

PROTERRA COMPANY OVERVIEW



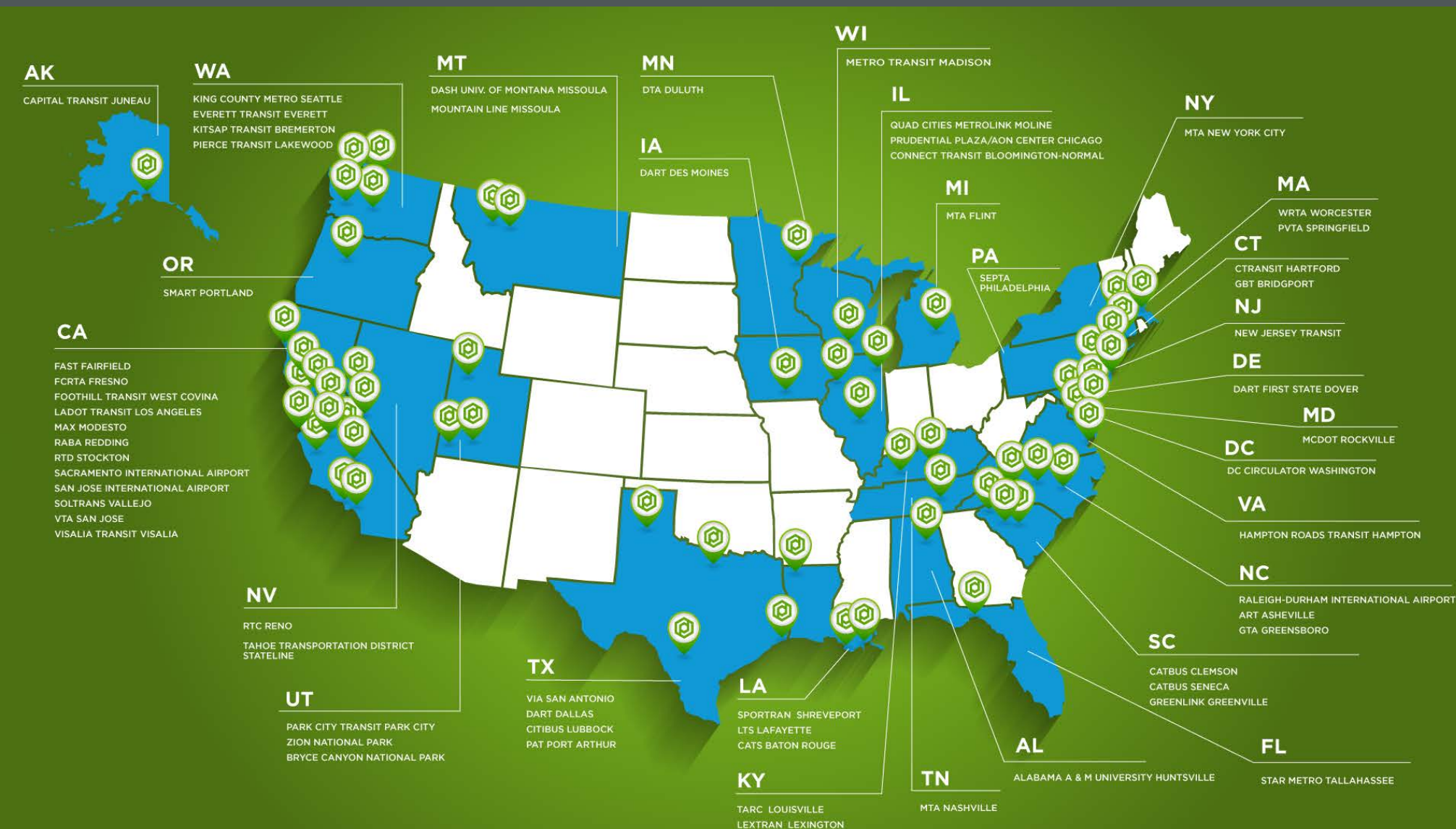
NOVEMBER 2017



OUR CUSTOMERS IN 2015...



SOMETHING *BIG* IS HAPPENING IN TRANSIT TODAY...



