2021-07-29

Utility Opportunities in
Electric Vehicle Adoption

EVERSOURCE

Utility Readiness for Rapid EV Adoption

Agenda

Eversource & EVs

Immediate Impacts

Communicating Customer Bill Impacts

Near-term Impacts

System Planning and Energy Supply

Long-term Impacts

Net Zero Decarbonization and EV Targets

Conclusion

Data & Communication

Introduction

Eversource at a Glance

3 STATES

Largest energy company in New England

Servicing electric, natural gas, & water

4M CUSTOMERS

8,300 EMPLOYEES

Across all three states

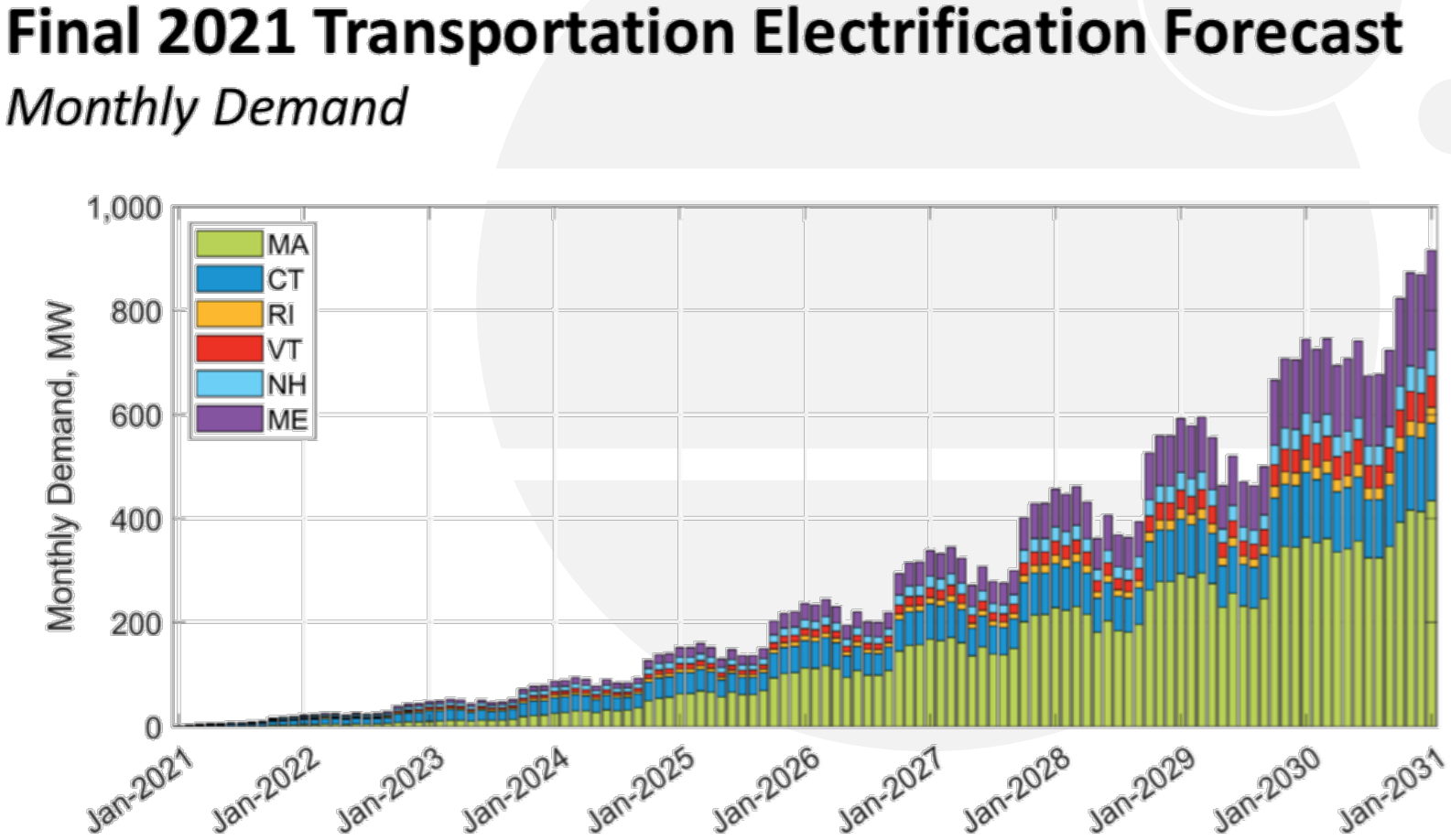
$700m+ annual energy efficiency investment

#1 ENERGY EFFICIENCY PROVIDER IN THE NATION

EV Adoption in New England

ISO-NE Forecast

- Over 1M EVs by 2030
- More than 85% from MA, CT, NH
- +4% to regional peak demand



https://www.iso-ne.com/static-assets/documents/2021/04/final_2021_transp_elec_forecast.pdf

Energy Consumption

Solutions:

- Monitor Load for New EVs
- Proactive Communication
- Load Management Opportunities

RELIABILITY & AFFORDABILITY

System Planning & Energy Supply

DISTRIBUTION INFRASTRUCTURE

(e.g. neighborhood adoption)

TRANSMISSION PLANNING

(e.g. zonal import constraints)

ENERGY SUPPLY & RENEWABLES

(e.g. long-term RPS contracts)

Decarbonization

- MA Targets 1M EVs by 2030 and all new car sales as EV by 2035, as part of net zero target for 2050
- Eversource is enabling public charging thru EV Make Ready
- Energy efficiency programs considering EV readiness
- Transmission upgrades, including large-scale batteries to enable renewables to meet new EV loads

Data & Integration

Charging Patterns

Adoption Rates and Locations

Behavioral Interventions

Communication

Early Bill Identification

Proactive Engagement

Promoting Programs

Data & Integration

Charging Patterns

Adoption Rates and Locations

Behavioral Interventions

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CONCLUSIONS & SOLUTIONS

Questions

EVERSOURCE

Thanks for listening.

