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ideas42 is partnering with the University of Cape Town to tackle high energy consumption within the Western Cape Government (WCG). Our client is the WCG Department of the Premier and the Department of Public Works.



Step 1. We DEFINE the problem by disentangling presumptions about behaviors and solutions.

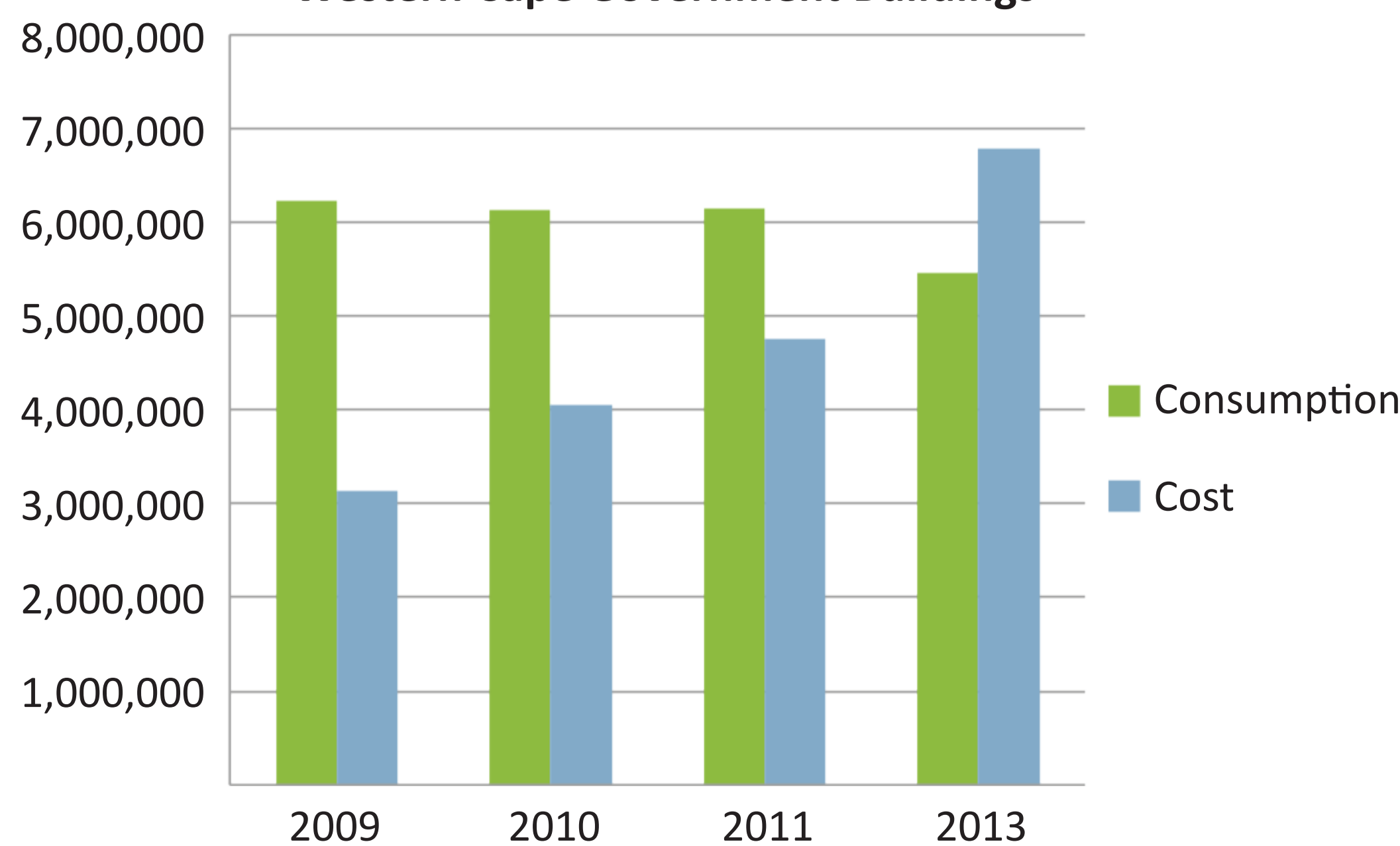
Problem Statement

There has been much work focused on creating behavioral interventions to reduce energy use in residential households, but limited such work for the office building context.

Coordinating and monitoring energy use among office floors is more challenging for two reasons. First, unlike residential consumers, occupants of office buildings typically do not have any incentives to reduce their energy use. Second, while residential households typically have 4 members, work floors can range from 50-200 individuals.

