

Alaska EV Working Group

How to Move America to Electric Vehicles

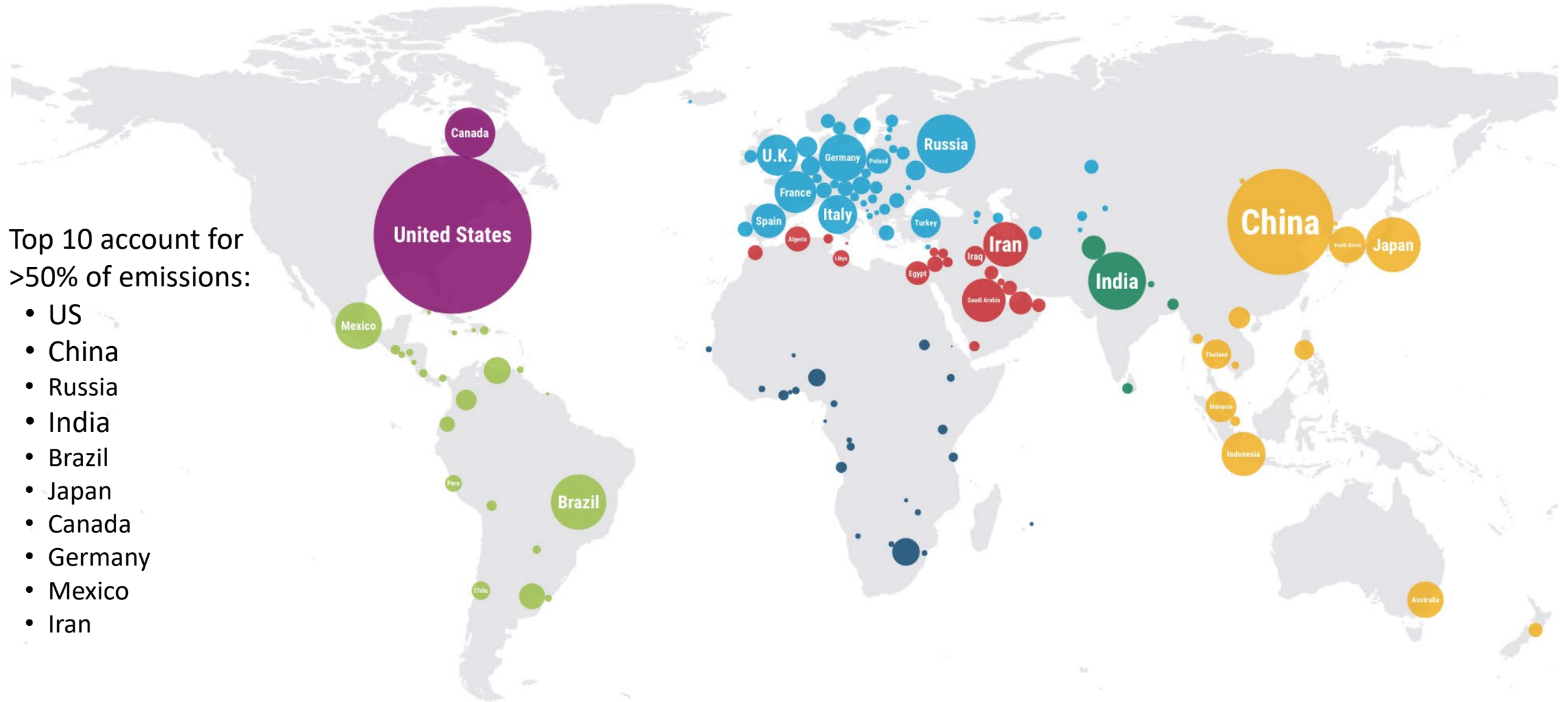
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Global CO2e Transportation Emissions (GHG)

