

Smarter Tariffs - Smarter Comparisons:

Delivering accurate energy quotes and tailored recommendations for consumers based on real energy data

Virtual dissemination event

Project supported by Department of Business, Energy & Industrial Strategy



Agenda

1. Introduction to webinar and housekeeping – Andrew Lever, **Carbon Trust** – 10:00-10:05
2. The Smart Tariffs, Smarter Comparisons project – Daron Walker, **BEIS** – 10:05-10:15
3. Smart tariff landscape – Manu Ravishankar, **Carbon Trust** – 10:15-10:35
4. Consumer research on attitudes towards smart tariffs – Tom Anderson, **davies+mckerr** – 10:35-10:55
5. Demonstration of the comparison prototype – Josh Cooper, **Hildebrand** – 10:55-11:15
6. Panel discussion and live Q&A – 11:15-11:55
7. Closing remarks – Andrew Lever, **Carbon Trust** – 11:55-12:00

Smarter Tariffs - Smarter Comparisons

Daron Walker, Director of Smart Meters,
Department for Business, Energy & Industrial Strategy

Smarter tariffs, smarter comparisons

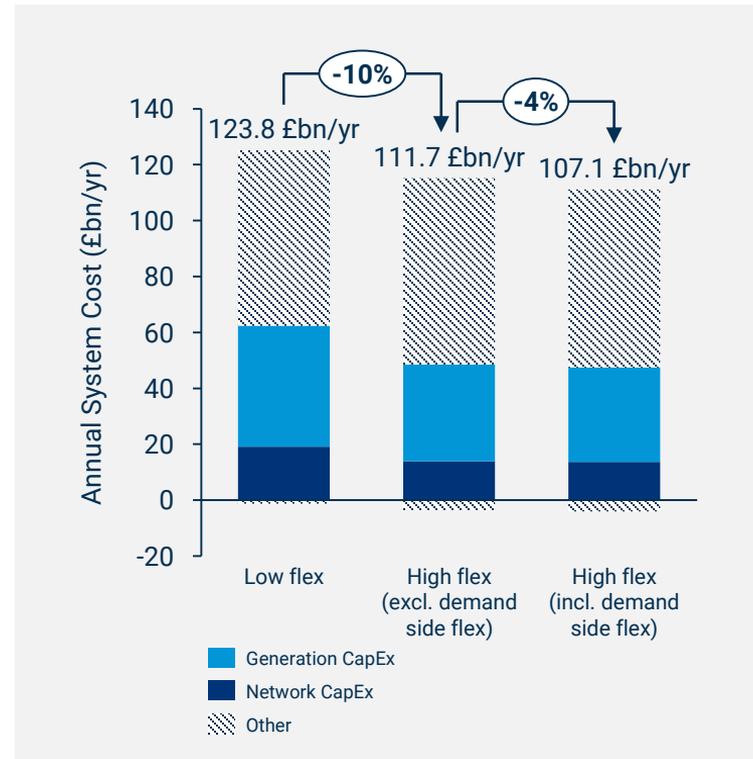
- The energy system is transforming, becoming smarter and more flexible
- Smart tariffs have an important role in helping consumers benefit from increased flexibility (which in turn will help us deliver a cost effective transition to Net Zero)
- The smart tariffs prototype demonstrated today can be re-used by anyone to build a smart tariff comparison service
- Smart meter data can help consumers choose a smart tariff that works best for them

Smart tariff landscape

Manu Ravishankar, Associate Director, Carbon Trust

Strategic case for flex: Demand side flexibility, enabled by smart tariffs and smart technologies, reduces system costs by up to £4.6bn/yr

- Demand side flexibility, from domestic and non-domestic DSR in addition to the flexibility provided by electric vehicles, reduces system costs by £4.6bn/yr¹ in 2050
- Demand side flex underpinned by smart technologies, such as batteries, EVs, and appliances, linked to smart tariffs.
- Enabling consumers to make informed choices and reduce barriers to engaging in flexibility, through the uptake of smart tariffs with or without bundled smart technology, is key.
- Consortium aim was to build a tool that enables comparison of complex smart tariffs, and support consumers to make informed decisions



¹Flexibility in Great Britain, Carbon Trust and Imperial College London (2021)

We reviewed the market for tariffs and spoke to suppliers to learn what the tool would need to compare, both today and in the future



Tariff analysis

We reviewed ~160 tariffs in the UK and internationally to identify defining characteristics of innovative tariffs

