

## E. Advanced Clean Truck Market Segment Analysis

### 1. Battery Electric Vehicle Suitability Table

Table E-1 - Battery Electric Vehicle Suitability Table

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
1	3.75	<b>Beverage Tractor</b>	8	123	I	Start at max load, diminish throughout day (Value=1)	Fixed, 100 miles per day (Value=3)	Centralized, at night (Value=1)	Constrained (Value=10)
2	1.5	<b>School Bus - Class C (Longer Rural Routes)</b>	4-7	87	C or I	Light (Value=1)	125 miles per day (Value=3)	Centralized, at night and during the day (Value=1)	Open (Value=1)
3	1	<b>School Bus - Class C (Shorter Urban Routes)</b>	4-7	608	C or I	Light (Value=1)	<75 miles per day (Value=1)	Centralized, at night and during the day (Value=1)	Open (Value=1)
4	1	<b>School Bus - Class C (Special Needs - ADA)</b>	4-7	87	C or I	Light (Value=1)	50-150 miles per day (Value=1)	Centralized, at night and during the day (Value=1)	Open (Value=1)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
5	1.5	School Bus - Class C (Long distance - Field Trip, special Events - just a bus)	4-7	87	C or I	Light (Value=1)	125 miles per day Multiple uses, fixed and flexible routes (Value=3)	Centralized, at night and during the day (Value=1)	Open (Value=1)
6	1	School Bus - Class Rear Engine (Transit Style) All	4-7	226	C or I	Light to medium. Higher capacity. (Value=1)	Varied Occasional use on long routes (Value=1)	Centralized, at night and during the day (Value=1)	Open (Value=1)
7	2	Refuse, Automatic Side Loader (ASL), Residential Service	8	400	I	Start light, end day at max load (Value=3)	Fixed, 75 miles per day. Occasional long routes (Value=1)	Centralized, at night (Value=1)	Constrained (Value=3)
8	2	Refuse, Front Loader, Commercial or High Density Residential Service	8	65	I	Start light, end day at max load (Value=3)	Fixed, 100 miles per day. Occasional long routes (Value=1)	Centralized, at night (Value=1)	Constrained (Value=3)
9	2	Refuse, Rear Packer, Residential Service	8	133	I	Start light, end day at max load (Value=3)	Fixed, 75 miles per day. Occasional long routes (Value=1)	Centralized, at night (Value=1)	Constrained

