Electric Ireland
Customer Innovations

Power Off & Save Pilot

Project Progress Report 3

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Executive Summary

The purpose of this document is to report on the progress of the Power Off & Save project from October 2017 to July 2018.

'Power Off & Save' Overview

Power Off & Save is a pilot project, which aims to investigate if a test group of some 1,500 residential consumers can significantly reduce their consumption on request for approximately 30 mins to allow EirGrid to manage the grid at peak times.

The project was designed by EirGrid and Electric Ireland are the delivery partner. Electric Ireland have recruited the customers who will take part in up to 10 Power Off & Save Demand events. During each event, a text and push notification (via an app where possible) is sent to participants asking them to reduce their usage for the following 30 minutes. The change in usage is recorded and analysed. Some participants have received smart control technology enabling them to control certain appliances remotely. Others will only be able to reduce usage manually. Consumer research will also be carried out to gain an understanding of participants' behaviour and their experience of the project.

Progress to Date

The project has made significant progress to date where key deliverables and milestones for the timeframe have been reached as outlined in the Project Initiation Document. The key achievements are:

- **Recruitment of participants** - over 1,400 participants have been recruited to the programme for participation. Since the previous project progress report, a small number of homes with Solar PV technologies have been recruited to the pilot.

- **Technology installation** - All smart control technology necessary for event delivery is in place and operational for current participants. Gateway devices required for the Smart cylinders to facilitate control of the cylinder from a platform were successfully installed in January 2018.

- **Ten events delivered** (up to July 2018) – Since the previous update, there has been a further four 'Power Off & Save' events successfully delivered which now adds up to ten in total. The highest reductions achieved in the winter events.

- **Data Analysis** The first seven events focused mainly on households responded to Power Off & Save notifications manually turning down load and a small selection of automated technologies. The results reflect that there is more potential to respond at times of high load. The reductions achieved generally 9-17% reduction of available load at the time of the event with no notice period. There was a change of focus for events eight to ten. A stronger emphasis was put on the automated response from appliances in the home such as immersion and electric vehicle interruptions. There was a good response to this type of event where generally most homes took part when available to do so.

Key Learning's to Date

There have been a number of key learnings on the project to date.

- We have successfully installed smart connected switches on immersions, solar PV generators & diverters and electric vehicles It is worth noting that this is the first time electric vehicle owners in Ireland have had the ability to monitor, control and schedule their EV charge times.

- For the Smarter Home (formally called Smart Energy Controller) participant group where we have 5-minute data, it was observed that 30 – 40 % of participants are generally reacting within the first 5 minutes. This is in line with all previous events 1-6.

- In general, over 50% of homes tend to take part in Power Off and Save events. The main reason for non-participation is not being available in the home.

- Automated Technologies as part of Phase 2– are much less disruptive to the home, where there is no need for notification or text to the customer. Customers are happy for devices to be operated remotely by the utility in return for reward.

- Forecasting of the potential demand reduction was investigated in Phase 2. This proved difficult due to the varying situations and unpredictability of residential demand when the number of customers is small. In particular, it was difficult to predict demand reduction accurately from hot water and immersion technology. While some of the technology measured the hot water temperature, reflecting this into predicted demand was not a requirement initially for the trial. The results clearly demonstrate that such a feature would be beneficial to any future trial, as the predicted available demand for reduction tended to be overestimated at times, as tanks achieved their hot water set point earlier than expected and were therefore had reached the water upper temperature level so could not take part in demand reduction events

- There was successful operations of all virtual power plant platforms to control immersions & electric vehicles

Communications & Stakeholder Engagement

Overall, the communications on the project have been effective whereby emails and SMS text were the main methods of communicating with participants. The communications strategy and consumer engagement plan ensured that communications are consistent and timely.

Other key project engagements with stakeholders included:

- Power Off & Save YouTube animation of the mid-point results – there are over 38,000 views of the animation to date – see here.

- A second customer insights survey took place in July 2018 to gather insights into the customer experience at the close of the project.

- The project was a shortlisted finalist for the 2017 Engineers Ireland Excellence Awards within the Technical Innovation Category.

- Re-Engagement communications and incentives were sent to participants to ensure worthwhile participation in the last four events. It is worth noting that there was a significant gap in time between events 7 and 8 due to technology upgrades which led to the project being extended by an additional three months. This may have resulted in a slight dip of participant engagement and interest amongst the Smart Pay as you Go and Smarter Home cohorts.

Next Steps

The next steps in the project are:

- Close out project and analyse overall response from all ten events

- Present overall Project Learnings

- Investigate the development of residential service providers for the provision of System Services through the DS3 Qualification Trials.

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Abbreviations & Acronyms

DSM – Demand Side Management

EED – Energy Efficiency Directive

EV – Electric Vehicle

PID – Project Initiation Document

POAS – Power Off and Save

PPR – Project Progress Report

SEC – Smart Energy Controller

SPAYG – Smart Pay As You Go

1. Introduction

This is the third and final progress report from the Electric Ireland 'Power Off & Save' project team. Launched in June 2016, 'Power Off & Save' is a pilot Demand Side Management (DSM) project focusing on residential consumers. The project will investigate the ability of a group of households to effectively reduce electricity use for specific time periods on request.

The purpose of this document is to report on the progress of the Power Off & Save project from October 2017 to July 2018. It will detail key deliverables during this period and the associated learning outcomes. It will also outline plans for the completion of the project.

1.1 OBJECTIVES OF 'POWER OFF & SAVE'

The primary goal of Power Off & Save (POAS) is to establish and operate a residential consumer based demand response project. POAS has engaged with over 1,400 residential homes over an 18-month period, with participants asked to reduce their electricity consumption for up to 30 minutes on up to 10 separate occasions. This has been achieved by both automated and manual response by the consumers. The project has gained an understanding into the potential for technology scalability in the home with conclusions used to determine how residential DSM can be facilitated and fully utilised in a future energy or services market, contributing to the facilitation of renewables.

The high-level objectives for this project are:

- Establish and operate a residential consumer-based demand response project, recruiting and engaging the targeted number of customers.

- Operate the scheme with no adverse effects on the comfort of the consumer in their home due to their involvement in the scheme

- Utilise a range of smart home technology types in the home with accurate measurement capability to determine the capability of residential customers to provide demand response and potentially DS3 System Services

- Develop a methodology for analysing the outcome to provide statistically reliable results.

- Providing a flexible cost effective messaging and Service solution with appropriate performance monitoring solutions.

- Investigate how to incentivise customers to take part in the demand response events

- Probe consumers' attitudes to such a scheme and their willingness to participate in demand response events

- Engage professional consumer research to seek customer behavioural insights into:
  - Testing manual vs automatic controllability of technologies
  - Acceptability of new smart technologies, including customer willingness and capacity to change their consumption behaviour
  - Responses to various signals or incentives by participants

- To establish the end-to-end processes required to run the trial demand response scheme to provide learnings for an enduring Residential Demand Response Scheme.

