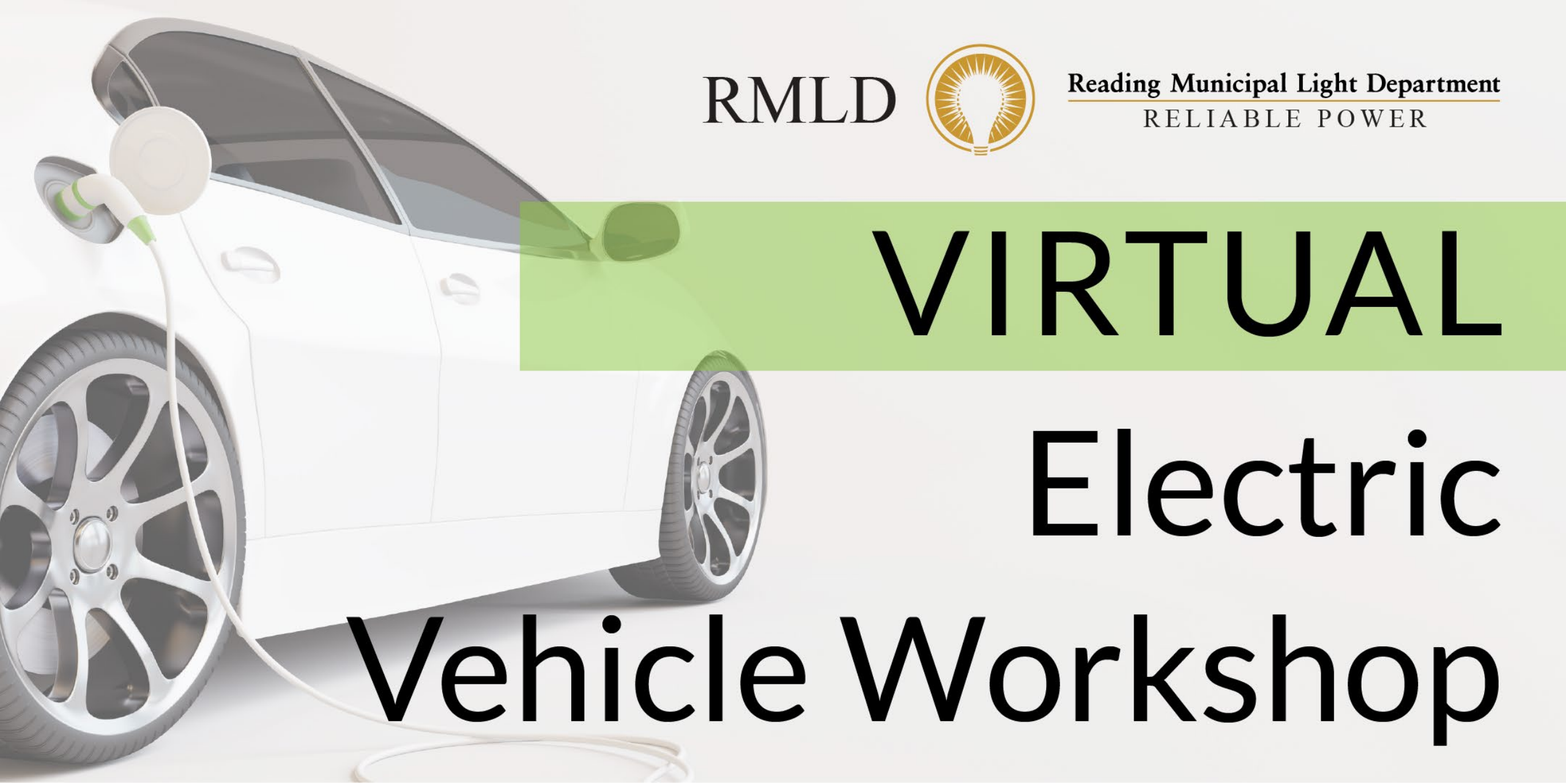


RMLD

Reading Municipal Light Department
RELIABLE POWER

VIRTUAL Electric Vehicle Workshop

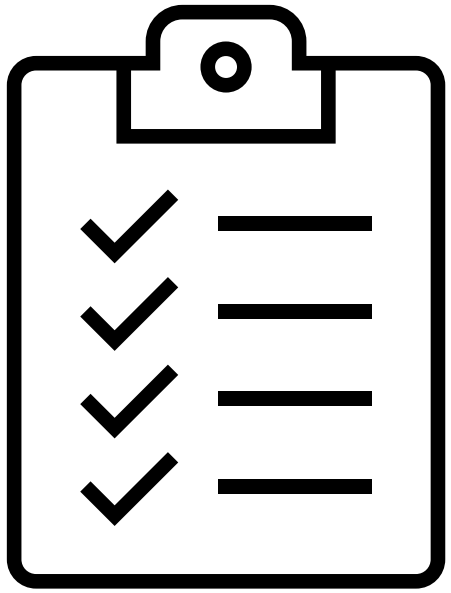
April 27, 2021 – 7:00 pm

Welcome

- This session is being recorded
- Enter questions into the Q&A
- You will receive an email with a link to the recording, contact info, and additional resources later this week

