

# Creating Habits that Last with Real-Time Pricing

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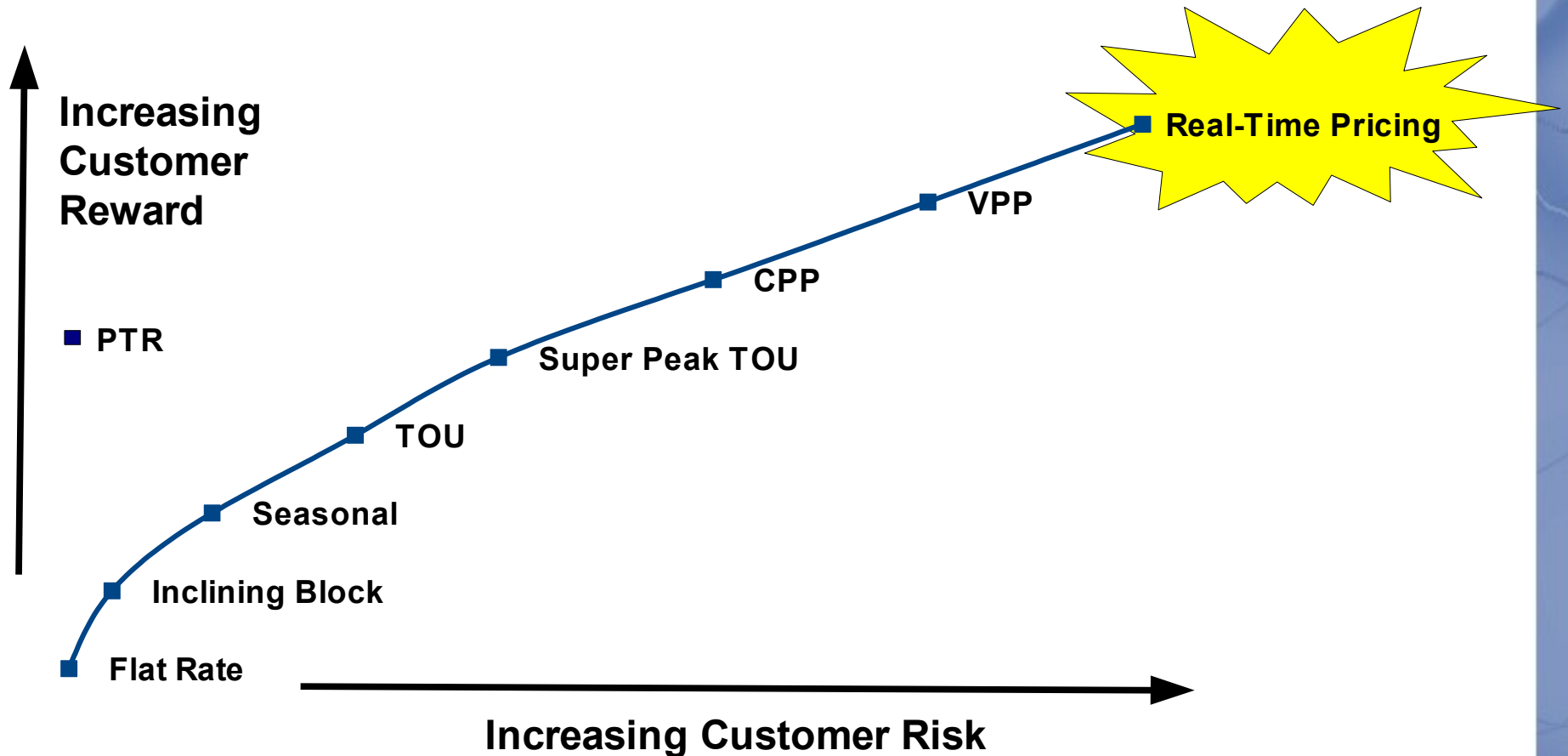
# Problem: The increasing demand for electricity and its effect on climate change



# One Solution: Smart Grid and Dynamic Pricing



Among Dynamic Pricing options,  
Real-time Pricing offers the greatest opportunity for reward.