2. Project Schedule and Progress against Plan

This section outlines progress against the project plan. The project has been rolled out in a phased approach with each element building on the next.

2.1 KEY DELIVERABLES AND MILESTONES FOR THE REPORTING PERIOD

There were eight elements with key deliverables and milestones as agreed in the Project Initiation Document.

Table 1: **Key Deliverables by Project Phase**

Key Deliverables	No. Participants	Update
Element 1 - Project Set Up		**Delivered**
Element 2 - Establishment of Smarter Home Group (i.e. Smart Energy Controller)	544	**Delivered**
Element 3 - Establishment of Smart Pay As You Go (SPAYG) Group	830	**Delivered**
Element 4 - Extension of Smarter Home Group to include remote immersion control	70	**Delivered**
Element 5 - Glen Dimplex Quantum Hot Water Cylinder Group	50	**Delivered**
Element 6 - Climote Hot Water Control & DSM control Group	100	**Delivered**
Element 7 - Electric Vehicle/Micro Generation homes Group • Homes with Solar PV technologies were recruited as required	12 EV's 10 Solar PV's	**Delivered**
Element 8 - Project Close Down Report		**In Progress**

Note some customers may have more than one technology e.g. Smarter home Kit & Climote Immersion. Accounting for this, the total amount of customers signed up to Power Off & Save is approximately 1,400.

2.2   KEY ACTIVITIES AND ACHEIVEMENTS

The main activity since the previous project progress reports has focussed on automated technologies and their individual performance in events. This includes the success of their response to a remote event trigger as well as the actual drop in demand achieved.

2.2.1   Participant Recruitment

Participant recruitment had completed as of October 2017 with approximately 1,400 participants. In addition to this a further 14 Solar PV households were recruited in Q1 2018 who were preselected due to the ease of access to their solar isolation switch in the home. These were recruited to analyse the response of customers to a signal asking them to turn down generation in the home.

Location of Power Off & Save Participants

The location of all participants is spread throughout Ireland. There has been no focus on a particular cluster location or specific area of weak electricity network infrastructure.
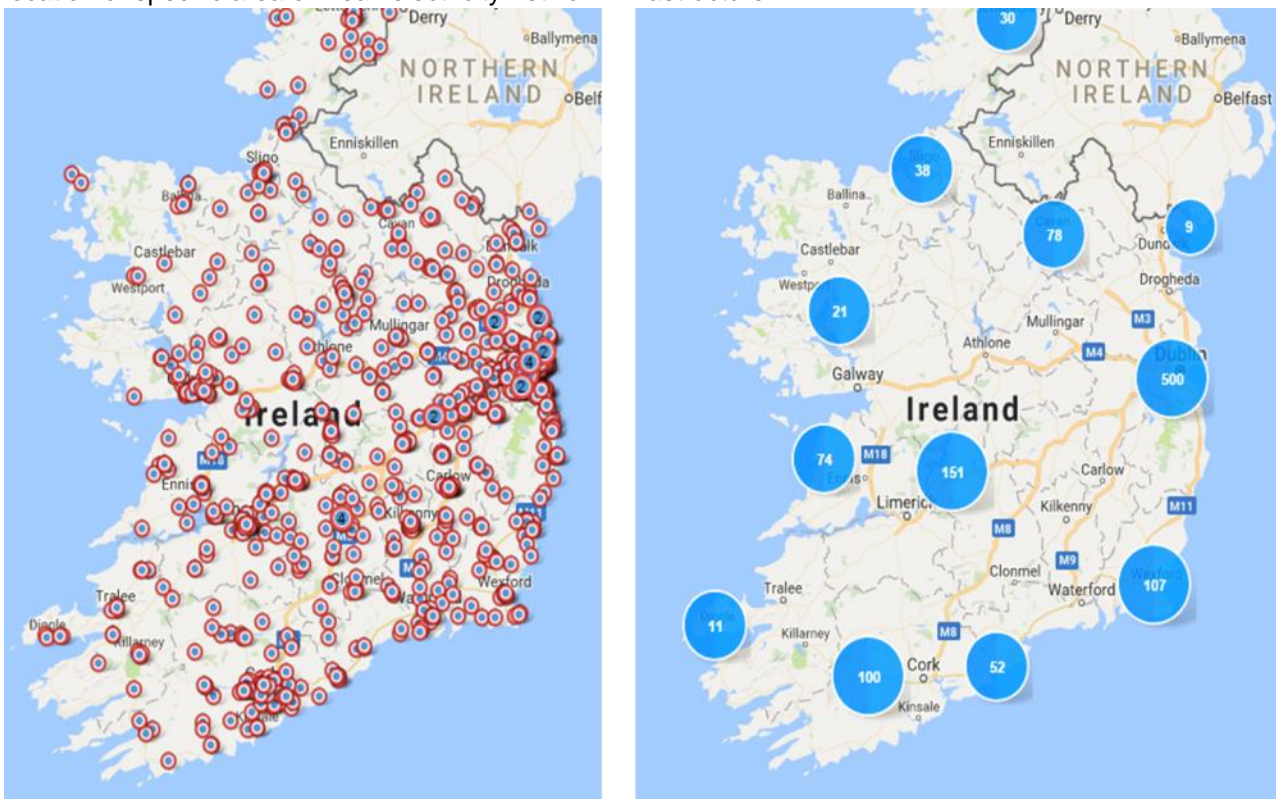

Figure 1: High-level locations of dispersed population of participants on the Power Off & Save Programme

2.2.2   Technology Delivery

A proportion of participants have received specific smart home control technology to help them control electrical appliances more easily. This is made up of the following:

Smarter Home Technologies - The smarter home allows participants to see exactly how much electricity they are using in real-time and to remotely control the appliances from their smart phones. In previous reporting periods, we had successfully installed smart switches on immersions, solar PV generators & diverters and electric vehicles. It is worth noting that this is the first time electric vehicle owners in Ireland have had the ability to monitor, control and schedule their EV charge times. This is especially useful if the homeowner has night rate electricity.
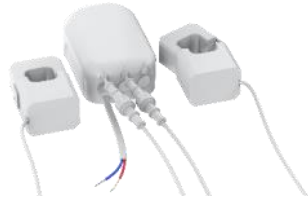
Smarter Home App **Sub meters** **Smart Switch & Plug** **Gateway**

Smart Hot Water Cylinders - a group of participants are testing smart hot water cylinders from Glen Dimplex. These cylinders are highly insulated and retain heat for a significantly longer period of time than standard cylinders. During this reporting period, a proportion of gateways were installed on the Glen Dimplex cylinders and customers were given an app to operate the cylinder remotely. The gateways allow for remote control for the utility and allow the Glen Dimplex cylinders to take part in POAS events.

