



Insights from California's Very Own "Nudge Unit"

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Sacramento, CA

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Presentation overview

- United Kingdom's "Nudge Unit"
- SoCalGas® "Test & Learn" Advanced Meter Conservation Campaign Strategy
- Key Findings and Insights
- Summary of Insights for the Utility Sector
- Applicability to Other Sectors

United Kingdom's "Nudge Unit"

- In 2010, the UK government established a Behavioral Insights Team
 - Known as the "Nudge Unit" for its effective application of behavioral science principles
 - Including principles described in the 2009 book "Nudge"
- "Test, Learn, Adapt: Developing Public Policy with Randomised Controlled Trials"
 - Seminal 2012 paper for the Nudge Unit
 - Discusses randomized controlled trials (RCTs) and how they can be used to significantly improve the cost-effectiveness of government policies and services

Test, Learn, Adapt:

Developing Public Policy with Randomised Controlled Trials

Laura Haynes

Owain Service

Ben Goldacre

David Torgerson

 **CabinetOffice**
Behavioural Insights Team

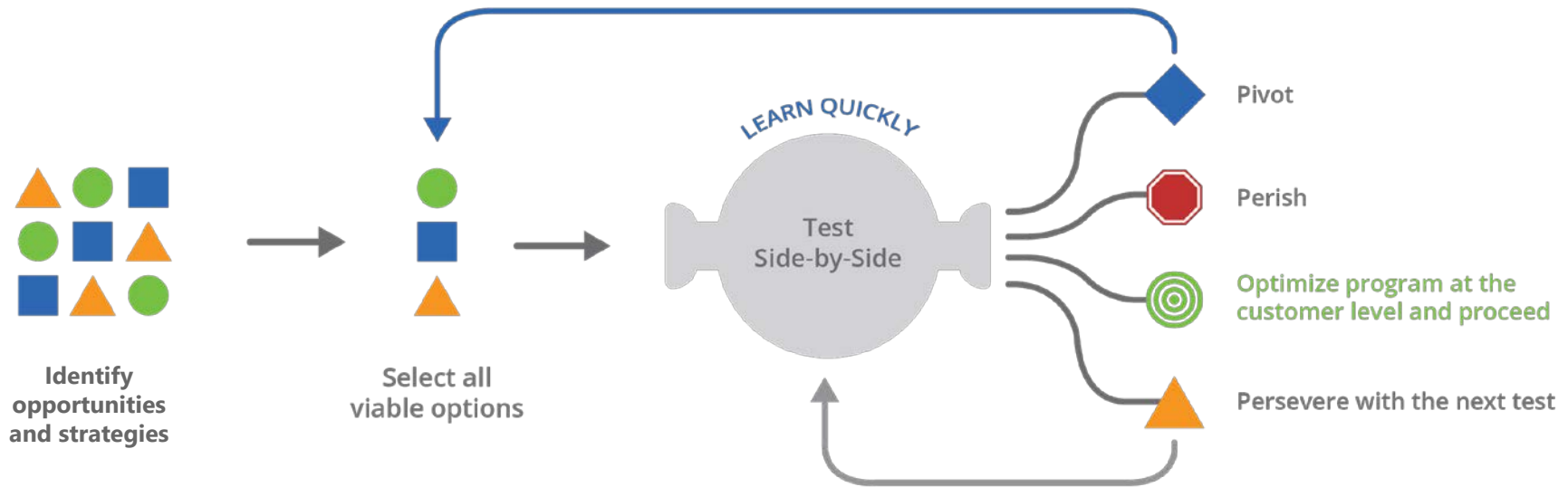
SoCalGas® “Test & Learn” Advanced Meter Conservation Campaign Strategy

- Meet the requirements of D.10-04-027 to track and attribute the conservation impacts of the Advanced Meter (AM) rollout and to report measured savings every six months
 - Requires rigorous adherence to research design principles (experimental design)
 - Large sample sizes to detect expected impacts
- Help demonstrate how SoCalGas can achieve its 1% energy savings goal in a cost-effective manner
 - Implement a multi-year, conservation “test & learn” campaign strategy that identifies marketing strategies, information feedback options and customer segments that are most cost-effective
- Lessons learned from the four AM Conservation Campaigns will be carried forward into SoCalGas Energy Efficiency behavior programs

