6

Ofgem should have a vulnerability incentive in the next round of network regulation, RIIO2. The approach should ensure that the networks deliver outcomes valued by customers in vulnerable situations. Incentives should be designed to:

- Encourage collaboration and sharing of information among networks, energy retailers and others
- Allow for flexibility in innovation
- Respond to rising standards and expectations – not set the bar too low
- Properly reward those that are delivering impact at a higher level
- Ensure decision-making by Ofgem on the assessment of companies and allocation of any rewards is transparent and consistent
- Reward effective not just 'sparkly' innovations, which are embedded into business as usual practices.

Thought should also be given by Ofgem as to whether innovation funding such as the electricity and gas network competitions (NIC) should specify that companies consider the implications for vulnerable customers, and how this might best be done.

> Develop effective and strategic working relationships with organisations working with vulnerable customers...

Financial support for vulnerability innovation

> Recommendation 7

Redress monies have been a valuable funding source for energy innovation that supports customers in vulnerable situations. We welcome Ofgem's Guidance on the allocation of redress funds that encourages a focus on innovation to support vulnerable customers. The Energy Savings Trust (EST) should ensure it has appropriate understanding of energy vulnerability issues and:

- Identify major gaps in current innovation funding for innovation that could support customers with additional needs
- Focus funding on where there are weak commercial drivers for innovation but high customer need i.e. so probably not smart prepay initiatives
- Require effective evaluations, sharing of innovation and lessons learned.

> Recommendation 8

Innovation funding schemes paid for by customers and taxpayers' money, such as the government's Industrial Strategy Challenge Fund, should explore, where appropriate, how they can best incentivise companies to consider the needs of all consumers. This includes in their funding application and assessment processes.

Strengthening incentives, including for consumer demand

> Recommendation 9

Citizens Advice should develop information on supplier service for vulnerable customers that will allow cross-industry comparison of performance and potentially inform switching decisions. That is (a) information directed at customers with additional needs to help them compare service levels; e.g. so prepay customers can compare top-up options or non-disconnection times provided by different companies, (b) also, information for socially minded customers who may wish to support more inclusive suppliers.

> Recommendation 10

We support the Extra Costs Commission's recommendation that vulnerable customers and those that represent them should be 'bold and loud' and build consumer power behind the purple pound and the grey pound. In particular, with initiatives such as the disability review site Rate It! they should speak out when companies do not meet their needs to help drive improvements, including through innovation.

> Recommendation 11

Ofgem should consider collecting and publishing more comparative company performance information in relation to service for vulnerable customers – to help drive improvements within the industry.



> All energy companies should ensure they have a clear 'pathway' or 'flight path' for ideas to flow from all levels...

Embedding inclusivity into energy company culture



> Recommendation 12

To be most effective, energy suppliers and networks must embed vulnerability into their organisational structures. For example:

- Develop and regularly update their vulnerability strategy
- Ensure they think about the implications of key decisions on different customer segments
- Design services inclusively
- Train and empower staff so that they have the flexibility, autonomy, skills and 'confidence to care' and to innovate
- Recognise staff for their successful vulnerability innovations – big and small.

> Recommendation 13

All energy companies should ensure they have a clear 'pathway' or 'flight path' for ideas to flow from all levels of the company and from outside their organisation to a decision and, if successful, to delivery. For example, they should have:

- A known person/s with responsibility for vulnerability decision-making
- Mechanisms to capture ideas from front-line staff and partner organisations
- Where appropriate, cross-departmental mechanisms to share insight, ideas and facilitate decision-making.

In judging suppliers' conduct, including in relation to the vulnerability principle, and the networks' eligibility for incentives, we would expect Ofgem to look at the internal arrangements that companies have for identifying better ways of delivering good customer service to vulnerable customers. In this report we outline examples of good and innovative practice to embed innovation for customers with additional needs.

> Ensuring usability or user's ability to use smart products and service is an important factor in minimising the digital divide...

Ensuring a smarter future works for all consumers

> Recommendation 14

As part of the Smart Systems and Flexibility Plan, government and Ofgem have committed to continue to consider the potential social impacts of smart tariffs. They should also consider how they might wish to monitor the wider distributional impacts of smart energy innovation for energy customers with additional needs.

> Recommendation 15

Energy companies should develop and publish comprehensive indicators to demonstrate how they are using smart meters and new technologies to deliver improved service and quality of life to customers with additional needs. These could be:

- Outcomes-based e.g. satisfaction levels, complaints received, energy reduction broken down by key vulnerability demographics, and/or
- Outputs-orientated e.g. the number of customers with additional needs: provided with an accessible in-home display; who have received extra help during the smart meter installation; were provided with alternative equipment to replace condemned equipment.

This will help companies to demonstrate fair treatment of vulnerable customers as smart meters become the norm, and will support Ofgem and government in ensuring access to the benefits of smart innovations for all consumers.

> Recommendation 16

Ensuring usability or user's ability to use smart products and service is an important factor in minimising the digital divide and ensuring the benefits of innovation are delivered for all.

a) Companies should ensure that, wherever possible their products and services are inclusively designed and are tested with customers with additional needs early in development.

b) In its Smart Systems and Flexibility Plan, government outlined its intention to consult on seeking powers to set standards for smart appliances in relation to interoperability, data privacy, cyber and grid security. It should also consider a customer accessibility or inclusivity standard as part of this process.

> Recommendation 17

Government, Ofgem, energy companies and consumer/disability groups should work with organisations such as Digital Catapult and the Open Data Institute to explore how they can open up anonymised datasets in a timely, secure privacy-friendly way to enable all parties including non-energy parties to innovate and collaborate around vulnerability issues. The UKRN may want to consider how it can facilitate this as part of the next phase of its data project.

> Recommendation 18

In preparing for General Data Protection Regulation (GDPR) companies should also explore how they can improve service delivery to customers in vulnerable situations through making better use of data.



The Research Institute for Consumer Affairs (Rica)'s Research Exchange in action. This is a place to share ideas and best practice in inclusive consumer research. The charity also has RicaWatch – a 750 person-strong consumer panel made up of older and disabled customers which can be used for product testing, co-design of services, mystery shopping and feedback on approaches. British Gas has been working with Rica.

1 Introduction - background and approach



The last two decades have seen huge technological and social change – first with desktop web, and then with mobile. With more than 8.5 million smart meters now installed in homes in Great Britain,[2] we are on the cusp of a digital revolution in energy. Powerful data-processing capability, artificial intelligence and new technologies are also combining to fundamentally change how we generate, store, provide, use, structure and pay for our energy. This profound change offers real opportunities for customers in vulnerable situations but there are also inevitable challenges.

There is a prevailing view among regulators and government that innovative approaches by companies to serving all customers can and will deliver effective service and conduct for those in vulnerable situations. However, at Sustainability First, we were concerned that current levels of service and expectations among decision-makers and companies of what innovative and good vulnerability practice looks like were arguably lower than they could be, particularly given technological advancements. Indeed, our earlier research with Frontier Economics on distribution network operators' (DNOs) action on vulnerability[3] and Ofgem's 2016 Challenge Panel both highlighted services for customers with additional needs as an area for improvement.[4] Moreover, our wider work outlined a risk that opportunities to deliver benefits to vulnerable customers from smart metering were in danger of being missed. For example, concerns were being raised about customers with additional needs not getting sufficient support during the smart meter installation process.

Our aims

We set up Project Inspire to help address these issues. In particular to ensure that smarter technologies and wider innovation deliver improvements in service and quality of life for all consumers, regardless of their personal characteristics, circumstances or situations.

With this report and our wider Project Inspire work, we have three main objectives. These are:

- **Identify and shine a spotlight on examples of good and innovative practice.** This is to demonstrate the art of the possible and help turn pockets of effective practice into industry-wide progress. We have already made progress in this regard with a number of innovations we identified now being piloted by energy companies. We also hope that the information in the full report can be used in the setting of benchmarks for good practice and to challenge assumptions of what is really 'reasonably practicable' for companies to achieve.

[2] From the start of the smart metering programme up until 30 September 2017 around 8.54 million smart meters had been installed in domestic premises across Great Britain. To date more than 9.44 million smart and advanced meters have been installed in homes and businesses. Smart Meters: Quarterly Report to end September 2017, BEIS, 30 November 2017.

[3] Assessment of DNOs action on consumer vulnerability: a report prepared for Ofgem, Sustainability First and Frontier Economics, January 2016.

[4] Both a report for Ofgem on the RIIO-ED1 stakeholder engagement and consumer vulnerability assessment, 'Assessment of DNOs action on consumer vulnerability'; and Ofgem's decision document on the Stakeholder Engagement Incentive 2015-17 identified the quality of the services offered to customers on the PSR as a particular area for development for many networks - Assessment of DNOs action on consumer vulnerability: a report prepared for Ofgem, Sustainability First and Frontier Economics, January 2016 and Decision on the Stakeholder Engagement Incentive 2015–16: Gas distribution, Ofgem, 28 October 2016. In addition, during Ofgem's consultation on the Priority Services Register only a handful of potential new services were suggested, indicating a lack of awareness as to what might be possible. Ofgem's Challenge Panel in 2016 also found that few suppliers had considered adequately how to support vulnerable consumers to make informed choices or offered products and services appropriate to their characteristics and preferences. Enabling consumers to make informed choices: Findings from the 2016 Challenge Panel, Ofgem, 8 September 2016.

- **Explore and identify perceived barriers and enablers to innovation that benefit customers in vulnerable situations,** e.g. regulatory, financial, cultural, legislative or organisational factors. In the context of principles-based regulation and the next round of network regulation (RIIO2) we wanted to better understand the extent to which energy companies can and are willing to innovate to support customers with additional needs and on low incomes. In particular, to consider if the right mechanisms are in place to deliver the innovation necessary to meet current and future vulnerable customers' needs. If not, what improvements could be made?
- **Horizon-scan** – at a high level in order to explore the potential opportunities and barriers to better serving vulnerable customers in the future, for example, with the rollout of smart meters, the growth of connected homes and other new technologies. Policymakers have rightly shied away from picking winners but there is a concern that, without a more dedicated focus on the needs of customers in vulnerable situations and more inclusive approaches, many of the 'social benefits' will not be delivered.

Methodology in brief

To achieve these objectives, we undertook:

- Desk research to review the relevant landscape.
- An online/phone survey to around 50 different GB organisations/vulnerability experts to seek high-level views on innovation and vulnerability and to identify case studies.
- 52 semi-structured in-depth stakeholder interviews (each lasting from 45 minutes to three hours) with around 70 people. These sought views on: barriers and enablers to greater 'vulnerability innovation'; interviewees' expectations for the smarter future; and were also used as an additional opportunity to identify further case studies of innovative practice. All of the interviews were anonymised, with views not attributed to the individuals or the company. This was to encourage frank and open discussion.

The 52 interviewees included:

- 14 energy companies and their industry bodies
- 13 consumer and disability organisation-related interviews
- 7 service/product manufacturers and their industry associations
- 7 government and regulator voices
- 9 others (academics, communications professionals, consultants, an NHS Trust).

Our sincere thanks to all those that gave their time to Project Inspire.

A list of interviewees and a write-up from these interviews is in the main report. In addition, we held three Inspire Project Group meetings (see right) and as part of the innovation case study selection and categorisation process, in April, we also hosted an 'Energy for All Innovation Day' where innovations were judged in a Dragon's Den-style event, by an independent panel of consumer and disability experts (see p.31). These innovations were judged in front of an audience of companies, consumer and disability organisations, regulators and government representatives.

See: http://www.sustainabilityfirst.org.uk/index.php/inspire for a write-up from the day.

The Inspire Project Group

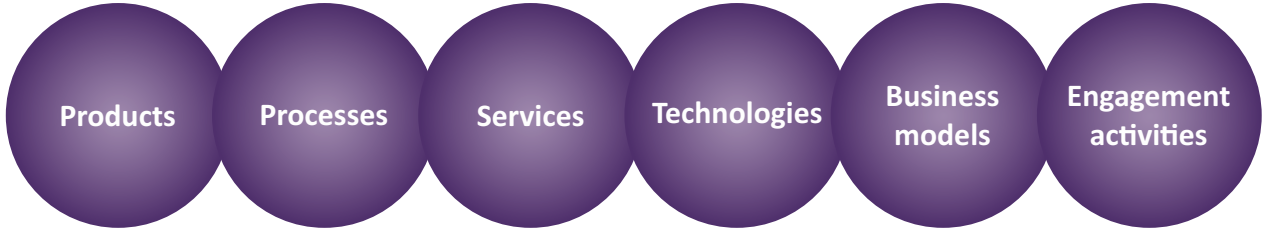
Project Inspire is a multi-partner project sponsored by Ofgem, three energy retailers (EDF Energy, E.ON, Scottish Power), two energy networks (SGN, Western Power Distribution (WPD)), two product manufacturers (geo, Toshiba) and Smart Energy GB. The project has also been actively supported by colleagues in the Department for Business, Energy and Industrial Strategy (BEIS) and Citizens Advice. Together these organisations make up the 'Inspire' Project Group. The Project Group provided valuable challenge and expert insight throughout the research. We drew on their diverse experience and perspectives from across energy networks, suppliers, government, the regulator, product manufacturers and consumer arenas. It should be noted that this report is independent of the Project Group with decisions on content and editorial control resting with Sustainability First.

Defining innovation

For the purpose of Project Inspire we defined innovation as:

A new idea, device or method that delivers better outcomes (or has the potential to deliver a better outcome) for energy customers in vulnerable situations than current standard energy practice.

This may take the form of more effective:



We recognise innovation can be disruptive, or transformational over time, working within the status quo or existing structures ('Foundational'). It can span technologies, systems and business models simultaneously. It can also be incremental – at a company level, simply doing something new, which might in fact be about getting a basic service right.

Defining vulnerability

We adopted Ofgem's definition of energy consumer vulnerability.[5] Importantly, Ofgem talks about 'vulnerable situations' rather than vulnerable customers. A vulnerable situation is one where a person is:

- **significantly less able than a typical consumer to protect or represent their own interests; and/or**
- **significantly more likely to experience detriment, or for that detriment to be more substantial.**

This approach recognises that vulnerability is created by a combination of factors: personal characteristics such as age, poor health, or disability; the customer's situation such as living alone, being on a low income or in debt, not having internet access; and the action or inaction of energy companies.

Vulnerability can be diverse, complex and transient, with people often having multiple vulnerabilities or needing extra help for short periods at certain times in their life, e.g. if they are ill, are made unemployed, suffer a bereavement, or have a relationship breakdown. Detriment can take many often interconnected forms. For example, financial impacts such as indebtedness or fuel poverty and non-financial impacts such as overall safety, wellbeing, health, engagement in society and markets and inclusion.

In this report, we use the expressions, 'vulnerable consumer', 'customers in vulnerable situations' and 'customers with additional needs' interchangeably. We recognise that while well-designed, inclusive services can help to address many customers' additional needs, including transient needs, that diverse innovations and tailored approaches are also required to meet the diverse requirements of customers in vulnerable situations.

[5] Consumer Vulnerability Strategy Progress Report, Ofgem, September 2015.

2 Vulnerable energy consumers

why innovate?



Meeting existing need

For example

- Barriers to communication
- Lack of access to products and services
- Higher safety and protection needs
- Help tackle fuel poverty, prevent debt and support those in financial difficulties



Meeting new requirements

For example

- Changing social needs e.g. growing older population, growing younger disabled population
- Ensure effective protection in a changing environment e.g. new types of vulnerability
- Ensure customers are 'not left behind'
- Meet changing attitudes and rising expectations



Meeting unarticulated need

For example

- Increasing customer satisfaction by providing the best possible service
- Realise wider societal/citizen benefits
- Commercial benefits
- Issues we don't know about – unmet needs



Innovation is especially important

- Energy is an essential service
- For customers with additional needs to ensure 'fairness' and equal access to benefits
- As when problems occur the impact can be more detrimental



Energy is an essential service for wellbeing, security and social participation. Yet the number of consumers who are potentially vulnerable in the energy market at any one time is in the millions (see following pages). Some interviewees queried how innovative energy companies really needed to be and suggested that they should focus on providing 'a basic decent service' rather than the best possible service for customers. For one consumer rep, consistency had more value than innovation, making it easier to communicate with customers about the support available. However, all recognised that there were many problems faced by vulnerable customers that must still be addressed, and for which innovation is needed. Also, that without innovation, an energy company's service would not keep track with changing needs or rising customer expectations.

Vulnerability today: a cross-section

estimated UK adults except where stated

11m Disabled or long-term sick[14]

4m Estimated households in fuel poverty[6]

1.5m Unbanked (GB)[7]

6m Living in rural areas[8]

5m Adults who lack basic reading, writing and numeracy skills (England)[9]

5m Never used the internet[10]

1.2m/0.97m Electricity/gas customers in debt to their energy supplier[11]

4.5m/3.5m Prepayment electricity/gas customers[12]

1.6m Prepayment energy customers who self disconnect at least once per year by not topping up their prepayment meters[13]

2m+ Living with sight loss[15]

0.9m People with severe or profound hearing loss[16]

1.5m People with learning disabilities[17]

0.9m People with dementia[18]

2.5m People with cancer[19]

9m People of pensionable age[20]

1 in 4 People who experience a mental health problem each year with **1 in 6** experiencing a common mental health problem, e.g. anxiety or depression, each week[21]

[6] NEA Conference September 2017. Fuel poverty policy briefing.
[7] Financial Commission Website – http://www.financialinclusioncommission.org.uk/facts
[8] Defined as people living in local authorities which are over 80% rural. Vulnerable Customers in Regulated Industries, NAO, 31 March 2017.
[9] https://www.jrf.org.uk/press/5-million-adults-lack-basic-literacy-and-numeracy-skills
[10] Vulnerable Customers in Regulated Industries, NAO, 31 March 2017.
[11] The number of customers in debt to their electricity and/or gas supplier has been decreasing since 2013 – 1,195,635 for electricity; 971,362 for gas. Ofgem, October 2017 https://www.ofgem.gov.uk/system/files/docs/2017/10/consumer_vulnerability_report_web.pdf
[12] https://www.ofgem.gov.uk/system/files/docs/2017/10/consumer_vulnerability_report_web.pdf
[13] Vulnerable Customers in Regulated Industries, NAO, 31 March 2017.
[14] Ibid.
[15] http://www.rnib.org.uk/professionals/knowledge-and-research-hub/key-information-and-statistics
[16] https://www.actiononhearingloss.org.uk/about-us/our-research-and-evidence/facts-and-figures/
[17] Vulnerable Customers in Regulated Industries, NAO, 31 March 2017.
[18] Ibid. [19]Ibid. [20]Ibid.
[21] https://www.mind.org.uk/information-support/types-of-mental-health-problems/statistics-and-facts-about-mental-health/how-common-are-mental-health-problems/#.WikiN0tpHeq

Future vulnerability

socio-demographic trends



Increasingly ageing population

One in 12 people are expected to be aged over 80 by 2039.[22] People will live longer but likely with multiple health issues and greater care needs. As people get older, usage patterns can also change (e.g. less energy used during after-work peak,[23] but potentially more overall[24]) and carers may take more decisions. There are projected to be more than 2 million people with dementia[25] and 2 million people living with sight loss in 2050 – the latter driven both by an ageing population and growing incidence in some of the underlying causes such as obesity and diabetes.[26]



More disabled younger people

It is widely anticipated that the proportion of children and young people who are disabled will increase. It is estimated that there will be over 1.25 million children with a disability by 2029. The reasons include improved diagnosis, reduced stigma in reporting disability, and better survival rates for pre-term infants.[27]



More homes, smaller households and dispersed families

The number of households in England is projected to increase to 28 million in 2039 from 22.7 million in 2014 – with an average growth equivalent to 210,000 per year.[28] Average household size is expected to fall. Larger households use less energy on a per person basis[29] but families are becoming increasingly dispersed with more people living alone and without immediate support.



