PROMOTING THE PURCHASE OF CARBON OFFSETS

Through Rare's Banking App

ABSTRACT

Many Americans are unaware of what carbon offsets are, and many that are aware of carbon offsets do not use them. More than 100 million American adults are concerned about climate change, but few of them purchase carbon offsets (Ballard & Lemay, 2018; Leiserowitz et al., 2019). In a 2018 survey of Americans who believed their personal behaviors and emissions affected climate change, two-thirds of respondents had heard of carbon offsets, but only 12% had ever purchased one (Ballard & Lemay, 2018). About half of the respondents were interested in purchasing them (51%), while those that were not most often cited was a lack of information about carbon offsets (28%) (Ballard & Lemay, 2018). This amounts to approximately 81.2 million Americans—2.5 times Rare's goal of 10%—who have heard of and are interested in purchasing carbon offsets but have yet to do so. Here, we present six evidence-based recommendations drawn from the social science literature on how Rare can maximize the purchase of carbon offsets from its banking app. In addition, we include ways to incorporate gamification in the app, which appeals to younger audiences and can increase participation (Koivisto & Hamari, 2014). These recommendations, when used together, will greatly increase Rare's success with getting Americans to purchase carbon offsets and use Rare's banking app.

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1. Concrete rewards: Turning carbon offsets into thriving forests.

Carbon offsets are an abstract, nebulous concept to everyone except the experts. People are much less likely to engage with abstract concepts than with concrete things—ideas and objects that can be experienced with their senses (Heath & Heath, 2007a). To encourage people to engage with carbon offsets, Rare should find a way to make them concrete.

Concrete ideas can rally support, increase motivation, and even evoke emotion (Heath & Heath, 2007a). The Nature Conservancy (TNC) protected visually unappealing, yet ecologically important, brown hills to the east of Silicon Valley by making them concrete in the eyes of the people. The hills, crucially important to the San Francisco Bay watershed, were being threatened by the sprawl of Silicon Valley. TNC gave the hills a name, an *identity*—The Mount Hamilton Wilderness—and transformed them from something intangible into a landscape and a point of local pride. This identity made the hills worthy of conserving to Bay Area corporations, environmental organizations, and local residents (Appendix A) (Heath & Heath, 2007a).

We propose transforming carbon offsets from unappealing brown hills into vibrant green forests via concrete messages and clever illustrations in the app. Instead of buying carbon offsets, the user will buy something concrete: "tree" units. Each "tree unit" will represent the amount of carbon that planting a tree would remove from the atmosphere. Rare should use "tree units" as a unit of measurement to illustrate what it would take to offset common activities, such as ordering something online, flying cross-country, or commuting to work. By making the carbon footprint of everyday activities concrete, Rare will help users visualize their impact on climate change.

Take things further with gamification to pique user interest. To visualize "tree units", Rare can give users an in-app virtual forest where they can see each of their offsets purchased. The more carbon offsets they purchase, the more trees they plant in their forest. As their forest grows, they can track the difference they are making in the world (see point 5). Rare can make these virtual forests more engaging by promoting various real-world challenges, such as buying carbon offsets for X number of purchases, that allow users to unlock new animal or plant species for their virtual forests. These should be native North American species, especially protected species, and users should be given the option to learn more. By using a concrete and appealing concept—planting trees—Rare can further help users understand the benefits of carbon offsets.

2. Share stories to more than double the number of carbon offsets purchased.

Once you have changed carbon offsets into a concrete idea, it is important to use stories to highlight their positive impact. Stories, which have united us for thousands of years, resonate with people. Users can be engaged through stories that evoke emotions and a desire to act by illustrating where the user's money is going and who it is helping. Stories that allow the reader to feel as though they experienced it changes their cognition, increases their engagement, and cause them to assign value to the outcome, which compels them to action (Morris et al., 2019).

Small, Loewenstein, and Slovic (2007) used narratives, statistics, and a combination to assess which had the greatest influence on charity. They presented three different donation request packets to various participants. The first group was asked to help 3 million starving children across Africa. The second group was asked to help Rokia, a starving 7-year old girl in Africa. The last group was given a combination letter. Participants that read only Rokia's story donated more than twice as much as the ones that read the statistics and two-thirds more than those that read both combined. Small et al. (2007) further tested the influence of triggering an analytical versus mindset. New participants were either asked analytical or emotional questions before being given Rokia's story. Those that were primed to think emotionally gave almost twice as much as those that were primed to think analytically. To successfully engage users, Rare's banking app should share stories of individuals, as these evoke emotion and stimulate a desire to help; not countries or statistics, as these invoke the analytical part of people's brains, which reduces their overall contributions.