Agenda

- About RMLD
- Electrification and RMLD Programs
- Plug-in Electric Vehicle (EV) 101
- EV Owner Panel
- Additional Resources



About RMLD

- Not-for-profit, municipally owned electric distribution utility established in 1894
- Serves Reading, North Reading, Wilmington, and Lynnfield Center
  - ~51 square miles
  - ~70,000 people
  - ~29,000 meter connections
- Five-member Board of Commissioners elected by Reading voters governs the utility
- Five-member Citizens' Advisory Board appointed by the communities RMLD serves makes recommendations to the Board of Commissioners
- Meetings are open to the public. See www.rmld.com for dates.

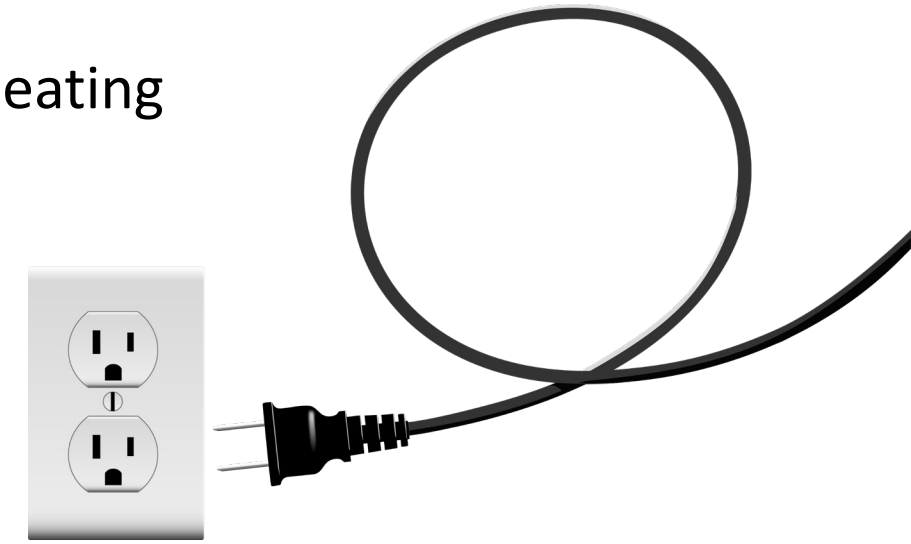
About RMLD (cont.)

- RMLD offers energy efficiency, conservation, electrification, and load management programs to customers to increase awareness and accelerate adoption of practices, products, and technologies that provide a multitude of benefits, including:
  - Helping customers use energy more efficiently in their home or business
  - Reducing RMLD's electricity usage during expensive peak demand times
  - Helping the environment by reducing carbon emissions
  - Increasing electrification within RMLD’s service territory
- Programs are supported by Energy Conservation Charge (ECC) on customer’s electric bills.

Electrification – what is it?

- The shift to powering end-use devices with electricity instead of fossil fuels
- Examples:
  - Transportation (electric vehicles)
  - Industrial manufacturing
  - Heat Pumps for space heating/cooling and water heating

Electrification is essential to reducing carbon emissions.

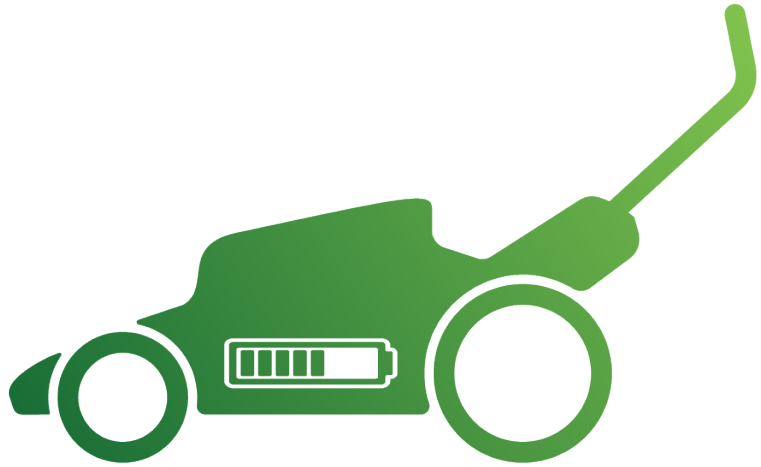


RMLD's Electrification Rebates

- Air Source Heat Pump (ASHP) Rebate
  - What: installation of ASHP system(s)
  - Who: residential and commercial customers

