Case Studies

Industry-Oriented Case Studies

Trial 1

Case Study #1

Ideal response (Smart Meter enabled savings)

Description:

Maria works, and has one college-aged child still living at home. She has a credit meter. Energy bills are a concern to her, and she was motivated to join the trial to understand more. She has found the in home display a useful way to understand which appliances consume what. In particular she now knows which of her two electric heaters is more energy intense and tries to avoid using this one. She has been to focus groups to learn about the project and ask questions about how to manage electricity at home. She also explained to her daughter how to use less electricity. She has seen her bills fall as a result.

Experiences:

- Energy-concerned household, motivated to save
- Household actively engages with the SED to improve understanding of electricity use at home
- Household seeks out additional opportunities offered by project to increase knowledge about electricity use
- Bill payer has seen a drop in bills and in consumption
- Household has increased confidence in how to manage electricity use in the home
- Additional support beyond the engineer's install of SED sought out to achieve this understanding.

Implications:

- Trial aligns with household's own motivations and supports them.
- Additional support is required to achieve this.
- There is no engagement with the SED's additional functionality such as using the budgeting tool such as setting alerts when credit reaches a specific point.

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Case Studies

Industry-Oriented Case Studies

Trial 1

Case Study #2

Non ideal response (no change and/or confusion)

Description:

Al and Nadia are a couple in their 30s with two school age children. They have a credit meter and pay quarterly. They consume proportionally a high amount of electricity per person. They find their end of terrace flat cold and as a consequence, Nadia explained she is "addicted to the fan heater". The couple signed up to the project because they thought it sounded interesting. They are not very concerned about their energy use, and are a little confused about the difference between the project monitoring kit, and the smart meter. They have not been using the SED although Al, who is in charge of paying the bills, does occasionally check his household's consumption on the app on his phone. He has seen a reduction in how much he is paying, but he cannot understand why. The household has not changed how they use their appliances, or taken any steps to reduce their electricity consumption. The change is likely to have resulted from the move from estimated billing, but adds to the household's sense that electricity use at home is ungovernable, and not something that they can act on.

Experiences:

- High consuming household
- No motivation to save
- Bill payer has seen a drop in bills and in consumption
- Family has not made any changes to appliances, household or use
- Unclear why the fall has happened.

Implications:

- Accurate billing replaces previous estimated consumption and adds to a sense that electricity is ungovernable
- SED and smart meters fail to engage households unconcerned by energy consumption

- Research project adds a layer of complexity
- The change from estimated annual consumption to measured consumption can lead to some households being identified as high savers, when in fact they have not reduced their consumption.
  This may mean network impacts are less than would be expected.

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Industry-Oriented Case Studies

Trial 2

Case Study #3

Ideal response to Bonus Time (shifting to earn rewards)

Description:

Catrina works full time and is a single parent with three children at home, two school age and one at university. She accepted the Trial 2 offer, consenting to receive the Bonus Time notifications because she was interested in the challenge, and felt she may able to generate some small rewards. She has some electricity intense loads at home; an electric oven, washing machine and tumble dryer. She receives the notifications and plans chores accordingly. If she is going to be at work she forwards the notification to her eldest daughter and asks her to start the washing machine early, so it will be finished before the CPR period starts.

She has found the SED useful in keeping electricity use front of mind, and in identifying which are the highest consuming appliances she uses regularly. She finds the rewards structure incentivising, and when she received her first statement she showed everyone in the household and said 'they were clapping and praising me'. She explained the CPR scheme made her question her usage and identify other ways to do things at home. She had even managed to cook dinner before a weekend event once, because she is open to identifying unique opportunities that the different events bring.

Experiences:

- Said yes as wanted to take action on household spending
- Is aware of bonus time periods. Forwards notifications to others in household
- Finds laundry easy to shift / reduce and looks for other opportunities around cooking
- Is aware of other problem areas, or things that undermine response (e.g. children's needs) but take steps
- Seeks alternative ways shift – e.g. uses a thermos not kettle
- Rewards are interpreted as recognition of effort, not just by consentee, but by rest of family too.

Implications:

- Builds flexibility capital of household in terms of capacity and willingness to respond to DSR
- Incentive can motivate, despite being low and requiring additional domestic labour to achieve.