Approach to achieving 1% goal –

Four Annual Fall/Winter “Test & Learn” Cycles using an Adaptive Design Process

How the ADP works:



1. Program goals and customer opportunities and strategies are identified
2. All viable design options are selected
3. Multiple, simultaneous, small-scale experiments using Randomized Control Trials (RCT) to test the efficacy of each design alternative
4. We learn what works and what doesn't
5. Service delivery is optimized based on experimental results and program goals
6. New opportunities and strategies are identified from the new data; the ADP repeats

SoCalGas has accelerated innovation of behavioral programs during the four Conservation Campaigns

**OVER
1.2 Million
CUSTOMERS**



15 Home Energy Reports
3 Providers

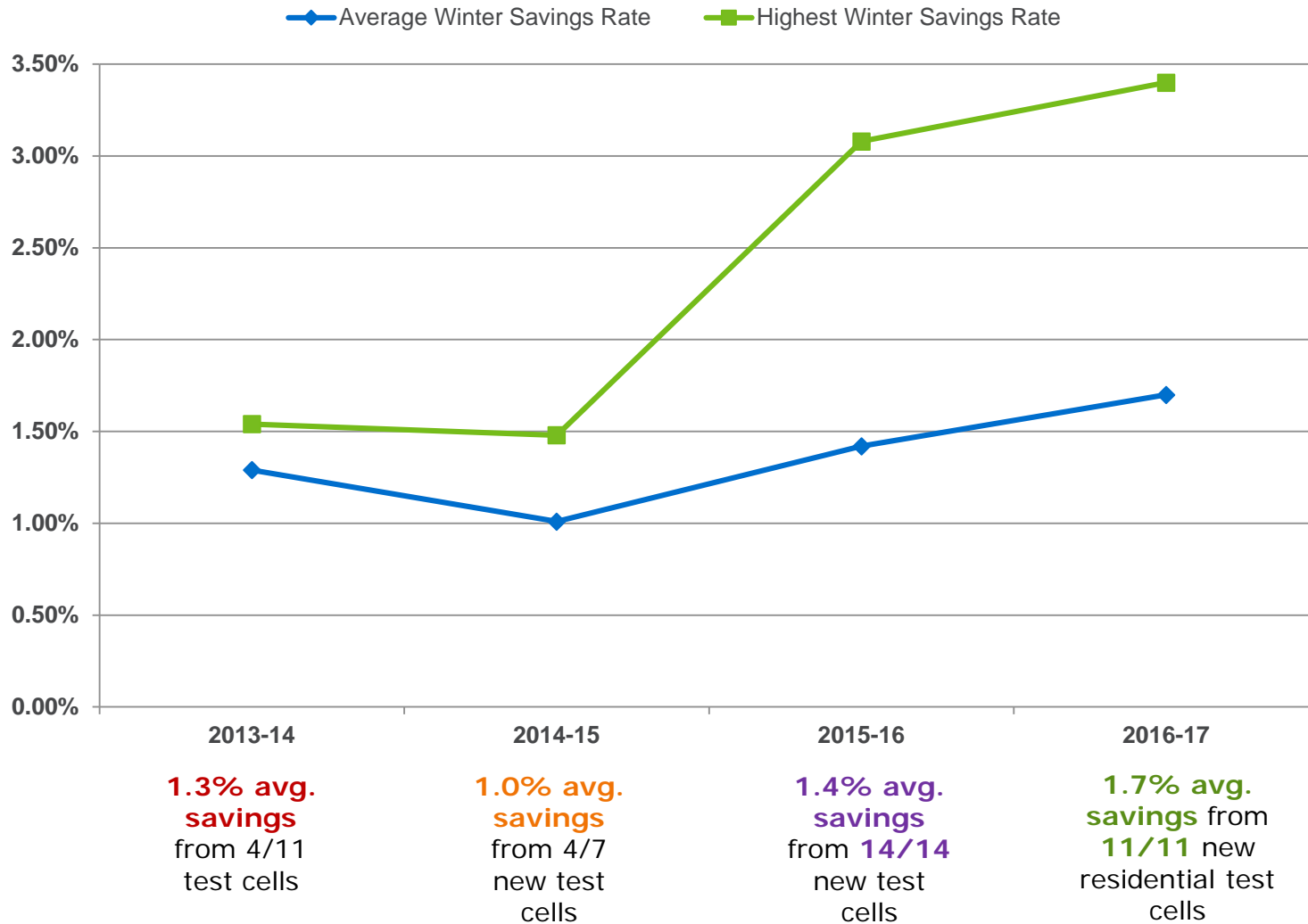


7 Bill Tracker Alerts



3 Seasonal Energy Updates

The fourth and final campaign first year treatments had the highest average savings rate



