Online appendix

Using behavioural insights to encourage local residents to save energy

1. Detailed description of the intervention

1.1. Welcome screen

Figure A1 displays the welcome screen of the platform. Participants were informed about the campaign and what participation entails.

Figure A1: Welcome screen of the Share the Warmth platform

	#sharethewarmth	
Z	Know someone who is worried about energy bills? Share the warmth.	D,
	If your loved ones are struggling to know what to do or are not able to take action to reduce their energy use alone, there are some simple steps you can take to help them stay warm and save.	-
	 Learn about the top 5 energy-saving tips Plan who you can help 	Ø
Z	It all takes less than 10 minutes – so are you ready to help your loved ones?	S.
	You can enter your first name here for a more personalised experience. But don't worry - you don't have to provide any personal data to share the warmth.	
	First name: Insert name	1
	Let's get started	D
00	By continuing you agree to our <u>data processing notice</u> .	00

1.2. Training

After clicking on "Let's get started, participants were shown five tips to reduce their energy bills at home. Each tip was accompanied by a video or a graphic that provided guidance on how to best implement the tip. The tips are shown in Figure A2. After viewing all five tips, participants could enter their email address to receive a checklist with a summary of the tips (see Figure A2).

The five energy saving tips were selected based on two main criteria: (1) how much savings can be achieved by implementing the specific tip and (2) whether an average person can help another person (e.g. a friend or family member) implement the tip.

Figure A2: Checklist with a summary of the five energy-saving tips



-	-	-	7

Tip #1: Lower the boiler's flow temperature

Before you begin: Make sure your loved one has a combination boiler by checking that there is no separate water tank.

Check out this <u>video</u> for a step-by-step guide to adjusting the boiler's flow temperature. Further resources see this guide by Nesta.

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	- 1	
	_	

Tip #2: Set the thermostat to 18°C

Remember: Don't go below 16°C as this could have detrimental health effects. **Check out** this <u>video</u> on how to set heating controls to make your heating more efficient.



Tip #3: Add radiator reflective panels

Super tip: You can buy these at a hardware store or make them yourself using kitchen foil and cardboard.

Check out this video on how to set up the panels.

Ti

Tip #4: Use a water-efficient shower head

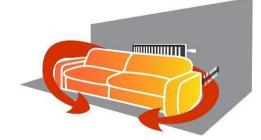
Before you begin: Make sure your friend's current shower set-up is compatible with the shower head you're looking to buy.

Check out this video on how to set up a new water-efficient shower head.



Tip #5: Move furniture away from radiators

Super tip: Every inch counts, there's no need to rearrange the whole living room! **Check out** this diagram for reference.



1.3. Quiz (first week of intervention only)

All questions used in the quiz are displayed in Table A1. We included the quiz to the survey for two main reasons. First, the quiz enabled us to test if providing people with the five energy saving tips improves their knowledge of how to save energy at home. Second, the quiz helped to strengthen participants' energy-saving knowledge as it provided immediate feedback and showed the correct answer if a participant answered incorrectly.

To test whether learning the five tips increases participants' knowledge, half of the participants received the quiz before seeing the tips and the other half received the quiz after the tips. This enabled us to compare the knowledge of participants who were and were not shown the tips, respectively.

We removed the quiz after the first week of the intervention. The primary reason was the low survey completion rates. The quiz was therefore eliminated to reduce the survey completion time and motivate more completions.

Table A1: Quiz questions

1	 How can you change a combi boiler's flow temperature? a) By adjusting the room thermostat b) By adjusting the water temperature setting on the boiler c) By adjusting the heating temperature setting on a combi boiler d) Not sure
2	 What is the best temperature that you should set a combi boiler to? a) 35-45° C b) 55-65° C c) 75-85° C d) Not sure
3	 How can you tell if a boiler is a combination boiler? a) There should be a separate water tank b) It should have the words "Combi boiler" printed on it c) There shouldn't be a separate water tank d) Not sure
4	 What is an easy and low-cost way of improving radiator efficiency? a) Always turning them off when not in use b) Fitting them with reflective foil c) Setting them at the minimum temperature possible d) Not sure
5	 Why is it recommended to move big pieces of furniture away from radiators? a) Because it stops the furniture from overheating b) Because it stops the radiators from overheating c) Because it allows the flow of hot air to heat up the room more efficiently d) Not sure