Financial uncertainty and poverty

Modest economic growth is anticipated over the next five years (OBR, IFS). But Brexit has exacerbated uncertainties. Average growth of Gross Domestic Product (GDP) per capita of 1.7% per year,[30] but the shortfall between private rents and housing benefit could put 1 million households at risk of homelessness by 2020.[31] Household debt as a proportion of income is forecast to rise between 2015 and 2021,[32] potentially putting further pressure on household finances.



More private renters

An additional 1.8 million households are projected to become private renters by 2025 in England and Wales. Almost 1 in 4 UK households and more than half of 20–39-year-olds will be renting privately.[33] There will be more private renters than people in social housing, with potentially shorter leases, less space and more difficult to install energy efficiency measures. In addition, they will be potentially more transient, harder to engage with, and have less control over purchases which impact the infrastructure of the home.



Inequality

More than 40% of UK wealth is owned by just 10% of households, and the UK's energy market is characterised by very uneven levels of understanding and participation among different demographic groups.[34] If new energy technologies can only be accessed with upfront investment, and the most price competitive tariffs are more complex to understand, benefits are likely to be distributed unevenly across the population. Similarly, the decarbonisation of heat could also have significant impacts on equality depending on the approach and where costs fall.[35]

> There are projected to be more than 2 million people with **dementia** and 2 million people living with **sight loss** in 2050 – the latter driven both by an **ageing** population and **growing incidence** in some of the underlying causes such as **obesity** and **diabetes**.



For more information see: Sustainability First's 'Tomorrow's World' briefing.[36]

[22] The Age UK almanac of disease profiles in later life: a reference on the frequency of major diseases, conditions and syndromes affecting older people in England, Age UK, 2015.
[23] Anderson et al., Electricity consumption and household characteristics: Implications for census-taking in a smartmetered future, Computers, Environment and Urban Systems, 2016.
[24] National Energy Efficiency Data-Framework Report, DECC, Annex C, 30 June 2016.
[25] Vulnerable Customers in Regulated Industries, NAO, 31 March 2017.
[26] Disability in the United Kingdom 2016: facts and figures, Papworth Trust, 2016.
[27] Ibid.
[28] The impact of population change and demography on future infrastructure demand, NIC, 22 December 2016.
[29] National Energy Efficiency Data-Framework Report, DECC, Annex C, 30 June 2016.
[30] Fiscal Sustainability Report, Office of Budgetary Responsibility, January 2017.
[31] Shut out; Households put at risk of homelessness by the housing benefit freeze, Shelter, June 2017.
[32] Vulnerable Customers in Regulated Industries, NAO, 31 March 2017.
[33] UK Housing Market Outlook: The Continuing Rise of Generation Rent, PwC, July 2015.
[34] The disrupted decade: 4 disruptions that will shake things up for energy consumers, Citizens Advice, 29 November 2016.
[35] Heat Decarbonisation: Potential impacts on social equity and fuel poverty, NEA, September 2017.
[36] Tomorrow's World for Energy and Water briefing paper, Sustainability First, 18 July 2017.

3 Summary findings

innovation and energy consumers in vulnerable situations

> "The key challenge is how to turn notable pockets of effective innovation into industry-wide progress"

It is important to ensure that the right mechanisms and incentives are in place to deliver the innovation necessary to meet vulnerable customers' needs both today and in the future. This section summarises our findings on the effectiveness of the current 'framework' including the perceived barriers and enablers to innovation that supports customers in vulnerable situations. Our full research findings, the complete list of case studies and the regulatory context are outlined in our main Energy for All-Innovate for All report.[37]



Vulnerability innovation today

In Great Britain there are pockets of real innovation in how energy companies support and empower their customers in vulnerable situations. In some areas, such as supporting customers in financial difficulty, there is seemingly more activity in energy than a number of other sectors or internationally. Most 'vulnerability innovation' by energy companies that we identified is not transformational, but rather the result of incremental improvements in company approaches. Many companies are still focused on getting the basics right for customers with additional needs – rather than 'pushing boundaries'. This is perceived as particularly the case for a number of smaller suppliers. Even those smaller suppliers with explicit social goals, despite their best intentions, may lack the vulnerability skills and understanding needed to catalyse effective innovation.

The identification and sharing of innovative and good practice

Much vulnerability innovation by energy companies is not known about or shared, even within the energy industry. New services are often not well promoted to customers who could benefit from them.[38] In some instances, companies are not even aware that they are doing something particularly beneficial, above and beyond standard energy company practice. The key challenge is how to turn notable pockets of effective innovation into industry-wide progress across all suppliers – irrespective of their size or business model – in a timely way that will improve levels of service for all consumers.

Our project has helped catalyse a step change in the sharing of good practice with welcome initiatives by EnergyUK (EUK), the UK Regulators Network (UKRN), Ofgem and Citizens Advice.[39] The sharing of vulnerability innovation between energy companies is improving with networks, particularly gas networks, seemingly better than suppliers. Existing channels, such as industry-led working groups (i.e. Energy UK's new Vulnerability Group and Energy Networks (ENA) Safeguarding Customers Working Group (SCWG)[40]) are particularly valued but still viewed as limited in what they can achieve. This is in part due to competition considerations, time constraints and because they often don't include many smaller suppliers.[41]

[37] http://www.sustainabilityfirst.org.uk/index.php/inspire

[38] Ofgem's review of the Priority Services Register also highlights that awareness of the services available is low and that companies should develop more innovative ways to increase awareness and promote take-up. Priority Services Register Review: Statutory Consultation, Ofgem, 13 June 2016.

[39] Citizens Advice are producing a series of good practice guides. There are also case studies in Ofgem's new look social obligations/vulnerability report; UKRN's report on data; and Energy UK has worked with Money Advice Trust to produce a good practice guide to Vulnerability, mental health, and the energy sector.

[40] http://www.energynetworks.org/info/safeguarding-customers/safeguarding-customers-overview.html

[41] EUK represents 24 of more than 60 suppliers.





> Sharing of vulnerability innovation is arguably more easily done outside the sector, or led by non-industry or independent parties

Only a minority of companies have mechanisms in place to *proactively* identify vulnerability *innovation*, especially from outside the energy sector or from consumer and disability groups. Much (though not all) activity appears to be focused on either supplier-to-supplier or network-to-network benchmarking exercises and therefore can be unduly inward-looking, arguably not challenging industry-level expectations. There seems to be relatively little cross-fertilisation of ideas, even within a company where competition tensions should not pose an issue.

In principle there is strong support among all parties for greater sharing of innovation that can benefit customers in vulnerable situations, including what doesn't work. For some networks, sharing is arguably delayed by the competitive element of the network incentives. For suppliers, while they recognise vulnerability 'should be an area where competition is less of an issue', in reality most admit they hold back on giving 'the full blue print' of their innovations. They will understandably not share in areas where they perceive competitive advantage, even if this would benefit vulnerable customers more widely, e.g. developments in smart prepay. Companies are more comfortable collaborating on safety issues or where there are shared problems for which nobody yet has a solution.

There are some frustrations over inconsistent and seemingly unrealistic messaging on the sharing of vulnerability innovation with Ofgem and government wanting companies to both compete and collaborate.[42] Sharing of vulnerability innovation is arguably more easily done outside the sector, or led by non-industry or independent parties. With more than 60 suppliers in the energy market,[43] current mechanisms of sharing information may no longer be 'fit for the future'.

[42] For example, Ofgem's guidance note on cooperation between competitors on the smart meter rollout identifies vulnerability and energy efficiency as two potential areas for collaboration yet competition is expected to drive innovation in both of these areas. https://www.ofgem.gov.uk/publications-and-updates/guidance-note-cooperation-between-competitors-smart-meter-roll-out

[43] Ofgem Retail Market Indicators. This is the latest published figure as of June 2017.

Company approaches to identifying vulnerability innovation

Standard practice - 'ad hoc' approach

- Read good practice and performance reports, e.g. Ofgem's social obligations report (now Vulnerable consumers in the energy retail market report: 2017), and good practice guides from organisations such as Citizens Advice and Money Advice Trust, as and when published.
- Attend ad hoc energy sector events and conferences, e.g. NEA's Warm and Healthy Homes event,[44] Essential Services Action Network (ESAN) vulnerability event.[45] and Utility Week debt conference.[46]
- Use feedback from benchmarking exercises such as for the Smart Metering Installation Code of Practice (SMICOP)[47] and the Energy-UK (EUK) Safety Net[48] audits.
- Participate in ENA or EUK-led industry working groups, e.g. The Customers Safeguarding Working Group,[49] the cross-industry Customer and Social Issues Working Group (CSIWG) and EUK's Vulnerability Group.
- Identify ideas as and when from general reading.
- Use online resources, e.g. Networks Association's Smarter Networks Portal website.[50]

Good practice - more systematic and proactive

In addition to standard practice – those companies that go above and beyond do some of the following:

- Map and seek to strategically understand the vulnerabilities of their customer base. They then proactively identify innovations to address these diverse understood needs as part of a wider company vulnerability strategy, e.g. WPD's Who's on our Wires Horizon Scan (p.34)
- Participate in regional forums that bring together utilities and wider organisations, e.g. NGN and Northern Powergrid are part of the coalition 'Infrastructure North'.[51] Cross-sector groups can be particularly valuable ways in which to identify and share problems and develop solutions.
- Actively seek learning from other sectors, e.g. British Gas is working in partnership with Barclays Bank on piloting their Community Wings programme (p.29). SSE identified SignVideo from scoping activity in the financial sector (p.42).
- Are proactive in identifying new opportunities to identify innovative practice, e.g. NGN attend meet-ups 'Tech for Good',[52] to help identify ideas.
- Undertake external auditing, e.g. BSI's BS 18477 for Inclusive Service Provision (p.29) and the 'Action on Hearing Loss' 'Louder than Words' Charter Mark (p.29). External reviewers share relevant cross-sector good practice as part of these kinds of processes.
- Scottish Power has a Vulnerability Forum whose role includes identifying and sharing best practice internally, reviewing new initiatives, sharing lessons learned from internal and external organisations.[53]

[44] http://www.nea.org.uk/whhf-networking/
[45] http://www.esan.org.uk/esan-holds-vulnerability-conference/
[46] http://utilityweek.co.uk/Event/utility-week-consumer-debt-conference/195029#.WdLLflprzeQ
[47] Smart Metering Installation Code of Practice, 29 September 2017.
[48] The Energy UK Safety Net: protecting vulnerable customers from disconnection, Energy UK, February 2016.
[49] http://www.energynetworks.org/info/safeguarding-customers/safeguarding-customers-overview.html
[50] http://www.smarternetworks.org/Index.aspx?Site=ed
[51] http://infrastructurenorth.co.uk/safewarmincontrol/
[52] https://www.meetup.com/techforgood/
[53] Vulnerable customers in the retail energy market:2017, Ofgem, October 2017.

Network incentives are effective and needed

Under their price control process, electricity and gas network companies have financial and reputational incentives around vulnerability. While not perfect, for some networks, these have been a clear driver of considerable innovation and focus on vulnerable customers. Many see the networks as more innovative in supporting customers in vulnerable situations than suppliers. Indeed, network companies won four out of four of our consumer-judged Sustainability First Energy for All Innovation 'Gold Awards'.

Network incentives are needed for vulnerability innovation. This kind of innovation can be more complex and riskier than 'standard innovation' and culturally a number of companies have still not properly embedded vulnerability. For example, there is a greater chance of consumer detriment if a project fails, and if things go wrong of negative publicity, and regulatory scrutiny. Projects can often be more complex and harder to deliver. This is especially the case with initiatives that require value to be drawn from coordinating multiple agencies across different sectors (e.g. to tackle fuel poverty – health, housing, energy, water) or which require engagement with hard to reach groups. It can also be harder to pull together the business case for vulnerability innovation, especially if value is pulled from multiple departments within an organisation. These are challenges faced by all energy network companies and also by suppliers and some supply chain innovators.

There were a handful of concerns raised about the fairness and transparency of the assessment process for the gas and electricity network incentives, including from some close to the judging process. Also, a feeling that incentives encouraged a focus on 'visibly wizzy things' that look good rather than what is most needed in terms of minimum service levels and existing project consolidation. Most interviewees encouraged a sharper focus on evaluating the consumer and wider benefits delivered, alongside more feedback to companies. The seemingly 'higher achievers' called for mechanisms to further distinguish between good and truly innovative companies.

Competition alone is unlikely to deliver the supply-side innovation that vulnerable customers require (at least not for all customers with additional needs in a timely way)

In the supply market, the standard market view is that competition is expected to drive improvements in service for customers in vulnerable situations, with less prescriptive and more outcomes-based regulation enabling more innovative and tailored approaches. In practice, suppliers believe there are insufficient commercial drivers to innovate in a timely way for some groups. General awareness of the commercial opportunities is relatively poor and there is a mismatch in expectations between energy suppliers on the one hand, and supply chain innovators and consumer groups on the other, in terms of how they perceive the value of 'the purple and vulnerability pounds'. With a couple of notable exceptions, those with additional needs are often seen by suppliers as having a higher cost to serve, sometimes higher debt levels, relatively weak buying power, and weak market demand. Suppliers primarily look to innovation in this space to help in reducing extra costs associated with vulnerable customers, rather than to win and retain these customers.

Some smaller companies actively avoid vulnerable customer market segments. The 250,000-customer threshold for Warm Home Discount and the Energy Company Obligation were thought by some interviewees to be 'sending the wrong message' to new entrants, encouraging them to see vulnerability as something they don't need to focus on until they are much bigger. With the rapid increase in the number of energy providers (there are now more than 60 suppliers in the market), incentivising vulnerability innovation among all energy companies and thus raising standards across the board for all customers in vulnerable situations, is particularly important.

This perception of low commercial returns, combined with the added risks and complexity of initiatives targeted at vulnerable customer groups (outlined above), is hampering innovation. The notable exceptions to this are new approaches to reduce bad debt, which, while slow to develop, have resulted in more proactive action to prevent debt build-up and support customers in or at risk of payment difficulties. In addition, the **smart pay as you go market**,[54] and the **living services markets** (connected home safety, health and assisted living markets) for older and disabled people, encouragingly are seen as market opportunities. Each are regarded as potentially significant future mass-market developments. Once these are mainstream, each could and should have a transformational role.

[54] It should be noted that some believe the prepay cap will delay innovation in this area and there was some evidence presented that this was already happening.

Vulnerability risks slipping down energy suppliers' agendas due to weight of regulatory change and increased competition

The sheer weight of regulatory and systems change (e.g. faster switching, smart meter rollout, settlement reform, Priority Services Register changes, Competition and Markets Authority reforms, tariff caps) also means, even in larger companies with a strong historic social focus, that vulnerability *innovation* may be slipping down the agenda. Political, economic and regulatory uncertainty is deterring some already risk-averse companies from investing in new ideas. Others report that increased competition is reducing margins and therefore also discretionary spend for vulnerability innovation.



[55] Companies may volunteer to pay a sum of money to appropriate charities, trusts or organisations in lieu of, or in addition to, a financial penalty for breaches of licence conditions. Companies may also volunteer these payments to remedy any harm to consumers, in addition to compensation to those directly affected, where Ofgem has not conducted a formal investigation.

[56] Ofgem has appointed the Energy Saving Trust (EST) as the independent Service Provider to manage and allocate voluntary redress funds. Authority gudiance on the allocation of redress funds, Ofgem, 24 August 2017

Supply chain innovators and service providers face particular barriers

Supply chain innovators who provide products and services to energy companies, who in turn offer those innovations to consumers, report a desire to be more creative and inclusive. However, they can be restricted by: overly prescriptive procurement specifications, which can encourage a default to mass-market products at lowest cost rather than more effective offerings; and inflexible company legacy IT systems. Weak customer demand, in particular, can make it hard to prove the market opportunity and get company buy-in. This includes demand and understanding of the advantages from end beneficiaries and those that might purchase products on their behalf (e.g. family and carers). Risk-averse energy companies can prefer to purchase already proven technologies. While innovators can lead on pilots to demonstrate the value of their ideas, in practice this can also be very risky for their business.

There appears to be a 'pilot-funding gap' for many small innovators who wish specifically to develop products to help vulnerable energy customers. Few innovation schemes seem to actively encourage or reward consideration of the needs of all customers. Outside the energy sector (though not only), awareness of the mechanisms available to support new ideas and help mitigate risk such as Ofgem's Innovation Link and regulatory sandbox, seem to be low.