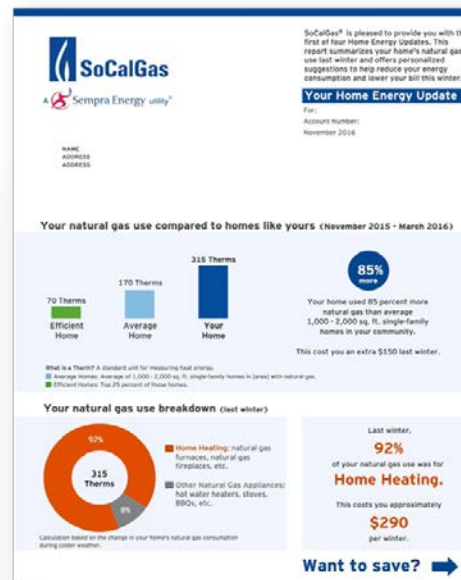
2016-2017 Heating Season "Test & Learn" Treatments

Multiple new treatment approaches tested, developed based on continuous optimization
- including three types of HERs (one offered in Bi-lingual English/Spanish)

"SoCalGas Usage Report" In-House HER

Aclara "Home Energy Update" (HEU)

Opower Home Energy Report (updated 2016-2017 version)



- SoCalGas developed an In-house HER for the first time in the four campaigns
- Both English-only and Bi-lingual, English-Spanish versions were developed and tested

- Aclara developed a new, streamlined version of their paper home energy report that fully leverages AMI data

- Opower introduced a new standard version of their HER with a new look and feel

2016-2017 Heating Season "Test & Learn" Treatments

Multiple new treatment approaches tested, developed based on continuous optimization (cont.) - including new variations of SEUs and BTAs

SoCalGas/Aclara "Seasonal Energy Update" reports (SEU)

Your Seasonal Energy Update
November 2016
Account number:

NAME
ADDRESS
ADDRESS

Dear [NAME],

Winter is coming and your home is unusually sensitive to cold weather compared to similar households. Included in this report are some actions you can take to feel more comfortable and lower your natural gas bill.

Last Winter **Cold Day** Usage Comparison*

You	6 Therms
Typical Neighbors	3 Therms
Efficient Neighbors	1 Therm

2X
You used about 2X more natural gas than your typical neighbors.

What is a Therm? A standard unit for measuring heat energy. One Therm equals approximately 100 cubic feet of natural gas.

Who are your Neighbors?

- Typical Neighbors: Households in your area that experience similar weather.
- Efficient Neighbors: Households in your area that use less natural gas during cold weather.

*December 2015 - February 2016

Using more natural gas than your neighbors?
Your home may be sensitive to cold weather.

Want to save? →

SoCalGas Weekly "Bill Tracker Alerts" (BTA)

Your Weekly Bill Tracker Update
here is your update for *****

My Bill to Date:
14 days elapsed: ██████████ 16 days remaining
\$10.00 Bill to Date \$20.72 Projected Next Bill*

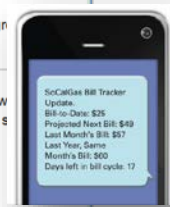
Your Bill Comparison

Projected Next Bill:	\$20.72
Last Month's Bill:	\$61.26
Same Month Last Year:	\$67.55

Energy Tip
Set your Thermostat and Save! Set it to 68 degrees lower when you're home, health permitting.

Log in to My Account and visit **"Ways to Save"** - to view daily and hourly natural gas usage and costs, set up a savings plan and more!

