



## **Abstract**

Social norms interventions are a robust and widely used tool for addressing climate change. Social norms interventions targeting second order climate beliefs can be used to correct normative misperceptions, close the partisan gap, and increase support for climate policy. Social norms interventions can also be harnessed to reduce greenhouse gas emissions by targeting behaviors like home energy conservation. A large body of current research confirms the effectiveness of the social norms intervention and provides guidance for how to optimize outreach and promote climate-relevant behaviors that are currently performed by less than a majority of people.

### **Social norm interventions as a tool for pro-climate change**

A little over ten years ago social norms interventions (SNIs), were cited as an

2008). Today, scholars describe the SNI - as popular and widespread (Bicchieri & Dimant, 2019) and multiple meta-analyses confirm the overall effectiveness of this approach, in general (Rhodes et al., 2020), as well as for addressing climate change specifically (Abrahamse & Steg, 2013; Andor & Fels, 2018; Farrow et al., 2017). Social norms are defined as that are understood by members of a group, and that guide morally a).

In a typical SNI, people are provided with information about beliefs and behaviors that are common and/or approved as a way to correct misperceptions and motivate changes in behavior.

In this essay I argue that SNIs can be widely applied to promote pro-climate beliefs, behaviors, and policy support. Targeting beliefs about what others believe and do makes sense because

& Tingley, 2017). This tendency to underestimate public consensus was also observed among U.S. congressional staffers and international relations scholars. These incorrect second-order beliefs may be fueling the partisan gap in climate change beliefs and exacerbating the perception of political polarization around climate policies. Both Democrats and Republicans underestimate a) the percentage of Republicans (a majority) who believe in and are concerned about climate change and b) the extent to which members of each party will support climate policies proposed by the opposing side (Van Boven et al., 2018).

The systematic underestimation of the extent to which the public believes in climate change and supports policy action is important because these second-order beliefs are correlated with an individual's own pro-climate beliefs, behaviors, and policy support. For example, those who perceive that a majority of their friends and family believe in climate change are more likely to believe in climate change themselves and support regulating carbon dioxide (Goldberg et al



Correlational research shows that normative beliefs predict a variety of climate-related behaviors. Meta-analytic work shows that normative beliefs about the extent to which others buy or approve of buying alternative fuel vehicles (AFVs), perceiving that peers have a positive opinion of AFVs, and the presence of AFVs in willingness to purchase an AFV (Pettifor et al., 2017). These results held across 11 countries, although effect sizes did vary. Similarly, normative beliefs about the extent to which other people engaged in public-sphere climate actions, such as voting and contacting government officials, was positively correlated with self-reported engagement in those same actions among (2016). Last, descriptive normative beliefs about the extent to which other people were engaging in adaptive actions were positively correlated with adaptive behaviors such as purchasing flood insurance and being willing to evacuate during a hurricane (van Valkengoed & Steg, 2019). Although, SNIs, have primarily been used to address behaviors, like household energy consumption, this correlational research suggests that these additional climate behaviors may be ripe for change via a SNI.

### **Saving energy with norm-based home energy reports**

Foundational research on SNIs has shown that providing households with information about the percentage of people engaging in energy-saving behaviors (Nolan et al., 2008), or with feedback comparing individual energy

scale implementations shows monthly energy savings of between 1 to 2 percent (Allcott, 2011). Although these savings might seem small, it is estimated that norm-based HERs, employed by over 100 utilities worldwide, collectively save 5 trillion watts per hour per year (Nolan et al., 2021). The power of SNIs even (Bator et al., 2019) and can decrease energy consumption among both liberals and conservatives, although liberals do show a more pronounced reduction (2.4% vs. 1.7% respectively; Costa & Kahn, 2013). The effects of these interventions seem to be persistent and long-lasting (Allcott & Rogers, 2014) and provide an excellent return on investment compared to other types of non-price interventions (Benartzi et al., 2017).

The long-term effects of SNIs seems to be the result of both new curtailment habits being established, such as turning off unused lights (Delmas & Lessem, 2014), along with adoption of energy efficient technologies. In one study, households that received a norm-based HER showed an 11% increase in the probability of obtaining a rebate from the utility for purchasing an energy-efficient appliance, suggesting a positive spillover effect (Costa & Kahn, 2013). SNIs directly targeting adoption of energy-efficient devices such as home heating pumps have also been successful (Hafner et al., 2019). Long-term savings have also been found for SNIs targeting home water consumption, even after just a single exposure to comparative feedback (Ferraro, Miranda, & Price, 2011).

SNIs employing comparative feedback, like that used in norm-based HERs, can be enhanced in a variety of ways to optimize effectiveness. First, adding an injunctive norm component can help to buffer conformity to the more wasteful group norm for those who consume at below-average levels (Schultz et al., 2007) and provide an extra push for above-average consumers (Bhanot, 2018). Injunctive norms can be operationalized using an emoji or a



(Bergquist & Nilsson, 2019). Second, activate the collective self by using in messaging (White & Simpson, 2013) and focus attention on working together toward a common goal (Howe et al, in press). Third, allow individuals to choose from among several conservation options the one that best fits their lifestyle (Reynolds-Tylus et al., 2019).

Unsustainable behaviors like driving and eating meat are often the norm (Sparkman et al., 2020), so, how can SNIs be used to promote climate friendly alternatives? One option, for non-normative behaviors like installing solar panels, is to target outreach in areas that already have a large number of adopters. For example, are more likely to install solar panels themselves when they live in a zip code with a relatively large number of solar panels already installed (Bollinger & Gillingham, 2012). It might also be helpful to choose someone

belief that the behavior is valued by important others, and that change is compatible with their social identity (Sparkman & Walton, 2019). It should also be noted that communicating minority norms can sometimes be effective, but only if

are more effective in collectivistic countries in Asia and Latin America (Rhodes et al., 2020), another meta-analysis looking specifically at field experiments promoting environmental behavior found SNIs had a stronger effect in more individualistic countries (Bergquist et al., 2019). This result may be especially noteworthy given that individualistic countries are less willing to pay to support costly climate policies (Alló & Loureiro, 2014).

### **Concerns about social norms interventions**

Normative feedback may not always be well received by the target audience. More than a third of households surveyed in one study said they disliked the norm-based HER and 2% took action not to receive it (Costa & Kahn, 2013). Further analysis showed that high energy users





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