

Business & Financial Conference



Network & Grow Together

Braintree Electric EV Incentive Program

August 2018



Agenda

- Braintree Electric Overview
 - Electric Vehicle Sales overview
 - Why an EV incentive program
 - Details of EV incentive program
 - Progress to date
-
- gcohen@beld.com – 781.348.1125



Braintree Electric Overview

- Founded in 1892 by Thomas Watson
- 8 miles south of Boston
- 16,500 customers - 35,000 residents
- AMI/MDM fully deployed since 2012
- Governance – 3 elected light board members
- Broadband business competes with Comcast and Verizon

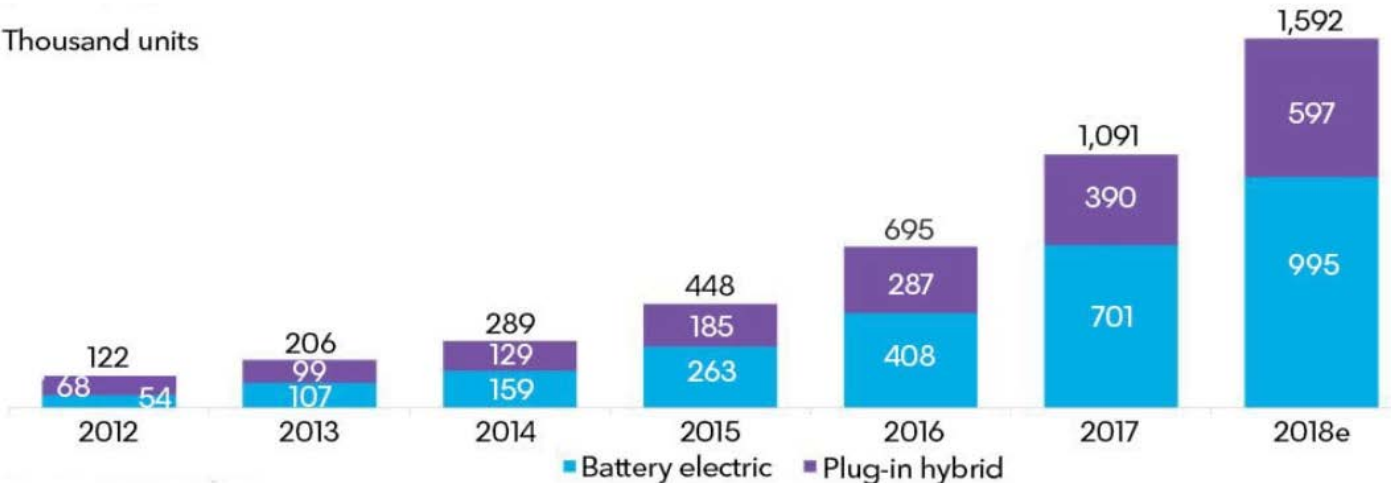


Global passenger EV sales by type

Share of total new EV sales



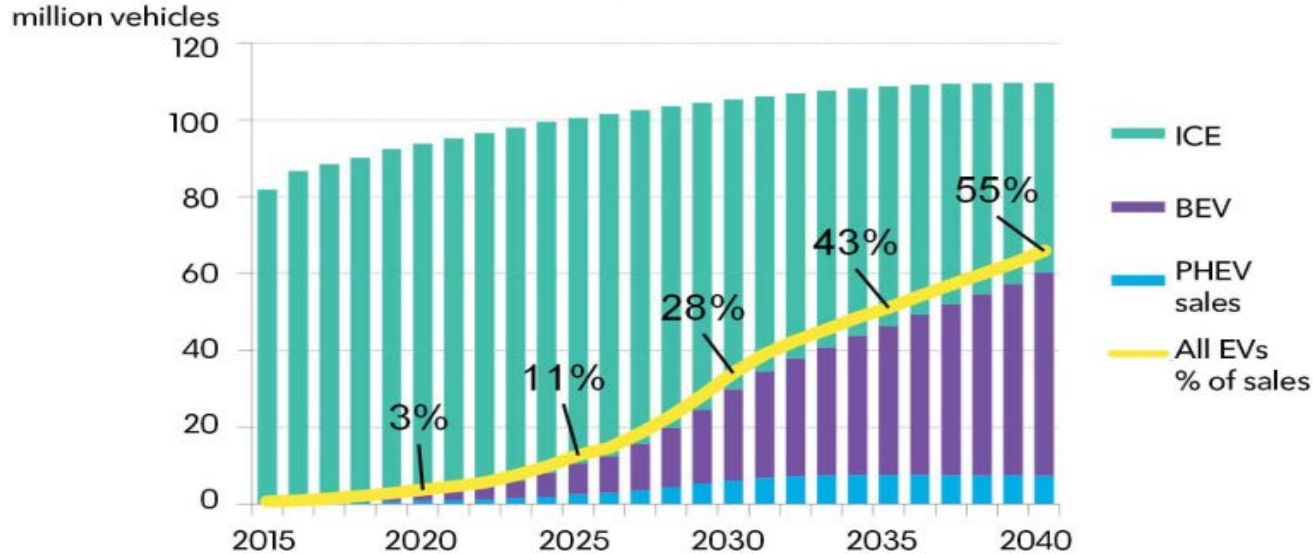
