

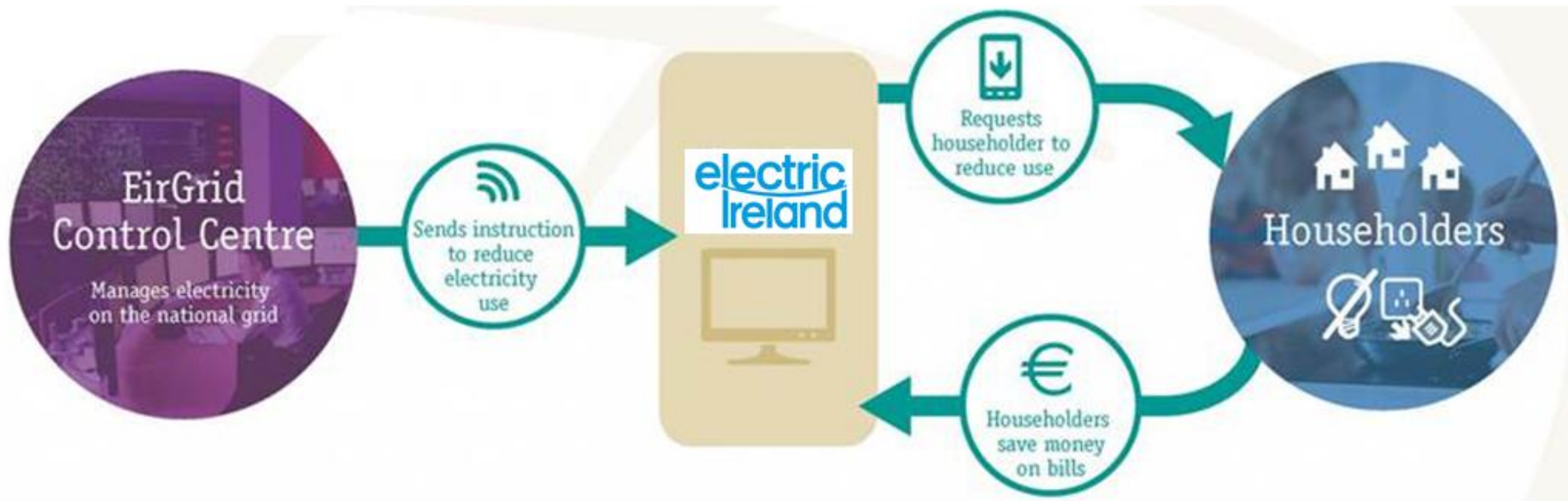
“Digitisation of the electricity system and Customer participation”



Power Off & Save

ETIP
European
Technology &
Innovation
Platform

SNET
Smart Networks
for Energy
Transition



Potential Project Benefits, Learnings & Outcomes

Benefits - Policy Perspective

1. European and National energy efficiency policy and targets

Benefits - Power System Perspective

1. First of its kind in Ireland from TSO
2. Potential for greater accommodation of intermittent renewables, enhanced generation adequacy potential, reduced system/consumption costs and potential for avoided / deferred network investment

Benefits – Residential Consumer Perspective

1. Reduced bills
2. Greater control and awareness of electricity consumption

Key Learnings & Outcomes

- Is there a residential consumer demand response market?
- Understanding of Residential consumer behaviour and insights:
 - Customers ability to respond and level of electricity reduction
 - Testing customer attitude to take up and level of engagement
 - Capabilities of technologies proposed, usefulness, incentive mechanism
 - Customer journey