The wider political and regulatory climate is an important enabler for vulnerability innovation

The political and regulatory climate is seen to have an important role to play in encouraging vulnerability innovation. The threat of regulator intervention and/or an energy company's desire to: (a) get ahead of the regulatory curve, and (b) be in the regulator's or government's good books, as well as the wider political and campaigning climate, are important enablers that should not be underestimated. In particular, they encourage company leaders to prioritise new initiatives and resources that can support customers with additional needs. Much 'big project' supplier innovation to support customers in vulnerable situations also appears to be funded via money allocated by the regulator for return to customers. For example, so-called redress funds, unclaimed account balances and unallocated prepayment payments. Ofgem's decision to appoint a third party, Energy Savings Trust (EST), to manage and allocate redress funds to charitable organisations will have notable implications for future funding of vulnerability innovation by the larger energy companies in particular. We welcome the Authority's Guidance on the allocation of redress[55] funds, which has taken on board early learning from Project Inspire with its focus on innovation.[56] It should be noted, however, that not all innovation requires substantial resources. We have identified a number of 'quick wins' (QW) in our research that are outlined in the case studies and flagged in our main report.

Comparative company vulnerability performance information

There is broad support (albeit more cautious from energy companies) for publishing more comparative data on company performance and service – both customer- and industry-facing. Where this exists (e.g. the energy network incentives 'league tables' and Ofgem's domestic suppliers' social obligations reporting), it can be influential in driving improvements. At best some companies are motivated to innovate since they want to be 'best in class', while others are motivated by a desire not to be out of step with the industry, nor to find themselves in the bottom quartile.

A number of parties raised practical issues that needed to be considered before publishing comparative information. These are outlined below:

- ***Clear aim*** – it is important to be clear about the aim of publishing data, e.g. is the information meant to directly influence all customers, some vulnerable customers, the energy company leadership or employees? This will impact the channel used and the design.
- ***Who does it*** – who publishes the information is seen as critical to how influential an approach would be. Data published by Ofgem and Citizens Advice was considered to have the most influence on industry behaviour. In order to matter to energy customers, information should be published by a known trusted brand relevant to the intended audience. Switching sites are a key vehicle to communicate comparative information, which can influence tariff decisions, but Ofgem only has limited influence over Third Party Intermediaries, e.g. with the Confidence Code.
- ***Demand*** – some industry interviewees highlighted that, despite socially branded energy companies, it can't be assumed that customers will be motivated by information published on vulnerability-related performance or wider social issues and that this needs further research. Though the wider evidence suggests at least some customer segments would be motivated.
- ***Fair and comparable*** – it is important that published information is accurate and compares like with like. Also, that there is enough differentiation to encourage innovation. For example, one respondent highlighted that the Gas Discretionary Reward funding approach doesn't enable sufficient differentiation between performance to maximise its impact.
- ***Timely*** – to maximise its influence, information has to be timely. A couple of respondents noted that the value of the social obligations data was diminished, as it can be published up to a year behind. Company performance may have changed in that time. Similarly with consumers, if it is meant to influence switching decisions it has to be easily available when they are undertaking that activity.
- ***Unintended consequences*** – organisations have to be careful how they assess performance and set the bar. As one consumer group put it 'if they are a leading company, there's risk that they think that their level of innovation is enough; for others, if they are in the middle, it's a safe place to be. That encourages them all to be mediocre together'.



> "To maximise its influence, information has to be timely"

Comparative company information or 'information regulation' can take many forms. Our main report's research findings include views on the effectiveness of league tables, 'naming and shaming' good and bad practice, and use of awards as enablers for vulnerability innovation. Below are two examples of customer-facing sites that are designed to help inform the purchasing decisions of customers with additional needs and drive improvements in service.



New York Banking Ratings Index (NYBRI)

Contact: Raymond H Brescia – rbres@albanylaw.edu

The New York Bank Ratings Index (NYBRI) evaluates the nineteen largest banks in New York State by awarding points to each bank based on how well they meet consumer needs in twenty customer-focused categories. The NYBRI weighs each of these categories equally and the banks are given a total score of 100, listing them from highest to lowest. Consumers can also go to an accompanying website, to customize a ranking based on their own preferences – adjusting the weight given to a particular category. Categories include things like fees outside ATMs, overdraft practices, credit card fees, loan acceptance rates for different nationalities. In addition, the site also offers customers the opportunity to review the products and services of the nineteen largest banks. [57]

Research Institute for Consumer Affairs (RICA) – Rate it!

Contact: Caroline Jacobs – CarolineJacobs@rica.org.uk

one to watch

Rate It! is a website in pilot stage that allows disabled people to review products, including energy products. 49% of disabled people feel they only have some of the information they want when buying online or in-store and over 90% favour the idea of an online community where disabled people can share reviews.[58] Rate It! will assist disabled consumers to make informed choices about products that support their independent living – the project aims to: reach 500,000 disabled users and build greater industry awareness of the disabled consumer market. Reviews will serve to build retailer and manufacturers' understanding of disabled customers' needs and experiences. It is being developed by RICA, Leicestershire Centre for Integrated Living (LCiL) and Enabled by Design. Which? are also advising the project. It will be peer reviewed by Scope, Business Disability Forum and AbilityNet.

[57] http://www.nybri.org/ - This was developed by Albany Law School with assistance from the Empire Justice Center, which supports customers on low incomes, and the Association for Neighborhood and Housing Development

[58] Extra Costs Commission Final Report, Scope, June 2015 ,p32, p34

Lack of vulnerability understanding is limiting innovation

A general lack of information and understanding about the diverse experiences of different vulnerable customer segments in the energy sector and the commercial potential in providing improved products and service to these different groups is also limiting innovation. This is a theme picked up on in the National Audit Office (NAO)'s 'Vulnerable consumers in regulated industries' report[59] and Scope's Extra Costs Commission.[60] This lack of understanding is arguably not helped by the language of vulnerability, in particular the expression 'vulnerable customers' which can imply a homogenous group.

Companies are not able to develop new products, services and approaches to meet customers' diverse needs, and priorities, where they do not have a detailed grasp of what those needs or wants are. For example, with a couple of notable good-practice exceptions, many companies do not seem to routinely monitor and collect customer experience (satisfaction/complaints) data broken down by key vulnerability demographics. While less of an issue for networks (but still an issue for some), our review of potential case studies also found that vulnerability initiatives and projects are frequently poorly evaluated. Companies fail to properly assess benefits to consumers, wider society or the business. As the NAO points out in its report, the societal value of vulnerability innovation including cross-sector benefits to health, housing and welfare is also not properly understood.



More can be done to unlock the power of data to improve service and quality of life for customers with additional needs

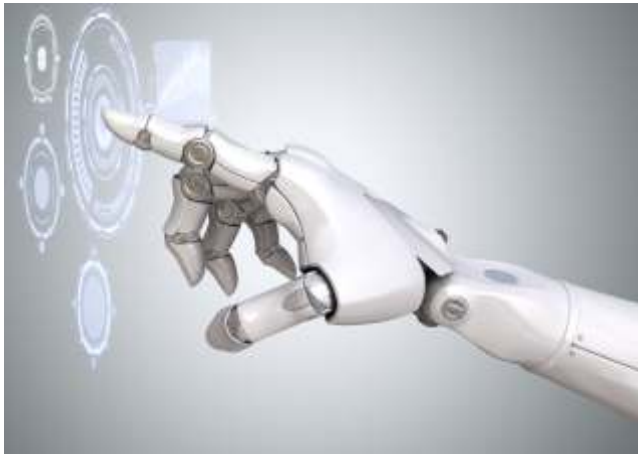
Innovative use of data to *proactively support* and *empower* customers in vulnerable situations has been slow to develop (particularly by suppliers) but is improving. As a number of our case studies show, there has been an increase in the strategic sharing of information between energy suppliers, networks, water companies and other agencies, which has helped improve how they identify, target and provide timely support for customers with additional needs. The Digital Economy Act 2017,[61] the standardisation of vulnerability 'needs codes',[62] and changes to the Priority Services Register licence conditions on data sharing are expected to further facilitate this.

Some companies however are still not maximising opportunities to collect relevant data and analyse insights from their own operations and customer service functions. Nor are they always using publicly available information effectively to inform and improve their service for customers in vulnerable situations. This may be in part due to a lack of in-house data skills and knowledge. Data privacy regulation is also perceived as a barrier – adding risk and complexity, e.g. 'data-based innovation' may require bespoke infrastructure and the setting of parameters for sharing data to ensure valid privacy and security issues are addressed. In preparing for General Data Protection Regulation (GDPR) companies should explore how they can improve service delivery to customers in vulnerable situations through making better use of data.

[59] Vulnerable Customers in Regulated Industries, NAO, 31 March 2017
[60] https://www.scope.org.uk/get-involved/campaigns/extra-costs-commission
[61] The Digital Economy Act 2017 will enable more sharing of information about customers' vulnerability between public agencies and water, gas and electricity companies, in particular to identify customers living in fuel poverty
[62] http://www.energynetworks.org/info/safeguarding-customers/safeguarding-customers-overview.html

There is widespread recognition of the potential benefits of smart meter data and big data

There is widespread recognition that smart meter data, and so-called 'big data' offer new and growing opportunities to improve service and quality of life for customers with additional needs. For example, a number of our case studies illustrate how data can be used to empower customers to more easily manage their energy use, budget, switch energy provider and to be and feel safe. For the future, the extent to which companies (not just energy suppliers and networks) access information could prove an important benchmark. We welcome therefore the work of the UK Regulators Network's (UKRN), which has set out its aspirations for the water and energy sector to make better use of data.[63]
At Sustainability First, together with CSE and UCL, we are setting up a new smart meter Energy Data Public Interest Advisory Group, which will look to ensure that the wider public policy benefits of smart data are properly explained and realised.



Vulnerability and inclusive design are not yet properly embedded in most energy companies – this is limiting innovation

We found most staff working on vulnerability issues are both passionate and committed about improving the lives of customers with additional needs. However, at times they face barriers internally when trying to get new ideas off the ground. For example, innovation and vulnerability teams may be working in silos, separate from each other and the wider organisation; there may not be a clear route for and ownership of vulnerability decision-making; and importantly (despite improvements in training) staff may not have the skills, knowledge and 'confidence to care'. Where they do have the skills and knowledge they may also not always be given the flexibility and 'power' to take action. This is particularly important as the majority of innovations we identified were initiated by frontline staff, middle management or external actors who approached the company with ideas. In addition, company leaders: may see vulnerability innovation as a 'nice to have' or 'niche'; not reward or recognise staff working in these areas; and not embed the needs of all consumers into their business decision-making. All of which make it harder within a company to grow innovative ideas and then prepare, resource and get approval for vulnerability business cases.

Ofgem's Consumer Vulnerability Strategy sets out the expectation that companies will establish their practice and products with vulnerable consumers in mind. We found that while the concept of inclusive design was well recognised, in practice, with some notable exceptions, it was not often implemented. Unsurprisingly, companies' internal culture, reflected in their leadership, structures and processes, plays an important role in how inclusive and innovative they are in supporting vulnerable customers; most expect transformational innovation to come from outside the larger energy suppliers. From our discussions with stakeholders and based on our findings of reviewing those energy companies who have been the most innovative, Sustainability First has developed a five-step 'Vulnerability Innovation Flight Path'. This is designed to help companies think about the kinds of internal processes and governance arrangements they might implement to enable innovation that serves all their customers (see Section 4 below).

[63] Better use of data and information sharing to identify customers in vulnerable situations: August Project Update, UKRN, 14 August 2017.

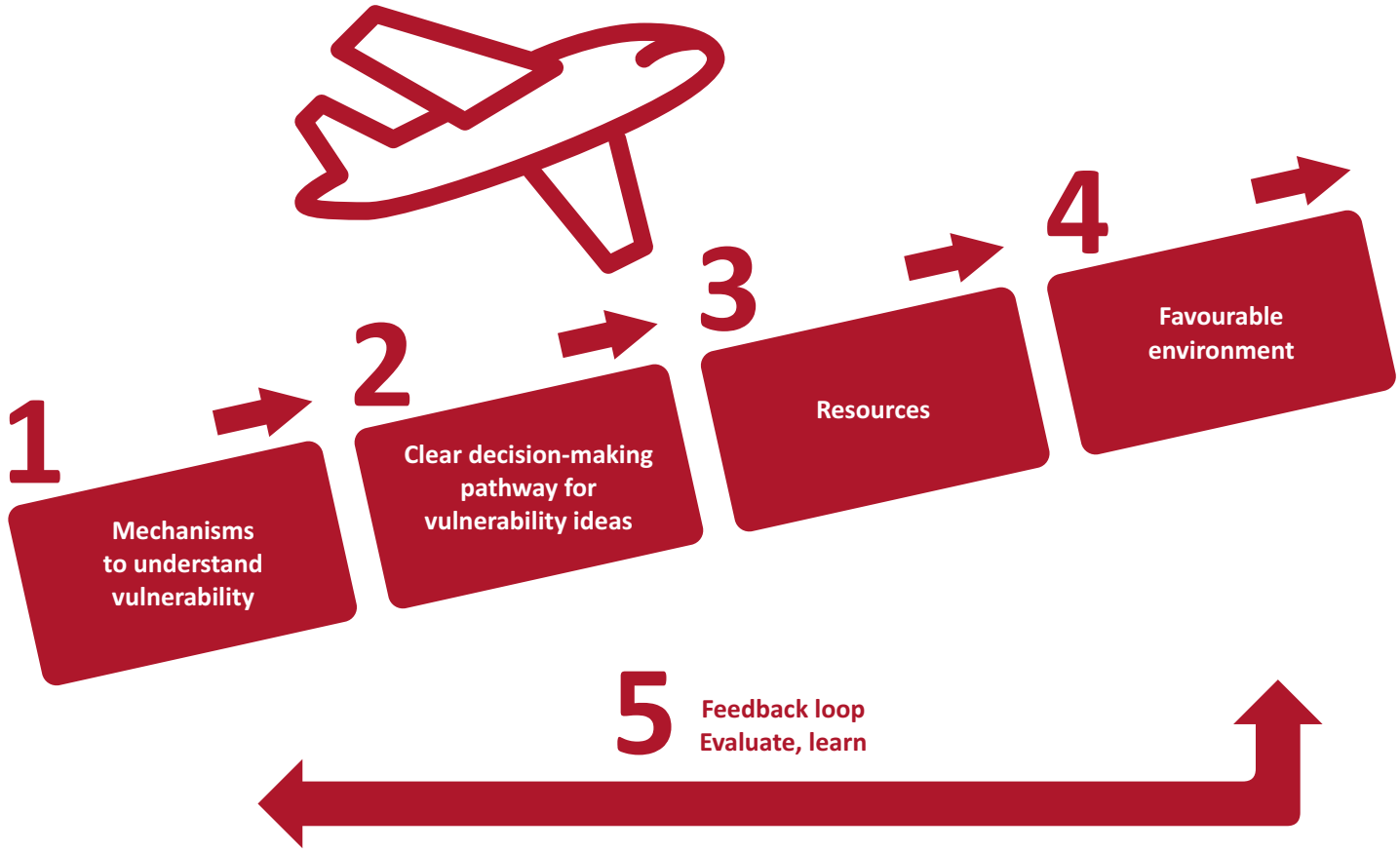
4 Embedding innovation

Sustainability First's Vulnerability Innovation Flight Path

We have developed a practical new tool – a five-step 'Vulnerability Innovation Flight Path' – to help companies and others think about the kinds of internal processes and company governance arrangements that they can implement or encourage to embed vulnerability and enable innovation for their customers with additional needs.

This checklist has been developed from feedback from our extensive interviews and our review of effective innovations. From this we identified some common factors that innovating energy companies and successful innovations have in common. It goes without saying that not all companies with successful innovations have all these elements but the five steps outlined are consistent themes in many.

In judging suppliers' conduct in respect of the new vulnerability principle and the networks' eligibility for incentive rewards we would expect Ofgem to look at the internal arrangements that companies have for identifying and developing better ways of delivering good customer service to vulnerable customers. This tool is also intended to support that process.



STEP/ENABLER 1 – The company has mechanisms in place to understand the experiences and additional needs of their customers. This generates ideas for innovation.

Companies have mechanisms to help them understand their customers' additional needs and the challenges they are facing. These channels generate or inspire ideas for vulnerability innovation. Sometimes these are 'light-bulb moments' for improvements, which are quickly implemented, other times the ideas grow slowly and are the product of individuals joining the dots between the problems faced by customers and their own ideas for solutions. Typically, innovating companies do a combination of the following to build understanding and identify ideas:

- ☐ Have **effective and strategic working relationships with organisations working with vulnerable customers**. Companies strategically identify the best partners to work with. They are realistic about the limits of their own expertise. They treat charities as subject-matter experts, consultants and allies in the development of solutions and reward them properly. These partnerships are valued and help to identify customer needs and can lead to solutions. Partners are then involved in the project throughout, often including delivery, e.g. British Gas' Clic Sargent initiative was suggested by the charity (p.50). Some companies proactively work with charities to 'co-create' innovations.
- ☐ Proactively **monitor and research** the experience of their vulnerable customers, e.g. WPD, a consistent 'winner' of Ofgem's network innovation awards, monitors vulnerable customer satisfaction. This helps to identify areas where new initiatives are needed.
- ☐ **Externally benchmark**, e.g. external auditors often share cross-sector good practice and new ideas, i.e. a handful of energy companies hold or are working towards BSI's Inclusivity Standard (p.29) and the 'Action on Hearing Loss' 'Louder than Words' Charter Mark (p.29). These kinds of standards also encourage and support companies to set up structures which build-in considerations of vulnerability from the start of the decision-making process.
- ☐ **Proactively seek out innovative approaches**, e.g. attend relevant events/meetings and support projects. For example, via Project Inspire WPD identified the potential for video sign translation (they are using Interpreter Now) and next generation text relay service. The Gas Locking Cooker Valve (p.46) was drawn to SGN's attention at a conference by the charity Dying to Keep Warm.
- ☐ **Train, support and empower staff on vulnerability** – this helps to build understanding and enables action. Staff are better placed to spot need and have the flexibility and autonomy to capitalise on opportunities. They are 'confident enough and able to care', e.g. Utilita's frontline staff initiated their approach to supporting prepayment customers who are self-disconnecting, and were trained by StepChange (p.60).
- ☐ Draw upon their **staff's experiences** so they are agents of change, e.g. npower staff volunteering at food banks informed their Fuel Bank (p.52). SGN has 'Ignite' a mechanism through which staff can share ideas. Their Neighbourhood Alert (p.49) came from this route.

