

LION8

**BUILD SHEET DEVELOPED
FOR VIRGINIA SHERIFF'S
ASSOCIATION**

PRESENTED BY:
The Lion Electric Co. USA Inc.
VendorLink ID: 65774



 **LION ELECTRIC**

LION8 AUTOMATED SIDE LOADER (ASL REFUSE BODY)

LION8

Refuse ASL



Technical Specifications

WEIGHT & DIMENSIONS

Cabin Length	79 in
Cabin Height	115 in
Wheelbase	220 or 244 in
Gross Vehicle Weight Rating (GVWR)	Up to 60,000 lb

ELECTRIC POWERTRAIN

Top Speed	61 mph
Maximum Power	350 kW • 470 HP
Maximum Torque	3,400 NM • 2,500 ft-lb
Range	Up to 170 miles
Battery Capacity	Up to 336 kWh
ePTO	Available
Motor & Inverter	SUMO HD 800 VDC - 9 phases Dana/TM4
Transmission	Direct Drive • No Transmission
Level III - Charging time	Minimum 2 hours

CHASSIS

Front Axle	Up to 20,000 lb
Rear Axle	Up to 40,000 lb
Tag Axle	Available 13,000 lb
Suspension	Air / Spring / Rubber Hendrickson
Braking	Air Disc Brakes • Bendix



Multiple range offerings available

All-electric
Refuse Truck

 **LION ELECTRIC**

**LION8 AUTOMATED SIDE LOADER (ASL REFUSE BODY)
BUILD SHEET - ZERO-EMISSION REFUSE TRUCK**

Item # 1205

Make: Lion Electric

Model: Lion8 (Cab & Chassis Only). Model# Lion8 (Cab & Chassis Only)

LION8 ASL REFUSE TRUCK BASE PRICE	\$361,900
THE MANDATORY 6% DISCOUNT AND THE 0.072 ADMIN FEE IS INCLUDED IN THE BASE PRICE ABOVE.	

FOR ADDITIONAL BATTERY RANGE OPTIONS, THE REFUSE BODY OPTION THAT WILL PROVIDE THE TURNKEY SOLUTION YOU ARE LOOKING FOR, AS WELL AS ADDITIONAL OPTIONS THAT WILL MODIFY THE TOTAL PRICE, PLEASE REFER TO THE LION ELECTRIC CO. OPTIONS PDF SUBMITTED WITH THIS BID – DISCOUNT ONLY APPLY TO BASE PRICE

THE BELOW DETAILS THE BUILD SHEET WITH THE INCLUDED IN THE BASE PRICE OPTIONS

Federal Motor Carrier Safety Approved	
TRUCK INFORMATION	
MODEL YEAR	2021
CONFIGURATION	8x4
MOTOR	
CONFIGURATION	SINGLE SPEED ELECTRIC
TYPE	DANA TM4 SUMO HD 800 VDC DIRECT DRIVE
COOLING	
FAN HUB	ELECTRIC FANS
RADIATOR COOLANT	CUMMINS ENGINEERING STANDARD CES 14603
ELECTRICAL	
DC CHARGER	STANDARD
ON/OFF DISCONNECT SWITCH	YES
BATTERY DISCONNECT	AT 12 VDC

12 V BATTERIES	2 X 430 CCA
12 V LIGHTING SYSTEM WITH CIRCUIT PROTECTION	YES
BATTERY BOX LOCATION	UNDER LADDER FRAME
POLYETHYLENE BATTERY BOX, TRAY AND WHEELHOUSES	YES
2 DUAL PURPOSE BATTERIES (24V)	YES
MULTIPLEX ELECTRICAL SYSTEM WITH CENTRALIZED POWER DISTRIBUTION	YES
HIGH VOLTAGE BATTERIES TYPE	LITHIUM-ION (NMC)
CIRCUITS NUMBERED & COLOR CODED	YES
ELECTRIC OUTLET	1x 12VDC PORT
	1x USB PORT
TOTAL BATTERY CAPACITY (KWH)	252
HIGH VOLTAGE BATTERIES	LITHIUM-ION (NMC)
KEY SWITCH START AND SHUTDOWN	STANDARD
REGEN BRAKING SYSTEM	STANDARD
SOUND GENERATOR	STANDARD
DC LEVEL 3 CHARGER	STANDARD
PROPELLER SHAFT	
TRANSMISSION	DIRECT DRIVE // NO TRANSMISSION
DRIVELINE	DANA DRIVELINE
FRONT AXLE	
TYPE	HENDRICKSON