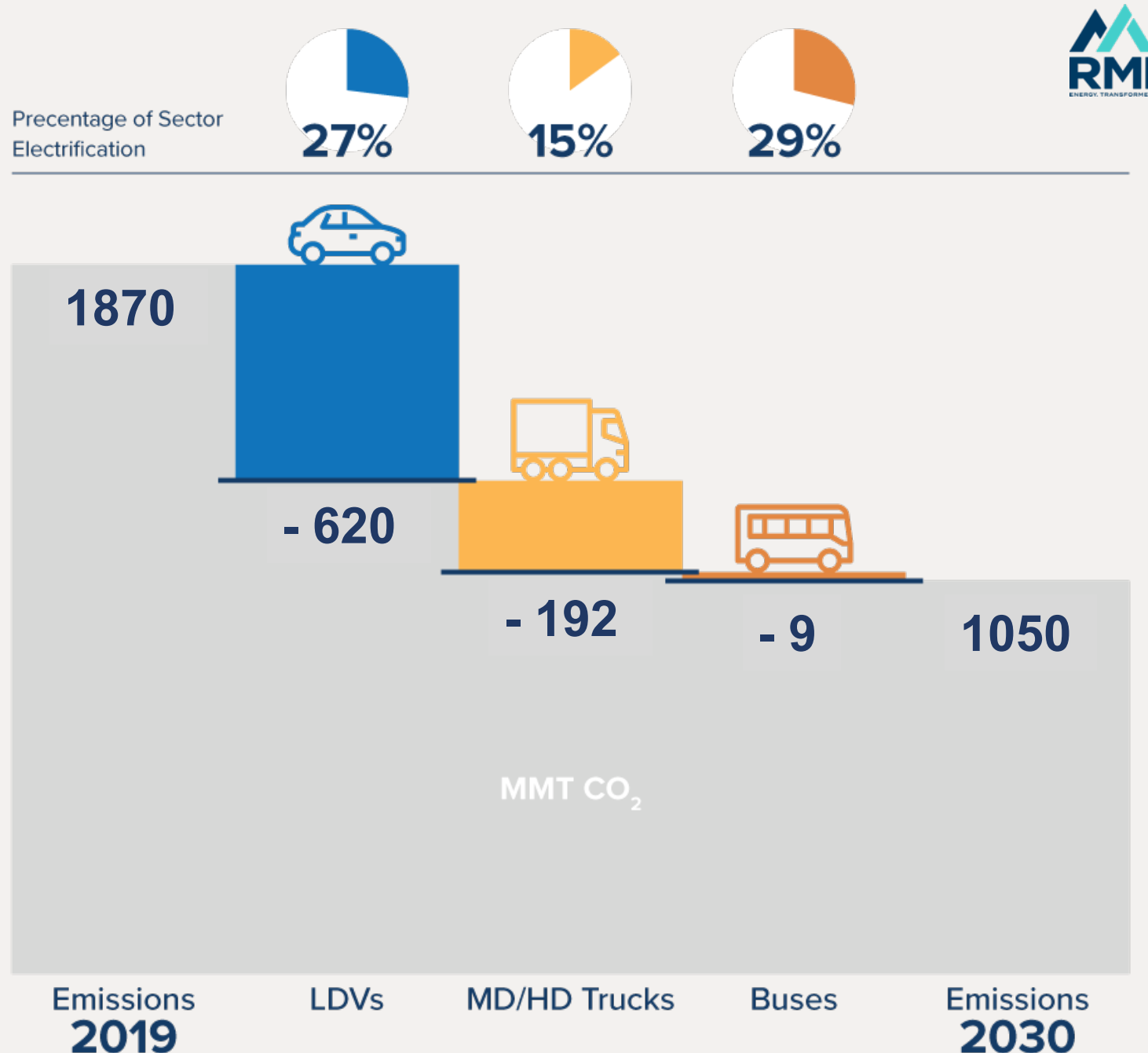


The US is the **#1** carbon-emitting transportation sector in the world

To hold climate to a 1.5°C rise, US transportation emissions must be cut by 45% by 2030

Here's how each sector will get us there:

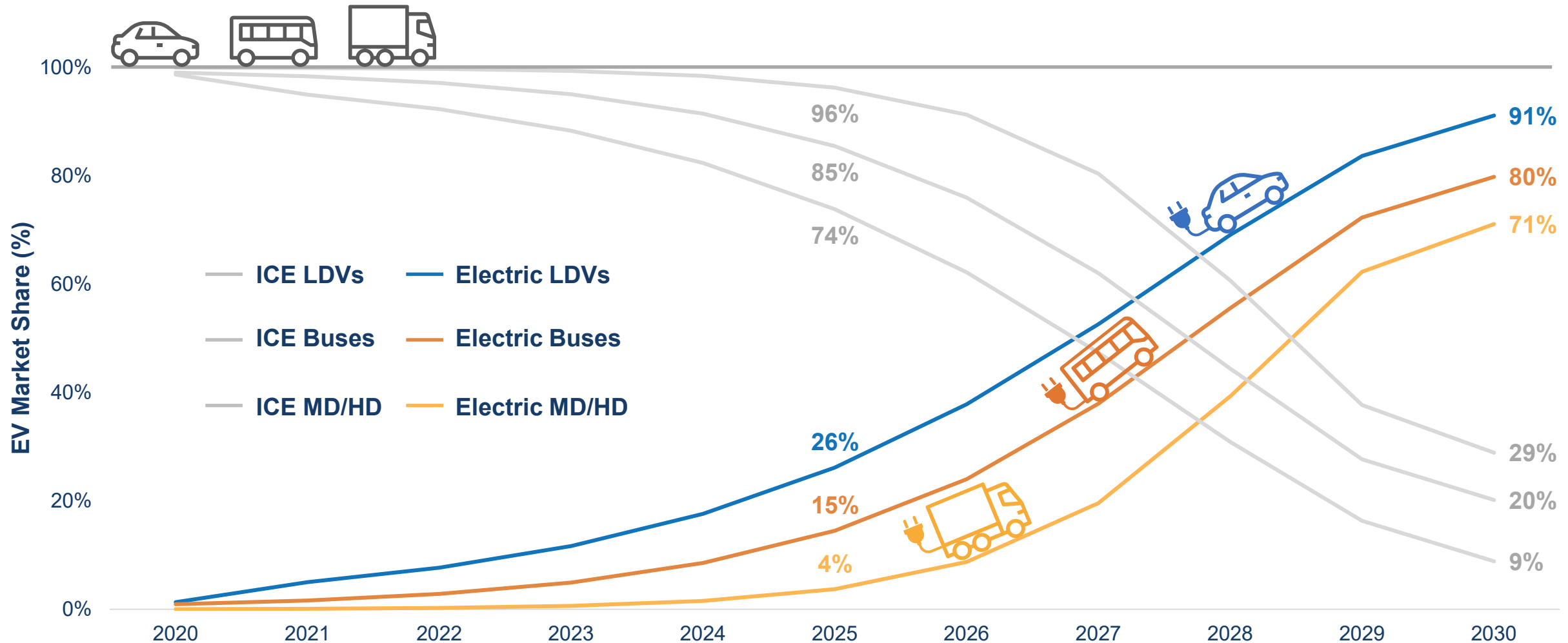
There is no way to achieve the transportation emission reductions needed by 2030 without significantly electrifying the LDV sector, followed by the trucking and bus sectors.