Electric Ireland at a Glance



1.1 Million Customers

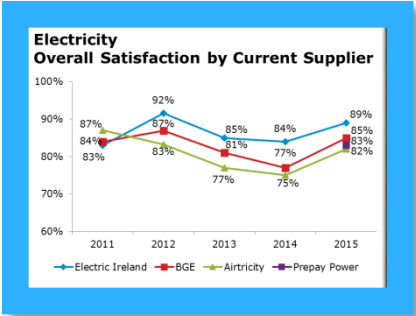
Strong Capabilities

Leader





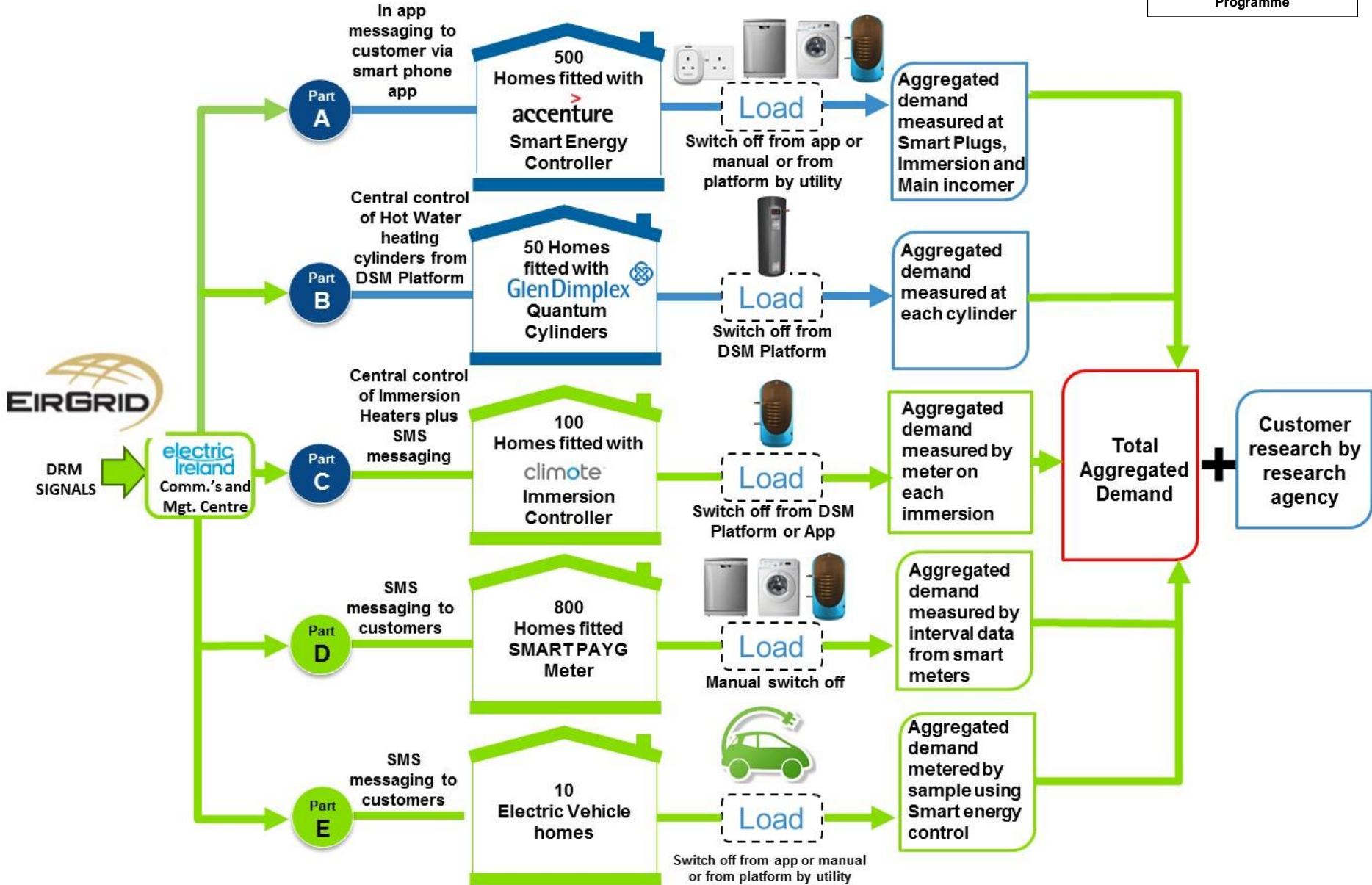
Proven Track Record

Partnership Experience



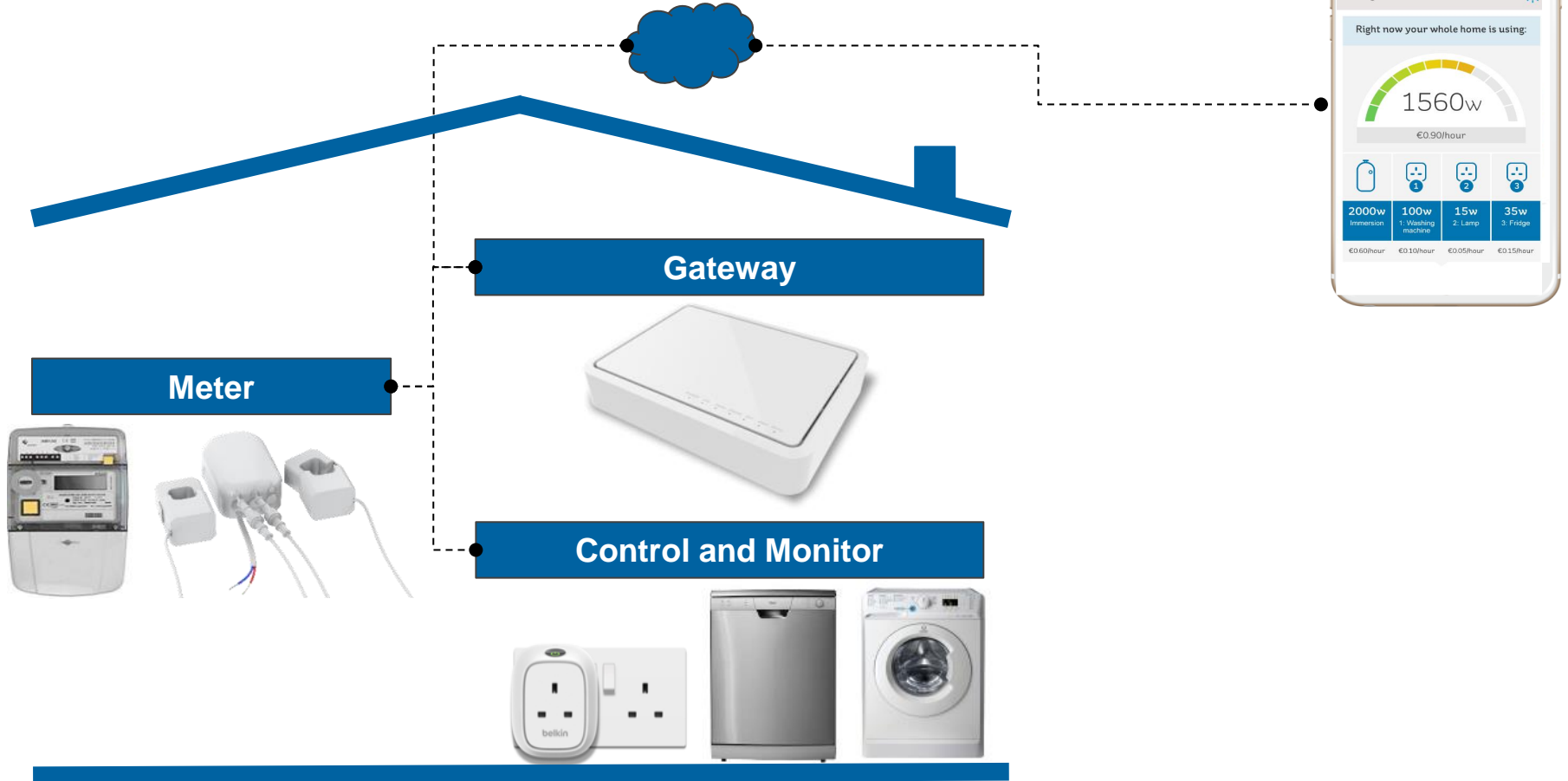
Power Off & Save Solution Overview

Colour code description:
 Existing component as part of smarter Living Programme
 New component for Demand Response Programme



Smarter Home System

- Real time usage information and appliance control from a smart phone



Sample screenshots of the App





Your home: now

3rd August 2015 10.15am

Right now your whole home is using:

1560w

€0.90/hour

			
2000w Immersion	100w 1: Washing machine	15w 2: Lamp	35w 3: Fridge
€0.60/hour	€0.10/hour	€0.05/hour	€0.15/hour

Bill period

10th March 2016 10.15am

< Your home

Estimated bill

€81.09 Cost to date	8 Days left in bill period	€94.02 Estimated bill
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Bill cycle: appliance usage

€1.29 per 100 kWh

Washing machine	€0.09
Dryer	€0.07
Dishwasher	€0.24
Refrigerator	€0.16
Space Heater	€0.80
Always on	€0.40
Other	€0.16