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Trial 2

Case Study #4

Non-ideal responses to Bonus Time (split between chore-doer and bill payer)

Description:

Bert and Alana are in their 30s with three young children at home. Bert works full time and Alana doesn't work, but runs the household. Bert signed up to receive the Bonus Time notifications, because felt the project was worth supporting, but hasn't told Alana much about it. They have some high loads at home (electric oven, electric heaters, washer-dryer). Bert is in charge of keeping the meter topped up.]He receives the notifications but doesn't tell Alana when there's a CPR event. He feels it wouldn't be fair to ask her to do more. For him, the point of the project is to reduce waste, such as switching off lights when they leave the house. His household has received some of the larger rewards in the scheme, and he attributes this to the fact he now tries to turn off things when they go out of the house. They have not actively attempted to shift their consumption and the rewards are seen more as a thank you from the project then something they have produced through their management of electricity.

Experiences:

- Said yes as felt had nothing to lose and was positive about the project.
- Has not communicated the offer / doesn't forward notifications to rest of household
- Has not told the person in charge of running the chores and sees this as an additional burden
- Makes no change to routines or appliance use, but is getting high rewards
- Rewards reinforce self-perception as someone who switches off lights, takes care and isn't wasteful.

Implications:

- Accurate billing replaces previous estimated consumption and adds to a sense that electricity is ungovernable

- SED and smart meters fail to engage households unconcerned by energy consumption
- Research project adds a layer of complexity
- The change from estimated annual consumption to measured consumption can lead to some households being identified as high savers, when in fact they have not reduced their consumption. This may mean network impacts are less than would be expected.achieve.

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Case Studies

Industry-Oriented Case Studies

Trial 2

Case Study #5

Ideal responders to HEFT (shifting to reduce bill)

Description:

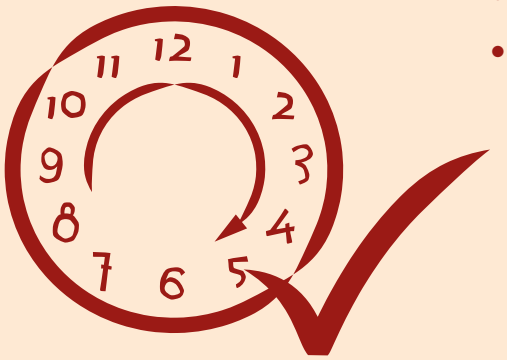
Mo and Mary have two young children. Mo works part time and Mary doesn't work, but runs the household. Mo said yes to HEFT although doesn't usually change tariffs. He has been to panel meetings and actively engaged with the project materials to understand shifting. He has discussed these insights with Mary. They chose Saturday, and Mary has made this her chore day. She does all of the laundry then, which has time to dry before it is needed on Monday morning. In addition they run their electric heater in the second bedroom during their freetime in order to reduce the damp in it.

Experiences:

- Consentee is very engaged and has taken time to understand about electricity shifting, drawing on the high level of support offered by the project to facilitate participation
- Used the SED at first to get a sense of which appliances use more
- Has communicated with the household, the chore-doer in particular
- Small household so the one person can manage the whole family's use of key appliances (eg, wife/ mother is in charge of everyone's laundry)
- Has increased comfort, and arbitrages between gas & electricity
- Has seen a difference in the electricity bill.

Implications:

- Creates a sense of ability to manage electricity consumption
- High level of support from project needed to help people take advantage
- High commitment from participant & household
- Clear rise in consumption on HEFT day from SM data analysis.



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Case Studies

Industry-Oriented Case Studies

Trial 2

Case Study #6

Non-ideal responders to HEFT (no interest in shifting potential)

Description:

Karl and Constance are retired and consider themselves to be fairly energy conscious, which Karl exemplified by saying they never leave lights on in empty rooms. They have some high consuming appliances (tumble dryer and electric oven) but Constance is responsible for managing the chores and she has been less engaged with the project. Karl explained that the chores are done on a particular schedule that doesn't fit easily into HEFT. He opted for Saturday, but in fact this is a day that they are usually out. Sunday is ironing day, but this is done in the evenings after the end of the Free Time period. Consequently they have not seen any savings although Karl does try to use a bit more electricity on a Saturday if he's in. They don't normally switch tariffs or suppliers and feel that they manage electricity.

Experiences:

- Split between chore-doer and consentee means no action taken to shift
- Self identifies as energy conscious, therefore does not recognise any benefit to household or to electricity by shifting
- Interprets HEFT as a reward for customer loyalty which leads to some increased comfort taking
- No particular interest in the electricity market or in acting within it as a cost-optimising consumer
- Unaware of how electricity is consumed at home / what are high loads
- Unlikely to benefit from future ToU / flexibility products
- Electricity consumption from chores is seen as necessary and not something that can or should be altered.