Source: The Brattle Group (2012)

But, can Residential customers win at the risk game?

YES, customers can win on RTP  
if the program is delivered right.

And, they don't need  
extra technology to do it.

Behavior changes  
can make the difference.

# Testing Grounds

- Over 20,000 opt-in residential RTP customers in two programs in Illinois
- Education-based programs, no new technology required
- High Price Alerts delivered the night before or real-time
- Programs evaluated for multiple years, 2007 to 2010

# Customer Response

- Normalized peak load reduction of **0.5 kW** per customer for High Price Alerts
- Reduction in overall summer electric energy use of **3 to 5%**
  - Electric space-heat customers in southern Illinois use more energy in winter because it is a low price
- Average bill savings of **10 to 15%**

# How is it done?

- Personal Connection
- Honest Expectations
- Easy Enrollment Process
- Simple and Clear Information
- Repetition of Information Every Season
- Regular Feedback



# Personal Connection

- Third-party dedicated Call Center
- Local face-to-face community meetings and neighbor testimonials



Decatur resident Joe Green is smiling a lot these days after taking advantage of the Power Smart Pricing system for his home's electrical needs. He cut his winter power bill in half and by more than 20 percent for the year.

# Honest Expectations

- It's not for everyone – targeted marketing
- Avoid potential customer dissatisfaction



Is it Right for Me?

SHARE

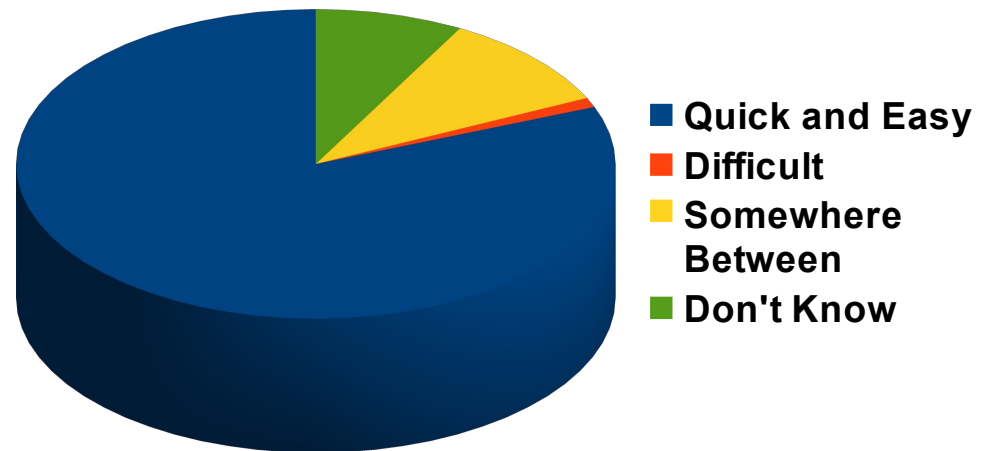
**Power Smart Pricing could be a good option if:**

- You spend over \$30 (or use over 300 kWh) a month on electricity.
- You are interested in saving money by using energy wisely.
- You heat your home with natural gas or propane.
- You have flexibility and can shift some of your electricity use from higher-priced, peak-demand hours to lower-priced, off-peak hours.
- You want to learn more about using energy efficiently.
- You want to be part of a program that helps reduce peak demand on the electric grid and benefits the environment.