[Log In >](#)



Two feedback options combined - Opower + BTA

Aclara Seasonal Energy Report
August 13, 2017
Account Number: 12345678
We've put together this report to help you understand your energy use and what you can do to save.
Check out all the ways you can save energy and what you can do to save more.
*Example comparison

Here's how you compare to neighbors

Low	100% more gas than efficient neighbors
Good	100% more gas than efficient neighbors
High	100% more gas than efficient neighbors

Neighbour comparison over time

Tip from efficient neighbors: Set your thermostat a few degrees in the summer.

Your Weekly Bill Tracker Update
here is your update for *****

14 days elapsed: ██████████ 16 days remaining
\$10.00 Bill to Date \$20.72 Projected Next Bill*

Your Bill Comparison

Projected Next Bill:	\$20.72
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- For 2015-2016, SoCalGas and Aclara developed an energy report targeting the top 25% most "cold weather sensitive" customers as determined by Advanced Meter data
- In 2016-2017, a new weatherization-focused SEU was developed and tested in parallel with the standard SEU

- Tested BTA with and without seasonal energy-savings tips
- Tested the BTA on Small-to-Medium Business Customers

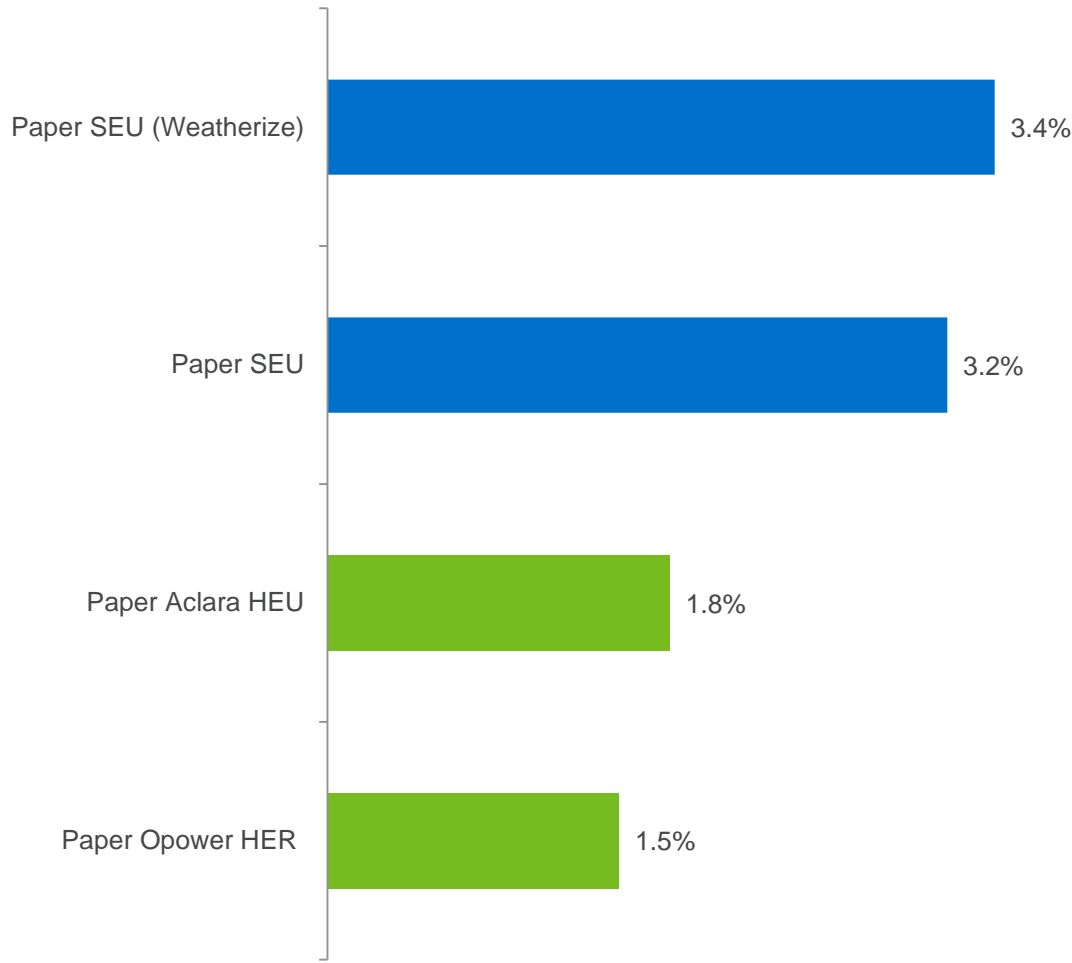
- For the first time, a treatment cell received both the monthly Opower HERs and the weekly SoCalGas Bill Tracker Alerts (BTAs)