Immersion

10th March 2016 10.15am

< Your home

Immersion now

Right now your immersion is using:

900 Watt

€0.90/hour

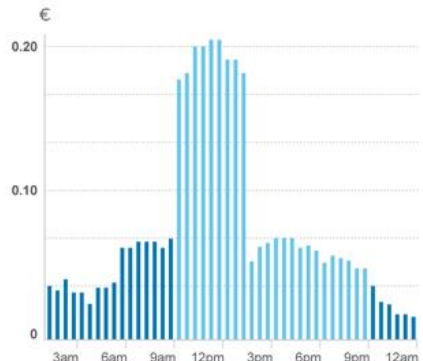
Switch: **On** Off Timer Boost

Smart control status: ON

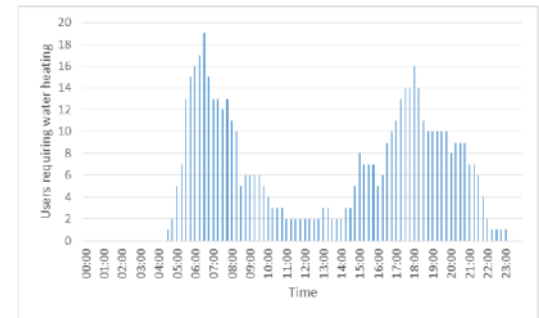
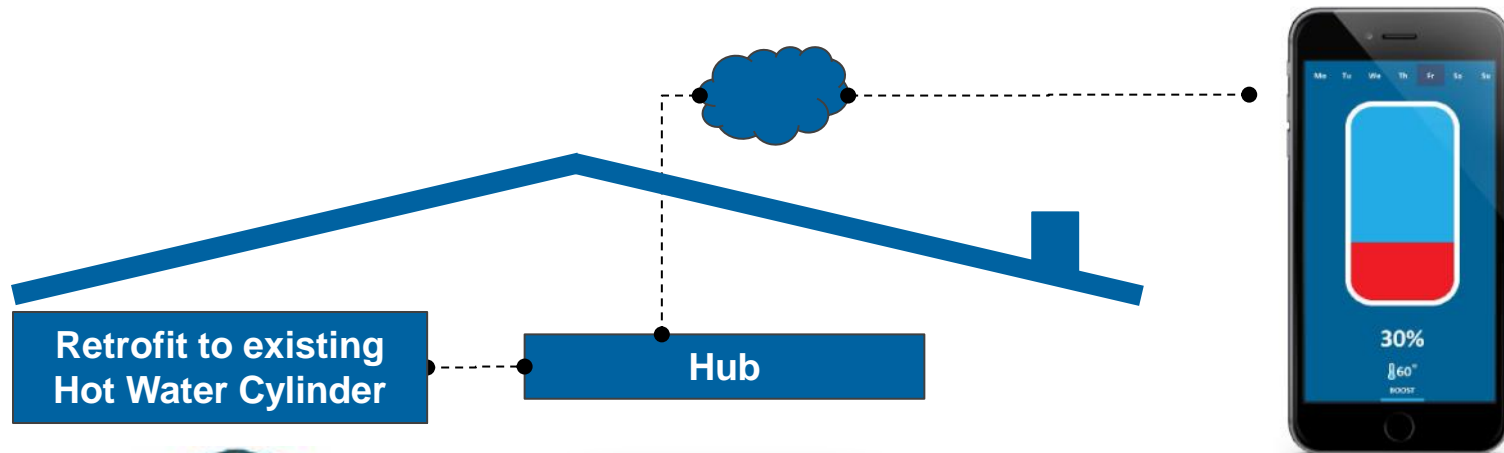
So far today this smart control has cost you €0.50

