



# Electric Vehicle Infrastructure in Massachusetts

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## Project Goal:

To create a set of recommendations for how the state of Massachusetts can develop adequate infrastructure to support electric vehicles.

## Background

- EVs are the future green cars due to the problems with ethanol and hydrogen
- Installing battery switching stations and charging stations is cheaper than installing gas stations
- New methods for funding the Highway Fund need to be created
- The federal government provides a \$7500 tax credit on PHEVs and EVs
- Charging stations, battery switching stations already exist, and General Electric is installing 600,000 by the year 2015!
- Other countries and regions of the world are switching over to EVs, including Israel, Denmark, and Australia

## Summary

- Electric vehicles will significantly penetrate the market unless there is a supporting infrastructure
- The impact the proposal may have is that people will switch from gasoline-fueled cars to electric vehicles
- Research involved obtaining public opinion, analyzing market trends, an interview with a state official, and comparing data on gas stations, charging stations and battery switching stations
- Between 8,000 and 10,000 EVs will be on the road by the year 2020 in Massachusetts, and that in order to support that many vehicles, there needs to be 12,000-15,000 public electric vehicle refueling stations in the form of charging stations or battery switching stations
- Battery switching stations and charging stations will be successful in metropolitan areas. These stations will reduce the "range anxiety" most people worry about when buying an electric car

## Conclusions/Recommendations

- Massachusetts will need 12,000-15,000 public charging stations or battery switching stations installed in order to support 8,000-10,000 electric vehicles that are predicted to be on the road in Massachusetts by the year 2020
- Public stations should be installed in areas such as commuter rail/MBTA parking lots, shopping malls, and major businesses
- The state should look into joining Project Get Ready and Charge Point America to receive educated assistance for building infrastructure
- Massachusetts should keep the tax incentives relating to EVs in place until battery technology improves significantly or until the cost of EVs is equivalent to a gas powered vehicle



Picture from www.chargepointamerica.com

## Acknowledgments

We would like to thank Linda Benevides for providing us with valuable information.