Understanding the needs and expectations of customers in vulnerable situations is key to stimulating new ideas and solutions to improve service and quality of life.

STEP/ENABLER 2 – There is a clear decision-making pathway for vulnerability ideas

Successful innovations always have someone championing them but they need to be supported by the wider organisation in order to succeed. In larger companies it also helps if a senior level colleague is personally supportive. The initiator is clear what they need to do, and who they need to speak to, to get a decision made on their vulnerability innovation. The pathway through which an idea travels to get approval is transparent, structured and known by staff:

- We found most organisations with successful innovations had a **dedicated vulnerability person or team**. This person plays a critical role in championing ideas and selling them internally to different parts of the organisation. To prevent them from being siloed, vulnerability is also embedded throughout the organisation, e.g. it's a leadership/strategic priority and/or there are nominated people responsible for vulnerability in their departments. In smaller organisations this doesn't seem necessary.
- In flat or medium-sized organisations it seems often the person championing the idea takes it to the head of the relevant team for a decision. That person has the **power and flexibility to make decisions and a budget** to support them. Simple changes can be made quickly. Only decisions involving significant resource have to be escalated.
- In larger more hierarchical organisations there also tended to be a **designated vulnerability team or individual** who have some autonomy to make decisions (though not always budgets). In addition, importantly there is typically a **cross-departmental mechanism that meets regularly**, which brings together people and ideas from different departments and different parts of the organisation for discussion and decision. Importantly it has the **authority and budget** to make decisions, e.g. **British Gas' governance structure** (p.29).
- Some companies also have regular **'standing channels'** through which ideas can formally travel from frontline staff to key decision-makers, e.g. British Gas Staff Carers' Forum meets regularly and raises ideas. A number of organisations have customer panels.
- If leadership is driving the innovation, these processes are not always needed. However, this is rare. **The overwhelming majority of innovations we identified were initiated by frontline staff, middle management or external actors who approached the company with ideas.**



STEP/ENABLER 3 – Available resource

Unless it's a very simple initiative, resource is usually needed to support the innovation and make it happen. This includes staff time, expertise and, most importantly for substantive projects, financial resource and additional staffing. Some suppliers were a little shy about talking about the funding source for their innovations so we have not attributed all of them. We identified the following sources:

- ☐ Ring-fenced vulnerability team budgets with sufficient flexibility to pay for new ideas.
- ☐ Allocated price review spend (networks only) e.g. WPD's initiatives.
- ☐ The company's innovation fund e.g. NGN's Community Promises Fund (p.29).
- ☐ Funds allocated from enforcement and fines – 'redress monies'
- ☐ Un-reclaimed account balances money/unallocated prepayment payments (suppliers only).
- ☐ Operational budgets, e.g. Utilita's self-disconnection support (p.60).

STEP/ENABLER 4 – Receptive environment internally and externally

The environment that the innovative idea lands and grows in is always favourable and sometimes driving innovation. A number of factors can support this:

- ☐ **LEADERSHIP** – The company's **leadership and senior management** support and understand vulnerability. For example, E.ON board members each sponsor customer emersion events, including those with customers in vulnerable situations. Vulnerability is also a recognised organisational priority: the company has a vulnerability strategy so the person championing the idea can demonstrate how the innovation supports and fits within this agenda and 'use this hook to mobilise support'. In some instances, leadership is challenging staff to come up with an idea to address a problem. Importantly, they ensure that Steps/Enablers 1–3 are in place.
- ☐ **REGULATION** – The **regulatory** environment is **encouraging** action in the area of innovation. This can include 'signals' from Ofgem's senior leaders outlining expectations or regulation itself. A number of companies talked about innovating in order to be ahead of regulation they could 'see coming over the horizon'. Internally they use impending regulation to push for and persuade leaders of the need for innovation. Regulatory change can prompt wider vulnerability innovation, e.g. as one supplier put it, 'while the hood was up on the Priority Services Register' this prompted them to review their whole approach.
- ☐ **'POLITICAL'/MEDIA CLIMATE** – The wider **political** environment can be a key driver. Feedback or influence from parliamentary committees, charities, government and the media encourages the company, in particular, its leadership, to focus action on and support action in a particular area. In many instances this has been a primary enabler for innovation. A desire to get back in the regulators' good books and improve reputation following some kind of negative incident or enforcement decision can also drive support for innovation to support vulnerable customers.
- ☐ **EXTERNAL SUPPORT** – **charities** and other parties are **supportive of or endorse the approach**. This can help to add credibility, mitigate risk and encourage senior leadership and the media to support. External support can influence when action is taken, e.g. if it's timely or practical due to an external scheme or programme.

ENABLER 5 – Feedback loops

While not all successful innovations had feedback loops, companies who repeatedly seem to innovate, report that they do. They have mechanisms in place to systematically monitor, learn from and evaluate initiatives and activities and this learning is shared and informs the second phase of the project or the next innovation.

Embedding innovation and vulnerability case studies

Our full report includes a number of case studies that outline how companies have sought to embed vulnerability in their organisations. These are summarised below:

- **'Action on Hearing Loss' 'Louder than Words' Charter Mark** is a nationally recognised **accreditation** for organisations seeking excellent levels of service and accessibility for customers and employees who are deaf or have hearing loss. It is used by a number of companies including WPD, UK Power Networks, United Utilities.
- **Barclays' Community Wings** is an internal **interactive qualification** including community outreach to help staff recognise, understand, and appropriately respond to the additional needs of customers. British Gas (BG) is piloting this in the energy sector with a view to making it available for free to any energy company.
- **British Gas governance structure** is designed to ensure that that there is leadership, accountability, resourcing, and cross-departmental working to support those in vulnerable situations.
- **British Standard 18477 for Inclusive Service Provision** is a framework to help organisations provide a fair and flexible service that can be used by all consumers equally, regardless of their health, age or personal characteristics. WPD is accredited along with British Gas. SSE, WWU and NGN are working towards the Standard.
- **Care Opinion** is an independent **feedback platform** that allows users of UK health and care services to give narrative feedback — to 'tell their story' of their care. This is a valuable source of information on patient/carer experiences which is being used to inform learning and improvements. Similar approaches may be possible in the energy sector.
- **Scottish Power** has a **Vulnerability Forum** to promote a holistic approach to supporting vulnerable customers. It aims to identify and share best practice internally, review new initiatives, share lessons learned from internal and external organisations and review implementation of regulatory initiatives.

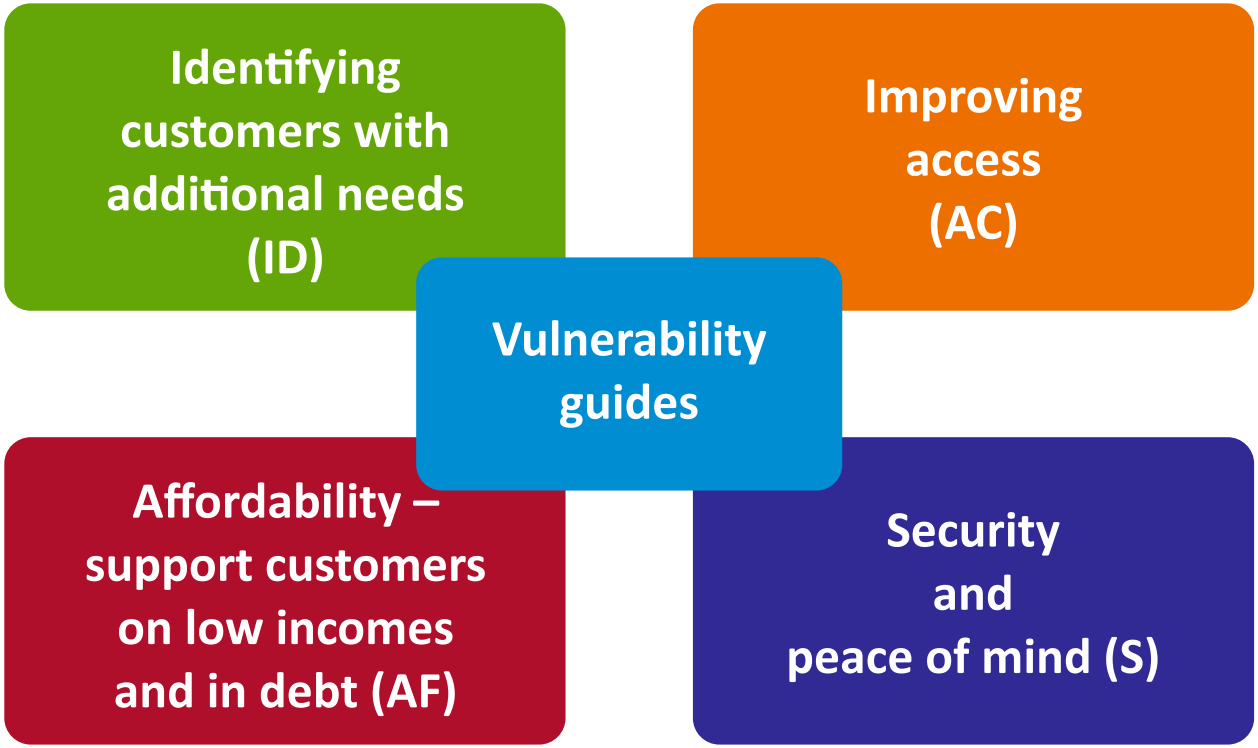




- **British Gas** is a model for what it is be a **fully dementia friendly organisation.** The company now chairs a working group that is writing guidance on best practice for utilities in being a dementia friendly organisation.
- **Northern Gas Networks' Community Promises Fund** identifies new partners and innovative programmes which can: help customers struggling financially and in fuel poverty, and raise awareness of the dangers of carbon monoxide poisoning among other areas.

5 Winning innovations and our guides to standard, good and innovative practice

Our main report includes four practical guides to standard, good and innovative practice which are designed to help companies improve service delivery for customers in vulnerable situations in the following four areas.



These four areas were selected as they reflect the main areas of Ofgem's vulnerability regulation. The guides include a short introduction on the relevant regulatory requirements and wider policy context alongside practical case studies from not only the GB energy sector but also other sectors, such as water, telecoms and financial services and internationally.

This Section showcases Project Inspire's award-winning innovations and outlines in brief many of the case studies that are included in more detail in these Guides.

Methodology – case study selection and categorisation

- **Standard practice** – For each of the four areas outlined (categories ID, AC, AF, S) above we started with setting our benchmark for what is commonly understood to be 'standard practice' in that area in the energy sector. Standard practice can still be effective practice.
- **Good practice** – This was defined as an approach that delivers benefits over and above industry standard practice for customers in vulnerable situations but was used by at least two companies.
- **Innovative practice** – An approach was defined as 'Innovative' if it delivered benefits over and above industry standard practice and was not, as far as we were aware, used by any GB supplier or network for the purpose outlined.

On 27 April 2017 we hosted an **Energy for All – Innovation Day** in London with industry, regulators, government, consumer and disability representatives to check our categorisations, evaluate and showcase more than 70 ideas that we had identified. There were 17 innovations that were also shortlisted to be judged in a 'Dragons Den'-style event by an independent panel of 4–5 consumer and disability experts under one of the four categories above. More than 40 members of the audience were also able to share their views and influence the assessment.

All shortlisted innovations that were judged for awards had to meet certain criteria (our assessment criteria is outlined in detail in the main report). At a high level they had to be:

- **Measurable** – though when shortlisting we explicitly did not compare the scale/depth of impact of different innovations – there are pros and cons to this.
- **Replicable/scaleable** – so other energy companies could use the approach.
- **Potentially cost-effective** – relative to the benefits or alternatives.
- **Better than** understood industry standard practice to support customers in vulnerable situations.

The judges came from **Action on Hearing Loss, Age UK, British Red Cross, Citizens Advice, Mencap, National Energy Action, National Right to Fuel Campaign, RNIB, Scope,** and **StepChange**. The independent judges scored the innovations between 1 and 5 stars and the winning 'innovators' were awarded Gold, Silver and Bronze Awards accordingly. Where some drew, both received the same Award.



Independent consumer judges voting on innovations at our Energy for All Innovation Day in April 2017

Health warnings!

- Importantly, there was not always agreement on what was deemed to be 'good' practice and effective innovation. Even some of our award-winning innovations split the panel/room.







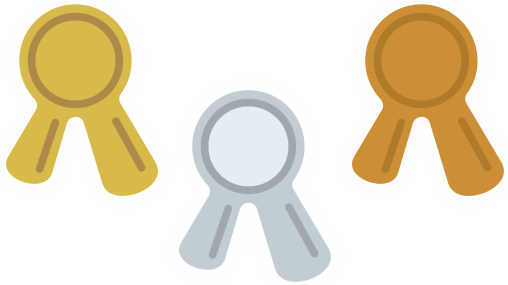
- There is no easy way to directly compare and rate innovations. In addition to the high-level criteria, we offered assessment guidance to our judges but there is a degree of subjectivity.
- Some initiatives, which were 'innovative' when we started the Project have since changed categorisation, e.g. SSE was the only energy company to have SignVideo at the beginning of the Project but British Gas and WPD are now offering similar services (the latter offer Interpreter Now due to Project Inspire). This is good news for consumers as innovation has been shared, but there may consequently be a few anomalies.
- While the four judging categories above (ID, AC, AF, S) were used for practical reasons, it should be noted that a number of the winning innovations could have been entered into multiple categories as they delivered multiple benefits. This no doubt influenced the awards given.
- We are mindful that that are some potentially very effective innovations that did not make the shortlist because of lack of available information at the time of judging.

Ones to watch

Some case studies are already in operation with measurable outcomes, others are what we call **'ones to watch'**. These are potentially beneficial concepts, technologies or approaches under development or being piloted, which at the time of writing did not yet have measurable data or outcomes attached to them.



Category: identifying vulnerability



Winning case studies

Gold	WPD/CSE's – Who's on our Wires Horizon Scan
Silver	E.ON's Care and Assessment Tool (CAST)
Silver	WPD's Data Cleanse
Bronze	SSEN's Interactive Vulnerability Mapping
Bronze	Southern Water's Universal Metering

Other innovations and good practice

The case studies below are included in more detail with contact details in the Guides in the full report:

- **BT's natural language IVR** recognises key words that a vulnerable customer might use when calling to automatically transfer them to a specialist telephone team.
- **Citizens Advice** is developing an online **PSR sign-up tool** where customers or carers can proactively register their own, or someone else's additional service/vulnerabilities.
- **EDF Energy** France has established a **network with social workers** to help identify and support customers in vulnerable situations, including those in fuel poverty. The energy company's dedicated full poverty advisors handled 472,000 requests for support from social workers in 2016. A website has been set up to facilitate these exchanges.
- **PwC** has a **Debt Analytics Methodology** that can be used to identify specific traits of customers who enter into arrears. This has enabled a water company to assess whether late or non-payment was something the customer chose to do or if they needed help with making their bills affordable. This resulted in a 15% increase in the number of customers on low income tariffs and more tailored debt pathways.
- **Southern Water** has a **data-sharing pilot** underway with Brighton and Hove City Council. Southern Water identifies customers with high water consumption and this is matched against the Council's social housing occupancy data for each property to calculate per capita consumption to target help at those most in need.
- **Scottish Power Energy Networks** are working alongside **flu jab surgeries** to identify vulnerable and hard to reach customers in an initiative named 'Jab and Jabber'.
- **WPD's Wellington Healthy Homes** brings together CSE, the health service, the local authority and Wessex Water. They are piloting matching data from different partners such as property-specific energy efficiency data and GP's practice health data to target and enable preventative action to help those most vulnerable to the health impacts of cold homes.
- A handful of companies including **Wales & West Utilities** and **WPD** have developed a **PSR app for field staff** so they can easily record customer vulnerability when identified during a home visit. WWU shares the information they collect with Welsh Water and the customer's DNO and supplier.

Winning case studies - identifying vulnerability

WPD's Who's on our Wires Horizon Scan

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Gold winner

Categorisation: ID, AF, AC, S

Overview

WPD/CSE's approach involves social indicator mapping using 41 different data sets to identify areas with the highest concentrations of vulnerability in the WPD area, using multiple definitions. The company also systematically maps relevant stakeholders and carries out a 'horizon scan' of existing fuel poverty schemes to identify key partnership opportunities and to identify hard to reach groups. The vulnerability mapping includes those who may be eligible for the Priority Services Register and those likely to be finding it difficult to secure an affordably warm home.

Need

Identifying customers in vulnerable situations, in particular certain hard to contact groups can be challenging. Grass roots organisations that have contact with some of the most vulnerable are often resource constrained and may not be aware of the assistance that is available from WPD.

Impact

This approach has resulted in WPD identifying 177 existing fuel poverty schemes and 35 new strategic partners. In addition it has:

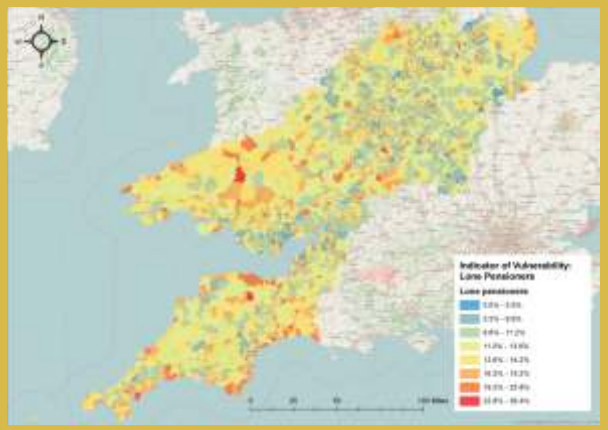
- ✓ Helped WPD reach hard to identify customers in vulnerable situations
- ✓ In 2016/17 it supported a 46% increase in PSR sign-ups
- ✓ Informed 13 strategically targeted fuel poverty schemes targeting areas of highest deprivation as indicated by their mapping area. This has supported over 12,000 households to save £2.2 million.
- ✓ The project is also the foundation for WPD's Local Action Fund – a £60k investment in four projects found by inviting the 177 organisations identified in the horizon scan. This helps to build on and support existing grass roots activity.
- ✓ WPD shares mapping data with their partners and provides ongoing financial and practical support for their vulnerability work

WPD's - Who's on our wires horizon scan

Alex Wilkes

awilkes@westernpower.co.uk

07912 098826



"The extent to which WPD works with and contributes to the wider community is exceptional. Significant new evidence this year confirms that support has been further strengthened in terms of the resources, projects and areas reached."

