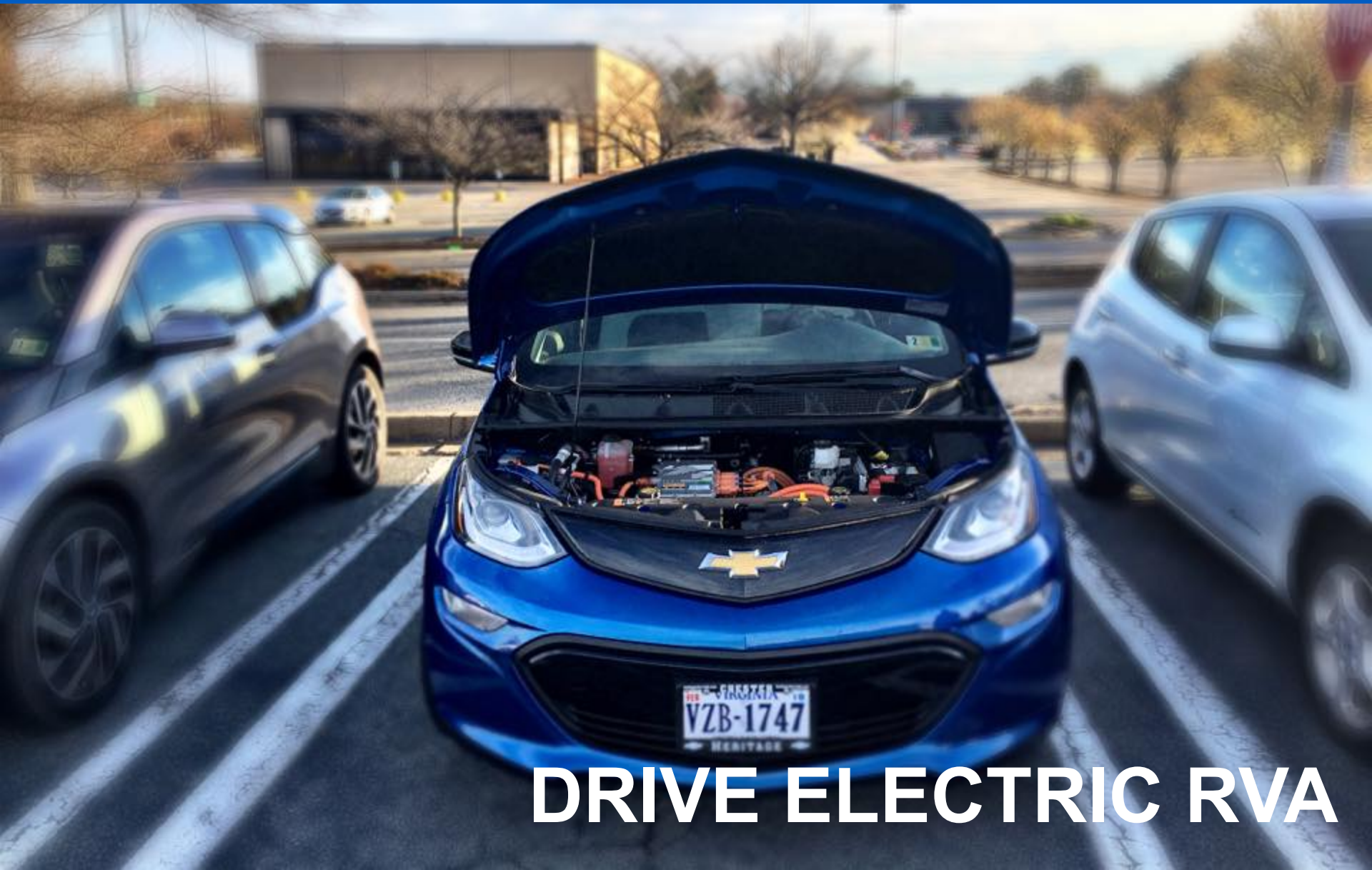


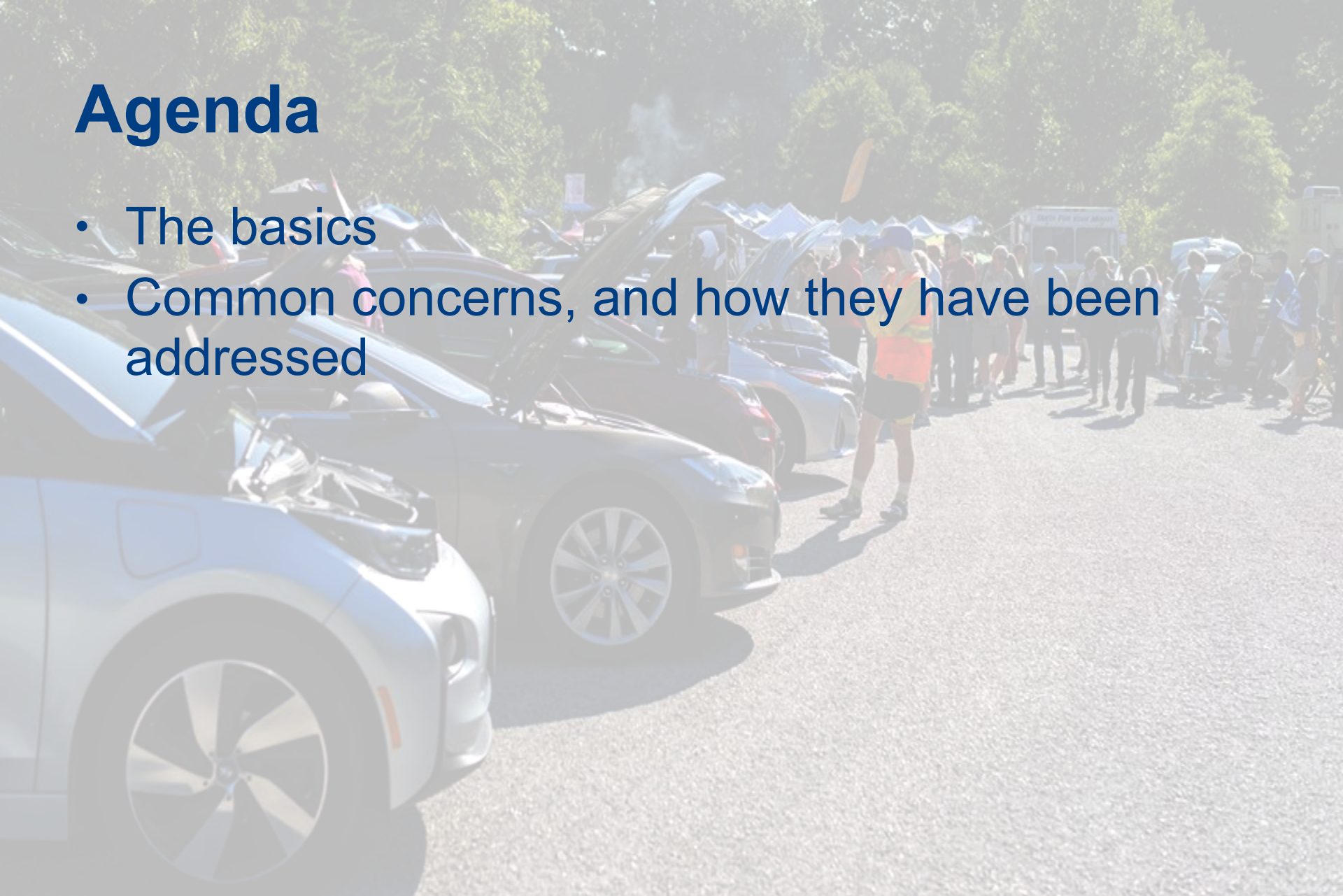
WHAT IS AN ELECTRIC VEHICLE?



DRIVE ELECTRIC RVA

Agenda

- The basics
- Common concerns, and how they have been addressed





But first, a little about us ...