490 buses
sold to
59 customers
across
26 states

Additional
85 orders
not yet announced

Proterra has
~60%
of the U.S. ZEV
market

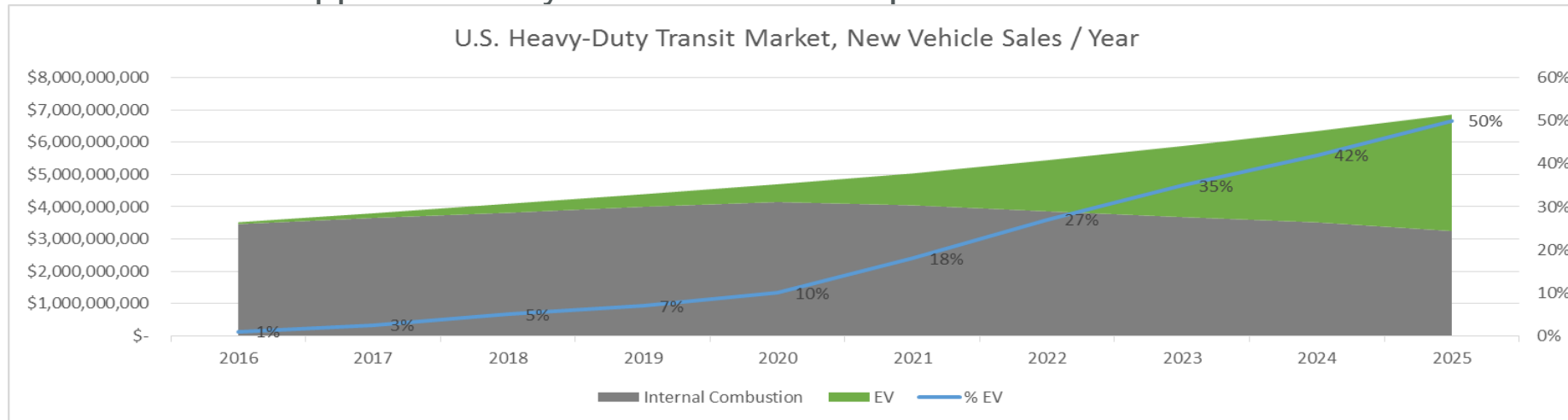
FY 2017 LOW- OR NO-EMISSION GRANT PROGRAM WINS BY STATE

FTA ANNOUNCES 9/17: PROTERRA CUSTOMERS WIN 28/51 AWARDS

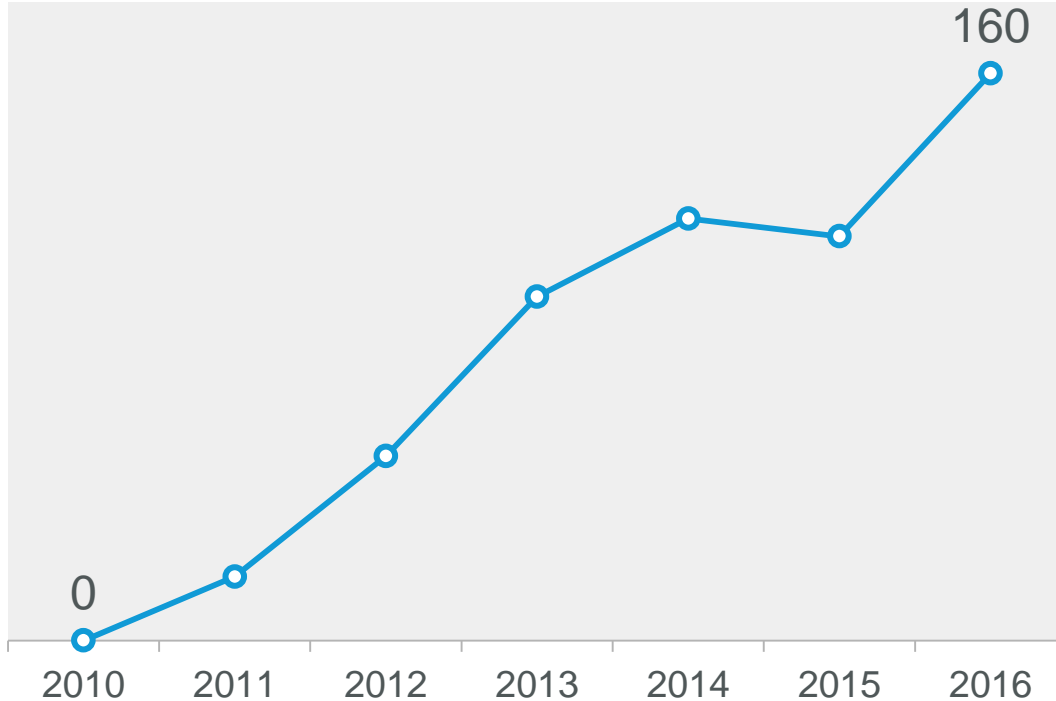


HOW BIG IS THE TREND?