Customer Service Excellence Assessor, 2016

Winning case studies - identifying vulnerability

E.ON's Care and Assessment Tool (CAST)

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Silver winner

Categorisation: ID, AF, AC, S

E.ON's Care and Assessment Tool (CAST)

Martha Solomon

martha.solomon@eonenergy.com

07977 519349

Overview

CAST is an intuitive, easy to use system designed to help customer service advisors better identify customers with additional needs and tailor support to help them. In addition, it can be used to identify weaknesses in staff training and to develop tailored vulnerability products.

Need

Analysis undertaken by the Customer Safeguarding Working Group (CSWG) – made up of networks and suppliers – found an industry-wide problem of many energy companies having poor quality information on their customers with additional needs.

Approach

E.ON's tool has search tags, tailored prompts and questions, and provides social support information. The tool has built-in reviews, to check customer information is up to date. Review periods are 3 months, 12 months and 24 months depending on the additional need. The system can be easily updated and reconfigured as understanding of vulnerability grows.

Impact/benefits

- ✓ Helps ensure customers with a diverse range of vulnerabilities are properly identified and recorded. Customers have better-tailored conversations and support as a result. Between 01/01/2016 (CAST rollout commences) and 01/01/2017 E.ON had an increase of more than 50,000 unique customers being added to the PSR for electricity.
- ✓ The monitoring, precision and granularity of data collected allows for analysis to understand where front-line advisors need further training and to develop tailored products and services to meet customers' additional needs, e.g. E.ON identified through call monitoring that advisors weren't always fully recording services offered. They delivered refresher training to address this.
- ✓ Review-periods for each condition and circumstance means increased data accuracy. It is difficult to know what actual performance was like prior to CAST as comparable data is not available.
- ✓ Where E.ON signpost the customers to support, they can now follow up with the customer, to ensure that assistance has been taken up.
- ✓ The data supports tailored customer support, e.g. E.ON have a programme of work they are calling Fair Payment Outcomes, which is focused on changing how they support customers in payment difficulty. The data from CAST on the different types of financial vulnerability is helping to inform this project. Also, E.ON's smart metering team uses the data where they are trialling and designing customer journeys for vulnerable customers.



Winning case studies - identifying vulnerability

Western Power Distribution's Data Cleanse

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Silver winner

Categorisation: ID, AC, S, AF

WPD – Data Cleanse

Alex Wilkes

awilkes@westernpower.co.uk

07912 098826

Overview

WPD have created two dedicated PSR data cleanse teams and have committed to contact every vulnerable customer once every two years to update their details and offer resilience and affordability advice. Each call has four core objectives, to:

1 Update the customer's record.

2 Remind them about WPD and how to contact the company using their special direct line for customers who are vulnerable.

3 Offer resilience advice, e.g. what to do to improve preparedness for a power cut as well as during a power cut.

4 Offer to refer them to one of their 'Power Up' partners in their local area who offer practical fuel poverty support including: income maximisation; tariff/switching advice; energy efficiency measures; boiler replacements and heating technologies; behavioural changes; health and wellbeing measures.

Need

WPD has 1.3 million customers on its Priority Services Register. As is common across the industry, historic data collection and very poor-quality industry data flows have led to this data becoming out of date, impacting its usefulness, including during power cuts.

Impact

In 2016/17 the company contacted over 650,000 vulnerable customers, and successfully updated around 65% of records. This led to estimated financial savings of £1.4 million for customers, increased resilience and contributed to exceptionally high customer satisfaction of 9.04 out of 10.



Winning case studies - identifying vulnerability

Southern Water: Universal Metering

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Bronze winner

Categorisation: ID, AC, AF

Southern Water: Universal Metering

Penny Hodge

penny.hodge@southernwater.co.uk

01903 272015

Overview

Southern Water carried out a distributional impact assessment using demographic and customer insight data analysis to model likely winners and losers from them rolling out water metering in their area. They proactively identified 10% of customers who were likely to find the move to metering unaffordable and offered them a package of support and in some instances a capped tariff to help address this.

Benefit

As a result of the mapping around 54,000 homes received water and energy efficiency audits (10% of the company's most at risk customers). Working with IncomeMAX more than 3,000 customers were helped to secure around £3.7m unclaimed benefits and tax credits – an average of £1,200 per customer. The initial Income MAX target was £1 million. Such a proactive approach could be used by any company making a strategic decision with potentially detrimental consequences for some of its customers or be a support package model for customers in financial difficulty offered during the smart meter rollout.



Winning case studies - identifying vulnerability

SSEN – Interactive Vulnerability Mapping Web App

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Bronze winner

Categorisation: ID, S, AF

SSEN – Interactive Vulnerability Mapping Web App

Simon O'Loughlin

simon.o'loughlin@sse.com

01738 453193

Overview

SSEN has created an Interactive Web App that can overlay up to 24 different data sets. It can be interrogated by any member of staff with a password, to identify and map vulnerability in an area.

Benefit

This approach is used to better target help during power cuts and forecast and target where extra help is most needed. It has informed investment decisions – resulting in prioritization of network improvements in areas with high numbers of vulnerable customers who are less resilient to outages. It was developed with the University of Dundee, the Knowledge Transfer Partnership, the Centre for Sustainable Energy, and vulnerability expert Trisha McAuley.



Category: improving access

It should be noted that relatively little research appears to have been done to identify what services energy customers with additional needs, in particular with disabilities, themselves prefer. While our award-winning accessibility innovations were judged by a panel of disability experts and often designed with disabled customers themselves, we do not assume that they reflect the most popular services for end-users available. Many of the services available are also not widely known about and it is clear that further promotional work is needed. Companies should work with their customers to identify the best services to ensure accessibility and customer satisfaction.

Winning case studies

Gold	**WPD's two-way texting**
Silver	**SSE's SignVideo**
Silver	**Bristol Energy's the Energy Hub**
Bronze	**Sensus Apps and the National Resource Centre for the Blind and Partially Sighted Children and Youth – Robobraille**

Other innovations and good practice

The case studies below are included in more detail with contact details in the Guides in the full report:

- **Austrian Sign Time's – SiMAX avatar technology** – offers a potentially quicker and more affordable solution for translation into sign language using an animated avatar. Automation is possible for standardised texts, e.g. security alerts.



- **Barclays** have set up a **Social Services Link** scheme that empowers staff to identify and support customers who need wider help than the company is able to provide and refer them on to access relevant social services.
- **Coca Cola**, IKEA, and Sheraton Hotels are among more than a hundred companies using USER1ST's **automated website accessibility** tools to make their websites fully accessible. The tools are cloud based (no extra software needed) and automatically detect and correct all kinds of errors on webpages creating full accessibility.
- **CSE** developed a two-minute video about input output controls on night storage heaters that has around 50k views despite limited promotion. The value of **videos** and images to communicate is well-recognised but still not as widely used as they could be.
- **Financial Conduct Authority** – the Financial Conduct Authority's good practice guide on vulnerability highlights that an unnamed life insurance firm set up a **good practice letter-writing group**, comprising expert practitioners, to establish best practice on accessible and engaging letters.
- **geo's accessible in-home energy display** – is designed to be accessible and easy to use, especially for customers with additional accessibility needs including blind and partially sighted customers. Several energy suppliers including five of the largest six companies plan to offer this device (see p.57).
- **Robin Hood Energy** asks all of its frontline agents to take personal responsibility for each customer they speak to. Agents will support customers to access the help and support they need on an individual basis.
- **SSE's Smart Community Liaison Officers** (CLOs) work in local communities to raise awareness and understanding of smart meters, and to offer face-to-face post-installation support for customers who need it.
- **Smart Energy GB** has worked with The British Institute for Learning Difficulties to develop accessible **easy-to-read materials** to help make sure the smart meter rollout works for everyone, including those with learning disabilities.

Category: improving access

Other innovations and good practice

- **Talking bills** – Ofgem reports in its Vulnerable consumers in the retail market report: 2017, that some suppliers offer blind and partially sighted customers talking bills. A customer may be called when their bill is ready. The company will then talk them through the bill to check they understand what they are paying for and answer any questions.
- **UK Power Networks** worked with London Sustainability Exchange to develop a toolkit called '**Faith and Power**' to help run energy campaigns (energy efficiency, smart metering, fuel poverty, resilience) for an Islamic audience (see photo right).
- **UK Power Networks** – **website accessibility**. A number of energy companies have accessibility features on their website. E.g. UK Power Networks' Browsealoud supports those with: poor literacy skills, print disabilities, English as a second language and those who lack digital skills.
- **WPD** are using **Next Generation Text Relay Service** – this service helps people with hearing loss and/or speech impairment to more easily contact and communicate with their energy company by phone.
- **WWU** worked with the **Plain English** campaign to **Crystal Mark** all their external correspondence, removing gobbledygook, jargon and any misleading information.



Winning case studies - improving access

Western Power Distribution's Two-Way Texting

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Gold winner

Categorisation: AC, S, QW

Overview

WPD offers a two-way texting service to all their 98,000 deaf and hard of hearing customers and is now looking to extend this service to all customers. The two-way service was developed with support from Text Local following the success of WPD's one-way texting service. It allows easy immediate interaction between the company and customers. For example, they can report a power cut, and WPD can provide updates when the customer is off supply, including time until restoration. Incoming texts are forwarded to the social media team and responded to immediately in the same way as an incoming call. All text conversations during outages are followed up to check the customer is back on supply.

Need

For customers with certain disabilities, contacting WPD may be more difficult, particularly in emergency situations, e.g. outages. The main method of communication with WPD is by telephone call. While other platforms (e.g. website updates, social media and the WPD app) are available, many vulnerable customers do not use or have access to these or simply prefer to text.

Impact

This is a powerful quick and easy way to engage:

- ✓ High numbers of texts were sent out by WPD during Storm Doris in February 2017.
- ✓ Replies to outgoing company texts are usually received within 5 minutes with the majority of replies from customers immediate.
- ✓ Since its launch in September 2015, 886 incoming texts have been received.
- ✓ Provides another means of support to vulnerable customers during power cuts. WPD ensure that text conversations are followed up to ensure that power supply is restored to the customer.
- ✓ Reduction in call centre traffic.
- ✓ Positive customer feedback has resulted in the service being extended to all customers.



WPD - Two-Way Texting

Alex Wilkes

awilkes@westernpower.co.uk

07912 098826

Winning case studies - improving access

SSE: SignVideo

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Silver winner

Categorisation: AC, QW

SSE: SignVideo

Daniel Dennis

daniel.dennis@sse.com

Overview

SSE and its white label partnerships use this. SSE was the first energy company to introduce video translation. BG and WPD also now offer video translation services along with BT, Virgin, Sky and Barclays among others. WPD offers an equivalent service called Interpreter Now.

SignVideo enables deaf or hard of hearing customers who use British Sign Language (BSL) to communicate with SSE in their language of choice by making and receiving BSL interpreted calls, in real-time.

Need

Use of video relay is supported by Action on Hearing Loss and Deaf Parenting UK. Around 150,000 deaf and hard of hearing people in the UK communicate through BSL. BSL is distinct from English and for some BSL users English is not their language of choice. Using online chat or email can therefore be a huge barrier. Customers who are deaf sometimes need to rely on help from a third party to deal with their affairs. This can take away personal responsibility, making the customer feel less able. Even for those who are comfortable with English this offers a more real-time natural conversation than alternatives such as text box, type talk, letters, emails, social media, and webchat.



Winning case studies - improving access

Bristol Energy – the Energy Hub

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Silver winner

Categorisation: AC, QW

Overview

The Bristol Energy Hub is a welcoming customer service point and community events space where customers can enjoy face-to-face accessible customer service and support to better manage their energy and save money, e.g. ask questions about bills, switching, energy efficiency advice.

Need

A standard relationship between supplier and customer is either over the phone, via email or increasingly through online chat services. These traditional methods can be useful, but they can also feel very impersonal, and a one-way relationship. Energy suppliers have a notorious reputation for being opaque, invisible and hard to reach with low levels of trust in companies and high numbers of customers not switching and on expensive standard variable tariffs.



The activities that Bristol Energy have run at the Hub with LinkAge have been extremely positive. We've had some great feedback from the older people and they have really enjoyed the activities ... The older people we work with have also found the energy advice and money-saving tips provided by Bristol Energy to be invaluable.

Lucy Saunders,
Senior Development Manager, Linkage Bristol

Bristol Energy is a fantastic concept, great to hear all about it at the Hub. I learnt how to screen print, and learnt how to save energy and money. Perfect!

Visitor

Impact

The Hub reached more than 10,000 people in its first year, building brand awareness and encouraging people to switch and save money. It's an accessible way to communicate. It provides people with new ways to engage with energy by holding entertaining and informative events, which can reach people who might not have considered calling the company for information or going online or picking up the phone to switch or ask questions. More than 50 events have been held since 2016 'of all shapes and sizes from morning til night'.

Bristol Energy – the Energy Hub

Kester Byass

kester.byass@bristol-energy.co.uk

Winning case studies - improving access

RoboBraille/Sensus ApS

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Bronze winner

Developed by

Sensus ApS and the Danish National Resource Centre for Blind and Partially Sighted Children and Youth.

Overview

RoboBraille automatically converts a wide range of documents into alternate formats such as audio books, digital large print, e-books and Braille in minutes. The service is being used internationally by people with print disabilities, including the blind, partially sighted, people with dyslexia, poor language skills, cognitive disabilities, motor deficiencies, learning disorders, concussions and others, to convert material into more accessible formats. It is free to individual users for non-commercial use and available by subscription for other companies or organisations.

Categorisation: AC, QW

Used Internationally by a wide range of organisations including banks, pharmaceutical companies.

Benefits

- ✓ All customers with print impairments can request information in an alternative format in accordance with their individual personal preferences at a fraction of the cost compared to current practice.
- ✓ It is faster and easier than standard practice and doesn't require assistance from another person - helping people maintain their privacy and take control.
- ✓ The service is free for non-commercial use and available to companies on subscription.



RoboBraille/Sensus ApS

Tanja Stevns

tanja@robobraille.org

+45 23 24 06 72

Lars Baillieu Christensen

lars@robobraille.org

RoboBraille has won a host of awards including:

- The European Commission e-Inclusion Award for e-Accessibility
- Social Contribution Award from the British Computer Society

It was also highlighted as a best practice example in relation to the implementation of principles of the UN Convention on the Rights of People with Disabilities.

Category: safety and peace of mind

Other innovations and good practice

The case studies below are included in more detail with contact details in the Guides in the full report:

- **BT's Protective Services Scheme** allows a customer to nominate a third party who will be contacted if the company can't get in touch with the customer or the bill goes unpaid. The person isn't liable for the bill but it means the customer doesn't receive chaser communications because, for example, they've fallen ill, are away, in hospital, affected by depression. They are taken out of the debt pathway.
- **BT** has developed best practice in the area of **Power of Attorney**. Anyone can potentially be in a situation where they need other people to make decisions or take action on their behalf.
- **BT** offers a free **24-hour priority fault repair** service for customers with chronic long-term illness or disability who are unable to leave the house without assistance.
- **EDF's Howz** connected home solution lets families know that customers who are elderly or with additional needs are safe, warm and well, helping them to live independently for longer (see p.66).
- **iViTi ON Safety Light Bulb** automatically provides up to three hours' light during a power cut and can automatically switch to and from battery mode during times of network stress, helping to keep the lights on for all. Use of candles can cause fires whereas working torches may not always be readily available.
- **Liverpool John Moores University** with **Merseycare NHS Trust** is carrying out early-stage feasibility studies to explore if tracking electricity appliance usage data has the potential to be used to support the monitoring of the development or progression of health conditions such as Alzheimer's.
- **NGN** developed an innovative and **interactive gaming app** – Have you found the killer yet? This was in response to Gas Safety Trust research that showed that 18–24-year-olds are particularly vulnerable to CO poisoning due to lack of awareness.

Winning case studies

Gold	**SGN/Dying to Keep Warm's Gas Locking Cooker Valve**
Silver	**Homeglow Products – B-Warm**
Silver	**Smart Compliance' SMART CO detector**
Bronze	**SGN/VISAV – Neighourhood Alert**

- **Uber's** approach could improve security around home visits in the energy sector. When a customer orders a taxi they are sent information on their phone that includes the driver's name, photo, vehicle make and licence plate number. They can also track where the driver is so they know how long it will be until they arrive. The customer also has their contact details so they can call them if they need to. Drivers also have to ask for the person by their name when they arrive.
- **WPD is trialling power outage devices** in social housing electric-only households that notify them in real time when vulnerable customers go off-supply.
- **WPD's mobile app** allows customers to report a **power cut** and receive updates. It also provides access to information on all power cuts in their area and advice on what to do if this happens.
- **UK Power Networks** – most electricity network companies have some kind of emergency box or keep warm pack that they make available to customers in vulnerable situations to support them during a power cut. For example, **UK Power Networks' Emergency Box** (photo below) has been distributed free to 2,500 customers who are medically dependent on electricity. It includes items such as a 'safe-t-torch' that turns on in the event of power loss to help to reassure customers that they won't be left in dark.