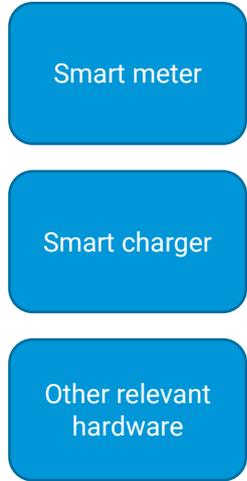


Industry engagement

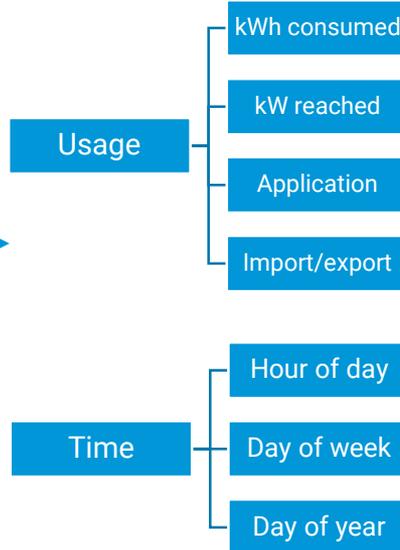
We spoke to ~10 UK suppliers to get their views on the smart tariff market, and how it might evolve

Key finding (1/4): Smart hardware can enable the potential for complex pricing structures

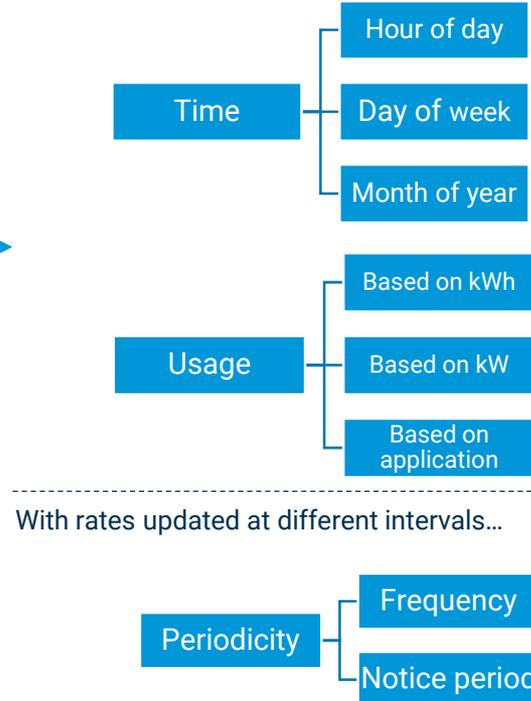
Measurement taker



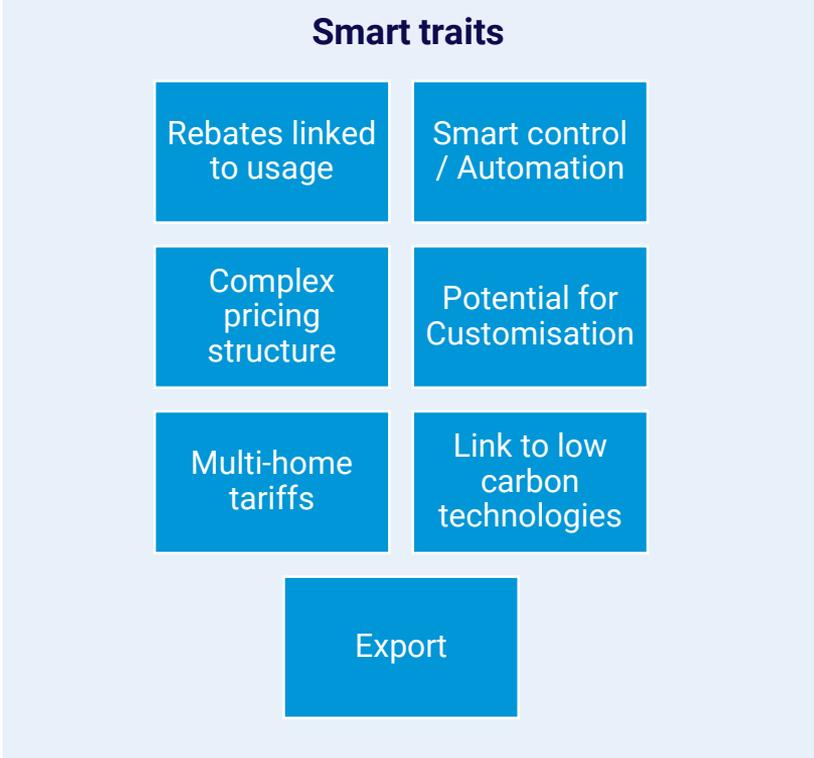
Measurement



Tariff pricing structure with variable rates



Key finding (2/4): Tariffs enabled by smart hardware had some unique traits compared to conventional tariffs