- Electrical Panel Upgrade Rebate
  - What: Upgrade of panel to a higher amperage to support electrification activities
  - Who: residential customers

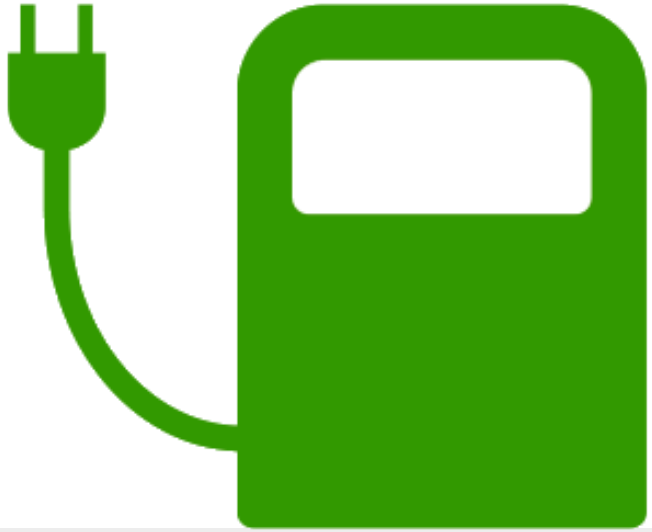
- Cordless Electric Yard Equipment Rebates
  - What: an assortment of items
  - Who: residential and commercial customers



RMLD's Electrification Rebates (cont.)

- EV Charging Station Rebate – Residential
  - Up to $750 rebate for level 2 charging station (equipment only)
  - Must sign up for Time-of-Use rate for a minimum of one year and agree to share EV charging station data

- EV Charging Station Rebate – Commercial
  - 50% of costs up to $1,500 per charging station (equipment and installation)



Other Electrification Efforts - EVs

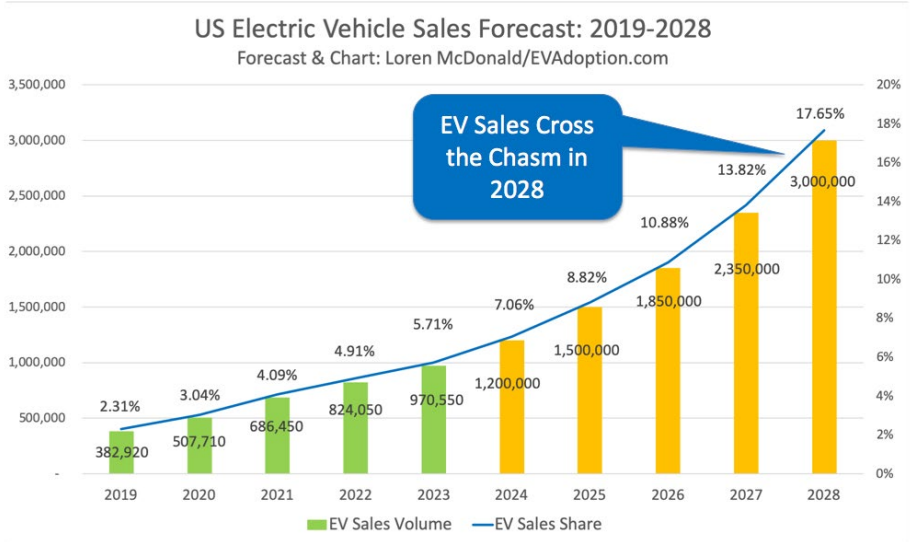
- RMLD installed two dual-port public charging stations at Ash St. facility
- RMLD is transitioning its fleet of 40 vehicles (primarily larger trucks) toward electric as alternatives come to market
- In the interim, RMLD owns an all-electric Chevy Bolt, and 4 hybrid SUV's
- We host educational events throughout the year
- RMLD pursues opportunities to increase availability of public charging infrastructure:
  - Develop viable business models
  - Public Charging Grants