6	What is the best temperature for room thermostats to be at? a) 18°C b) 21°C c) Above 21°C d) Not sure
7	 Why is it not recommended to set the thermostat below 16°C? a) It can have a negative impact on health b) It stops saving energy if lowered too far c) It could be detrimental to the boiler d) Not sure
8	 How does a water-efficient shower head help reduce energy bills? a) It's easy to install b) It regulates water flow c) It regulates water temperature d) Not sure

Note. Correct answers are displayed in bold.

1.4. Prompt to share the warmth

After completing the training and the quiz (the quiz was present in pilot phase only), participants were prompted to set a goal to reach out to their close friends and family in the next four weeks and help them implement these measures and make their homes warmer. Three different versions of the prompt were tested (see Table 1 in the main document for details). Figure A3 shows the prompt message in the social norm condition. If a participant indicated that they commit to share the warmth, they were asked to indicate the first person they will reach out to in the next four weeks, as well as to specify which tips they will help them implement.

Figure A3: Message that prompted participants to share the warmth with others (social norm condition)

Now you know how to reduce someone's energy bills. Can you share the warmth?
We ask you to contact one or more of your loved ones (especially those that need your help the most) in the next four weeks and help them use the energy-saving tips that you just learned.
79% of the people who have visited this website have pledged to help others. Please join the majority and share the warmth in Kent and Medway this winter!
Do you commit to reaching out to at least one person from your community in the next four weeks?
○ Yes, I commit to reach out to at least one person
🔿 No, I don't want to commit
Next

1.5. Socio-demographic survey

Finally, participants completed a four-question survey that asked them to indicate their gender, age, area where they live, and their annual household income. Participants who decided not to commit to Share the Warmth were also asked to add a reason for their decision.

1.6. Weekly reminders

When completing the survey, participants could also opt in for four weekly email reminders. The reminders contained additional energy-saving tips and support to help participants share the energy saving tips with others. Out of the 228 people who committed and were asked if they would like to receive weekly reminder emails, 151 opted in.

2. Regression tables

	(1) Control		Tre	(2) atment	t-test Difference
Variable	N	Mean/SE	N	Mean/SE	(1)-(2)
Female	48	0.792	56	0.786	0.006
		[0.059]		[0.055]	
Male	48	0.167	56	0.161	0.006
		[0.054]		[0.050]	
$Income = < \pounds 15,000$	48	0.104	55	0.091	0.013
		[0.045]		[0.039]	
Income = £15,000 - £25,000	48	0.188	55	0.127	0.060
		[0.057]		[0.045]	
$Income = \pounds 25,001 - \pounds 31,000$	48	0.083	55	0.145	-0.062
		[0.040]		[0.048]	
Income = £31,001 - £45,000	48	0.125	55	0.145	-0.020
		[0.048]		[0.048]	
Income = £45,001 - £55,000	48	0.104	55	0.127	-0.023
		[0.045]		[0.045]	
Income = > £55,000	48	0.167	55	0.164	0.003
		[0.054]		[0.050]	
Age = 18 - 29	48	0.042	56	0.071	-0.030
		[0.029]		[0.035]	
Age = 30 - 44	48	0.188	56	0.125	0.062
		[0.057]		[0.045]	
Age = 45 - 60	48	0.312	56	0.411	-0.098
		[0.068]		[0.066]	
Age = 61 and above	48	0.375	56	0.321	0.054
		[0.071]		[0.063]	

Table 2.1. Balance table (for the effect of providing tips on energy-saving knowledge)

The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table 2.2. Effect of providing tips on energy-saving knowledge

	(1)	(2)
	Knowledge score	Knowledge score
Treatment	1.847***	1.491***
	(0.151)	(0.295)
Constant	4.704***	4.872***
	(0.101)	(0.225)
Sample	All who took the quiz	Only those who completed survey
Observations	368	102

