

SAVE Project

February 2019

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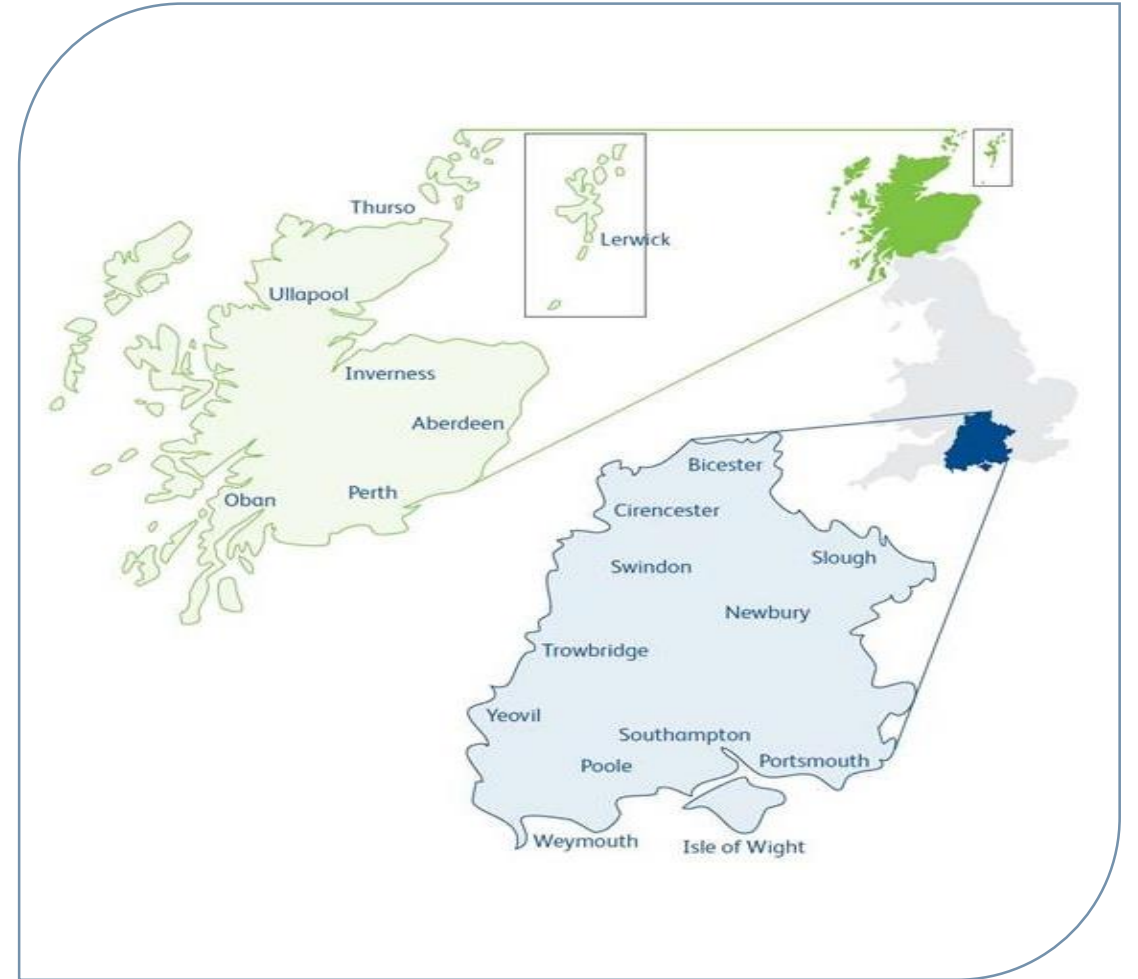
Scottish & Southern
Electricity Networks