Smart Cylinder App **Smart Cylinder** **Gateway**

Smart Immersion Controllers – another group of participants are testing a retrofit solution to the existing on/off immersion switch from Climote. This allows them to turn on/off and time the immersion remotely and monitor how much how water they have available.

Smart Immersion Controller App **Smart Immersion Controller Hub**

2.2.3 Delivery of the additional four events since PPR2

Electric Ireland following notification from EirGrid delivered four additional Power Off & Save events. All participants were sent a SMS text message (where relevant) and push notifications on a smart app where possible on time and their usage data was captured. The results of the analysis for the events are in the learning outcomes section.

Event 7 was conducted in the same format as previous POAS events and was used to test the customer behaviour and appetite for a Power Off & Save event for a certain time of the day.

Events 8, 9 and 10 were conducted in a different way where the focus turned to each individual technology in the home and the best times to hold an event for each. This results in a different way of reporting and presenting of the results. The purpose of this was to give detailed learnings into how the individual technologies were performing.

Event 7 - Wed 20th Nov 2017 @ 18:00 - 18:30 – Winter weekday evening

Event 8 – Technology Event

Technology	Date	Time of event
Climote Immersion Controllers	Wed 16th May	06:15 – 06:30
Smarter Home	Wed 16th May	18:00 – 18:30
Glen Dimplex Cylinders	Thurs 17th May	06:00 – 06:15
Solar PV Homes	Fri 1st June	12:00 – 12:30

Event 9 – Technology Event

Technology	Date	Time of event
Climote Immersion Controllers	Wed 13th June	05:45 – 06:00
Smarter Home & SPAYG	Wed 13th June	18:00 – 18:30
Glen Dimplex Cylinders	Wed 13th June	00:15 - 00:30
Solar PV Homes	Fri 15th June	12:00 – 12:30

Event 10 – Technology Event

Technology	Date	Time of event
Climote Immersion Controllers	Thurs 5th July	17:15 – 17:30
Smarter Home	Thurs 28th June	19:00 – 19:30
Glen Dimplex Cylinders	Thurs 28th June	06:00 – 06:15
Solar PV Homes	Thurs 28th June	12:00 – 12:30

2.3 COMMUNICATIONS AND STAKEHOLDER ENGAGEMENT

2.3.1 Market Research & Customer Behaviour

Understanding the underlying drivers of participant behaviour in relation to reducing electricity usage is an important part of this project. IPSOS MRBI is the professional research partner to Electric Ireland and has carried out a research survey during the summer of 2017.

This particular survey was carried out to gain a deeper understanding of participants' experience of the programme so far and how easy or difficult they found it to reduce usage.

A second close out IPSOS survey was issued to customers after the ten events in summer 2018. The purpose of this survey is to gauge customer satisfaction with the programme including the method of notification of an event, the duration, the payment etc. See learning outcomes to date in Section 3 for more information.

3. Learning Outcomes for PPR 3

To date ten 'Power Off & Save' events have taken place, with more participants being recruited and more smart home technologies being rolled out. All additional four POAS events were successfully delivered with message notifications (via SMS and App push notifications) were sent to all participants (where applicable) on time and electricity usage data was captured and analysed for the appropriate time periods.

As discussed in previous reports, there was originally two separate ways in reporting the results of each event – 1) Looking at the Trial Group Event Data against the Trial Group Historical Data and 2) Looking at the Trial Group Event Data against a Control Group that did not get the event notification. These methods were used for event 7 of this reporting period.

A new 'interruption methodology' was used for events 8, 9 and 10 as these events were mainly technology based and had less emphasis on group demand reduction.

The following learnings were garnered from undertaking the remaining events:

- Event 7 was undertaken on a week day evening and had similar results as previous events at that time

- Hot water control via smart technology was successfully undertaken from three different platforms (i.e. Virtual Power Plants), however it must be noted that the timing of the event will impact on the load reduction possibilities due to diversity factors of hot water schedules and set point temperatures being reached.

- Ten homes with solar PV panels were recruited to take part in 'behaviour tests' to test their participation through manual interruption of switching off the solar PV generation panels for 30 mins to which there was a positive uptake of the trial.

3.2 DATA REPORTING

Table 2: Data Reporting on Phase 1 Events (including event 7)

Event	Reporting Option 1 Overview of Trial Group Event Data Vs Historical Data and Control Group Data
Event 1 **Thurs 3rd Nov 2016 @ 19:30 - 20:00** **Post Filter - 620 Participants** **(370 SEC & 250 SPAYG)**	Historical Data, 93.4kW reduction (17% reduction at time of event) equates to 152 Watts per participant. Against a Control Group, 81kW reduction (14% reduction at time of event), equates to 124 Watts per participant.
Event 2 **Mon 5th Dec 2016 @ 18:30 - 19:00** **Post Filter - 785 participants** **(366 SEC and 419 SPAYG)**	Historical Data, 119kW reduction (14% reduction at time of event) equates to also 152 Watts per participant. Against a Control Group, 160kW reduction (18% reduction at time of event), equates to 205 Watts per participant.
Event 3 **Tues 7th Feb 2017 @ 12:30 - 13:00** **Post Filter - 1,081 participants** **(336 SEC and 745 SPAYG)**	Historical Data, 57kW reduction (12% reduction at time of event) equates to also 53 Watts per participant. Against a Control Group, 64kW reduction (13% reduction at time of event), equates to 59 Watts per participant.
Event 4 **Wed 26th April 2017 @ 09:00 - 09:30** **Post Filter - 1,082 participants** **(345 SEC and 737 SPAYG)**	Historical data, 65 kW (15% reduction at time of the event) which represents 59 Watts per Participant. Against a Control Group, 63.94 kW (14% reduction at time of event) represents 59 Watts per Participant.
Event 5 **Sat 24th June 2017@ 18:30 - 19:00** **Post Filter – 1,094** **(376 SEC and 718 SPAYG)**	Historical data, 74.5kW (11% reduction at time of the event) which represents 68 Watts per Participant. Against a Control Group, 66.7kW (10% reduction at time of event) represents 61 Watts per Participant.
Event 6 **Sun 16th July 2017 @ 18:30 - 19:00** **Post Filter – 1,054 participants** **(390 SEC and 664 SPAYG)**	Historical data, 54.7kW (9% reduction at time of the event) which represents 46 Watts per Participant. Against a Control Group, 48.9kW (7% reduction at time of event) represents 46 Watts per Participant.
Event 7 **Wed 20th Nov 2017 @ 18:00 - 18:30** **Post Filter – 961 participants** **(350 SEC and 611 SPAYG)**	Historical data, 108kW (15% reduction at time of the event) which represents 113 Watts per Participant. Against a Control Group, 57kW (9% reduction at time of event) represents 60 Watts per Participant.