Winning case studies - safety and peace of mind

SGN: Gas Locking Cooker Valve

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Gold winner

Categorisation: S, QW

Used by SGN, Northern Gas Networks and National Grid Gas

Overview

After getting the idea from the charity Dying to Keep Warm, SGN, with the charity's support, have been developing the free locking cooker valve service. The locking cooker valve is a simple device gas engineers can fit for people in vulnerable situations – perhaps suffering from dementia or autism – to prevent fires and explosions and to give their families peace of mind. The locking cooker valve enables the gas supply to a cooker to be locked and unlocked easily by a carer or relative. This eliminates the risk of the cooker being unintentionally turned on or left on. The carer or relative can easily turn the valve on using the key when the cooker is required. The service is free of charge; customers who could benefit from the service can be referred through a range of partner organisations including occupational therapists, Fire and Rescue, social worker, carers or relatives

For more information:
https://www.youtube.com/watch?v=0hx6StlBZAo

Need

People living with dementia or autism can be at risk from leaving gas cookers on and unlit, increasing the risk of a gas explosion, or forgetting about a saucepan or frying pan on a lit hob. People with dementia also can put electric kettles on gas hobs which can cause fire and fumes as the kettle melts. Organisations including Dying to Keep Warm, Fire and Rescue and occupational therapists have evidenced this. Without a simple way of stopping the gas flowing to the cooker when relatives or carers aren't there people can lose their independence and often have to move into care homes sooner for their own safety.

Benefits

- ✓ The service reduces the safety risk to people in vulnerable circumstances.
- ✓ It gives friends and families assurance of their safety.

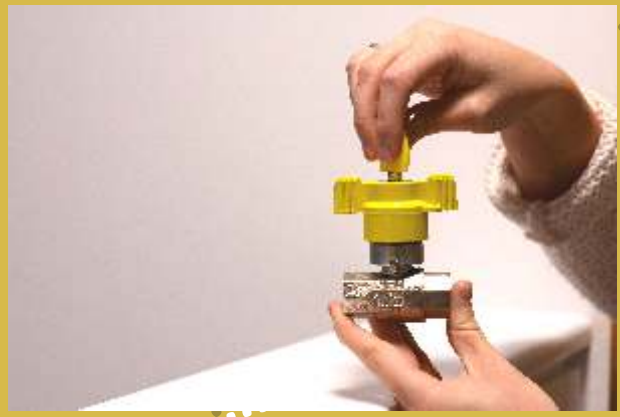
SGN: Gas Locking Cooker Valve

Pamela Goee

pamela.goee@sgn.co.uk

07818 458855

- ✓ Enables continued independent living for the householder without removing the source of cooking.
- ✓ The draw on fire services is reduced and also on care homes.
- ✓ It saves SGN going to repeated reports of 'smell of gas' where someone has unintentionally left the gas on. This can be a common scenario.



Winning case studies - safety and peace of mind

Homeglow Products – B-Warm

one to watch

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Silver winner

Categorisation: AF, S, QW

Available on Amazon/online – currently taken up by individuals (3,000 had been sold as of October 2017). As a result of Project Inspire a number of GDNs including WWU and SGN are piloting B-Warm during winter 2017/18.

Overview

B-Warm is a portable heated seat cover designed to fit most armchairs and sofas. It operates with a single control button, producing low-level controlled heat with four adjustable settings from 10w to 45w. It is relatively simple to install, removable and machine-washable. It has the potential to be used to maintain a person's warmth and comfort at lower cost, helping to avoid high energy bills. It may provide improved mobility and a supplementary source of warmth for sedentary people, including potentially during gas outages and, for short periods of time, electricity supply outages. The product has appropriate safety checks, including CE marking.



Need

Keeping warm and well at an affordable cost is a challenge for the over 65s and for those with a more sedentary lifestyle due to ill health. B-Warm is designed for those who suffer with the cold – the frail and elderly, discharged patients from hospital, or those with mobility problems and suffering from rheumatism.



Also winner of the International Green Apple Award for environmental best practice

Benefits

NEA assessed this product and made the following conclusions

- ✓ 4 out of 5 householders monitored made savings on their energy bills.
- ✓ When used on a low setting B-Warm may provide improved comfort to those with limited mobility.
- ✓ Very cost-effective even on its highest setting – less than 0.7p an hour.
- ✓ High levels of consumer acceptability.

In addition – not assessed by NEA, it has the potential to lead to fewer accidents due to improved mobility and to relieve general aches and pains for those suffering with back pain/arthritis.

Homeglow Products – B-Warm

Martin Lewis

martin.lewis@homeglowproducts.co.uk

01291 672974 / 07855 646670

Winning case studies - safety and peace of mind

Smart Compliance Ltd – The SMART CO Detector

one to watch

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Silver winner

Categorisation: S

The system is being piloted under Ofgem's Network Innovation Alliance Fund. This is a UK-wide pilot project with National Grid, Northern Gas Network, and Wales and West Utilities.

Overview

The SMART CO Detector is a unique remote monitoring system that has the ability to detect carbon monoxide exposure including at low levels and self-check the reliability of the monitor – increasing safety, and reducing false carbon monoxide alarms to networks.

Need

The All Party Parliamentary Carbon Monoxide Group reports that there are around 40 deaths and 200 hospitalisations per year in England and Wales. Also, 4,000 attendances at accident and emergency departments for CO poisoning in England. There are also potentially thousands of people suffering flu-like symptoms such as headache, dizziness, nausea and fatigue without realising the true cause.

Impact

This approach provides tenants/householders, landlords or third parties with peace of mind via remote alerts, e.g. by texts/smartphone alert/web portal and a central record of performance. There are also significant cost savings compared to current approaches.



Also winner of the Best Safety Innovation Award at the 2015 Energy Innovation Centre awards

Smart Compliance Ltd – The SMART CO Detector

Scott Wallace

scott@ssscontracts.com



Winning case studies - safety and peace of mind

SGN – Neighbourhood Alert

one to watch

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.



Bronze winner

Categorisation: S, AC, QW

SGN – also Neighbourhood Alert, Neighbourhood watch, Home Watch Network, UK Police forces, Scottish Borders Alert, Rural Watch Scotland, Perth and Kinross Community Watch, local authorities and public sector

Developed by

VISAV Ltd

Overview

This is a secure alert and community messaging system that allows SGN and other authorised agencies such as the police, fire and rescue service, the council, and community organisations to send safety messages (alerts, advice, information) to registered people and organisations in the community.

Benefits

It offers an easy way to help people and those they care for to have up-to-date information and advice to help them feel safer and stay safe all year round. It helps to build community collaboration and resilience by facilitating partnership working. It can help to prevent problems and enable a faster and more tailored response for vulnerable customers when emergencies happen. It's still early days for this but feedback is positive. More than 4,000 people are signed up to the Alert – this includes 3,200 SGN customers (as of April 2017). The SGN Alert was created as a messaging system for everyone, however upon registration a user can select a number of vulnerable categories, set up by the company behind the Alert. This has no direct link to SGN's needs codes or PSR, but does mean SGN can target a particular group if they need to.

SGN – Neighbourhood Alert

Linda Spence

linda.spence@sgn.co.uk

07580 94642

Category: affordability – supporting customers on low incomes and in debt

Winning case studies

Gold	SSEN – Energy Efficiency Gap Funding
Silver	npower Fuel Bank
Bronze	Utilita prepayment self-disconnection support (see p.60)
Bronze	CLP Power Hong Kong- 'Power your Love – Save Energy Light up Lives'

Other innovations and good practice

The case studies below are included in more detail with contact details in the Guides in the full report:

- **British Gas** has a **partnership with CLIC Sargent** to deliver a referral and support package to help families who have children with cancer; this helps to prevent problems and support those struggling with the financial impact of cancer.



- **Bulb** uses **GoCardless** to provide more flexible billing to its energy customers. Customers are able to choose when payments are taken and make changes to their plans with three days' notice. Real-time payment alerts help to prevent debt build-up.
- **CLP Hong Kong** offer an email **Autopay Reminder service** so the customer receives an email two days before their payment due date. This helps to ensure customers always have sufficient funds in their bank account to cover their next bill.
- **CSE** are piloting Smart and Snug, a smart data analytics system that is designed to help fuel poverty advisors in supporting customers to better **manage their energy use and stay healthy** (see p.63).
- **E.ON Germany's Unemployment Link** means they work in partnership with welfare organisations and Job Centres, so that when a customer becomes unemployed they can take proactive action to support them in managing their energy use, and in reducing or preventing energy debts.
- **geo's hybrid home** energy management system is in early stage development and has the potential to reduce average household bills by at least a third (see p.62).
- **NGN and The Children's Society's Learning to Live Independently programme** targets 900 teenagers who are about to live on their own for the first time to provide them with money management skills, as well as advice and support about maintaining a healthy lifestyle.
- **Ovo Energy/VCharge** is a retrofit technology for electric storage heaters that provides better temperature control and cheap charging during periods of low daytime electricity demand.

Winning case studies - affordability

SSEN – Energy Efficiency Gap Funding

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Gold winner

Categorisation: A, AC, ID

Overview

SSEN's 'gap funding' scheme pays for the preparation work needed for energy efficiency measures to be installed in fuel poor households, that other schemes don't fund. This is a well-targeted very cost-effective scheme that enables fuel poverty measures to be installed in some of the most vulnerable households that might otherwise not be able to have them.

Need

Sometimes, while fuel poor customers are eligible for energy efficiency measures such as ECO, installation may not progress since there is a gap in funding as nobody funds the preparation works needed. For example, to have loft insulation you need a clear loft, to install a new boiler you need easy access to all the pipework and to start injecting cavity wall insulation you need to be able to get to the walls, all round the property.

Benefits

- ✓ Gap funding allows all eligible customers access to the energy efficiency measures they are entitled to. Consequently, it helps customers on low incomes – to save people money, make them more comfortable and warm in their homes, and reduce carbon emissions.
- ✓ **For every £1 spent there is £30 benefit to the customer**. The lifetime cost benefit ratio on these installations is very significant; so far SSEN has invested £10,750, but the estimated lifetime savings customers will make from this outlay is over £330,000.
- ✓ Until end of January, 49 measures installed for 34 customers, saving them each an average of £607 per year in fuel bills.
- ✓ Recipients have also benefited from an average gain of 15.5 on SAP ratings and collectively will save 3.7 tonnes of CO_2 a year.
- ✓ The process is simple and removes the stigma attached to having to apply for additional funding and therefore increases the acceptance rate. SSEN work with partners Warmworks to deliver the Scottish Government's national energy efficiency scheme, Warmer Homes Scotland to address this problem. There is no need for the customer to fill in additional forms, contact SSEN, or even for them to know they are getting additional help from the company. All a customer sees is the local contractor arriving earlier than normal and being able to do everything required from start to finish with the minimum of fuss.
- ✓ Benefits to the local economy from paid jobs. Also, potential NHS savings from customers not being admitted to hospital.

SSEN – Energy Efficiency Gap Funding
Simon O'Loughlin
simon.o'loughlin@sse.com
01738 453193

Winning case studies - affordability

npower Fuel Bank

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Silver winner

Categorisation: AF, AC, ID, S

Developed by

npower, The Trussell Trust, NEA, with support from independent Food Banks in Glossop.

Overview

npower Fuel Bank™ uses the existing Foodbank network and referral system to provide emergency top-up vouchers to Foodbank users with a prepayment meter, and who are in fuel crisis (regardless of who supplies their energy). The vouchers provide around two weeks' worth of emergency fuel to cook their food and heat their homes at no cost to the client. The scheme is extremely simple and quick for both administrators and recipients.

Impact

More than 26,000 vouchers have been issued across the npower Fuel Bank™ network since the pilot was launched in 2015 (to April 2017), helping over 56,000 people to date. Benefits include but are not limited to:

- ✓ Helping those who had self-disconnected from their energy supply to reconnect.
- ✓ The prevention of self-disconnection where emergency credit was already being used.
- ✓ The ability to repay emergency credit and charges accrued during periods of self-disconnection or use of emergency credit, therefore enabling access to fuel when credit is applied.
- ✓ The freeing up of money in other areas of household budgets to help repay or gain control over other debts or areas of expenditure.



nPower Fuel Bank

Matthew Cole

matthew.cole@npower.com

07989 493404

Winning case studies - affordability

CLP Power in Hong Kong – 'Power Your Love'/Save Energy Light Up Lives

Bronze winner

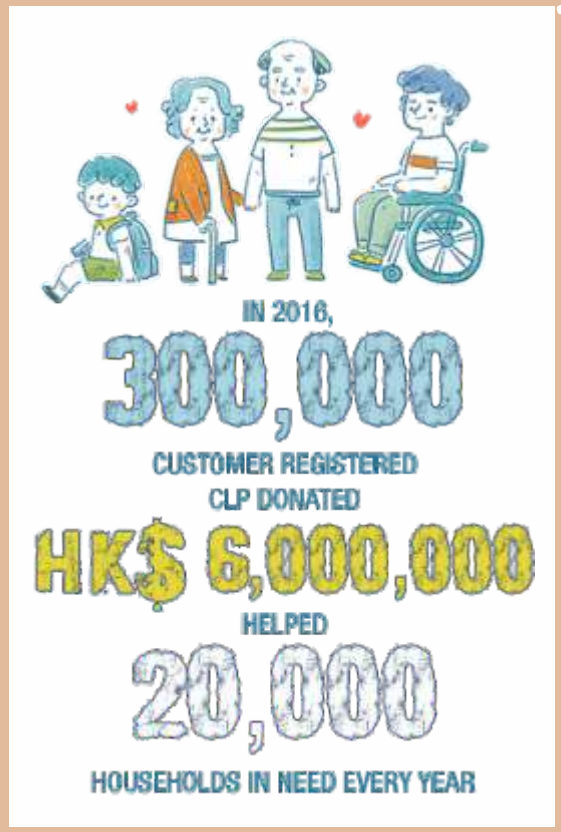
Categorisation: AF

Overview

The 'Power Your Love' initiative supports customers on low incomes while simultaneously encouraging high-energy users to be more energy efficient. **For every unit of electricity saved compared to the same period last year, CLP Power will donate one unit of electricity to households in need.** This is up to a maximum of HK $6m (around £580k).

Benefit

More than 200,000 customers took part in the first campaign in 2015 and 300,000 customers participated in 2016. Customers have saved a total of 12.5 million units of electricity resulting in 20,000 households getting financial support. For such an approach to be applied in GB requires a utility company to have access to energy/water consumption information and an incentive to reduce usage.





CLP Power in Hong Kong – 'Power Your Love'/Save Energy Light Up Lives

Anissa Cheng

Anissa.cheng@clp.com.hk

6 The smarter world

what's in it for customers in vulnerable situations?

Ofgem and government's Smart Systems and Flexibility Plan outlines an 'ambition for an energy system that works for all consumers, both now and in the future.'[64] Our research found that smart meter rollout and smarter technology more widely offer real opportunities to benefit customers in vulnerable situations but that some benefits are not guaranteed, or may be slow to develop for some customer groups unless more concerted action is taken. To date, many energy companies do not appear to be thinking very actively about how technology and its installation could benefit customers with additional needs. Inclusive approaches to smart delivery are also not generally embedded and there are only a handful of initiatives underway beyond mainstream developments such as smart prepay and assisted living services.

With more than 8.5 million smart meters now installed in homes in GB, we outline: **ten benefits that a smarter world could deliver for energy customers in vulnerable situations** and **ten steps** to realising these opportunities and an energy system that works for all consumers.

[64] Our strategy for regulating the future energy system, Ofgem, 4 August 2017.

Ten benefits a smarter world could deliver for customers in vulnerable situations

These benefits stem from our research for Project Inspire. They are in no particular order. Some of the examples selected are innovations already in operation and others are at concept or pilot stage only. As with any new technologies there are risks as well as opportunities and in some instances substantial barriers to effective implementation.



8.5 million smart meters

For further details on key technological trends, the write-up of interviewees' views on the smarter future, more case studies and further detail on case studies outlined, please see our full report.

1. **Greater financial control**
2. **An accessible in-home energy display**
3. **New interfaces – empowering consumers**
4. **Smart pay as you go**
5. **More affordable energy**
6. **Tailored advice and support**
7. **Blockchain – more targeted energy support**
8. **Timely support during power outages and less time off-supply**
9. **Health monitoring and assisted living**
10. **Automation – of energy management and switching**

1. Greater financial control



In a smarter world, customers who struggle financially should have more tools, products and information at their disposal to help them better manage their energy use, budget and make payments more easily. Indeed, the August 2017 Smart Energy Outlook found that seven in ten people with smart meters feel more in control of the energy they're using and half are saving money on their bills,[65] e.g:

- **Accurate bills** – smart meters are expected to reduce estimated billing and unexpected bills, which can cause anxiety and push customers into debt.
- **Visible energy use** – all homes should be offered an accessible In-Home Display (IHD) at no extra cost, which will give customers more visibility over their energy costs (see below).
- **Budget alerts** – better budget management through pre-agreed alerts. Nine electricity suppliers and ten gas suppliers currently offer high consumption alerts, mainly through the IHD. We expect some suppliers to offer text or email alerts for customers when they reach an agreed consumption level, or bill payment alerts when bills are due to help customers not to go overdrawn when money is deducted.[66]
- **Greater payment flexibility and choice** – smart technology makes it easier for customers to choose when they pay for their energy, and how they pay – combining and changing approaches to help them balance their finances. There are relatively new payment options such as mobile money, which could potentially develop to offer solutions for unbanked energy customers.
- **Truly fixed priced deals** – smart meters facilitate 'all you can eat energy deals', e.g. Green Star's Energy Unlimited Tariff[67] – where customers pay a fixed price no matter how much energy they use. While the deals are not without controversy and can be more expensive, many customers seem willing to trade certainty, including over the seasons, for higher cost.



[65] Smart Energy Outlook, Smart Energy GB, August 2017.

[66] According to Ofgem's vulnerability report: 'Most suppliers offer these alerts via the In-Home Display (IHD). Two suppliers offer email alerts, and three offer text alerts. Nine electricity suppliers and ten gas suppliers offer high-consumption alerts, mainly through the IHD.' Vulnerable customers in the retail energy market:2017, Ofgem, October 2017.

[67] Green Star's Energy Unlimited Tariff offers a fixed price no matter how much energy the customer uses. Three tariff options are offered, based on the size of the consumer's residence. Citizens Advice reports that prices are set approximately 14% higher than Green Star's fixed tariff rate. With smart meter data, tariff rates can be based on actual consumption and can be tailored by companies to minimise financial risk from high usage. See https://www.mygreenstarenergy.com/Our-Energy-Tariffs/Unlimited-Tariff



2. An accessible in-home display

All homes will be offered an In-home Display (IHD) as part of the smart meter rollout that will show them, among other things, near real-time information on how much energy they are using in pounds and pence. Evidence[68] from the government's Early Learning Project indicates the IHD is a key tool to help customers realise the expected energy savings, control and convenience benefits of smart metering.

