

The Behavioral Model

A Case Study that Achieved 11 % Percent Persistent Savings in a Three Year Energy Monitoring Pilot

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HABITWORKS

TE_NDRIL[®]

Company Facts

- Headquartered in Boulder, Colorado with offices in Boston, Melbourne and San Francisco
- 150+ employees
- Backed by leading U.S. and European venture capital
- 400+ developers creating applications with Tendril APIs

Company Highlights

- Leading provider of energy customer engagement solutions for utilities, helping them comply with their energy efficiency mandates, increase customer satisfaction, meet demand management objectives and improve customer acquisition and retention
- Adopted by 40+ energy providers as well as product and service providers
- Has implemented 50+ smart energy products around the world
- Delivers average energy savings of 8-10% per household
- Next generation behavioral analytics engine generates sustained user interaction with Tendril's platform

GroundedPower

- Behaviorally based, real-time Energy Efficiency Solution
- Wireless monitoring system
- Web and email application
- 500 deployed in Northeast

Tendril

- Smart grid solutions ranging from efficiency to load control and dynamic pricing
- Wireless solution including thermostats and smart plugs
- Thousands deployed in pilots across the county

- GroundedPower to provide the behavioral direction for Tendril's solution
- These findings cover the long-term GroundedPower pilot
- The customer has begun a larger pilot roll-out with the new Tendril solution



100 homes selected from pool of 300 volunteer households

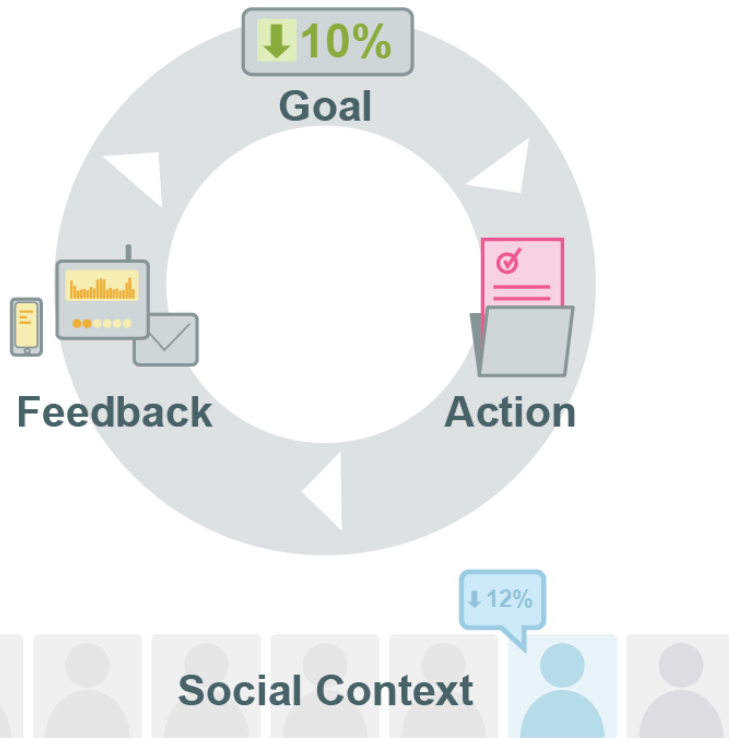
2010 Residential Smart Energy Monitoring Pilot Final Report, PA Consulting Group, 6 month study

- 10.8% average savings
- 9.3 % savings above control groups

2012 CLC Interim Impacts Memo, Opinion Dynamics Corporation and Navigant Consulting, 34 Month Study

- 11.7 % savings

Conclusions: Behavioral Approaches Can Lead to Significant Long Term Savings



Problem Statement: How do you use information and computing technology to change behavior?

Persistent behavior change occurs when people have a meaningful goal, steps toward that goal, progress to goal feedback and social support.

Goal-Setting

Enable User-Created Goals

Goal or “desired state” is intrinsically motivating when chosen

- Make goal an organizing principle that is consistently applied and a persistent element in the solution
- Goal must be realistic, challenging but achievable
- Measureable goals provide a baseline
- Demonstrate relationship between small steps and progress on larger goal
- Use public commitment as a motivator

Savings goal

If you change your goal it will not take effect until the first of next month.

- 30% Difficult (approx. **\$220.10** a year)
- 25% Difficult (approx. **\$183.42** a year)
- 20% Moderate (approx. **\$146.74** a year)
- 15% Moderate (approx. **\$110.05** a year)
- 10% Easy (approx. **\$73.37** a year)
- 5% Easy (approx. **\$36.68** a year)



Your estimated annual savings of **755 kWh** is higher than your **10% savings goal of 611 kWh**

[Revise Your Goal](#) ?

