

Forbes / Business

JAN 25, 2016 @ 01:14 PM 1,440 VIEWS

Supreme Court Ruling Entrenches Demand Response And Customer Engagement Into The Energy Marketplace



Ken Silverstein
CONTRIBUTOR

I write about the global energy business.

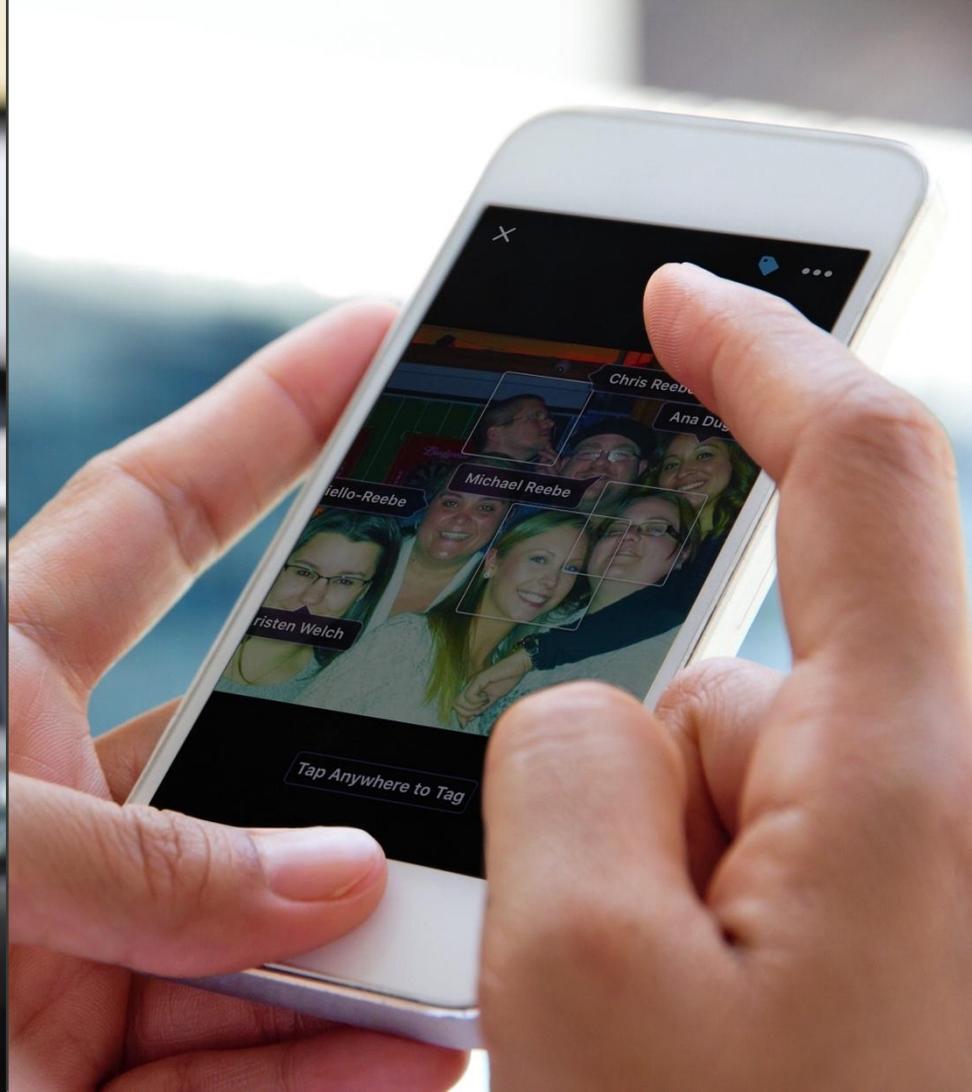
In a landmark decision handed down today, the U.S. Supreme Court ruled that federal regulators have the authority to remove barriers to demand response programs. While some utilities and electricity generators are peeved, the environmental community and the technology providers that shift [energy](#) usage during peak periods to avoid congestion and blackouts are beaming.

The 6-to-2 decision said that the Federal Energy Regulatory Commission (FERC) is within its rights to regulate demand response programs that get paid the same amount for deferring electricity usage as those suppliers with hard assets that actually generate power and deliver it over the wires.