DRIVE ELECTRIC RVA



**Founded in
2014**



DRIVE ELECTRIC RVA

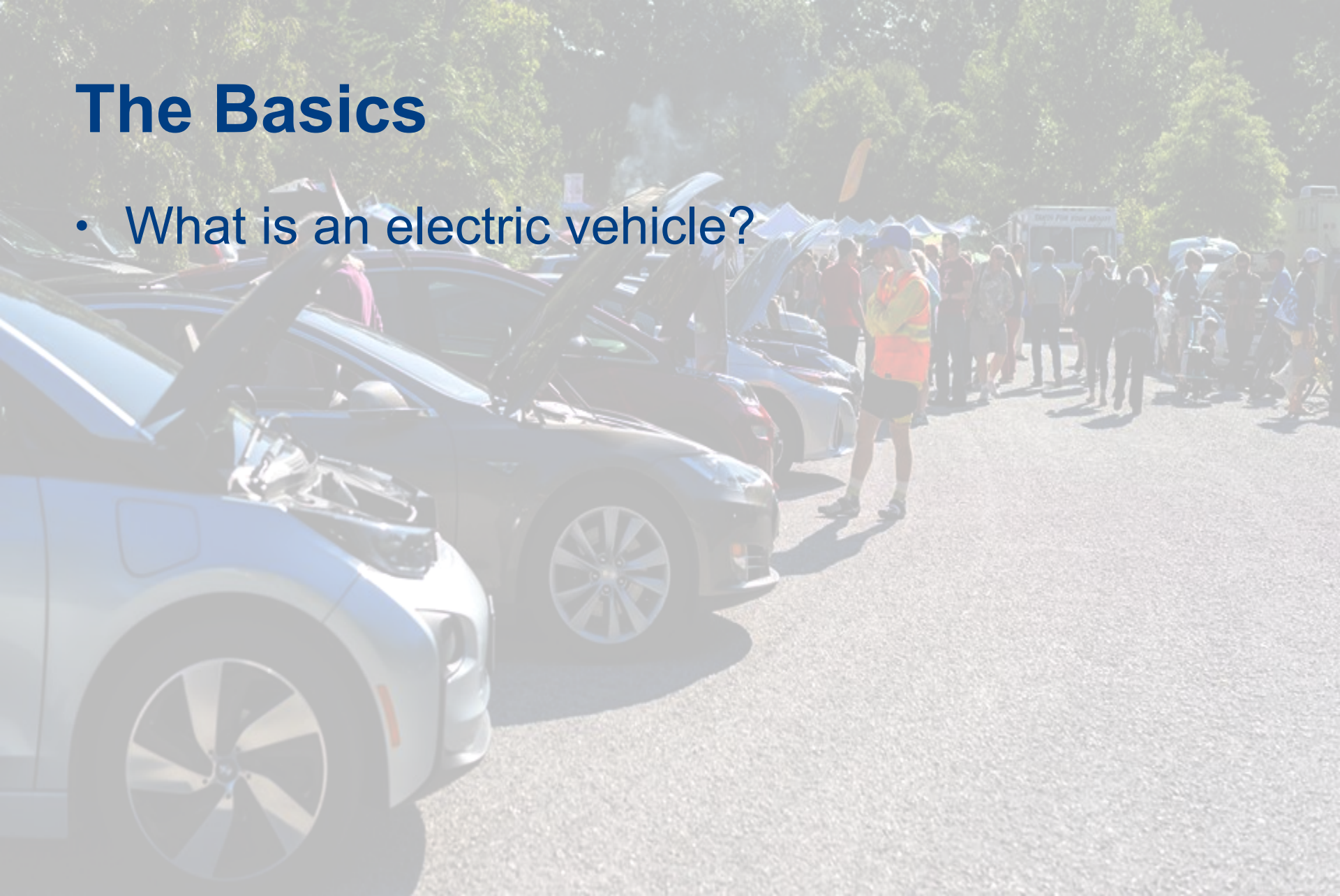


The Basics