Robust standard errors in parentheses * p<.1 ** p<.05 *** p<.01

		(1)	(2)		(3)		t-test	t-test	t-test
	Corr	mitment 1	Commitment 2		Commitment 3		Difference	Difference	Difference
Variable	Ν	Mean/SE	Ν	Mean/SE	Ν	Mean/SE	(1)-(2)	(1)-(3)	(2)-(3)
Female	99	0.778	106	0.745	102	0.775	0.032	0.003	-0.029
		[0.042]		[0.043]		[0.042]			
Male	99	0.162	106	0.189	102	0.157	-0.027	0.005	0.032
		[0.037]		[0.038]		[0.036]			
$Income = < \pounds15,000$	98	0.153	105	0.095	101	0.139	0.058	0.014	-0.043
		[0.037]		[0.029]		[0.035]			
$Income = \pounds15,000 - \pounds25,000$	98	0.143	105	0.162	101	0.079	-0.019	0.064	0.083*
		[0.036]		[0.036]		[0.027]			
Income = £25,001 - £31,000	98	0.092	105	0.143	101	0.158	-0.051	-0.067	-0.016
		[0.029]		[0.034]		[0.037]			
Income = £31,001 - £45,000	98	0.133	105	0.190	101	0.069	-0.058	0.063	0.121***
		[0.034]		[0.039]		[0.025]			
$Income = \pounds45,001 - \pounds55,000$	98	0.061	105	0.057	101	0.099	0.004	-0.038	-0.042
		[0.024]		[0.023]		[0.030]			
Income = > £55,000	98	0.153	105	0.143	101	0.178	0.010	-0.025	-0.035
		[0.037]		[0.034]		[0.038]			
Age = 18 - 29	99	0.010	105	0.105	102	0.029	-0.095***	-0.019	0.075**
		[0.010]		[0.030]		[0.017]			
Age = 30 - 44	99	0.212	105	0.162	102	0.157	0.050	0.055	0.005
		[0.041]		[0.036]		[0.036]			
Age = 45 - 60	99	0.444	105	0.371	102	0.353	0.073	0.092	0.018
		[0.050]		[0.047]		[0.048]			
Age = 61 and above	99	0.253	105	0.305	102	0.353	-0.052	-0.100	-0.048
		[0.044]		[0.045]		[0.048]			

Table 2.3. Balance table (for the differential effects of prompts on commitment rates)

The value displayed for t-tests are the differences in the means across the groups.

***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table 2.4. Differential effects of behavioural prompts on commitment rates

	(1) Made commitment	(2) Made commitment
Altruistic appeals	-0.0598 (0.0433)	-0.0961* (0.0495)
Ease of implementation	-0.0654 (0.0444)	-0.119** (0.0513)
Constant	0.775*** (0.0306)	0.777*** (0.0333)
Sample includes 1st week*	Yes	No
Observations	605	469

Notes: Participants who accessed the platform during the first week of the intervention were exposed to the version that contained a quiz section, which was removed at the beginning of the second week to minimise dropout.

Robust standard errors in parentheses * p<.1 ** p<.05 *** p<.01

3. Residential survey

A residential survey (N = 1,903) was conducted in the beginning of the project to examine homeowners' attitudes and beliefs linked to different energy-saving behaviours and saving energy at home in general.

Start of Block: Intro

Q1 Thank you for your interest in the survey. You will be asked several questions about energy consumption at home and some basic questions about your house.

Your participation will help us better understand how local councils in Kent and Medway can support their residents in reducing their energy bills.

Taking part in this survey is anonymous, voluntary, and should take no more than 10 minutes of your time.

Please continue to the next page to access the survey.

This information is collected to understand what actions will reduce household energy use the most and the best ways to encourage people to take action in their homes to save energy. Your participation is anonymous. The data are collected and managed by The Behaviouralist LTD, a research organisation based in London, UK. We do not collect any data that would enable us to identify you. If you have any questions related to this survey please contact us at info@thebehaviouralist.com.

