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Electric Car

INSIDER

COMMERCIAL VEHICLES

COMPLETE
REVIEWS



THE FUTURE OF COMMERCE

FREIGHTLINER
eCASCADIA

BYD Class 6



MCI
J4500e



US: \$9.45 CA: \$11.45

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Commercial EV Matrix

Specification Quick Reference



TRUCKS & VANS

Make	Model	Yr Intro	Battery kWh	Range (mi)	MPGe	HP/Lb-ft	GVWR	MSRP Base	Page
BYD	Class 6	2019	221	125	--	335/1,328	26,000 lbs	On Request	18
BYD	Class 8	2018	435	150	--	483/1,770	105,000 lbs	On Request	17
Canadian Elec. Veh.	Might-E Truck	2004	--	50	--	15-47/--	3,000 lbs	\$29,000 +	26
Chanje	V8100	2018	100	150	50	198/563	16,535 lbs	On Request	29
Cummins	PowerDrive	2018	--	50	--	--	--	--	23
Freightliner	eCascadia	2022	315, 475	250	--	360-525/--	82,000 lbs	--	9
Freightliner	eM2	2022	210, 315	230	--	180-300/--	26,000-33,000 lbs	--	13
LightningElectric	Ford Transit Van	2019	43, 86	60, 120	63.5	215/733	10,360 lbs	\$132,900 +	28
Lion Electric Co	Lion8	2019	480	250	--	470/2,507	54,600 lbs	--	16
Motiv Power Systems	EPIC F-450	2015	127	120	28	201/780	14,500 lbs	--	20
Motiv Power Systems	EPIC F-53	2015	127	120	28	335/1,700	22,000, 26,000 lbs	--	25
Motiv Power Systems	EPIC F-59	2015	127	120	28	335/1,700	22,000 lbs	--	22
Nikola	Tre	2022	720	300	--	645/1,327	--	--	8
Peterbilt	220EV	2020	141-282	250	--	355/1,000	26,000 lbs	--	14
Peterbilt	579EV	2020	396	110-200	--	670/--	80,000 lbs	--	12
Phoenix	Zeus 500 Truck	--	70, 105, 140	80, 115, 150	--	308/--	14,500 lbs	--	21
SEA Electric	Hino M5 EV	2020	138	200	--	170/1,106	19,500 lbs	On Request	19
Tesla	Semi	2021	--	300, 500	--	--	80,000 lbs	\$150,000+	7
Volvo	VNR Electric	2021	264	150	--	455/4,051	32,500 lbs	--	10
Winnebago	J33SE	--	126.6	85-125	--	268/1,534	22,000 lbs	--	24
Workhorse	C1000	2020	70	100	--	--	12,000 lbs	--	27
XOS	ET-One	2021	300 x-pack	100-300	15.3	450-700/--	80,000 lbs	\$150,000+	11
XOS	Medium Duty	2020	120 x-pack	120	42.2	300/--	19,500-26,000 lbs	\$80,000+	15

COACHES & BUSES

Make	Model	Yr Intro	Battery kWh	Range (mi)	MPGe	Passengers	GVWR	MSRP Base	Page
Blue Bird	All American RE Elec	2018	--	120	--	78-84	36,000 lbs	--	41
BYD	Double Decker Bus	2020	446	230	--	77+1	59,100 lbs	On Request	37
BYD	Motor Coach	--	446	230	--	57+1	54,013 lbs	On Request	33
BYD	Transit Bus	--	352	157-177	--	37+1	43,431 lbs	On Request	34
Green Power	EV Star	2018	118	150	49	19	14,331 lbs	On Request	42
Green Power	EV350	2017	430	220	24	40	47,400 lbs	On Request	36
Green Power	BEAST/SYNAPSE	2018	194.5	150	26	90	38,580 lbs	On Request	39
Lion Electric Co	LionC	2016	220	65-155	--	71	33,000 lbs	On Request	40
Lion Electric Co	LionM	2018	80-160	75-150	--	31	--	--	38
MCI	J4500e	2021	544	230	18	60	54,000 lbs	On Request	30
New Flyer	Xcelsior CHARGE	--	213-466	135	--	125	--	--	32
Phoenix	Zeus Shuttle	--	70-140	80-150	--	16-23	14,500 lbs	--	43
Proterra	ZX5	2013	220-440	121-238	18.8-25.1	29	42,000 lbs	--	35
Van Hool	CX45E DriveTrain	2021	648	230	--	56	54,000 lbs	On Request	31

Vehicles not available for sale within the next 12 months of printing deadline will appear in subsequent editions of ECI magazine. Subscriptions available at electric-car-insider.com. Dashes in the matrix represent specs not available at time of printing.



2021 VOLVO VNR Electric

The Volvo VNR electric went on sale in North America on December 3, 2020. It will begin production in early 2021 at the company's manufacturing plant in Dublin, Virginia.