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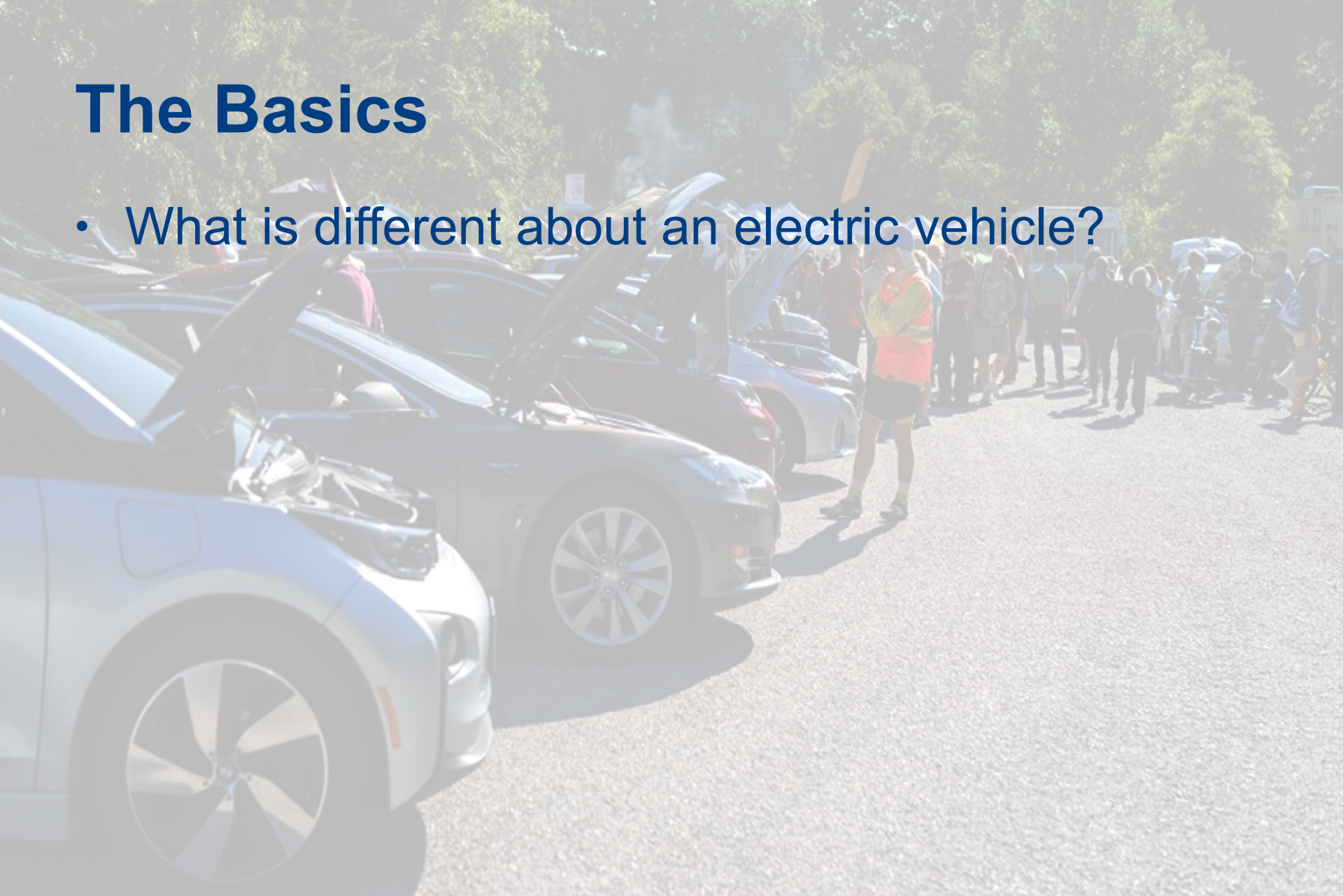
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- Three types of EV