An opportunity exists to apply behavioral economics to design a nudge - a low-cost but high-impact tweak to the existing system - to reduce energy consumption in the office context, starting with this pilot in the Western Cape.

Yearly Energy Consumption and Cost in 2 Major Western Cape Government Buildings



WCG's average energy consumption per FTE is 6,474 kWh/FTE, above the industry standard of 4,300 kWh/FTE. Over the next 3 years, the City of Cape Town projects that energy prices will increase 15% per year.

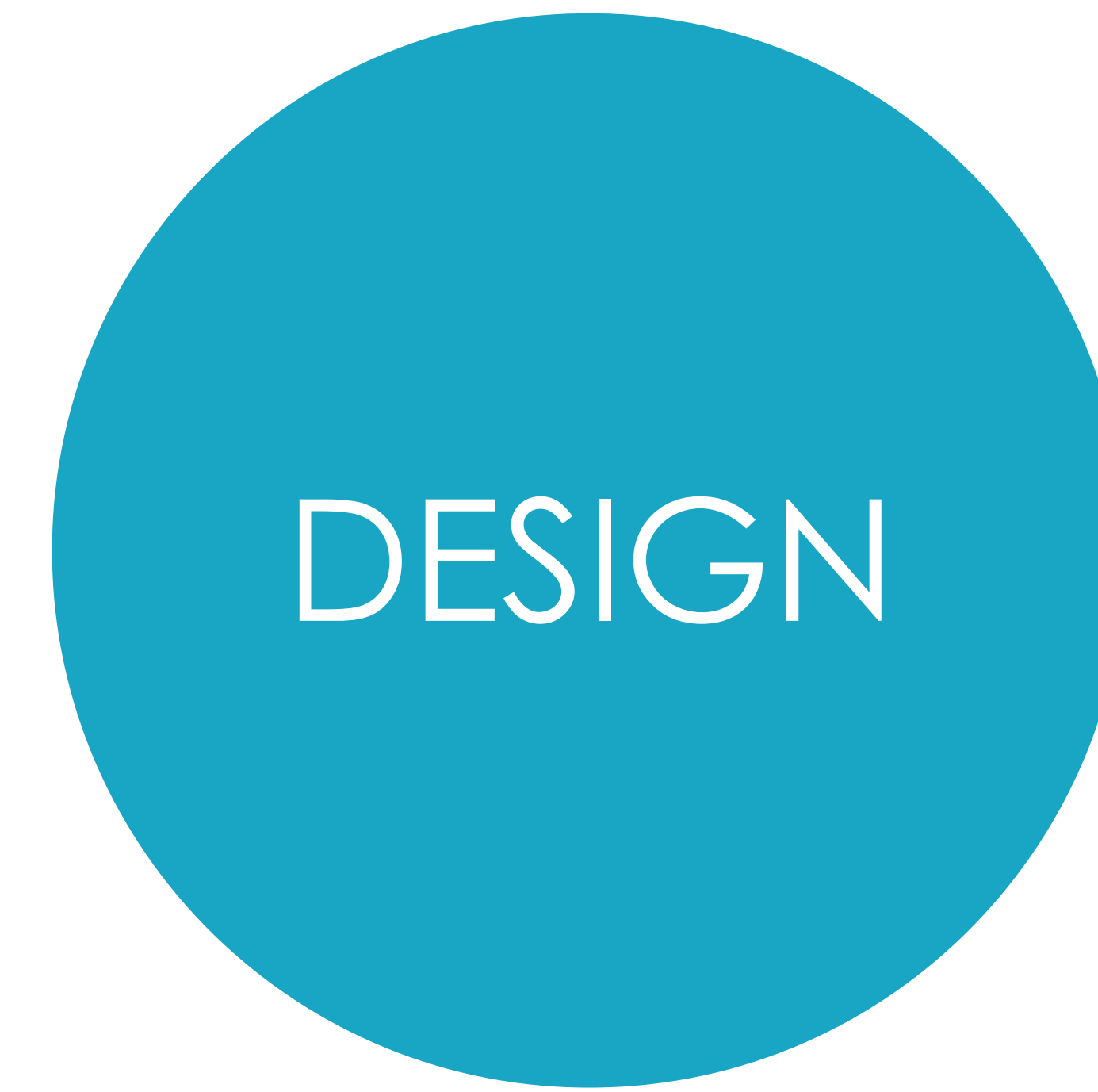


Step 2. We DIAGNOSE the behaviors at play by uncovering behavioral bottlenecks and contextual details.