The VNR Electric is an all-electric addition to their regional-haul VNR line. As well as being entirely emission free, the VNR Electric will run more quietly than its conventionally fueled counterparts, allowing for operation during the night and in the early morning. Volvo Trucks predicts that these extended hours of operation will be especially useful in urban areas that are congested at peak hours.

The VNR Electric is based on the powertrain technology currently employed by the Volvo FE Electric, designed for refuse and city distribution, which became commercially available in Europe in limited numbers during the second half of 2019. The design also benefits from the experience of fellow Volvo Group member Volvo Buses, which has sold over 4,000 electric buses since 2010. The VNR line currently consists of the conventionally fueled VNR 300, VNR 400, and VNR 640. As the VNR 400 and VNR 640 are sleeper cabs, the VNR Electric is built upon the same platform as the VNR 300, a lightweight day cab.

A number of the conventional VNRs' features provide distinct benefits to the EV semi—the VNR line's short, sloped hood, for example, offers drivers a clear view of their surroundings in busy, urban environments.

ACQUISITION

MSRP	\$ --
Availability	2021
U.S. Sales Units	--

RANGE

EV Range	150 mi
MPGe	--

PERFORMANCE

Gradeability	16%
Top Speed	65 mph
Drag Coefficient	--

BATTERY

Volts	660 V
Watt-hours	264 kWh
Cooling	Passive Cooling Circuit

DRIVETRAIN

HP/Lb-ft	455/4,051
Drive Type	2 Electric Motor
Axles	2 to 3

CHARGING

Power Rating	150 kW
Charge Time L2	-- hrs
Charge Time DC	70 min
Connector	CCS1 or CCS2

DIMENSIONS

Curb Weight	17,690 lbs
GVWR	32,500 lbs
Wheelbase	167 in
Length	252 in
Width	101 in
Height	158 in





ACQUISITION

MSRP	\$80,000+
Availability	Q4 2020
U.S. Sales Units	--

RANGE

EV Range	200 mi
MPGe	42.2

PERFORMANCE

Gradeability	12%
Top Speed	65 mph
Drag Coefficient	--

BATTERY

Volts	12/24 V
Watt-hours	120 kWh x-pack
Cooling	Active Air

DRIVETRAIN

HP/Lb-ft	300/--
Drive Type	Direct Drive
Axes	4x2

CHARGING

Power Rating	18.6, 350 kW
Charge Time L2	4 hrs
Charge Time DC	1-3 hrs
Connector	J1772, CCS 1

DIMENSIONS

Curb Weight	8,800 lbs
GVWR	19,500 - 26,000 lbs
Wheelbase	168-208 in
Length	192-302 in
Width	86-93 in
Height	81-85 in

2020 Xos Medium Duty

The Xos Medium Duty is a class 6 base platform upon which different body styles can be built. It is designed as an all-electric solution to growing demand for last-mile deliveries in the e-commerce sector. Its 200-mile range makes it well-suited to applications with established, repeatable routes. In addition to package delivery, the Medium Duty can be configured for food and beverage transportation, refrigerated transport, and utility. Xos estimates that the Medium Duty has a cost of ownership 30 percent lower than a traditionally fueled step van. The company also calculates a 30 percent increase in power from diesel. As with the class 8 ET-One, Xos has partnered with other auto-manufacturers for off-the-shelf parts, distribution, and maintenance. The lithium-ion batteries, however, are designed and built by Xos itself.

In 2018 and 2019, the Medium Duty was tested in select fleets with routes of 100 miles or less. UPS, for example, tested a step-van Medium Duty on Los Angeles delivery routes to ensure that the durability, battery capacity, and fleet integration were as promised. In 2019, Xos constructed two armored cash-hauling Medium Duty trucks for Loomis, likewise for primary use in California.

In addition to the standard, 200-mile Medium Duty, Xos has also discussed plans for a model with a 50-mile range, which would start at \$68,000. This choice of ranges enables fleet owners to customize the Medium Duty to suit their routes and other operating requirements.





ACQUISITION

MSRP	\$ --
Availability	2013-present
U.S. Sales Units	950+

RANGE

EV Range	121-238 mi
MPGe	18.8-25.1

PERFORMANCE

Gradeability	29.5-33%
Top Speed	65 mph
Drag Coefficient	--

BATTERY

Volts	-- V
Watt-hours	220-440 kWh
Cooling	--

DRIVETRAIN

HP/Lb-ft	338-550/--
Drive Type	--
Axles	--

CHARGING

Power Rating	73-330 kW
Charge Time L2	-- hrs
Charge Time DC	2.8-3.4 hrs
Connector	J1772-CCS/J3105

CAPACITY

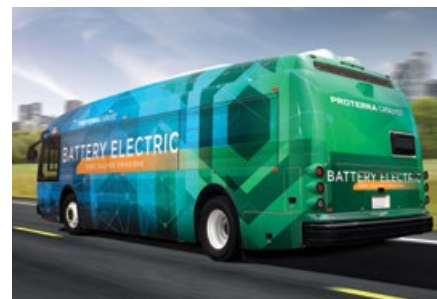
Passengers	29
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DIMENSIONS

