



THE
BEHAVIOURAL
INSIGHTS
TEAM

SUSTAINABILITY

BIT Review
2021-22



Projects



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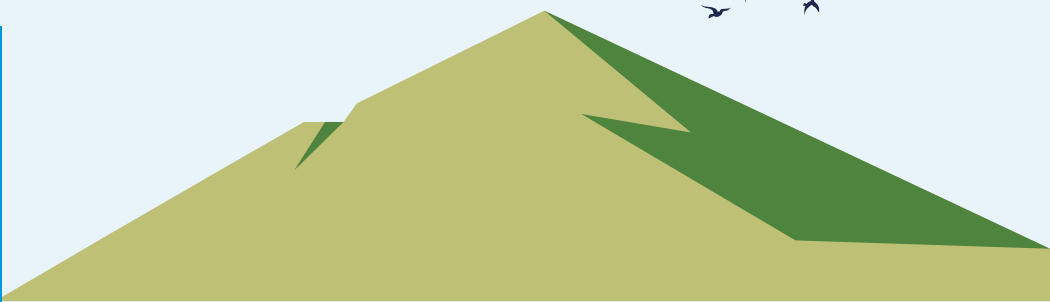
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Green pensions

Pensions were the subject of some of the first, and most successful nudges by encouraging people to 'save more tomorrow' and harnessing the power of defaults to help millions more save for retirement.

Now there is growing interest in the role 'green pensions' (retirement savings used to help fight climate change) can play in reaching ambitious Net Zero targets. In July 2021 BIT conducted an online experiment in the UK to explore how differently framed 'nudges' could encourage more people to take-up such green pension funds.

The 1,560 pension-holders who participated were given a hypothetical scenario where they received an email from their employer asking if they would like to switch from their (default) current pension fund to a different fund out of two alternative options. They were randomised into one of four groups: a control group and three treatment groups, each testing a different nudge:

- **The 'Red flag' nudge.** For this group the default pension fund offered was a standard multi-asset fund. 'Non-environmental' funds were labelled with a red flag, and text which stated that 'This fund invests in businesses whose practices may be harmful to the environment and/or who work in sectors with high carbon emissions.'
- **'Star rating' nudge.** Here the default was a standard multi-asset fund. Each fund was labelled with a star rating according to its environmental impact. The 'environmental fund' had five stars, while the other two had one star.
- **'Green default' nudge.** In this case the environmental fund was pre-selected as the default.

Figure 1. Participant choice set in the experiment

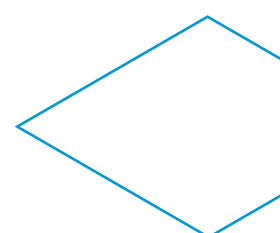
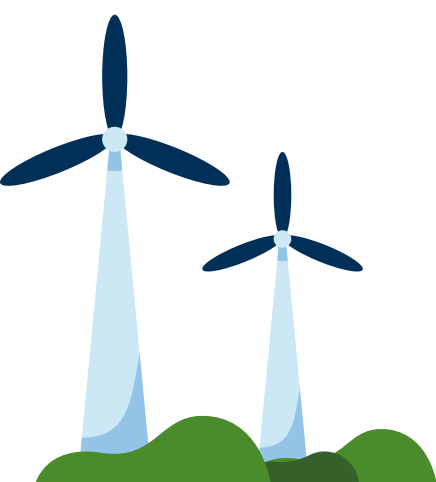
| | Default option | Alternative 1 | Alternative 2 |
|-------------------------|--------------------|-----------------------|-----------------------|
| 1. Red flag | Multi-asset fund | Diversity equity fund | Environmental fund |
| 2. Star ratings | Multi-asset fund | Diversity equity fund | Environmental fund |
| 3. Green default | Environmental fund | Multi-asset fund | Diversity equity fund |

After choosing their fund, participants answered several survey questions about their attitudes towards green pensions.

The study found that star ratings and green defaults significantly increased the number of people who opted for the environmental pension fund. Both the star rating and green default conditions led to a statistically significant increase in the number of respondents who indicated they would switch to (or keep) the green pension option. The green default led to a slightly greater increase (47.7%) than the star rating (35.2%). However, the red flag condition had no significant impact on the number of respondents who said they would switch to an environmental fund.

As with all online experiments, the magnitude of effects may be different to those in the real world, but it's a useful relative measure, particularly so here. The red flag and green star rating would likely be more effective in the lab than the real world, where there are frictions to moving pension funds and of course perceived risks to one's own real money. However the default condition may be even more effective in the real world as there is slightly more effort involved in opting out of it in the real world compared to in the online experiment.

This type of deshrouding, where the environmental performance of markets is made more transparent (in this case, pension funds), is a critical tool for supporting wider Net Zero emission goals.





Heat pumps

Heat pumps are a far more eco-friendly way to heat and cool homes than most existing domestic systems, particularly when the electricity used to run them has been largely generated renewably. Heat pumps work by drawing latent warmth from outside, even on cold days, and are three-to-four times as efficient as conventional heaters.

However although heat pumps are green and efficient, they do still have drawbacks compared to gas boilers. For example they are expensive to buy, take longer to install, and are often more costly to run – despite their efficiency – because of the despite their efficiency because of the higher price of electricity compared to gas (at least for now).

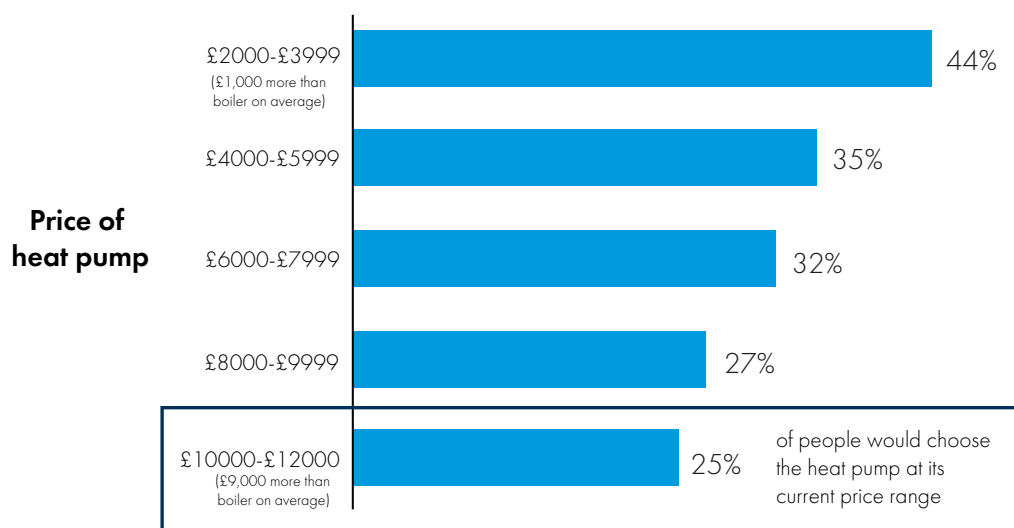
To better understand how open UK households are to getting heat pumps, in December 2021 BIT teamed up with Nesta, the UK's innovation agency, to run a two part online experiment to measure the willingness to install and pay for heat pumps.