The best way to engage people interested in purchasing carbon offsets is through stories that evoke emotion, i.e. how offset purchases help real people, which will promote a desire to act (Heath & Heath, 2007b, 2007c).This can be done by sharing a short story in the app illustrating who their carbon offset choices are helping and why this is important for them. Example:

Mary is a wife and mother of three living in rural Kenya. She spends five to seven hours a day gathering fuel for and cooking on her inefficient indoor wood-burning stove. Mary's health has been adversely affected from breathing in smoke for hours every day. She has asthma, her son has breathing trouble, and her mother died of lung disease. Providing Mary with a clean cookstove would not only improve her health and that of her children, but it would allow Mary time to pursue other activities. She could return to school, earn money for the household through other tasks, or spend more time with her children. (For more information about how clean cookstoves benefit those in impoverished communities, visit www.cleancookingalliance.org.)

Take things further with interactive stories to keep users invested. To increase user engagement with Mary's story, Rare can use unlockable story chapters to share how Mary's life is improving. By purchasing carbon offsets and growing their virtual forest, users will be able to follow Mary's progress. For every X trees planted, they will unlock the next chapter of her story, such as how she is doing in school. Once her story is completed, users should be prompted to choose between new suggested stories. Stories should represent the aid provided from purchasing carbon offsets. Users should be given the option to switch between stories, and who their offsets are aiding. Introducing new stories and giving updates will maintain user's interest in purchasing carbon offsets, planting trees, and changing lives.

3. Use commitment strategies to more than double your success rate.

Rare's audience already believed carbon offsets were a worthwhile endeavor, however they were not very well motivated. By using concrete ideas to clear up uncertainty and stories to cultivate empathy and humanitarianism, Rare will stimulate motivation. Once users are motivated, it is time to

ask for a commitment to purchasing carbon offsets, as commitment strategies are the best way to transform motivation into concrete action (McKenzie-Mohr, 2011a). When people make a commitment, they see themselves taking action, which research has shown can have a big impact on the likely of them following through by taking the action promised—in some cases doubling or even tripling the rate at which people take action (Kosslyn & Moulton, 2009; Ratner & Riis, 2014). To increase the likelihood of a user taking action, commitment statements should include a concrete plan of how and when the user will honor their commitment (see Point 4) (Ratner & Riis, 2014; Sheeran & Orbell, 1999). Implementing a commitment strategy in the carbon offset program is an evidence-based way to accelerate the adoption of this important behavior and can be used to cultivate environmentally responsible identities (Appendix A). According to McKenzie-Mohr (2011a), these are some key points to consider for effective commitment strategies.

1. The commitment needs to be **written**, not verbal, as this has greater long-term viability.
2. It should be **public** because this taps into people's desire to be consistent in their behavior, and be seen as such, as well as fostering social norms (see Point 6; Appendix B).
3. **Existing supporters** in the community should be used to get commitments from their neighbors, as this greatly increases actionability of others.
4. Commitment strategies should **actively involve** people by giving them activities that guide them towards fulfilling their commitments, as this builds their self-perceptions.
5. The commitment should build and reinforce people's **identity** as environmentally responsible (Appendix A).

During the set-up of their carbon offset account within Rare's banking app, users should be encouraged to make a commitment to purchasing carbon offsets. If a blanket commitment is declined, they should be asked to make smaller commitments.

- Ask users to commit to helping Mary by buying carbon offsets for every purchase.
  - If they decline, ask them to commit to buying offsets for specific categories of purchases, such as travel purchases or self-selected categories.
  - If they still decline, as them to commit to buying purchases at least once a week.
- Ask users to share their commitment to with their social network.
  - "You've committed to "X". Share this with your friends by clicking below!"

4. Use "action triggers" to build positive habits to help users maintain commitments.

Once users are emotionally invested in carbon offsets and have committed to purchasing them, Rare can ensure this becomes an integral part of their daily lives, rather than an empty promise or a one-time purchase, by fostering positive energy habits. This recommendation and the next focus on reducing barriers to action through automating desired behaviors and providing timely reminders to act, thus building long-term habits. People who practice positive habits, e.g. eating healthy, are more likely to exceed their long-term goals in life, because they are more likely to continue behaving responsibly after achieving their goals (Duhigg, 2014; Galla & Duckworth, 2015).