All Fourth Campaign Residential Treatments produced statistically significant savings during the Dec-March Winter Period

CARE	My Account	Treatment	Group	Number of Treatment Customers	% Reduction
No	Yes	BTA w/Tips + Paper Opower HER	T-31	38,815	2.21%
		BTA w/o Tips	T-36	30,994	0.77%
		BTA w/ Tips	T-37	30,761	0.88%
	No	Paper Opower HER	T-32	51,691	1.37%
		Paper Aclara HEU	T-40	31,877	1.47%
		Paper In-House HER	T-39	13,471	1.25%
		SEU	T-34	19,680	3.18%
		SEU (Weatherize)	T-35	19,718	3.43%
	Yes	Yes/No	Opower HER	T-30	50,142
SEU			T-33	18,414	2.24%
Yes/No	Yes/No	Bi-lingual HER	T-41	13,507	0.60%

- All residential treatments initiated in 2016-2017 produced measurable savings
- Seasonal Energy Update (SEU) paper report treatments produced the highest savings rates
- BTA w/Tips + Paper Opower HER produced higher savings than the BTA or HER treatments alone

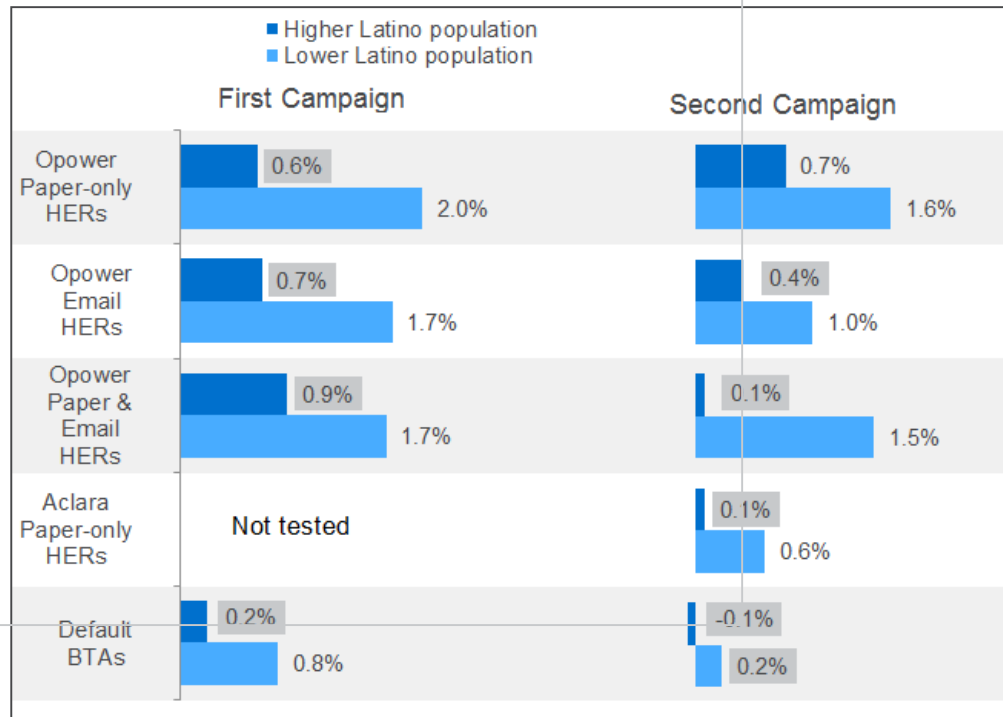
SEU has the highest savings rate compared to other treatments including only weather sensitive customers



- Applying the weather sensitive filter increases the **% reduction for the Aclara and Opower Paper HERs**
- The SEU treatments produce the **highest % reduction**
- The **difference** between the two SEU treatments is **not statistically significant**

History of outreach to Spanish speaking population

- In the 2014-2015 Campaign, treatment customers in census blocks with high concentrations of Latino households consistently saw lower percent reductions than treatment customers in census blocks with lower concentrations of Latino households
- This prompted the test of a Spanish HER in the 2015-2016 campaign