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
10	2.5	Refuse Hauler (roll on/roll off)	8	65	I	50% laden, 50% unladen, highly variable from lightly loaded to grossed out. (Value=3)	Variable, up to 250 miles per day (Value=3)	Centralized, at night (Value=1)	Somewhat constrained (Value=3)
11	1	Step Van - Parcel Delivery	4-7	1985	I	Light (Value=1)	Fixed, 50 miles per day (Value=1)	Centralized, at night (Value=1)	Open (Value=1)
12	1	Step Van - Municipal Fleet	4-7	298	I	Can be heavy (like electrician or plumber) (Value=1)	Can be highly variable, local some days potentially to many sites around municipality in same day (Value=1)	Centralized, at night Can have a need for emergency service (e.g., storms) that force long drives and long hours away from charging (Value=1)	Open (Value=1)
13	1.5	H-D Van - Parcel Delivery Class 2B-3)	2B-3	951	I	Light (Value=1)	50-300 miles per day, Medium route variability (Value=1)	Centralized, at night (Value=1)	Constrained (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
14	1.5	H-D Van - Parcel Delivery (Class 4,5)	4-7	1985	I	Light (Value=1)	50-300 miles per day, Medium route variability (Value=1)	Centralized, at night (Value=1)	Constrained (Value=3)
15	2	H-D Van - Contractor	2B-3	11854	C	Heavy (Value=1)	50-150 miles per day, High route variability (Value=1)	Some central dispatch, many go with driver o/n (Value=3)	Constrained (Value=3)
16	1	H-D Van - Shuttle	2B-3	1116	I	Light (Value=1)	50-300 miles per day, Medium route variability (Value=1)	Centralized, but 24/7 operation (Value=1)	Open (Value=1)
17	2	H-D Van - Refrigerated	2B-3	70	I	Heavy (Value=1)	200-300 miles per day. Refrigeration reduces range, High route variability (Value=3)	Centralized, at night (Value=1)	Constrained (Value=3)
18	1	H-D Van - School Bus	2B-3	70	I	Light (Value=1)	65 miles per day, Low route variability (Value=1)	Centralized, at night (Value=1)	Open (Value=1)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
19	6	H-D Van - Motor Home	2B-3	29	I	Heavy (Value=1)	300-450 miles per day, High route variability (Value=10)	Dispersed, or infrastructure dependent (Value=10)	Constrained (Value=3)
20	1	Box Truck - Pickup & Delivery (Fixed Light <100 Miles per Day)	4-7	3075	I	Light (Value=1)	Variable <100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)
21	2	Box Truck - Pickup & Delivery (Medium to Heavy Load >100 Miles per Day)	4-7	1538	I	Medium to heavy (Value=3)	Variable >100 miles per day (Value=3)	Centralized (Value=1)	Open (Value=1)
22	6	Box Truck - Pickup & Delivery (Medium to Heavy Load >200 Miles per Day)	4-7	1538	I	Medium to heavy (Value=10)	Variable >200 miles per day (Value=10)	Centralized or remote (Value=3)	Open (Value=1)
23	1.5	Box Truck - Leasing (Daily Rental)	4-7	152	I	Light (Value=1)	Variable <100 miles per day (Value=1)	Centralized or remote (Value=3)	Open (Value=1)
24	1	Box Truck - Leasing (Fixed Customer and Application)	4-7	228	I	Light to medium (Value=1)	Variable <100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
25	1	Box Truck - Leasing (Fixed Customer and Application)	4-7	228	I	Medium to heavy (Value=1)	Variable <100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)
26	2	Box Truck - Leasing (Fixed Customer and Application)	4-7	76	I	Medium to heavy (Value=3)	Variable >100 miles per day (Value=3)	Centralized (Value=1)	Open (Value=1)
27	3.75	Box Truck - Leasing (Fixed Customer and Application)	4-7	76	I	Medium to heavy GVWR limited (Value=3)	Variable >200 miles per day (Value=10)	Centralized (Value=1)	Open (Value=1)
28	1	Straight Truck Pickup & Delivery (Heavy Load >100 Miles per Day)	8	1069	I	Heavy (Value=1)	Variable >100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)
29	1.5	Box Truck - Refrigerated	4-7	390	I	Medium to heavy load (Value=1)	Variable <100 miles per day (Value=1)	Centralized (Value=1)	Constrained if equipped with diesel TRU (Value=3)
30	1	Flatbed - Stake/Platform	4-7	370	I	Variable (Value=1)	Variable (Value=1)	Centralized (Value=1)	Open (Value=1)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
31	1.5	Regional Tractor - Short Haul	4-7	400	C	Variable, up to 80K GCW (Value=1)	Variable, <100 miles per day (Value=1)	Centralized, at night. Multiple shift operations impact charging times (Value=1)	Constrained - short wheelbase (Value=3)
32	1.5	Regional Tractor - Short Haul	8	400	C	Variable, up to 80K GCW (Value=1)	Variable, <100 miles per day (Value=1)	Centralized, at night. Multiple shift operations impact charging times (Value=1)	Constrained - short wheelbase (Value=3)
33	2	Regional Tractor - Medium Haul	4-7	200	C	Variable, up to 80K GCW (Value=1)	Variable, 100-300 miles per day (Value=3)	Centralized, at night. Multiple shift operations impact charging times (Value=1)	Constrained, short wheelbase (Value=3)
34	2	Regional Tractor - Medium Haul	8	400	C	Variable, up to 80K GCW (Value=1)	Variable, 100-300 miles per day (Value=3)	Centralized, at night. Multiple shift operations impact charging times (Value=1)	Constrained, short wheelbase (Value=3)
35	8.25	Regional Tractor - Long Haul	4-7	100	C	Variable (Value=3)	Variable, >200 miles per day (Value=10)	Future retail charging network? Multiple shift operations impact charging times (Value=10)	Constrained - short wheelbase, fairings (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/ Incomplete	Loading	Routes/Range	Infrastructure/ Charging	Battery Space Constrains
36	8.25	Regional Tractor - Long Haul	8	300	C	Heavy (Value=3)	Variable, 200-500+ miles per day (Value=10)	Future retail charging network? Multiple shift operations impact charging times (Value=10)	Constrained (Value=10)
37	2	Port Drayage	8	120	C	Heavy (Value=1)	Variable, 100-500 miles per day (Value=1)	Variable / Centralized, depending on owner. Multiple shift operations impact charging times (Value=3)	Constrained - short wheelbase (Value=3)
38	3	Pickup Truck - Agriculture	2B-3	500	C or I	Variable--dependent on type of agriculture. (Value=3)	Assume set routes, <100 miles per day, may have extended idling. Likely extended operation (Value=3)	Centralized (Value=3)	Constrained (Value=3)
39	5.5	Pickup Truck - Contractor	2B-3	5000	C or I	Moderate to heavy (Value=1)	Variable (Value=1)	Variable (Value=10)	Constrained (Value=10)



Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
40	6	Pickup Truck - Towing	2B-3	3000	C or I	Heavy (Value=1)	Variable-- expect several will have long distance (~500 mile) routes. Towing will significantly shorten available EV range. (Value=3)	Variable (Value=10)	Constrained (Value=10)
41	5.5	Pickup Truck - 4WD Off Road	2B-3	5000	C or I	Light to moderate (Value=1)	Variable-- expect some will have long distance routes. (Value=1)	Variable--off road usage will likely be away from EV grid. Off-highway usage and extended operation will make charging impossible for extended offroad operation. (Value=10)	Constrained (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
42	5.5	Pickup Truck - PTO Equipped	2B-3	1500	C or I	Moderate to heavy (Value=1)	Assume set routes, <100 miles per day, may have extended idling. (Value=1)	Variable (Value=10)	Constrained (Value=10)
43	7.75	Line Haul Tractor	4-7	500	C	Heavy (Value=10)	Variable; 500+ mile days (Value=10)	Variable (Value=10)	Open (Value=1)
44	7.75	Line Haul Tractor	8	3000	C	Heavy (Value=10)	Variable; 500+ mile days (Value=10)	Variable (Value=10)	Open (Value=1)
45	10	Logging	8	5	C	Heavy (Value=10)	Variable (Value=10)	Variable, Long off-road travel (Value=10)	Constrained, ground clearance (Value=10)
46	7.75	Concrete Mixer	8	70	I	Typically 50% empty, 5-% grossed out (Value=10)	Highly variable (Value=10)	Centralized, at night (Value=1)	Highly constrained due to body equipment and weight (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
47	10	Concrete Pumper	8	37	I	Due to weight of pumping equipment the vehicle is always heavily loaded (Value=10)	Highly variable (Value=10)	Vehicle may remain at construction site for multiple days (Value=10)	Highly constrained (Value=10)
48	4.25	Mining Hauler	8	15	I	Heavy (Value=10)	Fixed (Value=1)	Centralized; Long off-road travel (Value=3)	Constrained (Value=3)
49	4.75	Mining Service	8	15	C	Medium – fixed (Value=3)	Variable (Value=10)	Centralized; Long off-road travel (Value=3)	Constrained, due to body (Value=3)
50	7.75	Heavy Equipment Transport	8	110	C	Heavy (Value=10)	Variable (Value=10)	Variable (Value=10)	Open (Value=1)
51	1.5	Utility/Lube Service	4-7	76	I	Can be heavy (like electrician or plumber) (Value=1)	Can be highly variable, local some days potentially to many sites around municipality in same day (Value=1)	Centralized, at night Can have a need for emergency service (e.g., storms) (Value=3)	Open (Value=1)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
52	10	Oil Field Rig Mover	8	14	C	Extremely high (Value=10)	Highly variable (Value=10)	May be enroute/onsite multiple days (Value=10)	
53	10	Oil Field Well Servicing	8	110	I	Always loaded at or near GVWR (Value=10)	Highly variable (Value=10)	Mixed locations, could need to charge during peak times Many of these vehicles are for off-road use only. (Value=10)	Constrained (Value=10)
54	1.5	Tow/Wrecker	4-7	250	I	Variable (Value=1)	Variable, <100 miles per day (Value=1)	Centralized when not in use (Value=1)	Constrained. Need space for bed/hoist and hydraulic mechanisms between the frame rails where batteries would be installed (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
55	1.5	Farm Service - Truck	2B-3	119	I	Heavy (almost like a dump truck) May be restricted on weight due to heavy produce and need to operate in ag fields (Value=1)	Fixed, but can be long distance from farm to city (Value=1)	Centralized but in rural area at night (Value=3)	Open (Value=1)
56	6.5	Farm Service - Tractor	8	90	C	Heavy (almost like a dump truck) May be restricted on weight due to heavy produce and need to operate in ag fields (Value=10)	Fixed, but can be long distance from farm to city (Value=3)	Centralized but in rural area at night (Value=3)	Constrained (short wheelbase) (Value=10)
57	4.25	Tanker Truck - Liquids or Gases	8	44	I	Start at max load, may diminish throughout day (Value=3)	Fixed, but can be long distance from depot to destination (Value=3)	Centralized, at night (Value=1)	Constrained due to effort to maximize payload (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/ Incomplete	Loading	Routes/Range	Infrastructure/ Charging	Battery Space Constraints
58	8.25	Car Carrier - Class 8	8	123	I	High (Value=10)	Variable (Value=10)	Variable (Value=10)	Constrained (Value=3)
59	1.5	Car Carrier - Class 6/7 (Roll Back)	4-7	150	I	Variable (Value=1)	Variable, local (Value=1)	Centralized Variable origin and destination pairs (Value=1)	Constrained (Value=3)
60	3.75	Utility Service - Private (Class 8)	8	87	I				
61	3.75	Utility Service - Private (Class 6-7)	4-7	143	I	High (Value=1)	Variable (Value=1)	Variable + remote Extended operation off road (Value=10)	Constrained (Value=3)
62	3.75	Utility Service - Private Trouble Truck (Class 4-5)	4-7	277	I	Medium to heavy (Value=1)	Variable (Value=1)	Variable + remote Extended remote operation (Value=10)	Constrained (Value=3)
63	2	Utility Service - Public (Class 8)	8	87	I				
64	2	Utility Service - Public (Class 6-7)	4-7	143	I	High (Value=1)	Variable (Value=1)	Variable Extended operation off road (Value=3)	Constrained (Value=3)
65	2	Utility Service - Public (Class 4-5)	4-7	277	I	Medium to heavy (Value=1)	Variable (Value=1)	Variable Extended remote operation (Value=3)	Constrained (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
66	6	Recreational Vehicle	4-7	2500	I	Variable (Value=3)	Expected long distance routes (Value=10)	Non-centralized (Value=10)	Open (Value=1)
67	1	Airport Service	2B-3	1167	I	Light (Value=1)	Set routes, <100 miles per day (Value=1)	Centralized, Close proximity to charging infrastructure (Value=1)	Open (Value=1)
68	5.5	Rail Service	2B-3	100	I	Light (Value=1)	Expected long distance routes (Value=10)	Centralized (Value=1)	Constrained. Need physical space to mount rail wheels, lift mechanism, and upfitter body. (Value=10)
69	1	Shuttle Bus	4-7	331	I	Variable, light (Value=1)	Fixed <100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
70	1.5	Armored Car	4-7	100	I	Variable (depends on drop-off or pick-up work) (Value=1)	Variable, <100 miles per day (Value=1)	Centralized, at night (Value=1)	Constrained. Armor plating and security defenses would take up underbody battery storage opportunities (Value=3)
71	3.25	Mobile Laboratory	4-7	81	I	Variable (depends on use requirements) (Value=1)	Variable, <100 miles per day (Value=1)	No central charging available when in use Occasional use on long routes and dependent on deployment needs (Value=10)	Open (Value=1)
72	8.25	Digger Derrick	4-7	52	I	High (Value=10)	Variable (Value=10)	Extended operation off road (Value=10)	Constrained (Value=3)
73	6	Construction Dump	8	342	I	50% laden (typically to GVWR), 50% unladen (Value=10)	Highly variable, but typically 150-250 miles per day (Value=10)	Centralized, at night (Value=1)	Somewhat constrained (Value=3)



Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
74	1.5	<b>Municipal Dump</b>	4-7	44	I	50% laden, 50% unladen, mixed light to heavy (Value=1)	Variable, 50 miles per day (Value=1)	Centralized, at night (Value=1)	Somewhat constrained (Value=3)
75	1.5	<b>Yard Tractor - Purpose Built (Warehouse/Rail)</b>	8	84	C or I	Heavy (65K - 85K lbs). Light-duty cycle. Load on/load off (Value=1)	<100 miles per day, <1 route (Predictable), 8-10 hours per day Accessory loads: high heating and cooling requirements, hydraulics to raise and lower 5th wheel	Centralized, at night and during the day (Value=1)	Constrained, for shorter wheelbase (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
76	2	<b>Yard Tractor - Purpose Built (Port)</b>	8	21	C or I	Heavy (120K 0 140K lbs.). Load on/Load off (Value=1)	<200 miles per day, 1-2 mile routes (predictable), >10 hours per day Accessory loads: high heating and cooling requirements, hydraulics to raise and lower 5th wheel (Value=1)	Opportunity charging but port dependent. May need to remove from fleet for charging. Constrained for port applications due to hours of operation (Value=3)	Constrained for shorter wheelbase. (Value=3)
77	3.75	<b>Mobile Command Center</b>	4-7	27	I	Moderate heavy fixed load (Value=1)	Mostly short, unpredictable (mission dependent) (Value=1)	Generally centralized, may need to be charged while on mission; there may not be enough time for recharge between missions (Value=10)	Somewhat constrained (Value=3)
78	5.5	<b>H-D Van - Emergency</b>	2B-3	223	I	Heavy (Value=1)	50-150 miles per day, High route variability (Value=1)	Dispersed, or infrastructure dependent (Value=10)	Constrained (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
79	5.5	Ambulance	4-7	128	I	Light (Value=1)	Mostly short, unpredictable (mission dependent) (Value=1)	Centralized, opportunity charging when possible; need to be fully charged and ready with no notice (e.g., conventional vehicles have quick disconnect air hoses to keep air brake tanks full, and similar would be required for electrical); there may not be enough time for recharge between missions	Constrained (due to equipment installation) (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
80	8.25	<b>Fire Truck</b>	8	159	I	Start at high/max load, may diminish slightly throughout day (Value=3)	Mostly short, unpredictable (mission dependent). May be fueled by wet hose when operating continuously at a fire site. (Value=10)	Centralized, opportunity charging when possible; need to be fully charged and ready with no notice (e.g., conventional vehicles have quick disconnect air hoses to keep air brake tanks full, and similar would be required for electrical); there may not be enough time for recharge between missions (Value=10)	Constrained (due to equipment installation) (Value=10)
81	6	<b>Snow Plow</b>	8	92	I	Start at max load, diminish throughout day (Value=1)	varied, unpredictable (weather dependent) (Value=3)	Centralized, opportunity charging when possible; there may not be enough time for recharge between missions	Constrained (due to equipment installation) (Value=10)
82	1.5	<b>Crane</b>	4-7	100	I	Light (Value=1)	Average <70 miles per day (Value=1)	Centralized (Value=1)	Limited (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
83	1.5	Dump	4-7	200	I	Variable (depends on use requirements) (Value=1)	Average <70 miles per day (Value=1)	Centralized (Value=1)	Limited (Value=3)
84	1.5	Refuse/Recycling	4-7	200	I	Start light, end day at max load (Value=1)	Average <70 miles per day (Value=1)	Centralized (Value=1)	Limited (Value=3)
85	1.5	Shredder	4-7	100	I	Start light, end day at max load (Value=1)	Average <70 miles per day (Value=1)	Centralized (Value=1)	Limited (Value=3)
86	3.75	Pickup Truck - Personal Use	2B-3	38000	C	Moderate Limited cargo carrying capacity to offset battery pack weights. Most people upgrade to the class 2b-3 pickup over a class 2a pickup for either load carrying or towing needs. (Value=1)	Variable; Towing will significantly shorten available EV range. (Value=3)	Centralized charging at residence/business (Value=1)	Constrained (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/ Incomplete	Loading	Routes/Range	Infrastructure/ Charging	Battery Space Constraints
87	1.5	H-D Van - Passenger	2B-3	6198	C	Light (Value=1)	Variable (Value=1)	Centralized charging at residence/business (Value=1)	Constrained (Value=3)