3.3 EVENT 7 - WINTER WEEKDAY EVENING

Event 7 was held on Wednesday eventing the 20th November 2017 from 18:00 to 18:30. Approximately 961 homes took part in the event. The results of this event were similar to other events held in the evening time. Comparing the Trial Group against their Historical Data, there was a total of 108kW reduction (13% reduction at time of event) which equates to approximately 103 Watts per home.
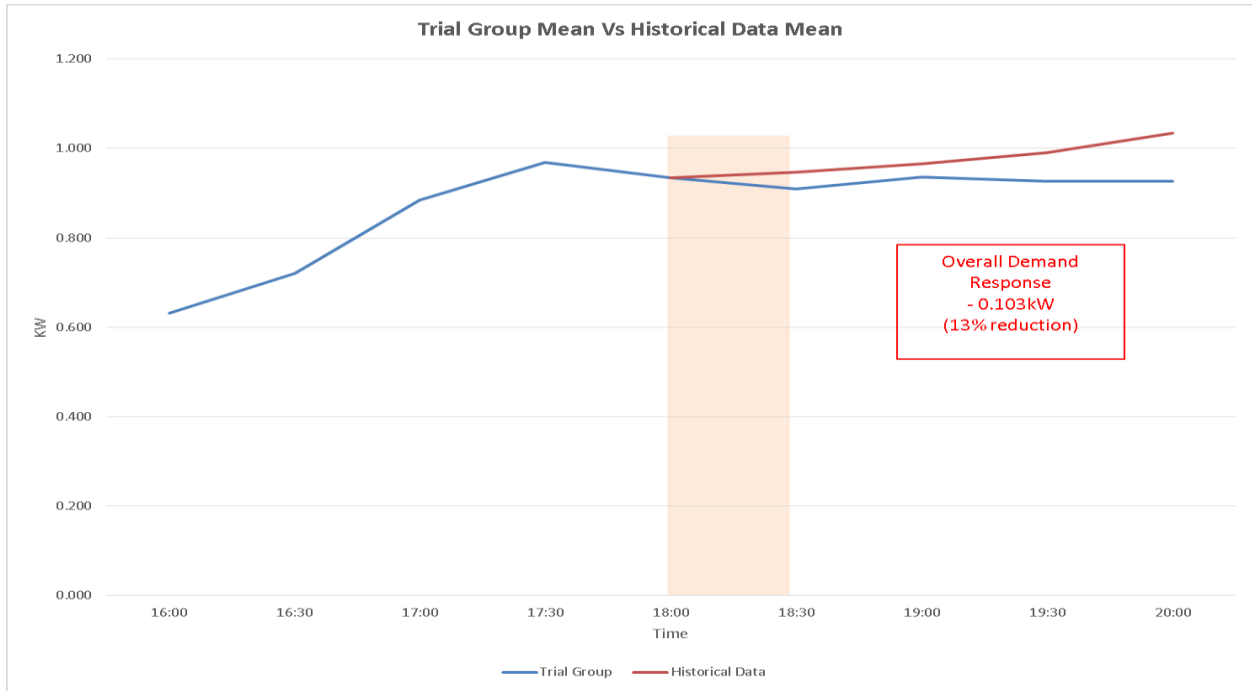

Figure 2: Comparing the average Trial Group participant against their Historical Data for event 7

Comparing the Trial Group against the Control Group, there was a total of 57kW reduction (9% reduction at time of event), which equates to approximately 72 Watts per home.
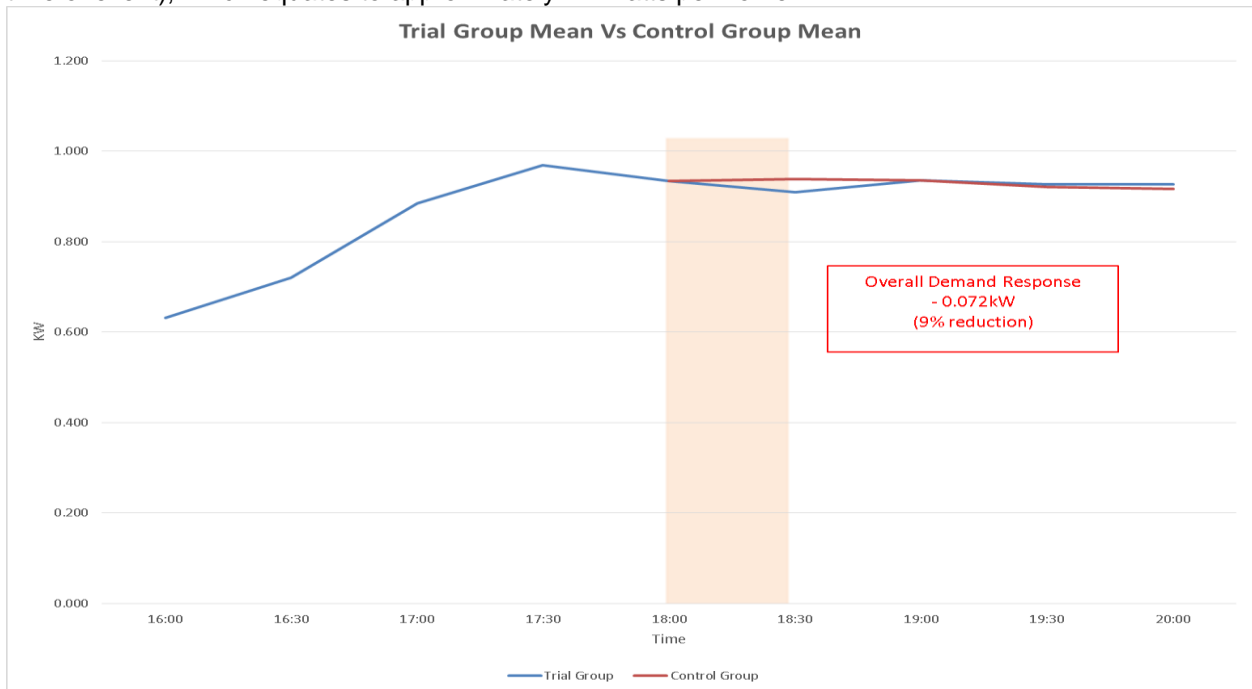

Figure 3: Comparing the average Trial Group Participant against the average Control Group Participant for Event 7

3.4 PHASE 2 – AUTOMATION OF INDIVIDUAL TECHNOLOGIES

Event 8 was the first technology event held as part of Phase 2 of the project. Each technology had different event times in order to observe its demand response reduction. For this first technology event, the SPAYG customers were not included as their method of participation is to manually switch off loads. The reason for this was to ensure the functionality of the automated technologies and allow the focus to stay on automation.