Key finding (3/4): Suppliers believe smart tariffs can unlock several value propositions across different market segments

There was no indication that there is an established roadmap towards a certain type of tariff (e.g. dynamic time of use tariffs), rather it was driven by user needs and broader strategy around energy service

Perceived value offered by smart meters/tariffs

- Better understanding of customer behaviour to offer **more personalised tariffs**
- **Generate revenues for customers** through grid services and/or P2P trade
- **Reduce cost of ownership of LCTs** to owners or potential buyers (e.g. EVs).
- Provides more accurately priced, and therefore **better value, flat rate tariff**.
- Ability to **support vulnerable customers** with smart prepayment tariffs

Supplier considerations for comparison tool

- Smart tariffs are complex, and service needs to be **simple** to not confuse users
- Important to compare other tariff **perks** outside of price
- **Users inputs to PCWs** are often inaccurate
- Challenge to compare **day-ahead dynamic** tariffs
- **Centralising** the service could increase trust
- The price cap could be used as comparison **benchmark**
- There is currently a **lack of a standardised method** for submitting tariff information to PCWs

Key finding (4/4): tariffs that reduce the cost of ownership of low carbon technologies are emerging, along with innovative business models



EV tariffs



Solar and storage tariffs



Heat pump tariffs

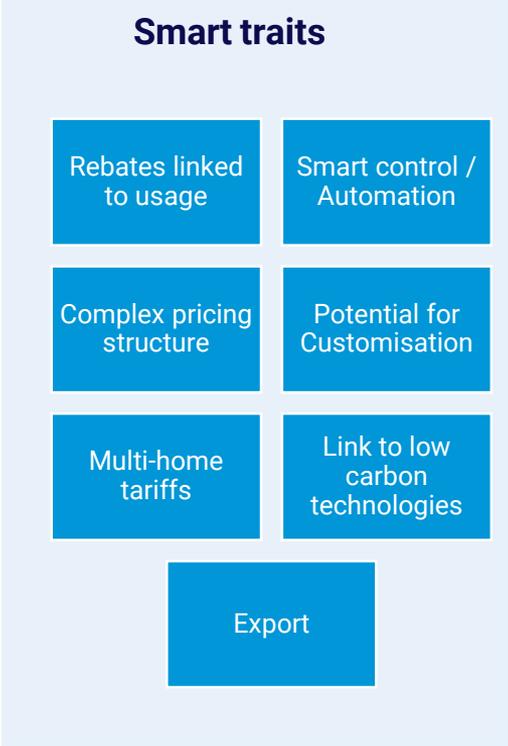
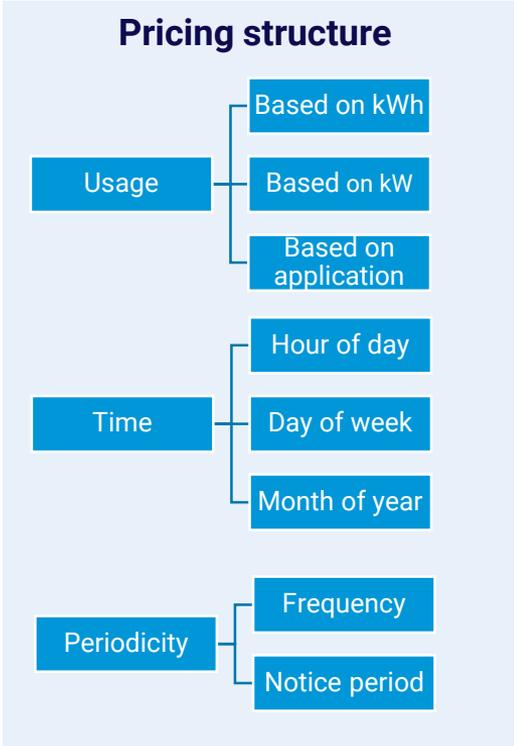
Decreasing prevalence



As LCT deployment increases, it is likely that a variety of **asset-led**, **energy-led** and **service-led** propositions will evolve.