End of Block: Intro

Start of Block: Energy-saving behaviours

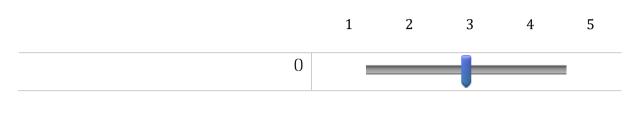


	I usually do this (1)	I don't usually do this but would like to (2)	I don't usually do this and not planning to (3)	Not applicable to me (4)
Setting the thermostat to a maximum of 18C during the heating season. (1)	0	0	0	0
Delaying the start of heating from October to November. (2)	0	\bigcirc	\bigcirc	\bigcirc
Wearing a thick jumper at home during the heating season. (3)	0	\bigcirc	\bigcirc	\bigcirc
Using a water- efficient shower head. (4)	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Keeping shower time to just 4 minutes. (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Drying clothes on racks inside where possible or outside in warmer weather, rather than using a tumble dryer. (6)	0	\bigcirc	\bigcirc	0
Switching off appliances at the plug, rather than leaving them in standby mode. (7)	0	\bigcirc	\bigcirc	0
Adding radiator reflective panels (to help prevent heat from being lost by reflecting the heat back into the room). (8)	0	\bigcirc	0	0
Using a smart meter. (9)	0	\bigcirc	\bigcirc	0

Q2 Do you engage in any of the following actions to save energy at home?

Start of Block: Attitude

Q3 Generally speaking, how important to you is reducing energy use in your household? Not at all Slightly Moderately Very Extremely importantimportant important importantimportant



Q4 [Optional] Please explain why you chose that answer.

Page Break

Q5 Has the importance of reducing energy use at home changed in the past 12 months for you?

		Saving energy at I feel at home is much sa less important to me than it was 12 months ago			the Saving energy at home is much more important to me than it was 12 months ago		
		1	2	3	4	5	
	0	=				-	
		1					
Page Break							

Q6 Thank you. Now we would like to ask you about some behaviours in more detail.

End of Block: Attitude

Start of Block: Barriers

Q7 You indicated that you would like to **[energy-saving behaviour]**. Is there anything that would prevent you from taking this action?

	Does not describe me (1)	Describes me slightly well (2)	Describes me moderately well (3)	Describes me very well (4)	Describes me extremely well (5)
I don't know how to do this action (1)	0	0	0	\bigcirc	0
It would reduce my comfort at home (2)	\bigcirc	0	\bigcirc	0	0
It would take a lot of willpower which I don't have (3)	\bigcirc	0	\bigcirc	0	0
People I know don't normally do this (4)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Other (Specify) (5)	0	\bigcirc	\bigcirc	\bigcirc	0

	Does not describe me (1)	Describes me slightly well (2)	Describes me moderately well (3)	Describes me very well (4)	Describes me extremely well (5)
I don't know how to do this action (1)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	0
It would reduce my comfort at home (2)	0	\bigcirc	\bigcirc	\bigcirc	0
It would take a lot of willpower which I don't have (3)	0	\bigcirc	\bigcirc	0	0
People I know don't normally do this (4)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	0
Other (Specify) (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	0

Q8 You indicated that you are not planning to **[energy-saving behaviour]**. What is preventing you from taking this action?

End of Block: Barriers

Start of Block: Demographics

Q25 Finally, we would like to ask you a few questions about your household.

Q26 Do you currently rent or own your home?

O Rent (1)

Own (2)

Other (Specify) (3) _____

Q27 In which area do you currently live?

▼ Ashford Borough (1) ... Other (13)

Q28 What is your gender?

 \bigcirc Male (1)

O Female (2)

Other (3)

 \bigcirc Prefer not to say (4)

Q29 How many members usually live in your household (including yourself)?

Q30 What is the annual income for your whole household?

- \bigcirc Less than £15,000 per year (1)
- £15,001 £25,000 per year (2)
- £25,001 £35,000 per year (3)
- £35,001 £45,000 per year (4)
- £45,001 £55,000 per year (5)
- \bigcirc More than £55,000 per year (6)
- \bigcirc I do not wish to answer (7)

Q31 What is your age?