Thousand units



Source: Bloomberg New Energy Finance

Global Electric Vehicle Sales

Annual global light duty vehicle sales



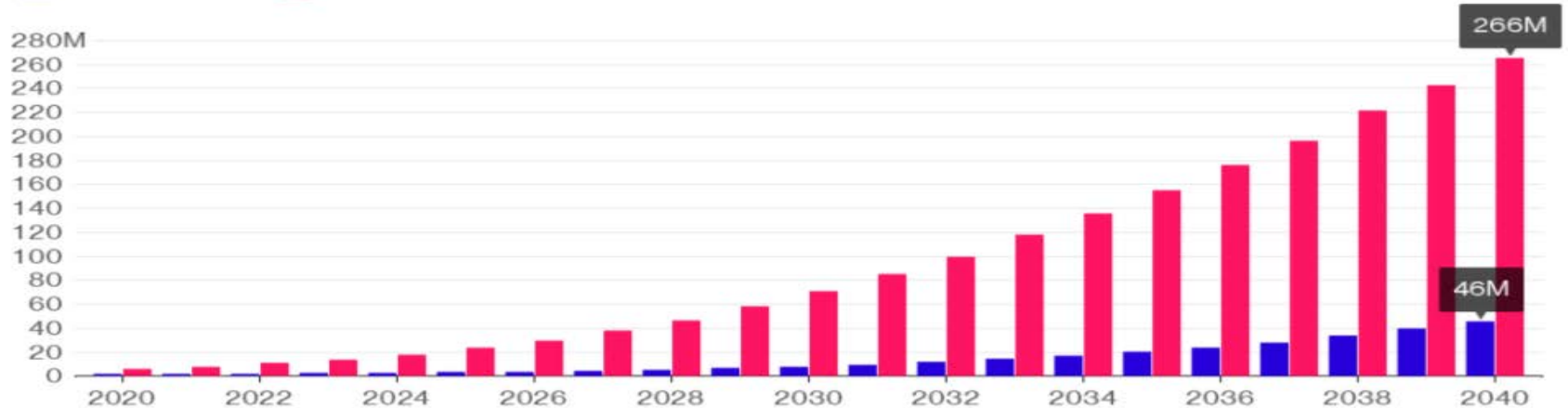
Source: Bloomberg New Energy Finance

OPEC estimated EV Sales per year 2015 vs 2016

Growing Expectations

OPEC's electric vehicle forecast grew by almost 500% last year

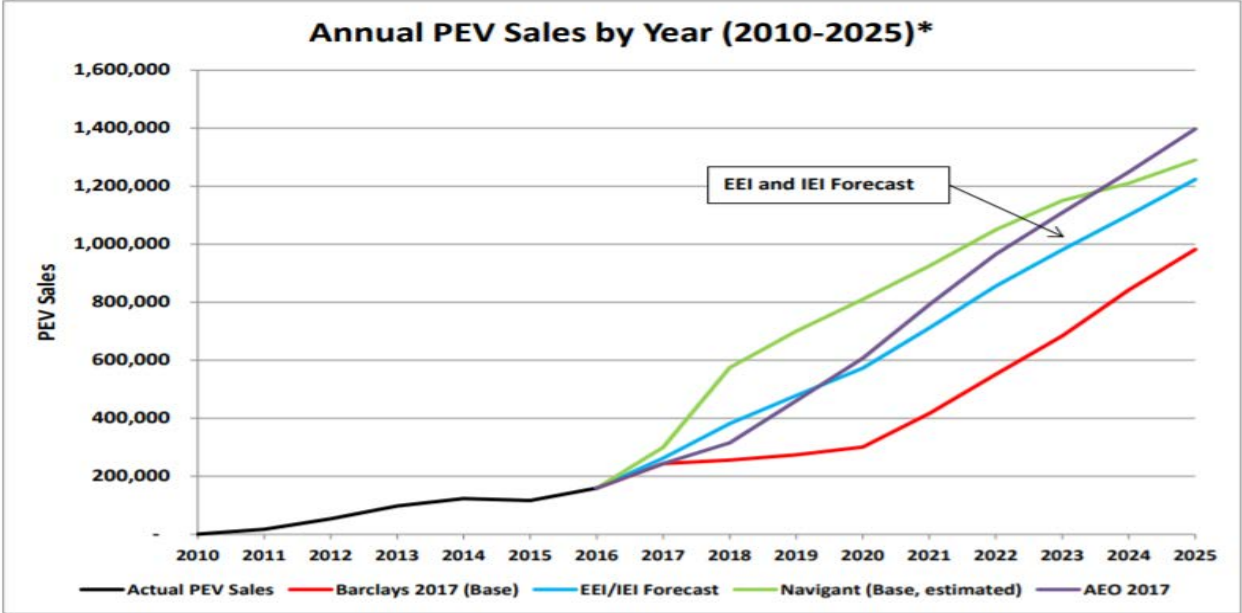
■ 2015 Forecast ■ 2016 Forecast



Source: Bloomberg New Energy Finance

Bloomberg

US Annual EV Sales



*Includes battery electric vehicles and plug-in hybrid electric vehicles

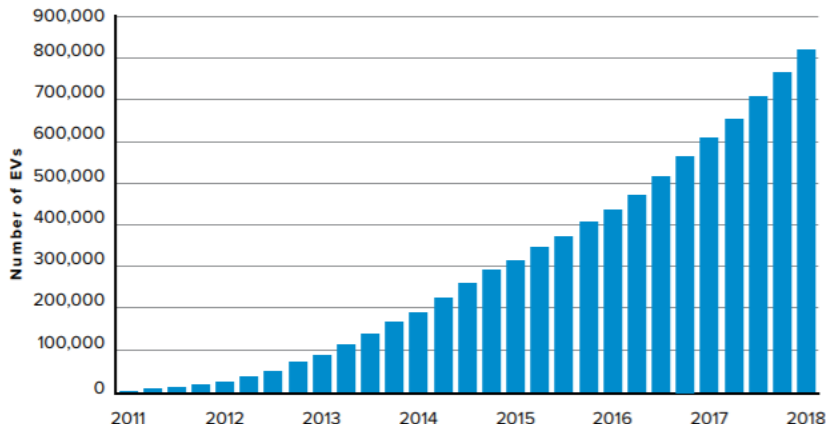


Electric Vehicle Trends & Key Issues

June 2018

ELECTRIC VEHICLES ON THE ROAD

840,000 EVs Are on the Road in the U.S.