These propositions could evolve further as consumers start owning more than one low carbon technology.

We developed a framework to help characterise tariffs to support a standard for sharing tariff information between suppliers and PCWs



Example 1: a static time of use tariff, enabled through a SMETS2 meter, encourages flexibility through demand-side behaviour change

Pricing structure

Usage

Based on kWh

Based on kW

Based on application

Price of electricity combination of daily fixed charge (standing charge) and kWh usage at different times during the day.

Day of the week	Time of day	Price
Weekday	00:00-07:00	7.5 p/kWh
	07:00-16:00	15.32 p/kWh
	16:00-20:00	32.55 p/kWh
Weekend	20:00-24:00	15.32 p/kWh
	00:00-07:00	7.50 p/kWh
	07:00-24:00	15.32 p/kWh

Time

Hour of day

Day of week

Month of year

Periodicity

Frequency

Notice period

Prices are fixed throughout length of contract

Smart traits

Rebates linked to usage

Smart control / Automation

Complex pricing structure

Customisation

Multi-home tariffs

Link to low carbon technologies

Export

Conventional traits

Green electricity

Discounted energy hardware

Discounted EV charging outside of home

Exit fees

Dual fuel contracts

Contract length

Smart meter requirement

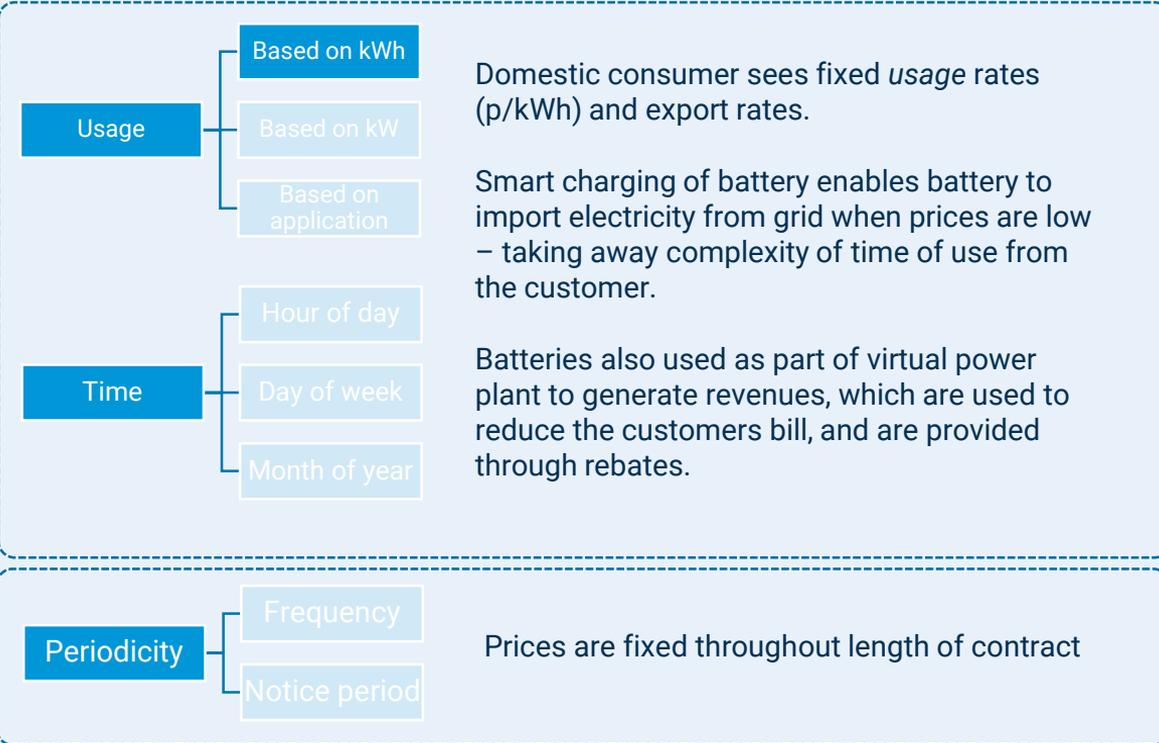
Payment mechanism

Other perks (e.g. boiler cover, sign-on bonus, etc.)