Emissions Decrease Over Time

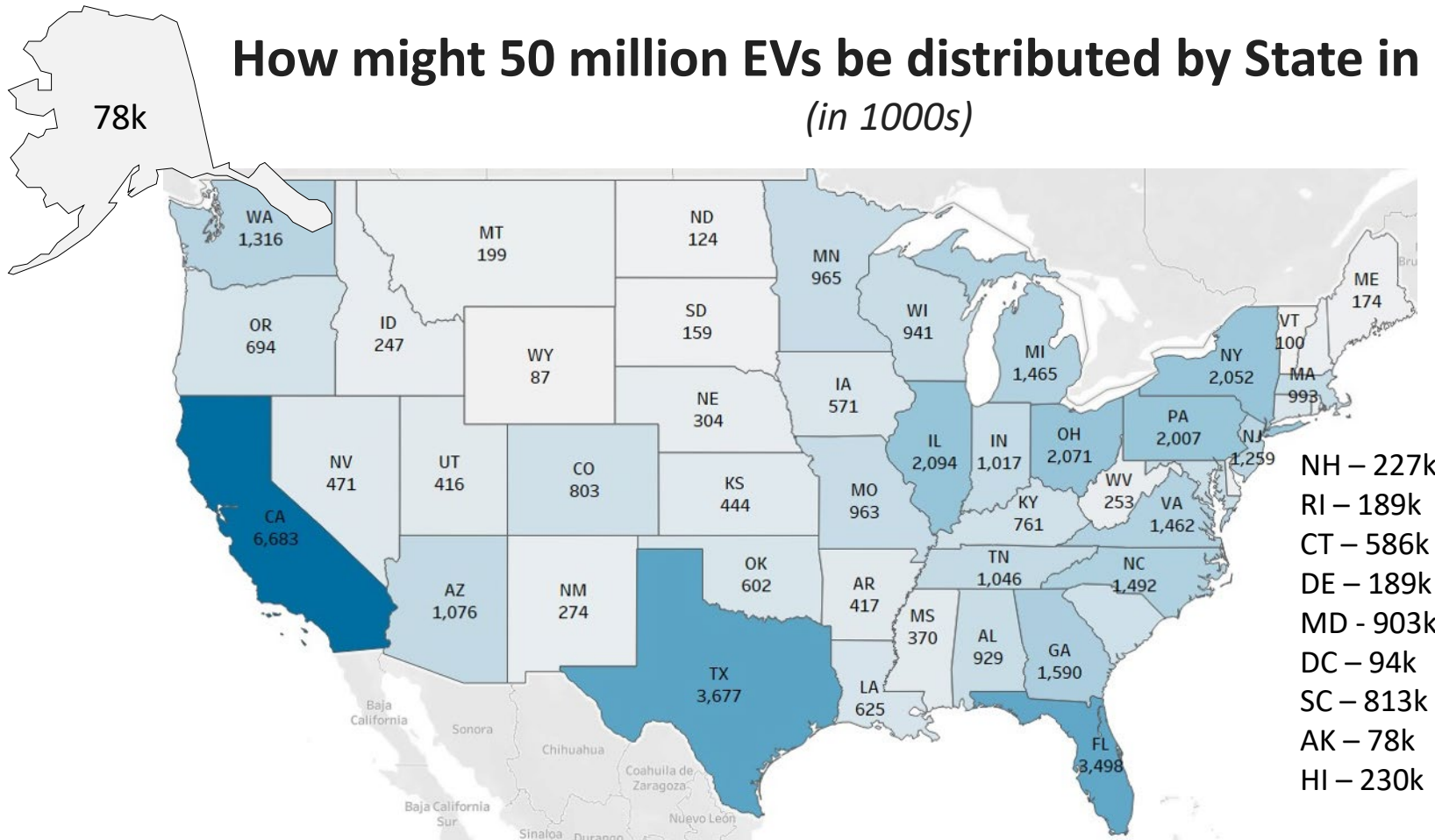
EV Market Share

Annual EV Sales as % of Total New Vehicle Sales



To achieve 1.5°C, 70Mil vehicles must be electric by 2030 (currently: 1.7mil EVs in the US)

How might 50 million EVs be distributed by State in 2030 (in 1000s)



Alaska

EVs:

- Today = 772 (Sept 2020)
- 2030 = 78,000

DC Fast Charging:

- Today = 1 stns/1 plugs
(4 stns w/ Chademo)
- 2030 = 417 DCFC
(1 installs/week needed)

Near-term action is critical as all States will be very challenged to support this scale of EV and EV Charging Infrastructure growth if we delay

EV Market Barriers

1. Battery and EV Cost/Affordability

- #1 automaker priority is to get cost out of these technologies
 - EVs (and EVSE) are broadly unprofitable today