Diagnosis Highlights

Through interviews, focus groups, and site visits to explore the office setup, we diagnosed the following six major psychological bottlenecks impeding energy efficient behavior:

- 1. Diffused Responsibility:** Employees are often unsure whose responsibility it is to turn appliances and lights off at the end of the day.
- 2. Moral Justification:** Employees consider public service to be their primary contribution to the environment, rather than reducing personal consumption.
- 3. Unit Confusion:** It is unclear to employees how small individual behaviors translate into and affect energy efficiency.
- 4. Limited Attention:** Employees sometimes simply forget to turn off devices.
- 5. Identity:** While at work employees do not think about translating their energy efficient behaviors at home to the office.
- 6. Social Norms:** Employees do not know how much energy their colleagues use and therefore have no reference point for how well they are doing.



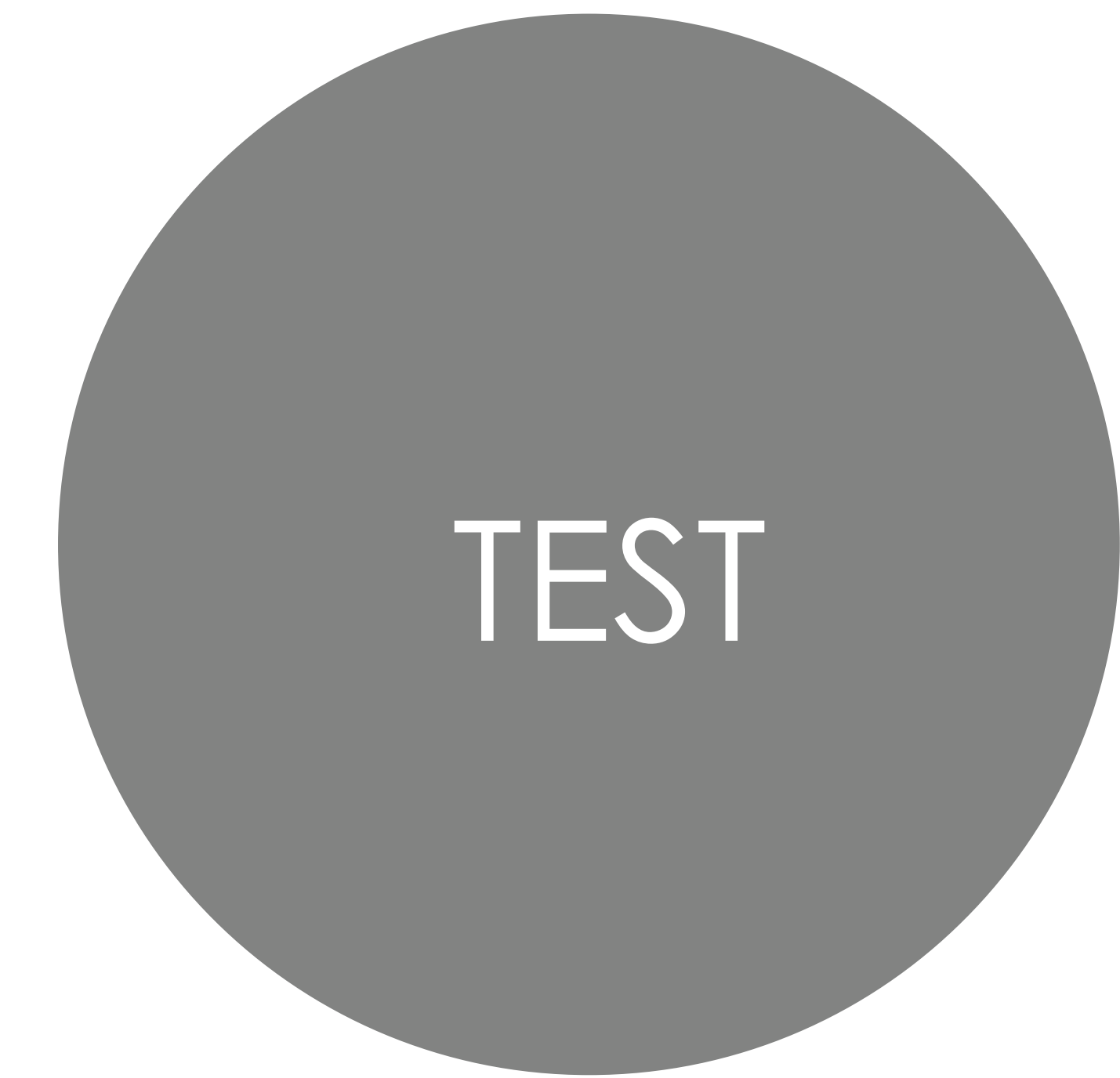
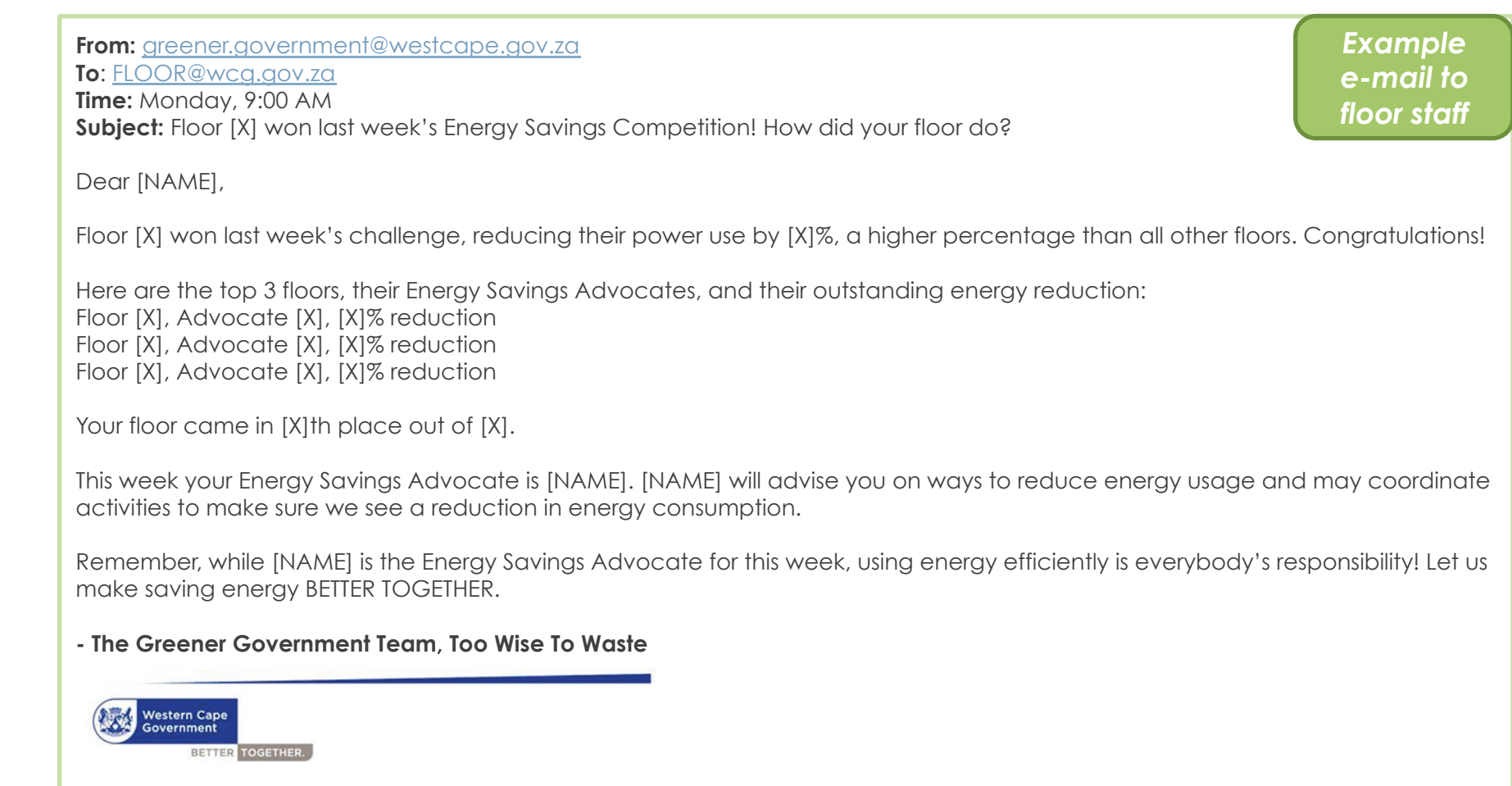
Step 3. We DESIGN potential solutions by creating, prototyping and refining our ideas.

Designed Solutions

We designed the following solutions to respond to and mitigate the bottlenecks we observed. In thinking about the intervention vector, we devised an automated email system that would enable us to deliver, monitor, and test our solutions to measure their effectiveness and impact:

- 1. Provide Information:** Provide easy-to-understand and actionable energy information.
- 2. Send Reminders:** Target reminders to coincide with key moments of usage.
- 3. Social Competition:** Compare each floor's energy use with the others'.
- 4. Assign Responsibility:** Randomly assign employee to be "energy champion" on a regular basis.