Hot Water - Smarter Home Immersion Controllers	
Hot Water - Climote Smarter Immersion Controllers	
Hot Water - Glen Dimplex Smart Cylinders	
Smarter Home - **Electric Vehicles**	
Smarter Home - **Solar PV Homes** Note: These homes were recruited as part of a behaviour test for Phase 2 events and have to manually switch off the solar panels.	

Figure 4: Overview of Technologies for Phase 2 – Events 8, 9 & 10

It is worth noting for the hot water technology events, the homeowners did not receive a SMS text at the time of the event as the device was automatically switched off for them providing the hot water be being heated at the time of event start.

3.4.1 Smarter Home Immersion Controller

From the Smarter Home cohort, Electric Ireland recruited and installed smart switches on approximately 60 homes last year. In terms of operating the Smarter Home Immersion Controllers, Electric Ireland requested participants to use the 'opt in' automation feature in the Smarter Home so that when the immersion is on and an event is called, Electric Ireland then has the capability to switch off the immersions. The following are results from events 8, 9 & 10.

Event 8 - Wed 16th May @6pm

Total number of Smarter Homes with smart immersion switch online at the time of event: **56**

Only 18 homes were using their immersions within a four-day range at various times of the day around the event.

It appears **one** home was using their immersion at the time of the event and was successfully automatically interrupted.

Estimated interrupted load was **2kW**

Note as our experience from the trial that customers schedule their immersion to come on in the early morning – this result is in line with expectations.

Event 9 - Wed 13th June @ 6pm

Total number of Smarter Homes with smart immersion switch online at time of event: **37**

Only 17 homes were using their immersions within a four-day range at various times of the day around the event.

It appears **two** homes were using their immersion at the time of the event and were successfully automatically interrupted.

Estimated interrupted load was **4kW - this result is in line with expectations.**

Event 10 - Thurs 28th June @ 7pm

Total number of Smarter Homes with smart immersion switch online at time of event: **45**

Only 22 homes were using their immersions within a four-day range at various times of the day around the event.

It appears **one** home was using their immersion at the time of the event and was successfully automatically interrupted.

Estimated interrupted load was **2kW this result is in line with expectations.**

From the above, it can be seen that there is very low demand response reduction figures. This may be due to alternative hot water heating sources in the home such as oil, gas etc.

3.4.2   Climote Smart Immersion Controllers

Electric Ireland recruited and installed approximatively 100 Climote Smart Immersions Controllers in residential homes. These homes were selected following a recruitment drive of those who had registered an interest on the project, filled out the survey questionnaire and more specifically, generally use their immersion as a way of heating their hot water.

It is worth noting that the Climote Immersion Controller devices had homes automatically opted in for Power Off & Save events if the hot water schedule is on at the time. Participants can see if an event is happening within the app and have the ability to override the event if necessary.

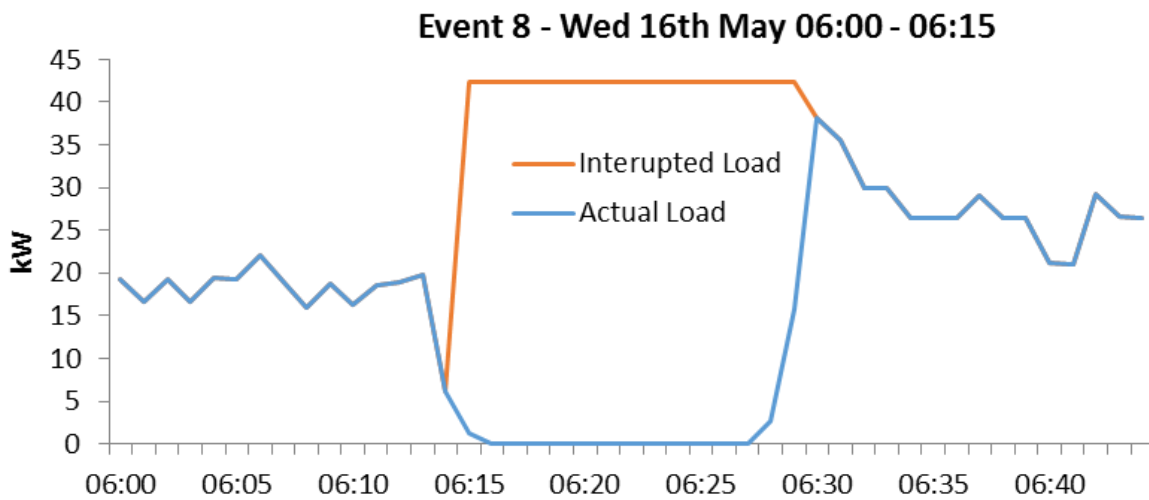The following are results from events 8, 9 & 10.

Figure 5: Aggregated Climote Immersion Controllers for Event 8 on a weekday morning

In terms of high-level insights for event 8, which was on a weekday morning whereby, 32 units were predicted to take part
  • 17 Units were interrupted and took part
  • 11 Units had already met set temperature and didn't take part
  • Four units had incomplete data and were not included.

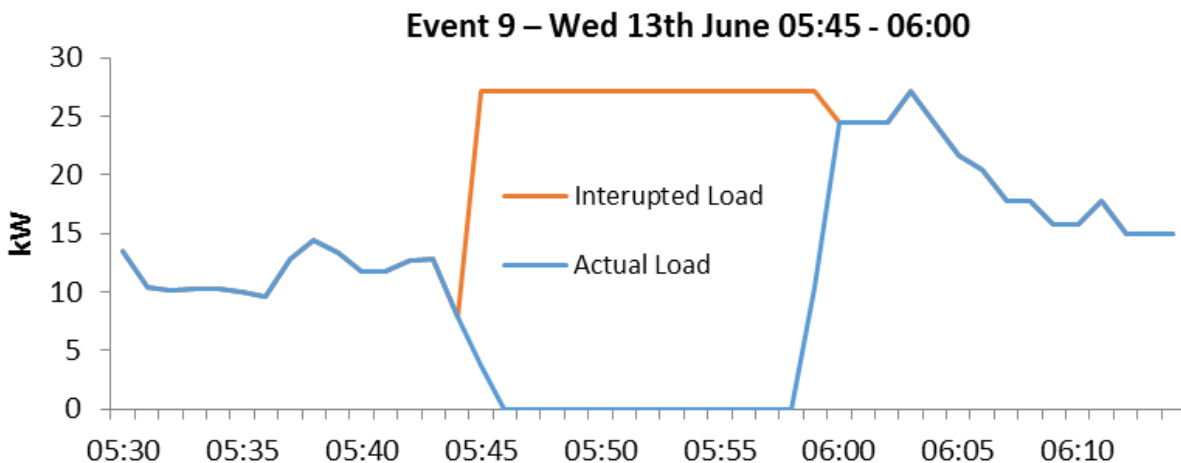Max power reduction: **42.4kW**

Figure 6: Aggregated Climote Immersion Controllers for Event 9 on a weekday morning

In terms of high-level insights for event 9, which was on a weekday morning whereby, 23 units predicted & scheduled to take part.