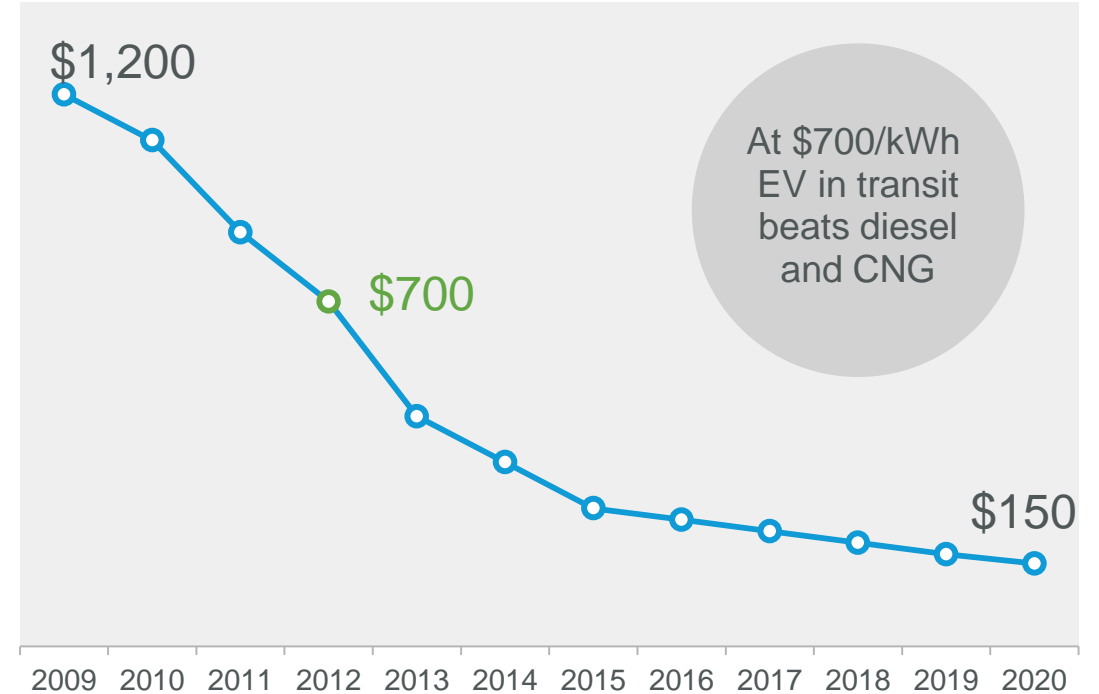
- By 2025, > 50% of U.S. transit purchases will be EV, annual market size of \$3.6 billion
- Multiple city and transit resolutions that call for 100% EV Transit/renewables (Foothill Transit, Santa Monica, King County, Washington, Seneca, Stockton, Portland)
- LA Metro Board recently approved a plan to convert its entire bus fleet – 2500 buses - to 100% zero emission by 2030; LADOT also passed a resolution to convert to all EV fleet
- This is happening nationwide, red states and blue states
- International EV transit trend... China, Canada, U.K., Norway, France, India, major cities in Europe going EV; Edmonton will buy only BEBs beginning in 2020
- Proterra has been approached by 50+ international partners



U.S. Electric Vehicle Sales (000s Units)