Source: InsideEVs.com and HybridCars.com

3 KEY FACTS

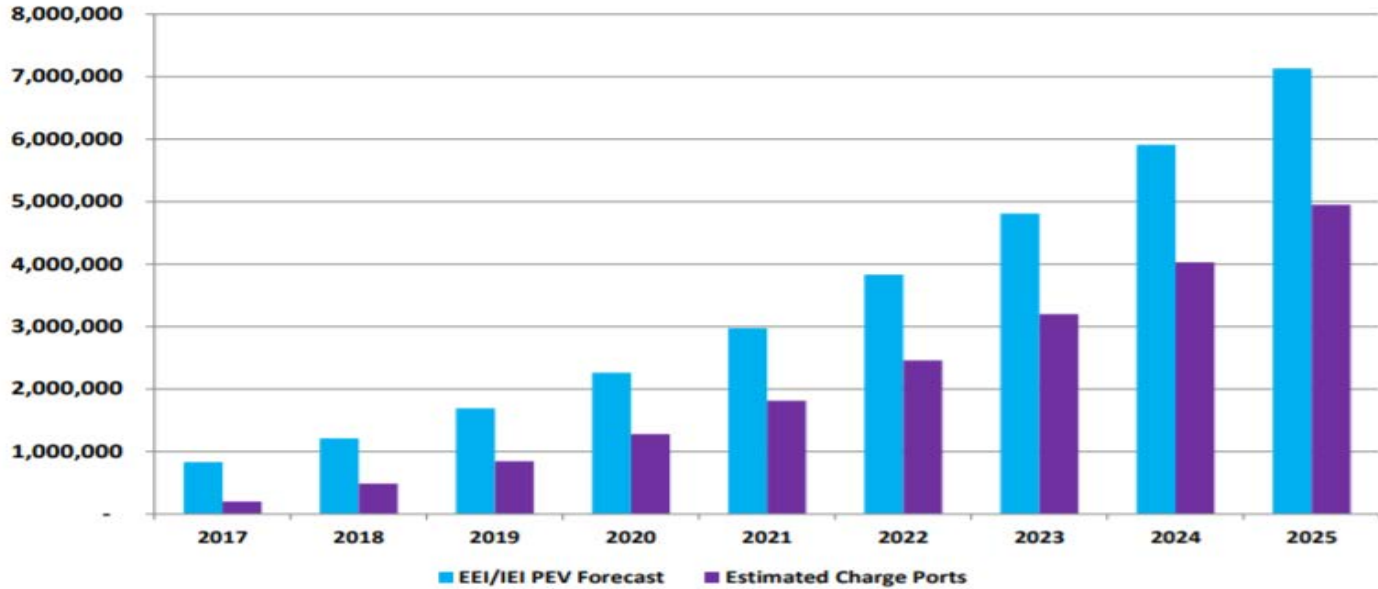
- About 840,000 EVs are on the road in the United States (through April 2018).
- 2018 sales are continuing the momentum: Q1 2018 sales increased 32% compared to Q1 2017.
- March 2018 was the best sales month ever, with more than 26,000 EVs sold.

Factors influencing EV Projections

- Lithium Ion Battery prices to fall 70% by 2030
 - LI Battery was \$1000/kWh in 2010, \$207/kWh in 2017
- Government support for EVs is growing;
 - England to ban sale of ICE cars starting in 2040
- Will cause a 5% increase in global electric consumption by 2040
- Auto makes (Volvo, Land Rover) to discontinue standard ICE vehicles; switching to PEVs and BEVs
- Mercedes Benz to spend \$1 Billion on Alabama factory

- 7.3 Million Barrels of Oil a day will be displaced by electric vehicles (2040)

PEV Stock and Charging Infrastructure (Charge Ports) Needed (2017- 2025)



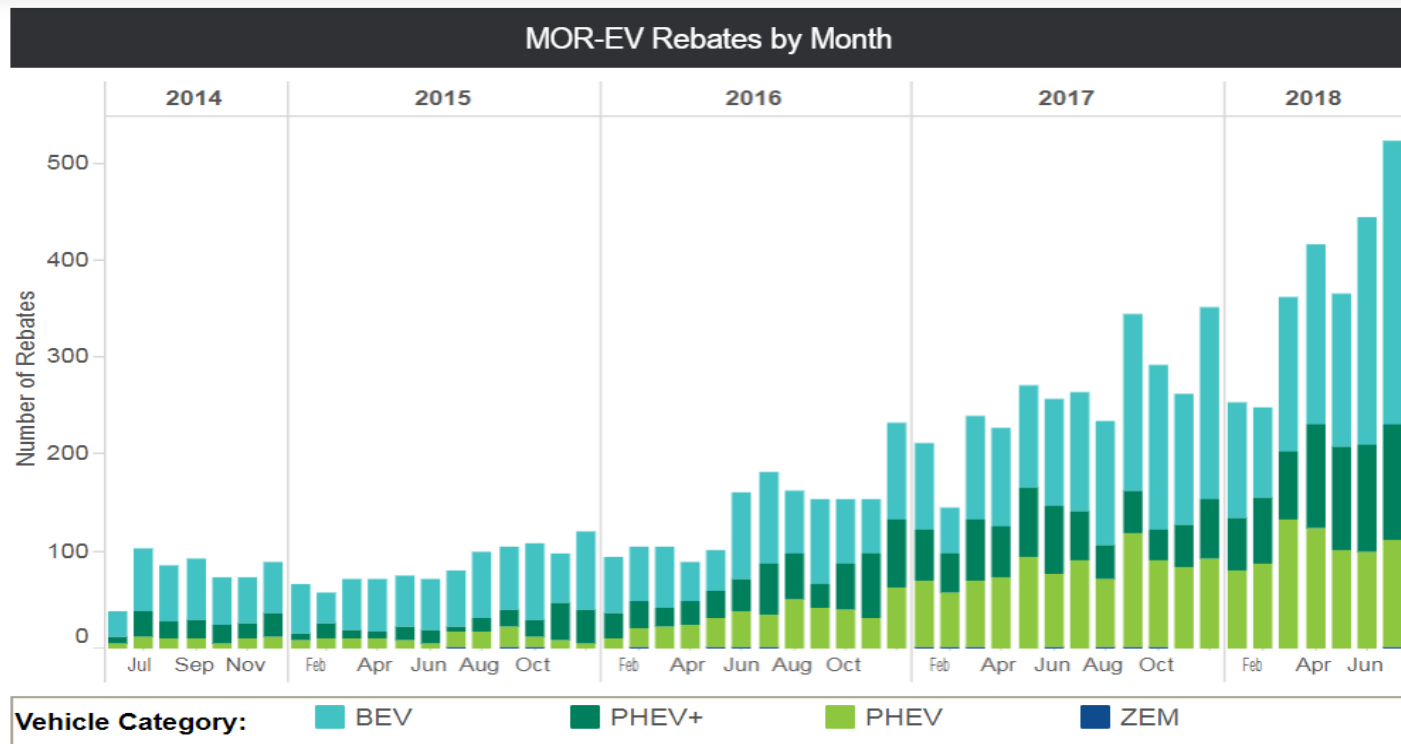
UPS to start using EV Delivery trucks in England