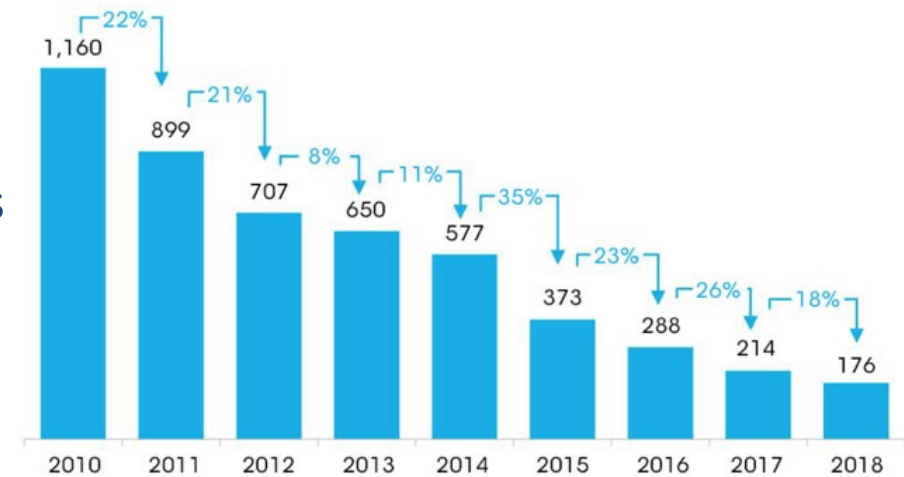
2. Lack of Charging Infrastructure

- Address both the “Perception” (public charging) and the “Reality” (home and workplace charging)

3. Build EV Demand

- Drive Consumer and Fleet Demand through Infrastructure, Awareness and Policy

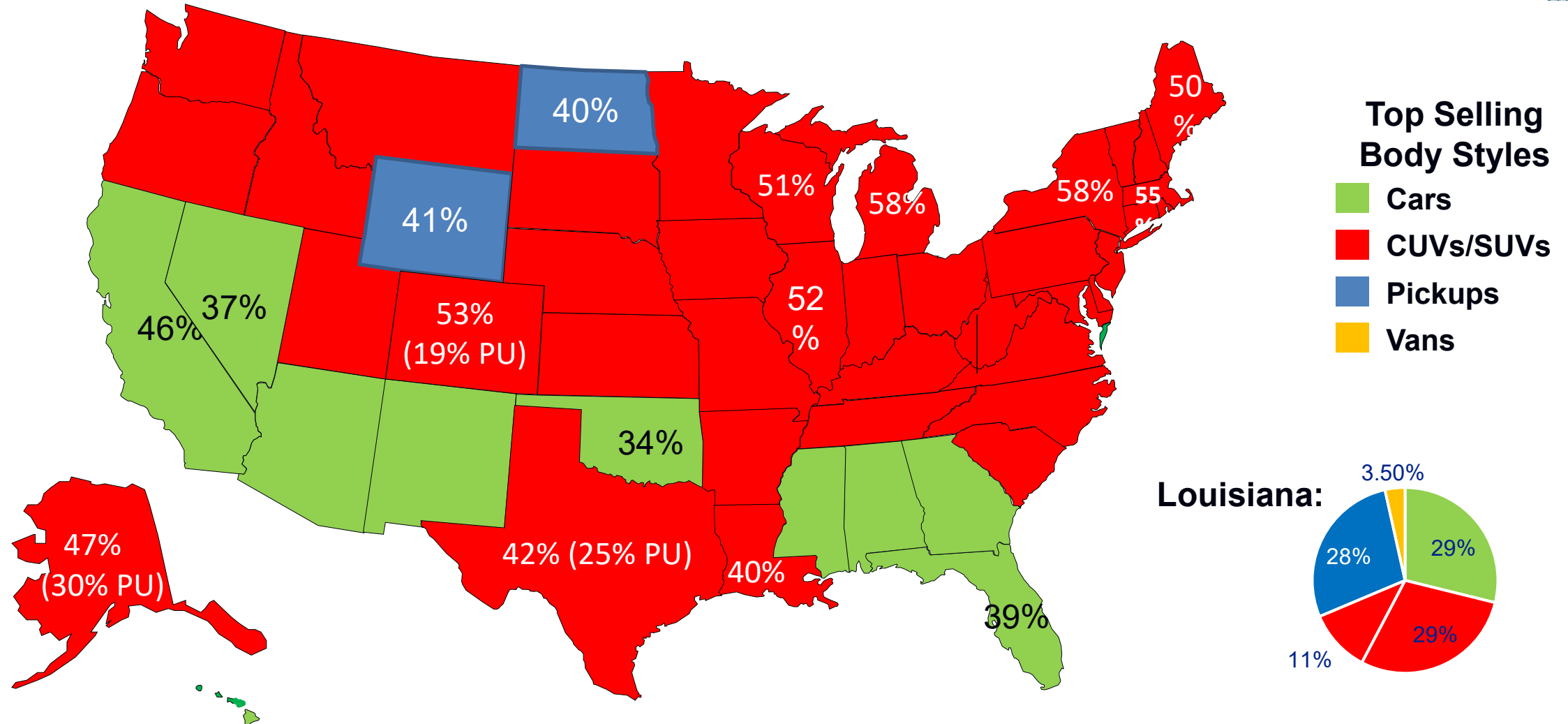
Battery Pack Price (real 2018 \$/kWh)