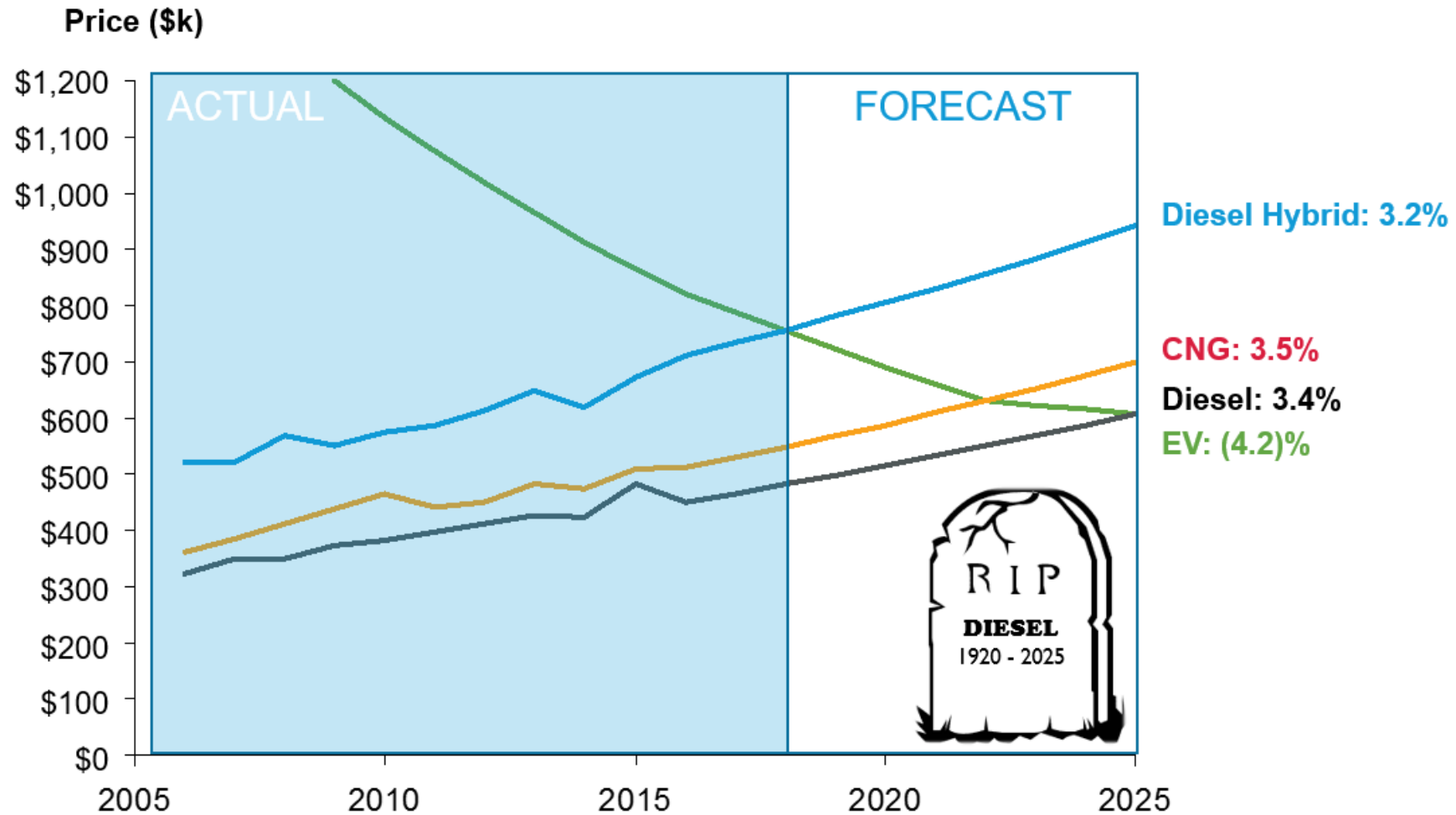
Proterra Battery Cost (\$/kWh)



Advanced battery technology cost has declined to the point of replacing fossil fuels in the transit market.