Implications:

- Non-punitive structure means people will opt-in without expecting to make any changes
- No building of 'flexibility capital' (ie improving ability to make future smart grid benefit the household).

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Case Studies

Housing Provider & NGO-Oriented Case Studies

Trial 2

Case Study #7

Elderly people's experiences of smart PPM meters (benefits and difficulties)

Description:

Rob and Joli are both retired and managing on pensions. They are happy with their smart meter and find their smart home energy display useful. It means they can easily check how much credit they have on their PPM meter without having to check awkwardly placed meter. They use the SED to keep track of their credit, but not to look at their energy consumption particularly. They don't want to mess around with the settings, but also they feel that they are already quite good at not wasting electricity. Occasionally they have to manually vend because of communication problems between the SED and the smart meter. They find this tricky because the vend number is very long and in small print, so it is hard to follow. Similarly they have not really taken advantage of the CPR offer because they find text messages fiddley and they have an set routine. They also feel that they are not wasteful of electricity and do not have much to cut back on.

Experiences:

- Have located the SED in a position that is more accessible and conveniently located
- Not very confident technology users and continue to top up at the shop and are excluded from the CPR offer
- Not very high electricity consumption
- Struggle with manual vend due to eyesight
- Others do find online top up convenient.

Implications:

- Flexibility offers which rely on mobile technologies and online tools may exclude some elderly
- If smart meter roll out means less top up points available in shops, this may negatively impact some elderly who rely on shops to top up.

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Housing Provider & NGO-Oriented Case Studies

Trial 2

Case Study #8

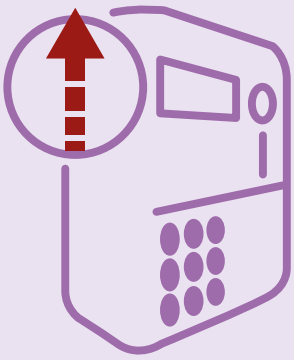
Ideal response to Bonus Time (shifting to earn rewards)

Description:

Susan uses a PPM to keep on top of bills. She has found the SED useful, it helps her avoid going into emergency credit because she hears it beeping when running low. She finds the app helpful, and she lets her children use it to keep the meter topped up. She agreed to participate in Bonus Time because she tries to keep on top of her energy bills and felt that this was another way to do it. She has been creative in how she has responded, looking at routines that she can change, such as being flexible about when to do the weekly washing, but also trying to change things like using a thermos flask rather than boil the kettle during the events or staying up to 11pm (end of event) to iron work clothes for the next morning. She has tried to get the other family members involved in her response, but she has had mixed success. It's hard to motivate them to save energy as they don't don't use much and tend to be inflexible about what they do use during the evening peak, for example watching TV and using the computer for school work and games. She does show them the quarterly statement to demonstrate that their actions have led to a financial reward. They all see the credit, which is in the region of £9-15 a quarter, as a reward for her effort in managing the household chores. She is now accustomed to Bonus Time and knows what she and her household can do, but also when it's not going to be possible to do anything. She would continue to be on this kind of offer because she feels even the small amount of credit received is something useful and it builds discipline about when and how much energy they use.

Experiences:

- Interested in saving money and controlling consumption, but not able to achieve high benefits as little excess consumption to cut
- Finds basic functions of the SED helpful, but has not explored the additionally functioning
- Embraces CPR offer in order to help reduce outgoings
- Makes changes to receive some rewards.



Implications:

- Flexibility products inaccessible to some sectors if not simply communicated, perhaps in terms of aligning chores with electricity prices.

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Case Studies

Housing Provider & NGO-Oriented Case Studies

Trial 2

Case Study #9

Description:

Rabia is a single mother with five children from 7 to 19. She doesn't work at the moment, as has limited English language skills. She relies on her children to interpret official documents for her. They helped her shop around for an internet service provider to get broadband, but are not interested in energy. She is concerned about her energy bills, and has sought advice about managing debt. However she is on the standard variable rate and is not aware that other tariffs would be cheaper for her. She tries not to use much electricity; she doesn't use electric heaters, and switches things off when the children are school. She does the chores while they are out, although tends to do a few laundry loads at the weekend in order to get their school clothes ready for Monday. She was offered HEFT, but said no because she didn't feel it would be worth it.

Experiences:

- Disengaged from the electricity market and uninformed
- Unable to access advice about energy
- Could have made minor savings from HEFT from without changing routine.

Implications:

- Flexibility products inaccessible to some sectors if not simply communicated, perhaps in terms of aligning chores with electricity prices.

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