The first part recruited a sample of 1,801 homeowners with a gas boiler. Participants were presented with basic information on heat pumps and a scenario in which their current boiler needed replacing within a year. They were then asked to choose between a replacement gas boiler for £2,000 and a heat pump which was priced randomly between £2,000 and £12,000 (inclusive of unit cost, installation and subsidies).

It's worth noting that this experiment had some inherent limitations - it likely provided upper estimates of actual adoption because stated intentions were used and in the hypothetical scenario, a single click was all that was needed to switch to a heat pump, which is far from the hassle of real life. And estimated prices were not very precise.

However even with these limitations the study found that there is a clear early adopter group – approximately 25% of homeowners, who said they are willing to pay the full current cost of heat pumps of £10-12k, see Figure 1. However, the proportion willing to buy a heat pump 'only' increased to 44% with prices between £2000 and £3999 - in other words they would have to be far cheaper before a majority were convinced.

Figure 1. Percent of people who would choose a heat pump, at varying prices, over a £2,000 gas boiler (n=1,801)



Primary Analysis:
Conditional logit model.
Data collected by BIT
on 9-14 December 2021.

Important note: These are likely **upper bound estimates** of heat pump adoption, given these are stated intentions in an online experiment, not fully reflecting the actual hassle of heat pump adoption.

While this 25% cohort should be taken with a pinch of salt as not all would complete the real-life decision, this is still a reassuringly high proportion of potential early adopters. When asked to reflect on the next five years, the proportion willing to buy a heat pump at this cost increased to one in three.

Nonetheless, this research showed that cost remains a major barrier to widespread adoption, being cited as the biggest barrier with nine in 10 participants saying they would not choose heat pumps because of installation costs.

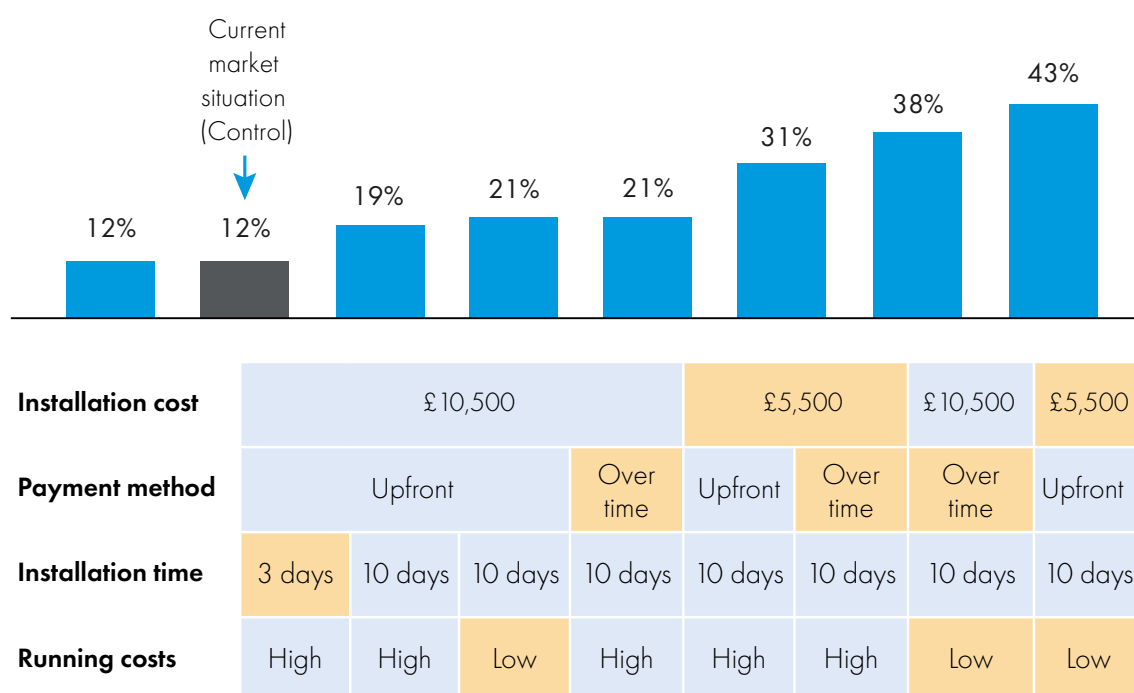
However, costs are not the only barrier, as knowledge about heat pumps remains quite limited. While eight in 10 have heard about them, just five in 10 understood their basic principles of operation. Moreover, almost half of those who opted for gas boilers in the choice experiment were not convinced by the claimed benefits of heat pumps to the environment.

The second part of the study recruited a sample of 8,016 UK homeowners with a gas boiler. As previously, participants were given basic information on heat pumps and then asked to imagine their boiler needed replacing within a year and that an engineer had assessed their home as suitable for a heat pump. They were then asked to choose between a replacement gas boiler or a heat pump and randomly shown a variety of options for the heat pump, such as shorter installation times, lower running costs, loans and subsidies.

Bearing in mind the same limitations as the first part, this larger study found:

- 1 One in eight participants chose the heat pump over a gas boiler in the current market situation (high upfront cost, high running costs and quite slow and disruptive to install). However all our interventions would significantly boost this number. Heat pump uptake significantly increases when reducing installation costs by £5,000 (+10 percentage points (pp)), introducing a zero interest loan (+9 pp) and reducing running costs of the heat pump from £25 more to £20 less than a gas boiler per month (+7 pp). These effects are statistically significant at the 1% level, meaning we have a high degree of confidence they were caused by our interventions.
- 2 Reducing installation time by 1 week did not impact uptake. This seems inconsistent with our finding from Trial 1 (where 6 out of 10 said they would choose a heat pump if it were easier to install in their home). This may be because the number of days it takes to install a heat pump is a poor proxy of installation hassle, or the description lacks specificity, (e.g. hot water turned off, rooms to be vacated, paper work etc).
- 3 Combining multiple policies together can increase uptake beyond the sum of implementing them in isolation:
 - Reducing both installation cost by £5,000 and running costs together increased heat pump uptake by up to a further 13 pp.
 - Both reducing running costs and allowing installation costs to be paid over time increased heat pump uptake by up to a further 8 pp.

What does it mean for heat pump policies?



N = 8,016; Choices = 24,048. Descriptive statistics, no significance testing.

Data collected by BIT on 11 March – 5 April 2022.

Orange cells highlight how the heat pump variation differs from the current market situation (control).