Table E-2 - California Sales per Battery Electric Vehicle Suitability Score

<b>Class</b>	<b>Score 1</b>	<b>1 &lt; Score ≤ 2</b>	<b>3 &lt; Score ≤ 4</b>	<b>4 &lt; Score ≤ 5</b>	<b>5 &lt; Score ≤ 10</b>	<b>All</b>
<b>2B-3</b>	2,353	19,192	38,000	0	14,852	74,897
<b>4-7</b>	7,436	6,555	604	0	4,818	19,413
<b>8</b>	1,069	1,710	210	74	4,452	7,580
<b>Total</b>	10,858	27,457	38,814	74	24,122	101,890

## 2. Fuel Cell Electric Vehicle Suitability Table

Table E-3 - Fuel Cell Electric Vehicle Suitability Table

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Fueling Infrastructure	Vehicle Space Constraints
1	3.25	Beverage Tractor	8	123	I	Start at max load, diminish throughout day (Value=1)	Fixed, 100 miles per day (Value=1)	Centralized, at night (Value=1)	Constrained (Value=10)
2	1	School Bus - Class C (Longer Rural Routes)	4-7	87	C or I	Light (Value=1)	125 miles per day (Value=1)	Centralized, at night and during the day (Value=1)	Open (Value=1)
3	1	School Bus - Class C (Shorter Urban Routes)	4-7	608	C or I	Light (Value=1)	<75 miles per day (Value=1)	Centralized, at night and during the day (Value=1)	Open (Value=1)
4	1	School Bus - Class C (Special Needs - ADA)	4-7	87	C or I	Light (Value=1)	50-150 miles per day (Value=1)	Centralized, at night and during the day (Value=1)	Open (Value=1)
5	1	School Bus - Class C (Long distance - Field Trip, special Events - just a bus)	4-7	87	C or I	Light (Value=1)	125 miles per day Multiple uses, fixed and flexible routes (Value=1)	Centralized, at night and during the day (Value=1)	Open (Value=1)



Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
6	1	School Bus - Class Rear Engine (Transit Style) All	4-7	226	C or I	Light to medium. Higher capacity. (Value=1)	Varied Occasional use on long routes (Value=1)	Centralized, at night and during the day (Value=1)	Open (Value=1)
7	3.75	Refuse, Automatic Side Loader (ASL), Residential Service	8	400	I	Start light, end day at max load (Value=3)	Fixed, 75 miles per day (Value=1)	Centralized, at night (Value=1)	Constrained (Value=10)
8	3.75	Refuse, Front Loader, Commercial or High Density Residential Service	8	65	I	Start light, end day at max load (Value=3)	Fixed, 100 miles per day. Occasional long routes (Value=1)	Centralized, at night (Value=1)	Constrained (Value=10)
9	3.75	Refuse, Rear Packer, Residential Service	8	133	I	Start light, end day at max load (Value=3)	Fixed, 75 miles per day. Occasional long routes (Value=1)	Centralized, at night (Value=1)	Constrained (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
10	2	Refuse Hauler (roll on/roll off)	8	65	I	50% laden, 50% unladen, highly variable from lightly loaded to grossed out. (Value=3)	Variable, up to 250 miles per day (Value=1)	Centralized, at night (Value=1)	Somewhat constrained (Value=3)
11	1	Step Van - Parcel Delivery	4-7	1985	I	Light (Value=1)	Fixed, 50 miles per day (Value=1)	Centralized, at night (Value=1)	Open (Value=1)
12	1	Step Van - Municipal Fleet	4-7	298	I	Can be heavy (like electrician or plumber) (Value=1)	Can be highly variable, local some days potentially to many sites around municipality in same day (Value=1)	Centralized, at night Can have a need for emergency service (e.g., storms) that force long drives and long hours away from charging (Value=1)	Open (Value=1)
13	1.5	H-D Van - Parcel Delivery Class 2B-3)	2B-3	951	I	Light (Value=1)	50-300 miles per day (Value=1)	Centralized, at night (Value=1)	Constrained (Value=3)
14	1.5	H-D Van - Parcel Delivery (Class 4,5)	4-7	1985	I	Light (Value=1)	50-300 miles per day (Value=1)	Centralized, at night (Value=1)	Constrained (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
15	2	H-D Van - Contractor	2B-3	11854	C	Heavy (Value=1)	50-150 miles per day (Value=1)	Some central dispatch, many go with driver o/n (Value=3)	Constrained (Value=3)
16	1	H-D Van - Shuttle	2B-3	1116	I	Light (Value=1)	50-300 miles per day (Value=1)	Centralized, but 24/7 operation (Value=1)	Open (Value=1)
17	1.5	H-D Van - Refrigerated	2B-3	70	I	Heavy (Value=1)	200-300 miles per day. Refrigeration reduces range (Value=1)	Centralized, at night (Value=1)	Constrained (Value=3)
18	1	H-D Van - School Bus	2B-3	70	I	Light (Value=1)	65 miles per day (Value=1)	Centralized, at night (Value=1)	Open (Value=1)
19	3.75	H-D Van - Motor Home	2B-3	29	I	Heavy (Value=1)	300-450 miles per day (Value=1)	Dispersed, or infrastructure dependent (Value=10)	Constrained (Value=3)
20	1	Box Truck - Pickup & Delivery (Fixed Light <100 Miles per Day)	4-7	3075	I	Light (Value=1)	Variable <100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
21	1.5	Box Truck - Pickup & Delivery (Medium to Heavy Load >100 Miles per Day)	4-7	1538	I	Medium to heavy (Value=3)	Variable >100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)
22	3.75	Box Truck - Pickup & Delivery (Medium to Heavy Load >200 Miles per Day)	4-7	1538	I	Medium to heavy (Value=10)	Variable >200 miles per day (Value=1)	Centralized or remote (Value=3)	Open (Value=1)
23	1.5	Box Truck - Leasing (Daily Rental)	4-7	152	I	Light (Value=1)	Variable <100 miles per day (Value=1)	Centralized or remote (Value=3)	Open (Value=1)
24	1	Box Truck - Leasing (Fixed Customer and Application)	4-7	228	I	Light to medium (Value=1)	Variable <100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)
25	1	Box Truck - Leasing (Fixed Customer and Application)	4-7	228	I	Medium to heavy (Value=1)	Variable <100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)
26	1.5	Box Truck - Leasing (Fixed Customer and Application)	4-7	76	I	Medium to heavy (Value=3)	Variable >100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
27	1.5	Box Truck - Leasing (Fixed Customer and Application)	4-7	76	I	Medium to heavy GVWR limited (Value=3)	Variable >200 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)
28	1	Straight Truck Pickup & Delivery (Heavy Load >100 Miles per Day)	8	1069	I	Heavy (Value=1)	Variable >100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)
29	1.5	Box Truck - Refrigerated	4-7	390	I	Medium to heavy load (Value=1)	Variable <100 miles per day (Value=1)	Centralized (Value=1)	Constrained if equipped with diesel TRU (Value=3)
30	1	Flatbed - Stake/Platform	4-7	370	I	Variable (Value=1)	Variable (Value=1)	Centralized (Value=1)	Open (Value=1)
31	1.5	Regional Tractor - Short Haul	4-7	400	C	Variable, up to 80K GCW (Value=1)	Variable, <100 miles per day (Value=1)	Centralized, at night. Multiple shift operations impact charging times (Value=1)	Constrained - short wheelbase (Value=3)
32	1.5	Regional Tractor - Short Haul	8	400	C	Variable, up to 80K GCW (Value=1)	Variable, <100 miles per day (Value=1)	Centralized, at night. Multiple shift operations impact charging times (Value=1)	Constrained - short wheelbase (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
33	1.5	Regional Tractor - Medium Haul	4-7	200	C	Variable, up to 80K GCW (Value=1)	Variable, 100-300 miles per day (Value=1)	Centralized, at night. Multiple shift operations impact charging times (Value=1)	Constrained, short wheelbase (Value=3)
34	1.5	Regional Tractor - Medium Haul	8	400	C	Variable, up to 80K GCW (Value=1)	Variable, 100-300 miles per day (Value=1)	Centralized, at night. Multiple shift operations impact charging times (Value=1)	Constrained, short wheelbase (Value=3)
35	6	Regional Tractor - Long Haul	4-7	100	C	Variable (Value=3)	Variable, >200 miles per day (Value=1)	Future retail charging network? Multiple shift operations impact charging times (Value=10)	Constrained - short wheelbase, fairings (Value=10)
36	6	Regional Tractor - Long Haul	8	300	C	Heavy (Value=3)	Variable, 200-500+ miles per day (Value=1)	Future retail charging network? Multiple shift operations impact charging times (Value=10)	Constrained (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
37	2	Port Drayage	8	120	C	Heavy (Value=1)	Variable, 100-500 miles per day (Value=1)	Variable / Centralized, depending on owner. Multiple shift operations impact charging times (Value=3)	Constrained - short wheelbase (Value=3)
38	2	Pickup Truck - Agriculture	2B-3	500	C or I	Variable--dependent on type of agriculture. (Value=3)	Assume set routes, <100 miles per day, may have extended idling. Likely extended operation (Value=1)	Centralized (Value=1)	Constrained (Value=3)
39	3.75	Pickup Truck - Contractor	2B-3	5000	C or I	Moderate to heavy (Value=1)	Variable (Value=1)	Variable (Value=3)	Constrained (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
40	3.75	Pickup Truck - Towing	2B-3	3000	C or I	Heavy (Value=1)	Variable-- expect several will have long distance (~500 mile) routes. Towing will significantly shorten available EV range. (Value=1)	Variable (Value=3)	Constrained (Value=10)
41	5.5	Pickup Truck - 4WD Off Road	2B-3	5000	C or I	Light to moderate (Value=1)	Variable-- expect some will have long distance routes. (Value=1)	Variable--off road usage will likely be away from EV grid. Off-highway usage and extended operation will make charging impossible for extended offroad operation. (Value=10)	Constrained (Value=10)



Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
42	3.75	Pickup Truck - PTO Equipped	2B-3	1500	C or I	Moderate to heavy (Value=1)	Assume set routes, <100 miles per day, may have extended idling. (Value=1)	Variable (Value=3)	Constrained (Value=10)
43	5.5	Line Haul Tractor	4-7	500	C	Heavy (Value=10)	Variable; 500+ mile days (Value=1)	Variable (Value=10)	Open (Value=1)
44	5.5	Line Haul Tractor	8	3000	C	Heavy (Value=10)	Variable; 500+ mile days (Value=1)	Variable (Value=10)	Open (Value=1)
45	7.75	Logging	8	5	C	Heavy (Value=10)	Variable (Value=1)	Variable, Long off-road travel (Value=10)	Constrained, ground clearance (Value=10)
46	5.5	Concrete Mixer	8	70	I	Typically 50% empty, 5-% grossed out (Value=10)	Highly variable (Value=1)	Centralized, at night (Value=1)	Highly constrained due to body equipment and weight (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
47	7.75	Concrete Pumper	8	37	I	Due to weight of pumping equipment the vehicle is always heavily loaded (Value=10)	Highly variable (Value=1)	Vehicle may remain at construction site for multiple days (Value=10)	Highly constrained (Value=10)
48	4.25	Mining Hauler	8	15	I	Heavy (Value=10)	Fixed (Value=1)	Centralized; Long off-road travel (Value=3)	Constrained (Value=3)
49	2.5	Mining Service	8	15	C	Medium – fixed (Value=3)	Variable (Value=1)	Centralized; Long off-road travel (Value=3)	Constrained, due to body (Value=3)
50	5.5	Heavy Equipment Transport	8	110	C	Heavy (Value=10)	Variable (Value=1)	Variable (Value=10)	Open (Value=1)
51	1.5	Utility/Lube Service	4-7	76	I	Can be heavy (like electrician or plumber) (Value=1)	Can be highly variable, local some days potentially to many sites around municipality in same day (Value=1)	Centralized, at night Can have a need for emergency service (e.g., storms) (Value=3)	Open (Value=1)
52	7	Oil Field Rig Mover	8	14	C	Extremely high (Value=10)	Highly variable (Value=1)	May be enroute/onsite multiple days (Value=10)	

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
53	7.75	Oil Field Well Servicing	8	110	I	Always loaded at or near GVWR (Value=10)	Highly variable (Value=1)	Mixed locations, could need to charge during peak times Many of these vehicles are for off-road use only. (Value=10)	Constrained (Value=10)
54	1.5	Tow/Wrecker	4-7	250	I	Variable (Value=1)	Variable, <100 miles per day (Value=1)	Centralized when not in use (Value=1)	Constrained. Need space for bed/hoist and hydraulic mechanisms between the frame rails where batteries would be installed (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
55	1	Farm Service - Truck	2B-3	119	I	Heavy (almost like a dump truck) May be restricted on weight due to heavy produce and need to operate in ag fields (Value=1)	Fixed, but can be long distance from farm to city (Value=1)	Centralized but in rural area at night (Value=1)	Open (Value=1)
56	5.5	Farm Service - Tractor	8	90	C	Heavy (almost like a dump truck) May be restricted on weight due to heavy produce and need to operate in ag fields (Value=10)	Fixed, but can be long distance from farm to city (Value=1)	Centralized but in rural area at night (Value=1)	Constrained (short wheelbase) (Value=10)
57	3.75	Tanker Truck - Liquids or Gases	8	44	I	Start at max load, may diminish throughout day (Value=3)	Fixed, but can be long distance from depot to destination (Value=1)	Centralized, at night (Value=1)	Constrained due to effort to maximize payload (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
58	6	Car Carrier - Class 8	8	123	I	High (Value=10)	Variable (Value=1)	Variable (Value=10)	Constrained (Value=3)
59	2	Car Carrier - Class 6/7 (Roll Back)	4-7	150	I	Variable (Value=1)	Variable, local (Value=1)	Centralized Variable origin and destination pairs (Value=3)	Constrained (Value=3)
60	3.75	Utility Service - Private (Class 8)	8	87	I				
61	3.75	Utility Service - Private (Class 6-7)	4-7	143	I	High (Value=1)	Variable (Value=1)	Variable + remote Extended operation off road (Value=10)	Constrained (Value=3)
62	3.75	Utility Service - Private Trouble Truck (Class 4-5)	4-7	277	I	Medium to heavy (Value=1)	Variable (Value=1)	Variable + remote Extended remote operation (Value=10)	Constrained (Value=3)
63	2	Utility Service - Public (Class 8)	8	87	I				
64	2	Utility Service - Public (Class 6-7)	4-7	143	I	High (Value=1)	Variable (Value=1)	Variable Extended operation off road (Value=3)	Constrained (Value=3)
65	2	Utility Service - Public (Class 4-5)	4-7	277	I	Medium to heavy (Value=1)	Variable (Value=1)	Variable Extended remote operation (Value=3)	Constrained (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
66	3.75	Recreational Vehicle	4-7	2500	I	Variable (Value=3)	Expected long distance routes (Value=1)	Non-centralized (Value=10)	Open (Value=1)
67	1	Airport Service	2B-3	1167	I	Light (Value=1)	Set routes, <100 miles per day (Value=1)	Centralized, Close proximity to charging infrastructure (Value=1)	Open (Value=1)
68	3.25	Rail Service	2B-3	100	I	Light (Value=1)	Expected long distance routes (Value=1)	Centralized (Value=1)	Constrained. Need physical space to mount rail wheels, lift mechanism, and upfitter body. (Value=10)
69	1	Shuttle Bus	4-7	331	I	Variable, light (Value=1)	Fixed <100 miles per day (Value=1)	Centralized (Value=1)	Open (Value=1)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
70	1.5	Armored Car	4-7	100	I	Variable (depends on drop-off or pick-up work) (Value=1)	Variable, <100 miles per day (Value=1)	Centralized, at night (Value=1)	Constrained. Armor plating and security defenses would take up underbody battery storage opportunities (Value=3)
71	3.25	Mobile Laboratory	4-7	81	I	Variable (depends on use requirements) (Value=1)	Variable, <100 miles per day (Value=1)	No central charging available when in use Occasional use on long routes and dependent on deployment needs (Value=10)	Open (Value=1)
72	6	Digger Derrick	4-7	52	I	High (Value=10)	Variable (Value=1)	Extended operation off road (Value=10)	Constrained (Value=3)
73	3.75	Construction Dump	8	342	I	50% laden (typically to GVWR), 50% unladen (Value=10)	Highly variable, but typically 150-250 miles per day (Value=1)	Centralized, at night (Value=1)	Somewhat constrained (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
74	1.5	Municipal Dump	4-7	44	I	50% laden, 50% unladen, mixed light to heavy (Value=1)	Variable, 50 miles per day (Value=1)	Centralized, at night (Value=1)	Somewhat constrained (Value=3)
75	1.5	Yard Tractor - Purpose Built (Warehouse/Rail)	8	84	C or I	Heavy (65K - 85K lbs). Light-duty cycle. Load on/load off (Value=1)	<100 miles per day, <1 route (Predictable), 8-10 hours per day (Value=1)	Centralized, at night and during the day (Value=1)	Constrained, for shorter wheelbase (Value=3)
76	3.25	Yard Tractor - Purpose Built (Port)	8	21	C or I	Heavy (120K - 140K lbs.). Load on/Load off (Value=1)	<200 miles per day, 1-2 mile routes (predictable), >10 hours per day (Value=1)	Opportunity charging but port dependent. May need to remove from fleet for charging. Constrained for port applications due to hours of operation (Value=1)	Constrained for shorter wheelbase. Constrained for port applications due to hours of operation (Value=3)



Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
77	1.5	Mobile Command Center	4-7	27	I	Moderate heavy fixed load (Value=1)	Mostly short, unpredictable (mission dependent) (Value=1)	Generally centralized, may need to be charged while on mission; there may not be enough time for recharge between missions (Value=1)	Somewhat constrained (Value=3)
78	3.75	H-D Van - Emergency	2B-3	223	I	Heavy (Value=1)	50-150 miles per day (Value=1)	Dispersed, or infrastructure dependent (Value=3)	Constrained (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
79	3.25	<b>Ambulance</b>	4-7	128	I	Light (Value=1)	Mostly short, unpredictable (mission dependent) (Value=1)	Centralized, opportunity charging when possible; need to be fully charged and ready with no notice (e.g., conventional vehicles have quick disconnect air hoses to keep air brake tanks full, and similar would be required for electrical); there may not be enough time for recharge between missions (Value=1)	Constrained (due to equipment installation) (Value=10)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/Incomplete	Loading	Routes/Range	Infrastructure/Charging	Battery Space Constraints
81	3.25	<b>Snow Plow</b>	8	92	I	Start at max load, diminish throughout day (Value=1)	varied, unpredictable (weather dependent) (Value=1)	Centralized, opportunity charging when possible; there may not be enough time for recharge between missions (Value=1)	Constrained (due to equipment installation) (Value=10)
82	1.5	<b>Crane</b>	4-7	100	I	Light (Value=1)	Average <70 miles per day (Value=1)	Centralized (Value=1)	Limited (Value=3)
83	1.5	<b>Dump</b>	4-7	200	I	Variable (depends on use requirements) (Value=1)	Average <70 miles per day (Value=1)	Centralized (Value=1)	Limited (Value=3)
84	1.5	<b>Refuse/Recycling</b>	4-7	200	I	Start light, end day at max load (Value=1)	Average <70 miles per day (Value=1)	Centralized (Value=1)	Limited (Value=3)
85	1.5	<b>Shredder</b>	4-7	100	I	Start light, end day at max load (Value=1)	Average <70 miles per day (Value=1)	Centralized (Value=1)	Limited (Value=3)

Index	Quantitative Suitability Score	Market Segment	Class	Annual CA Sales	Complete/ Incomplete	Loading	Routes/Range	Infrastructure/ Charging	Battery Space Constraints
86	3.75	Pickup Truck - Personal Use	2B-3	38000	C	Moderate Limited cargo carrying capacity to offset battery pack weights. Most people upgrade to the class 2b-3 pickup over a class 2a pickup for either load carrying or towing needs. (Value=1)	Variable; Towing will significantly shorten available EV range. (Value=1)	Centralized charging at residence/business (Value=3)	Constrained (Value=10)
87	1.5	H-D Van - Passenger	2B-3	6198	C	Light (Value=1)	Variable (Value=1)	Centralized charging at residence/business (Value=1)	Constrained (Value=3)