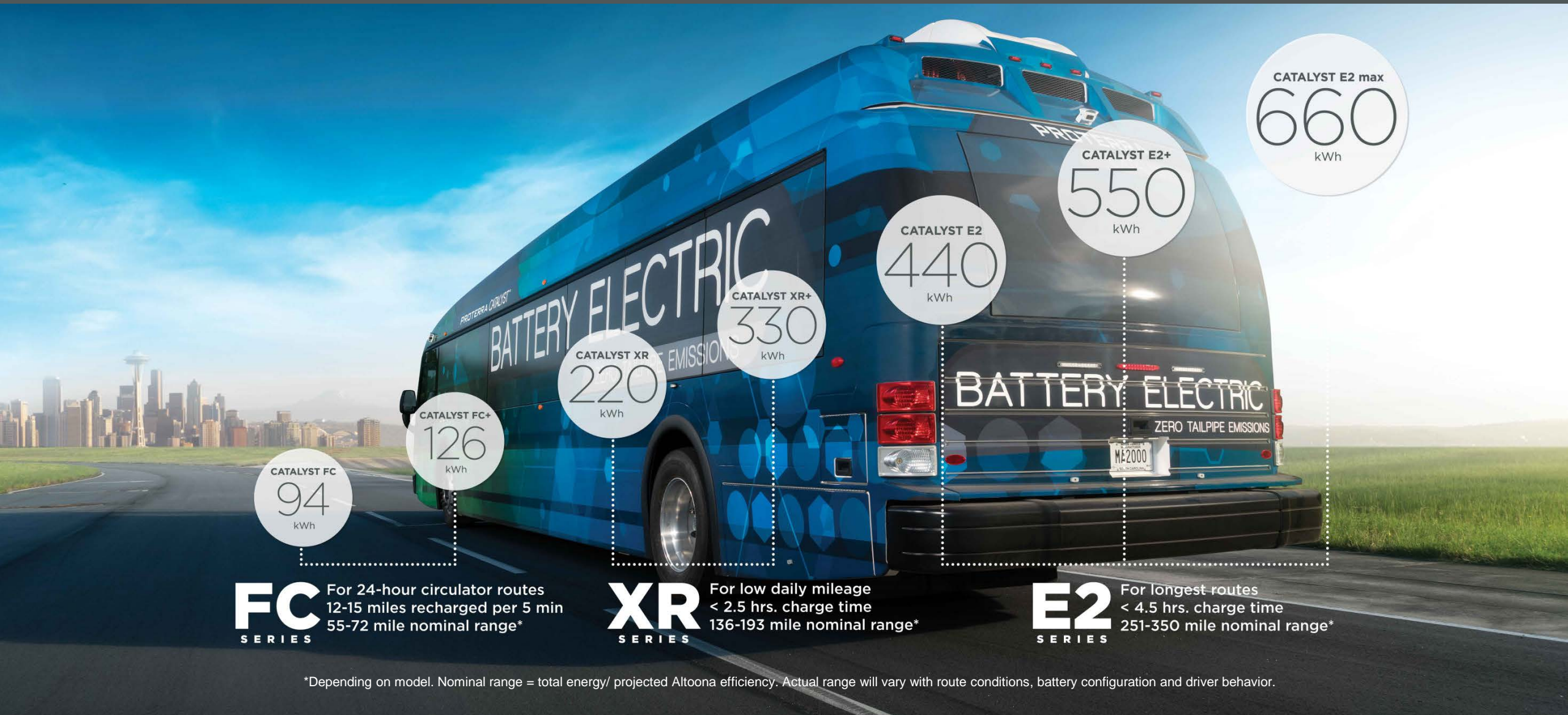
Sources: Navigant Research, hybridcars.com, Electric Drive Transportation Association. xEV = PHEV and BEV.