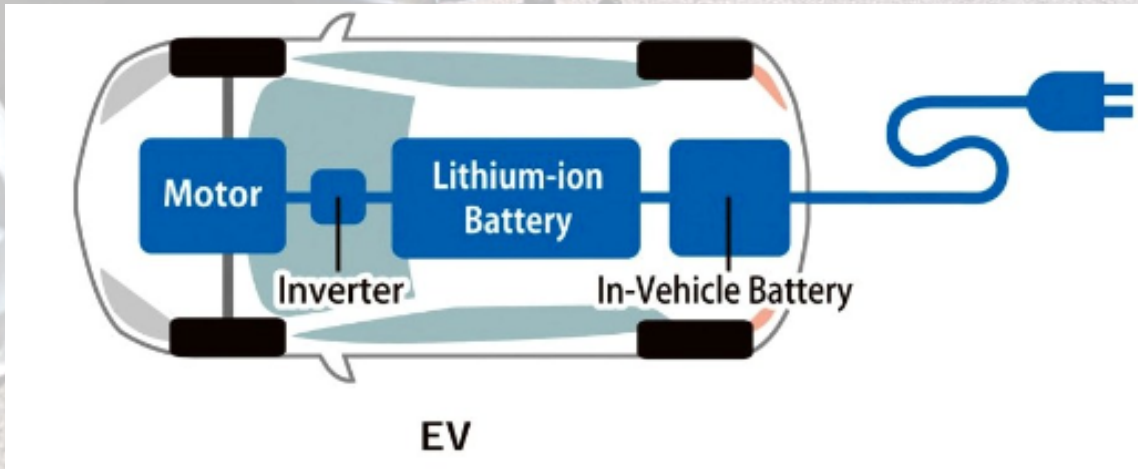
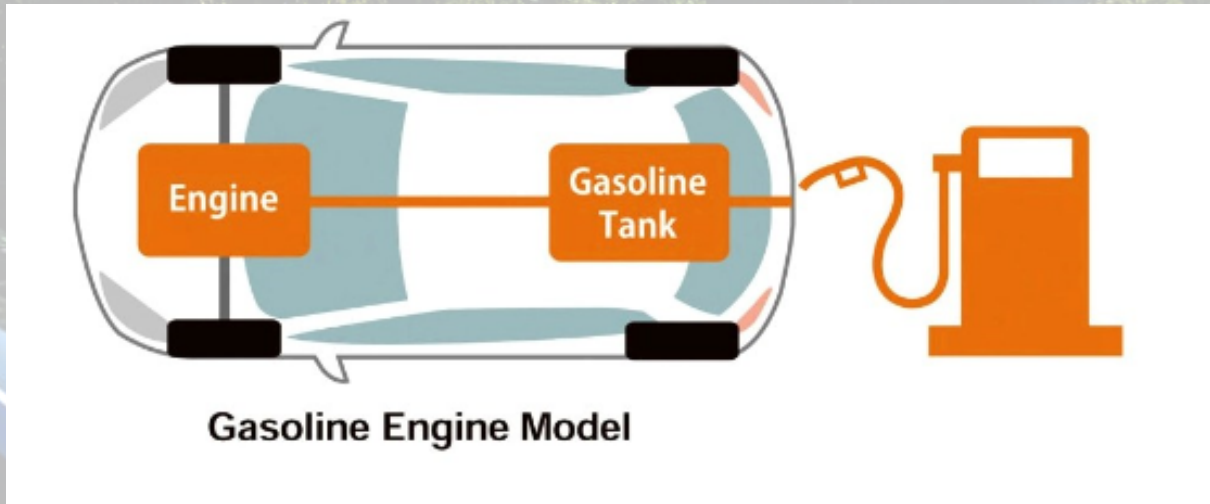
The Basics

- What is an electric vehicle? – A motor vehicle that uses electricity as its primary fuel or to improve the efficiency of a conventional engine.
- Three types of EV
 - Hybrid electric vehicle (HEV) – Toyota Prius
 - Plug-in hybrid electric vehicle (PHEV) – Chevy Volt
 - Battery electric vehicle (BEV) – Tesla Model 3

The Basics

- What is different about an electric vehicle?





The Basics

- What is different about an electric vehicle?
 - Uses electricity as a fuel
 - Uses a battery pack to store its fuel
 - Uses an electric motor and inverter

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- What is different about an electric vehicle?
 - Uses electricity as a fuel
 - Uses a battery pack to store its fuel
 - Uses an electric motor and inverter
 - If it's a BEV, it also:
 - Doesn't have a tailpipe
 - Doesn't have a lot of other parts (belts, gears, muffler)

The Basics

- Electric vehicles are a niche market, but that niche is growing



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U.S. PLUG-IN CAR SALES



The Basics

- Electric vehicles are a niche market, but that niche is growing
- Saving money on gas isn't the only reason



The Basics

- Electric vehicles are a niche market, but that niche is growing
- Saving money on gas isn't the only reason
 - Some people like the way EVs drive
 - Some people want to reduce their maintenance costs
 - Some people want to reduce nation's dependence on foreign oil
 - Some people want to reduce carbon emissions



Common Concerns

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- Range
- Charge time
- Sticker price



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BEV	Range in miles
Honda Clarity	89
BMW i3	114
Volkswagen eGolf	125
Nissan Leaf	151
Tesla Model 3	220
Chevy Bolt	238

