



ohmconnect
take charge of your energy

Agenda

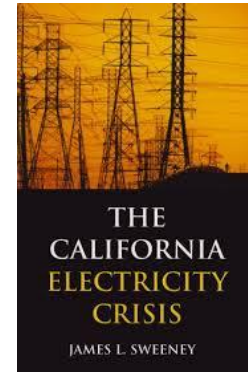
1. Demand Response Primer

2. IoT Business Model

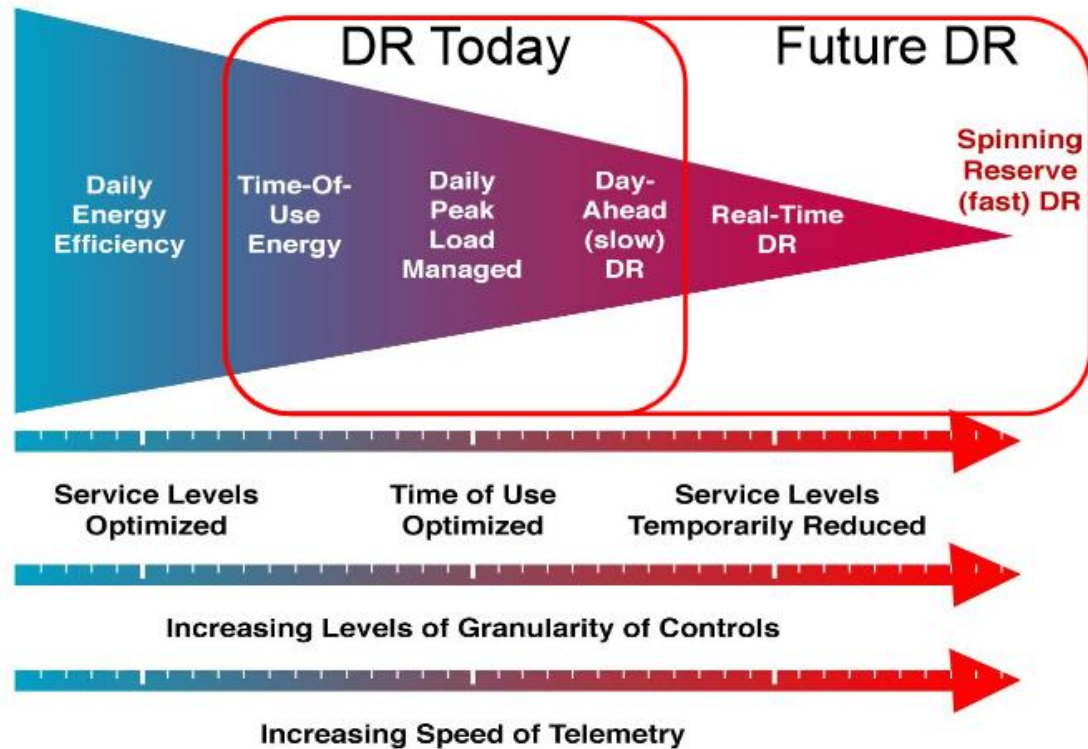
3. Ohmconnect Demo

Birth of DR: California energy crisis of 2000/2001

- Rolling blackouts in June 2000
- Demand outstripped supply
- Needed immediate solutions to prevent further blackouts