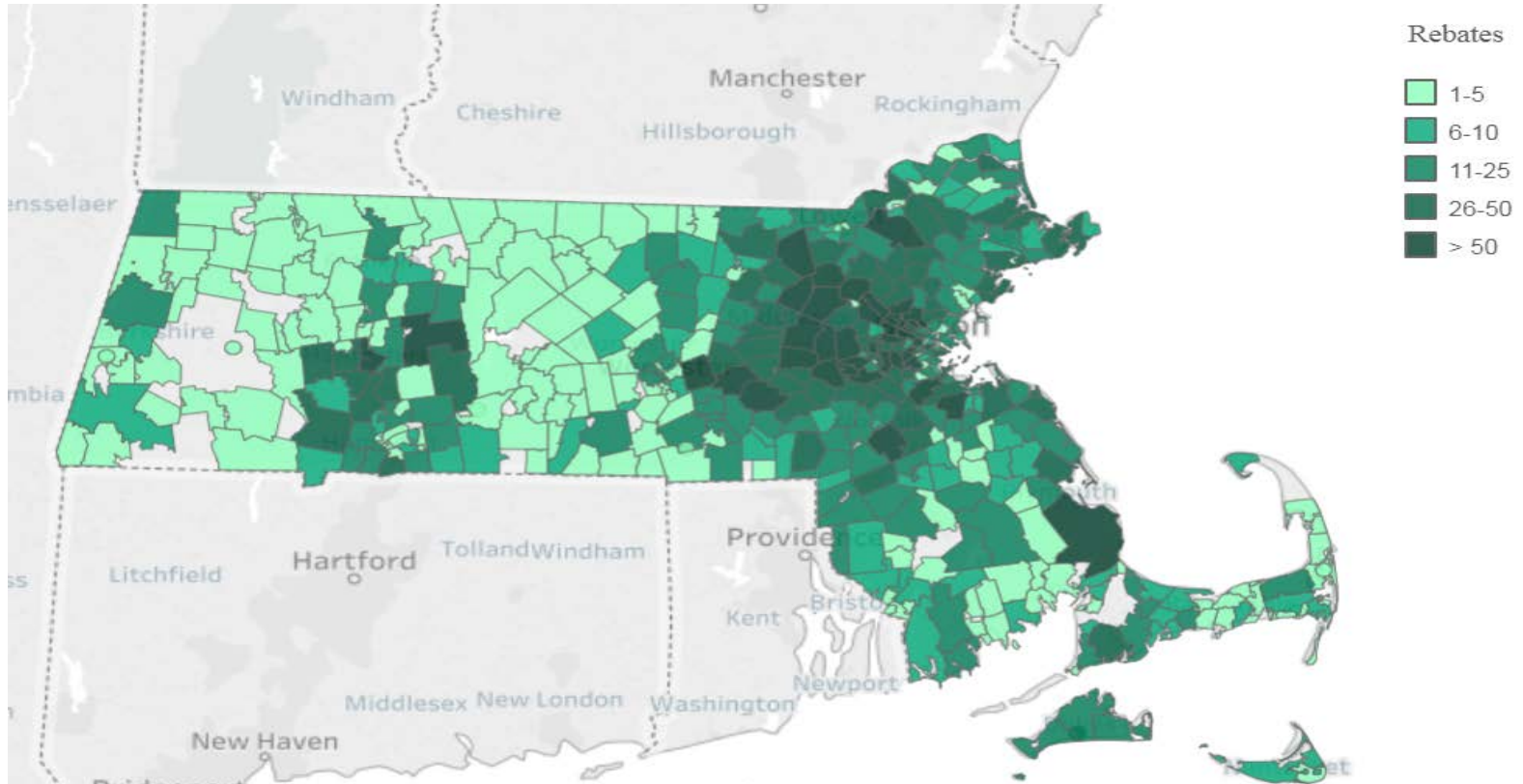
Tesla Semi Truck Production in 2019



MA Rebates by Month

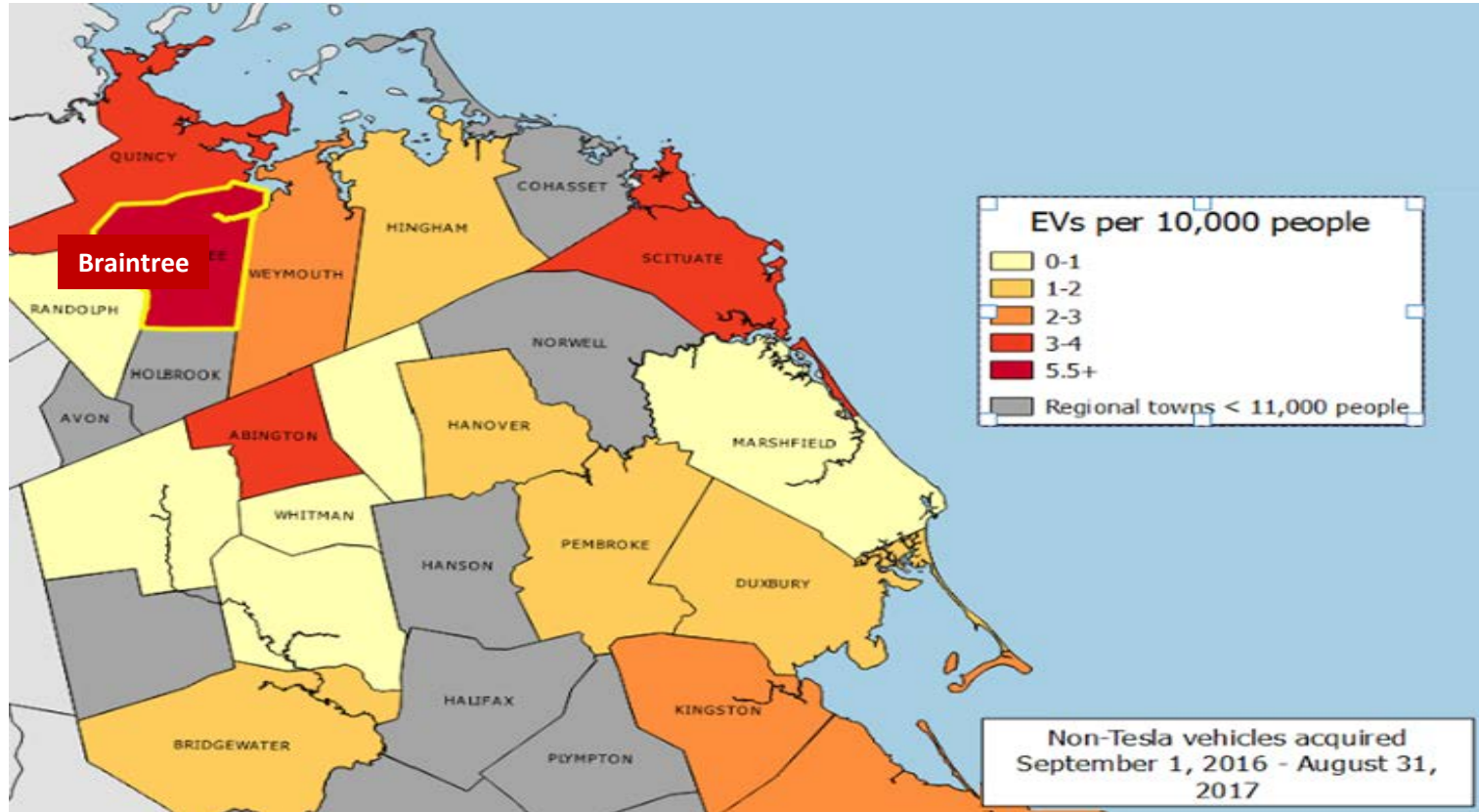


MA Rebates by Zip Code



Marketing Impact

Braintree with EV marketing vs. nearby towns without EV marketing



Why an incentive program

- Electric vehicles are coming
 - MA goal: 300,000 EVs by 2025
- Increase electric sales
- Influence when charging occurs (off peak)

Level 2 Charging / 240V



Chevy Bolt

3.5 – 7.5 kW load / 60 kW-hours

10 hours of charging for a Bolt

Tesla 10 – 18 kW load

Every 1000 cars

Transmission / Capacity @ \$17/kW-Month

7 Megawatts = \$119,000/month

\$1,428,000/year

BELD/Sagewell EV Program

- Negotiated aggressive pricing with local auto dealers, including taxes and fees (\$150/month)
- At-home test drives with online scheduling
- Promotional events: ride and drive, tabling at existing in-town events, info sessions, etc.
- Rebate customers up to \$250 toward the cost of a Charger, up to \$100 in yearly credits
- *Bring Your Own Charger*SM Program – usage of smart meter data



Drive Electric Week

- Part of National Drive Electric Week, one of 18 events in Massachusetts (September 8 – 16)