ROLLING ENERGY RESOURCES

Electric Vehicle Management for Utilities

Apogee Webinar
July 29, 2021

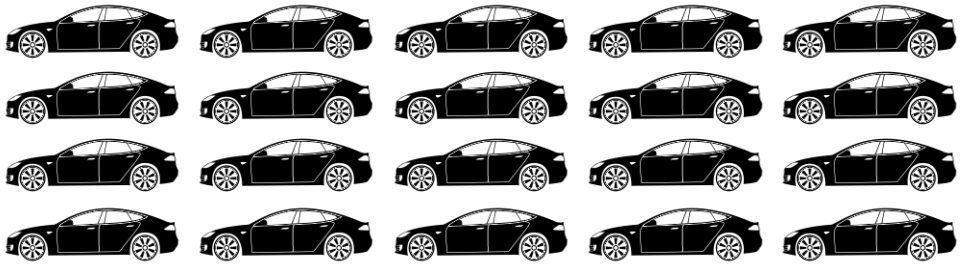
The Opportunity

Electric Vehicles will increase energy demand $12B/Year

The “Opportunity of the Century” for Electric Utilities

2020

1M Vehicles



2030

20M Vehicles

The Problem

Utilities Need a Scalable Solution for Managing this Demand Increase

Residential EV Charging = Multiples of Air Conditioners

Utility Risk

Blown Transformers

Power Outages

Price Spikes

Benefits to Managing Load

Avoids Costly Infrastructure Upgrades

Maximize Renewables

Custom Satisfaction

The Past and the Future

Utilities Are the New Fuel Provider

The Past

The Future

What is Needed?

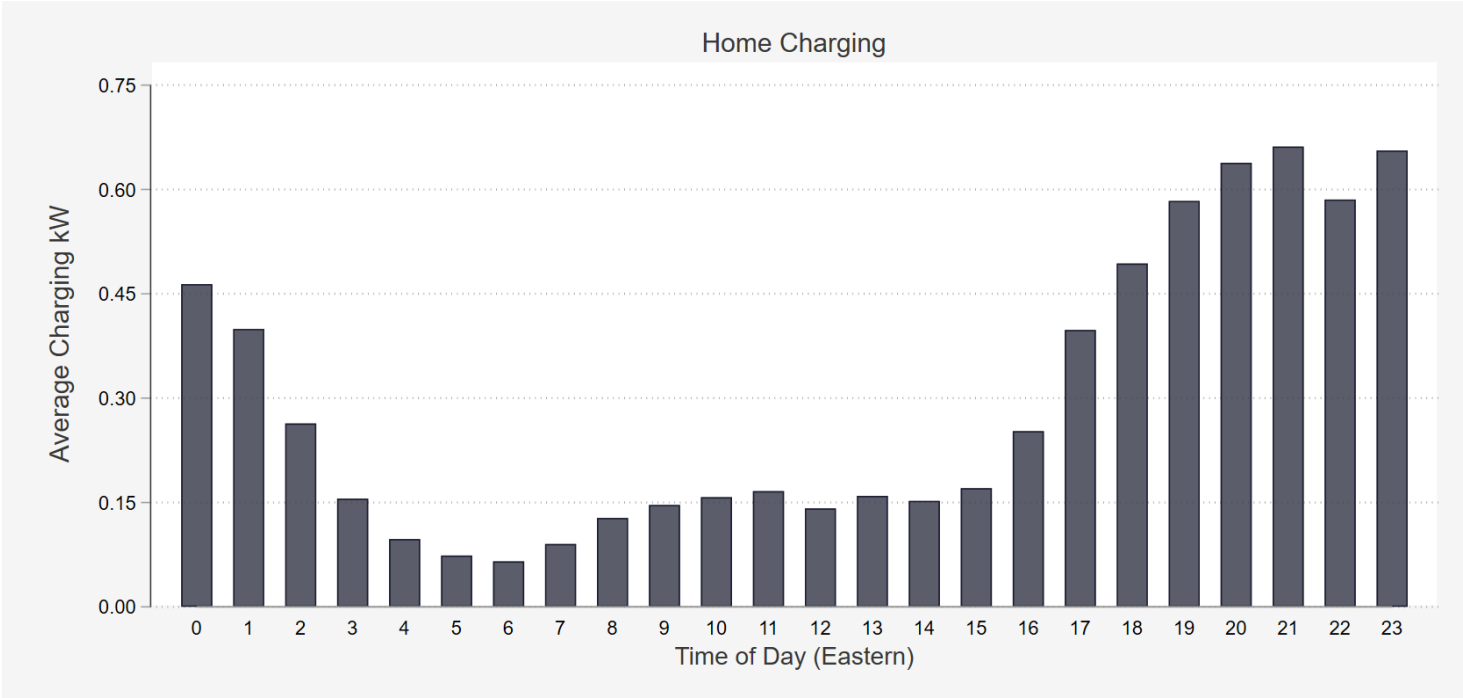
1. **EV Research**

   (Quality vs. Non-quality Research)
2. **Customer Education**
3. **Load Management**

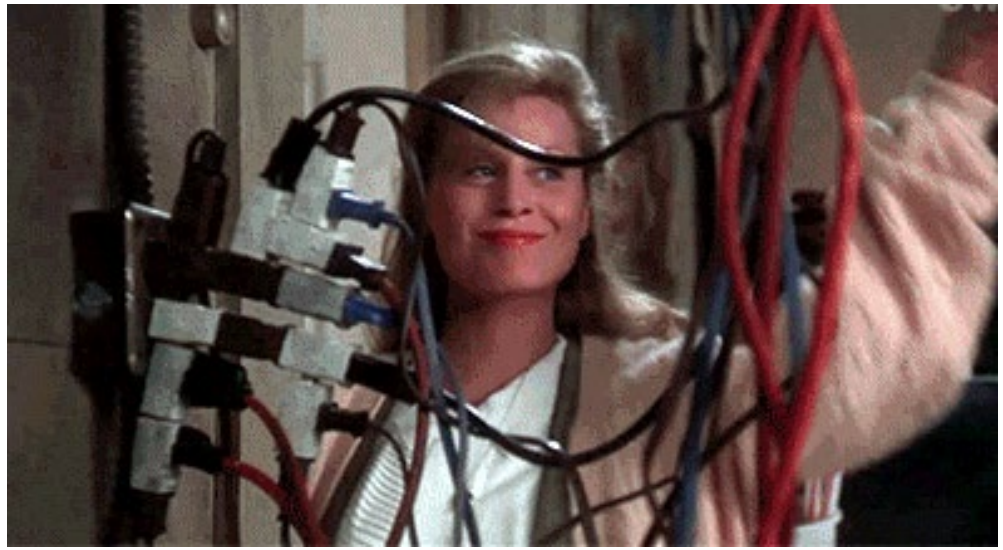
   (Demonstration/Pilots)

EV Research

- Most common hours for charging are evening hours
- Frequency of charging
- 4 days in between charges