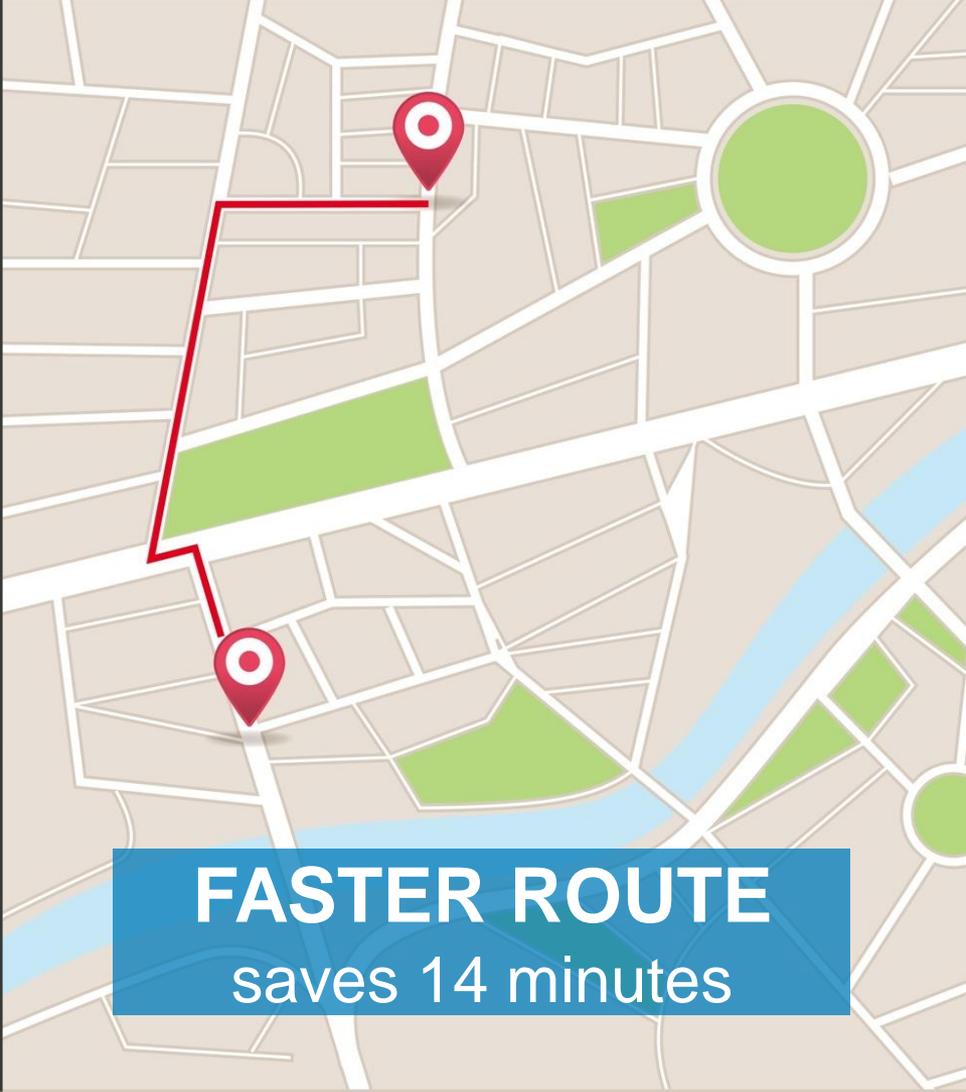
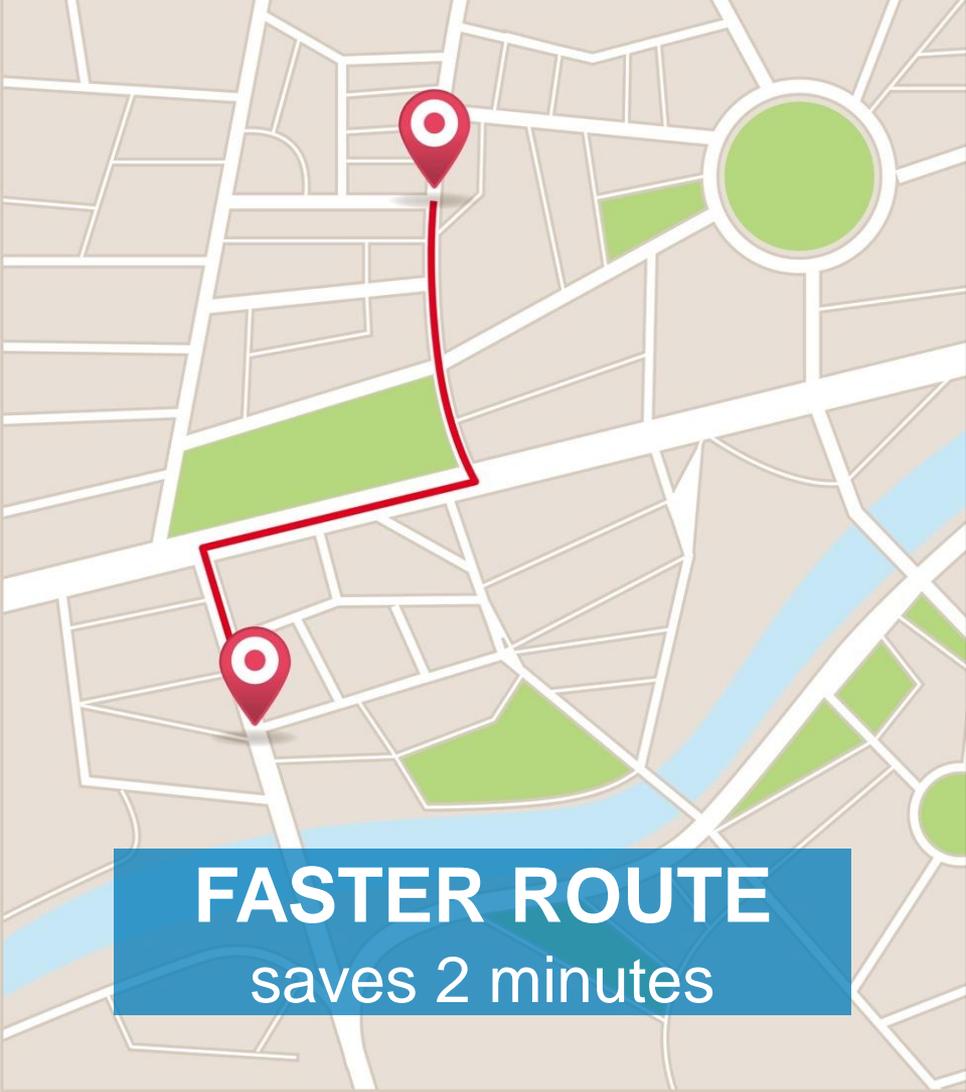
The Future of Energy Intelligence







Is this *Angela Merkel?*



ACCOUNT NUMBER BILLING DATE NEXT READ DATE
 APR 1, 2013 APR 30, 2013

SERVICE PROVIDED TO



ACCOUNT SUMMARY	
PREVIOUS BILL	35,007.90
PAYMENT - THANK YOU	-35,007.90
PRIOR BALANCE	0.00
CURRENT DELIVERY CHARGES	33,749.23
DELIVERY SVCS BALANCE	\$33,749.23

ELECTRICITY USED
 RATE B3-NEMA LG GENERAL-PRIMARY TOU
 METER
 MAR 31, 2013 ACTUAL READ 12198.6
 FEB 28, 2013 PREVIOUS READ 11908.8
 MULTIPLIED BY CONSTANT X 2400
 31 DAY BILLED USE 695,520

CURRENT ELECTRIC CHARGES
 (SEE DETAIL PAGE) 33,749.23

SALES TAX EXEMPT

CHARGES ARE SUBJECT TO 0.81% INTEREST
 AFTER 25 DAYS.

	Peak	Off Peak	DMD
03/31	281,626	414,694	1,220.0
02/28	300,366	429,474	1,328.0
01/29	272,677	425,523	1,257.0
12/30	258,617	419,143	1,241.0
11/29	309,967	444,353	1,498.0
10/29	276,353	418,927	1,348.0
09/27	206,537	479,823	1,338.0
08/28	218,336	487,264	1,359.0
07/30	197,487	503,113	1,390.0
06/28	207,548	462,532	1,307.0
05/30	278,411	368,869	1,260.0
04/30	274,037	412,603	1,239.0
03/29	293,181	379,299	1,297.0
02/29	311,161	403,799	1,268.0

RETURN THIS PORTION WITH YOUR PAYMENT. MOVING? PLEASE LET US KNOW, OTHERWISE YOU MAY BE RESPONSIBLE FOR ENERGY USE AFTER YOU MOVE.