Geographic location

Example 2: a domestic storage tariff using automation and provision of grid services to enables a flat usage rate with rebates for customers

Pricing structure



Smart traits

Rebates linked to usage

Smart control / Automation

Complex pricing structure

Customisation

Multi-home tariffs

Link to low carbon technologies

Export

Conventional traits

Green electricity

Discounted energy hardware

Discounted EV charging outside of home

Exit fees

Dual fuel contracts

Contract length

Smart meter requirement

Payment mechanism

Other perks (e.g. boiler cover, sign-on bonus, etc.)

Geographic location

Example 3: a dynamic time of use tariff, with different unit rates for each half hourly period, with prices updated daily

Pricing structure

Usage

Based on kWh

Based on kW

Based on application

This dynamic time-of-use tariff has a standing charge and a variable unit rates (p/kWh) that varies on a half hourly basis.

The rate is linked to the wholesale market price.

Time

Hour of day

Day of week

Month of year

The rate can go negative, and it also has a cap on its upper price limit.

Periodicity

Frequency

Notice period

Unit rates are updated for the next 24 hours on a daily basis.

(Frequency: Daily; Notice period: ~hours)

Smart traits

Rebates linked to usage

Smart control / Automation

Complex pricing structure

Customisation

Multi-home tariffs

Link to low carbon technologies

Export

Conventional traits

Green electricity

Discounted energy hardware

Discounted EV charging outside of home

Exit fees

Dual fuel contracts

Contract length

Smart meter requirement

Payment mechanism

Other perks (e.g. boiler cover, sign-on bonus, etc.)

Geographic location

Example 4: a static time-of-use tariff that is designed for EV owners

Pricing structure

Usage

- Based on kWh
- Based on kW
- Based on application

Price of electricity combination of daily fixed charge (standing charge) and kWh usage that varies between two rates according to the time of day.

Day of the week	Time of day	Price
Weekdays and weekends	00:00-05:00	4.5 p/kWh
	05:00-24:00	15.32 p/kWh

Time

- Hour of day
- Day of week
- Month of year

Tariff pricing is not just for EV, but for combination of household energy use and EV charging.

Tariff includes discounted EV charger, and discounted EV charging outside of the home.

Periodicity

- Frequency
- Notice period

Prices are fixed throughout length of contract

Smart traits

Rebates linked to usage

Smart control / Automation

Complex pricing structure

Customisation

Multi-home tariffs

Link to low carbon technologies

Export

Conventional traits

Green electricity

Discounted energy hardware

Discounted EV charging outside of home

Exit fees

Dual fuel contracts

Contract length

Smart meter requirement

Payment mechanism

Other perks (e.g. boiler cover, sign-on bonus, etc.)

Geographic location

Key design principles for smart tariff comparison tool



The tariff market is evolving, and will continue to evolve, as smart hardware enables suppliers to develop more innovative tariffs. This will align with rollout of smart meters and EV deployment, and policies such as Market Wide Half Hourly Settlement. The tool should therefore be able to compare tariffs available today, and be future proofed for the tariffs of tomorrow.



Smart tariffs are a key enabler for low carbon technologies, and the tool should be designed to support decision making for consumers. EV tariffs have emerged, as well as storage and solar tariffs, however the market for heat pump tariffs is lagging.

Consumer research insights

Tom Anderson, Partner, davies+mckerr



BEIS Smart Tariffs

Consumer Research

Virtual Dissemination Event

July 2021



5 x stages of consumer research

June
2020

August 2020

November
2020

December
2020

March
2021

24 x depth interviews

Explored energy engagement, behaviours & understanding of smart tariffs.
Developed initial consumer typologies

Survey with 2,004 Nat Rep sample

Robust market segmentation, with detailed energy drivers & barriers per segment, attitudes to smart meters, smart tariffs & reactions to initial tool concept

10 x depths with 'Savvy Enthusiasts'

Feedback on initial core tool ideas to understand potential usage, level of interest and areas for development

10 x depths with 'Fuel Poor'

Feedback on second iteration of the tool to understand levels of data comprehension, potential usage and future optimisations

8 x triads with remaining key segments

Deep dive into 'working' version of the tool to understand what was working and areas for development

DISCOVERY

ALPHA



Key highlight findings from initial consumer research...