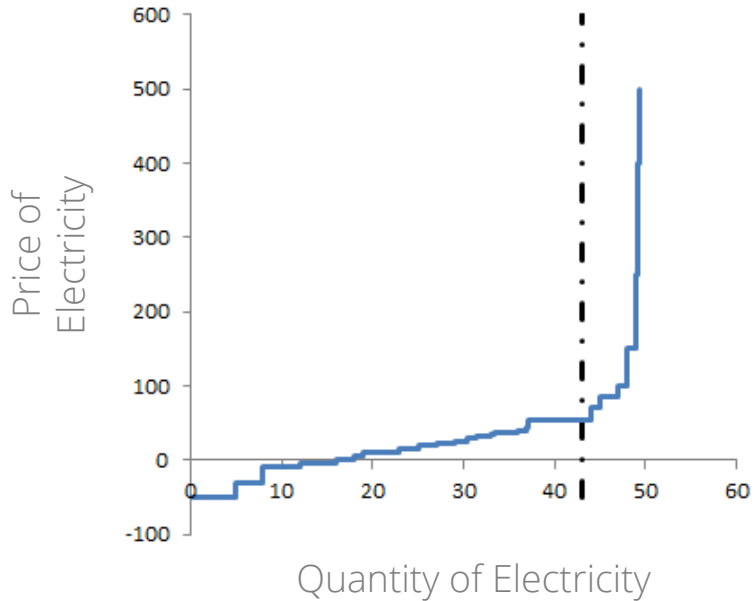


Demand response flavors: past, present, future

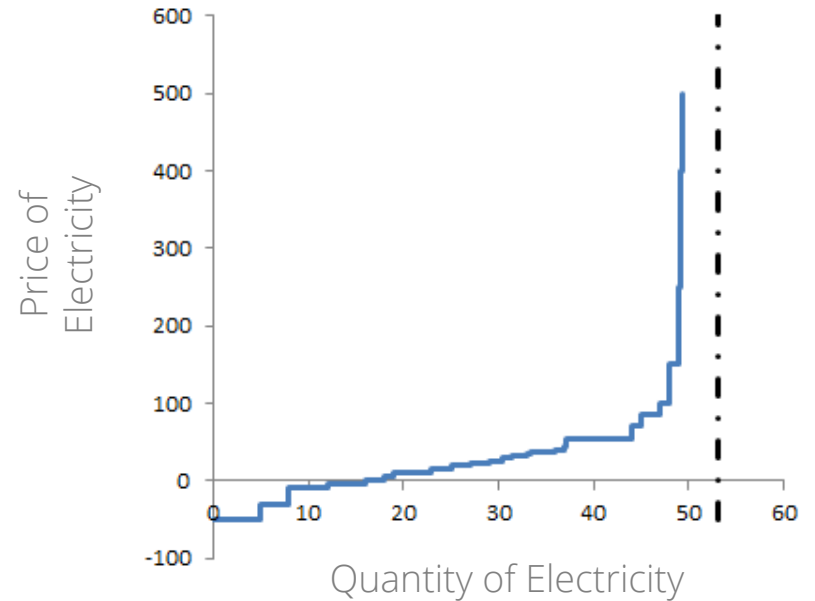


Economic explanation behind rolling blackouts

Prior Peak Period S&D curves



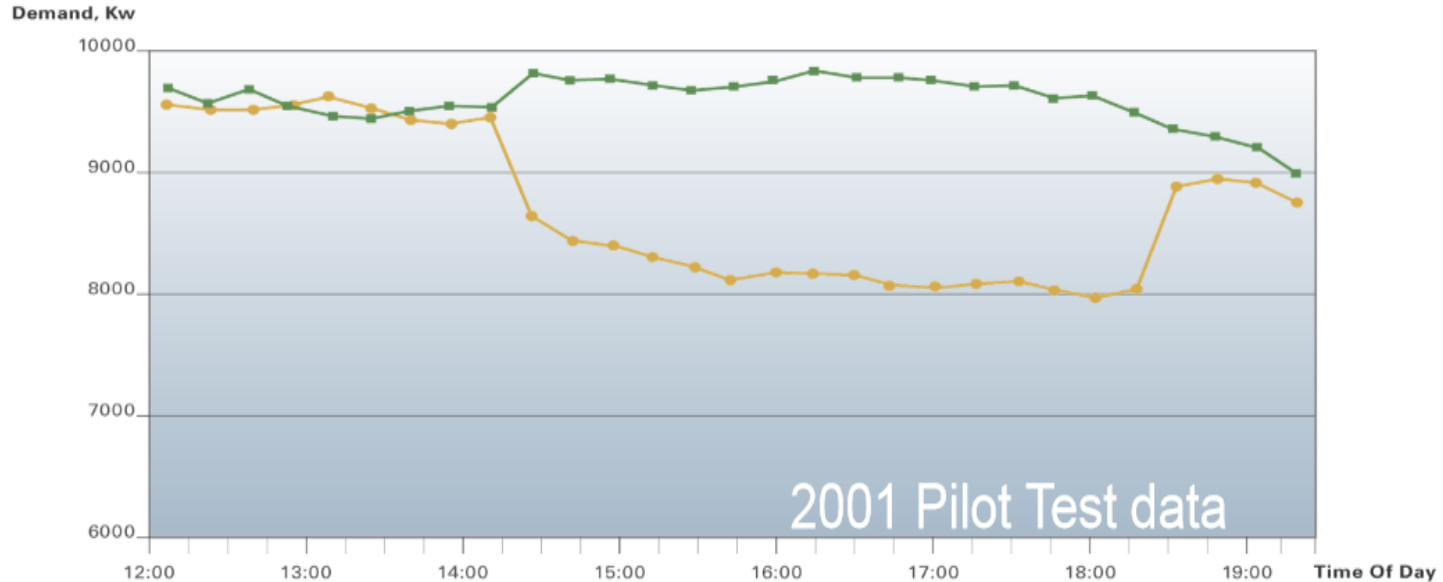
Blackout S&D curves



DR was born from CEC's plan to combat blackouts

- California Energy Commission's (CEC) Art Rosenfeld led a call for "Demand Relief" programs