ACCOUNT NUMBER

CURRENT BILL CALCULATION

DELIVERY SERVICES				
CUSTOMER CHARGE				237.07
DEMAND CHARGES:				
DISTRIBUTION CHARGE	8.86 X	1220.2 KW	=	10,810.97
TRANSITION CHARGE*	2.73 X	1220.2 KW	=	3,331.15
TRANSMISSION CHARGE	7.37 X	1220.2 KW	=	8,992.87
TOTAL DEMAND		1220.2 KW	TOTAL DEMAND CHARGE	23,134.99
PEAK CHARGES:				
DISTRIBUTION	0.008800 X	281026 KWH	=	2,473.03
TRANSITION*	0.003120 X	281026 KWH	=	876.80
RENEWABLE ENERGY	0.000500 X	281026 KWH	=	140.51
ENERGY CONSERVATION	0.002500 X	281026 KWH	=	702.57
OFF PEAK CHARGES:				
DISTRIBUTION	0.008800 X	414494 KWH	=	3,647.55
TRANSITION*	0.003120 X	414494 KWH	=	1,293.22
RENEWABLE ENERGY	0.000500 X	414494 KWH	=	207.25
ENERGY CONSERVATION	0.002500 X	414494 KWH	=	1,036.24
TOTAL KWH		695520	TOTAL KWH CHARGE	10,377.17
CURRENT DELIVERY CHARGES				33,749.23

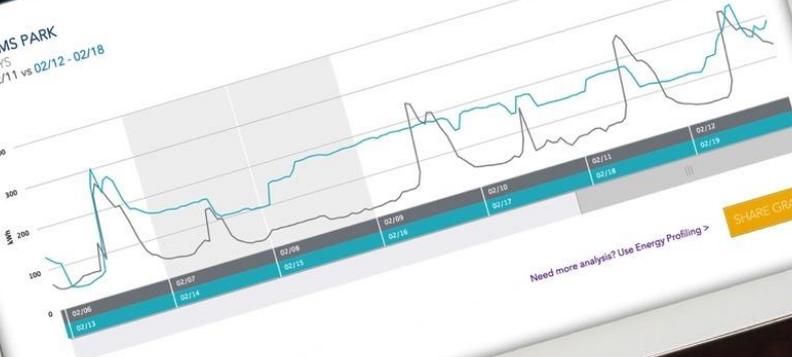
CUS

LOAD ANALYSIS:	KW	DATE	TIME	POWER FACTOR
PEAK:	1,220.2	03/06	12:10	94.600%
OFF PEAK:	1,196.2	03/21	03:35	94.300%

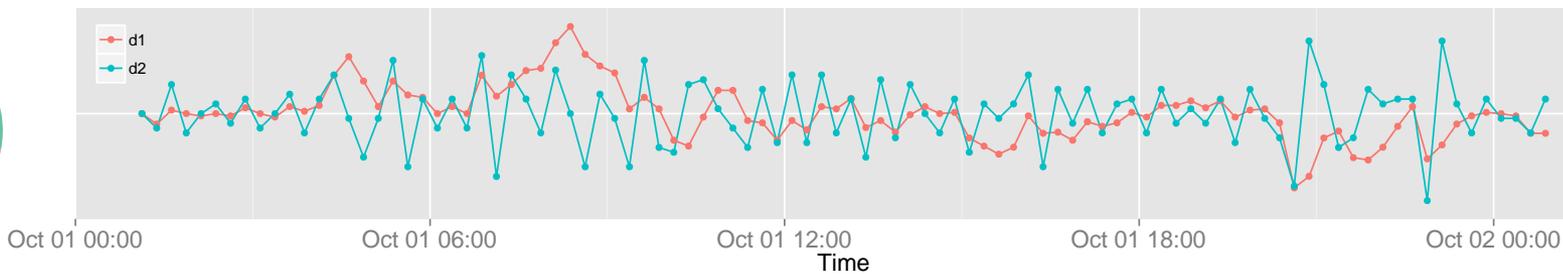
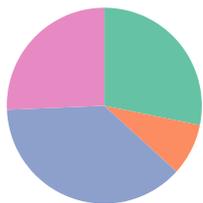
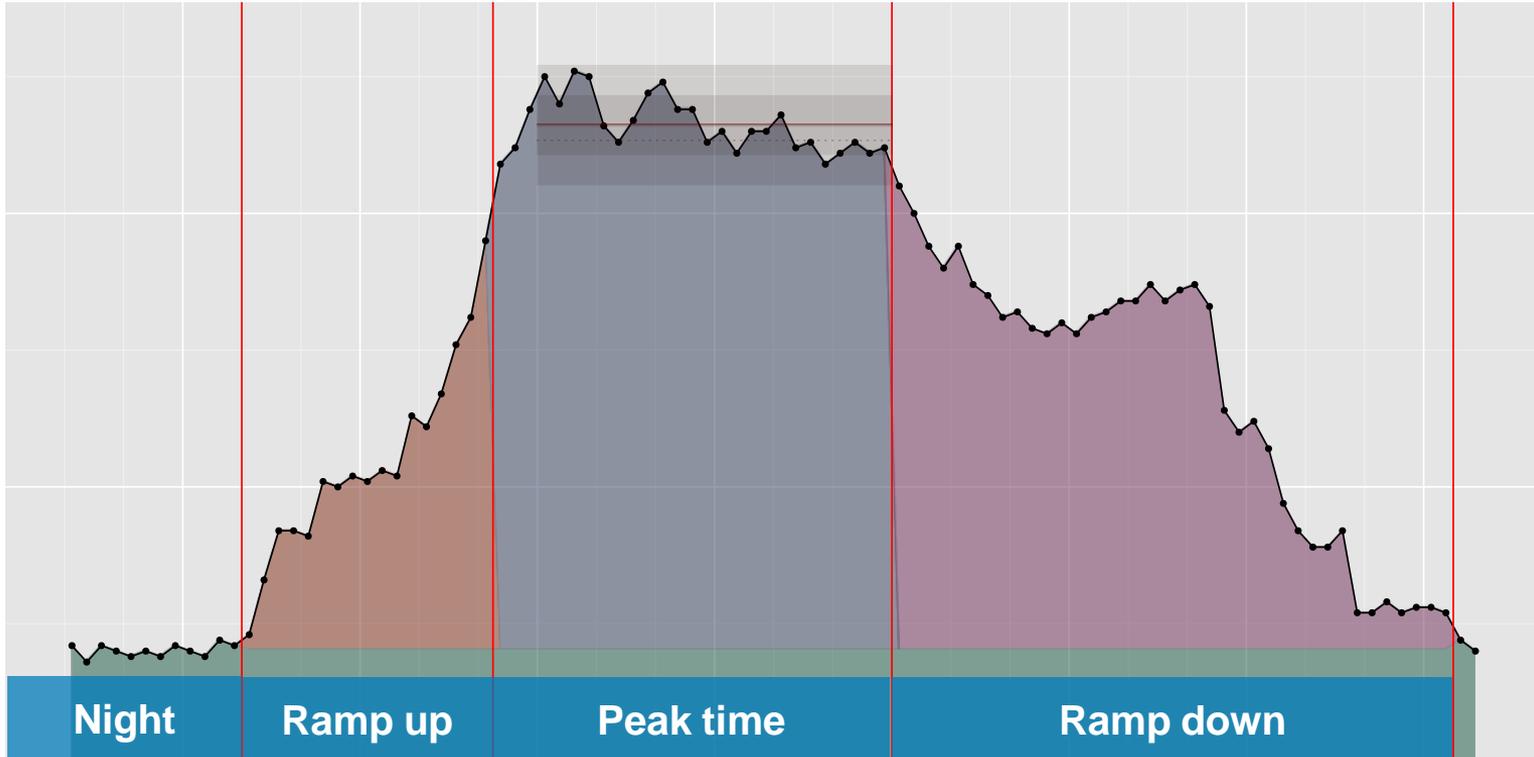
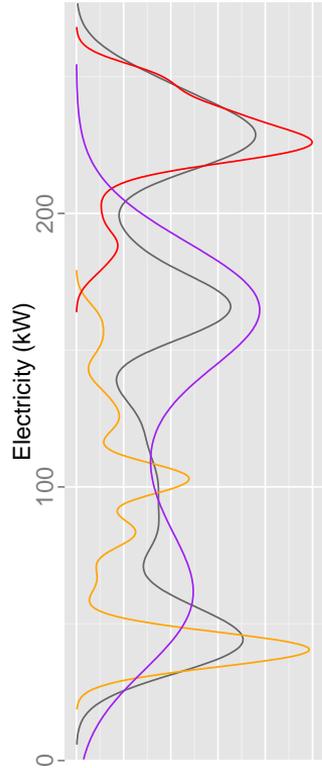