So far today €0.50 Usage >

☾ €0.10 ☀ €0.40

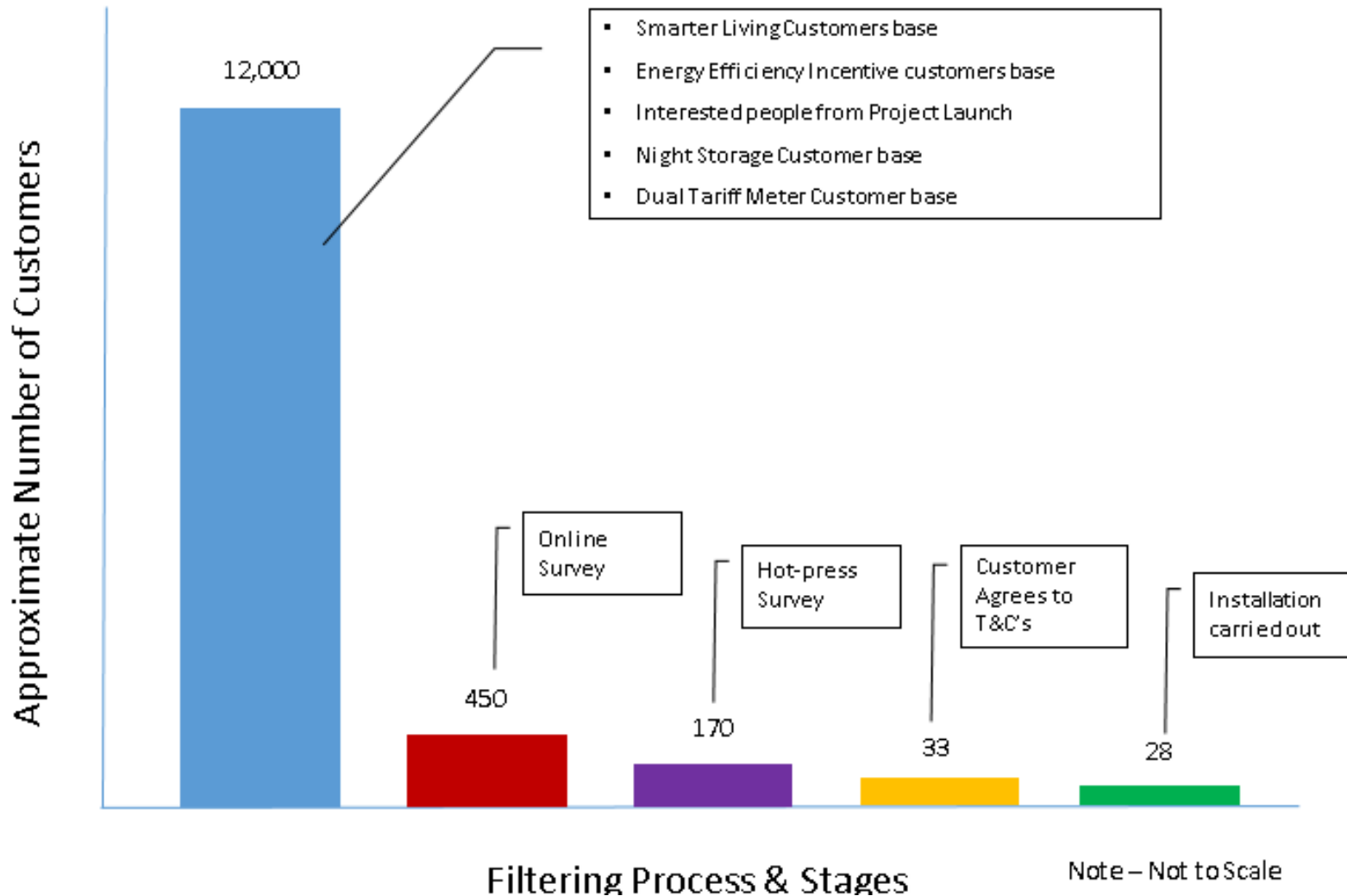


Retrofit Smart Hot Water Controller

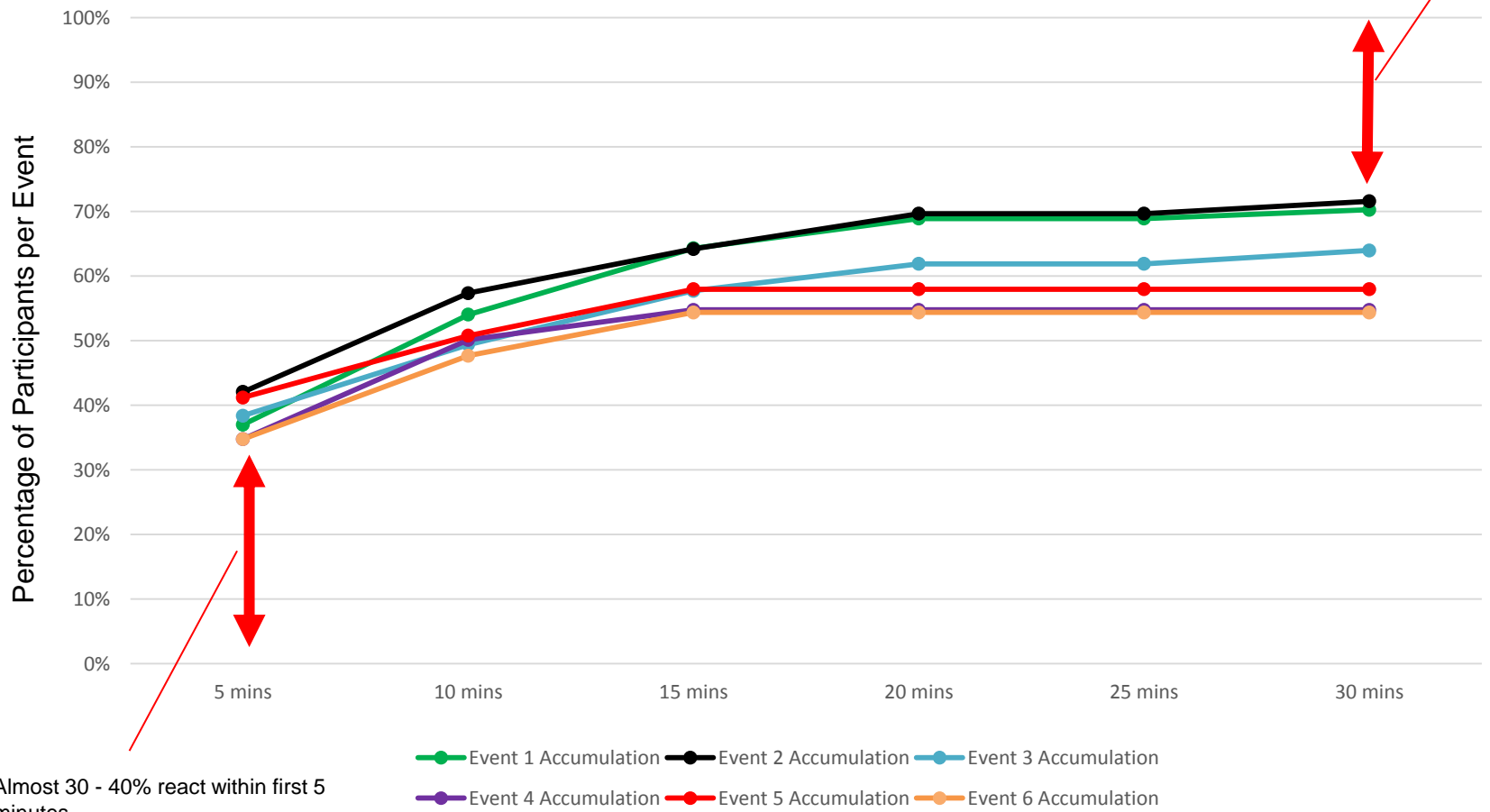


Time –10 Seconds -Potential System Services :
Secondary Operating Reserve - Tertiary operating reserve 1 & 2,
Replacement Reserve – De-Synchronised