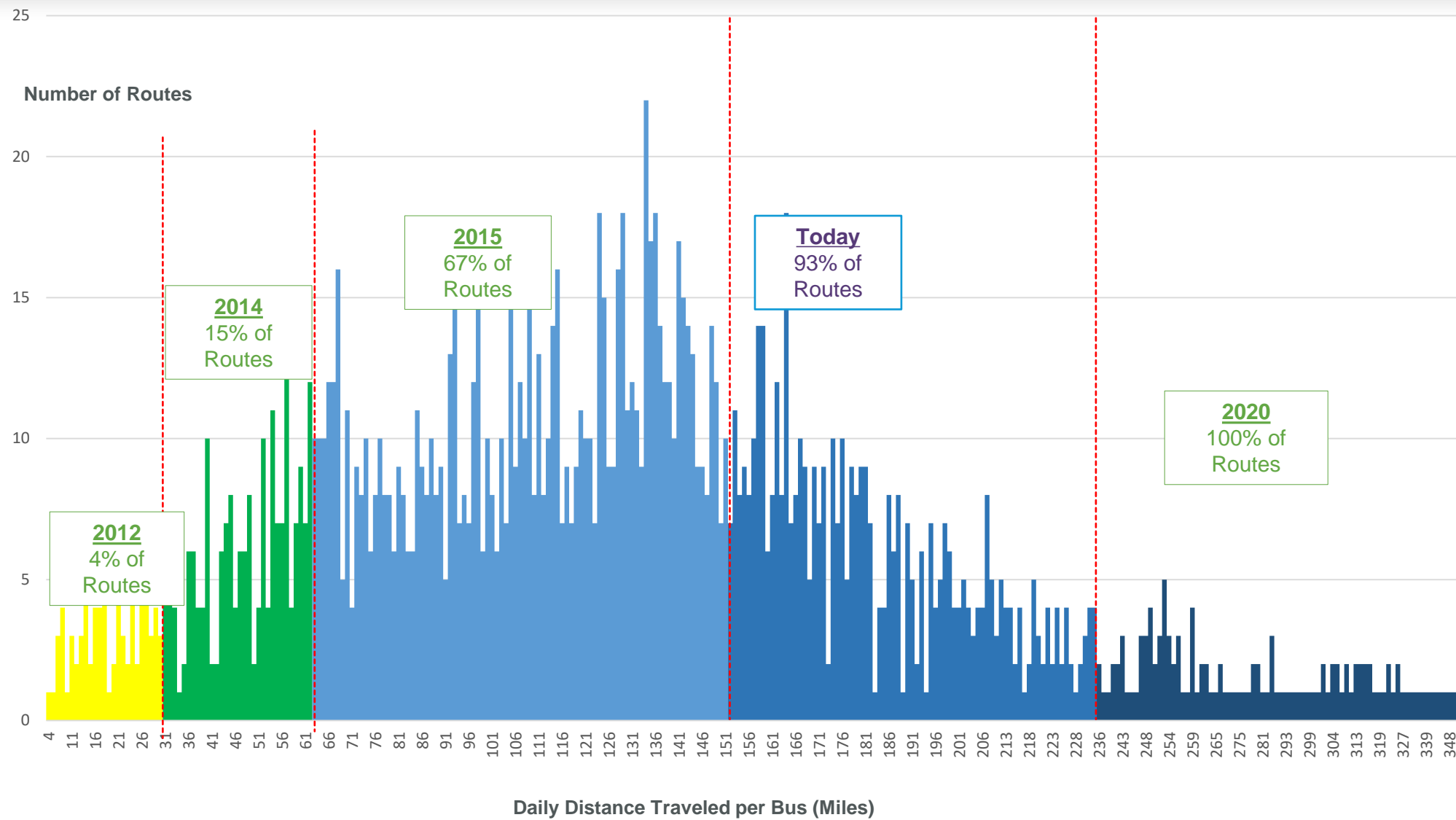
EV HAS **DECREASED** IN PRICE 4.2% PER YEAR SINCE 2010
DIESEL HAS **INCREASED** IN PRICE > 3.4% SINCE 2005
BY 2025, THERE IS NO TRANSIT MARKET FOR DIESEL / CNG