EV Research

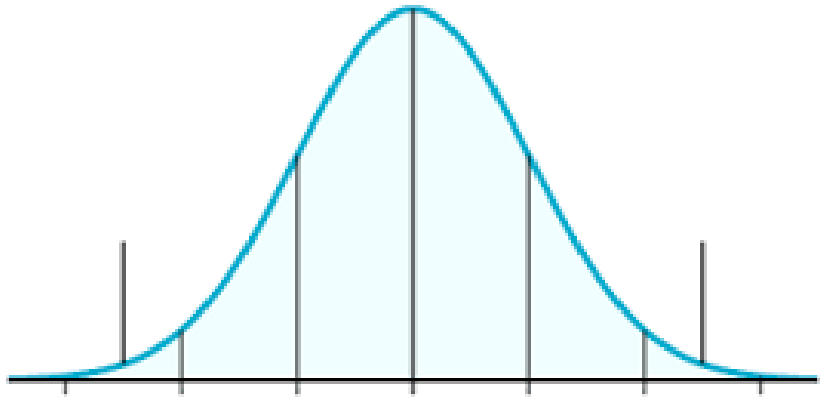


National Lampoon's Christmas light load management

- **Percent charge home/away**
  - Charges Away: 18%
  - Charges Home: 82%
- **Home Chargers**
  - Level 1 – 8% of Participants
  - Level 2 – 92% of Participants
- **Average battery remaining when they charge**
  - 51% at start of charge
- **Average kwh per charge and car**
  - 22 kWh per car per charge

EV Research: Predictive Analytics

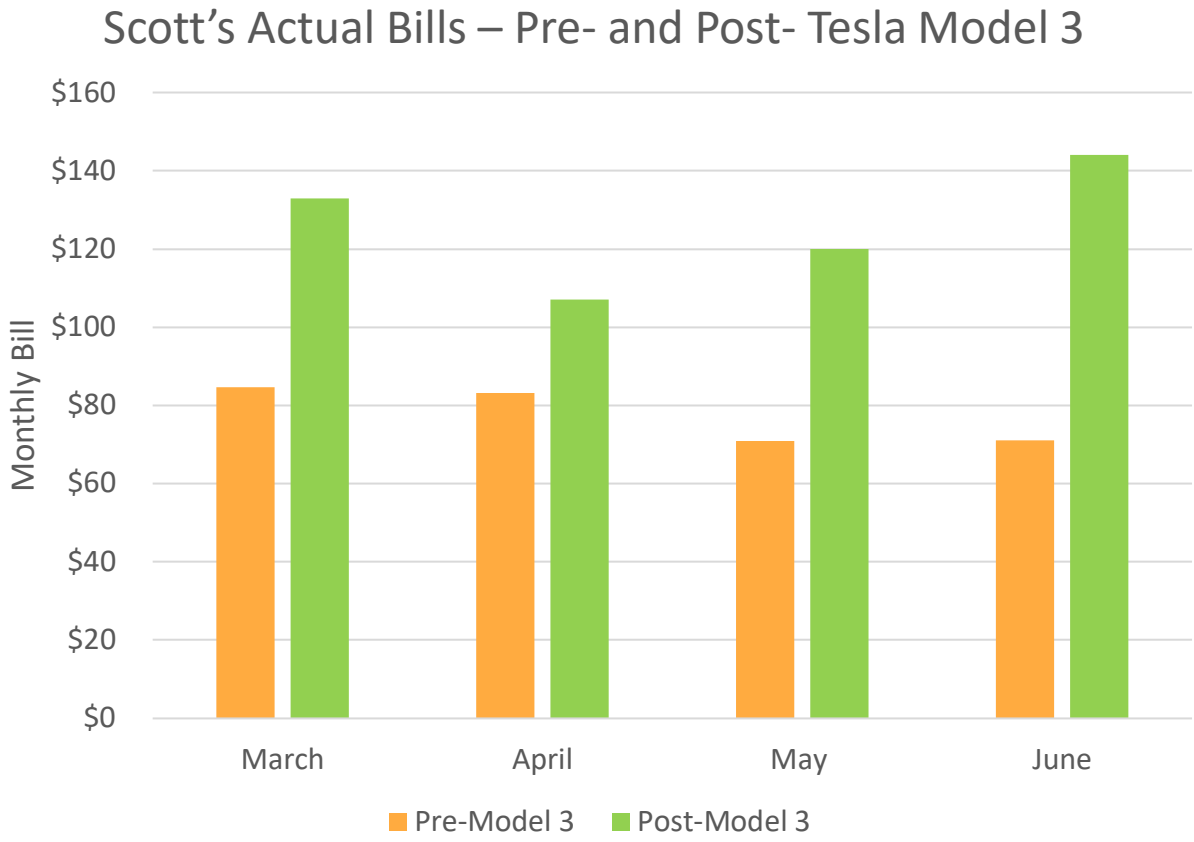
- **<u>When</u> each car will charge**
- **<u>Where</u> each car will charge**
- **<u>How much</u> energy each car will need in *that* charging event**



Priority #2:
Customer Education

Customer Education

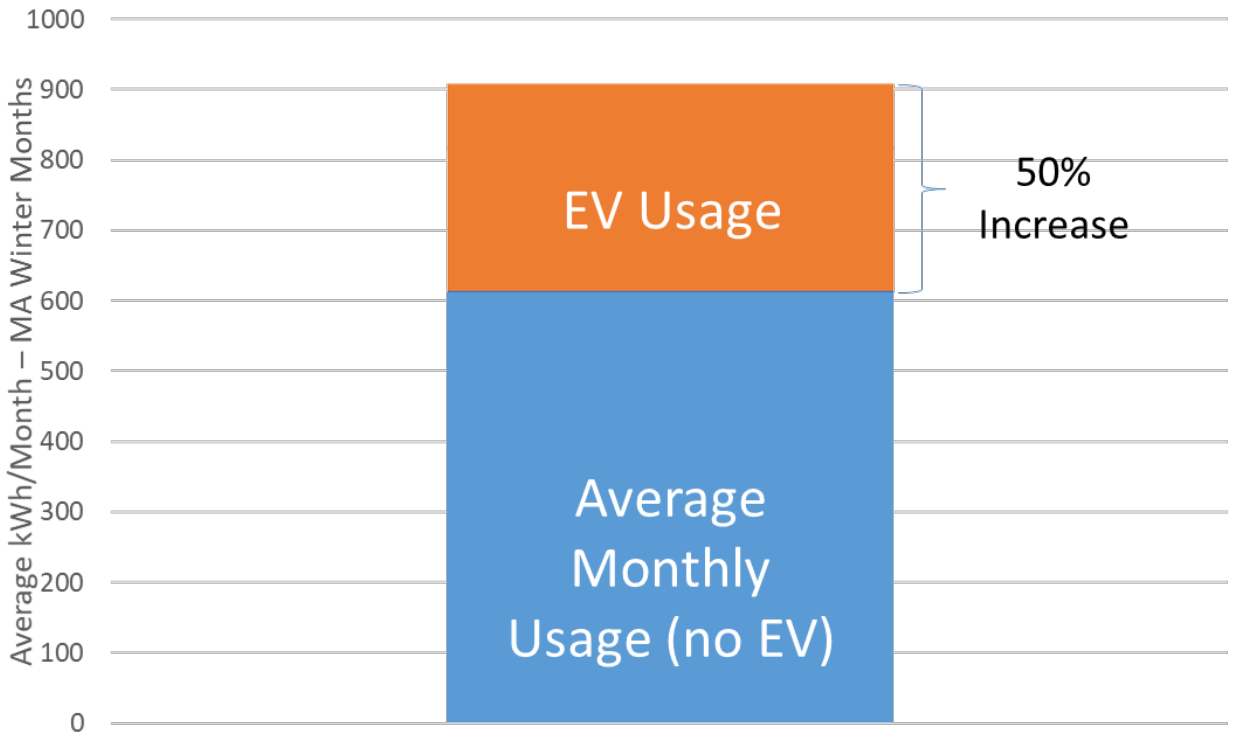
How will customers react when their bills increase?