SSEN overview

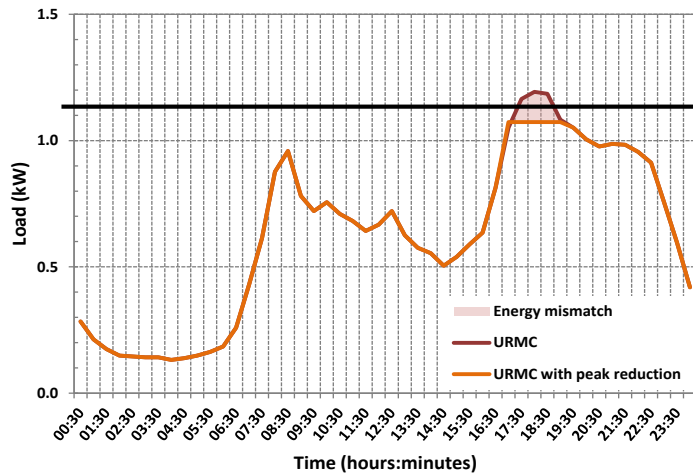
Scottish and Southern Electricity Networks owns:

- two electricity distribution networks
- one electricity transmission network
- +100,000 substations
- +130,000 km of overhead lines and underground cables
- +100 submarine cable links

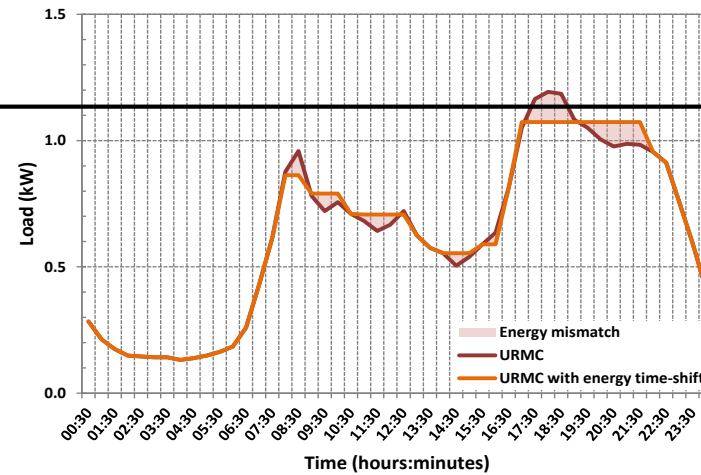
We serve 3.5 million customers across one third of the UK's landmass.