Once established, habits require less willpower to maintain and provide their own source of positive reinforcement (Clear, 2018; Duhigg, 2014). Heath and Heath (2010b) refer to habits as "behavioral autopilot," as they do not require people to exercise self-control, a finite resource (p. 207).

Action triggers can be used to build these habits and maintain commitments (Heath & Heath, 2010b). An action trigger is a mental plan made at the time a decision is made. First, identify the behavior to be changed (e.g. not purchasing carbon offsets), and identify when and where this occurs. Use this to create a trigger for the positive habit that not only counteracts the undesired behavior, but also associates the new behavior with the positive habit, e.g. "If (opportunity/obstacle) arises, then I will (respond in this way)!" (Rothman et al., 2015, p. 702). For example, someone who is committed to losing weight might say "I'm going to get in shape;" however, a more effective statement would be, "When I leave work tomorrow, I'm going to the gym." The trigger—leaving work—will activate the desired behavior—going to the gym, and by extension, exercising. Using action triggers reduces decision fatigue, as the decision will have already been made when it comes time to act (Heath & Heath, 2010b, p. 210). Eventually, the positive feedback of the habit will be self-sustaining, however, in the early stages, you will need to counteract the lower mental energy cost of not acting (Clear, 2018; Duhigg, 2014; Heath & Heath, 2010c). To do this, each successful practice of the new habit should be celebrated (Fogg, 2019). To further build positive habits, users should be prompted to share their success on social media (Appendix C) (McKenzie-Mohr, 2011a).

When considering carbon offsets, the ideal habit is the user purchasing carbon offsets for every purchase, be it an airline ticket or an online order.[1] Ways to build positive habits:

- Encourage users to automatically purchase carbon offsets for various categories.
  - "Would you like to automatically purchase carbon offsets for your fossil fuel energy purchases? These would include your electric bills, gasoline purchases, and flights."
- When the offset is purchased, promote a positive reward and illustrate their impact.
  - "You offset your energy usage, and your forest has a new tree. Your offset purchase today is equivalent to planting XX trees."
- Celebrate improvements from month to month regarding energy usage, online orders, etc.
  - "You saved $XX.XX compared to last month! Great job!!"

5. Use prompts to build on prior commitments and increase their success rate.

Some of the actions Rare wants its users to engage in cannot be automated. These will require more contact with the user for the action to be completed. People encounter numerous distractions in daily life that can prevent them from following through on their commitments. Prompts, whether visual or auditory, counteract this by reminding people to take an action that may have been forgotten, often building on—*not* increasing—pre-existing motivations (McKenzie-Mohr, 2011b). They are an effective way of making behavior change easier by delivering timely reminders

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[1] While reducing the need for these offsets is ideal, we focus on incorporating carbon offsets into everyday routines.

to encourage users to maintain a previous commitment. Prompts should be tied to the time and location where the desired behavior would occur. For example, placing a reminder placard to turn off the lights near the light switch would be far more effective than placing it on the desk in the middle of the room. Prompts should only be used to encourage sustainable behaviors, not discourage harmful ones (Appendix B) (McKenzie-Mohr, 2011b).

An effective example of sustainably focused prompts is "shelf-talkers" used by the Minnesota Office of Waste Management. "Shelf-talkers" are prompts on grocery store shelves that identify products that reduce waste and save money, encouraging shoppers to reconsider their purchases (McKenzie-Mohr, 2011b). The audience—the customer—is reminded at the right time—while shopping—to engage in the target behavior—shop sustainably. App users that have committed to responsible energy practices can be reminded of their commitments using prompts (see Point 3). The prompts will encourage users to report any steps or actions taken towards their commitment. Prompts need to be carefully timed to ensure they are delivered as close to when the desired behavior should occur as possible.

Prompts should be used to remind users to set action triggers, buy carbon offsets, or reduce their carbon footprint via the app.