Government requires that the In-Home Display is designed to enable the information displayed on it to be easily accessed and presented in a form that is clear and easy to understand, including by consumers with impaired:

- **sight**
- **memory and learning ability**
- **perception and attention and/or**
- **dexterity.[69]**



Under the Smart Metering Installation Code of Practice (SMICOP) suppliers must also, when they install a smart meter, show customers in 'an easy-to-understand way' how to use the smart metering system and information available, including the IHD. There is a specific requirement for this demonstration and associated materials provided to be 'informed by' any specific needs or 'known vulnerability' that the customer may have.[70]

[68] Consultation on amending Smart Meter In-home Display License Conditions, DECC, 3 August 2015.
[69] The Smart Metering Equipment Technical Standards (SMETS), Chapter 6, paragraph 6.3, p. 96.
[70] Smart Metering Installation Code of Practice, Ofgem, April 2013.

geo: Trio II Accessible Display

Overview

The Trio II Accessible Display is an 'RNIB Approved' inclusively designed in-home display that is designed to be more accessible and easier to use, especially for customers with additional accessibility needs including blind and partially sighted customers. Several energy suppliers, including five of the 'big six', have reported they plan to offer this display to their customers.[71]

The need

Mainstream IHDs do not generally cater for people with additional accessibility needs. Potential alternatives such as smart apps, online portals and voice-activated home hubs remain unusable or inaccessible for substantial numbers of the population, e.g. 19% of UK adults have multiple disabilities, dexterity, reach, sight, cognitive and mobility problems.[72]



Benefits

- ✓ The text-to-speech function enables blind and partially sighted users to navigate and understand their energy consumption with ease.
- ✓ The large tactile buttons, ergonomic design and non-slip feet enable those with dexterity needs to operate the display.
- ✓ The optional Wi-Fi module enables the display to work with current and future online services, opening up a world of possibilities for 'accessible' online services.
- ✓ Positive feedback from initial RNIB testing.
- ✓ Designed for easy access to 'pay as you go' information, e.g. IHD makes checking the prepaid balance simpler
- ✓ For those with a 'credit' based energy account, the budget function allows customers to manage their energy costs easily, providing peace of mind.

Categorisation: AC, AF



Developed by: geo in collaboration with RNIB and EnergyUK.

Contact: Simon Hughes – simon.hughes@geotogether.com

Tel: 01223 850210

Potential: Any consumer with or without accessibility needs may benefit from this. Prototypes have been tested by RNIB and will be offered to customers for installation from mid- to late 2018 by the largest ten suppliers.

Challenges

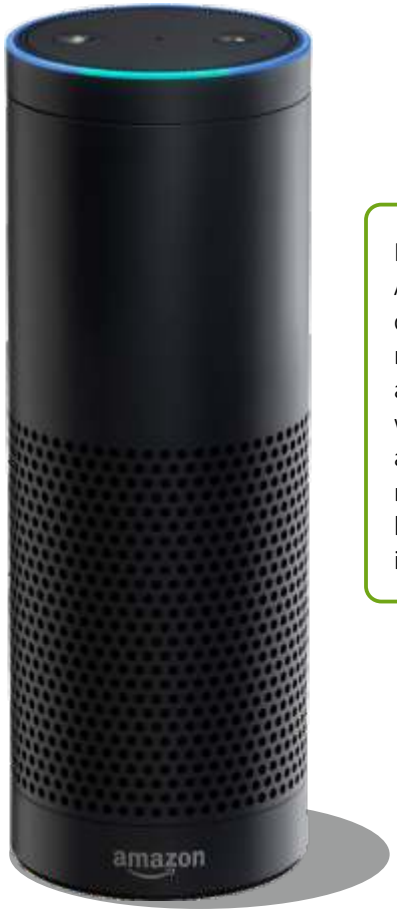
Customers may be unaware of their right to request an accessible energy display when their smart meter is installed. There may also be a lack of understanding by energy suppliers of the needs of energy consumers for an 'accessible' version of the IHD.

[71] Smart Support: support for vulnerable consumers in the smart meter roll-out, Citizens Advice, March 2017.
[72] Disability in the United Kingdom 2016: facts and figures, Papworth Trust, 2016.

3. New interfaces – empowering consumers

Machines are increasingly able to recognise and interpret voice, language and facial expressions. While technological solutions may not be suitable for everyone, this kind of artificial intelligence (AI) is already resulting in new kinds of customer interfaces that can massively enable communication for customers with disabilities and provide more choice of ways in which to engage at a lower cost.

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.



Intelligent virtual assistants such as Google Assistant, Amazon's Alexa voice assistant are already being piloted by companies as a way to access information on a smart meter, the web and control devices using a home automation. This kind of technology could help customers with a range of disabilities to access energy information and control their energy use. What's my bill Alexa? How much electricity does my fridge use Siri? Bromford Labs[73] has been testing the general usability of Alexa with visually impaired customers.

AI technologies such as Microsoft Skype's translator will continue to advance and get smarter the more they're used because they are machine learning-based. The latter, for example, can translate conversations in near real-time into a number of languages and is designed to empower literate deaf and hard of hearing users by providing an easy and convenient way of communicating. The API that powers Skype Translator is publicly available as a service for businesses that want to add speech translation to their custom apps and solutions.

> "New kinds of customer interfaces can massively enable communication for customers with disabilities and provide more choice of ways in which to engage at a lower cost"

[73] http://www.bromfordlab.com/lab-diary/2017/1/25/testing-alexa-update



> "Moving from standard prepayment to smart prepay – It's like going from a twin-tub [washing machine] to an automatic"

4. Smart pay as you go

The majority of interviewees cited smart pay as you go (PAYG) energy as a key benefit of smart metering. Around 15% of prepayment customers have smart meters.[74] While not without its teething problems, smart pay as you go energy addresses a number of historic problems faced by prepayment meter customers. Benefits include the following – the precise services available to a customer will depend on their supplier:

- **Greater choice and convenience when topping up, e.g. you can top up via text, phone, laptop, smart app as well as cash. This helps to reduce disconnection in error when a customer can't get to a top-up.**
- **Smart data and the ability to remotely top-up will make it quicker and easier for suppliers to identify customers who are self-disconnecting and provide timely support, e.g. companies can provide real-time meter credits rather than waiting for a wind-on or replacement payment card (see Utilita's case study below).**
- **The ability to monitor usage via an accessible IHD, online or smartphone app. This is particularly useful when meters are located in hard-to-access locations in the home or outside and so are hard to monitor if they are low on credit. At the time of writing all but one of the suppliers currently installing smart meters (13) offer low-credit alerts.[75]**
- **Customers can switch between payment methods without a meter exchange – reducing cost and inconvenience.**
- **The ability to transfer money between gas and electricity meters – if a customer has sufficient money on one meter and not enough on another.**
- **Text, email or audio alerts on an IHD to let customers know when they are running low on energy.**
- **Smart meters make it technically possible to offer gas friendly credit (no-disconnect periods) as well as for electricity.**
- **Reduction in stigma – Pay As You Go energy for all and not just for the poor.**
- **More competitively priced tariffs as smart prepay should have a lower cost to serve – reducing pre-cap price differentials.[76]**

[75] Most suppliers offer these alerts via the In-Home Display (IHD). Two suppliers offer email alerts, and three offer text alerts., Vulnerable customers in the retail energy market:2017, Ofgem, October 2017.

[76] Modelling undertaken for NEA indicates that in a cap-free world, between 95,000 and 181,000 households would be brought out of fuel poverty as a result of switching to a cheaper smart PPM tariff. The modelling did not factor in changes in customer behaviour affecting their ability to reduce consumption and so save money. Smart Prepayment and Fuel Poverty, NEA, October 2016. A higher proportion of PPMs are smart (14% and 16% for electricity and gas respectively) compared to credit meters (12% and 10%).



Winning case studies - affordability

Utilita – Smart Prepay Self-disconnection Support

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.



Bronze winner

Categorisation: AF, ID, AC, S

Overview

Utilita offers a range of support for its smart prepayment customers at risk of self-disconnection or who have already self-disconnected. This includes:

- Extensive non-disconnection hours that prevent the customer from self-disconnecting between 2pm and 10am the following day, and also over the weekends and on bank holidays.
- A weekly check of all Priority Services Register customers off-supply when the weekend Friendly Credit hours have expired on a Monday. They then proactively call those who have self-disconnected, prioritising PSR customers known to be vulnerable. They offer them the package of support outlined below. Not all customers off-supply need support. For example, sometimes the household is on holiday or deliberately self-disconnecting gas during the summer months.
- Wide choice of top-up methods – by phone, text, online, any Paypoint outlet – helping to prevent self-disconnection in error.

For all customers identified as being in financial difficulty Utilita will:

- Use insights from smart metering data to provide tailored energy efficiency advice.
- If appropriate, provide tailored discretionary credits linked to the customer's actual energy usage. Using smart meter data Utilita can calculate how much energy the household will need until they can afford to top up again. The necessary credit can then be immediately remotely applied to the meter. No additional charges are made to customers, though the credit does have to be repaid.
- Seek to identify vulnerability and update PSR details with any new information to ensure records are up to date.
- Ensure customers are aware of support available, including, where appropriate, the Warm Home Discount.
- Offer other ways to pay, as appropriate, including by Fuel Direct and helping customers transfer to direct debit without requiring a security deposit.
- Signpost customers to charity StepChange who offer free impartial debt advice.

Need

Due to the company's customer demographic many of Utilita's customers may have a situation where they can't afford to top up their meters on a temporary basis. This can result in long and short periods of self-disconnection. For those who are particularly vulnerable this can be an especially serious issue. Proactive identification of vulnerable customers off-supply and appropriate contact is necessary.

Winning case studies - affordability

Utilita – Smart Prepay Self-disconnection Support

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

Bronze winner

Categorisation: AF, ID, AC, S

Utilita – Smart Prepay Self-disconnection Support

Alison Russell

alisonrussell@utilita.co.uk



Impacts

- ✓ On average the company identify 100–300 customers on the PSR off-supply each week.
- ✓ Tailored top-ups for customers off-supply typically range from £5–£70 in value depending on need.
- ✓ The provision of StepChange details, the structured approach to encouraging customers to seek debt advice and the tailored energy efficiency advice, helps to prevent or reduce energy debt build-up.
- ✓ Utilita's Customer Care Team took a total of over 18,000 calls December 2016 to April 2017 from customers in financial difficulties. Around 70–80% of customers referred to Utilita's team have a tailored discretionary credit as the outcome.

5. More affordable energy

Electricity battery storage is fast developing as economically viable and easy to implement at home and at community level. Alongside this the cost of solar photovoltaics and wind has also fallen rapidly. The SPECIFIC Innovation and Knowledge Centre, a consortium led by Swansea University report from a small pilot that energy consumption could be cut by 'by more than 60% – if homes were designed to generate, store and release their own solar energy'.[77] This is not without challenges, however. For example, although the costs of technology are coming down, the fixed cost of coming off the grid is likely to remain a barrier.[78] In addition, while there may be mechanisms in place for customers to avoid large upfront purchasing costs, e.g. 'rent a roof' solar schemes, these have historically not always been good value and can lock in the customer.



> "Energy consumption could be cut by 'by more than 60% – if homes were designed to generate, store and release their own solar energy"

one to watch

geo's Hybrid Home

Overview

geo's energy management system is in early stage development. It has the potential to reduce average household energy bills by at least a third, enabling people to stay warm and comfortable for less. The Hybrid Home includes a smart meter, energy storage, insulation, electric heating, appliance controls, solar panels (where possible), EV charging (where possible) and an Integrated Energy Management System (iEMS). It works by optimising the use of demand management. The Hybrid Home is managed to run as much as possible on a mix of off-peak and self-generated electricity. The technology works in the background making the approach particularly suitable for many customers who are vulnerable. The approach is especially suited to new builds, including flats and rental properties, enabling more affordable homes to also be more affordable to run.



[77] http://www.specific.eu.com/news/view/78

[78] Firm Power Parity: A Framework for Understanding the Disruptive Threat of Solar and Storage, Imperial College Business School.

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

6. Tailored advice and support

Advanced analytics using data from smart meters, sensors, individual appliances and wider datasets in the home can enable much more tailored support and advice to customers with additional needs and on low incomes, and those who support them. For example, smart meter data can be used to identify if customers are under-heating their homes or self-disconnecting. Smart energy usage data plus information about humidity, ventilation or temperature could give a more accurate insight into the energy efficiency of homes and the causes of mould and damp. This data plus other indices of deprivation or vulnerability could improve the targeting, tailoring and delivery of fuel poverty programmes, housing improvements and social support.



CSE - Smart and Snug

one to watch

Contact: nick.banks@cse.org.uk

Smart and Snug uses energy consumption information from a smart electricity monitoring device and data about a home's temperature, and humidity levels to help customers better manage their energy use and stay healthy. Its purpose is to allow energy advisors supporting those in fuel poverty, to see whether a home is providing a comfortable and healthy environment for the people who live in it and to provide more meaningful feedback to customers. Algorithms are under development that will allow 'What if' questions to be asked, e.g What happens if I turn up my heating, how much will it cost me? What if I wait until I have a full load of washing, how much will I save? The system is also designed to send alerts and alarms when homes appear dangerously under- or overheated.

Advizzo

one to watch

Contact: patrice.guillouzic@advizzo.com

Advizzo uses data science and behavioural insights and actions to help customers consume less and save money. South East Water has used this approach. By sending personalised emails and hard-copy mailings they have achieved water savings of more than 2.2% and a steep increase in digital participation. Advizzo is also developing solutions to help identify vulnerable households as well as developing methods to encourage those households to register themselves so they can access the support available.



Oracle Utilities Opower platform

Contact: Julia.Lundin@oracle.com

Smart meter data alone is not always enough to help households reduce their energy bills, especially for more vulnerable customers. The Oracle Utilities Opower platform is used by around 100 utilities worldwide. It uses statistical algorithms to analyse smart metering data alongside wider publicly available datasets. They use this data, plus information provided by customers (where available) and behavioural science techniques, to develop tailored insights and tips to help customers better manage their energy use and lower their bills. These include Home Energy Reports delivered as paper or email reports, High Bill Alerts delivered via email, text, or Interactive Voice Response (IVR), and online bill and usage insights. Feedback achieves average energy savings of more than 2% and has been sent to more than 600,000 low income and vulnerable customers.



7. Blockchain – the potential for more targeted energy support?

While still arguably a concept, in theory if the regulatory environment allows it, blockchain and smart meters could enable any organisation or individual to directly credit a low-income household's energy meter without having to rely on their energy company, or a bank to act as an intermediary.

Bankymoon – The Usizo Project

one to watch

Contact:
Lorien Gamaroff: lorien@bankymoon.com

Bankymoon[79] in South Africa has created a smart metering solution where one or more digital wallets is attached to a utility meter – or are made 'Blockchain-Aware'. This makes it possible, using crypto-currency, to directly top up a water, electricity or gas account remotely. 'The Usizo Project'has piloted one of these meters in Emaweni Primary School in Soweto, near Johannesburg, South Africa. The approach enables anyone, anywhere in the world to 'send' electricity, water and gas to any one of these 'Aware' meters. This offers a way to give foreign aid without the need for donors to make contributions to an organisation which adds costs and distributes the funds opaquely. Donors can instead directly fund the causes they believe in. In the GB context, could such approaches be used by organisations or individuals to target financial energy assistance in a more personalised, direct, cost-efficient and secure way – including for unbanked customers?







[79] http://bankymoon.co.za/social-projects/

8. Timely support during power outages and less time off-supply

In today's world, if a customer suffers a power failure the electricity network operator might not know there is a problem until somebody contacts them to let them know. SMETS 2 smart meters have outage notification functionality ('last gasp') where the meter automatically sends a signal to the energy network before it goes off-supply. It can also let the energy company know when power is restored ('First breath'). This data can increase the accuracy of power-cut predictions and help companies to more readily and accurately react to problems.

For vulnerable customers this means:

- Less time off-supply, with power restored more quickly – perhaps even before they realise there was a problem (e.g. if they are asleep or at work).
- Emergency support can be provided more promptly to customers on the PSR until power resumes.
- It should be easier for the company to be able to accurately keep the customer up to date with progress on repairs and when their electricity is back on.



> "For vulnerable customers this means faster support, fewer home visits and less time off-supply"



Smart meters should also enable remote diagnostics, with power status information provided to DNOs on request. This means the network company can more readily identify if a power failure is caused by a wider network issue or a problem with the individual customer's premises. In practice, this helps to avoid the inconvenience, and in some cases anxiety of having to have a home visit.

More generally, smart meter data (e.g. showing abnormal grid activity) can help warn of and prevent future outages. In the case of the former, proactive support could in theory be provided to those most in need so they are better prepared before an emergency happens.

9. Healthcare and assisted living

At its simplest, smart meter data can be used to tell how much electricity and gas is being used overall, and what patterns of energy usage the customer had in the past. It may also be possible to infer from the pattern of overall data, which specific appliances are being used, and when. This alongside use of motion, temperature, humidity, ventilation sensors and smart plugs can be used to detect abnormal patterns of activity, which can indicate health or wellbeing concerns. This includes:

- Inactivity (such as through falls)
- Sleep disturbance
- Memory problems
- Changes in activity patterns, e.g. not eating hot food
- Low activity levels
- Unhealthy living conditions e.g. damp, cold homes.

Such information has the potential to be used in a variety of ways to help elderly customers and those with ill health or learning difficulties to live independently for longer. Also, to provide peace of mind to vulnerable customers and their care network.

EDF – Howz

one to watch

Categorisation: AC, S

Contact: Andrewjones@edfenergy.com

EDF's Howz connected homes solution lets families know that customers who are elderly or with additional needs are safe, warm and well, helping them live independently for longer. The system measures household's electricity usage and combines this with information from a series of sensors that detect door movement, temperature and light levels in a person's home to build up a pattern of daily behaviour. The system uses statistical principles and machine learning to identify unusual activity or trends including predictive analytics and knowledge of frailty and functional decline to give early warning of trends that could develop into a serious situation. It alerts the person's care network, whether family, health care professions or social workers, if the user's normal routine is broken and enables them to use information to inform any assistance they give. The householder can select who they share the information with. It's reportedly easy to set up and unobtrusive. The system is predominantly aimed at elderly people, typically living alone, to empower them to let their care network know they are safe, warm and well. It is marketed as a lifestyle rather than assisted living or health product, helping to avoid any stigma associated with vulnerability and increase engagement.