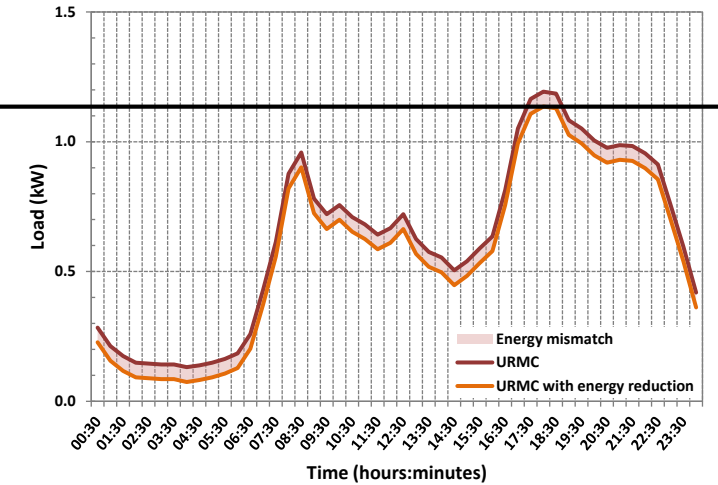
The Challenge



(a) Peak reduction



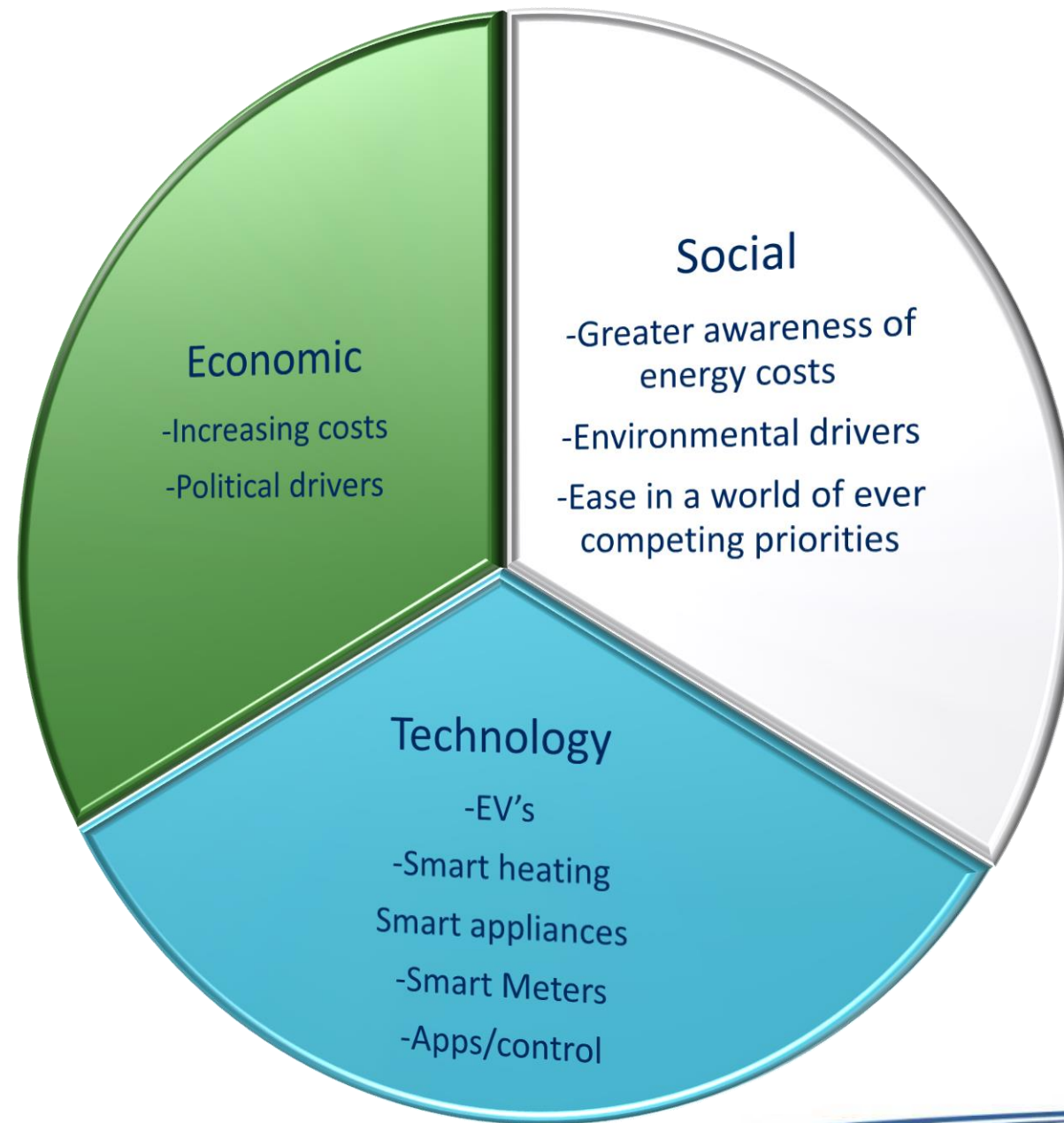
(b) Electricity time-shifting



(c) Electricity reduction

SAVE- can energy efficiency be used to benefit electricity networks

Why now?



A quick test

- You are a doctor of the local hospital a deadly virus has broken out and reached a population of 339,289 people. You have two prescription drugs you can administer.
- Drug A will save 50,000 lives
- Drug B will mean that 83% will die

Which do you choose?