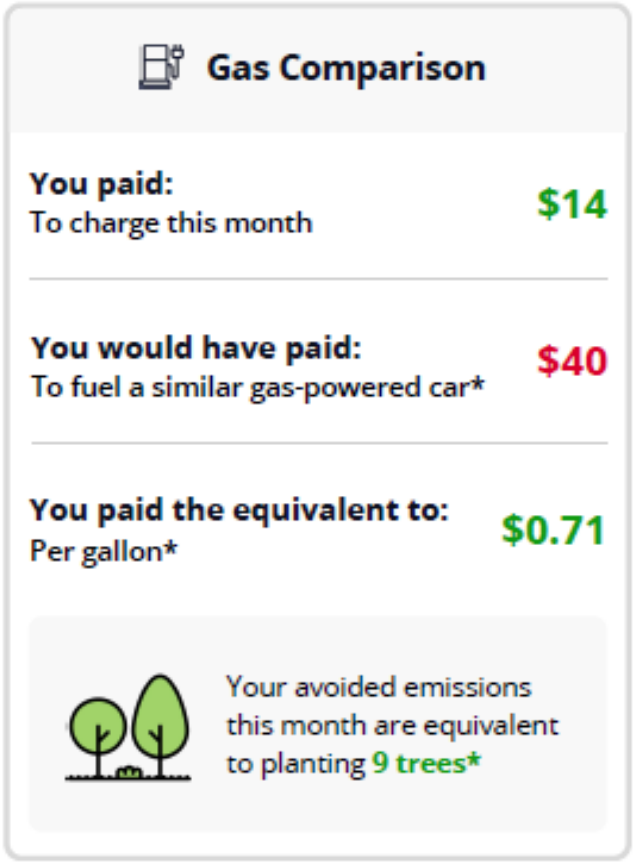
Customer Education

kWh per month per car:

- Average Charging: 308kWh



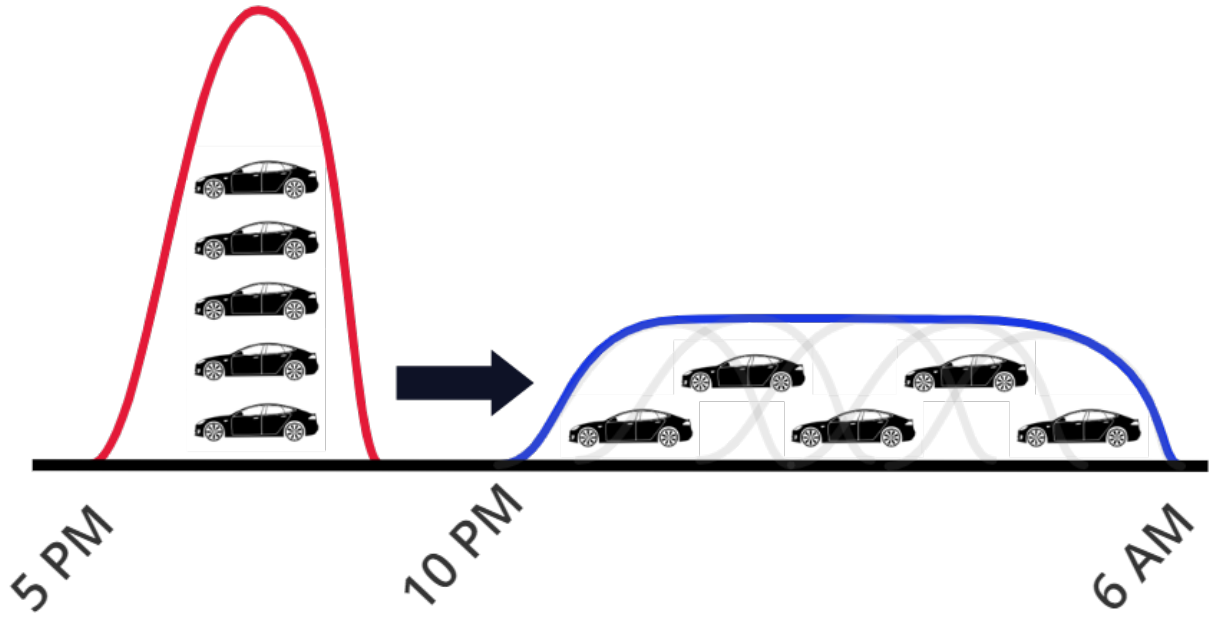
Customer Eductation



Priority #3:
Load Management

Load Management

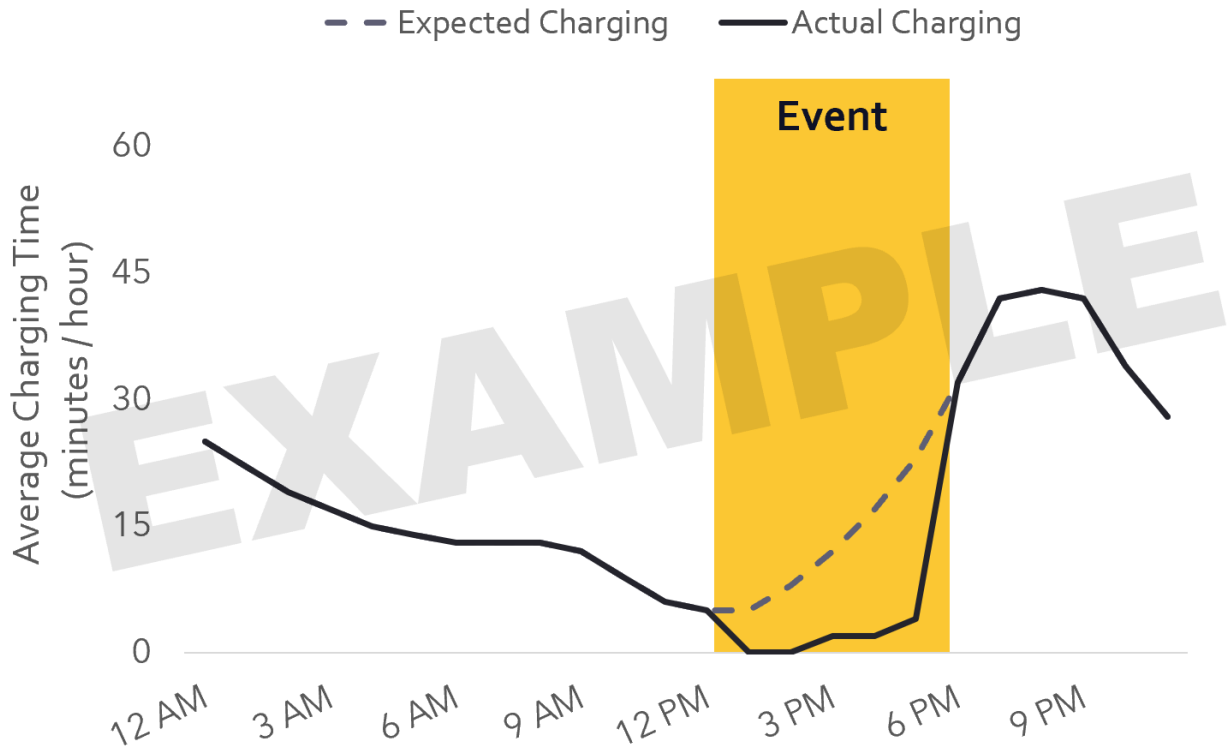
Need to Shift Load to Desired Times



Load Management

Which Strategy to Use?

- Active
- Passive (Behavioral)
- Passive (Rates)



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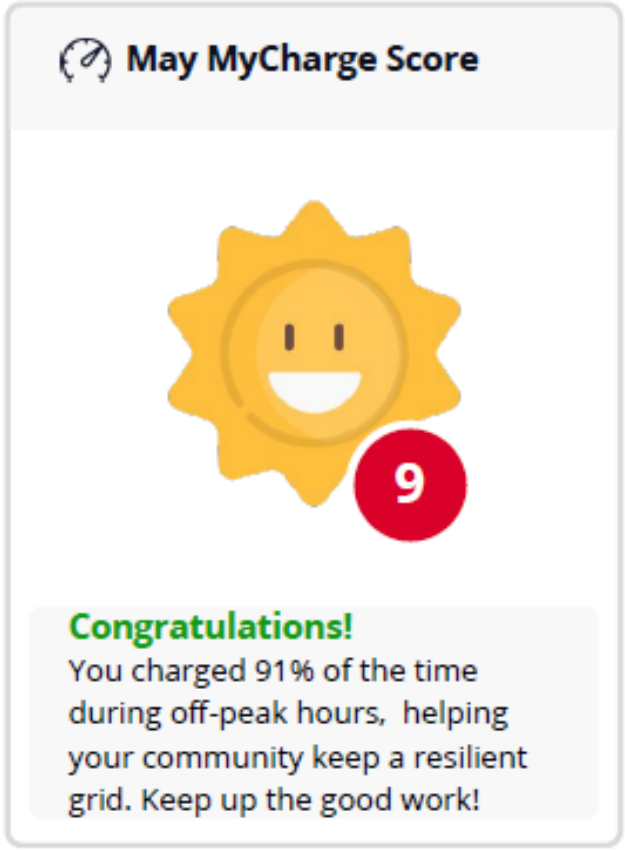
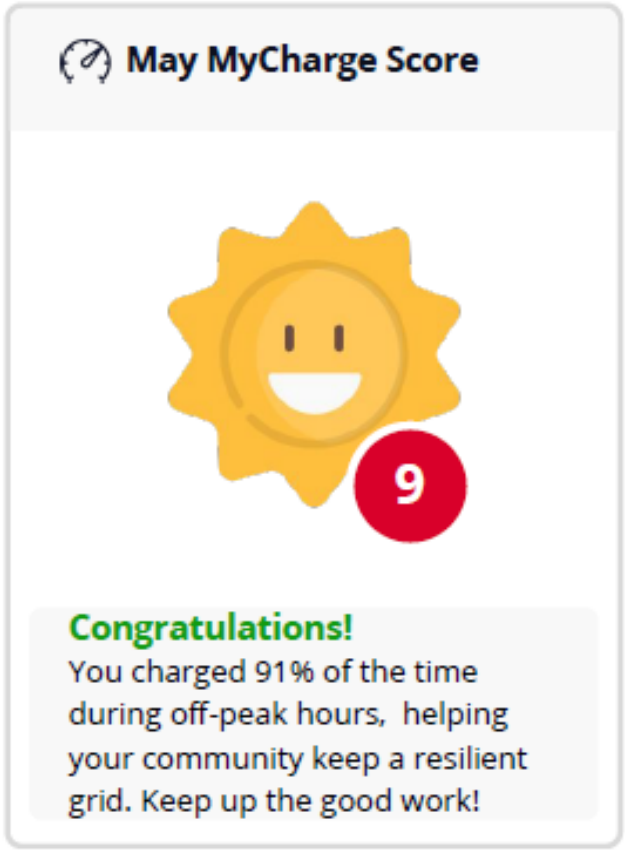


Load Management

- Active
- **Passive (Behavioral)**
- Passive (Rates)



Load Management

Which Approach to Use

Feature	Telematics (RER)	Smart Charger	In-Vehicle Hardware	AMI Disaggregation
Low cost and scalable	✓	✗	✗	✓
Gather state of charge and odometer readings	✓	✗	✓	✗
Measure home and away charging	✓	✗	✓	✗
Improved security	✓	✗	✗	✓
Access to full range of OEMs	✓	✗	✓	✓

Be Prepared

THANK YOU!