Reducing the upfront cost is still the most impactful solution policy-makers can use to promote heat pump adoption. However lower running costs and delayed payment via interest free loans also have the potential to significantly increase uptake, especially when coupled with the former approach.

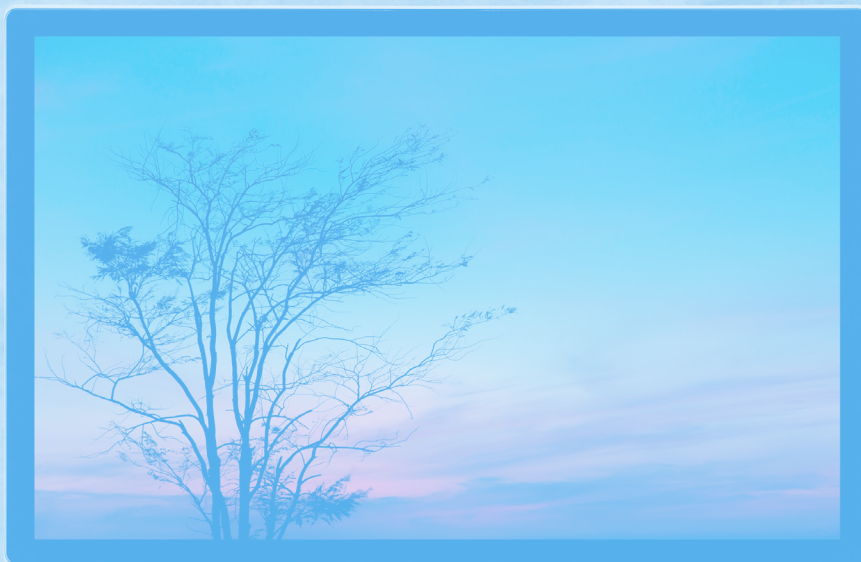
Indeed, taken together, halving installation cost, reducing running costs and providing financing options could increase overall uptake of heat pumps by as much as 44 pp.

Provide financing options

These results suggest that providing an interest-free loan over 6 or 12 years is comparable to a £5,000 subsidy in driving uptake. It is cheaper to service an interest-free loan than provide subsidies, so policymakers should consider financing options. Provision of a loan is particularly valuable when running costs are reduced (increasing uptake by a further 8 pp, in addition to the main effects). This is perhaps intuitive, since taking on debt for a sizable investment is more appealing when that investment saves money over time.

Reduce running costs

In consumers' eyes, reducing running costs is comparable to halving the upfront costs or spreading it over time. This implies switching the environmental levies currently imposed on electricity to gas tariffs can complement the current boiler upgrade scheme.



The power of TV: Nudging to decarbonise

Mass media such as television can play a pivotal role in encouraging consumers to decarbonise. According to the International Energy Agency, nearly two thirds of future emissions reductions (63%) will need to come from changes in behaviour, such as how we travel, how we power and heat our homes, what we eat and what we buy. Broadcasters have a unique platform to help people take action against climate change.

The size of the prize is enormous. Across the world an estimated 4.3 billion people watch TV content on different devices for an average of 2 hours and 54 minutes a day. Television can educate, entertain and inspire viewers of the world – and even encourage people to change how they behave.

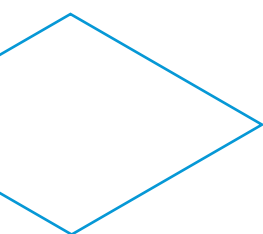
In 2021, Sky TV, Europe's largest media and entertainment company, partnered with BIT to answer a simple question: *How does the content we see on our screens influence the sustainable choices we make in our daily lives?*

To answer this, BIT surveyed 3,604 people across six countries in which Sky operates: Austria, Germany, Ireland, Italy, Switzerland and the UK between August and December 2021.

The results highlighted a strong mandate for broadcasters to support green choices and explored some of the barriers to green actions which can help broadcasters determine where they should focus their efforts to have maximum impact.

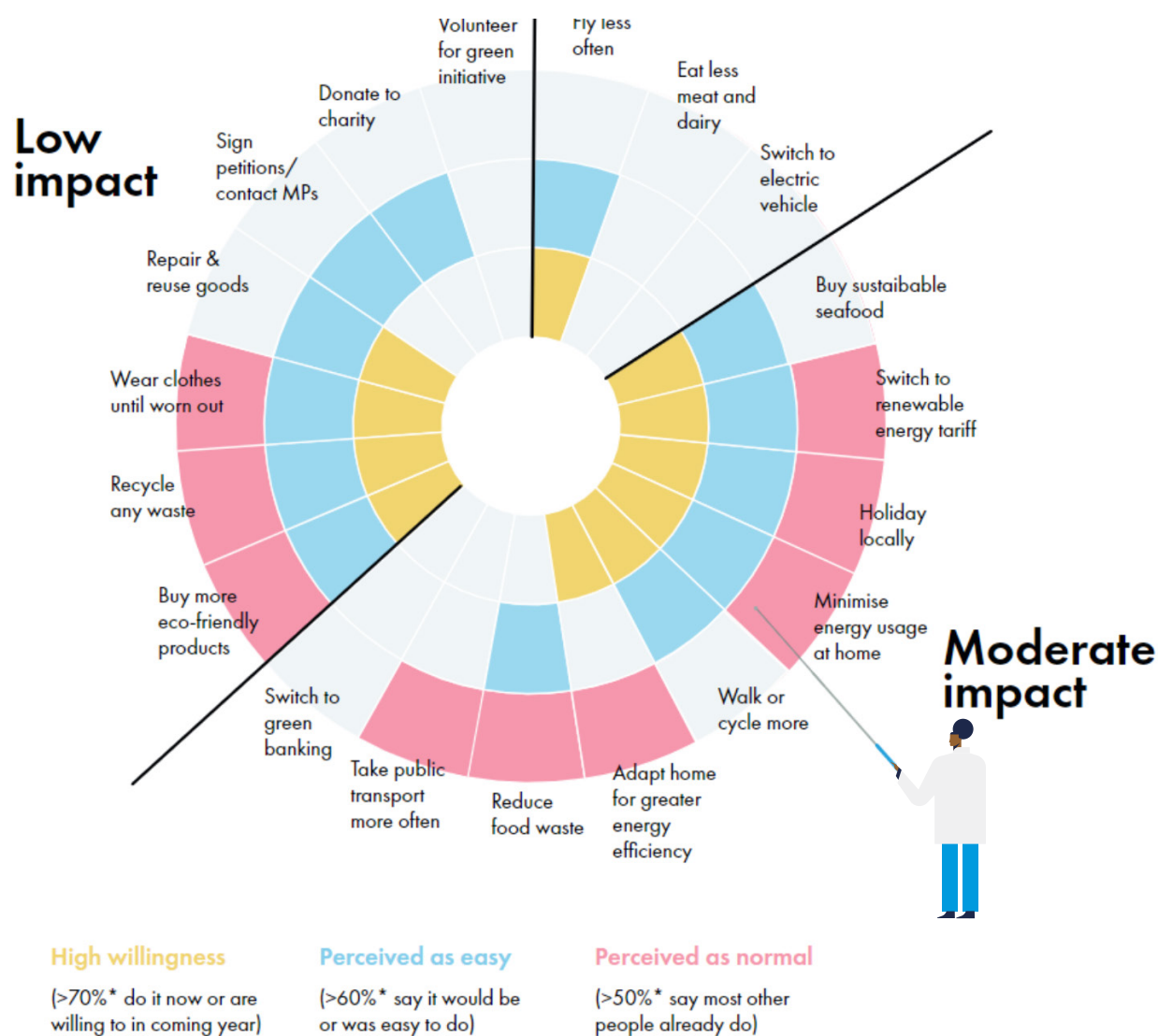
Key findings of the study included:

1. **Broadcasters can make a real difference – and people expect them to.** Eight in 10 of those surveyed supported the idea of broadcasters taking specific actions using their content and advertisements to encourage viewers to adopt pro-environmental behaviours.
2. **Such activities will be perceived as more legitimate if broadcasters are seen to lead by example.** Six in 10 expect all production to become Net Zero, and five in 10 would like broadcasters to donate to environmental charities and run environmental awareness campaigns.
3. **Viewers are already being inspired by TV content.** One in three had previously been inspired to make a change in their life by television content, and one in four were inspired by a television personality or a fictional television character.
4. **Concern about the environment is at an all-time high, and so is people's willingness to take further individual action.** Seven in 10 people are worried about the environment and are willing to make changes in their lives to fight the climate crisis, with eight in 10 feeling that their personal actions and choices, however small, do make a difference.
5. **However, people feel overwhelmed by the choice of actions they could take, often don't know which steps will make a real difference, and don't know how to follow-through.** Looking across 19 sustainable actions, 66% perceive them on average as easy, 44% think they're normal, but just 16% demonstrate the knowledge of what actions to take to reduce their carbon footprint.



In addition to the survey, we also conducted an evidence review of over 100 academic studies to produce recommendations for broadcasters on how to nudge viewers to decarbonise their lifestyles.

Figure 1. How television content and adverts influence us



In addition to the survey, the project also included an evidence review of over 100 academic studies and together these were used to create [an evidence-based guide for broadcasters](#) to use to nudge TV viewers to decarbonise their lifestyles (see figure 1).



Greenwashing

Many organisations make bold environmental claims about their activities and values. Unfortunately in many instances these claims are not backed up by actual substantive green action – a misleading practice known as greenwashing.

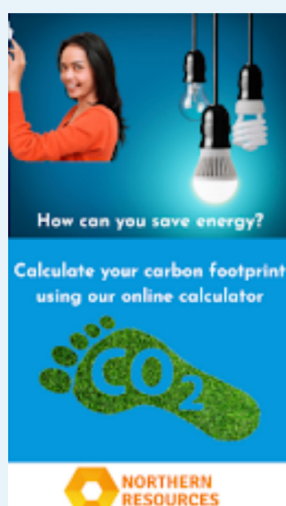
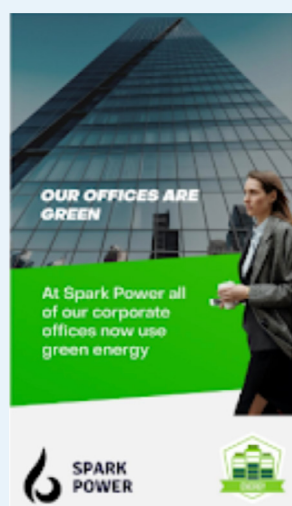
Many environmental groups have been concerned about greenwashing for some time. One such group in Australia, Clean State, approached BIT to help them learn more about greenwashing and how to tackle it.

Research on greenwashing is nascent, so we selected two interventions shown to protect people from online misinformation. Participants were randomly assigned to receive either:

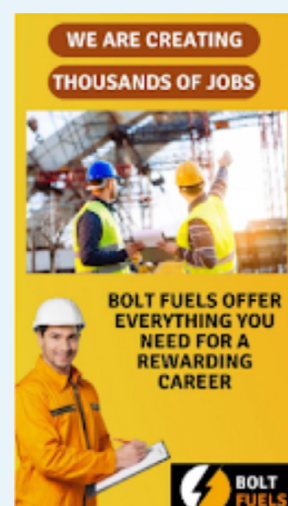
- **A literacy intervention** – information to help participants understand greenwashing
- **A pre-bunking intervention** – participants imagined they were an energy company and were asked to plan a marketing campaign with a greenwashing goal.
- **A control intervention** – no greenwashing intervention.

Participants then saw greenwashed adverts from fictional energy companies deploying common greenwashing strategies. One advert distracted consumers from the wider impact of the energy company, by drawing attention to a vague low impact action (“our offices are now green”). The other greenwashed advert exaggerated individual responsibility by promoting a carbon footprint calculator.

Both claims are not negative in and of themselves, but they do act as smoke-and-mirrors, distracting consumers from the wider environmental impact of an energy company’s operations. We also showed participants a non-greenwashed ad (“We’re creating thousands of jobs”).



