

ENERGY EFFICIENCY RESULTS

Energy savings powered by disaggregation





THE CHALLENGE

In a recent survey on *What Electricity Customers Really Want*¹, saving money by using energy more efficiently ranked highest among potential utility offerings. There are many ways to help residential energy customers save money. *Home Energy Reports* that use social benchmarking to show customers how they compare to similar homes is a well established approach to achieving savings, as are other approaches, such as coupon programs. However, there are problems with the current state of these approaches:

Reach | Traditional home energy report (HER) programs frequently target high usage homes (often highest income), resulting in sizable populations – low income and renters in particular – being underserved. Further, energy efficiency remedies often involve financial investments that are beyond the reach of many.

Cost | Traditional HERs rely primarily on printing and mailing paper statements, which can be more expensive per home.

Personalization | Outreach with traditional HER programs lacks personalization compared to what consumers increasingly expect, driven by their interactions with companies such as Amazon, Netflix, and Google. Instead, customers complain of feeling “energy shamed” rather than getting guidance.

HOW TO IMPROVE ENERGY EFFICIENCY

Overcoming these shortcomings requires a solution that is:

Effective | Leverages the proven outcomes of behavioral Energy Efficiency approaches.

Scalable | Can be deployed across all homes – with and without smart meters – and applies to all segments.

Low Cost | Low direct costs by leveraging digital outreach, reducing the required outlay from the utility.

The ideal solution leverages the effectiveness of proven approaches but can take advantage of modern technologies and scale.

THE SOLUTION

Bidgely offers a new generation of Home Energy Reports, known as iHERs, where the “i” stands for:

Itemized | Personalization goes beyond demographic information or (inherently limited) statistical modeling, using artificial intelligence (AI) for itemizing usage by appliance load.



This further guides energy savings opportunities that are specific to each home. Customers go from feeling “energy shamed” via normative influence, to feeling “energy empowered.”

Interactive | iHERs go beyond static, infrequent paper reports to foster an ongoing, interactive dialogue with customers. Energy customers can provide immediate feedback - as they are accustomed to doing with consumer services such as Uber and Spotify - to help shape future offerings, choose their preferred channel, or to generate a personal plan of action.

Inclusive | iHERs support all homes, and disaggregation enables behavioral recommendations that are specific to the usage profile and match the customer’s demographics. Moving away from an expensive, paper-based approach to digital can enrich the experience and improve customer engagement for all customers (not just large homes), addressing underserved populations such as low-income and renters, while reducing program costs.

A Flexible Approach to DSM

Savings | Focus on gaining the greatest savings by targeting specific high-usage homes

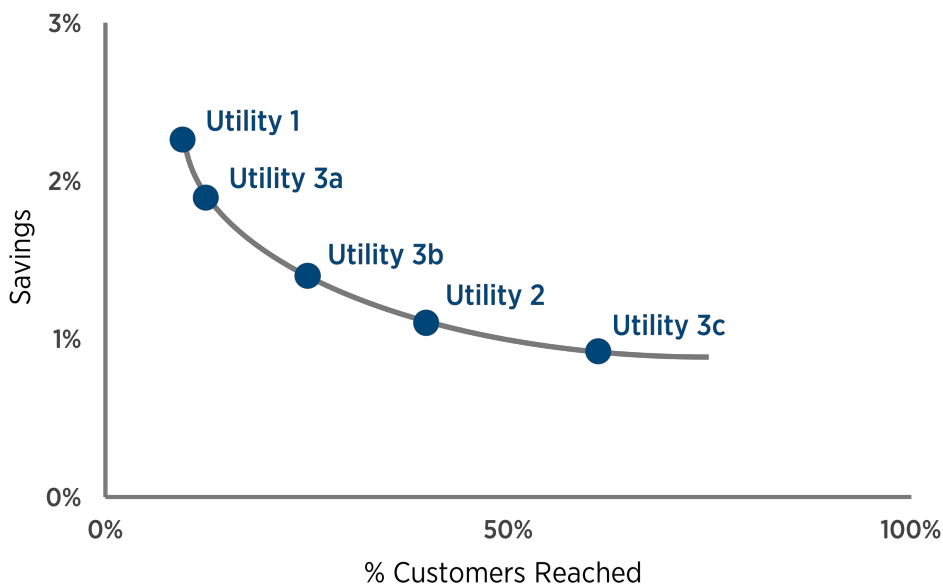
Hybrid | This approach provides balanced results for savings and reach

Reach | An opt-out approach reaching the widest swath of homes, but therefore resulting in lower savings when averaged across the population

No matter the population targeted, the Bidgely iHER solution leverages AI-powered, personalized outreach that includes energy-usage information itemized by appliance. This approach goes beyond energy shaming, instead positioning the utility as an ally in targeting energy waste specific to each customer.