Source: BNEF - Survey data (volume weighted)

Despite significant (85%) battery price reductions since 2010, additional cost improvements are needed to achieve parity with conventional vehicles.

2018 Top Selling Body Style by State



Crossovers (CUVs) and SUVs make up the majority of new car sales in most states, creating a challenge for EV Manufacturers: larger batteries = higher cost to consumers

Some EV Models Expected 2020-2023



Audi Q4 e-tron (2021)



BMW iNext (2023)



BMW iX3 (2022)



Mazda MX-30 (2021)



Nissan Ariya (2021)



Mercedes-Benz EQC (2021)



Porsche Macan EV (2023)



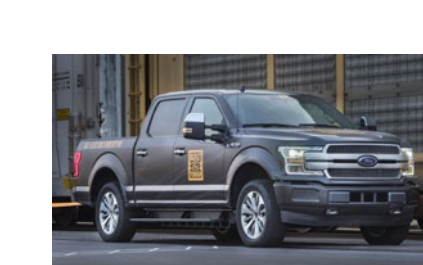
Ford Mustang Mach-E (Late 2020)



Volvo XC40 Recharge (2020)



VW ID 4 (2021)



Ford F-150 Electric (2021)



Mercedes-Benz G-Class Electric (2022)



Bollinger B1 (2021)



Lordstown Endurance (2021)



GMC Hummer EV SUV (2021)



Tesla Cybertruck (2022)



Rivian R1S (2021)



Bollinger B2 (2021)



GMC Hummer EV SUT (2022)



VW I.D. Buzz (2022)



Rivian R1T

How to Move America to Electric Vehicles

From a Rudderless to a Resolute 2030 EV Vision

Key Players Are Taking Action:

- The federal government operates 645,000 vehicles (including the US Postal Service, the largest fleet operator in the nation, with about 200,000 vehicles).
- GM's announced a goal to sell only electric light-duty vehicles **by 2035** (battery, hydrogen)
- California, Massachusetts, New Jersey have stated similar sales goals **by 2035**
- Xcel Energy plans to invest \$110 million to prepare for **20 percent EV market penetration in Colorado by 2030**
- Uber and Lyft have announced intentions to be **100% electric by 2030**
- Amazon, UPS, and FedEx have announced **large fleet electrification** ambitions

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Four Key Actions Required:

- 1. Establish a bold national vision with targets** for transportation electrification and establish a government/industry commission to enable well-planned supply and demand-side actions.
- 2. Communicate a national industrial strategy for EVs**, including incentives for retooling manufacturing plants (engine, transmission, assembly plants) and adding new battery/cell manufacturing capacity.
- 3. Set an aggressive public/private fleet EV adoption strategy** and an implementation plan.
- 4. Create a nationwide education and awareness campaign** to gain consumer and fleet operator confidence in electric vehicles.

How to Move America to Electric Vehicles

From a Rudderless to a Resolute 2030 EV Vision

We Have Every Reason to Accelerate the Electrification of Transportation

- Inherently better driving cars and trucks
- High-paying US jobs and economic growth
- Technology leadership and global competitiveness
- No tailpipe emissions polluting our air and warming the planet

RMI's Recent Mobility Thought leadership



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