1

Consumers approach shopping for energy with trepidation

Lack of engagement with and trust in the category – which is riddled with jargon – leads to stasis and hesitation

2

PCWs can take some of the hassle out of ‘energy shopping’

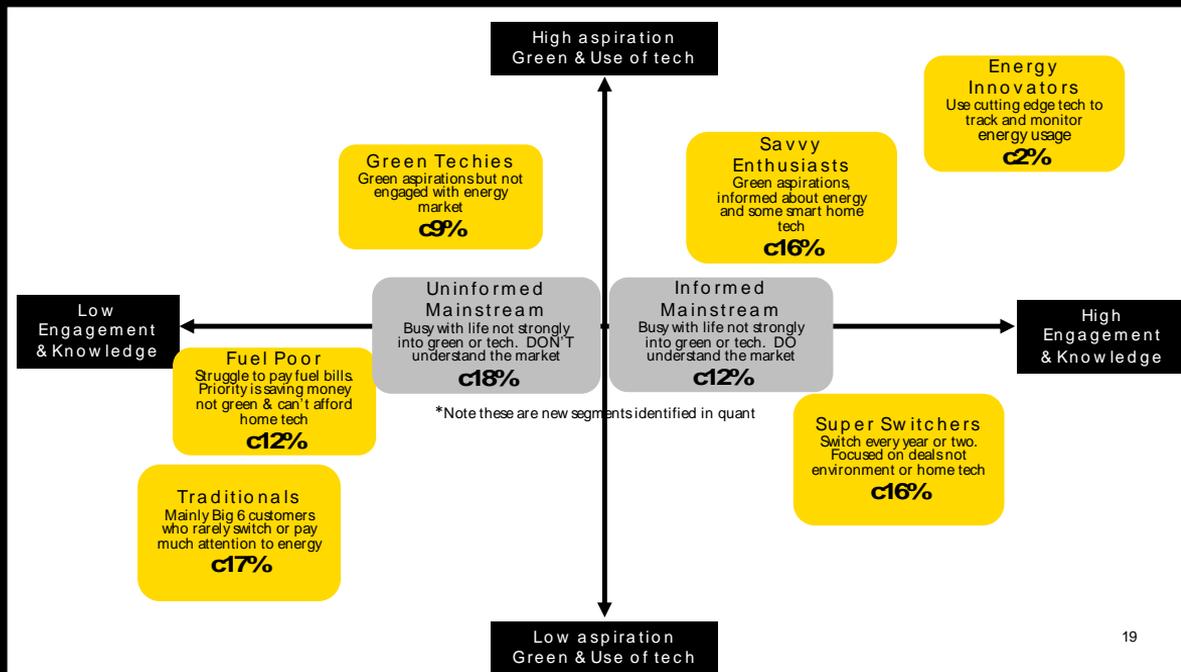
Used by almost all participants as they offer an overview of the entire market, are familiar and perceived to be unbiased

3

Baseline knowledge and awareness of Smart Tariffs is low

Any awareness linked back to old TOU tariffs (Economy 7); however, seen as a positive step forward, albeit more as money-saving than green

The Discovery phase identified 8 broad consumer typologies for us to focus on



- + **Energy Innovators** make up only a small section of the population & have unique & personal engagement with their energy
- + **Traditionals** are going to be extremely hard to reach. Low engagement, prefer the tried & tested, lower digital savviness
- + **Less engaged Fuel Poor** less involved in their energy usage so will be hard to engage. Opportunity exists with **More Engaged Fuel Poor**



Our remaining 6 segments saw real potential in the tool, but had very different motivations



DATA DRIVEN

Savvy Enthusiasts

Informed
Mainstream

Green
Techies

Excited to engage with their data and spend time finding a tariff perfectly tailored to their needs



FINANCE FOCUSED

Fuel
Poor*

Super Switchers

Uninformed
Mainstream

Seeking savings and good deals rather than deeper engagement with their energy use / the category



Our research found that the tool has real potential with all 6 segments

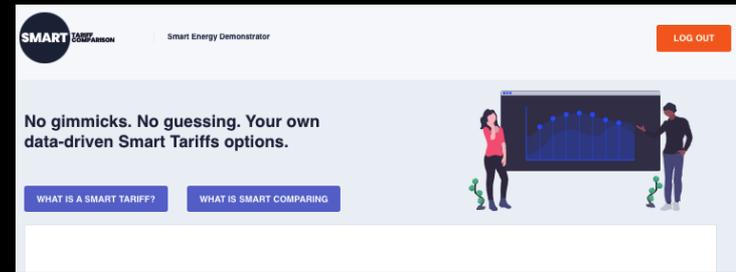
- + Enables deeper consumer energy engagement
- + Brings transparency to low trust category
- + Uses data to hand power back to the consumer & validates decision making
- + Potential to deepen engagement beyond switching/renewal period