SAVE overview

Jan 2014 – Jun 2019

£10m total project cost

8000 domestic customers- Randomised Control Trial

Energy Efficiency, Behaviour Change, Price Signals, Community Engagement

Network Investment Tool



UNIVERSITY OF
Southampton

NEIGHBOURHOOD
ECONOMICS

DNV·GL

Future Solent

brmg
research

ea
technology

Loop ENERGY
SAVER

Scottish & Southern
Electricity Networks

Price Signals



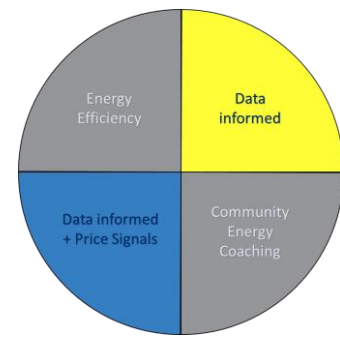
- Supplier led time of use
- Increase solar consumption
- 10% shift from 10:00-16:00
- Low participation



- Coming up next!



- Supplier led ToU and CPR.
- 8-10% reductions
- Early-adopters



- Gamification
- 11% reduction
- Geographical issues



- Vulnerable Customers
- Time-of-use 'bonus time' tariff
- 1.5% reduction

Design is crucial

Previous trials should not be seen as comparative but building blocks

Availability	People assess things by how likely they come to mind
Framing	Choice depend on how a problem is stated
Gains and losses	Loosing something makes you roughly twice as miserable as gaining something makes you happy
Social Influences and rebound effects	Peer pressure, what if you're performing over-average?
Ease	Clever mapping needed in complex markets
Feedback	People need to see how they're doing
Defaults	Opt-in/Opt-out
Attitude to risk	People over-estimate small probabilities and under-estimate large probabilities

First trials- Critical Peak Rebate

Event	Initial material	Format	Message	Duration	Reward
1	6 x weekly behavioural tips	Postal	Remember those sticky notes? Now is the time to use them! / Next week see if you can cut your usage by 10% .	4 hours, 1 day	£10
2	Welcome Pack	Postal	This week see if you can cut your usage by 10% / Check out your personalised target on Explore	4 hours, 1 week	Prize draw, 20 @ £100
3	Welcome Pack- reminder to focus on 'eat-up' tips	Online	This week see if you can cut your usage by 10% / Check out your personalised target on Explore	4 hours, 1 week	Prize draw, 20 @ £100
4	Welcome Pack- did you know...	Online	Tailored message based on previous event. If failed- try again. If passed- push for more.	4 hours, 2 days	1 prize draw @ £1000
5	Welcome Pack	Online	The network is particularly under pressure today / Reduce your consumption by 10%	2 hours, 1day	£10