 - OBMC – optional binding mandatory curtailment
- EPRI, Silicon Valley, Cisco, HP, IBM, others participated to show that they can shave off 10MW out of 100MW
- How?
 - Lighting, Air conditioning, Refrigeration, others

Implementing DR in 2001 – Oracle

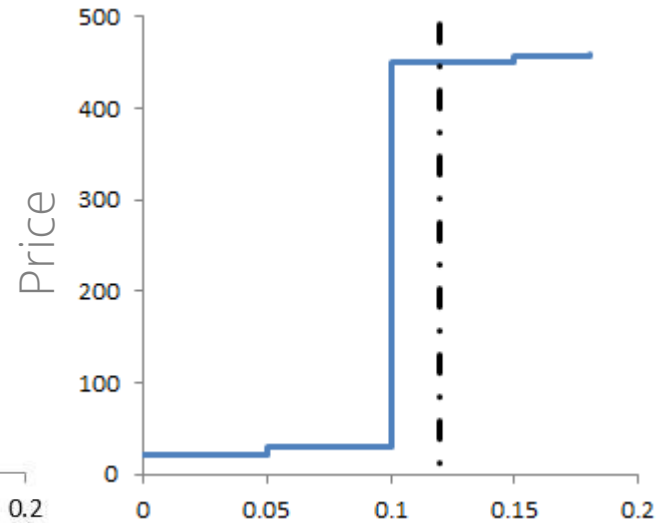
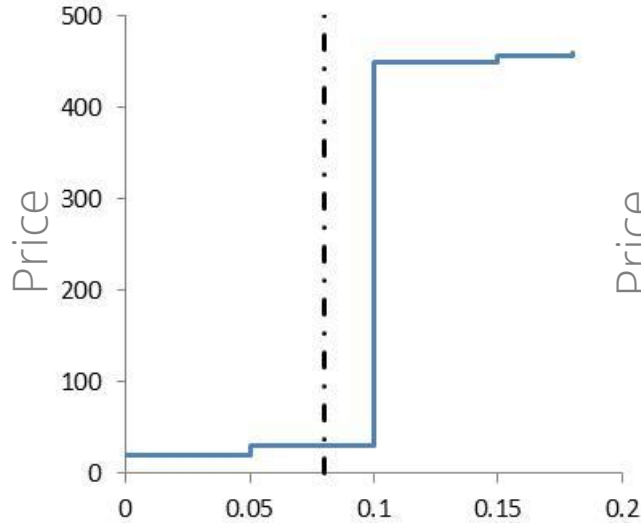
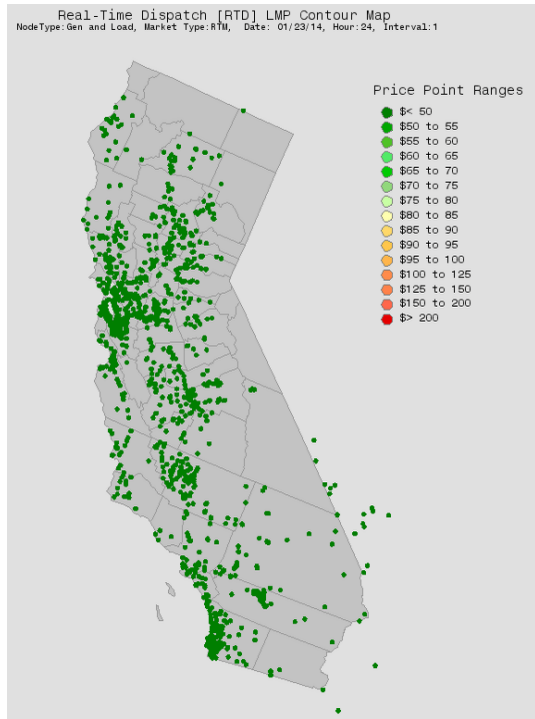