PHEV	Range in miles
Chevy Volt	53
Chrysler Pacifica	33
Hyundai Ioniq	29
Kia Niro	26
Toyota Prius Prime	25
Ford C-MAX Energi	20

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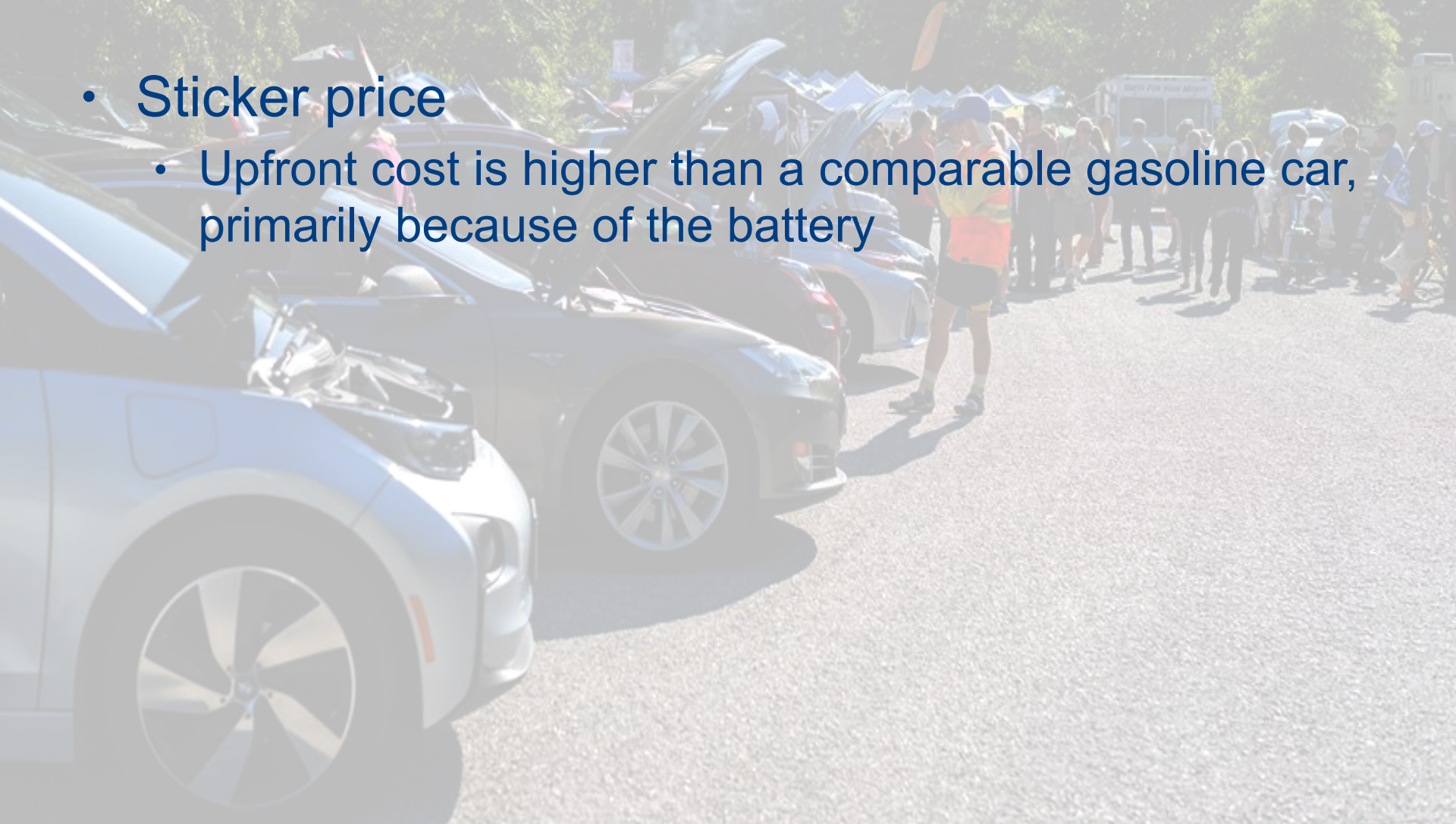
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BEV	Fastest charge time in hours at L2
Honda Clarity	4.0
BMW i3	4.5
Ford Focus Electric	5.0
Nissan Leaf	6.0
Tesla Model 3	6.5
Chevy Bolt	8.5