Greenwashed



Non-greenwashed

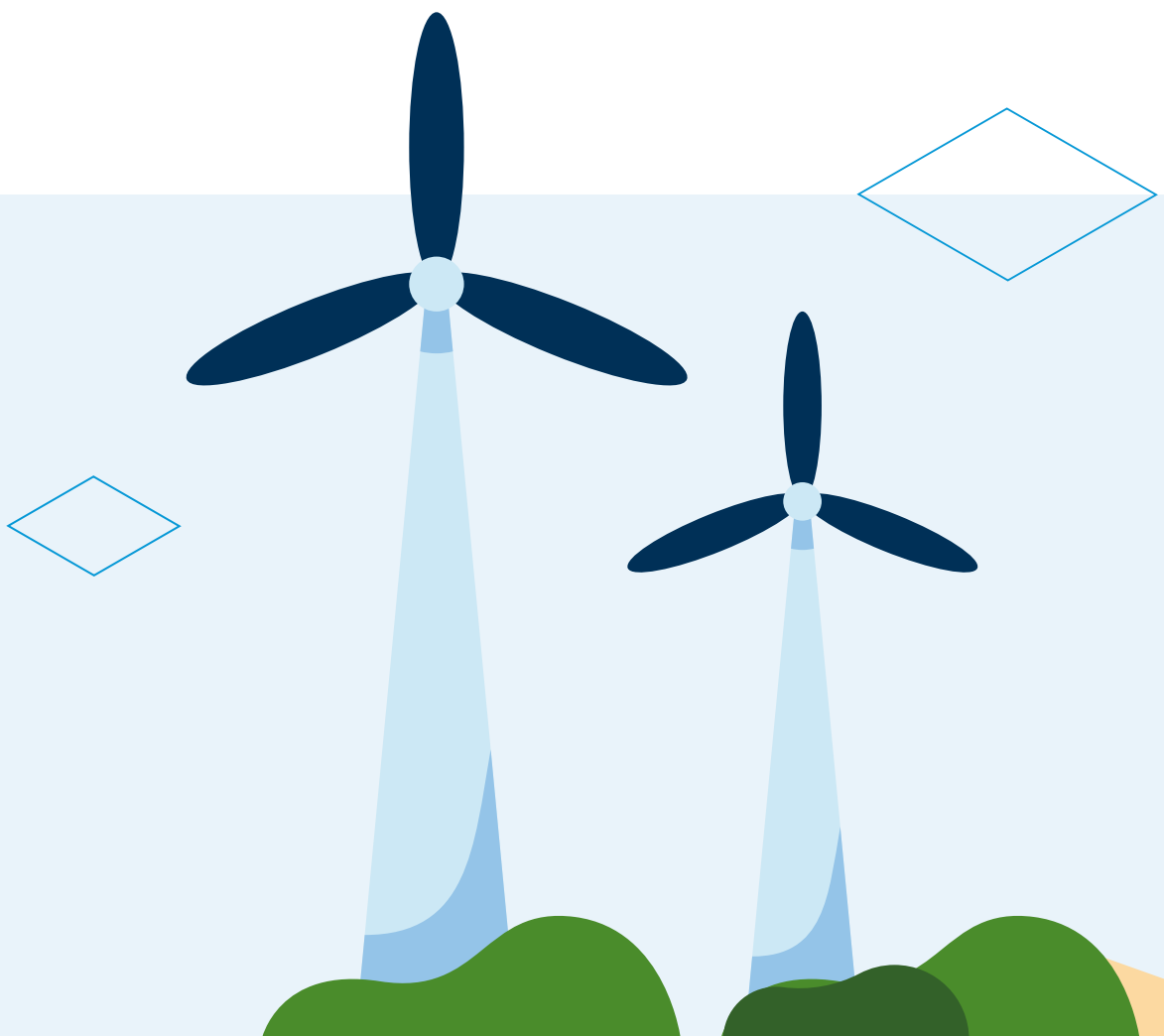
Unfortunately, we found that greenwashing works! Over half (57%) of consumers (in the control condition) believed that greenwashed claims were a reliable source of information about a company’s eco-practices. Consumers were also much more likely to agree that greenwashing energy companies had strong green credentials, compared to energy companies depicted in a non-greenwashed advertisement.

This despite the firms being entirely fictional, with one of the advertisements not even making any specific claim about the environmental practices. The imagery alone was enough to increase perceptions of green credentials.

And the trial also found that consumers who were more concerned about the environment were actually highly susceptible to greenwashing. Perversely, this means that the growing number of concerned consumers motivated to make a difference are the biggest victims of greenwashing. Despite intending to make greener choices, they may be selecting products or services that are much more harmful than they believe.

The better news though is that the interventions made consumers more sceptical about greenwashing companies. Consumers who received both the literacy and prebunking interventions rated the green credentials of the fictional companies significantly lower compared to the control group.

The greatest impact to empower citizens not to fall for greenwashing is likely to be achieved by tightening regulations of advertising standards, as the French government has recently done. But failing that, this trial demonstrates that evidence-based literacy and prebunking campaigns provide substantial protection from greenwashing. If engaged with en-masse, these interventions could re-enfranchise consumers to make more meaningful choices for the planet.





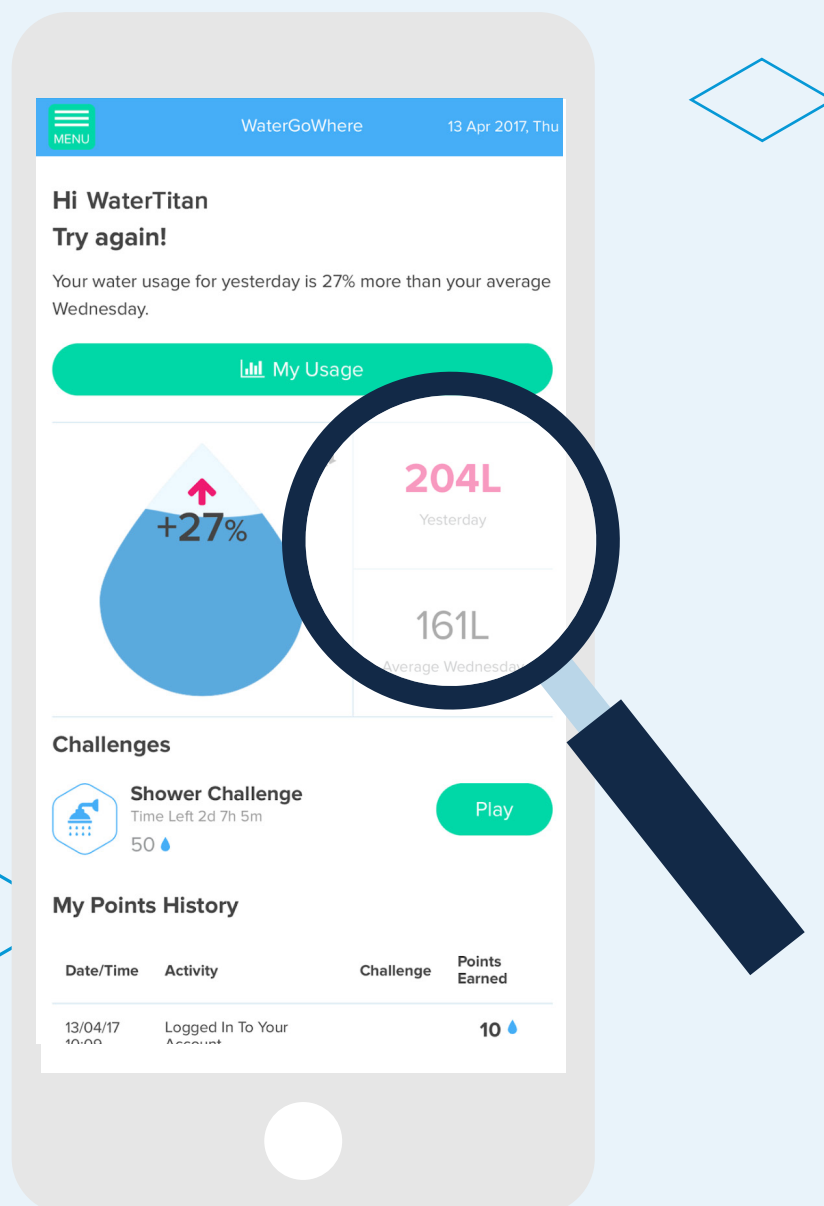
Household water savings

In 2019 BIT partnered with Singapore's national water utility PUB, and global environmental services company SUEZ on a project to develop workable strategies to reduce unnecessary water consumption and cut the time it took householders to fix leaks on their own properties.