Source: National Transit Database; represents 40-foot buses

THE PROTERRA CATALYST'S RANGE





THE DUOPOWER™ DRIVETRAIN



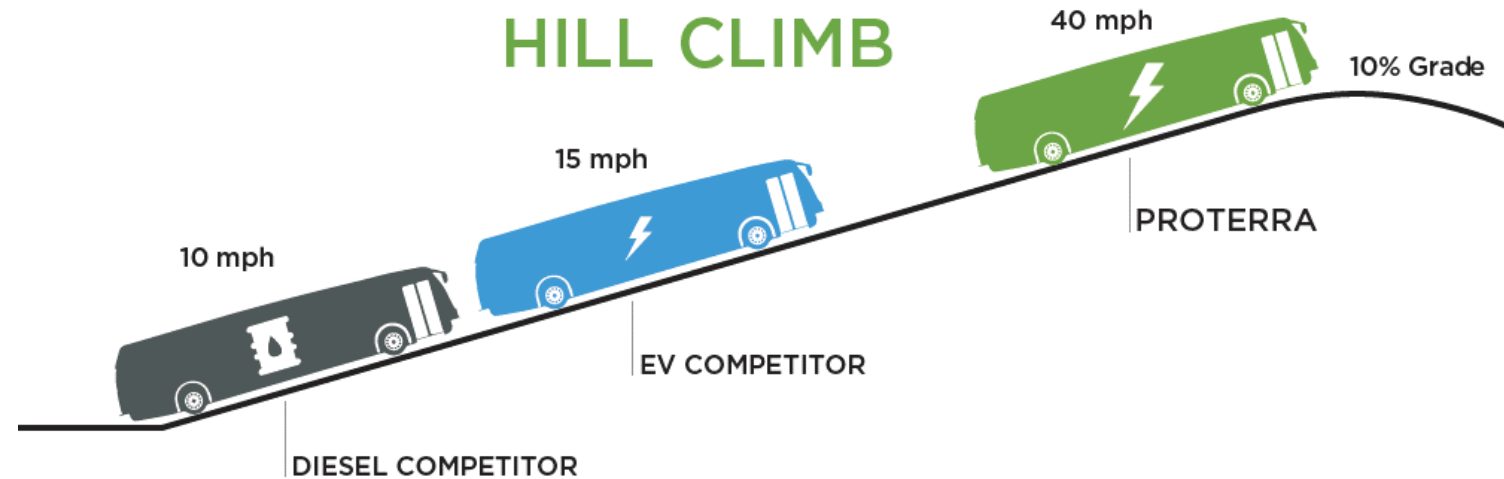
By combining the DuoPower drivetrain with Proterra's battery technology and lightweight composite bus body, the Catalyst delivers 26.1 MPGe—over 5X more fuel efficient than a diesel bus.

Enables a longest nominal range on the road

- A nominal range of 426 miles
- Tested at the Navistar Proving Grounds, achieving a world record range for an EV, traveling 1,101.2 miles on a single charge

Designed for unparalleled performance

- Features two electric motors, delivering 510 peak horsepower
- Accelerates a Catalyst bus from 0-20 mph in 4.5 seconds
- Propels a bus up a 26% grade, making it an ideal option for transit agencies with steep hills
- Enhances performance in extreme weather



PERFORMANCE COMPARISON	Diesel Competitor	Electric Competitor	Proterra Catalyst® E2 with DuoPower™ Drivetrain
TOP SPEED ON HILLS			
5%	35 mph	33 mph	59 mph
10%	10 mph	15 mph	40 mph
15%	n/a	1 mph	27 mph
MAX HILL CLIMB	12.4%	15.1%	26.0%

2X The Horsepower, 2X The Acceleration, 5X More Efficient Than a Diesel Bus



Proterra works closely with customers to recommend the [appropriate charging solution](#) for fleets and facilities planning for scale as the demand for charging increases.

Proterra technologies enable:

- Efficient charge speed
- Dynamic power sharing
- Driver-friendly stations
- Cost-effective operations
- Universal compatibility
- Serviceability
- Low maintenance costs
- High availability

Our experts provide counsel on:

- Site layout
- Energy management
- Real-time energy monitoring
- Site configurations

- Electricity Bill
 - Demand Component



Demand charges represent the cost to build and maintain the pipe that electricity flows through

- Volumetric Component



To allow the water to come faster, bigger pipes are needed all the way back to the water source.

Utilities structure their bills to identify how fast the energy comes and charge more to cover the infrastructure costs required to support that.

- Energy is key!
 - Energy is directly related to miles.
 - If our buses get 2kWhr per mile, then 200kWhr of energy equals 100 miles.
- The electricity bill is not based on energy alone. Bills are based on:
 - Energy – amount of actual energy consumed
 - Demand – rate at which energy is consumed
 - Time – time of day that the energy is consumed
- If demand is constant through the billing cycle, then the demand component of the bill will be reasonable and the total bill will have cost/kWhr comparable to tariff structures that do not have demand as a separate component.
 - This is called high load factor
- If demand is high, but not a lot of energy is used, then demand will be the predominate component in the bill. This will result in cost/kWhr much higher than tariff structures that do not have demand as a separate component.
 - This is called low load factor
- In a national discussion regional differences must be accounted for ex..
 - Midwest nighttime duck curve renewables
 - Northeast nighttime winter = peaker plants for high demand – heat pumps
 - CA daytime duck curve renewables

THANK YOU.