- Remind the user to offset their actions when purchases linked to carbon offsets are made.
  - "Hi! We noticed you paid your energy bill today. Would you like to buy a carbon offset for this purchase for $XX.XX?"
- If users declined to set up automatic offset purchases when they first downloaded the app, send them reminders of the option when they might be more amenable.
  - "Thank you for offsetting your last energy bill! Would you like to make it even easier by setting up automatic carbon offsets?"
- Encourage the user to plan how they will reduce their footprint.
  - "You received your energy bill today. Would you like to create a plan to reduce your energy usage this month? Click here to get started!"
  - Prompts to reduce energy usage through more efficient lighting might be:
    1. Notify the user in the evening to count all incandescent bulbs in the house.
    2. Use purchase data from the app to notify the user on a day when they would normally be shopping to purchase the new LED light bulbs.
    3. Prompt the user over the weekend to install the lightbulbs.
    4. Remind the user to recycle the old bulbs at app-identified nearby recycling centers.

6. Use reciprocity to increase the number of app users and overall user engagement.

Once your existing users have become active participants within the app, the next step will be to grow that user base. Rare can do this by utilizing the concept of reciprocity to get these members to recruit others in their social networks. Reciprocity is a social norm whereby one person's kind actions evoke kind actions in turn from others (Fehr & Gächter, 2000). For example, a

friend might help you get your car to the mechanic after you helped them move. Reciprocity can be used to spur actions that benefit the public good (Rand, Yoeli, & Hoffman, 2014). Rare can harness this feeling of reciprocity by letting users know that others are also working to mitigate climate change and by making user's participation public and readily observable by others. By encouraging users to share their contributions on social media and showcasing the number of app users, Rare will be capitalizing on the benefits of reciprocity and bringing attention to Rare's efforts to combat climate change

Behaviors benefiting the public good must be observable by others to trigger reciprocity. To analyze the influence of public good actions on reciprocity, Rand et al. (2014) developed a game to determine whether players would work together (reciprocity), or whether one or more players would behave in their own self-interest at the expense of others. In long-term partnerships, players more often cooperated with the knowledge and expectation that their partner would also reciprocate. When players were made aware of other player's exact contributions to the public good, they were more likely to contribute in turn. This effect was significantly increased if the player's photos were included with the contribution amounts shown to other players (Rand et al., 2014). This illustrates that people are more likely to contribute to the public good when 1) they know others are, too, and 2) their actions are being observed by others. Only actions viewed as benefiting the public good can utilize reciprocity in this way (Rand et al., 2014). Therefore, only those that believe their personal behaviors and emissions affect climate change should be targeted.

- Show users that others are already taking action through newsletters and social media posts.
- Challenge users to share their progress meeting goals or completing challenges on social media and tag X friends.
- Highlight the total number of users in the app, on social media, and in promotional material.
- **Take things further by offering bonuses for user's virtual forests.** For every X number of friends recruited, users will unlock unique animals or trees for their forests (see point 1).

Conclusion

Using the latest in social science research, Rare can get into the minds of Americans that are interested in purchasing carbon credits but have yet to act. By engaging with them through their banking app, Rare has a unique opportunity to craft tailored messages that target user's personal spending habits, which can greatly increase their likelihood of purchasing carbon offsets. These six recommendations have provided strategies to help Rare fully capitalize on this.
Make your carbon offsets concrete. Use stories to motivate people. Turn motivation into action with commitments. Automate commitments with action triggers. Make behavior change easy. Embrace reciprocity. Using these communication-based strategies, Rare can exceed its goal of getting 10% of Americans to purchase carbon offsets.

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Appendix A. Cultivate environmentally responsible identities to help users embrace carbon offsets.

To get Americans to embrace carbon offsets, Rare needs to cultivate an environmentally responsible identity in their users. Identities are images and traits people apply to themselves and use to make decisions (Heath & Heath, 2010b). For example, when someone who identifies as being healthy is asked whether they want dessert, they may be more inclined to pass than someone who does not identify as being healthy. Using messages that connect existing environmentally responsible identities, such as recycling and reducing waste, with using the app and purchasing carbon offsets will grow user's identities.

Just as with other Rare Pride campaigns, it is vital to incorporate purchasing carbon offsets into people's identity. Emphasize that users are environmentally-minded individuals and that purchasing carbon offsets is something environmentally-minded people (should) do (Heath & Heath, 2010b). Heath and Heath (2010b) suggest crafting an identity question, such as "What would a[n] [environmentally-responsible] person do in this situation?" People are able to adopt and grow new identities, especially when it is introduced through a small beginning, such as purchasing carbon offsets (Heath & Heath, 2010b).