ENERNOC
5 WILLIAMS PARK
LAST 7 DAYS
02/05 - 02/11 vs 02/12 - 02/18

86% [↑] **15,578 kWh** vs 29,042 kWh
Zoom 1D 1W 1M RESET



Need more analysis? Use Energy Profiling >



Dry Cleaners

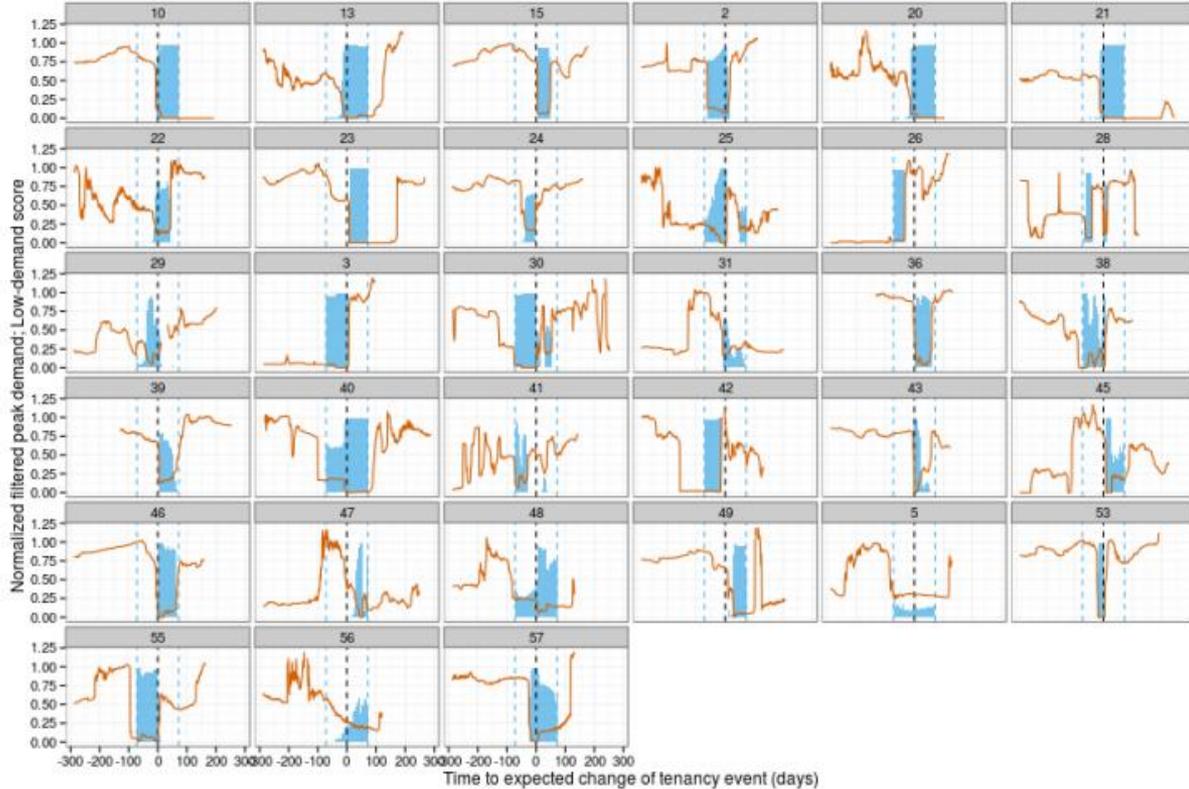


Laundromats



6:00 a.m.

11:00 p.m.