BIT ran two randomised control trials (RCTs) to look at the behavioural principles at play. The first sent consumers encouraging the use of a smart water meter mobile application, WaterGoWhere (WGW), while the second looked at the app itself and how it could be more effective at encouraging consumers to conserve water and fix leaks promptly.

In June 2020, BIT partnered with LinkeDrive, an industry leader in truck driver performance management, to identify ways to use behavioural insights to help truckers drive more safely and fuel-efficiently, while also improving their experience on the road.

The project involved BIT reviewing relevant literature and speaking to truck drivers and fleet managers across the country to identify ways to improve LinkeDrive's existing solutions.



The WaterGoWhere mobile app

A sample of 1,058 households that represented the general Singapore population took part in the trial. The treatment to encourage uptake of the app included a personalised water usage chart for each residential unit, a testimonial from an active app user, a checklist of steps to download the app, and a clear deadline to register. The control group were only sent the standard letter inviting them to start using the app.



Above - the door hanger given to both treatment and control groups encouraging them to sign up for the app

The result was a statistically significant 7.8 percentage points more households who had received the treatment letter signing up for the app.

In the second RCT, half of the participants were offered the standard WGW app, while the other half were offered a version enhanced with behaviourally-informed features called MyWaterMeter (MWM). The enhancements included a graph comparing the household's water consumption against their neighbourhood average, a goal-setting feature to encourage water-saving behaviour, a list of nearby plumbers and more.

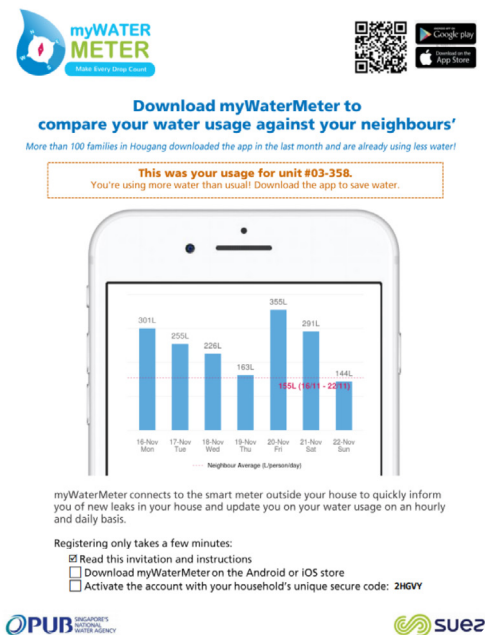
Alongside this, households with known leaks were sent a letter encouraging them to have them fixed promptly. Those being offered the enhanced MWM app were also given a more detailed letter about leaks, including information about how simple the process was.

Households that were offered MWM with the revised leak letter used approximately 2.3 percentage points less water and repaired their leaks 4.95 days faster than households offered the standard WGW.

While neither finding is statistically significant, the resulting effects in encouraging water conservation are nevertheless meaningful, given that MWM was tested against an active control (WGW) and on leaks from households in the treatment group (MWM) on average cost \$3.72 per leak less.



The control invitation to download the app



The BI enhanced app, 'MyWaterMeter', incorporating social norms, personalisation and progress tracker

“The results of these trials show that the incorporation of behavioural elements into communications regarding the smart water metre app can have a positive impact on the upcoming national rollout.”



Shifting commuter behaviour in Perth

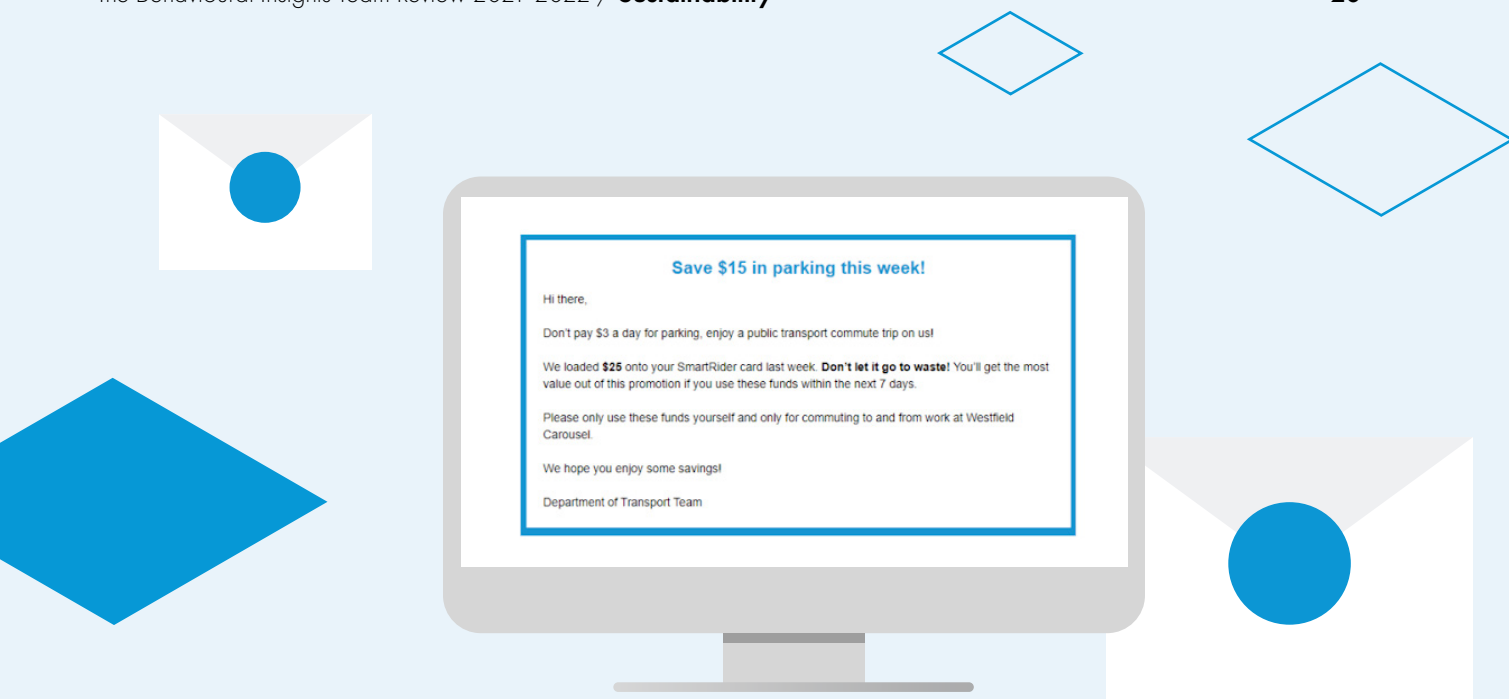
In Australia, long distances between cities mean that most people rely on commuting by car. Small vehicles account for 10% of Australia's greenhouse gas emissions, and the emissions from these vehicles are as much as 40% higher than other countries. Increasing usage of public transportation would be ideal.