ROLLING ENERGY RESOURCES

Electric Vehicle Management for Utilities

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Empowering Utilities for the Future

Customer Education

- **Outbound Communications**-Delivering Pro-active, Personalized, Relevant, Impactful Information to Customers through video
- **Targeted EV Customers-** Specific video messaging to Customers who have EVs and could benefit most from EV Rates
- **Pre-Empting Calls to the Call Center**- Answering questions before they need to ask
- **Changing Customer Perception**-Utility becomes a Trusted Advisor

Outbound Communications

Digital Engagement Strategy

Personalized Messaging Campaign

- Video Bill Explanation
- Targeted Video- EV Programs and Rebates
- Automated Welcome “New Customer” Series to EV Owners

Omni-Channel

- Email, SMS, Alexa, Inside Customer Portal

Marketing Automation

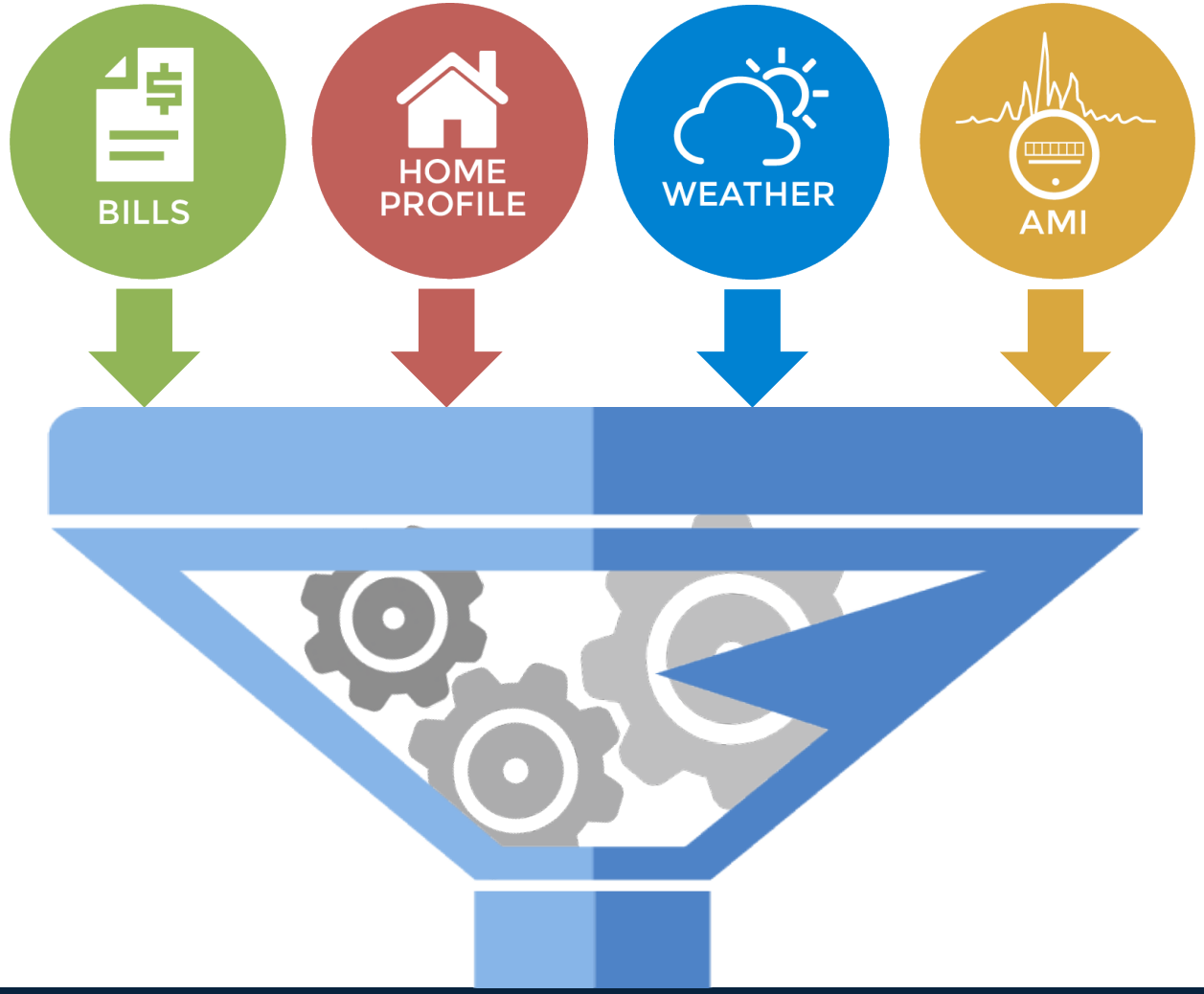
- Continuing Education Pointing to other Resources (i.e. EV Calculator)