RMLD Service Reliability Considerations

- Reliability is a core element of RMLD's ongoing mission
- Level 2 EV chargers can double the peak load at a typical residence
- Currently, your local electric distribution network can handle EV's
- But, as popularity increases, the distribution network will need to be upgraded and reinforced to handle larger peak loads
- RMLD is continuously upgrading the network in anticipation of EV's
- RMLD keeps track of EV loads to ensure that the network remains ahead of growing loads from EVs

Industry Trends/Legislation

- Car manufacturers doubling the number of new EV models for sale in 2021
- More car buyers are buying EV's instead of traditional vehicles
- US unit sales of EV's is forecasted to exceed 1 million in 2024



1) Economics is a driver (lower operating costs and lower total ownership costs)
2) Incentives is a powerful driver (federal and state)
3) State legislation is another driver (MA Climate Bill signed in March specifies *NO sales of new light-duty ICE vehicles after 2035*)

EV 101 – Types of Vehicles

ALL ELECTRIC
(Known as Battery Electric Vehicle or **BEV**)
Runs solely on electricity from a wall plug or charging station.

PLUG-IN HYBRID
(Known as Plug-in Hybrid Electric Vehicle or **PHEV**)
Can use electricity from a wall plug or charging station and can be fueled with gasoline. Generally have smaller batteries, slower charging speeds, and can't use a fast charger, but have great total range by using both fuels.

HYDROGEN FUEL CELL ELECTRIC
(Known as Fuel Cell Electric Vehicle or **FCEV**)
FCEVs use a propulsion system similar to that of electric vehicles, where energy stored as hydrogen is converted to electricity by the fuel cell.

EV 101 – Benefits

COST SAVINGS

When you consider the total cost of ownership, including purchase, rebates, fuel, and maintenance, most electric vehicles are cheaper than comparable gas vehicles. You can compare vehicles on PlugStar.com.

ENVIRONMENTAL BENEFITS

BEVs have zero tailpipe emissions and PHEVs have reduced tailpipe emissions. Even when these vehicles are charged with electricity generated from fossil fuels, less greenhouse gases are emitted than a conventional gasoline fueled vehicle.

PERFORMANCE

EVs provide maximum torque from a standstill, so when you hit the accelerator, they GO!

EV 101 – Vehicles Available

NEW

There are more than 50 models of electric vehicles on the market, starting at $30,000. Many all-electric vehicles have a range of 250+ miles.

Compare vehicles at PlugStar.com.

USED

Because they have fewer moving parts, used electric vehicles are often inexpensive and a very dependable option. You should check the battery health of any used vehicle you are considering.

Used EV Buyers Guide on PlugInAmerica.org.

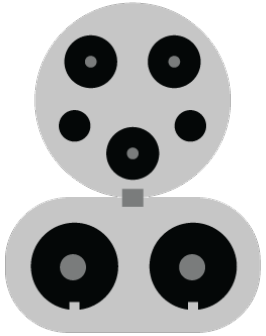
EV 101 – Charging Levels

LEVEL 1
Standard wall plug.
~40 miles overnight.

LEVEL 2
Home OR Public Charging Station.
240-volt outlet.
~25 miles per hour of charging.

J1772

DC FAST CHARGE
Public chargers.
0%-80% charged in ~20-40 minutes.



Combo Coupler System (CCS)

CHAdeMO

Tesla

EV 101 – WHERE to Charge

For most people, the vast majority of charging happens while their car is parked at home overnight (like a cell phone) or while at work, but there are lots of public charging stations for EVs as well.

AT HOME
Level 1 charging (a standard wall plug) might meet your needs. A level 2 charging station offers faster charging than level 1 and can be installed by a licensed electrician. RMLD offers rebates to customers interested in installing charging stations.

AT WORK
If your workplace doesn't yet have charging stations, ask them to consider it. RMLD offers rebates to commercial customers interested in installing charging stations, and the state of MA may have grant programs available.

ON THE GO
There are thousands of public level 2 and fast charge stations across America. Use your navigation map or plugshare.com to find charging on the go.

EV 101 – WHEN to Charge

When you charge your vehicle may have implications for the electric grid as well as wholesale power supply costs. Many electric utilities (including the RMLD) offer a special rate to encourage customers to shift electricity usage to off-peak hours.

On-Peak vs Off-Peak Hours
On-peak hours refer to the times of the day when electricity is in high demand. Off-peak hours are times of the day when electricity is in lower demand.

RMLD Time-of-Use (TOU) Rate
RMLD's TOU rate consists of one rate for on-peak hours (M-F 12p – 7p) which is higher than RMLD's standard residential rate, and one rate for off-peak hours (all other hours) which is lower than RMLD's standard residential rate. Customers may be able to save money on their electric bill by switching to this rate and shifting some of their electricity use to off-peak hours.