Less than 18 (1)
18 - 29 (2)
30 - 44 (3)
45 - 60 (4)
61 and more (5)

End of Block: Demographics

4. Evaluation survey for Share the Warmth participants

At the end of the four-week period, participants received an evaluation survey. Each person who completed the survey was automatically entered in a raffle to win one of thirty £20 supermarket vouchers. The survey asked a participant to report how many people did they help implement any of the energy saving tips in the past four weeks. The survey also asked how likely the participant is to help even more people get energy efficient in the upcoming month.

Start of Block: Landing page

Q1

Hi there,

Thank you for participating in Share the Warmth.

Please tell us about your experience by answering the questions below. It should take no longer than 5 minutes.

P.S. We are giving away thirty £20 vouchers - stand a chance to win one by completing this survey.

Start

By continuing you agree to the terms and conditions of the prize draw.

End of Block: Landing page

Start of Block: Block 1

Q2 Have you taken any of the following actions <u>in the past four weeks</u> to reduce <u>your</u> <u>household's</u> energy bills?

Please select all that apply.

Lowered the boiler's flow temperature to $55-65^{\circ}C$ (1)
Set the thermostat to 18°C (6)
Added radiator reflective panels (7)
Installed a water-efficient shower head (8)
Moved furniture away from radiators (9)
Something else (please specify) (10)
No, I have not taken any actions (11)

Q3 Have you helped someone from another household in the past four weeks to reduce their energy bills?

○ Yes (1)

O No (2)

End of Block: Block 1

Start of Block: Block 2

Q4 How many <u>other households</u> have you helped in total in the past four weeks? *Please enter a number below*

Q5 How many of the **\${Q4/ChoiceTextEntryValue}** households you helped were lowerto middle-income households (i.e. with an annual income of £25,000 to £45,000 per

household)?

If you are not sure just take your best guess.

End of Block: Block 2

Start of Block: Block 3

Q6 You indicated that you helped \${Q4/ChoiceTextEntryValue} households in total.

In the past four weeks, how many of those households did you help...

 \bigcirc ...lower the boiler flow temperature to 55-65°C? (4)

 \bigcirc ...set the thermostat temperature to 18°C? (10)

…install a water-efficient shower head? (11)

…install radiator reflective panels? (12) ______

O ...move furniture away from radiators? (13) ______

...take a different energy-saving action? (14)

Q12 What different energy-saving action did you help the other households take?

End of Block: Block 3

Start of Block: Block 4

Q13 How likely are you to help others take energy	rgy-sa	ving a	ction in	the <u>u</u>	pcomin	g mont	<u>h</u> ?
	Not at all likely				Extremely likely		
	1	2	3	4	5	6	7

0	

Q14 Is there anything else that you would like to share with us? Good or bad experience with the campaign - we welcome all feedback!

End of Block: Block 4

5. Evaluation survey for non-participants

Two months after the campaign launch we also launched a general public survey that was disseminated via the consortium's social media channels. The survey was aimed at people who did not participate in the campaign (i.e. did not fill in the initial survey with training and the commitment part). The purpose was to learn why people decided not to take part and whether they are taking any actions to help others reduce energy use. Each person who completed the survey was automatically entered in a raffle to win one of thirty £20 supermarket vouchers.

Start of Block: Landing page

Q1

Thank you for your interest in this survey. You will be asked several questions about energy consumption at home and some basic questions about your house. Your participation will help us better understand how local councils in Kent and Medway can support their residents in reducing their energy bills. Taking part in this survey is anonymous, voluntary, and should take no longer than 10 minutes. Please continue to the next page to access the survey. We are giving away thirty £20 vouchers - you could win one by completing this survey.

Start

By continuing you agree to the terms and conditions of the prize draw.

All information is collected to understand what actions will reduce household energy use the most and identify the best ways to encourage people to take action in their homes to save energy. The data are collected and managed by The Behaviouralist LTD, a research organisation based in London, UK. We do not collect any data that would enable us to identify you. If you have any questions related to this survey please contact us at info@thebehaviouralist.com.

End of Block: Landing page

Start of Block: Block 1

Q2 Have you taken any of the following actions $\underline{in \ the \ past \ four \ weeks}$ to reduce \underline{your} household's energy bills?

Please select all that apply.