Majority

of change of use events
flagged correctly

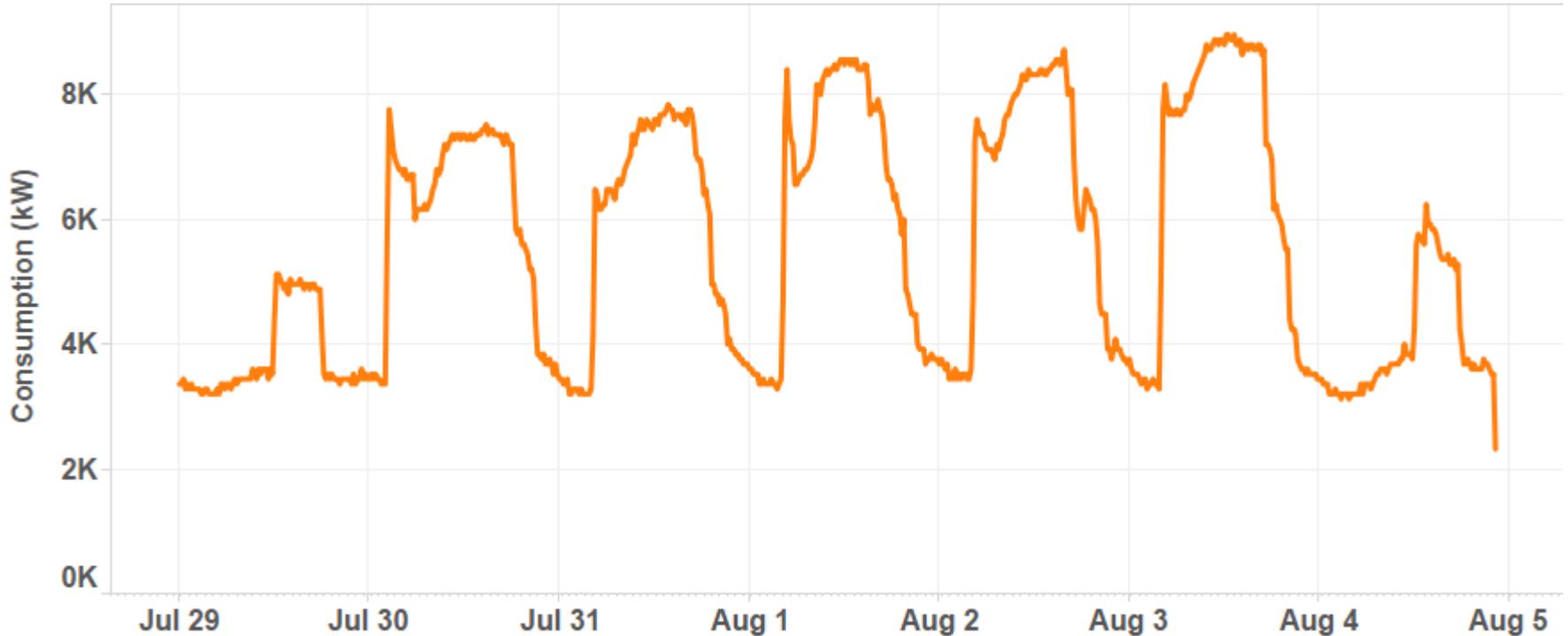
5%

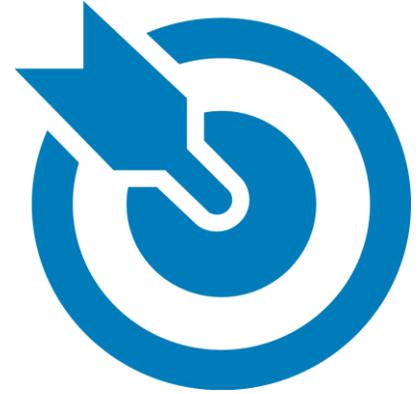
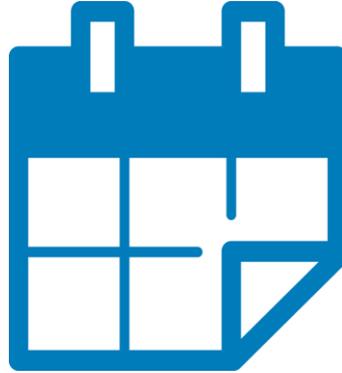
false positives



**Too much of energy management occurs
looking at the past**

How would you manage this building to create energy savings?





More Data

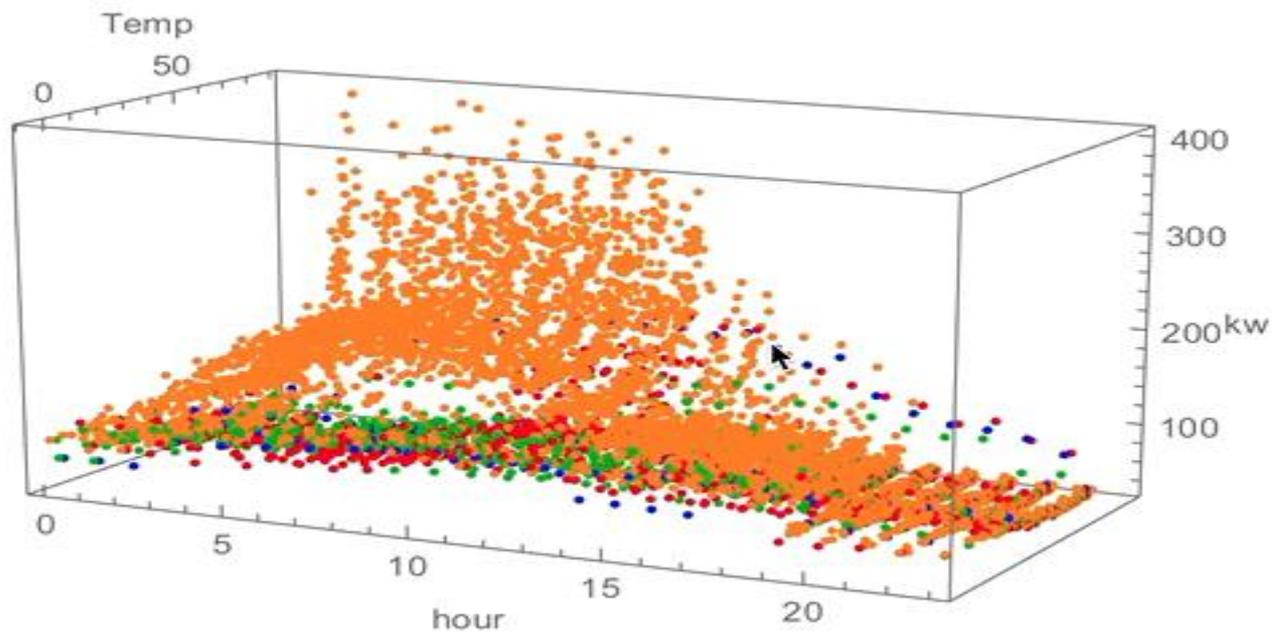


Over More Time



**Better Accuracy
and Speed**

**Machine learning constantly improves
prediction—training data**



- **Holiday**
- **Other**
- ◆ **Saturday**
- ▲ **Sunday**

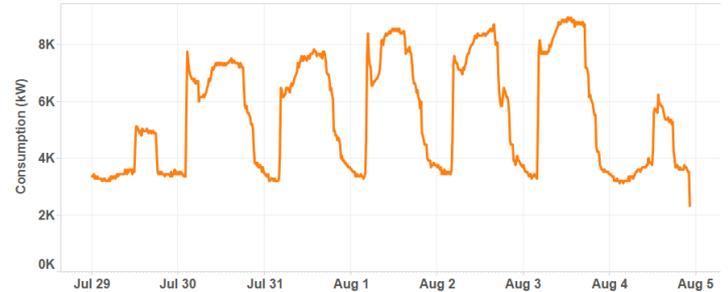
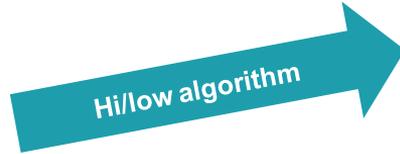
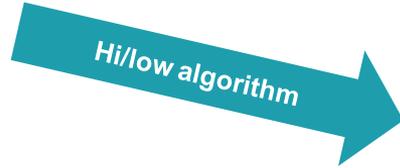
You can apply machine learning and other predicted factors to create accurate predictions of energy consumption at a granular level