View | \$ | kWh | CO2

Projected use Today | This week | This month

16 kWh Target

4.5 kWh Projected

2.8 kWh Used so far

Your projected use today is 72% under (12 kWh) your daily target. Good job!

Action Planning

Small, Achievable Steps Leads to Goal

Ability is easier to impact than motivation. Simplify decisions and address the information/resources needs

- Start with small, achievable steps and build on success
- Present a limited set of tailored recommendations
- Encourage self-reporting
- Simplify the decision and tracking process with tools

Next Steps

Are you still doing this action regularly?

Use lighting controls or timers

[Yes](#) | [No](#)

We estimate you spend about \$60 a year on indoor lighting.

Are you willing to reduce the energy you use for indoor lighting?

Use CFLs in indoor fixtures Save \$20 a year! [More](#)

No Yes Maybe

Reduce wattage in multiple bulb fixtures Save \$20 a year! [More](#)

No Yes Maybe

Use lighting controls or timers Save \$80 a year! [More](#)

No Yes Maybe

Feedback and goal-setting go hand in hand, it enables course corrections

- The immediacy and vividness of the feedback increases impact
- Leverage the game aspect of action-feedback and challenge
- Positive feedback maintains motivation
- Use different types and different channels for feedback

Your current use

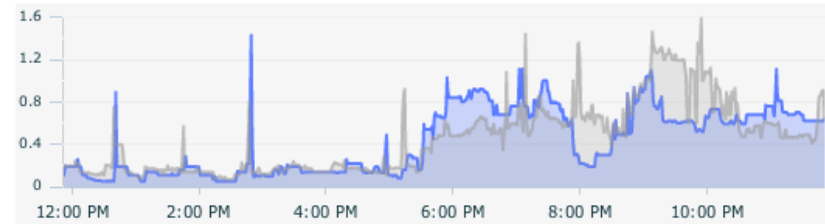
6:28 PM

0.89 kW

is **The Same** as Similar Households: 0.89 kW

Your Home

1 wk | 1 day | **12 hrs** | 6 hrs | 3 hrs | 1 hr



[take a snapshot](#) [see your snapshots](#)

■ Home Monitor ■ Similar Households

Your points

16724 points

Congratulations!

You have achieved the 16700 point milestone! Your next milestone is 76 points away.

[View details](#)

Your use yesterday

8.0 kWh

Your daily target

16.4 kWh

You used **51% LESS** than your daily target
Nice job!

Similar households

8.9 kWh

You used **10% LESS** than similar households

Social Environment

Leveraging the influence of others



Identification with a group with shared goals and norms reinforces change and builds motivation.

- Build on norms by showing behaviors of others
- Show successes as a way to model target behavior
- Include expert Q&A
- Aggregate cumulative data at the larger group level

Top Savers		
	Neighbor	Use compared to last year
1	sharonlowe	-36%
2	Chris.McChesney	-23%
3	jcalcio	-21%
3	qprideaux	-21%
4	skbender	-20%
5	hlippincott	-18%
6	gdefeis	-14%

Total savings This month | All time

\$1,012 - Community: \$279,774

10289 lbs CO2 - Community: 2844369 lbs

8434 kWh - Community: 2331450 kWh

Points

16724 points earned

94 earned by participation, 16630 earned from savings.

Actions

5 actions committed	Use task lighting	65 kWh
	Keep your refrigerator full	5 kWh
	Use power strips on home entertainment system	350 kWh
	Use power strips on home computer system	180 kWh
	Unplug your set top box when not in use	150 kWh
1 action completed	Wash full loads in your clothes washer	5 kWh

Over my target

Created by [redacted] on Oct 24, 2010
[public](#) | [make private](#)
[delete snapshot](#)

Oct 23, 2010 08:58AM - Oct 23, 2010 08:58PM

Electric baseboard heat turned on in various rooms today...hope I have better luck/control tomorrow!

8 Comments

[Post a comment or ask an expert](#)

Thank you for your inspiring compliment! We are trying to conserve our energy, and our retirement funds!

Electric baseboard heat has advantages and costs. Play it right and you win. The advantage is that it is like an electric light, turn it on when you're in the room and off when you're out.

I am still trying to do half as well on my savings as you. Each day I look to see where you are. One of these days I hope to have a reading like yours. You are doing a great job.

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