Welcome pack issued



First trial Peak Rebate

Attitude to risk

Framing

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Availability

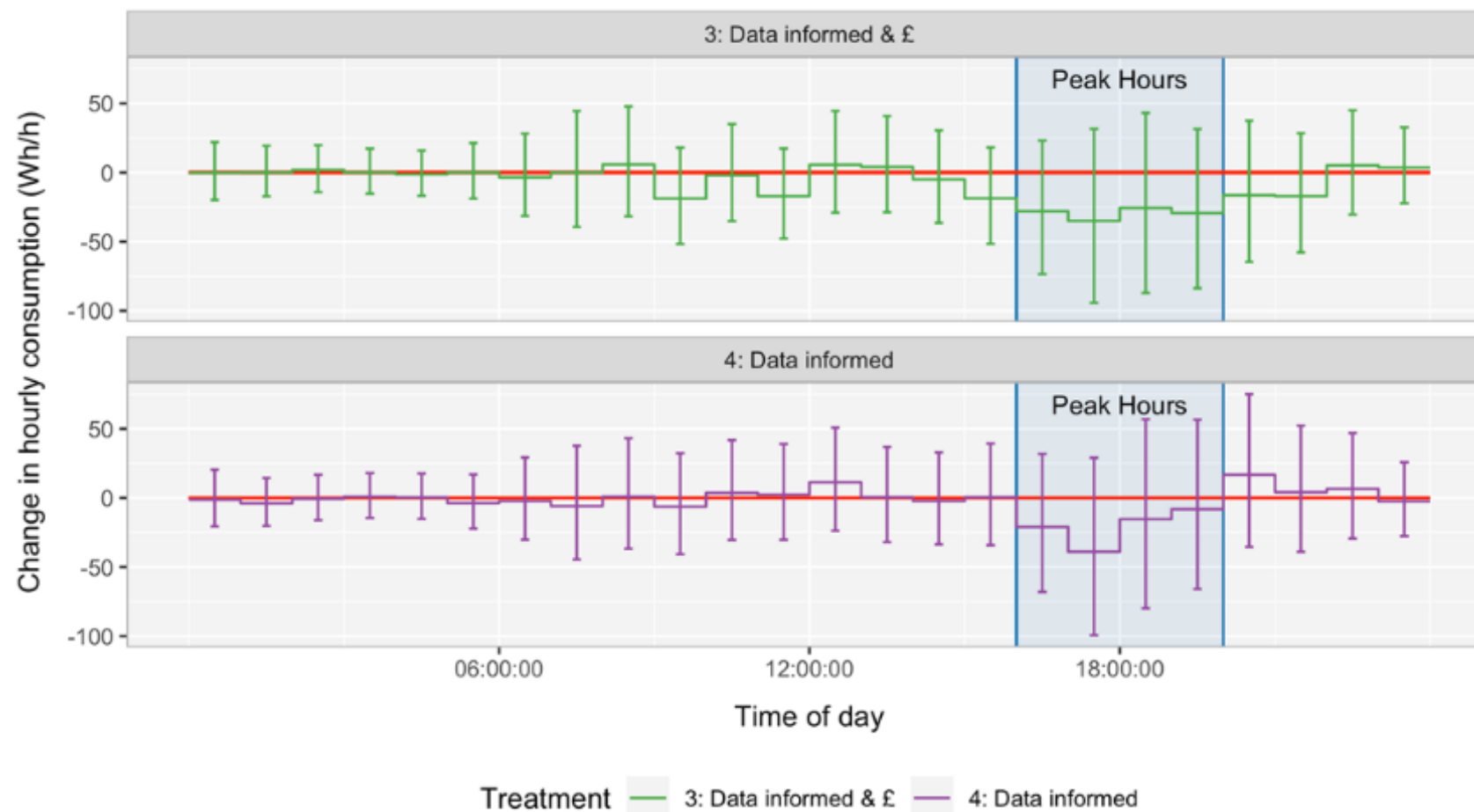
Ease + Mapping

Feedback

First trials- Critical Peak Rebate

Event	Initial material	Format	Message	Duration	Reward	Results
1	6 x weekly behavioural tips	Postal	Remember those sticky notes? Now is the time to use them! / Next week see if you can cut your usage by 10% .	4 hours, 1 day	£10	3%
2	Welcome Pack	Postal	This week see if you can cut your usage by 10% / Check out your personalised target on Explore	4 hours, 1 week	Prize draw, 20 @ £100	5.5% reduction
3	Welcome Pack- reminder to focus on 'eat-up' tips	Online	This week see if you can cut your usage by 10% / Check out your personalised target on Explore	4 hours, 1 week	Prize draw, 20 @ £100	0.8%
4	Welcome Pack- did you know...	Online	Tailored message based on previous event. If failed- try again. If passed- push for more.	4 hours, 2 days	1 prize draw @ £1000	3%
5	Welcome Pack	Online	The network is particularly under pressure today / Reduce your consumption by 10%	2 hours, 1day	£10	3%