Smart meters

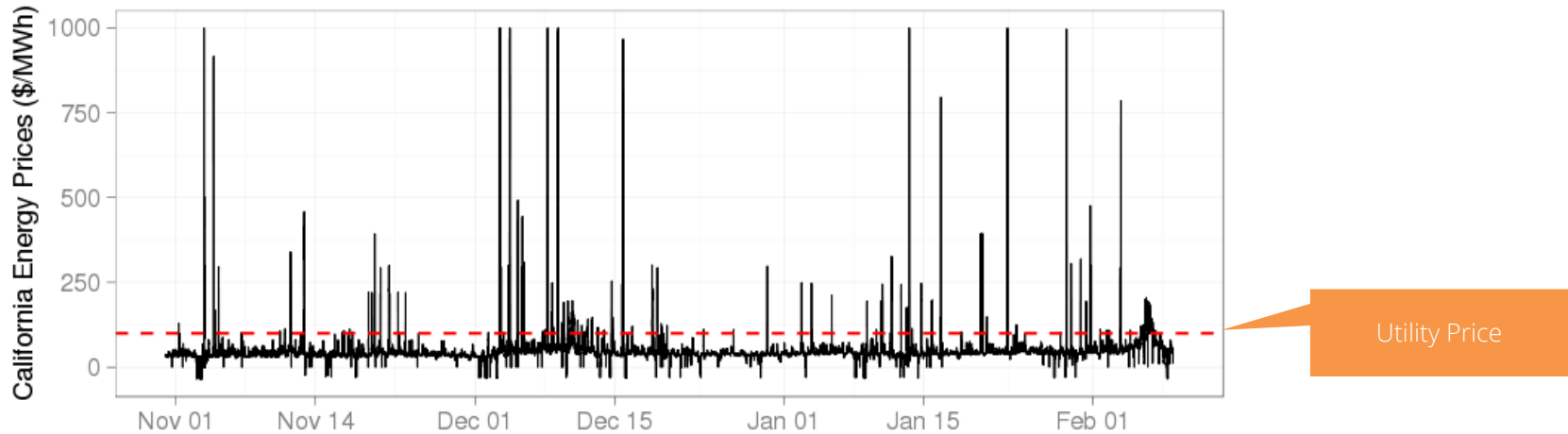
- Monthly readers
- AMR (Automatic Meter Reading)
- AMI (Advanced metering infrastructure)