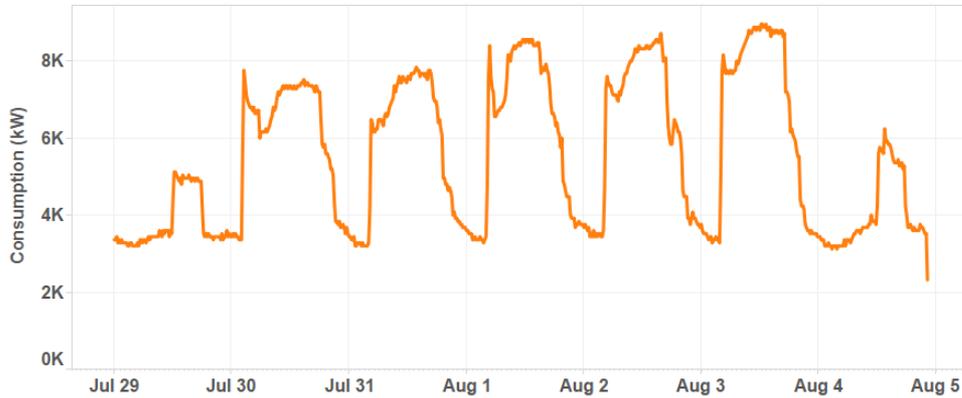
Weather Data



Demand



Data is always being trained



Electricity Prediction

Tariff Name	PDF (KB)	Title		PDF	Title
A-1	PDF	Small General Service		E-4MCL	New Municipal Departing Load
A-4	PDF	Small General Time-of-Use Service		E-4MCL	New WAPA Departing Load
A-10	PDF	Medium General Demand-Metered Service		E-OSF	On Bill Financing Loan Program
A-15	PDF	Direct Current General Service		E-OBMC	Optional Binding Mandatory Catchment Plan
AG-1	PDF	Agricultural Power		E-PWF	Section 389.20 PPA
AG-4	PDF	Time-of-Use Agricultural Power		E-REMAT	RENEWABLE MARKET ADJUSTING TARIFF (REMAT)
AG-5	PDF	Large Time-of-Use Agricultural Power		E-RSAC	Residential Smart AC Program
AG-ICE	PDF	Agricultural Internal Combustion Engine Conversion Incentive Rate		E-RDMRT	Residential SmartRate Program
AG-R	PDF	Split-Week Time-of-Use Agricultural Power		E-RDL	Split-Wheeling Departing Load
AG-V	PDF	Short Peak Time-of-Use Agricultural Power		E-SLRP	Scheduled Load Reduction Program
CCA-CRS	PDF	Community Choice Aggregation Cost Responsibility Surcharge (Sitem)		E-SOP	Residential Electric SmartMeter(TIE) Opt-Out Program
DA-CRS	PDF	Direct Access Cost Responsibility Surcharge		E-SRG	Small Renewable Generator PPA
E-1	PDF	Residential Services		E-TMCL	Transferred Municipal Departing Load
E-6	PDF	Residential Time-of-Use Service		ED	Experimental Economic Development Rate
E-7	PDF	Residential Time-of-Use Service		EDR	Economic Development Rate
E-8	PDF	Residential Seasonal Service Option		EE	Service to Company Employees
E-9	PDF	Experimental Residential Time-of-Use Service for Low Emission Vehicle Customers		EL-1	Residential CARE Program Service
E-10	PDF	Medium General Demand-Metered TOU Service		EL-4	Residential CARE Program Time-of-Use Service
E-31	PDF	Distribution Bypass Deferral Rate		EL-7	Residential CARE Program Time-of-Use Service
E-37	PDF	Medium General Demand-Metered Time-of-Use Service to Oil & Gas Extraction Customers		EL-8	Residential Seasonal CARE Program Service Option
E-AMOS	PDF	Experimental Access to Meter Data Services		EM	Master-Metered Multifamily Service
E-BIP	PDF	Base Interruptible Program		EM-TOU	Residential Time of Use Service
E-CARE	PDF	CARE Program Service for Qualified Nonprofit Group-Living & Qualified Agricultural Employee Housing Facilities		EML	Master-Metered Multifamily CARE Program Service
E-CBP	PDF	Capacity Bidding Program		EML-TOU	Residential CARE Program Time of Use Service
E-CCA	PDF	Services to Community Choice Aggregators		ES	Multifamily Service
E-CCANFO	PDF	Information Release to Community Choice Aggregators		ESL	Multifamily CARE Program Service
E-CHP	PDF	Combined Heat and Power PPA		ESR	Residential RV Park and Residential Marina Service
E-CHPS	PDF	Combined Heat and Power Simplified PPA		ESRL	Residential RV Park and Residential Marina CARE Program Service
E-CHPSA	PDF	Combined Heat and Power Simplified Under 500 kW PPA		ET	Mobilehome Park Service
E-CREDIT	PDF	Revenue Cycle Services Credits		ETL	Mobilehome Park CARE Program Service
E-CSAC	PDF	Commercial Smart AC Program		EV	RESIDENTIAL TIME-OF-USE SERVICE FOR PLUG-IN ELECTRIC VEHICLE CUSTOMERS
E-DASR	PDF	Direct Access Services Request Fees		LS-1	PG&E-Owned Street and Highway Lighting
E-DBP	PDF	Demand Bidding Program		LS-2	Customer-Owned Street and Highway Lighting
E-DCG	PDF	Departing Customer Generation CG		LS-3	Customer-Owned Street and Highway Lighting Electrolux Meter Rate
E-DEPRT	PDF	Departing Customers		NEM	Net Energy Metering Service
E-ERA	PDF	Energy Rate Adjustments		NEMBO	Net Energy Metering Service for Biogas Customer-Generator
E-ESP	PDF	Services to Electric Service Providers		NEMCCSF	Schedule NEMCCSF- Net Energy Metering Service For City and County of San Francisco Municipal Load Served by Helix Helicity At-Site Photovoltaic Generating Facilities
E-ESPHOSF	PDF	Electric Service Provider Non-Discretionary Service Fees		NEMFC	Net Energy Metering Service for Fuel Cell Customer-Generators
E-EUS	PDF	End User Service		NEMV	Virtual Net Energy Metering for a Multi-Tenant or Multi-Meter Property Served at the Same Service Delivery Point
E-FERA	PDF	Family Electric Rate Assistance		NEMWASH	Virtual Net Energy Metering For Multifamily Affordable Housing (MASH-NEMWP) With Solar Generators(s)
E-FFS	PDF	Franchise Fee Surcharge		OL-1	Outdoor Area Lighting Service
E-FORMS	PDF	Limited Optional Remote Metering Service		RES-BCT	Schedule for Local Government Renewable Energy Self-Generation Bill Credit Transfer
E-LRAD	PDF	Local Resource Adequacy Obligations During Direct Access Reopening		S	Standby Service
				TBCC	Transitional Bundled Commodity Cost
				TC-1	Traffic Control Service

Over 90 tariff types for one utility!