Results of price signal trial



SAVE sample households: 2017-11-13 to 2017-11-26
Sample size: Control = 861, Treatment = 794 & 791
Error bars indicate 95 percent confidence interval for estimates

Last trials- Design

<https://www.youtube.com/watch?v=1CQFrdmHsYc>

More DNO relevant, more difficult to communicate

Baselining challenges + subject to gaming

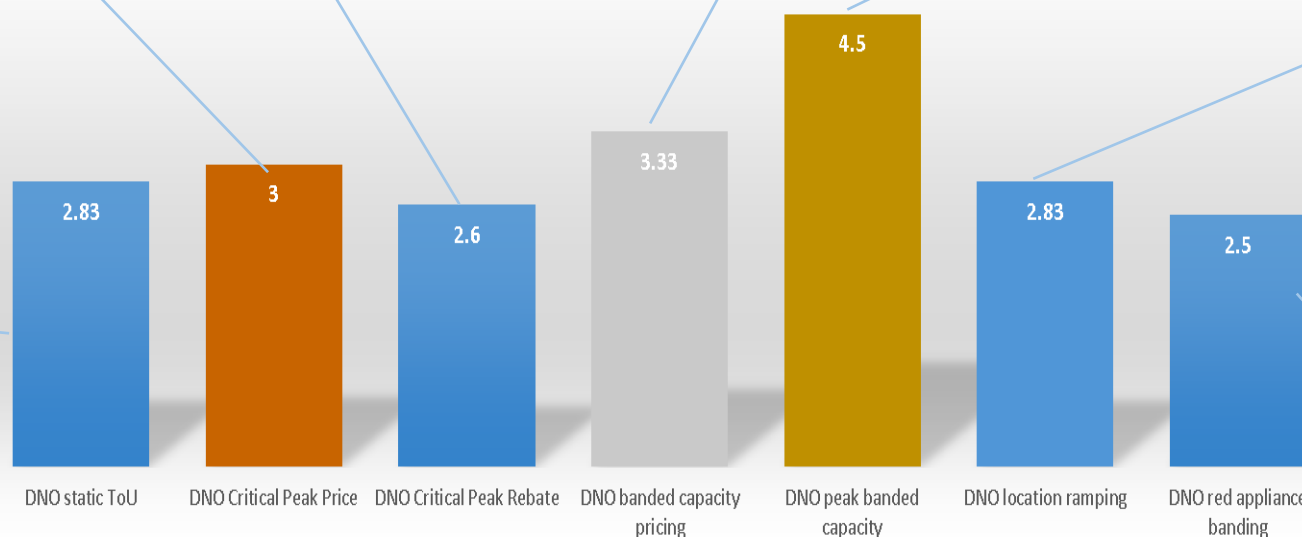
Similar to current DuOS charging
Must be reflective of heating types
Treats consumption at peak and off-peak same

Same as last but easier to accommodate off-peak loads (heating)
Particularly interesting with EV's

Similar to I&C DSR
Complex
New technology likely beneficial

Weekday/weekend Seasonality
Good for customers, not DNO

Dynamic Pricing Mechanism



Logistically challenging

Final trial features

- Target- easier to understand than £/kw
- Tailored to different households
- Opt-in vs Opt-out
- Mid-trial incentive increase
- Weekly feedback texts with balance update

SAVE headlines

- Results of final trials tbc- keep an eye out on <https://www.ssen.co.uk/save/>
- Energy Efficiency trials show LED lights along can reduce peak demand by 5-7%
- SSEN looking to build upon trials in joint utility rollout of Energy Efficiency
- SSEN building SAVE into constrained areas of network through a Social CMZ
 - Provides price signals to market (local organisations) to rollout demand management in specific areas
- SAVE informing commercial and regulatory discussions through project consumption data



COULD YOUR PANTS
WAIT TILL AFTER 8?





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Electricity Networks