“Locational” Marginal Price (LMP) markets



The result is much more granularity and insights into when energy is expensive



15% of costs come from <1% of hours

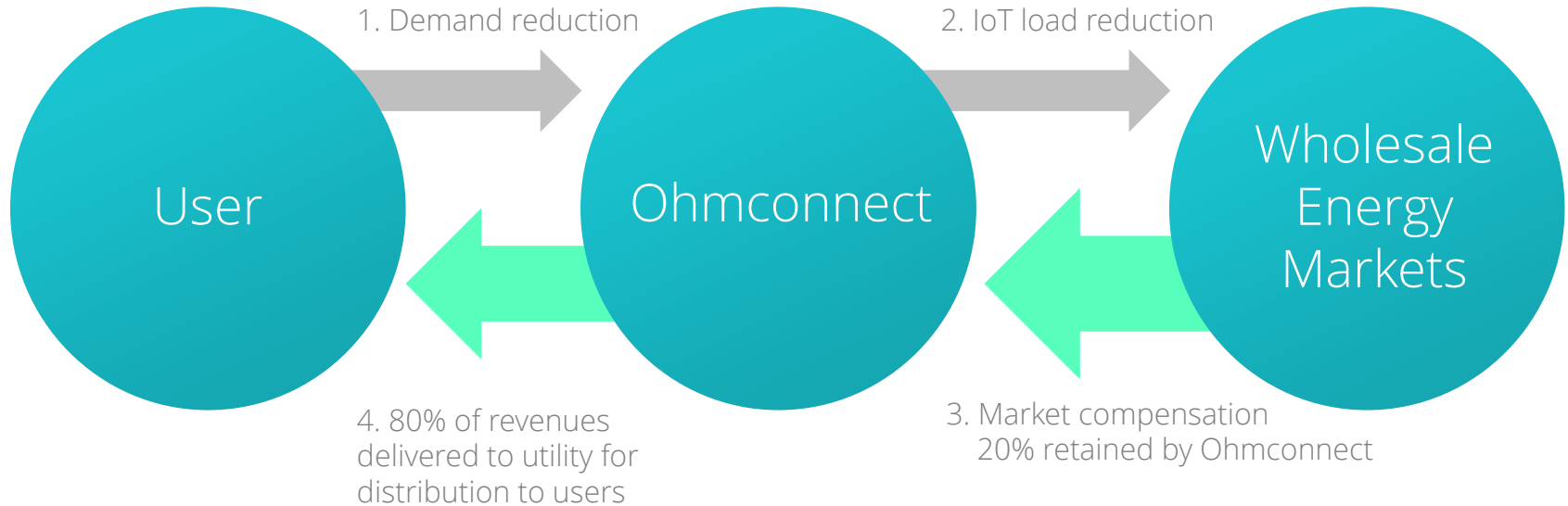
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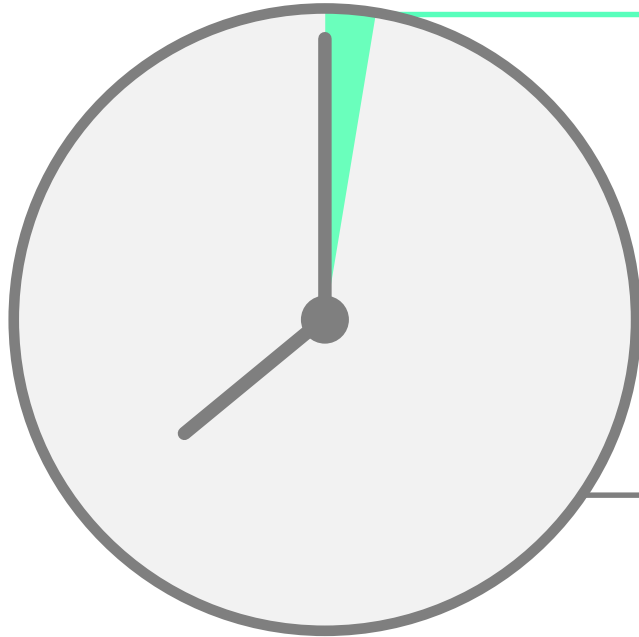
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Business Model Value Chain



IoT Device Timing



1% of time: bids clear into CAISO

When wholesale energy prices spike, Ohmconnect automatically turns down non-critical IoT loads in homes.

These reductions can occur in increments as short as 15, so personal comfort is not an issue.

99% of time: no bidding

devices use electricity as normal

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It's Alive!



