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Behavior and Market Transformation

Overview

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2018 IEPR Commissioner Workshop on Doubling Energy Efficiency Savings
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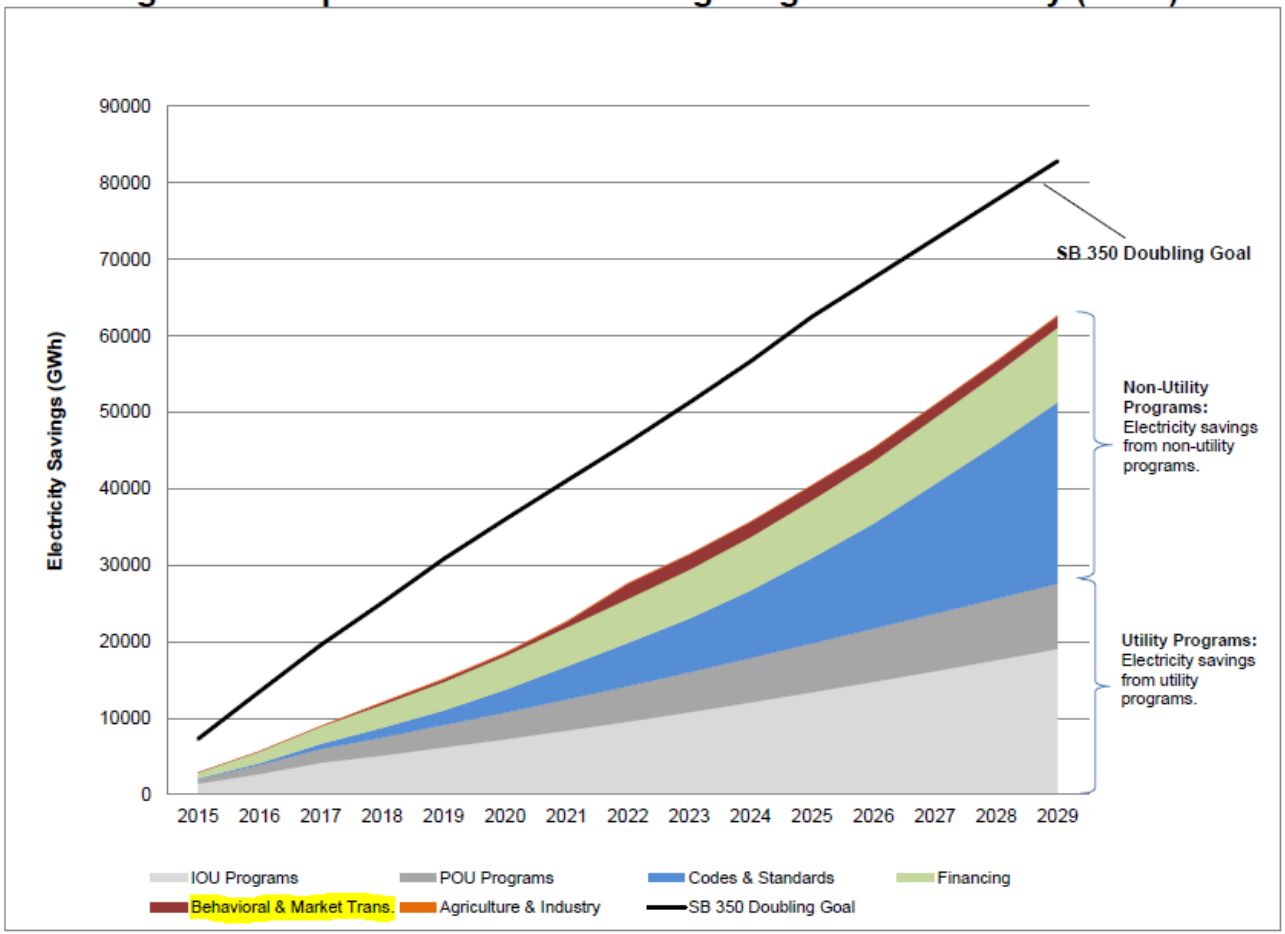
California Energy Commission

2017 SB 350 Final Report: Behavioral and market transformation comprise 2% of total savings

Figure 1: Proposed SB 350 Doubling Target for Electricity (GWh)



Source: Senate Bill 350: Doubling Energy Efficiency Savings by 2030. California Energy Commission. Publication Number: CEC-400-2017-010-CMF. Based on work in Appendix B by NORESCO. August 2017.

Are we adequately capturing the potential of using “behavior as a resource”?

- Does the Energy Commission’s SB 350 methodology adequately capture the potential of behavior and market transformation?
  - Disagreement about definitions (Ignelzi et al., 2015; Lutzenhiser et al., 2017)
  - Institutional barriers exist that hamper innovation (Vine et al., 2014)
  - Existing uncertainty and challenge in evaluating behavioral impacts (Vine et al., 2013; Vine et al., 2014)

- Today’s talk will help further this discussion; we seek stakeholder engagement and comments

Today's presenter

- Dr. Sam Borgeson, Partner at Convergence Data Analytics
  - Received his doctorate in Energy and Resources at UC Berkeley
  - Worked for Lawrence Berkeley National Laboratory for over seven years
  - Currently consults for organizations as diverse as PG&E, Lawrence Berkeley National Laboratory, Stanford Sustainable Systems Lab, and others.