- Over 90 event RSVPs - #1 in MA
- 88 Test Rides and Drives
- At least 15 vehicles to drive or view from Chevy, Nissan, Tesla, VW, Kia, Hyundai, Ford, Zero Motorcycles



Progress to date

- Over 300 residents engaged with program, 70+ at home test drives, 150+ rides/drives at events
- 84 electric vehicles in Braintree (Added 6 in July)
- 73 Residential EVs acquired, 6x previous adoption rate.
 - 3 new municipal EVs (3 BELD, 5 Town)
 - Town had 3 EVs prior to program
- 60 enrolled in off peak load control program including Archdiocese of Boston (5) and Buddhist Temple (3)



Sign up Process

- Energy Services creates service order with credits customer is entitled to
- Clerk completes service order and updates account to identify EV, adds credit flat charges (credits)
- Customer picks up Level 2 Charger at office – Rebate of \$250.00 (average cost \$589)

Billing Strategy

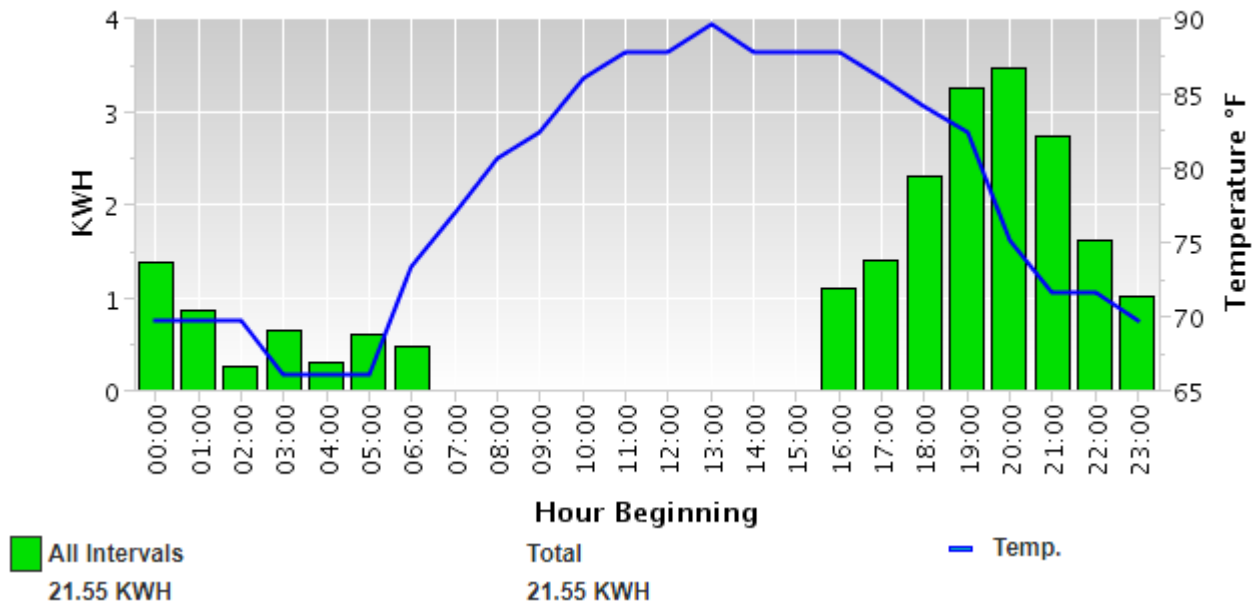
- Keep it simple – clear line item credit
- Available to both residential and commercial
- Customers could be part of multiple Energy Smart programs
- Third party Monitoring for charging
- Smart Charge Credit - \$5.00/mo
- Overnight Program additional - \$3.00/mo