Source: CNT Energy

# Easy Enrollment Process

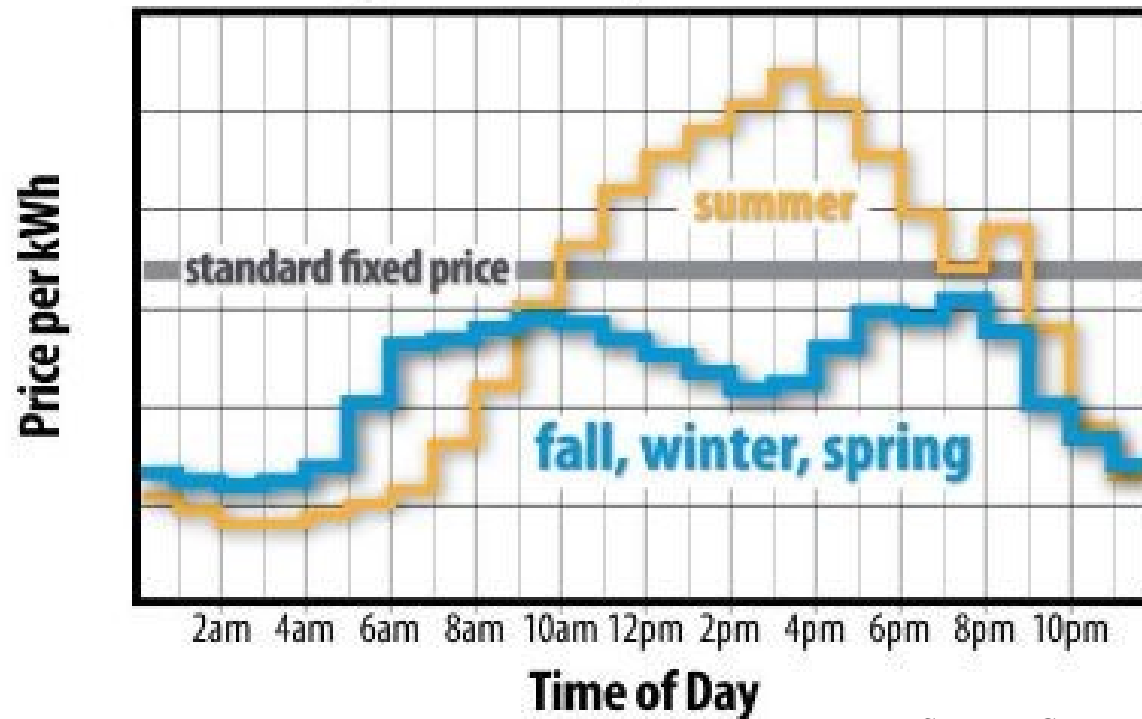
- Continuous improvement techniques streamline the enrollment process and the installation of meters
- 81% say that participating in the program is “quick and easy”