However, shifting people's choice of transport (car or public transit) is very difficult because commuting is habitual behaviour. Plus, private car travel has many advantages, including privacy, convenience, and flexibility, while public transport infrastructure is often found lacking.

Financial incentives are one policy tool that shows promise for shifting modes of travel. For example, in Copenhagen, offering a free month of public transport significantly increased self-reported use of public transport both during the trial period, and five months later. The theory is that if you can encourage some people to try public transport just once, they might realise it's actually more convenient than they thought.

BIT worked with the Department of Transport in Western Australia to put this theory to the test, aiming to shift retail staff at a large shopping centre in Perth from commuting via car to public transport. For the trial,, 134 staff at the shopping centre received a free SmartRider card and for the next four weeks, at the start of each week, the card was loaded up to



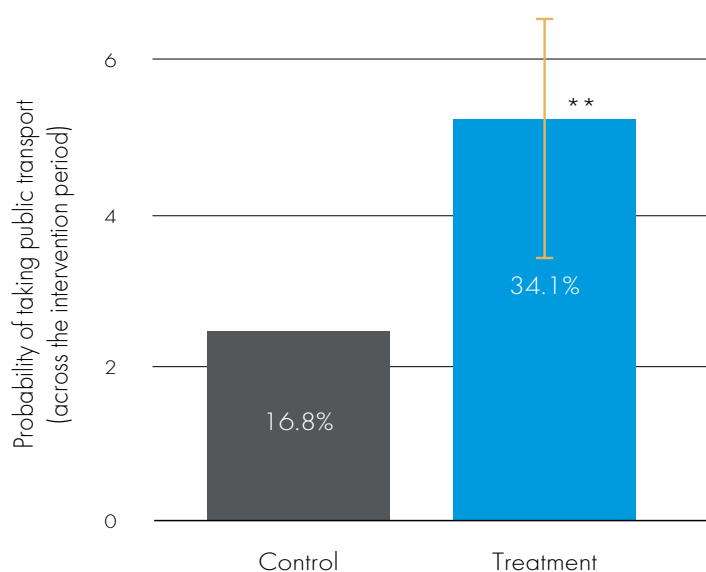


AUS\$25 worth of value. Participants also received emails each week that incorporated different behaviourally-informed messages to remind them that they could essentially travel for free, and should try out their cards if they hadn't already.

To see if this actually changed people's commuting behaviour, we compared trips taken on these cards to those in a 'waitlist' control group. These people received the same cards but were told that they would be getting funds in the near future.

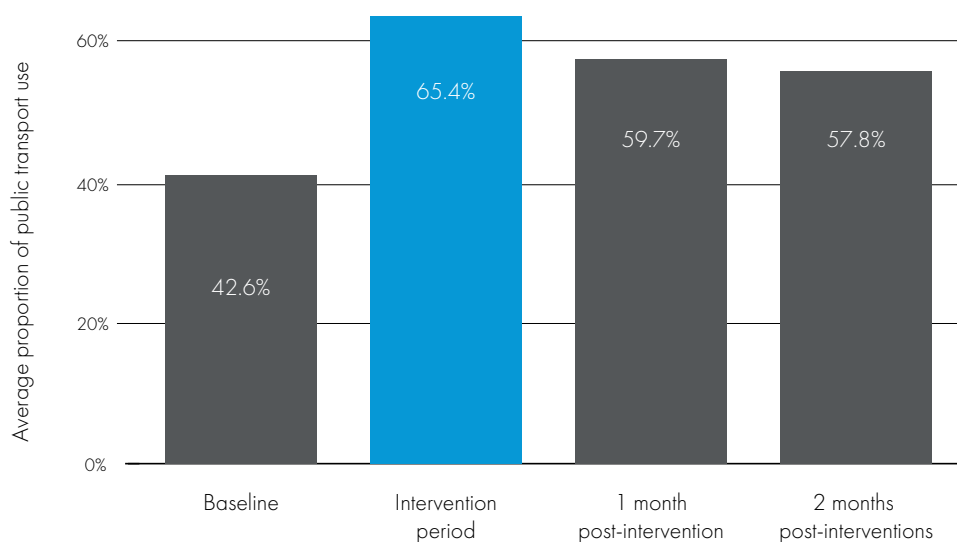
Data from the SmartRider cards showed that staff were more than twice as likely to take public transport when they received the weekly funding and email reminders.

Figure 1. The likelihood of taking public transport more than doubled when participants were given weekly funding and email reminders.




Participants were asked before, during and after the funding period what proportion of trips were taken to and from work on public transport. Funding increased the proportion of trips taken using public transport compared to before the intervention and remained higher even after the intervention had finished. This suggests that the intervention had a lasting impact on behaviour, even when the travel was no longer free.

Figure 2. The free card, funding and email reminders increased public transport use above normal, and people continued using more public transport even after we stopped the funding.



Although it was beyond the scope of the study to track how much longer after two months-post intervention the behaviour change continued to stick around, this research supports the idea that making it easier for people to experience public transport can give them the opportunity to realise that it may be better than driving to work.

 ***This suggests that the intervention had a lasting impact on behaviour***



Keep Indianapolis Beautiful

The planet can't sustainably handle the amount of trash we currently produce – around [two billion tons](#) of it every year. The United States alone generated [292 million tons of waste](#) in 2018. Experts estimate that a third of this garbage is not managed in environmentally friendly ways.

Improperly disposed waste pollutes waterways, harms ecosystems and threatens waste, rain and stormwater systems. While long-term solutions to these problems will require large scale systemic changes such as new waste management systems and regulations, individual behaviour matters too. Small actions like not properly disposing of or recycling waste can have bit, negative environmental impacts.

Many local governments already provide services for people to safely dispose of large household goods and hazardous waste, but in many cases these come with high friction costs that don't make it easy to act sustainably. And if people have strong ingrained waste disposal habits or are already cognitively burdened, encouraging new behaviours can be even more difficult.

In 2021 BIT started working with [Keep Indianapolis Beautiful](#) to encourage residents to take part in the city's heavy item pick up programme, running a randomised control trial to test the efficacy of a behaviourally-informed mailer that prompted residents to participate in the programme.