Annette, from Timpery,UK commenting on EDF 's Howz.

> **"It's nice to have the reassurance that someone is looking out for me"**



In addition, Smart Energy GB's Energising Health report[80] found that a small number of research projects suggest that digital energy insights may help to recognise activities or usage patterns that could be associated with a variety of health conditions. For example, Liverpool John Moores University working with Merseycare NHS Trust[81] is carrying out early-stage feasibility studies to explore if tracking electricity appliance usage data has the potential to be used to support the monitoring of the development or progression of health conditions such as Alzheimer's. It should be noted however, that while there may be potential, there is not yet any clinical trial evidence of the effectiveness of using digital energy data to improve health outcomes.

Collaboration Bristol, Reading and Southampton Universities – Sensor Platform for Healthcare in a Residential Environment (SPHERE)

one to watch

Contact: ben.meller@bristol.ac.uk

SPHERE is a research project developing a system of sensors installed in people's homes that can detect a range of medical and wellbeing conditions. The sensors work together to identify patterns of behaviour and changes in these patterns that might help to diagnose, prevent or intervene in medical conditions. Potential benefits include:

- Detecting signs of instability before a fall.
- Changes in posture and social contact due to depression.
- Allowing patients to be discharged home safely after surgery.
- Curing dementia by administering treatments at the earliest stages.
- A much better understanding of health in the home.



> "Digital energy insights may help to recognise activities or usage patterns that could be associated with a variety of health conditions"

More in-depth, 'deep-dive' case studies for these innovations are available in the main report.

[80] Energising Health: a review of the health and care applications of smart meter data, Smart Energy GB, 3 May 2017.
[81] http://www.merseycare.nhs.uk/knowledge-hub/mental-health-articles/smart-meters-study



10. Automation!

The challenges of delivering customer engagement and behaviour change, particularly for more vulnerable groups, are well documented. The smarter future promises an increase in automation that could minimise the need for customers to engage with or even think about their energy. This includes: optimising appliance use and heating to benefit from off-peak tariffs (see p.62 geo's hybrid home); home heat management to reduce bills and maintain comfort and warmth; and automated switching of energy tariff by third parties such as Switchcraft and Flipper or intelligent assistant Myia. A key challenge with all of these approaches is the usability and accessibility of products and services for those on low incomes and with additional needs.

Flipper

Contact: Natalie@flippercommunity.com

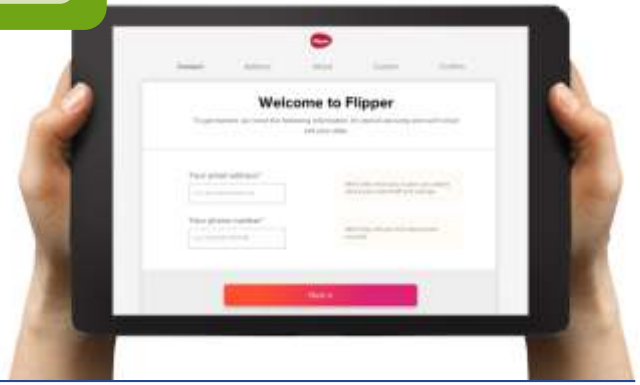
Flipper aims to ensure that customers don't over-pay for energy by helping them switch onto the best value energy tariff available to them. The customer signs up to Flipper's independent service online at no upfront cost. The service automatically compares all tariffs available in the market from suppliers which pass their customer service vetting process, and selects the best value deal for the customer given their location, meter type, payment preferences e.g. prepayment and energy use. Then every month the service automatically scans the market to see if there is a better deal available – taking into account any exit charges to switch. The service doesn't currently take into account if the customer is on the Warm Home Discount, but can give them an option to 'switch only to a Big 8 supplier' who do support the Warm Home Discount if the customer so wishes. If Flipper finds a deal that could save the customer money, they'll automatically switch – or 'flip' – the customer to the new supplier. They notify the customer of any new switch with a 14-day cooling-off period if for any reason the customer would like to stick with the previous supplier. On average, Flipper customers save £385 per year on their energy bills the first time they switch. Flipper does not charge commission to companies for the customers they gain so is independent. There is an annual fee of £25 but the customer will only pay this if they make a saving of over £50 in that year.

Smart meters should further improve the quality of service provided by automated switching services: with standard meters the customer still needs to read their energy meter to get accurate consumption information on which to base automated switching decisions.

Customer action is also required for the supplier to calculate an accurate final bill or refund (when the customer is in credit) on change of supplier and the switching process can also take weeks. However, with smart meters and Ofgem's moves to faster switching, auto-switching services could, with the customer's permission, potentially access their energy consumption information directly from the smart meter, improving the quality of data that informs the calculation on the best value energy tariff, and removing the need for customer action to calculate accurate exit bills, and refunds.



> "A key challenge with all of these approaches is the usability and accessibility of products and services for those on low incomes and with additional needs"



VCharge/Ovo Energy's Dynamo

one to watch

Overview

VCharge has a retrofit technology for electric storage heaters which provides better temperature control and cheap charging during periods of low daytime electricity demand. A dynamo control unit is added to the electric storage heaters. This enables the temperature of individual storage heaters to be monitored and then to determine how much charge each heater requires, based on previous use patterns and external temperature data. This automated system with cloud-based control aims to maintain a level of comfort set by the resident and will avoid overcharging the heater, and purchase electricity for charging at the optimum times during the day, while providing frequency and balancing which services the grid. Residents are able to change the comfort level using a phone app or website.

The need

Many electric heating residents with night storage heaters find they deliver too much heat in the morning and by early evening the storage heater is depleted, leaving the property cold when heat is most needed. Increasing levels of renewable generation on the electricity grid have led to periods of low wholesale electricity prices during the day and these are used to provide cheap charging for the storage heaters in this project.

Potential benefits

- ✓ A higher proportion of social housing residents use electric storage heaters. This technology should improve levels of thermal comfort, reducing overheating in the morning and a lack of heating in the early evening.
- ✓ Based on the manufacturer's experience, electricity consumption may be reduced by 10 to 15%, with a bill reduction of up to 25% depending on the amount of additional comfort requested by the customer.
- ✓ The variable output from renewable generators has been a challenge for the electricity grid and this technology could play a role in assisting grid balancing.

Categorisation: AC, AF

Contact: johan.duplessis@ovoenergy.com

Potential: 1.5 million households with electric storage heaters

Where used: Originally piloted in one tower block owned by Your Homes Newcastle (YHN), now also expanded to Glasgow and the private home owner market across the country.



Ten steps to 'smart for all'

The following outlines at a high-level ten key steps highlighted by our interviewees to ensure the benefits of new technologies are delivered for all consumers. This is not an exhaustive list. It should be noted that work is underway in many of these areas and we look forward to seeing further progress. These are in no particular order.



> "For customers with certain disabilities – if they have the money, technology will facilitate a more comfortable life and better service – the difficulty is who gets left behind? Technology is definitely an opportunity, but the opportunity is not consistent and not for all."

1 Ensure high-quality service for customers with additional needs

Protections under the Smart Metering Installation Code of Practice (SMICOP)[82] and Smart Energy GB's objectives[83] are designed to ensure that customers in vulnerable situations get any extra time, support and tailored information that they may require pre, during and post the smart meter installation to access the benefits of smart metering. However, some interviewees felt that, given the pace of rollout and suppliers' track record to date, further action is still needed. Indeed, Citizens Advice's Smart Support report found that customers with additional needs are unlikely to be offered one-to-one support before or after the smart meter installation.[84] We welcome, therefore, the government's recent commitment to work with energy companies, consumer groups and Ofgem to develop and implement a set of principles[85] for the provision of support to vulnerable and prepayment customers. Also, approaches such as the partnership between CSE and British Gas, to explore how support can best meet the needs of elderly low-income customers and those with arthritis.[86] Given the pace of rollout, these kinds of initiatives need to progress quickly and deliver measurable benefits for customers with additional needs.

2 Maintain up-to-date privacy safeguards

Energy customers with smart meters have privacy protections under the smart metering Data Access and Privacy Framework.[87] The framework is due to be reviewed in 2018. Despite reportedly very low levels of customer concerns about the privacy risks of smart meters,[88] a number of respondents highlighted the continued importance of ensuring that robust safeguards are in place and complied with, especially following any move to half-hourly settlement. This is viewed as key to ensuring customer confidence and engagement in new technology and data-based services. In addition, appropriate regulation is needed to ensure that increased customer profiling which enables greater cost reflectivity does not lead to inequitable outcomes. For example, some of the poorest, most vulnerable, and most remote customers (who may be higher risk and higher cost to serve) could be offered less choice of products and services and more unfavourable terms. In an increasingly data-rich world, companies will need to work harder to manage data risks and think carefully about the fairness implications of their data-based commercial decisions.

[82] The Smart Metering Installation Code of Practice (SMICOP) has a number of specific requirements designed to protect and ensure customers with additional needs can access the benefits of smart metering. Suppliers must, for example, ensure energy efficiency guidance takes into consideration customers' additional needs. Smart Metering Installation Code of Practice, 29 September 2017.

[83] Smart Energy GB has a specific obligation to assist consumers on low incomes, or prepayment meters, or consumers who may encounter additional barriers in being able to realise the benefits of smart metering systems due to their circumstances. Consumer Engagement Plan and Budget 2017, Smart Energy GB, 19 December 2016.

[84] Smart Support: support for vulnerable consumers in the smart meter roll-out, Citizens Advice, March 2017.

[85] For further information contact smartmetering@beis.gov.uk

[86] CSE are working in partnership with British Gas to research how vulnerable customers can best be supported to understand and make use of the data they receive through their smart meter, including how to change their behaviour in response to this data. This is looking particularly at how advice on using the IHD, energy efficiency advice and follow-up support can be tailored to meet the needs of elderly low-income customers and people with arthritis. The research is funded by Joseph Rowntree Foundation (https://www.cse.org.uk/projects/view/1319).

[87] Smart meter data access and privacy, DECC, 5 April 2012.

[88] Smart Energy GB reports that only 4% of GB respondents mentions privacy as a concern about smart meters. Smart Energy Outlook Report, Smart Energy GB, August 2017.







3 Improve data access

Alongside ensuring appropriate personal data privacy and security for energy customers, improving access to data is also seen as necessary to unlock further vulnerability innovation. This includes anonymised data held by energy companies, customers themselves (including in their energy meters), government agencies and customer insight data held by charities, e.g. the London Datastore was flagged as a good example of a free and open data-sharing portal.[89] Data, including personal smart energy data, also needs to be easy for customers or third parties with a customer's consent to access, use and share, in a secure way and timely way.[90] Access to data is particularly important, since, as mentioned, the value of social innovation and solutions to problems such as fuel poverty and energy debt are often drawn from across multiple sectors and types of organisation. Also, there are relatively weak incentives on energy suppliers to innovate to support some vulnerable customer segments. Government, Ofgem, energy companies and consumer/disability groups should work with organisations such as Digital Catapult and the Open Data Institute to explore how they can open up anonymised datasets in a timely, secure privacy-friendly way to enable all parties, including non-energy parties, to innovate and collaborate around vulnerability issues. The UKRN may want to consider how it can facilitate this as part of the next phase of its data project.

4 Prioritise inclusive design

Under government rules the smart meter IHD offered to customers must be easy for them to use. Indeed, Energy UK members have worked with geo and RNIB to create an accessible energy display (see p.56).[91] The usability of smart products and service more widely will be an important factor in minimising the digital divide and ensuring the benefits of innovation are delivered for all. Poorly designed products and services are seen to be exacerbating barriers to access. For example, one disability rep noted that many websites are still unusable for many older and disabled people, despite easy ways to make them more inclusive. One industry interviewee stated 'IoT projects are failing for the same reason IT projects fail. Too much focus on the technology and not enough on the people [that use them]'. Smart Energy GB's research also flags that an inclusively designed high-quality installation service could meet the additional needs of many customers – without singling them out as different.[92] Companies should ensure that, wherever possible their products and services are inclusively designed and are tested with customers with additional needs early in development. Government should consider customer accessibility or inclusivity standards for smart appliances.

[89] https://data.london.gov.uk/

[90] At CSE's Smarter Warmer Homes event on 11 October 2017 two innovating organisations separately raised issues about barriers to accessing smart meter energy data – one highlighted the cost and complexity in accessing data via the Data Communications Company, the other, the practical difficulties (two technical experts had) with pairing consumer access devices to the home area network for a pilot they were running to support vulnerable customers.

[91] Government requires that the In-Home Display is designed to enable the information displayed on it to be easily accessed and presented in a form that is clear and easy to understand including by consumers with impaired: sight, memory and learning ability, perception and attention and/or dexterity. The Smart Metering Equipment Technical Standards (SMETS), Chapter 6, paragraph 6.3, p. 96.

[92] Smart Energy GB publishes research into the optimization of the smart meter installation experience for audiences with additional barriers, Smart Energy GB, 24 March 2017.







5 Ensure interoperability

New smart products and services must be compatible and interoperable so that customers are not locked into one provider and/or don't have to pay extra for appliances to work together. This is particularly significant for any customers with additional needs who rely on smart systems and may find it harder to navigate problems caused by incompatible technology.

6 Monitor smart products and services

Most recognize that there will be 'winners and losers' from any new time of use contracts where energy is priced differently at peak and off-peak times. For example, many vulnerable consumers at home during the day could benefit from pricing structures that reward flatter more constant consumption patterns and therefore access what are expected to be among the cheaper deals. However, others may not be able to benefit from these new tariffs if they are unable to shift their usage. Sustainability First, Citizens Advice and Ofgem have all carried out work in this area.[93] New tariff offerings such as tracker tariffs with prices linked to wholesale costs; new advance payment options for non-prepayment meter customers;[94] and bundled deals that combine supply with products and services, and potentially cross-utility offerings; may also require higher levels of understanding and engagement from customers to reap the benefits. The likely increase in different types of tariffs is expected to make it harder to compare deals, risks 'choice overload' resulting in inertia, particularly for those without internet access. Government and Ofgem have committed to continue to consider the potential social impacts of smart tariffs. In addition, a number of interviewees felt it was also important to facilitate free third-party switching services and ensure robust safeguards are in place so that customers are aware of the affordability implications of new tariffs and that they may not be suitable for everyone.

7 Uphold the principle of universal service

Government has committed to ensure every household in GB is offered a smart meter and in-home display by the end of 2020. It is important that this is delivered in practice despite the higher cost to suppliers of installing in some homes. As wider smart services develop it is essential that no household is left behind in terms of the reliability and access to products and services because of where they live, e.g. customers in rural areas, without high-speed internet connections, or those in certain building types such as high-rise flats may require bespoke technologies or services and be higher cost to serve. This could deter companies from serving them.

[93] Sustainability First – http://www.sustainabilityfirst.org.uk/index.php/energy-demand-side.Ofgem, Distributional Impacts of Time of Use Tariffs, 24 July 2017 and Citizens Advice, The Value of Time of Use Tariffs in Great Britain, 10 July 2017.

[94] For example, Scottish Power's Power Up tariff - https://www.scottishpower.co.uk/powerup





8 Monitor and enable smart prepay innovation

Some interviewees felt that the prepay cap will delay smart prepay innovation. In particular, that PPM customers on new capped tariffs may be dis-incentivised from switching to new pay as you go offers while it is in place, thus stifling demand. On a separate issue, there is also no easy way for prepay customers to drive innovative services as no price comparison sites currently enable customers to compare the detail of service offerings, e.g. you can't compare non-disconnection periods or top-up options. Concerns were also raised that smart prepay could result in a decline in service for some in some situations and that monitoring that quality of service should be considered, e.g. while Ofgem introduced safeguards to ensure suppliers continue to offer cash as a top-up option, it is important to ensure that the number of payment outlets open to customers who pay by cash does not decrease as this could increase inconvenience for some.

9 Ensure products and services are affordable

The smart meter and in-home display are provided at no additional cost, but those on low incomes may need additional support to afford wider smart appliances or services that could improve their lives. While there may be mechanisms in place for customers to avoid large upfront purchasing costs, e.g. 'rent a roof' solar schemes, or longer-term contracts where the customer pays back the cost of an appliance over time, these have historically not always been good value and tend to lock in the customer. Given this and the wider potential barriers to access, government and Ofgem should also consider how they might wish to monitor the distributional impacts of smart energy innovation for energy customers with additional needs.

10 Improve cross-government/utility co-ordination and integration

A number of interviewees pointed out that in order for the living services market to work efficiently there would need to be a more coordinated approach between housing, energy, health and social services sectors to maximise the value for energy customers with additional needs and deliver wider societal benefits.

Conclusion

Our research and case studies show that there are significant improvements including 'quick wins' that many energy companies could and should make to the way they identify, support and empower customers in vulnerable situations. Our findings also identify that there is much that can and should be done to enable 'innovation for all' – by companies, government, regulators, product and service innovators, charities and consumers themselves. The smarter world offers many opportunities to improve service and quality of life for customers with additional needs, but benefits are not guaranteed and the distributional impacts of developments will need careful monitoring. It is our intention that the 18 recommendations outlined in this report, taken together with our Vulnerability Innovation Flight Path and the four practical guides, will form the basis of a new framework able to catalyse effective innovation for all energy consumers. For our full research report including case studies, please see http://www.sustainabilityfirst.org.uk/index.php/inspire



> "Our findings identify that there is much that can and should be done to enable 'innovation for all'"

Sustainability First is an environmental think tank focused on practical solutions for the energy and water sectors. We are a registered charity.

Address: c/o IEEP, 11 Belgrave Road, 3rd Floor, London, SW1V 1RB

WWW sustainabilityFirst.org.uk

@SustainFirst

If you would like to be involved in Project Inspire, please contact:

zoe.mcleod@sustainabilityfirst.org.uk

+44 (0)7940 109631

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