# Simple and Clear Information

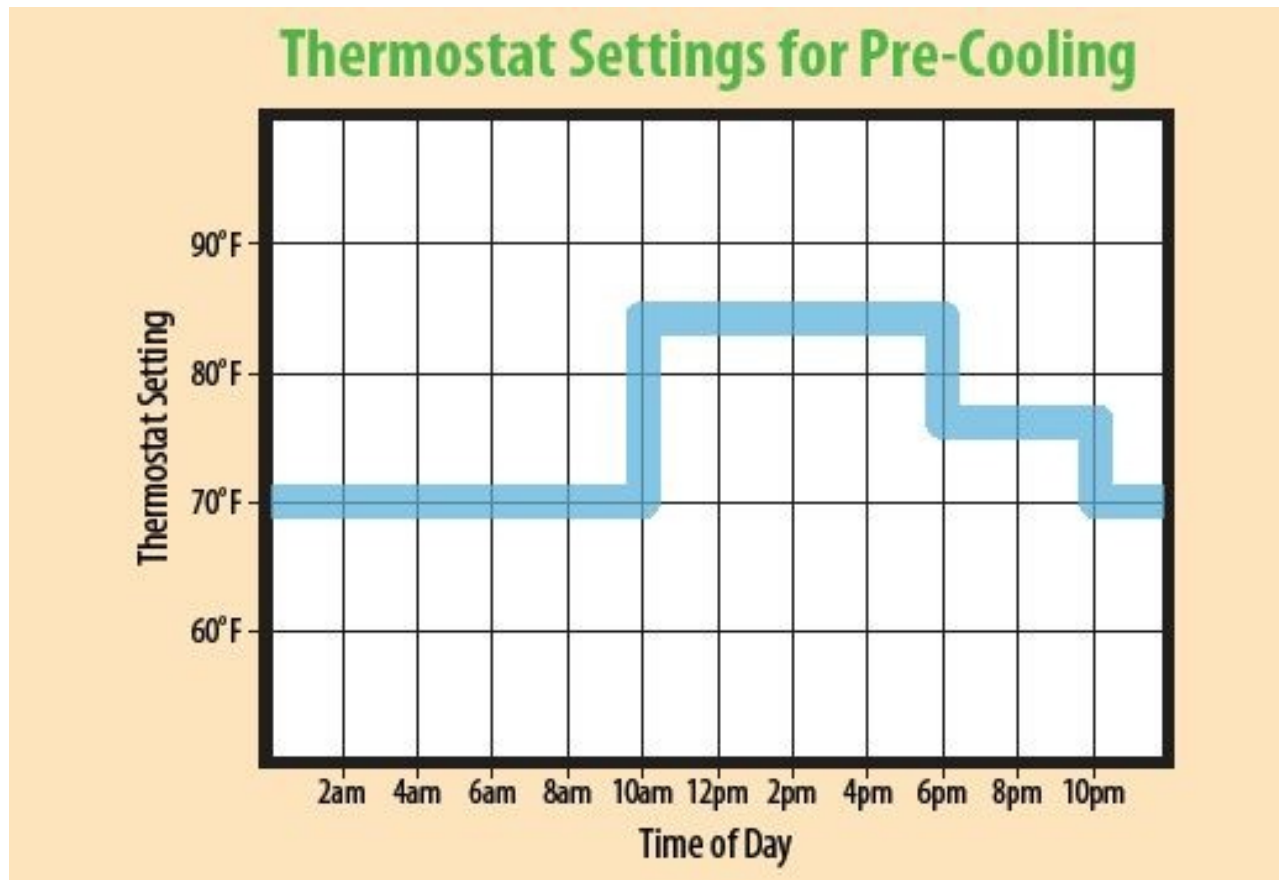
- Typical seasonal price curves

## Average Hourly Price Patterns



Source: CNT Energy

# Example of clear and simple information on how to pre-cool your home for savings and comfort



Source: CNT Energy



# Repetition of Information

- Mail out newsletter each season
- Repeat seasonal pricing information
- Repeat seasonal tips to save on bill

## Top Summer Tips

Reduce electricity usage between the hours of 2 p.m. and 5 p.m. (especially on weekdays and when the weather is very hot).

Limit air conditioning usage during higher priced hours and try pre-cooling to take advantage of lower priced hours.

# Regular Feedback

- Monthly and Annual Bill Comparisons
- On-line tools to quantify hourly energy use and savings

CURRENT PRICE (¢/kWh)  
10/22/12, 8pm-9pm

3¢

UPCOMING PRICES		
9pm-10pm	2.5¢	■
10pm-11pm	2.2¢	■
11pm-12am	2¢	■
12am-1am	1.8¢	■
<a href="#">more prices...</a>		