Supplemental Material

Helpful references

- Allcott, H., & Greenstone, M. (2012). Is There an Energy Efficiency Gap? *Journal of Economic Perspectives*, 26(1), 3–28. https://doi.org/10.1257/jep.26.1.3
- Dietz, T., Gardner, G. T., Gilligan, J., Stern, P. C., & Vandenbergh, M. P. (2009). Household actions can provide a behavioral wedge to rapidly reduce US carbon emissions. *Proceedings of the National Academy of Sciences*, 106(44), 18452–18456. https://doi.org/10.1073/pnas.0908738106
- Dolan, P., Hallsworth, M., Halpern, D., King, D., Metcalfe, R., & Vlaev, I. (2012). Influencing behaviour: The mindspace way. *Journal of Economic Psychology*, 33(1), 264–277. https://doi.org/10.1016/j.joep.2011.10.009
- Ignelzi, P., Peters, J., Randazzo, K., Dougherty, A., Dethman, L., & Lutzenhiser, L. (2013). Paving the way for a richer mix of residential behavior programs (CALMAC Study ID: SCE0334.01). Prepared for the California Investor-Owned Utilities, EnerNOC Solutions. Retrieved from http://www.calmac.org/publications/Residential_Behavior_White_Paper_5-31-13_FINAL.pdf
- Illume Advising. (2015). Energy Efficiency Behavioral Programs: Literature Review, Benchmarking Analysis, and Evaluation Guidelines. Prepared for: Minnesota Department of Commerce, Division of Energy Resources. Retrieved from http://mn.gov/commerce-stat/pdfs/card-report-energy-efficiency-behavorial-prog.pdf
- Jones, Melissa, Michael Jaske, Michael Kenney, Brian Samuelson, Cynthia Rogers, Elena Giyenko, and Manjit Ahuja. 2017. Senate Bill 350: Doubling Energy Efficiency Savings by 2030. California Energy Commission. Publication Number: CEC-400-2017-010-CMF.
- Lutzenhiser, L., Cesafsky, L., Chappells, H., Gossard, M., Moezzi, M., Moran, D., … Simmons, E. (2009). Behavioral assumptions underlying California residential sector energy efficiency programs. Oakland, CA: California Institute for Energy and Environment. Retrieved from https://uc-ciee.org/library/1/378/49/nested
- Lutzenhiser, L., Moezzi, M., Ingle, A., & Woods, J. (2017). Advanced Residential Energy and Behavior Analysis Project (No. CEC-500-2017-029). California Energy Commission.
- OECD. (2017). Tackling Environmental Problems with the Help of Behavioural Insights. Paris: OECD Publishing. Retrieved from http://dx.doi.org/10.1787/9789264273887-en
- Sullivan, M. J., & Sullivan, F. (2009). Behavioral Assumptions Underlying Energy Efficiency Programs for Businesses. Oakland, CA: California Institute for Energy and Environment. Retrieved from http://www.calmac.org/publications/Behavioral_Assumptions_in_EE_Programs_for_Businesses_White_Paper.pdf
- Thaler, R. H., & Sunstein, C. R. (2009). Nudge: Improving Decisions About Health, Wealth, and Happiness (Revised & Expanded edition). New York, NY: Penguin Books.
- Todd, A., Stuart, E., Schiller, S. R., & Goldman, C. A. (2012). Evaluation, Measurement, and Verification (EM&V) of Residential Behavior-Based Energy Efficiency Programs: Issues and Recommendations (No. 1219686). , Lawrence Berkeley National Laboratory. http://behavioranalytics.lbl.gov. https://doi.org/10.2172/1219686
- Tower, S., & Francisco, S. (2017). Energy Efficiency Potential and Goals Study for 2018 and Beyond (No. 174655). San Francisco: Prepared by Navigant for the California Public Utilities Commission.
- Vine, E., Hall, N., Keating, K., Kushler, M., & Prahl, R. (2013). Emerging evaluation issues: persistence, behavior, rebound, and policy. *Energy Efficiency* (1570646X), 6(2), 329–339. https://doi.org/10.1007/s12053-012-9174-6
- Vine, E., Sullivan, M., Lutzenhiser, L., Blumstein, C., & Miller, B. (2014). Experimentation and the evaluation of energy efficiency programs. *Energy Efficiency*, 7(4), 627–640. https://doi.org/10.1007/s12053-013-9244-4

Supplemental resources provided by staff—various interpretations and definitions of "behavior"

Definition	Sources
"BROs" – **B**ehavior, **R**etrocommissioning, **O**perational savings 2018 PG study: Behavior-based initiatives are those providing information about energy use and conservation actions, rather than financial incentives, equipment, or services.	• CPUC's 2018 Potential and Goals Study (Tower and Francisco, 2017) • SB 350 Final Commissioner Report (Jones et al., 2017)
"Behavioral wedge" – behaviorally oriented policies and interventions: **W**eatherization, **E**quipment, **M**aintenance, **A**djustments, **D**aily use behaviors.	• Dietz et al. (2009)
Behavior-based energy efficiency program: utilize strategies intended to affect consumer energy use behaviors in order to achieve energy and/or peak demand savings.	• Todd et al. (2012)
Refining the definition--Behavior Intervention Strategies: Target one or more specific behaviors that affect end users' energy use; Are rooted in social science research; Consciously consider which behavior(s) they will affect; Yield evaluable effects.	• Vine et al. (2013) • Ignelzi et al (2013) • Vine et al. (2014) • Illume Advising (2015)
Behavior and Behavioral Change: Have much broader and more detailed perspective. Argue that existing conception of "behavior" is fairly narrow and almost completely disconnected from broader social science understandings of behavior.	• Lutzenhiser et al. (2017)