- 11 units interrupted and took part
- Eight had switched their power off due to reaching their target temperature
- One had its timer turned off the day before by the user
- Three showed incorrect data (2 were due to wasted stat batteries and 1 due to installation issues)
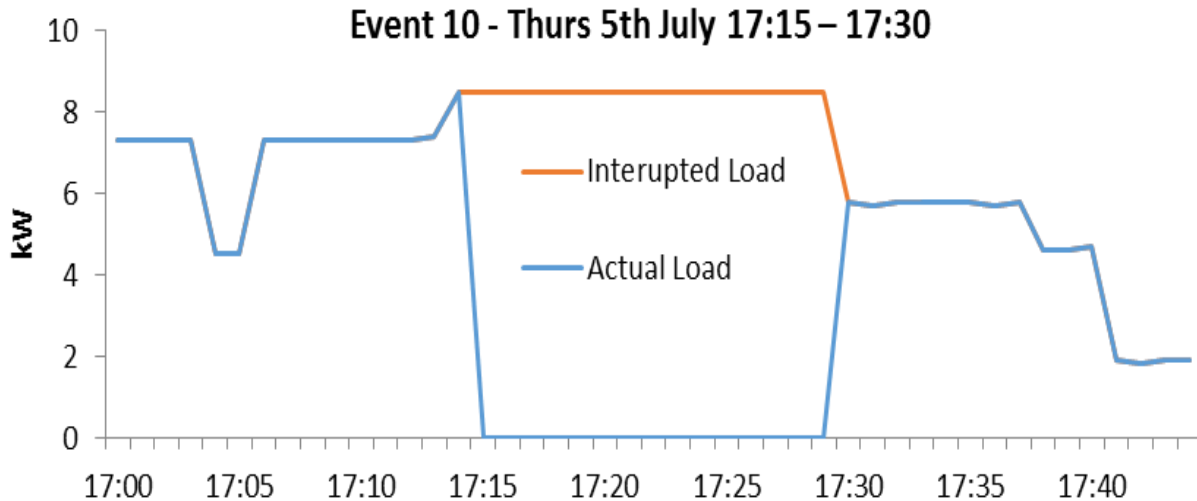
Max power reduction: **27.2 kW**

Figure 7: Aggregated Climote Immersion Controllers for Event 10 on week day evening

In terms of high-level insights for event 10, which took place at evening time on a weekday, only 12 units predicted & scheduled to take part

•Four units successfully had interrupted load
•Three units had reached their immersion element or Climote target temperatures - so power had tripped off before event started
•Four units showing incorrect or no data - due to 3 unit with no batteries and 1 with installation issues (could have had interrupted load - but no way for us to see power readings)

 Max power reduction **8.5 kW**

From the above data on the Climote Immersion Controllers, it can be seen that there are significant demand response reduction figures. **This result is in line with expectations, as customers tend to heat their hot water in the early morning.** However, the positive engagement with the device from our participants also contributes to the amount of customers using the device. However, it must be noted that diversity factors and set point temperatures of hot water tanks, with such small numbers of customers involved, make it difficult to accurately predict demand response availability load reductions. If this increased to scale, with thousands of customers, it would be expected that load would become very predictable.

3.4.3 Glen Dimplex Smart Cylinders

Electric Ireland recruited and installed approximatively 50 Glen Dimplex Smart Cylinders in residential homes. These homes were selected following a recruitment drive of those who had registered an interest on the project, filled out the survey questionnaire and more specifically, had enough space in their hot press to facilitate the cylinder, which is typically taller than the average cylinder. 15 homes were then provided with gateways in order to have the ability to take control from an aggregation platform.

The following are results from events 8, 9 & 10.

Event 8 was held on Thursday morning 17th May at 6am. 18cylinders were set to heat between 5am and 7am as part of managing the event; however, when it came to the event itself at 6am, all 18 cylinders had already reached their set point temperature and therefore were not available to be switched off. This was a learning for holding events 9 & 10 at a much earlier time and ensuring that the cylinders did not receive much heating beforehand.
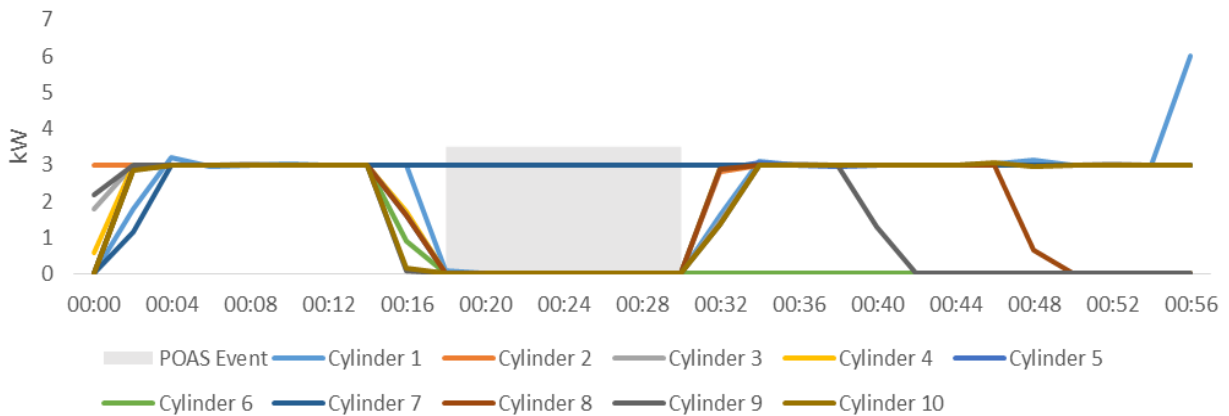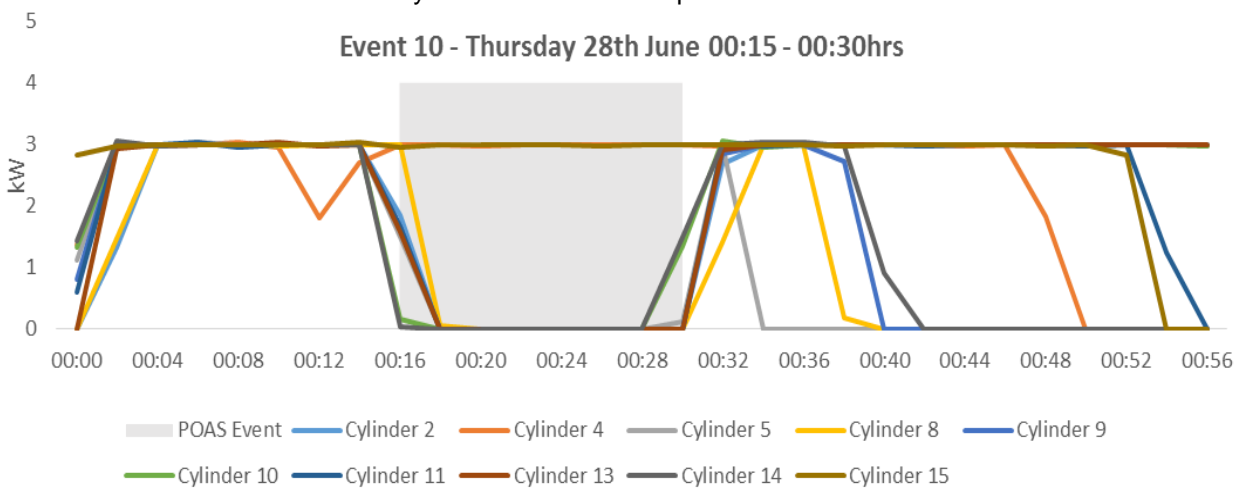