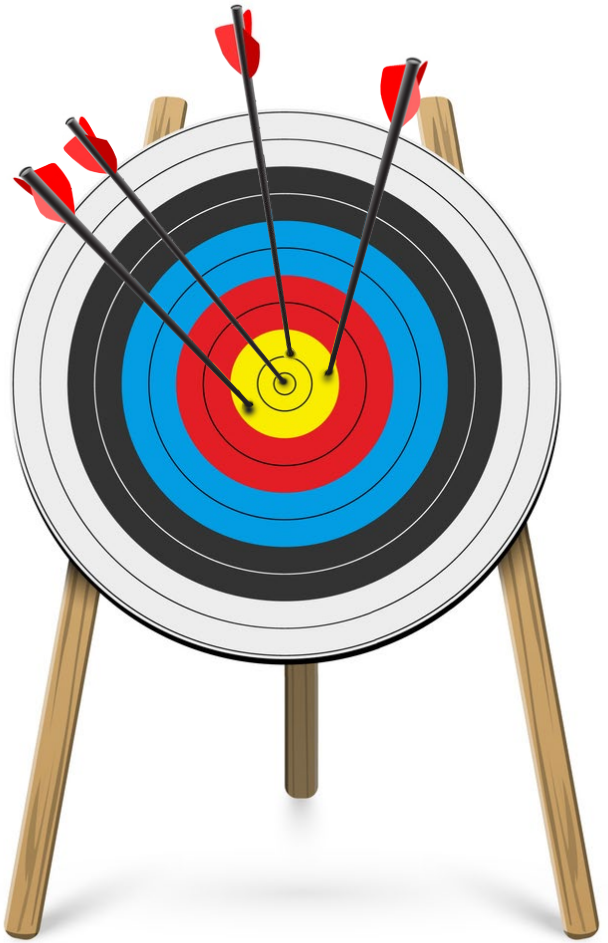
Outbound Communications

Personalized Video Bill Explanation

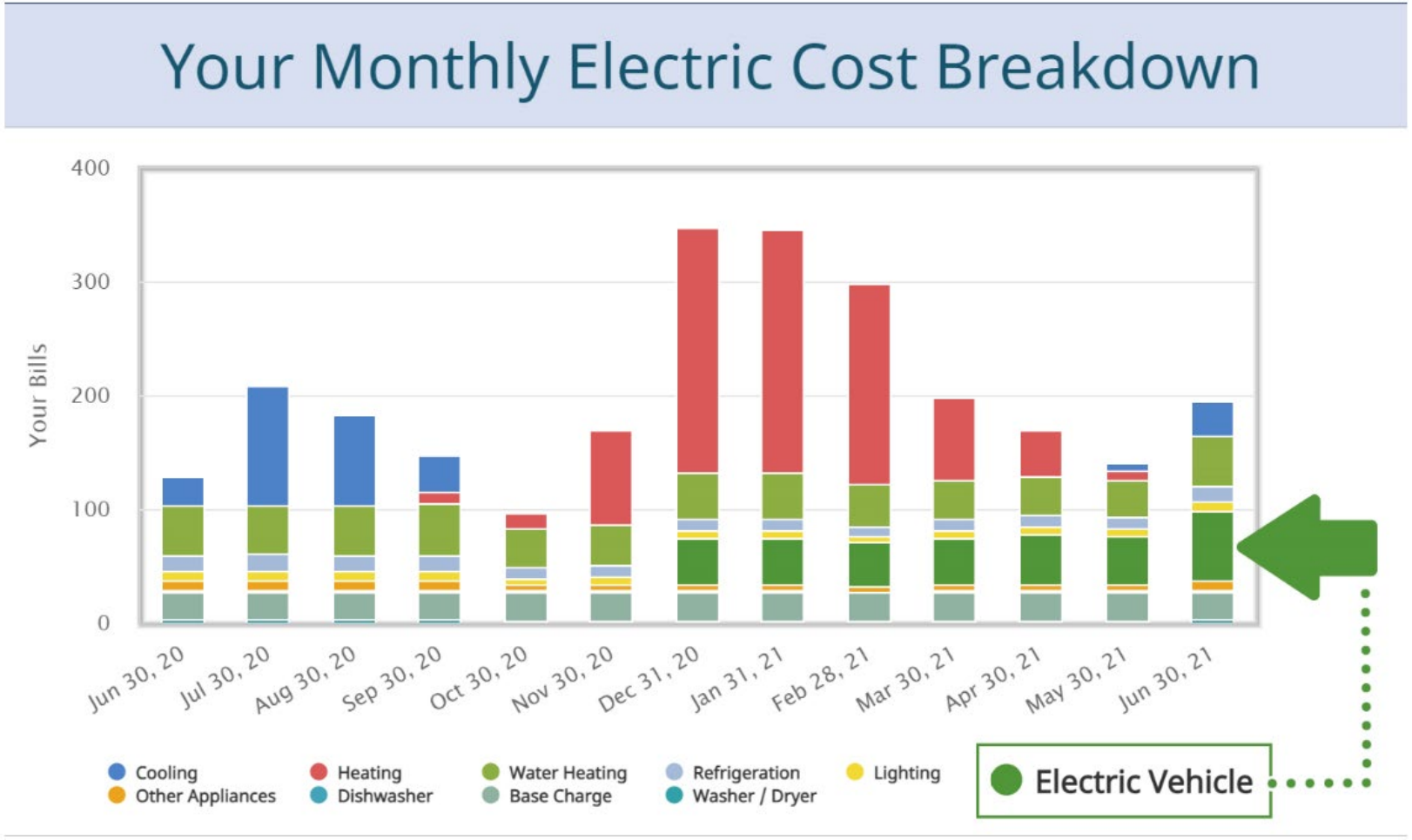
- Proactively Describes an Individual's Changes in Their Bill
- Allows Customers to Understand What Caused the Change
- Allows Customers to be Self-educated to Make Smart Decisions

AI Analysis Enables Targeting





Targeting Through Disaggregation



Which Homes Are Targeted?

- Homes identified as **high potential of EV ownership?**

Targeting EV Owners

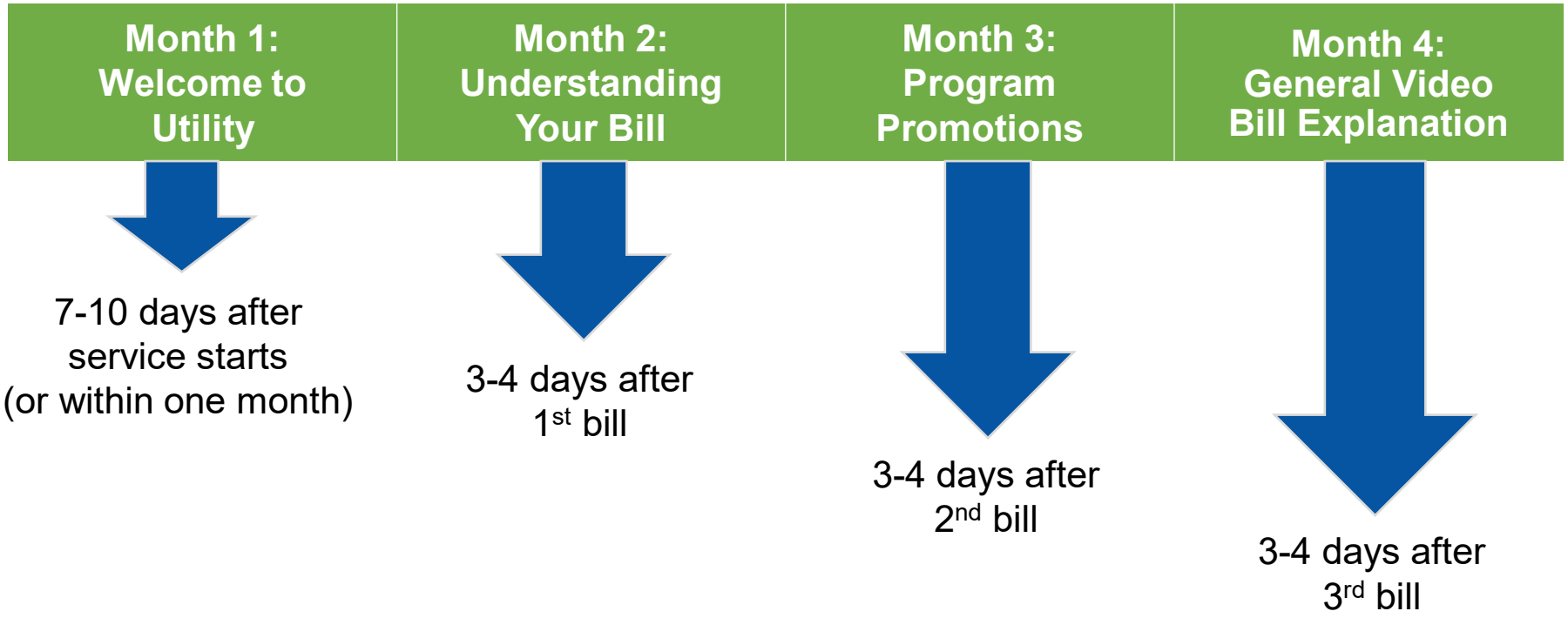
Targeting Allows for Identification of EV Owners

Targeted Video Endings Aimed at EV Owners

- Describing Benefits of EV Rates and the Affect on Their Bill
- Promoting Rebates
- Prompting Customer to Learn More
- Automated Welcome “New Customer” Series for EV Owners Explaining Their Bill and What EV Rates are Available

Automated Welcome Series

- ✓ Engage new customers early.
- ✓ Learn how to read the bill.
- ✓ Sign up for portal/e-bill.
- ✓ Make new customers aware of EV resources available and point to EV programs.
- ✓ Transition to on-going monthly communications.