Empower homes to respond to price



Reduce Energy
via residential
demand response

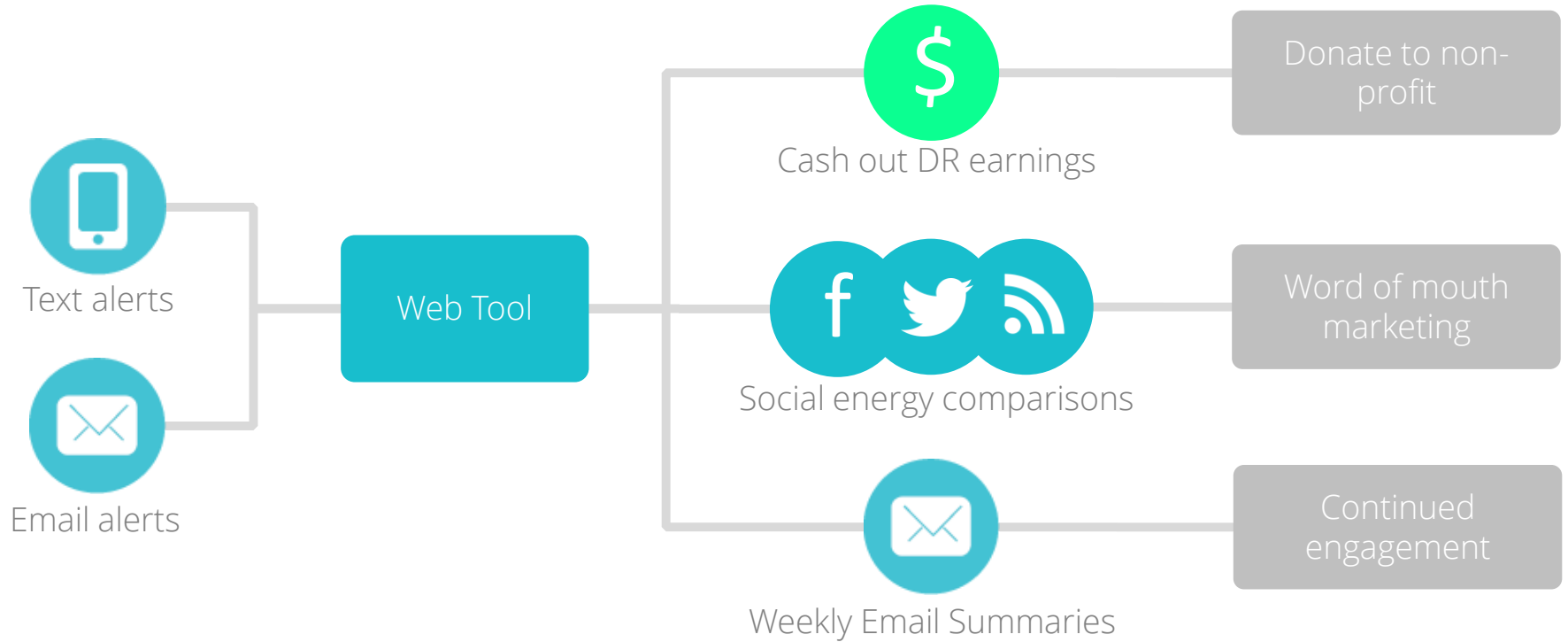


Sell Reductions
into energy markets as
generation



Reward
users with financial
incentives

Customer Experience



What do Customers Think?

"Ohmconnect's innovation is combining the micro-information from my personal energy use in my home with the macro-information of energy production and distribution to make better decisions and usage for society, the environment and for me personally. It doesn't get better than that."

- Stephen Schwerdweger, Palo Alto CA

"Getting paid to reduce my environmental footprint? Count me in."

- Adam Foster, Concord CA

"The easiest home energy analysis tool out there. I especially like the way it can automatically reduce my energy consumption during periods of high usage (or cost) and in most cases I don't even notice. If everyone started using it, we would be able to stop using expensive and dirty "peaker" plants."

- John Overstreet, Los Altos, CA

Thank You

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