## Bill Comparison Tool

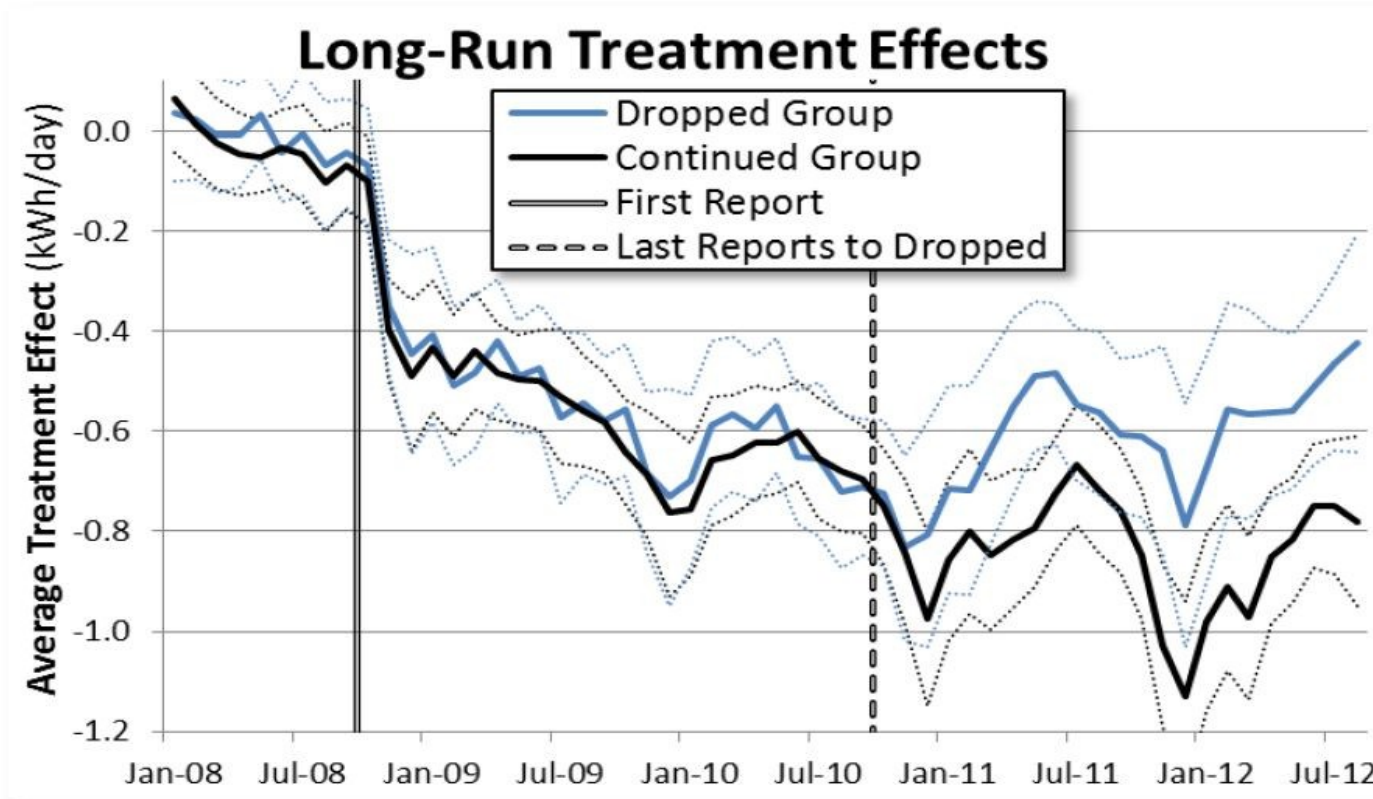
Click here to access this tool and view your usage data.

Login

To access the Ameren site click [here](#).

# More Evidence on the Importance of Regular Feedback

Additional evidence from a controlled experiment done by Opower:  
When reports were dropped for a random group of customers after two years of regular reports, their energy usage started creeping back up again.



Source: "The Short-run and Long-run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation", Hunt Allcott and Todd Rogers, National Bureau of Economic Research, Working Paper 18492, October 2012.  
<http://www.nber.org/papers/w18492>