CAPACITY	20,000 LBS
REAR AXLE	
TYPE	DANA SPICER
CAPACITY	40,000 LBS (TANDEM)
STEERING	
STEERING COLUMN	TILT/TELESCOPIC ADJUSTABLE WITH LOCK
STEERING WHEEL DIAMETER	18 IN.
POWER STEERING	YES
BRAKES	
TYPE	BENDIX
ABS	YES
AIR COMPRESSOR	GARDNER DENVER HYDROVANE 15.8 CFM
AIR CLEANER	YES
AIR DRYER	AD-HF EP
AIR TANK	PAINTED STEEL
AIR TANK DRAIN	AUTOMATIC
PARKING BRAKE OFF WARNING	STANDARD
PARKING BRAKE	AIR VALVE - MANUAL KNOB OPERATED
FRONT SUSPENSION	
TYPE	HENDRICKSON - SPRING
SIZE	20,000 TAPERLEAF

SHOCK ABSORBERS	YES
REAR SUSPENSION	
TYPE	HENDRICKSON - AIR
SIZE	40,000 LBS AIR SUSPENSION
SHOCK ABSORBERS	YES
CHASSIS	
FRAME RAILS	120 KSI STEEL 0.354" x 11.81" x 3.73"
CROSSMEMBER	100 KSI STEEL RAILS
FRONT TOW HOOKS	OPTIONAL
WHEELS & TIRES	
FRONT TIRES	425/65R22.5
REAR TIRES	11R22.5
FRONT WHEEL	22.5x12
REAR WHEEL	22.5x8.25
TIRES	Michelin
INSTRUMENTS	
MAIN CLUSTER	DASHBOARD
	PREHEAT SETTING
	MAINTENANCE FEATURE
GAUGE	AIR PRESSURE
	ELECTRIC HEATER

COLOUR INFORMATION DISPLAY	BATTERY LEVEL
	RANGE
	CONSUMPTION/REGEN
	SPEEDOMETER WITH ODOMETER
	HEATER TEMPERATURE
WARNING LAMP	ABS
	TURN SIGNAL
	HIGH BEAM
	LOW BEAM
	DOOR OPENING
	CAB TILT LOCK
WARNING LAMP/BUZZER	AIR PRESSURE (OPTION)
	CHECK ENGINE
	STOP ENGINE
	PARKING BRAKE OFF WARNING SIGNAL
CAB FEATURES	
AERODYNAMIC KIT	OPTIONAL
SEATING CAPACITY	2
STRUCTURE	ALUMINIUM
WINDSHIELD	STANDARD
EXTERIOR MATERIAL	COMPOSITE & COLORED GEL COAT

CAB SUSPENSION	AIR SUSPENSION
COMPOSITE ABS EXTERIOR BOW CAP	STANDARD
INTERIOR TRIM	BASE LEVEL
INTERIOR COLOR	LIGHT GREY
LENGTH	LENGHT 79 IN
WIDTH	WIDTH 102 N
HEIGHT	HEIGHT 114.9 IN
TILT	MANUAL TILT
DOOR	COMPOSITE & STEEL
INTERIOR GRAB HANDLE	YES
FRONT BUMBER	ONE-PIECE COMPOSITE
MUDFLAPS	YES
FLOOR TYPE	FLAT (NO DOGHOUSE)
FLOOR STRUCTURE MATERIAL	STEEL
FLOORMAT	RUBBER
STORAGE	GLOVEBOX
CENTER CONSOLE	YES
SUNVISOR	PASSENGER SIDE
EXTERIOR SUNVISOR	NO - AVAILABLE AS OPTION
INTERIOR LIGHTNING	DOMELIGHT, FOOTWELL LIGHT
DRIVER SEAT	AIR SUSPENSION