Further, iHERs are low cost and scalable: they don’t rely on paper, but instead leverage an omni-channel, digital approach for both opt-in and opt-out delivery.

As a result, the iHER solution provides a flexible approach to DSM, where the utility can evaluate a “sliding scale” trade-off that enables them to optimize savings per their objectives:





Real-Time Metrics

Current measurement and verification (M&V) processes used by utilities to measure savings from EE programs can be lengthy and expensive. Utilities typically hire third party M&V firms to ensure a rigorous approach to measuring results. The challenge, however, is that the M&V typically occurs at the conclusion of the program or very occasionally during the program, which constrains program optimization. Bidgely's real-time metrics dashboard allows utilities to gain a view into savings trends from day one and on an ongoing basis. This allows utilities to run more frequent evaluations to fine-tune each program and course-correct as needed to optimize overall program results/evaluations. More experience with the measurement process also enables utilities to better understand the various control levers and their impact on program success.

RESULTS

Below is a description of the various utility EE programs illustrated in the "sliding scale" curve above:

UTILITY 1 | Opt-In Program | 2.25% Savings

Large North American IOU deployed the Bidgely mobile app. Program results verified by Navigant.

UTILITY 2 | Opt-In Program | 1.10% Savings

Large U.S. IOU deployed Bidgely disaggregation. Program results verified by Navigant.

UTILITY 3 | Opt-Out Program (3 cohorts)

3a: 1.89% Savings | 3b: 1.38% Savings | 3c: 0.89% Savings

Large U.S. IOU deployed Bidgely Home Energy Reports. Initial program results tracked by Bidgely pending M&V.

In addition to Home Energy Reports, Bidgely's disaggregation engine enables the utility to stack multiple approaches to achieving savings. To augment HERs, the Bidgely alerts engine can send notifications to encourage customers to take advantage of opportunities to save energy. One example is a seasonal alert that combines social benchmarking with disaggregation to influence when customers begin and end their use of cooling/heating each summer and winter, resulting in EE savings by reducing seasonal duration of their cooling/heating usage. Another example is disaggregation-powered audits that highlight potential areas for saving energy.

CONCLUSION

Leading utilities are shifting away from traditional, limited, paper-based approaches to energy efficiency, and towards AI-powered iHERs that are itemized, interactive, and inclusive of all homes. With the flexible iHER engine, these utilities have a choice of balancing savings vs. reach, and stacking multiple approaches to savings to fulfill their EE goals, all while providing a more engaging experience for today's consumer.

¹ **Survey: What Electricity Customers Really Want**

<https://www.greentechmedia.com/articles/read/survey-what-electricity-customers-really-want>



APPENDIX

Case 1 - Savings 2.25%

RESULTS

- Treatment customers who enrolled between February 19 and July 31 saved an average of 0.62 kWh per day
- This amounts to approximately 2.25 percent savings in daily usage directly linked to pilot program treatment
- Results significant at the 90% confidence level

Type of Statistic <i>Standard errors in parentheses</i>	Value
Number of participants	1,325
Participants used in analysis	1,254
Matched controls used in analysis	1,234
Average savings per customer per day (kWh)	0.621 <i>(0.287)</i>
Percent savings	2.25% <i>(1.04%)</i>