Curb Weight	26,358-29,658 lbs
GVWR	42,000 lbs
Wheelbase	243 in
Length	443 in
Width	102 in
Height	128 in

2013-2020 PROTERRA ZX5 - 35ft

Recently rebranded from the Proterra Catalyst, the Proterra ZX5 is a highly customizable electric bus intended for flexible routes. Its 238-mile top range is enough to ease range anxiety. Series and drivetrain options provide the 35-foot model with an energy density of 220 kWh to 440 kWh and the 40-foot model with between 220 kWh and 660 kWh. Because of this flexibility, Proterra's team executes in-depth route analyses to offer fleet operators the options best tailored to their operating requirements. Though the whole bus is only covered by Proterra's warranty for one year or 50,000 miles and the batteries are covered for 12 years with unlimited miles, Proterra estimates that the ZX5 has a lifespan of 18 years. The body, composed of carbon-fiber-reinforced composite materials, experiences significantly less deterioration over a 12-year period than a steel-body bus. Tests that simulated 750,000 miles, the equivalent of 18 years in service, resulted in no damage to the body or systems, including the batteries. In addition to the 750,000-mile test, the ZX5's batteries have undergone rigorous safety testing, including operation at 80° C (176° F) and underside abuse that tests the batteries against the weight of the bus. Battery packs are placed between the axles, separated from the passenger compartment by a structural barrier for maximum passenger safety. Proterra estimates that by switching to a ZX5 from a diesel bus, operators can reduce emissions by 229,167 pounds of carbon dioxide per year and can save up to \$400,000 in operational costs over the life of the bus.





ACQUISITION

MSRP	\$ --
Availability	--
U.S. Sales Units	--

RANGE

EV Range	80-150 mi
MPGe	--

PERFORMANCE

Gradeability	--
Top Speed	58 or 64
Drag Coefficient	--

BATTERY

Volts	-- V
Watt-hours	70-140 kWh
Cooling	--

DRIVETRAIN

HP/Lb-ft	308/--
Drive Type	--
Axles	--

CHARGING

Power Rating	13 kW, 50 kW
Charge Time L2	-- hrs
Charge Time DC	-- hrs
Connector	J1772, CHAdeMO

CAPACITY

Passengers	16-23
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DIMENSIONS

Curb Weight	8,000 lbs
GVWR	14,500 lbs
Wheelbase	158-176 in
Length	-- in
Width	-- in
Height	-- in

2020

PHOENIX MOTORCARS Zeus Shuttle

The Phoenix Zeus 400 Shuttle Bus harnesses the inherent benefits of its electric motor to provide passengers a smoother, quieter shuttle ride. With range options of 80, 115, and 150 miles, the Zeus 400 shuttle bus is ideal for rides to and from parking structures, hotels, and senior centers as well as routes on corporate and university campuses. Seating can be configured to suit these applications, with options including 16 ambulatory passenger seats and two wheelchair positions, 16 ambulatory passenger seats and a 72-inch luggage rack, or 23 forward-facing ambulatory passenger seats. The Zeus 400 Shuttle Bus is constructed from a Starcraft Allstar Body on the Ford E-450 Super Duty Chassis. With a curb weight of 8,000 pounds and a payload of up to 6,500 pounds, the shuttle has plenty of capacity for luggage and other cargo in addition to passengers. Though a top speed of 58 mph is standard, an optional upgrade to 64 mph allows the shuttle to operate near highway speeds. With 70-kWh, 105-kWh, and 140-kWh configurations, battery capacity options meet an array of operational requirements. The 13-kW level two onboard charging system employs a J1772 connector—best used overnight to ensure a full charge at the start of the workday—and a CHAdeMO system for DC fast charging, to maximize up time. The Zeus 400 Shuttle Bus is already in use by NASA, the United States Department of Defense, airport parking companies, and municipalities—a broad spectrum that speaks favorably of the shuttle bus's applicability.



EV Educational Resources

Supporting EV Adoption from
Awareness to Advocacy

Electric Car INSIDER

EV&EVSE Buyers Guides



Comprehensive, full page profiles of the best EVs and EV chargers.

Electric Car Guest Drive



Test drive the latest electric cars and learn from EV owners at a no-pressure social event.

Discount Pricing Guide



The app that can save you thousands of dollars on EV and EVSE purchases. Customizable for utilities and AQMDs.

Educational Pillars



Large scale interactive exhibits for indoor and outdoor events.

Mobile EVSE Classroom



ECI will deploy a mobile classroom – towed by a Cybertruck – throughout the US in 2021.

EV Navigator



Online, interactive app to guide prospective EV drivers on the path to ownership and advocacy.

ECI creates electric vehicle educational resources for utilities, AQMDs, automakers and EVSE manufacturers, integrators and installers.