	CLOTH
	DARK GREY COLOR
	YES
PASSENGER SEAT	ONE-PERSON SEAT
SEATBELT	ORANGE COLOR
STANDARD FEATURES	
AIR CONDITIONING	80 000 BTU
HEATING	ELECTRIC OR AUX FUEL HEATER
AUDIO	AM/FM/WB/BLUETOOTH/USB AUDIO SYSTEM
BACKUP ALARM	YES
ELECTRIC HORN	DUAL ELECTRIC
MIRRORS	HEATED
	MOTORIZED
WINDOWS	TINTED
	ELECTRIC POWERED
DOOR LOCKS	ELECTRIC POWERED
EXTERIOR LED HEADLIGHTS	YES
EXTERIOR LED MARKER LIGHTS	5
INTERIOR LED LIGHTS	YES
KEY SWITCH START AND SHUTDOWN	INDIVIDUAL KEYS
REGENERATIVE BRAKING SYSTEM	YES

HILL START ASSIST	3-SECOND HOLD
SOUND GENERATOR	SPEED RANGE ADJUSTABLE
REMOTE DIAGNOSTICS	AVAILABLE, REFER TO TELEMATICS OFFERING
TRI KIT	YES
FIRST AID KIT	YES
FIRE EXTINGUISHER	2.5 LBS
CUP HOLDER	DUAL
FRONT TOW HOOKS	STANDARD
ON/OFF DISCONNECT SWITCH	STANDARD
PASSENGER SEAT	SAME AS DRIVER WITH 3-POINT SEAT BELT
POLYETHYLENE BATTERY BOX, TRAY AND WHEELHOUSES	STANDARD
PREDICTIVE CRUISE CONTROL	OPTIONAL
PREHEAT SETTING	STANDARD
PREMIUM CLUSTER & DASHBOARD	STANDARD
SIDE OBJECT DETECTION	OPTIONAL
SMART CHARGE	STANDARD
STABILITY CONTROL	STANDARD
DIMENSIONS	
CAB WIDTH	102 IN.
REAR FRAME OVERHANG	110 IN
FR AXLE TO BOC	79 IN

CAB TO AXLE	10.6 IN.
CAB TO EOF	319.4 IN
OVERALL COMB. LENGTH	398.3 IN
PERFORMANCE	
MAX PEDAL SPEED	61 MPH
OPERATING SPEED	61 MPH
MAXIMUM POWER	470 HP
MAXIMUM TORQUE	2,507 FT LBS
ADDITIONAL ITEMS	
CHARGE READY PILOT LIGHT	STANDARD
BUMPERS - BLUE	STANDARD
BUMPERS - BLACK	STANDARD
ONBOARD TOUCHSCREEN	STANDARD

EXECUTIVE SUMMARY

The Lion Electric Co. USA (Lion) appreciates the opportunity to present its product. We are excited at the prospect of working with the Virginia Sheriff's Association and your respected clients.

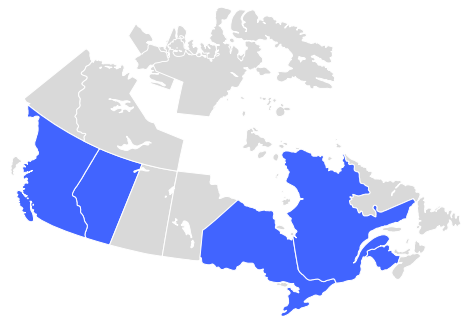
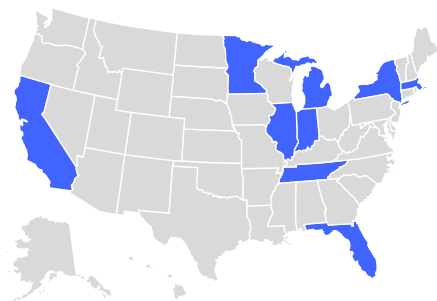
Lion is the leading purpose-built, zero-emission vehicle manufacturer. Our technology is proven, with over 390 electric vehicles on the road throughout North America. Our trucks can travel up to 260 miles as an option with additional battery packs on a single charge, thus satisfying most truck route ranges.

Lion's experience and trailblazing spirit brings a level of sophistication and planning that no other OEM can offer Virginia Sheriff's Association. Lion owns its own technology, and we build our vehicles to be all-electric from the ground up—we do not retrofit.

We have understood early on that customers need more than just a quality electric truck to succeed, but a full-service partner that will ensure the success of your new vehicles as you transition to the new way of doing business.

- Charging Infrastructure – Lion Energy – additional cost is detailed in the Options document.
- Training – The Lion Academy – Information on the Lion Academy is detailed below.
- Telematics – The Lion Beat – additional cost is detailed in the Options document.