Just 2 of the 15 pages of text for this tariff!



Pacific Gas and Electric Company
San Francisco, California
U 39

31258-E
Cancelling
Revised

Revised

Cal. P.U.C. Sheet No.
31258-E
Cal. P.U.C. Sheet No.
30766-E

31258-E
30766-E

ELECTRIC SCHEDULE A-10 MEDIUM GENERAL DEMAND-METERED SERVICE

Sheet 2

APPLICABILITY
(CONT'D):

Peak Day Pricing Default Rates: Peak Day Pricing (PDP) rates provide customers the opportunity to manage their electric costs by reducing load during high cost periods or shifting load from high cost periods to lower cost periods. Decision 10-02-032 ordered that beginning May 1, 2010, eligible large Commercial and Industrial (C&I) customers default to PDP rates. A customer is eligible for default when 1) it has at least twelve (12) billing months of hourly usage data available, and 2) it has measured demands equal to or exceeding 200 kW for three (3) consecutive months during the past 12 months. All eligible customers will be placed on PDP rates unless they opt-out to a TOU rate.

Decision 10-02-032, as modified by Decision 11-11-008, ordered that beginning November 1, 2014, eligible small and medium Commercial and Industrial (C&I) customers (those with demands that are not equal to or greater than 200kW for three consecutive months) default to PDP rates. A customer is eligible for default when it has at least twelve (12) billing months of hourly usage data available and two years of experience on TOU rates. All eligible customers will be placed on PDP rates unless they opt-out to a TOU rate. Customers with a SmartMeter™ system, or interval meter, installed that can be remotely read by PG&E may also voluntarily elect to enroll on PDP rates. (T)

Bundled service customers are eligible for PDP. Direct Access (DA) and Customer Choice Aggregation (CCA) service customers are not eligible, including those customers on transitional bundled service (TBS). Customers on standby service (Schedule S) and net-energy metering (NEM, NEMFC, NEMBIO, etc.) are not eligible for PDP. In addition, master-metered customers are not eligible, except for commercial buildings with submetering as stated in PG&E Rule 1 and Rule 18. Non-residential SmartAC customers are eligible. Smart A/C customers may request PG&E to activate their A/C Cycling switch or Programmable Controllable Thermostat (PCT) when the customer is participating solely in a PDP event. (T)

For additional details and program specifics, see the Peak Day Pricing Details section below.

Time-of-Use Rates: Decision 10-02-032, as modified by Decision 11-11-008, makes TOU rates mandatory beginning November 1, 2012, for small and medium C&I customers that have at least twelve (12) billing months of hourly usage data available. (T)

The transition of eligible customers to mandatory TOU rates will occur once per year with the start of their billing cycle on or after November 1. Eligible customers will have at least 45 days notice prior to their planned transition date. During the 45-day period, customers will continue to take service on their non-TOU rate. Customers may elect any applicable TOU rate. However, if the customer taking service on this schedule has not made that choice at least five (5) days prior to the planned transition date, their service will be changed to the TOU version of this rate schedule on their transition date. (N)

TERRITORY: This rate schedule applies everywhere PG&E provides electric service.



Pacific Gas and Electric Company
San Francisco, California
U 39

33740-E
Cancelling
Revised

Revised

Cal. P.U.C. Sheet No.
33740-E
Cal. P.U.C. Sheet No.
33550-E

33740-E
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ELECTRIC SCHEDULE A-10 MEDIUM GENERAL DEMAND-METERED SERVICE

Sheet 6

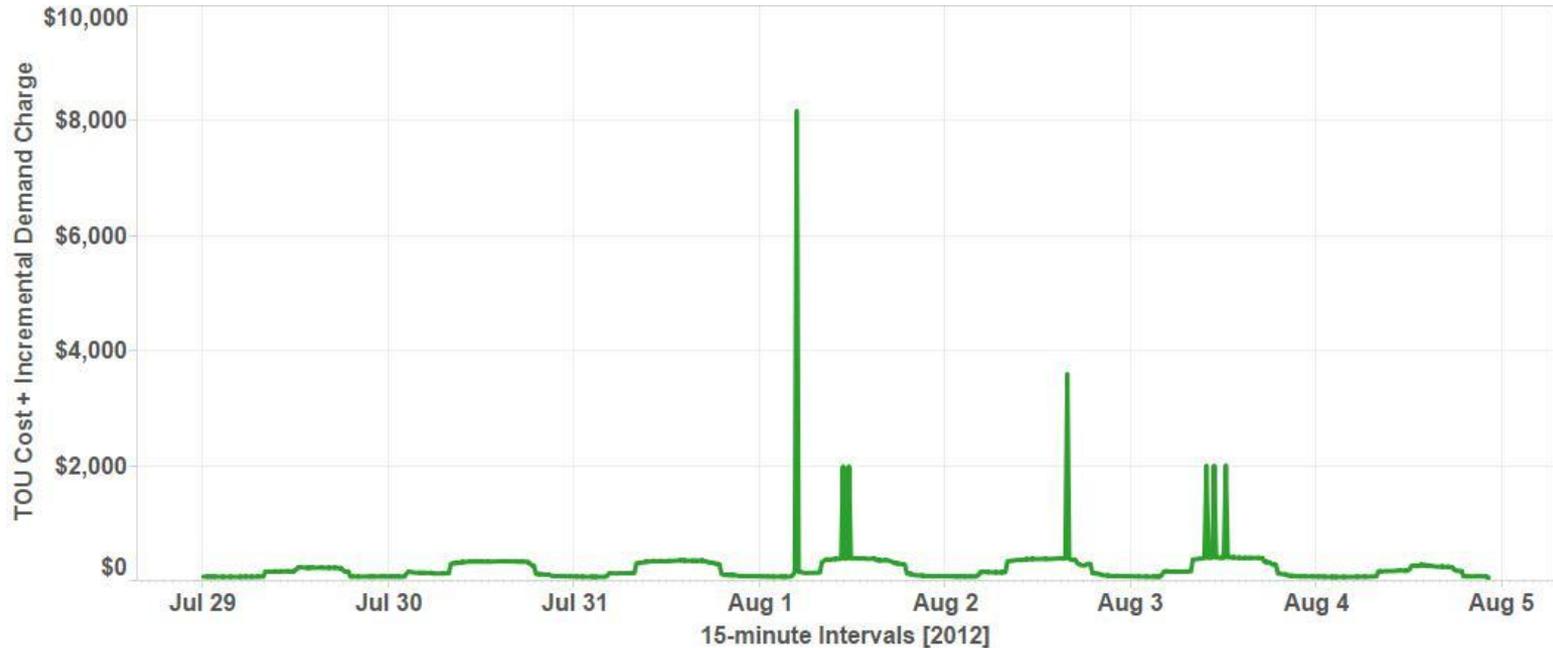
RATES: Time-of-Use Rates for Optional or Real-Time Metering Customers
Table B (Cont'd.)