Data Monitoring

Hourly data from MDM (customer also has solar)

3 HOWIE RD (G021230844 - 7823)

Aug 27, 2018

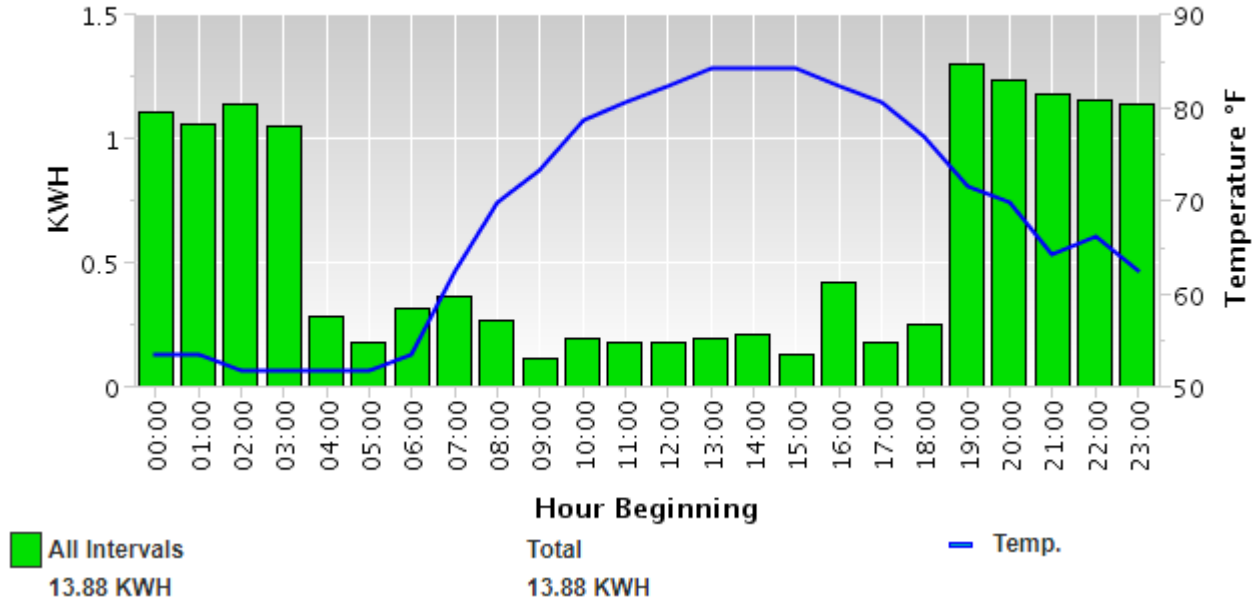


Data Monitoring

Hourly data from MDM – does not have solar

23 BOWER RD (G016648357 - 495)

Aug 24, 2018





TO ENSURE PROPER CREDIT,
RETURN THIS STUB AND WRITE YOUR ACCOUNT NUMBER ON YOUR CHECK.
OVER 65? ENROLL IN OUR SENIOR DISCOUNT PROGRAM TODAY!

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Customer Account Number 012-0000495-03R		
Due Date	Amount Due	Discount Amount
08/23/2018	114.92	112.54
Service Address		Amount if no solar
23 BOWER RD BRAINTREE		

\$M*

VANESSA KHOUY
23 BOWER RD
BRAINTREE, MA 02184

00000495030001149200011254082320182

Please detach top portion and return with payment.

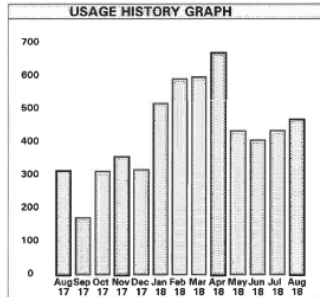
BRAINTREE ELECTRIC LIGHT Office: (781) 348-2353	Account Number 012-0000495-03	Name VANESSA KHOUY	Service Address 23 BOWER RD BRAINTREE
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Meter Number	Read Dates		Billing Days	Meter Readings				Multiplier	Usage	Units	Solar
	Present	Previous		Code	Present	Previous					
ELECTRIC: G016648357	08/04/2018	07/04/2018	31	NR	022932	022478		1	454	kWh	

BILLING SUMMARY	
Previous Balance as of: 07/10/18	\$104.16
Payments & Adj as of: 08/08/18	(\$49.12)
Balance Forward as of: 08/08/18	\$55.04
Current Charges as of: 08/08/18	\$59.88
Total Amount Due	\$114.92

PREVIOUS BALANCE	104.16
DISCOUNT FORFEITED	2.19
PAYMENT	-51.31
BALANCE FORWARD	55.04
Charges	
Customer Charge	5.12
Energy Rate X Usage	31.29
Distribution Rate X Usage	18.21
Generation Rate X Usage	9.69
Transmission Rate X Usage	5.54
HydroPwr Credit Rate X Usage	-1.97

EV SMART CHARGING	-5.00
SMART CHARGE + OVERNIGHT	-3.00
CURRENT CHARGES	\$59.88
TOTAL AMOUNT DUE	\$114.92



Month	Days	Electric Use (kWh)	Elec. Usage per day
08-18	31	454	15
07-18	30	419	14
06-18	31	392	13
05-18	30	418	14
04-18	31	644	21
03-18	28	575	21
02-18	31	570	18
01-18	31	499	16
12-17	30	306	10
11-17	31	345	11
10-17	30	301	10
09-17	31	166	5
08-17	31	304	10

REGULAR	A1-RESIDENTIAL SVC	08/08/2018	08/23/2018	114.92	112.54
MESSAGES: *Payments or adjustments made after Aug 05, 2018 may not be reflected on this statement. If we receive \$112.54 by Aug 23, 2018 you earn a discount of \$2.38					

Sample Bill – EV only

	Rate	Usage	Charges
Customer Charge			5.12
Energy Rate X Usage	0.068910	454	31.29
Distribution Rate X Usage	0.040100	454	18.21
Generation Rate X Usage	0.021340	454	9.69
Transmission Rate X Usage	0.012210	454	5.54
HydroPwr Credit Rate X Usage	-0.004330	454	-1.97
EV SMART CHARGING			-5.00
SMART CHARGE + OVERNIGHT			-3.00
CURRENT CHARGES			\$59.88
TOTAL AMOUNT DUE			\$114.92

EV Purchase – May, 2018



RETURN THIS STUB AND WRITE YOUR ACCOUNT NUMBER ON YOUR CHECK
 OVER 65? ENROLL IN OUR SENIOR DISCOUNT PROGRAM TODAY!