Scheduling Your Charging
The majority of EVs provide the ability to schedule your car to start charging at a certain time (i.e. off-peak hours for the benefit of the electric grid).

EV 101 – "Fueling" Cost Comparison

What is an eGallon?
The eGallon represents the cost of driving an EV the same distance a gasoline powered vehicle could travel on one gallon of gasoline. Find out more at www.energy.gov/egallon.

Mass average (as of 3/20/21) = $2.74 for regular gas **$1.96 for electric eGallon**

Annual "Fuel" Cost Comparison:

Gasoline Vehicle
- Price = $2.74/gal
- Vehicle Fuel Economy = 28 mi/gal
- Mileage per year = 12,000 mi
- Annual Gas Fuel Cost = $1,174/yr

Electric Vehicle
- RMLD Elec Rate = $0.15/kWh
- Vehicle Fuel Economy = 3.03 mi/kWh
- Mileage per year = 12,000 mi
- Annual Electric Fuel Cost = $594/yr

Driving Electric Fuel Savings Estimate = $580/Year

Try this vehicle cost calculator to compare total cost of ownership by model: https://afdc.energy.gov/calc/

EV 101 – Incentives

There are many federal, state, and local incentives to help make EVs affordable.

FEDERAL VEHICLE TAX CREDIT (https://www.fueleconomy.gov/feg/taxevb.shtml)
Tax credit of up to $7,500 for the purchase of a new electric vehicle. Credit amount depends on the car's battery capacity. Limited by model sales.

FEDERAL CHARGING EQUIPMENT TAX CREDIT (https://afdc.energy.gov/laws/10513)
Tax credit of 30% of the cost to install charging equipment in your home, through December 31, 2021.

MOR-EV STATE REBATE (https://mor-ev.org/)
Receive a rebate of up to $2,500 for the purchase or lease of a BEV, and up to $1,500 for the purchase or lease of a PHEV. Only applies to new vehicles with a purchase price under $50,000.

GREEN ENERGY CONSUMERS ALLIANCE DRIVE GREEN (https://www.greenenergyconsumers.org/drivegreen)
Offers discounts on the purchase of plug-in Evs in MA. Amount varies by dealership and type of vehicle.

RMLD EV CHARGING STATION REBATES (https://www.rmld.com/electric-vehicle-rebate-programs)
Rebates on charging stations for residential and commercial customers.

EV Owner Panel – Moderated Discussion

Topics

- Charging/Battery Range
- Price/Operating Costs
- Battery Life (long-term)
- Performance

ADI
Reading
2020 Hyundai Kona
(100% electric)
Home Level 2 Charging Station
Driving electric <1 year

RICK
Reading
2020 Tesla Y
(100% electric)
Home Level 2 Charging Station
Driving electric <1 year

DON
North Reading
2020 Tesla 3
(100% electric)
Home Level 2 Charging Station
Driving electric <1 year

ERIK
Reading
2018 Tesla 3
(100% electric)
Home Level 2 Charging Station
Driving electric 3-4 years

DAN B.
Lynnfield
Toyota Prius Prime (PHEV)
Tesla S (100% electric)
Home Level 2 Charging Station
Driving electric 3-4 years

STEPHEN
Reading
2020 Chevy Bolt
(100% electric)
Home Level 2 Charging Station
Driving electric 4+ years

DAN F.
Wilmington
2020 Tesla Y
(100% electric)
Home Level 2 Charging Station
Driving electric 1-2 years

KATHY
Reading
2019 Chevy Bolt
(100% electric)
Home Level 1 Charging
Driving electric 1-2 years

GREG
Reading
2021 Tesla Y
(100% electric)
Home Level 2 Charging Station
Driving electric <1 year

EV 101 – Resources

PlugStar by Plug In America
Compare vehicles, find incentives, get equipped.
Plugstar.com

Plug In America
Resources including Used Electric Vehicle Buyers Guide; EV Support Program.
PlugInAmerica.org
1 (877) EV-HELP-1
support@pluginamerica.org

Greener Cars by ACEEE
Ratings on green vehicles from the American Council for an Energy-Efficient Economy.
Greenercars.org

Electric Auto Association
A network of EV enthusiasts.
Electricauto.org

Green Energy Consumers Alliance Drive Green Program
Find discounts on EVs in MA; resources including Guide to Installing Charging at Home.
greenenergyconsumers.org/drivegreen

National Drive Electric Week
EV events September 25–October 3, 2021.
DriveElectricWeek.org

Thank you!

781-942-6598 | www.rmld.com