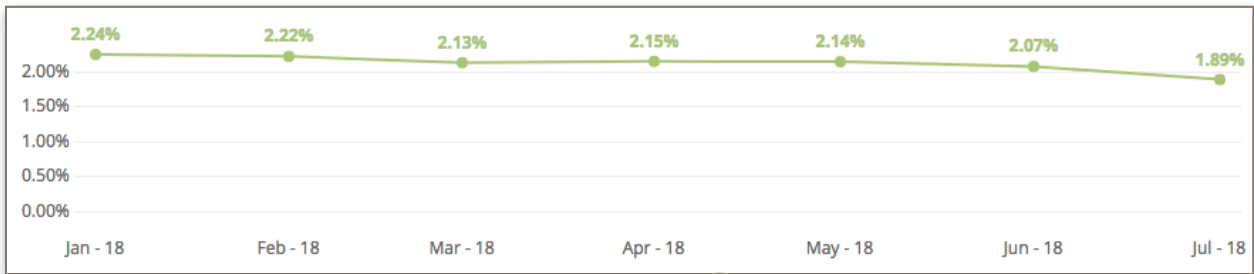
18 / ©2016 NAVIGANT CONSULTING LTD. ALL RIGHTS RESERVED NAVIGANT

Case 2 - Savings 1.10%

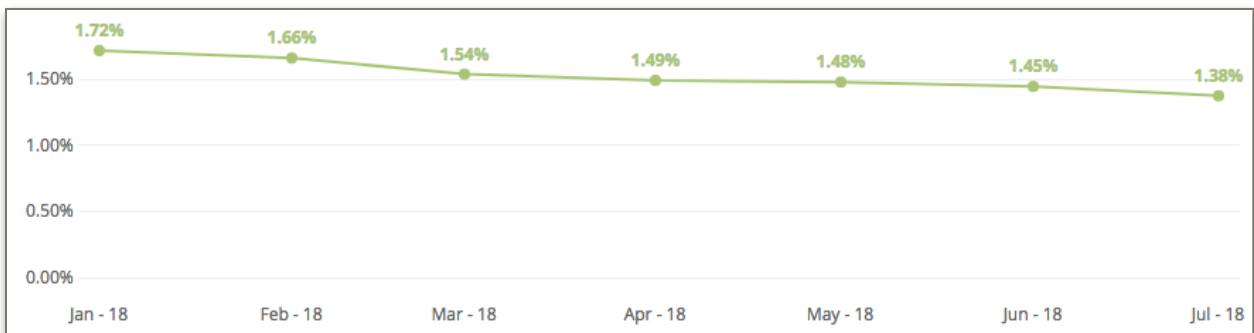
Savings Type	Daily Energy Savings Per Account Per Login	Annualized Energy Savings Per Account Per Login
One Additional Unique Month	0.044	16.06
One Additional Login	0.003	1.10



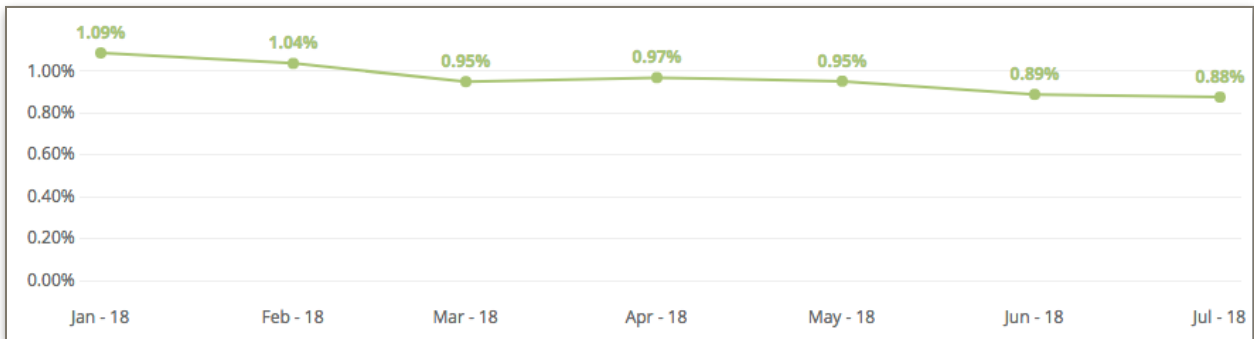
Case 3a* - Savings 1.89%



Case 3b* - Savings 1.38%



Case 3c* - Savings 0.89%



*Bidgely began sending iHERs to all 3 cohorts in May 2018. A previous HER program concluded in December 2017, resulting in a period of four months where all 3 cohorts were untreated.