LION DEPLOYMENTS



THE LEADER IN THE BATTERY ELECTRIC ARENA WITH THE MOST EXPERIENCE IN THE MARKET

Because our vehicles are deployed all throughout the continent, we are the only experienced electric vehicles manufacturers that can confidently say that we haven't experienced battery failure in any extreme climate conditions. From the very cold, (EG. Quebec, Minnesota or Massachusetts) or very warm, (EG. California), Lion has only experienced 0.5 battery degradation yearly).

Our team specializes in zero-emission vehicles applications and is one of the few manufacturers in North America to dedicate its production to zero emission, fully integrated vehicles only. Our electric vehicles are celebrated, and Lion's accomplishments are quantifiable as one of the few OEMs with electric vehicles on the road today.

Lion developed its all-electric vehicles based on direct end-user feedback, including optimization of visibility

and unparalleled tight turning radius, thus ensuring rapid adoption from drivers. Our technology has been tested and proven in real-life settings; we have gathered battery data from all our deployed vehicles and developed an expertise with battery electric vehicles that cannot be equaled.

Lion truck components require very little maintenance, thus reducing costs, as there are no fluids and fewer moving parts on our vehicles than on internal combustion vehicles. Our vehicles also feature regenerative braking that reduces the number of times the brakes need to be replaced, which further reduces the total cost of ownership. We represent the best return on investment for the clients of the North Carolina Sheriff's Association.

In addition to operational and economic benefits, our zero-emission trucks eliminate criteria pollutant and greenhouse gas emissions in North American communities, and create a safer, cleaner, and healthier environment for the drivers who operate the trucks, and they communities they serve every day. Further, Lion continues to influence policies on electrification and fight against transportation technologies that cause criteria pollutant and greenhouse gas emissions.

Benefits for the end users have always been at the forefront of our manufacturing policy, but when it comes to ensuring children's health, Lion has decided to take the lead regarding educating legislators, associations, and operators along with the public at large.

- Lion joined discussions with Sierra Club (a national and grassroots non-profit organization committed to protecting the environment) to find ways to best leverage electric vehicles; throughout legislators' proposed decrees and agendas, their plans for the reduction of criteria pollutant and greenhouse gas emissions in their communities and the available funding opportunities.
- To raise awareness about the quality of electric vehicles, Lion's fully electric bus is the first of its kind to compete in "rodeos".
- Due to Lion's constant leadership on issues involving greenhouse gas emission reduction and electrification of children's transportation, the Center for Transportation and the Environment has even featured key members of the Lion team in an article regarding women in the electrification space.

5 steps to electrify your fleet.



Lion is extremely well-positioned today to significantly grow its market share in the great state of California in the short- and long-term.

Lion also has the fastest delivery timeline in this industry. Over the past decade, we have built a team that specializes in zero-emission deployments and has unparalleled skills and knowledge in the all-electric vehicle industry. This team is poised to work with the Virginia Sheriff's Association clients to deploy zero-emission trucks. Each team member has relevant experience in the fleet electrification industry and brings extensive knowledge in their respective field of expertise.

Electrifying fleets is a critical part of reducing our carbon footprint. By purchasing Lion trucks, you will accelerate the development of this technology, successfully contribute to safeguarding the environment for future generations, and improve air quality for the communities by integrating Lion's all-electric truck into their everyday routes.

In summary:

North American Leader in Deploying Electric Vehicles // Lion has already deployed electric vehicles with more than [7 million miles of service](#) and recorded data. We are in a unique position to have operating data and a history of advancing our technology towards a zero-emission future. Lion is the most experienced in this field, from infrastructure support, to service, to on-time delivery.

Lion is a Vehicle-to-Grid (V2G) Solution Provider, Today // Lion is the only manufacturer to offer a V2G solution that has been put forward and tested for continuous improvement.

Born to be Electric // Our vehicles are not retrofitted diesel vehicles. They are born to be electric.

2,500 Vehicle-Per-Year Manufacturing Capacity and Growing// As interest and demand has increased for our vehicles, we have scaled our manufacturing capacity over the last three years to respond to this demand in a timely manner. Our facilities do not need to be re-tooled or re-configured to accommodate the production of our electric trucks.

Committed 2021-2022 Deliveries // Lion has the fastest delivery timeline of zero-emission vehicles in the industry.