PHEV	Fastest charge time in hours at L2
Chevy Volt	4.5
Chrysler Pacifica	2.5
Hyundai Ioniq	2.5
Kia Niro	2.5
Toyota Prius Prime	2.5
Ford C-MAX Energi	2.0

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 - Upfront cost is higher than a comparable gasoline car, primarily because of the battery
 - However, total cost of ownership is lower than average, which makes up for the higher price
 - Depreciation cost is much higher, though that can be mitigated by leasing or buying used

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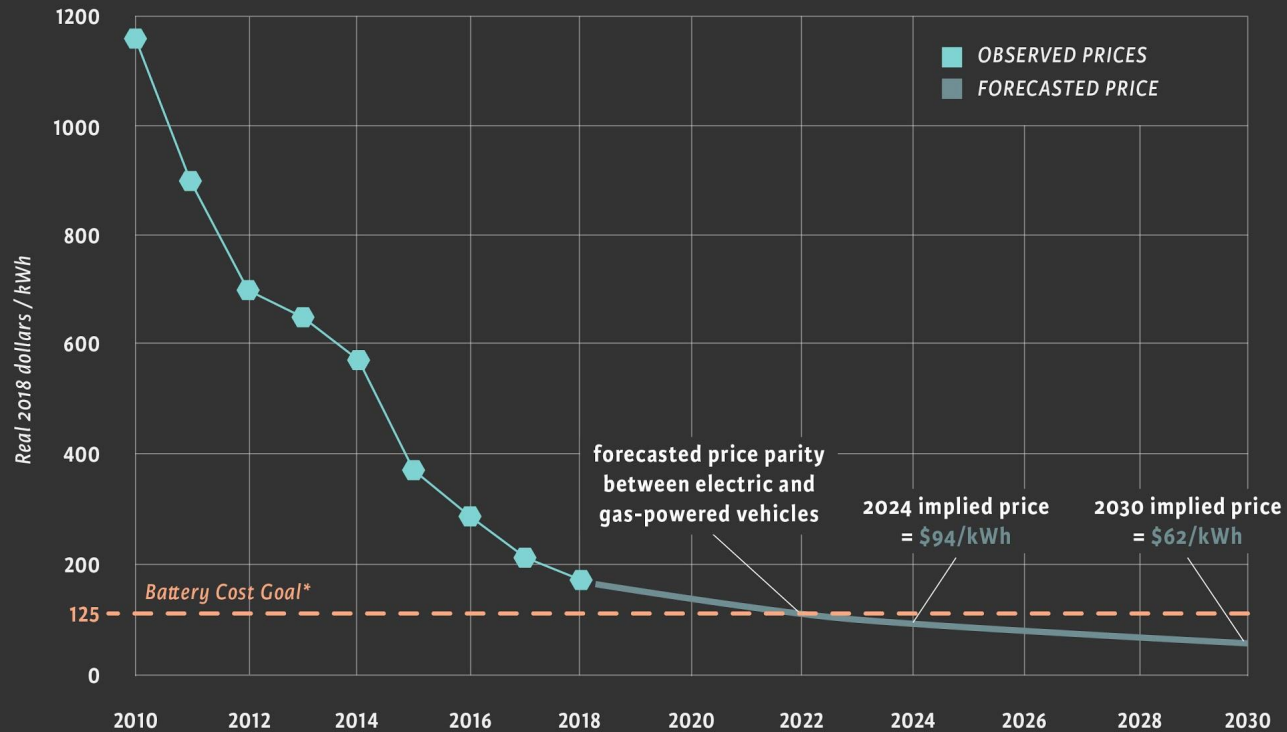


Charge time has improved as faster charging and more chargers have become available



Sticker price has improved as battery prices have fallen

VEHICLE LITHIUM-ION BATTERY PACK PRICE



*A battery price of \$125 / kWh is estimated to make EVs cost competitive with conventional gasoline vehicles.

Sources: BloombergNEF, accessed September 12, 2019
Battery cost goal from U.S. Department of Energy, accessed September 12, 2019



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