Smart Hot Water Customer Recruitment



Smarter Home Data - Reaction Times of first reduction



Around 30 - 45 % do not react at all



Almost 30 - 40% react within first 5 minutes

5 mins

10 mins

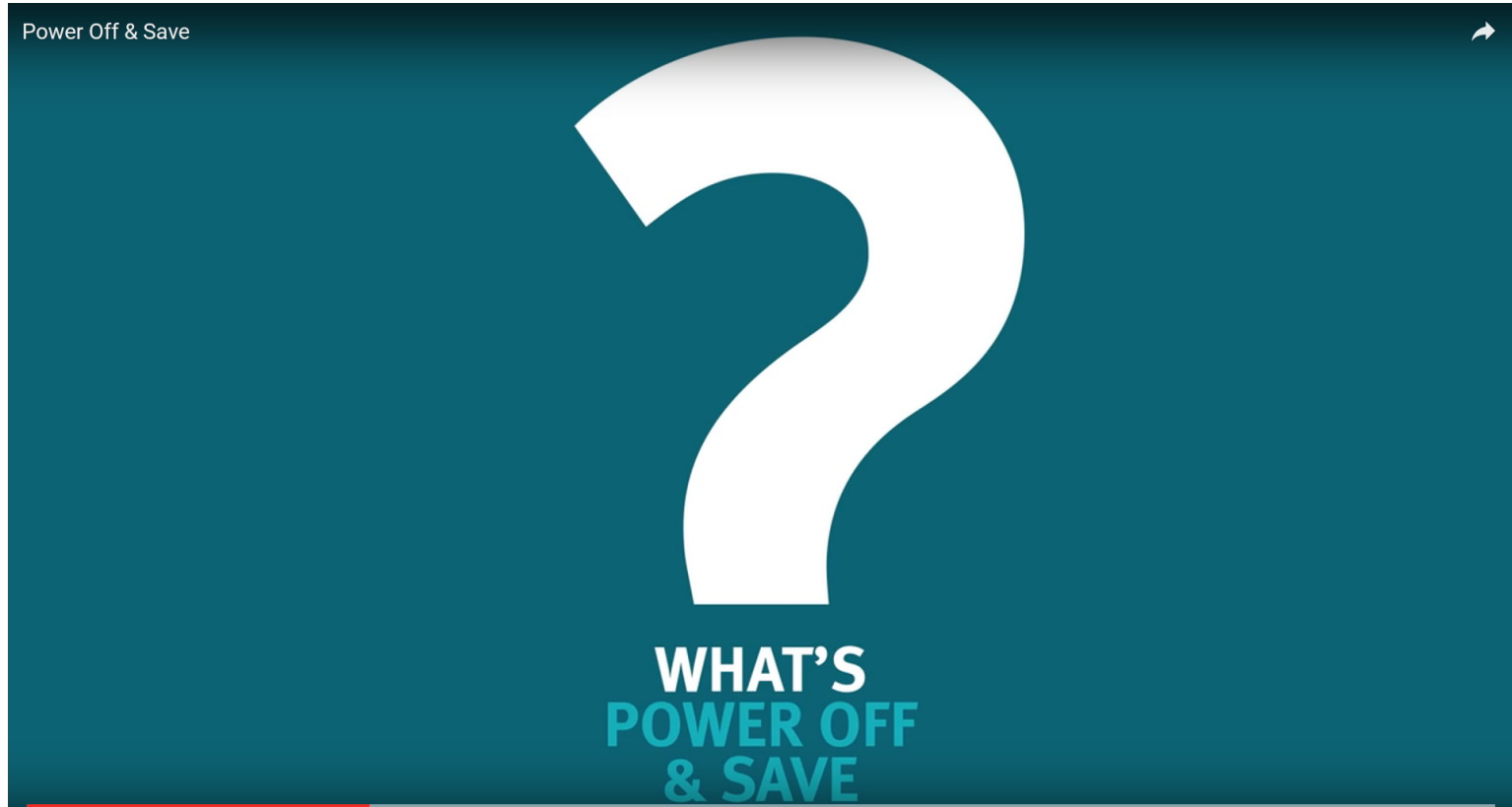
15 mins

20 mins

25 mins

30 mins

- Event 1 Accumulation
- Event 2 Accumulation
- Event 3 Accumulation
- Event 4 Accumulation
- Event 5 Accumulation
- Event 6 Accumulation



Power Off & Save Animation

<https://www.youtube.com/watch?v=oX688idKlbU>

Key Positive Learnings

- More than 50% of participants reduced their electricity usage for the 30 minutes of the event when compared to the half hour before each event.
- Positive reaction to the concept of residential demand response
- Technologies receiving high satisfaction scores

Key Issues

- Customers switching off broadband / Gateway device and therefore communications are lost
- Suitability of customer homes for various technologies
- Requirement to scale up significantly & integrate a frequency meter

Customer Participation

- Educating the customer (with technology, events, payment mechanisms)
- Reaction times of customers / technology

Remaining 6 months of Project – Next Steps

1. Project is a mid-point stage.
2. Introduction of more hot water control technologies to provide a larger potential for demand reduction.
3. Interpretations of technology capabilities to meet certain service timescale requirements.

Thank You

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<https://www.electricireland.ie/residential/products/smarter-living/power-off-and-save>