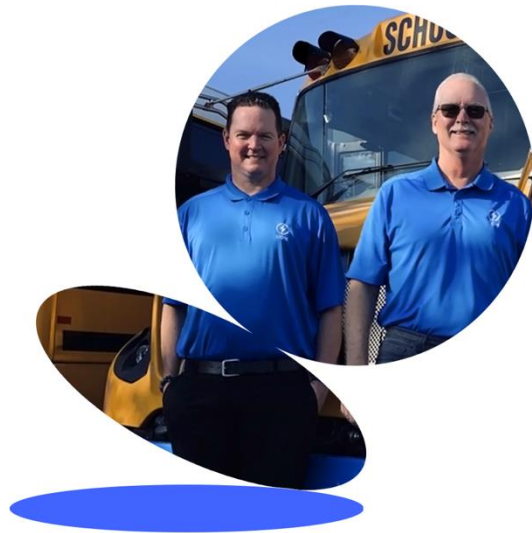
Lion would like to thank you for the opportunity to submit our proposal. We look forward to working closely with Virginia Sheriff's Association to deliver on-time, quality, zero-emission trucks, while providing robust service and training. We believe Lion's core values are going to provide end-users with the market's most innovative and complete turnkey solutions, poised to provide answers to all their requirements while offering them a sustainable option for their fleets.

PRESENTING: THE LION ACADEMY

Based on its experience delivering and servicing electric vehicles, Lion has developed a training program, the Lion Academy, that provides a full schedule of free classes to customers.

We offer an in-person training along with video trainings to as many groups and users as necessary:

Lion Academy



- Mobile Service / Tech / Maintenance teams.
- Remote maintenance through telematics.
- 24H parts centers and availabilities across North America.
- Dedicated service teams, including trainers and technicians.
- Leverage National and Regional Service Networks.

The trainings are offered to a wide range of industry stakeholders such as drivers, mechanics, technicians, business officials, and transportation professionals within one month of the in-service date of the trucks. Lion's customized trainings are built to share different levels of electric vehicle knowledge based on different criteria while also providing comprehensive service and repair manuals to internal mechanics. Therefore, Lion will provide Virginia Sheriff's Association clients 1 technical session (the number of hours will vary based on each customer, so Lion will adapt accordingly). Lion will also provide drivers with training sessions, all free of charge, and part of our initial package. The Lion Academy's main goal is to provide an overview of how EVs work at different levels based on the person or group's knowledge. In most cases, electric vehicles are new for customers and training is necessary to help bridge the knowledge gap from diesel to electric. We have found that when a wide range of people attend EV trainings, they are typically more receptive to the new technology and eager to learn more about the possibility to operate, drive, and maintain these zero-emissions all-electric trucks.

The Lion Academy is not limited to our Experience Centers. We also provide training at customer sites all across North America to ensure that our knowledge and expertise is transferred to all interested stakeholders rapidly and efficiently.

Our training curriculum is extremely detailed. An in-depth training can last up to 6 hours to ensure that all parties are comfortable working on the electric truck once it is delivered. The training sessions can also be customizable based on the clients' needs. Lion provides easy access to electric components, charging station plug-ins, and specific EV tools to facilitate the transition to electric trucks and the comprehension of how the electric components work. Our interactive classes cover various topics, such as safety, troubleshooting, electric chargers, EV components, maintenance, repairs, warranty work, driver tips, accessories, etc.

CONCLUSION

As the leader in zero-emission vehicles with more than 390 electric heavy-duty vehicles on the road and a manufacturing capacity to build 2,500 trucks annually today, and a future capacity of 20,000 vehicles at our Joliet, IL manufacturing facility, Lion is poised to immediately support the transition to zero-emission medium and heavy-duty vehicles for National Grid. Over the past decade, we have built a team that specializes in all-electric heavy-duty vehicle deployments, with unparalleled experience.

Our company values safety, reliability, and the health of the communities we serve. We have invested early and deeply to develop a zero-emission technology that benefits the communities in which we serve and live.

The Lion Team remains available to answer any questions. We will distinguish ourselves through our transparency towards Virginia Sherrif's Association and their clients, by our willingness to innovate and tailor our turnkey solutions for their platform, as well as our ability to comply to all parts of the contract.

We thank you for giving Lion the opportunity to present our Lion8 ASL truck. We look forward to working with Virginia Sherrif's Association to provide a healthy breathing environment to workers, citizens, and the communities you serve.

Warm Regards,

The Lion Team