	Lowered the boiler's flow temperature to $55-65^{\circ}C$ (1)
	Set the thermostat to 18°C or lower (6)
	Added radiator reflective panels (7)
	Installed a water-efficient shower head (8)
	Moved furniture away from radiators (9)
	Did not turn on heating at all (12)
	Something else (please specify) (10)
	No, I have not taken any actions (11)

Q25 Have you discussed high energy bills with someone from <u>another household</u> in the past four weeks?

○ Yes (1)

○ No (2)

Q3 Have you helped someone from <u>another household</u> in the past four weeks to reduce their energy bills?

○ Yes (1)

O No (2)

End of Block: Block 1

Start of Block: Block 2

Q4 How many other households have you helped in total in the past four weeks?

Please enter a number below

Q5 How many of the **\${Q4/ChoiceTextEntryValue}** households you helped were lowerto middle-income households (i.e. with an annual income of £25,000 to £45,000 per household)?

If you are not sure just take your best guess. This helps us better understand who we can help with this type of campaign.

End of Block: Block 2

Start of Block: Block 3

Q6 You indicated that you helped \${Q4/ChoiceTextEntryValue} households in total.

In the past four weeks, how many of those households did you help...

 \bigcirc ...lower the boiler flow temperature to 55-65°C? (4)

 \bigcirc ...set the thermostat temperature to 18°C or lower? (10)

…install a water-efficient shower head? (11)

O ...install radiator reflective panels? (12)

…move furniture away from radiators? (13) ______

...take a different energy-saving action? (14)

Q12 What different energy-saving action did you help the other households take?

End of Block: Block 3

Start of Block: Block 4

Q13 How likely are you to <u>help others</u> take er		aving a ot at all			e <u>upcoming month</u> ? Extremely likely			
	1	2	3	4	5	6	7	
0								
Q15 Between November and December 2023 a campaign called <i>Share the Warmth</i> . Have y The aim of the campaign was to empower pe place simple measures to keep their homes y	ou hea ople to	rd abo help tl	ut the c neir frie	ampaio nds an	gn? d fami	ly put ii		
O No, I haven't heard about this campaign	ı before	(1)						
\bigcirc I heard about the campaign but I have o	lecided	not to j	particip	ate (4))			
\bigcirc I heard about the campaign and I partic	ipated	(5)						
\bigcirc I am not sure (6)								
O ther (please comment) (7)								
Q16 Could you please let us know why you d	ecided	not to j	particip	ate?				
I'm already aware of different e	nergy-s	aving t	ips (4)					
I've already taken action to save(8)	e on ene	ergy bill	ls (such	as turr	ning do	wn hea	iting)	
I'm already aware that energy b	oills are	high ar	ıd I'm fi	ne witł	n that	(9)		

Page Break

Q24 In the future, which of the following would you like to receive:

More energy-saving tips (1)
Guidance on insulating and increasing the energy efficiency of your home (4)
Financial assistance (5)
Other (please specify) (6)

End of Block: Block 4

Start of Block: Block 5

Q17 Finally, would you mind answering 4 quick questions about yourself? This information will help us better understand how to help people stay warm and save on energy bills.

Your data will be kept safe, anonymous and separate from any answers that could identify you.

Q18 In which area do you currently live?

▼ Ashford Borough (1) ... Other (16)

Q19 What is your gender?

O Male (1)

• Female (4)

Other (5)

O Prefer not to answer (6)

Q20 What is the annual income for your whole household?

- \bigcirc Less than £15,000 per year (1)
- £15,001 £25,000 per year (4)
- £25,001 £31,000 per year (5)
- £31,001 £45,000 per year (6)
- £45,001 £55,000 per year (7)
- \bigcirc More than £55,000 per year (8)
- \bigcirc Prefer not to answer (9)

Q21 What is your age?

 \bigcirc Less than 18 (1)

- 0 18 29 (4)
- 0 30 44 (5)
- 0 45 60 (6)
- \bigcirc 61 and more (7)
- \bigcirc Prefer not to answer (8)

Q26 If you would like to be entered into the prize draw, please provide your email address below.

Your email is only being collected so that you can be contacted if you are one of the winners of the prize draw. For more information on how your personal data is used, please see our data processing notice.

End of Block: Block 5