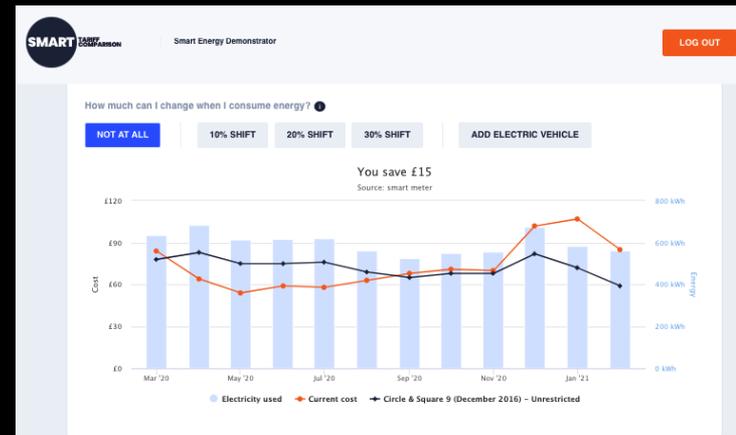


Key tool features that work well

- + Use of personal smart meter data to get accurate quotes = game-changer
- + Visual illustration of tariff performance (chart) = stand-out feature
- + Breakdown of daily data = understanding patterns and seeing where savings could be made
- + Chat-box for onboarding & registration = new and different vs PCWs
- + Delay between setting up account and viewing results not seen as an issue if tool delivers real benefits



Registration Page

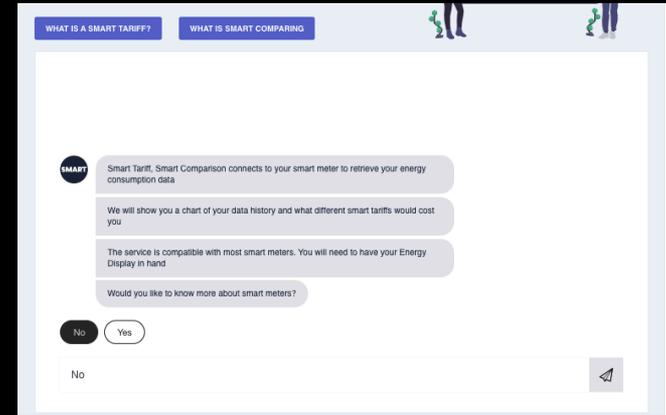


Results Page

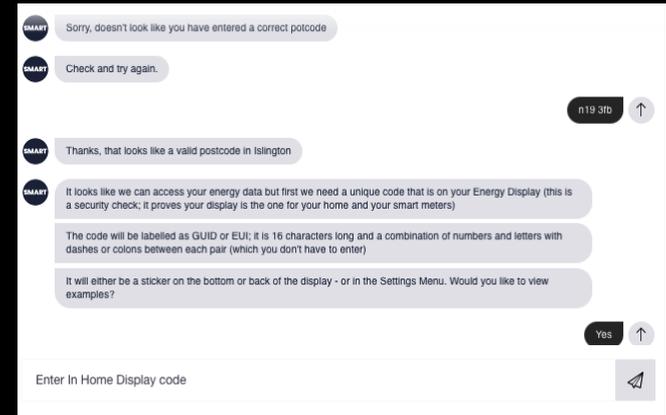


Recommendations: Landing page & Registration

- + Sharpen and condense chat box copy to feel more like a conversation, rather than an information download
- + Owing to low awareness of Smart Tariffs and uniqueness of the comparison tool, it was felt that more sign-posting, instruction and description/definition is needed throughout
- + Offer more guidance on finding IHD and EUI number, with more instructions and/or pictures
- + Make security / data protection more visible, whilst giving more explanation as to why certain things (e.g. registration) are asked