Figure 8: Glen Dimplex Smart Cylinder Event 9 on week day morning

For event 9, of the 15 cylinders that had gateways, only 10 cylinders had data whereby it was observed that nine cylinders had been interrupted and switched off. Each cylinder has an approximate load of 3kW.

Therefore is it estimated that nine cylinders had an interruption of **27kW**.

Figure 9: Glen Dimplex Smart Cylinder Event 10 on week day morning

For event 10, of the 15 cylinders that had gateways, only 11 cylinders had data whereby it was observed that nine cylinders had been interrupted and switched off.

Therefore is it estimated that nine cylinders had an interruption of **27kW**.

3.4.4 Smarter Home – Electric Vehicle homes

Electric Ireland recruited and installed 40amp smart switches on Electric Vehicle circuits in 13 homes that have the Smarter Home technology. Electric Ireland had encouraged these homes to 'Opt in' to automatic switch off when a Power Off & Save event happens. The following are results from events 8, 9 & 10.
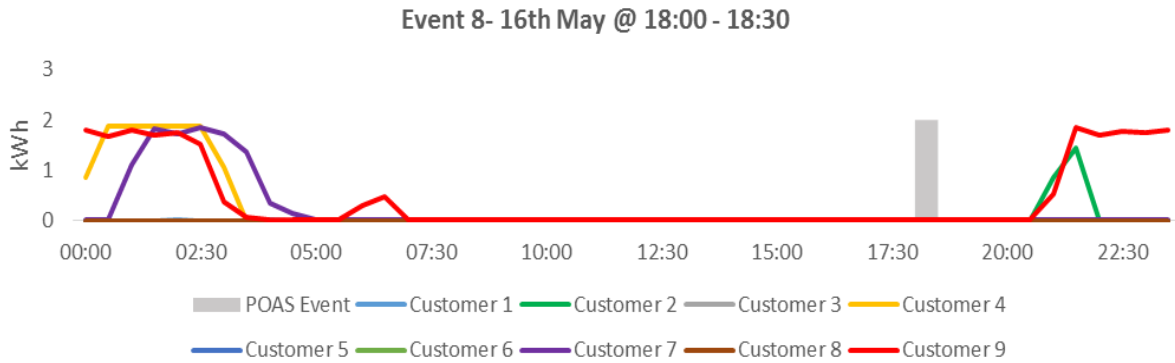

Figure 10: Electric Vehicles Event 8 week day evening

For event 8, only five EV's were charging at the time of the event. Most were just getting a very small top up charge so there was a very small demand reduction of **0.2kW** hence why it is difficult to see on the graph above.
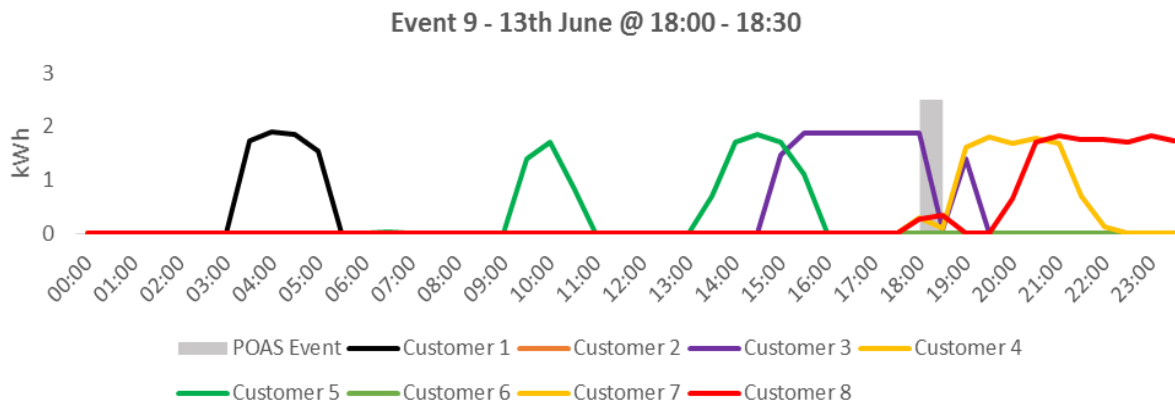

Figure 11: Electric Vehicles Event 9 week day evening

For event 9, only six EV's were charging at the time of the event. Most were just on a top up charge so there was low demand requirement. It can be observed from the graph that two homes had an obvious interruption. The overall demand reduction in this case from the analysis was **4.87kW**.
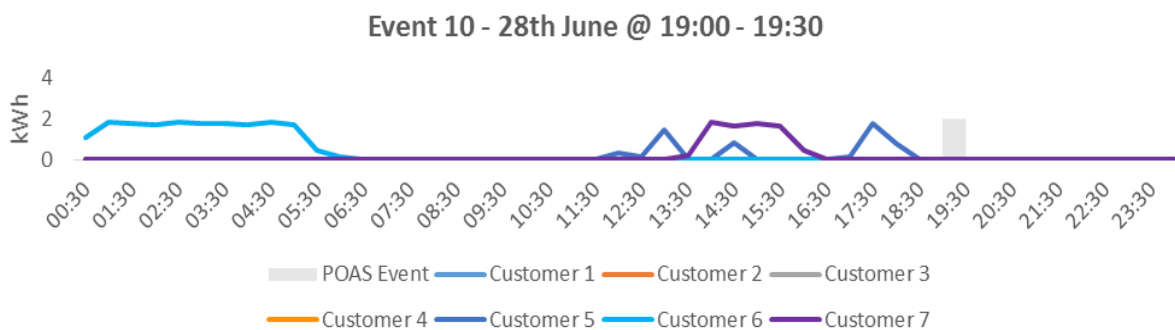

Figure 12: Electric Vehicles Event 10 week day evening

For event 10, there was accurate data for seven homes during the event day. However, it appears that only two homes were charging their EV during that day and during the event itself, only three homes had topping up charge, which had very small reduction for demand response of **0.2kW**