# Is the response economic rationality or human habit?

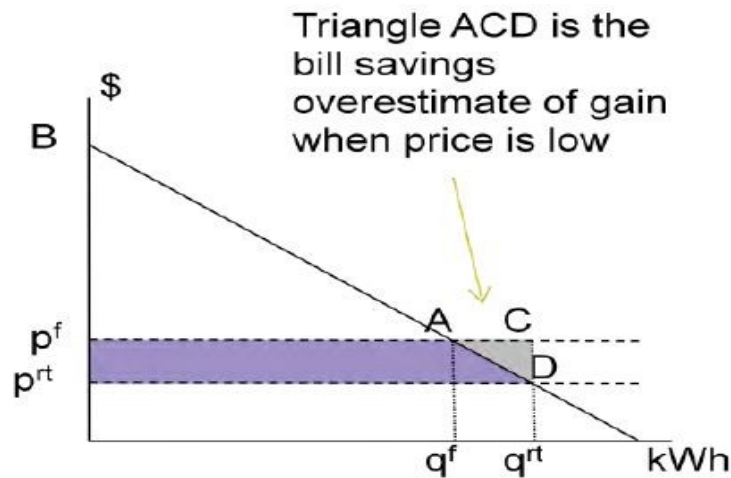


- Economic rationality starts the behavior change
- Human habit takes over

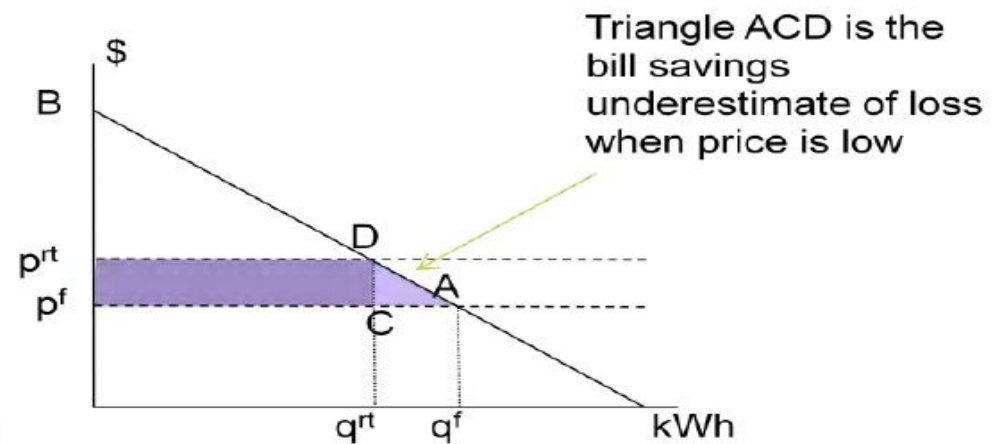


# Economic Rationality starts the behavior change

- The economists' Rational Man will use less electricity when the price goes up.
- Elasticity is roughly 5%, but this isn't the whole picture for electricity



The case where  $p^{rt} < p^f$



The case where  $p^{rt} > p^f$

Source: Navigant (2011B)

# Human Habit Takes Over

	Real-time Pricing Energy Charge for Summer Afternoons	Summer Weather (Cooling Degree Days)	Average RTP Response Compared to Control Group
2008	6 cents/kWh	Cool (917)	-0.21 kW
2009	2.5 cents/kWh	Very Cool (763)	-0.13 kW

Customers continued to reduce their electric consumption on summer afternoons in 2009, even though prices dropped by half and they didn't need much air-conditioning.

# Why didn't they act rationally?

- Only 66% were aware that 2009 had lower prices than 2008
- Only 70% of those said they changed their summer usage patterns because of prices
- In open-ended explanations of how they changed their usage, only 2% said they used more or 'didn't make heroic efforts' to use less
- Bottom Line: They continued doing what they were used to

## In Closing . . .

- Real-time Pricing can be made simple
- Customers can win on RTP without additional technology
- Personal connections, reinforcement, and feedback can create energy saving habits that protect customers from the risk of RTP

To learn about the \$\$\$, don't miss . . .