Ways to connect people's identity with being environmentally responsible are:

- Use language that reinforces identity.
  - "When environmentally responsible people like you take up the challenge, we can meet our goal of reducing America's emissions by over 75%!"
- Thank users for being environmentally responsible.
  - "You've committed to "X". Thank you for being environmentally responsible!"
- Link identity to their region and encourage reciprocity (see Point 6).
  - "Environmentally responsible users in your area have, on average, slashed their emissions by X%."
- Use images that users can identify with. These images need to reflect common values.
  - Bill and Amy Greene are average Americans like you. They both work full-time and have children to raise. They go to cook-outs and carry their kids to ballgames. Bill and Amy also recycle, use their own bags at the grocery store, and purchase carbon offsets.

Appendix B. Use competition to normalize sustainable behavior.

Developing social norms that support sustainability can change individual behavior. One way is through competition, which makes behaviors publicly noticeable and encourages engagement, combining both descriptive and injunctive norms. Descriptive norms illustrate which behaviors are normally engaged with, while injunctive norms indicate which behaviors are acceptable or unacceptable (McKenzie-Mohr, 2011c). However, descriptive norms can backfire if they make undesirable behaviors appear common. For example, when people learn that most people litter, they may be more likely to litter unless they are praised for performing better than others (McKenzie-Mohr 2011). When encouraging a behavior to be normalized, combine descriptive information with injunctive praise, and make the norm noticeable.

In the Boston area, three neighborhoods competed in a neighborhood competition called Energy Smackdown, which was developed by Donald Kelley at the Brainshift Foundation (Climate Leadership Academy Network, 2010). Residents earned points through energy saving actions in their homes and through community challenge events. The points were recorded online, so residents could see how they were doing compared to their neighbors and competing neighborhoods and see which prizes they had won. This competition created a descriptive norm—entire neighborhoods publicly engaging in sustainable behaviors—and an injunctive norm—prizes for outcompeting neighbors. Social events and community challenges gave participants the chance to learn about the actions and strategies of their teammates and receive advice from experts, thus reinforcing the norms. Households reported enjoying the competition, and the results illustrated how effective it was: Annual CO_2 emissions were, on average, reduced by 20%, with the winning household reducing emissions by 54% (Climate Leadership Academy Network, 2010).

Rare can replicate this success within the app through user's social networks and regional communities. Using competition within the app will show users that others are engaging in sustainable behavior (descriptive norm), and reward users for doing better than their peers (injunctive norms).

- Encourage users to track their progress to compete with friends and within their community.
- Award points for progress and winning competitions. Points should be redeemable for in-app rewards, such as new tree or animal species for their virtual forests, and real-world rewards, such as planting a tree in the Amazon, a year's supply of CFL bulbs, or Rare swag.
- Use leaderboards to track progress at the local, state, and national level.
- Use periodic seasonal competitions that align with real-world events, such as the monarch migration, to give users specific goals to accomplish within the time period.
- Encourage challenges between specific (friends & relatives) and communities (neighborhoods, cities, or universities) for users to win additional points and bragging rights.

Appendix C. Build momentum with early successes.

While integrating carbon offsets into American's daily lives and building awareness of its importance, Rare should focus on "engineer[ing] early successes" which in turn "engineer hope" (Heath & Heath, 2010a, p. 141). Progress towards the desired behavior, i.e. using carbon offsets, should be visible to the end-users, and small wins should be celebrated, as these two things ensure continued motivation, and show users how they are building sustainable habits.

People avoid tasks or changes that seem overwhelming (Allen, 2001). Reducing these changes or tasks into simple and easy actionable items creates small wins when they are accomplished (Allen, 2001; Weick, 1984). These small wins should be celebrated, and the best small wins to celebrate have meaning and are "within immediate reach" (Heath & Heath, 2010a, p. 133, 145; Weick, 1984). If you cannot identify which accomplishments have meaning, you should focus on those within immediate reach, as they will create momentum that can carry users forward towards more meaningful goals (Heath & Heath, 2010a).

Ways to engineer small wins and build momentum for positive change are:

- Ask users to identify personal sustainability goals and to identify their personal timeline for achieving said goals.
  - o I want to buy an electric vehicle by May 2021.
- Ask users to identify which smaller steps they need to accomplish to reach their large goals and implement small reminder check-ins to track their progress.
  - o I need to save $5,000 for a down payment by March 2021.
  - o This user might receive monthly reminders to set aside money for their down payment.