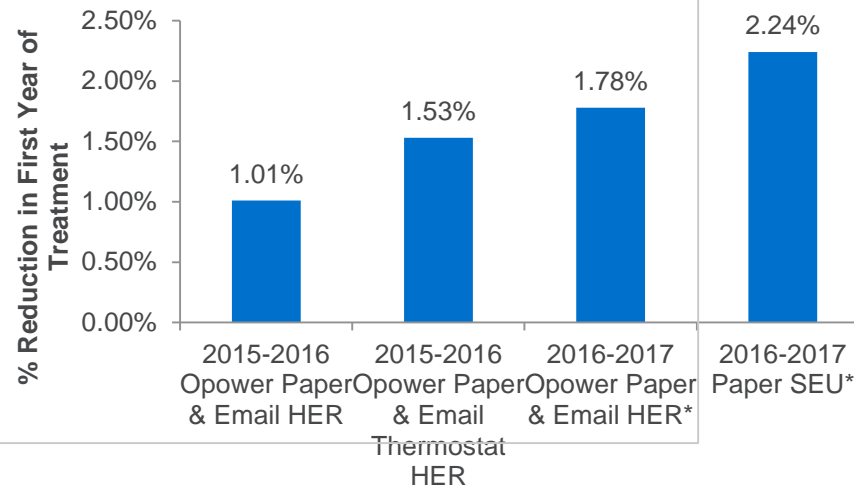
History of outreach to Spanish speaking population (cont.)

- In the 2015-2016 Campaign, an Opower **Spanish Paper HER** was tested on customers identified by SoCalGas as having a **Spanish language preference** and residing in an area with **high concentrations of Latino households**
- In the 2016-2017 Campaign a SoCalGas **Bi-lingual Paper HER** was tested on customers residing in an area with **high concentrations of Latino households**
- Results for both treatments are **less than 1%**

Treatment	Group	Number of Treatment Customers	% Reduction	P-value
Opower Spanish Paper-only HER	T-21	13,319	.82%	.00
Bi-lingual Paper-only HER	T-41	13,507	.60%	.01

History of outreach to CARE (Low Income) population

- In the 2015-2016 campaign, two treatments were tested for CARE customers. They featured different messaging specifically directed towards CARE customers to reduce gas usage, and when eligible, to avail of the “Energy Savings Assistance Program.”
- In the 2016-2017 campaign, the Seasonal Energy Updates were also tested for CARE customers.
- These targeted treatments produced savings of at least 1% for all treatments in the first winter of treatment.



*The 2016-2017 Opower Paper & Email HER was sent to the bottom 75% most weather sensitive customers in the CARE segment while the 2016-2017 Paper SEU was sent to the top 25% most weather sensitive customers in the CARE segment.

Advanced Meter Conservation Campaigns have generated four years of key findings that are applicable to SoCalGas and other utilities

- BTAs and HERs consistently produce savings of around 0.75% to 1.5%
- SEUs and BTA+HER were only treatments to produce savings over 2%, including savings over 3% in *all four* non-CARE SEU treatments
 - Developed in part by SoCalGas using AM data
- Energy savings realized primarily for:
 - Default (auto-enrolled), not opt-in
 - Residential, not C&I
 - Top two usage quartiles (highest in top quartile)
- Little to no savings measured for:
 - E-mail-based communications (BTAs or e-HERs) for CARE customers
 - Highest density Hispanic neighborhoods (78%+ of population)
- Energy savings generally persist if treatment continues, and in some cases, savings persist for more than one year if treatment is reduced/discontinued

Many other sectors of government/industry can create their own “Nudge Units” that rigorously apply behavioral science principles

- Review “Test, Learn, Adapt” paper
- Identify desired behavioral outcomes that can be tested using an RCT
- Test competing alternatives side by side
- Document findings and identify potential improvements to test
- Try to maintain continuity within the “Nudge Unit” team
- Question the status quo and acknowledge unknowns

“One of the dirty secrets of government is actually that we don’t know whether what we’re doing works a lot of the time.” – Freakonomics Podcast on the UK’s Nudge Unit



Reimagine tomorrow.

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