**Why Real-Time Pricing is Better than Other Dynamic Pricing Rates**

**Presented at 23<sup>rd</sup> National AESP Conference  
Jan 28-31, 2013 in Orlando**

*What are your thoughts on Real-time Pricing?*

Stop by so we can talk

- or -

Come to Orlando in January to participate in more discussions on the costs and benefits of Real-time Pricing

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# References

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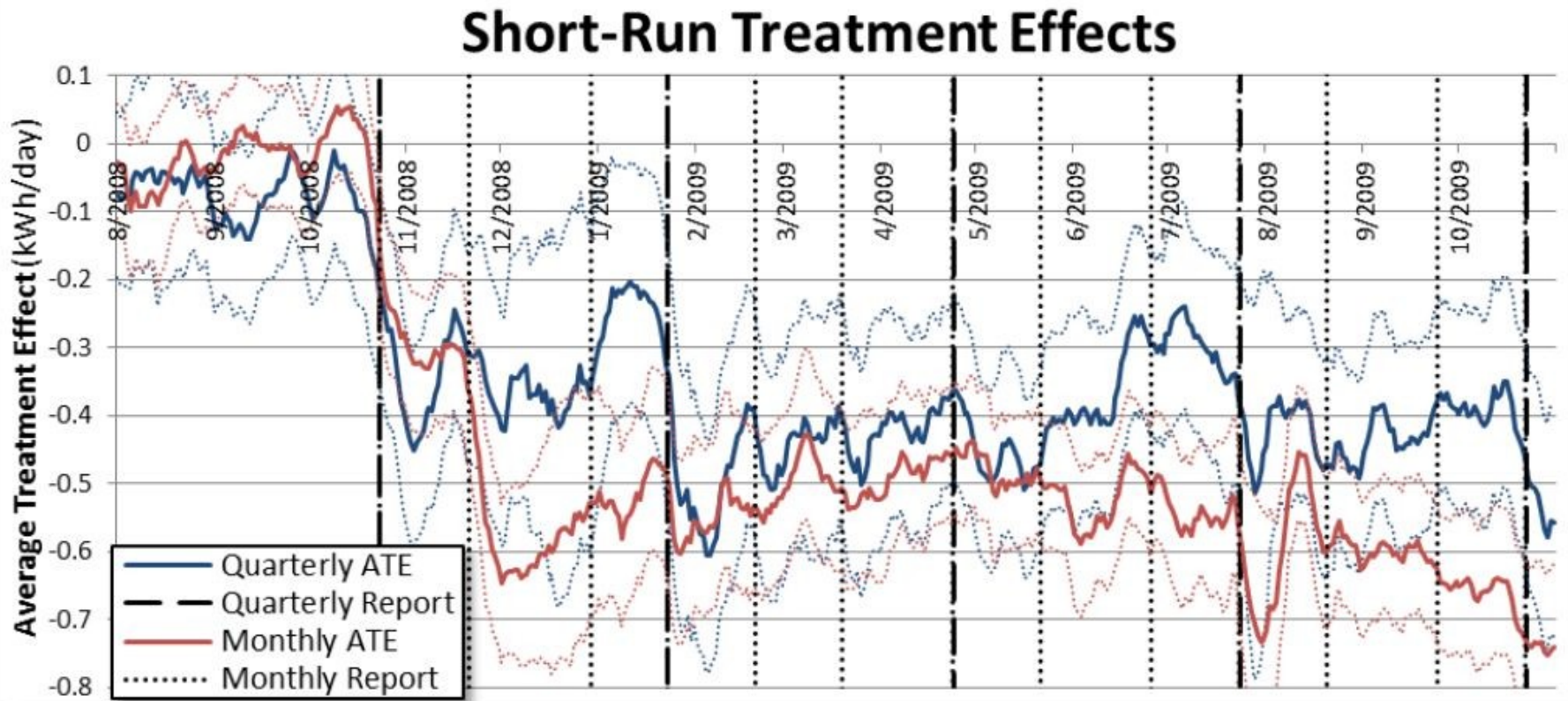
<http://www.icc.illinois.gov/downloads/public/edocket/296673.pdf>

for “Part 1” and “Part 2”



# Supplemental Information

Here is evidence from the Opower program on the value of repeated information. Energy use drops whenever participants receive a new report, but it slowly creeps back up again after that. Repeated reports are needed to maintain reduced energy use.



Source: "The Short-run and Long-run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation", Hunt Allcott and Todd Rogers, National Bureau of Economic Research, Working Paper 18492, October 2012.

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