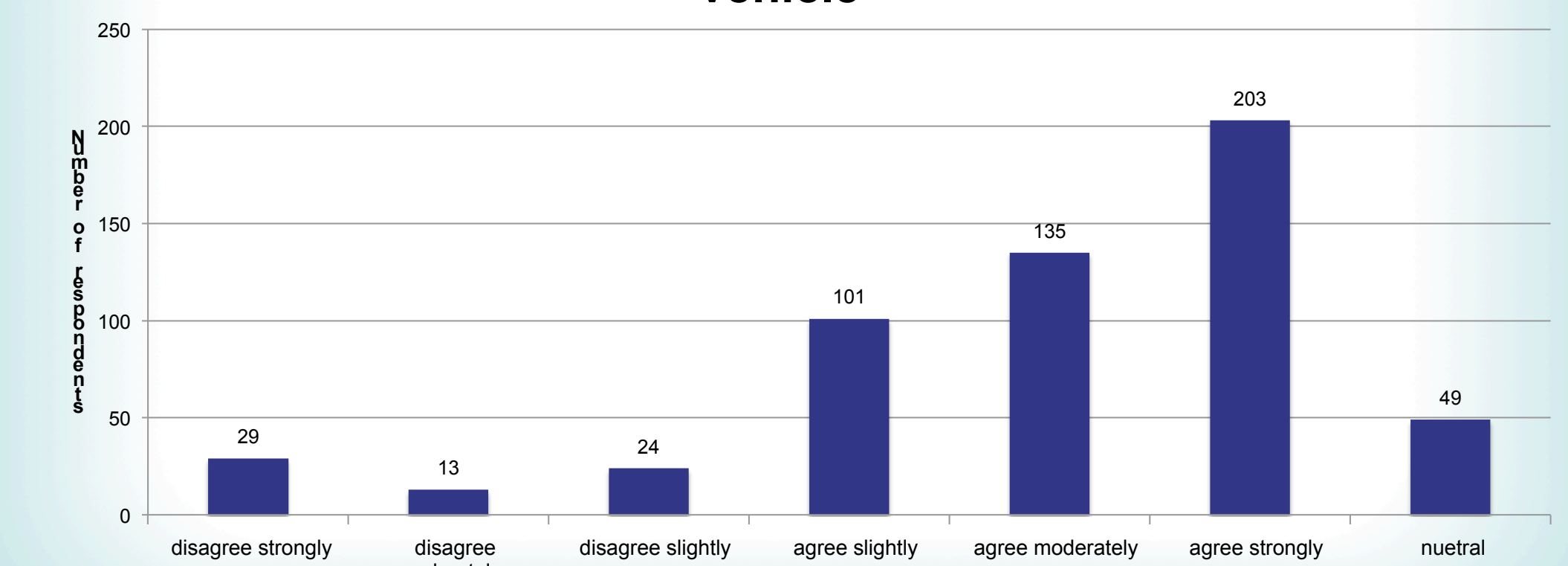
Sincerely- Diego, Hannah, Kristin

## References

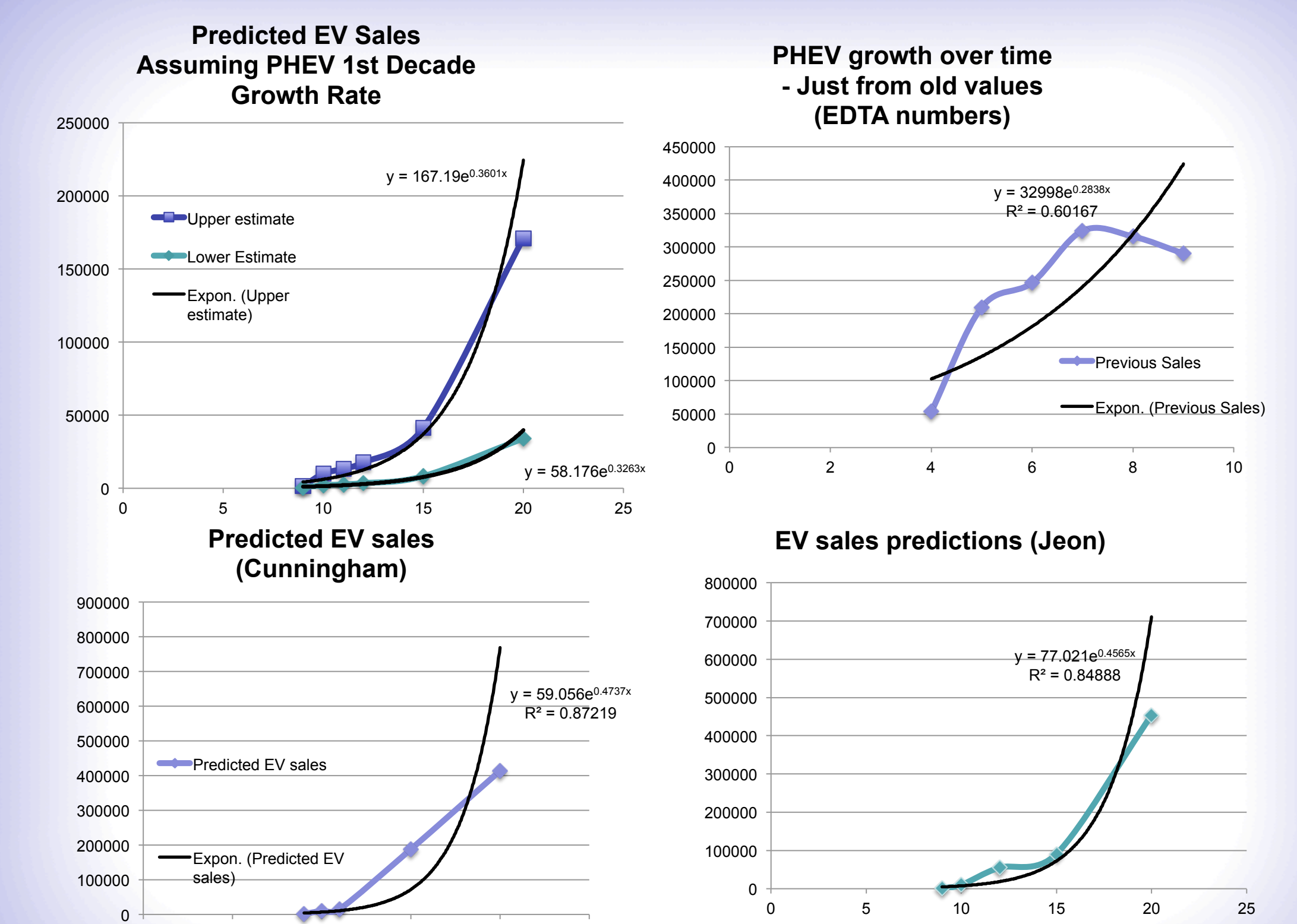
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## Survey Results

If there were a significant increase in electric vehicle infrastructure, I would look into purchasing an electric vehicle



## EV Sales Projections



## Methods/Process

- Surveyed 554 people from WPI and across the country
- Analyzed the market trends of PHEVs and extrapolated the findings to estimate the predicted number of EVs on the road by 2020
- Interviewed Linda Benevides (EOEEA) to find out what is currently happening in MA. in terms of building EV infrastructure
- Compared and contrasted Gas Stations to Charging Stations to Battery Switching Stations