3.4.5 Smarter Home – Solar PV homes

Electric Ireland recruited 10 homes with Solar PV panels and Smarter Home devices to take part in the Power Off & Save Trial in Q1 2018. This was part of a behavioural test to observe would participants switch off their solar PV panels during the day for 30 minutes in return for an incentive. Here are results from events 8, 9 & 10.
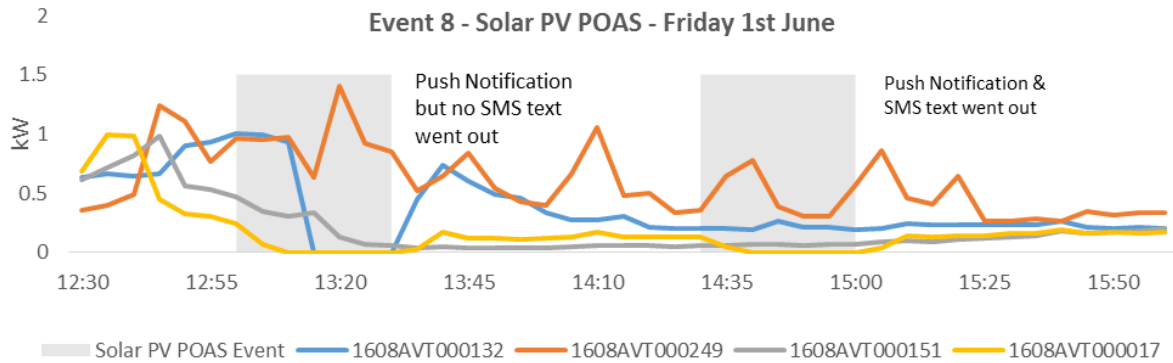

Figure 13: Solar PV POAS Event 8 on a weekday at two separate times during midday

For event 8, there were two events and the initial event did incorporate a SMS text notification. From the 10 homes with Solar PV, nine homes were asked to take part (one home had an issue with their gateway) in the POAS events. However, only four homes had data collection whereby we could verify that at least two homes switched off their solar PV panels for the event at 2:30pm.

It is estimated the interruption had impacted on **0.36kW** of generation.
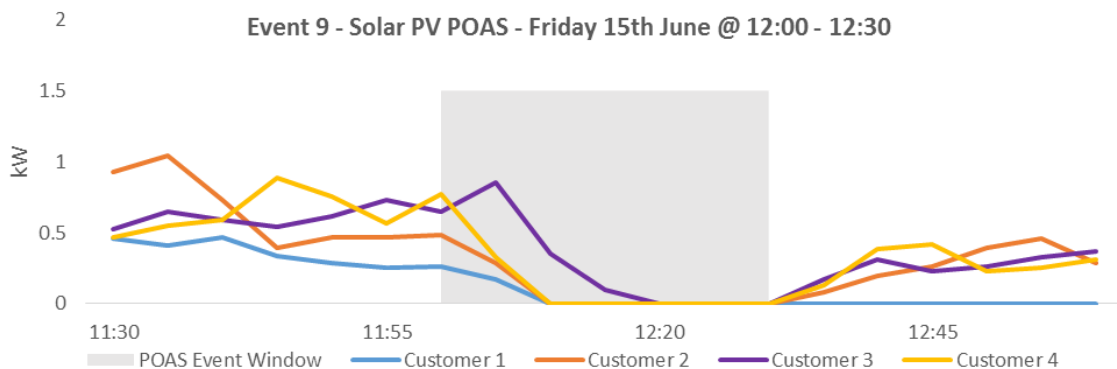

Figure 14: Solar PV POAS Event 9 on a weekday at midday

For event 9, only nine homes were asked to take part. Five homes responded in the text message survey following the evening saying they took part but again only four homes had accurate data collected and therefore we could verify that four homes took part in the generation reduction request.

Average generation was approx. 0.5kW; therefore, four homes had a generation reduction of **2kW**
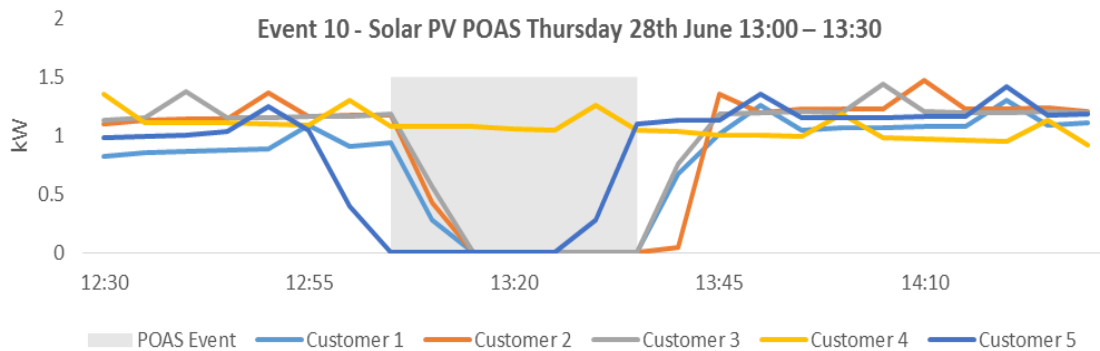
Figure 15: Solar PV POAS Event 10 on a weekday during the midday

For event 10, it was observed from the text message survey that six homes responded of which five homes said they took part and switched off their panels. Average generation at the time was approx. 1kW; therefore, four homes had a generation reduction of **4kW.**

3.5   IPSOS CUSTOMER RESEARCH

Our customer research partner – IPSOS MRBI carried out participant research in August 2018 for the second time on Power Off and Save participants.

A survey request was sent to 1,249 homes with 476 homes filling out the survey – a response rate of 38%. It is worth noting that the survey period occurred during July & August and had a shorter time period (1.5 weeks) when compared to the survey undertaken last summer.

The key findings from this research were as follows:

- Most agree that Power Off & Save has positively impacted their perceptions and behaviours regarding energy use, with over two in every three homes believing that they are saving money.

- There was a very high satisfaction score for the project with improvements in all demographic groupings.

- The NPS for the project had increased significantly to +43, again showing significant improvements across all demographics, particularly among the 55+ categories.

- All smart home technologies had rated well with their NPS scores suggesting participants were generally promotors of their devices.

- There was some openness to giving control away of certain technologies for automatic switch off for an incentive, generally two out three homes, which was very encouraging.

- The main areas for improvements suggested from participants were earlier notification, more convenient time periods and longer events.

4. Next Steps

The next steps on the project are:

- Close out project and analyse overall response from all ten events.

- Present overall Project Learnings to the Project Board and in a Close out report.

- Investigate the development of residential service providers for the provision of System Services through the DS3 Qualification Trials.