Customer Account Number 647-00016175-02R		
Due Date	Amount Due	Discount Amount
08/30/2018	38,056.54	36,557.36
Service Address		Amount Endorsed
66 BROOKS DR BRAintree		

\$M*

ROMAN CATHOLIC ARCH OF BOSTON
 C/O JOE CREHAN
 66 BROOKS DR
 BRAintree, MA 02184

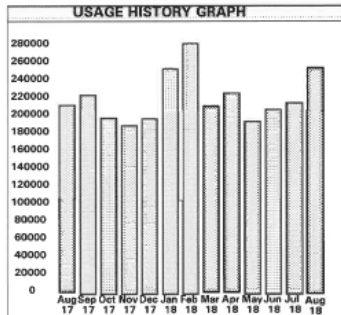
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BRAintree ELECTRIC LIGHT Account Number: 647-00016175-02 Name: ROMAN CATHOLIC ARCH OF BOSTON Service Address: 66 BROOKS DR BRAintree
 Office: (781) 348-2353

Meter Number	Read Dates		Billing Days	Code	Meter Readings		Multiplier	Usage	Units	Solar
	Present	Previous			Present	Previous				
ELECTRIC: G013889250	08/01/2018	07/01/2018	31	NR	060223	059418	305	245525	kWh	
ELECTRIC: G013889250	08/01/2018	07/01/2018	31	NR	201		305	613	kW	

BILLING SUMMARY		Rate	Usage	Charges
Previous Balance as of: 07/16/18				28,898.38
Payments & Adj as of: 08/15/18	\$28,898.38			-3,898.38
Balance Forward as of: 08/15/18	(\$28,898.38)			-25,000.00
Current Charges as of: 08/15/18	\$0.00			0.00
Total Amount Due	\$38,056.54			

Rate	Usage	Charges
		25.00
0.068910	245525	16,919.13
0.039560	245525	9,712.97
0.021500	245525	5,278.79
10.050000	613	6,160.65
		-25.00
		-15.00
		\$38,056.54
		\$38,056.54



Month	Days	Electric Use (kWh)	Elec. Usage per day
08-18	31	245525	7920
07-18	30	208925	6964
06-18	31	201605	6503
05-18	30	188185	6273
04-18	31	216855	6995
03-18	28	202520	7233
02-18	31	273280	8815
01-18	31	245830	7930
12-17	30	191235	6375
11-17	31	183610	5923
10-17	30	191845	6395
09-17	31	217465	7015
08-17	31	206180	6651

REGULAR	G2-LARGE GENERAL SVC	08/15/2018	08/30/2018	38,056.54	36,557.36
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MESSAGES: *Payments or adjustments made after Aug 12, 2018 may not be reflected on this statement. If we receive \$36,557.36 by Aug 30, 2018 you earn a discount of \$1,499.18

Sample Bill – EV only Quantity = 5

	Rate	Usage	Charges
Customer Charge			25.00
Energy Rate X Usage	0.068910	245525	16,919.13
Distribution Rate X Usage	0.039560	245525	9,712.97
Transmission Rate X Usage	0.021500	245525	5,278.79
Energy kW Demand Rate X Usage	10.050000	613	6,160.65
EV SMART CHARGING			-25.00
SMART CHARGE + OVERNIGHT			-15.00
CURRENT CHARGES			\$38,056.54
TOTAL AMOUNT DUE			\$38,056.54

EV Purchase – May, 2018



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RETURN THIS STUB AND WRITE YOUR ACCOUNT NUMBER ON YOUR CHECK
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Customer Account Number		921-0007823-04R
Due Date	Amount Due	Discount Amount
08/14/2018	31.12	26.83
Service Address		Amount Enclosed
3 HOWIE RD BRAINTREE		

DANNY K TAM
3 HOWIE RD
BRAINTREE, MA 02170

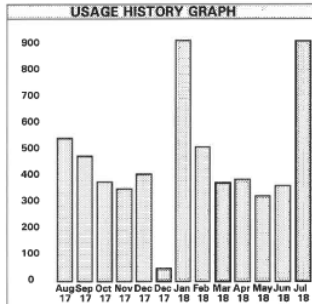
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BRAINTREE ELECTRIC LIGHT		Account Number	Name		Service Address					
Office: (781) 348-2353		921-0007823-04	DANNY K TAM		3 HOWIE RD BRAINTREE					
Meter Number	Read Dates		Billing Days	Meter Readings		Multiplier	Usage	Units	Solar	
	Present	Previous		Present	Previous					
ELECTRIC: G017930746	07/20/2018	06/20/2018	30	MR	003778	002848	1	930	kWh	
ELECTRIC: G021230844	07/20/2018	06/20/2018	30	MR	003066	002436	1	630	kWh	
ELECTRIC: G021230844	07/20/2018	06/20/2018	30	MR	002996	002314	1	682	kWh	
ELECTRIC: G021230844	07/20/2018	06/20/2018	30	MR	006934	006686	1	248	kWh	

BILLING SUMMARY		PREVIOUS BALANCE		
Previous Balance as of: 06/27/18		BALANCE FORWARD		
Payments & Adj as of: 07/30/18				
Balance Forward as of: 07/30/18				
Current Charges as of: 07/30-18				
Total Amount Due				
		Rate	Usage	Charges
				5.12
				43.41
				35.20
				13.44
				7.69
				-2.73
				-47.00
				-5.00
				-3.00
				\$47.13
				\$31.12



CURRENT CHARGES	\$47.13
TOTAL AMOUNT DUE	\$31.12

Month	Days	Electric Use (kWh)	Usage per day
07-18	30	878	29
06-18	31	349	11
05-18	30	312	10
04-18	31	372	12
03-18	29	361	13
02-18	31	491	16
01-18	42	881	21
12-17	28	392	14
11-17	30	339	11
10-17	30	364	12
09-17	31	457	15
08-17	31	522	17