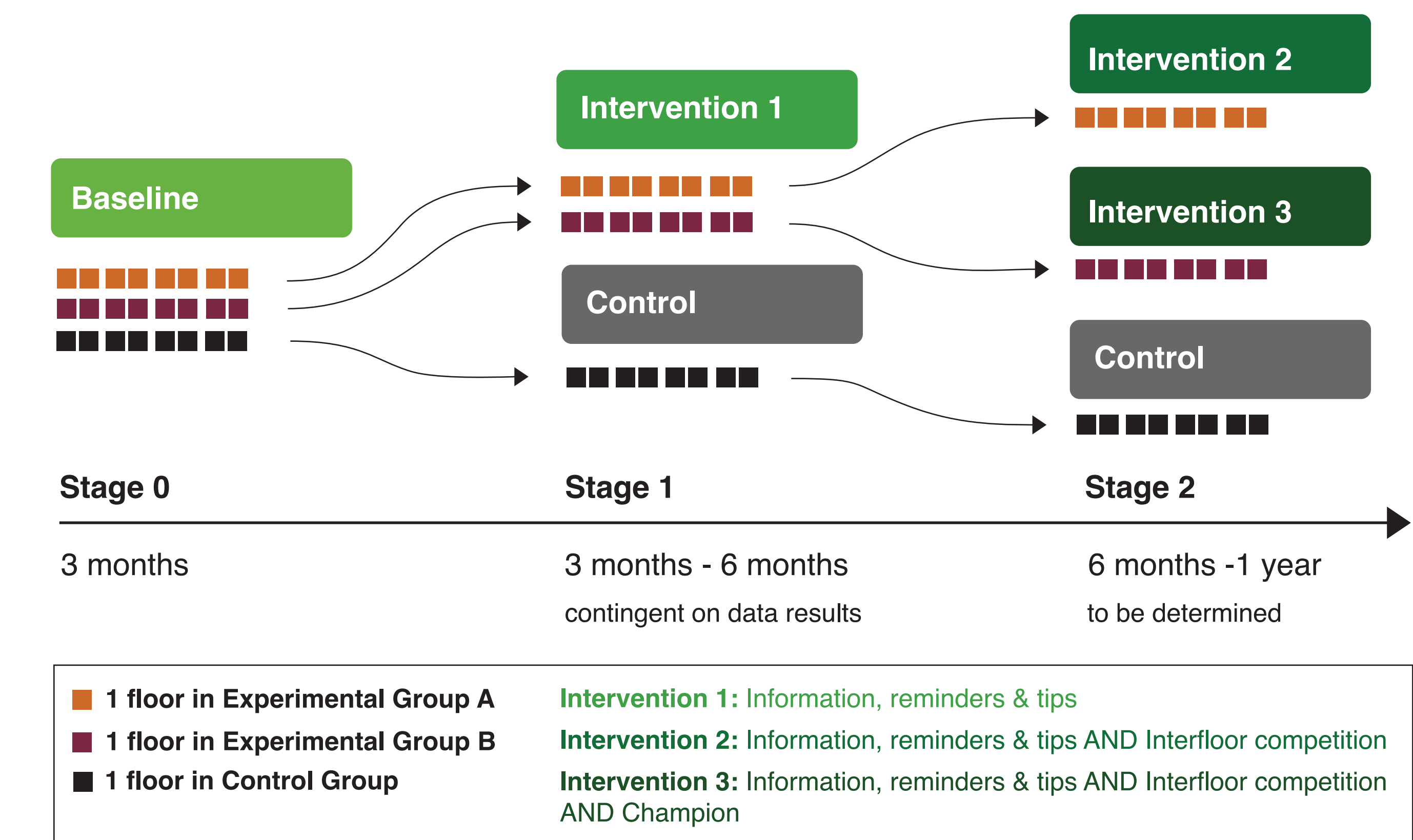
Sample Email



Step 4. We TEST solutions by measuring impact on our outcomes of interest.

Experimental Design

We are planning a phase-in experimental design so that we can evaluate the effectiveness of our solutions individually. Our final recommendations for scaling will incorporate the solutions that lead to the greatest reduction in energy use.



Next Steps and Implications

We are readying to roll out our email based intervention in July 2014. We will monitor and collect data for one year, analyze the results, and write a final report. The WCG may roll out our intervention in other government buildings based on the results from this pilot.

Initial estimates suggest that scaling the intervention to the other buildings could result in total net savings of R1.8 million (\$170k). Future implementation costs are likely to drop once a new social norm and the habits of saving energy are inculcated through timely information and healthy competition.