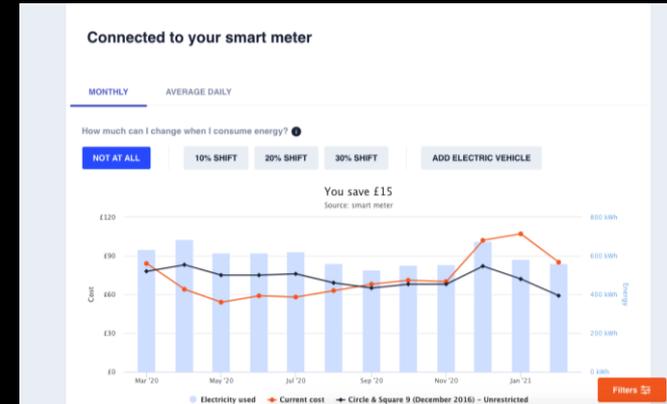
Chatbox: onboarding



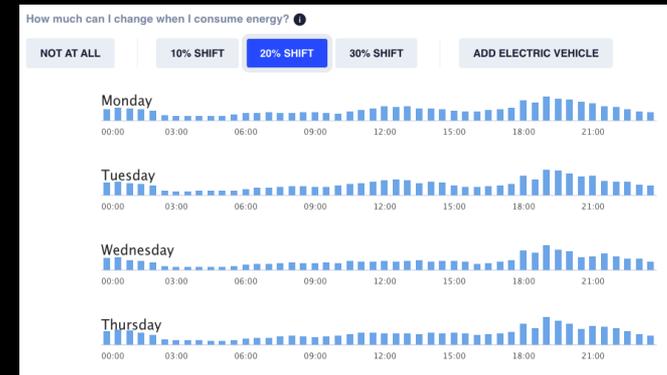


Recommendations: Results

- + Make chart optional or less prominent when results are shown
- + Explain what energy shift buttons mean (10,20,30%) and give examples of what shifts could look like in real usage terms
- + Make daily data breakdown easier to understand by adding axis or a different scale to make shifts more visible
- + Hide EV tab or make it only visible to those who have EV or are considering buying one



Monthly data in char format



Daily data breakdown
227



Moving forward: other developments to build in

- + Ideally want to have a link to the tariff – as often found on PCWs
- + Potential to be served links and information that can help them manage their energy...so they can maximise the tariffs
- + Would like to learn more about solar panels / home batteries etc...and be taken to reputable and sources they can trust





Overall summary of results by consumer groups

- + Data Driven excited to get into the detail and explore the tool whilst Finance Focused keen for the tool to do most of the legwork for them...

DATA DRIVEN

- + Liked prominence of the chart and data
- + Level of information spoke to desire for detail rather than headlines
- + Better understanding of terminology / tariffs
- + Keen to spend time with the tool to find best tariff, and revisit the tool to monitor performance over time
- + Open to being flexible with energy use to get the most out of the Smart Tariffs

FINANCE FOCUSED

- + Excited about prospect of getting accurate results, removing guesswork
- + Less likely to make behavioural changes as don't have time / understanding to look through the detail
- + Keen to make decisions on headlines rather than exploring detail – option for 'at a glance' dashboard?
- + Happy to provide more data upfront so tool can make more accurate assumptions / recommendations

STSC tool demonstration

Joshua Cooper, CEO, Hildebrand

Key design principles for smart tariff comparison tool



Using smart meter data to provide tailored tariff recommendations was seen as an exciting step change for consumers.



The tariff market is evolving, and will continue to evolve, as smart hardware enables suppliers to develop more innovative tariffs. The tool should therefore be able to compare tariffs available today, and be future proofed for the tariffs of tomorrow.



Smart tariffs are a key enabler for low carbon technologies, and the tool should be designed to support decision making for consumers.

Panel discussion

Moderated by Andrew Lever, Director, Carbon Trust

Panel discussion and Q&A

- Richard Carmichael, Research Associate, **Imperial College London**
- Colin Griffiths, Policy Manager – Smart Metering, Smart Homes & Digital, **Citizens Advice**
- Joshua Cooper, CEO, **Hildebrand**
- Victoria Mason, Head of Consumer Policy, Smart Metering Implementation Programme, **BEIS**

Moderated by Andrew Lever, Director, Carbon Trust

Closing remarks

Andrew Lever, Director, Carbon Trust

Closing remarks

Next steps

- Project Closedown Report will be published in the coming weeks and available via the BEIS website – we will share a link to attendees once ready

Useful resources

- Smart Tariff, Smart Comparison website can be found at: <https://smarttariffsmartcomparison.org/>
- Learn more about the code at: <https://observablehq.com/@joshuacooper/energy-worksheet-example>
- Access the code at: <https://bitbucket.org/LDNSFO/stsc-tsc/src/master/>

Contact us

- For further information: info@smarttariffsmartcomparison.org