REGULAR	AS-RES SOLAR SRV	07/30/2018	08/14/2018	31.12	26.83
MESSAGES: *Payments or adjustments made after Jul 27, 2018 may not be reflected on this statement. If we receive \$26.83 by Aug 14, 2018 you earn a discount of \$4.29					

Sample Bill – EV and Private Solar

	Rate	Usage	Charges
Customer Charge			5.12
Energy Rate X Usage	0.068910	630	43.41
Distribution Rate X Usage	0.040100	878	35.20
Generation Rate X Usage	0.021340	630	13.44
Transmission Rate X Usage	0.012210	630	7.69
HydroPwr Credit Rate X Usage	-0.004330	630	-2.73
Solar Returned/Credit	-0.068910	682	-47.00

EV SMART CHARGING
SMART CHARGE + OVERNIGHT

-5.00
-3.00

CURRENT CHARGES **\$47.13**

TOTAL AMOUNT DUE **\$31.12**

EV purchase – July (bump in graph)



TO ENSURE PROPER CREDIT
RETURN THIS STUB AND WRITE YOUR ACCOUNT NUMBER ON YOUR CHECK
OVER 657 ENROLL IN OUR SENIOR DISCOUNT PROGRAM TODAY!

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Customer Account Number 836-00005157-02R		
Due Date	Amount Due	Discount Amount
08/14/2018	440.71	424.15
Service Address		Amount Enclosed
301 ALIDA RD BRAINTREE		

\$M*

IMAD MOULINE
301 ALIDA RD
BRAINTREE, MA 02184

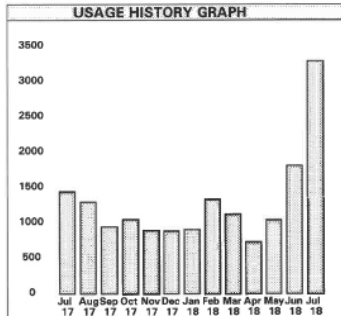
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BRAINTREE ELECTRIC LIGHT Account Number 836-00005157-02 Name IMAD MOULINE Service Address 301 ALIDA RD BRAINTREE
Office: (781) 348-2353

Meter Number	Read Dates		Days	Billing		Meter Readings		Multiplier	Usage	Units	Solar
	Present	Previous		Code	Present	Previous					
ELECTRIC: G014602149	07/22/2018	06/22/2018	30	MR	088216	085050	1	3166	kWh		
ELECTRIC: VM12800051	07/22/2018	06/22/2018	30	MR	90102667	85045333	10	506	kWh		

BILLING SUMMARY		Rate	Usage	Charges
Previous Balance as of: 06/27/18	\$234.30			
Payments & Adj as of: 07/30/18	(424.30)			
Balance Forward as of: 07/30/18	\$0.00			
Current Charges as of: 07/30-18	\$440.71			
Total Amount Due	\$440.71			
PREVIOUS BALANCE				234.30
PAYMENT 07/12/2018				-234.30
BALANCE FORWARD				0.00
Customer Charge				5.12
Energy Rate X Usage	0.068910	3166		218.17
Distribution Rate X Usage	0.040100	3166		126.96
Generation Rate X Usage	0.021340	3166		67.56
Transmission Rate X Usage	0.012210	3166		38.66
HydroPwr Credit Rate X Usage	-0.004330	3166		-13.71
COMMUNITY SOLAR				
Community Solar Credit	-0.138230	506		-69.91
Community Solar Produced	0.150000	506		75.86
EV SMART CHARGING				-5.00
SMART CHARGE + OVERNIGHT				-3.00



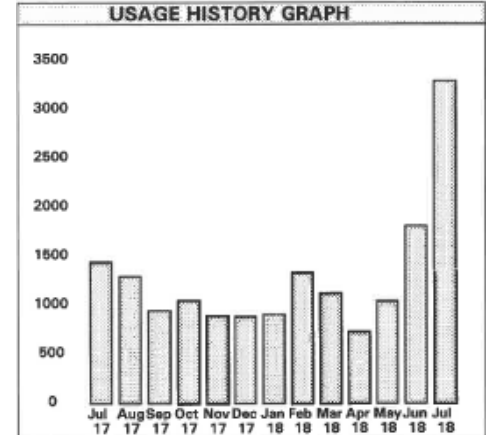
CURRENT CHARGES				
Community Solar Credit				-69.91
Community Solar Produced				75.86
EV SMART CHARGING				-5.00
SMART CHARGE + OVERNIGHT				-3.00
CURRENT CHARGES				\$440.71
TOTAL AMOUNT DUE				\$440.71
USAGE HISTORY CHART				
Month	Days	Electric Use (kWh)	Elec. Usage per day	
07-18	30	3166	106	
06-18	31	1743	56	
05-18	30	1005	34	
04-18	31	706	23	
03-18	28	1084	39	
02-18	31	1286	42	
01-18	31	874	28	
12-17	30	856	29	
11-17	31	863	28	
10-17	30	1016	34	
09-17	31	917	30	
08-17	31	1252	40	
07-17	30	1393	46	

REGULAR	A1-RESIDENTIAL SVC	07/30/2018	08/14/2018	440.71	424.15
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MESSAGES: *Payments or adjustments made after Jul 27, 2018 may not be reflected on this statement.
If we receive \$424.15 by Aug 14, 2018 you earn a discount of \$16.56

Sample Bill – EV and Community Solar

New Inground pool not EV (3/1/18)



	Rate	Usage	Charges
Customer Charge			5.12
Energy Rate X Usage	0.068910	3166	218.17
Distribution Rate X Usage	0.040100	3166	126.96
Generation Rate X Usage	0.021340	3166	67.56
Transmission Rate X Usage	0.012210	3166	38.66
HydroPwr Credit Rate X Usage	-0.004330	3166	-13.71
COMMUNITY SOLAR			
Community Solar Credit	-0.138230	506	-69.91
Community Solar Produced	0.150000	506	75.86
EV SMART CHARGING			-5.00
SMART CHARGE + OVERNIGHT			-3.00
CURRENT CHARGES			\$440.71
TOTAL AMOUNT DUE			\$440.71