UNBUNDLING OF TOTAL RATES

Customer/Meter Charge Rates: Customer and Meter charge rates provided in the Total Rate section above are assigned entirely to the unbundled distribution component.

	Secondary Voltage	Primary Voltage	Transmission Voltage
Demand Rate by Components (\$ per kW)			
Generation:			
Summer	\$4.14 (I)	\$3.92 (I)	\$4.36 (I)
Winter	\$0.00	\$0.00	\$0.00
Distribution**:			
Summer	\$5.15 (I)	\$4.60 (I)	\$0.42 (I)
Winter	\$1.88 (I)	\$2.09 (I)	\$0.42 (I)
Transmission Maximum Demand*	\$4.48	\$4.48	\$4.48
Reliability Services Maximum Demand*	\$0.10 (I)	\$0.10 (I)	\$0.10 (I)
Energy Rate by Components (\$ per kWh)			
Generation:			
Peak Summer	\$0.12319 (I)	\$0.11322 (I)	\$0.10902 (I)
Part-Peak Summer	\$0.11551 (I)	\$0.10774 (I)	\$0.10402 (I)
Off-Peak Summer	\$0.08217 (I)	\$0.08679 (I)	\$0.08506 (I)
Part-Peak Winter	\$0.08308 (I)	\$0.08485 (I)	\$0.07950 (I)
Off-Peak Winter	\$0.07306 (I)	\$0.06846 (I)	\$0.06445 (I)
Distribution**:			
Summer	\$0.02624 (I)	\$0.02340 (I)	\$0.00224 (I)
Winter	\$0.00954 (I)	\$0.01052 (I)	\$0.00224 (I)
Transmission Rate Adjustments* (all usage)	\$0.00429 (I)	\$0.00429 (I)	\$0.00429 (I)
Public Purpose Programs (all usage)	\$0.01265 (R)	\$0.01236 (R)	\$0.01195 (R)
Competition Transition Charge (all usage)	\$0.00167	\$0.00167	\$0.00167
Energy Cost Recovery Amount (all usage)	(\$0.00154)	(\$0.00154)	(\$0.00154)
Nuclear Decommissioning (all usage)	\$0.00049	\$0.00049	\$0.00049
DWR Bond (all usage)	\$0.00513	\$0.00513	\$0.00513
New System Generation Charge (all usage)**	\$0.00267	\$0.00267	\$0.00267
California Climate Credit (all usage)***	(\$0.00601) (N)	(\$0.00539) (N)	(\$0.00566) (N)

Once tariff and demand combined, we can predict real costs with high accuracy

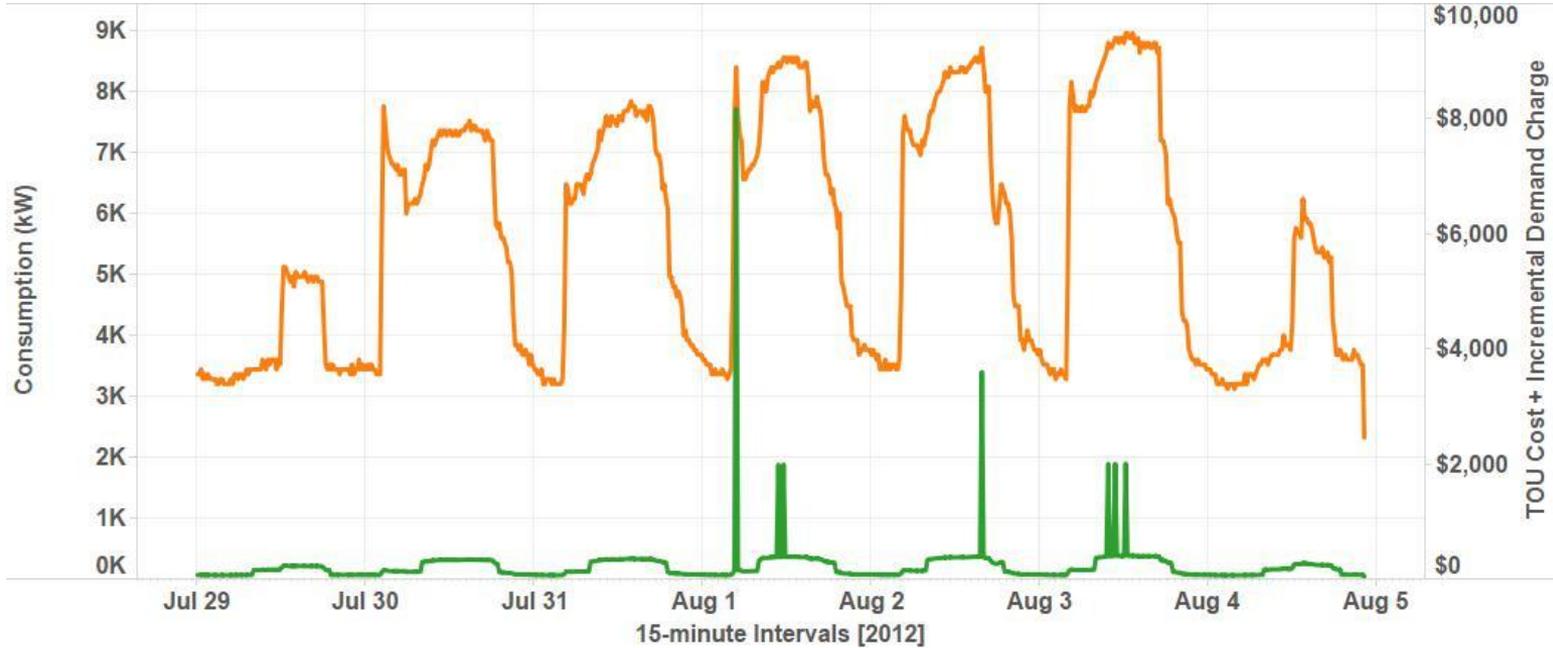


Measure Names

■ TOU Cost + Incremental Demand Charge

Actual Cost vs. Consumption

(Time-of-Use + Incremental Demand Charge Cost) vs. Consumption, 19 July–5 August



Measure Names

Consumption (kW)

TOU Cost + Incremental Demand Charge



Actionable. Easy. No PhD Required.