Pre-empting Calls to Call Center

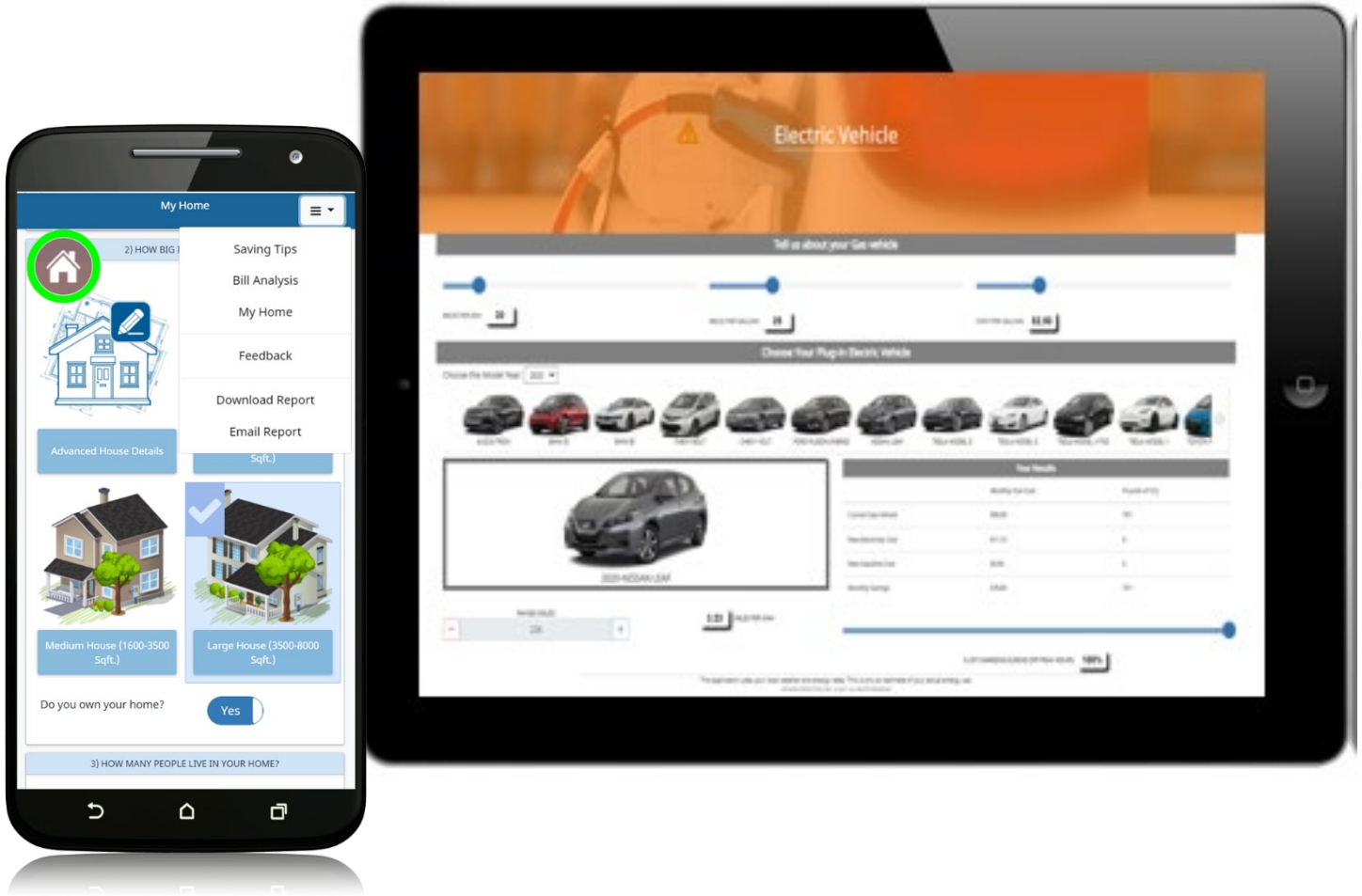
Information Pushed Rather Than Pulled

- Relevant Information About Their Bill and About EVs Delivered Through Video
- Links Leading to More Information
- 15% Reduction in High Bill Calls

Continuing Education

Promote Additional Self-Education Tools

- Online Self-Audit
- EV and Other Calculators



What's Next?

Enhanced EV Calculator

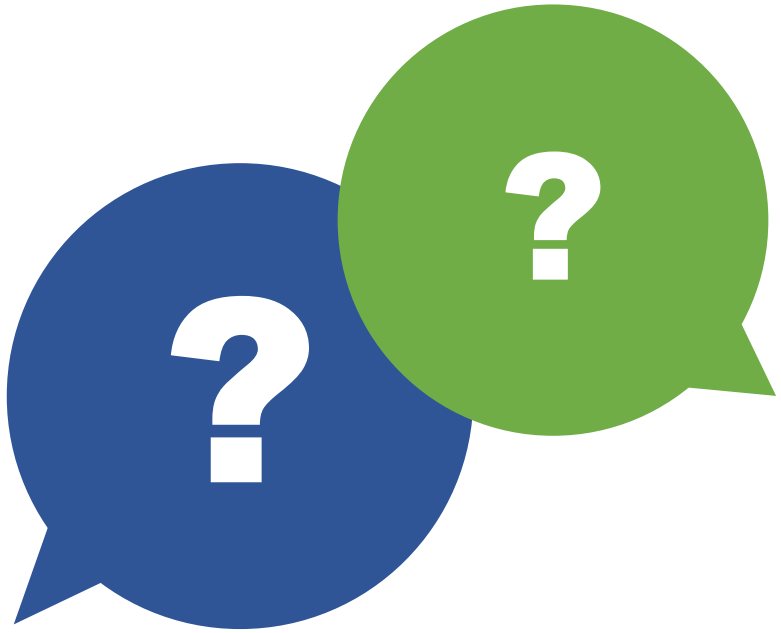
- Combined EV/Rate Comparison integration
- New EV Customers-Show impact on bills based on shifting charging times on different rate plans
- Existing EV Customers-show rate comparison based on previous 12 months
- Support up to 4 rates for comparison; can include TOU and Demand components
- Show basic TCO for EV
- Availability in the next few months

Changing Customer Perception

Customers See Utility as Trusted Advisor

- Helping Customers Choose Best Rate for Them
- Explaining in a Way Easy to Understand
- Improved JD Power and Net Promoter Scores
- Historical Data: (Q1 Customer Surveys)
  - 94% Find Videos Useful or Somewhat Useful
  - 41% Report Improved Perception of Utility

Questions



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