Residents were sent a behaviourally-informed mailer and a magnet about the programme, prompting them to participate. On the first collection date after the intervention, households who received the mailer were 55.1% more likely to properly set out their bulk items than those who did not receive the mailer.

This year, 2022, the project has been developed further by scaling it up and sending a new postcard to more areas of the city.



Most people want to dispose of their trash properly but too often can come up against barriers that prevent them from acting on those good intentions. As governments, urban planners, and other institutions design and improve waste management infrastructure, it is imperative that they do so with an understanding of how humans behave to help people do what it is they want to do to live more sustainably.



Reducing commuter emissions

Globally, transport emissions are rising faster than those in any other sector. How people get to work contributes to this issue, and for many, there just aren't good alternatives to driving. Structural issues, such as a lack of convenient and reliable public transportation, and cognitive barriers, such as following the status quo, make adopting new habits difficult.

However, COVID-19 forced major changes to commuting patterns. This disruption to pre-existing habits offered a window of opportunity to explore how behavioural insights can help reset how we commute.

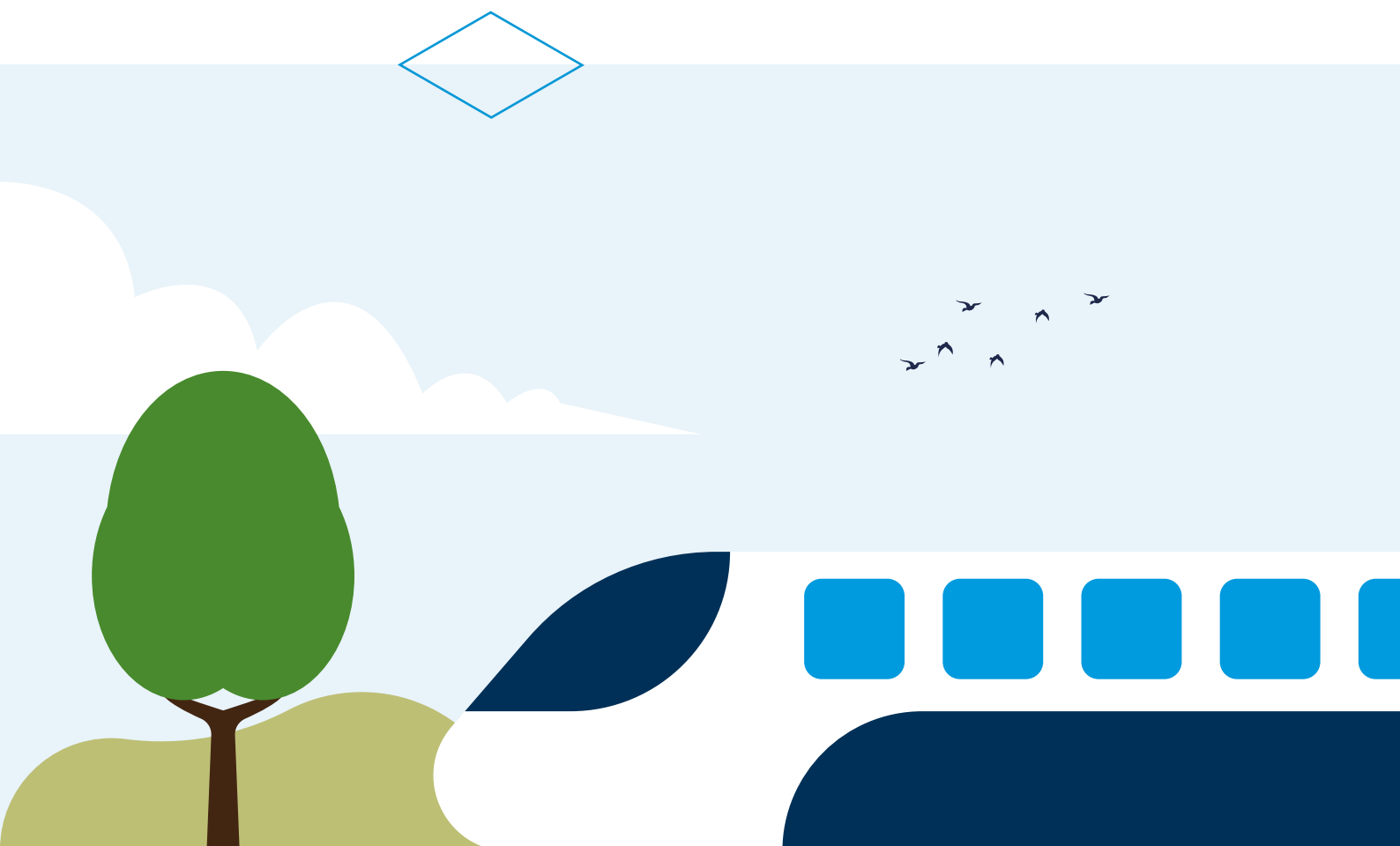
In March 2022, BIT wrote a report for Environment and Climate Change Canada (ECCC), outlining 19 evidence-based recommendations to encourage environmentally-friendly commuting behaviours as the country recovered from the pandemic. Both behaviourally-informed policy changes and complementary 'nudges' were identified to help tackle the challenge.



Key recommendations included:

- **Incentivise vehicle manufacturers** to produce and promote electric vehicles (EVs) over combustion vehicles to **help commuters reduce emissions** without needing to change their commuting habits.
- **Make EV charging stations attention-grabbing (salient) and convenient** to help address 'range anxiety.'
- **Create or encourage programs** that certify or provide a designation for workplaces that encourage low-emission commuting behaviours.
- **Provide personalised travel plans** at transitional moments such as returning to the office, starting a new job, or moving homes.
- **Run employee challenges** to encourage people to try out commuting alternatives.
- **Support adoption of contactless payment systems** or other measures to increase ease of payment for public transit.
- **Encourage zero emission vehicle ownership** through communications campaigns that leverage social norms.

Although shifting transport habits is notoriously tricky, the opportunities for positive impact, not only for emissions but also for health are substantial, and we will explore further how behavioural insights can make commuting choices and patterns much more sustainable.



You might also be interested in...

International Development

Reducing single use plastics in the Pacific

With 240kg of plastic waste entering the ocean every second according to recent studies, the need to radically reduce single-use plastics has never been more urgent. Developing countries, and small island nations in particular, face challenges in addressing plastic pollution due to limited recycling and waste management infrastructure. This issue was compounded with the United Nations Development...[see more](#)

[View](#)

International Development

Tiger-proof fences

In this project BIT looked at how to encourage smallholder livestock farmers living on the edges of Gunung Leuser National Park on the island of Sumatra in Indonesia to build tiger-proof enclosures (TPEs) for their animals.

The Sumatran tiger is considered critically endangered with only a few hundred individuals surviving on the island. However these individuals can still cause considerable damage...[see more](#)

[View](#)