Electric Vehicle Impact

Light-Duty Electric Vehicle Impact

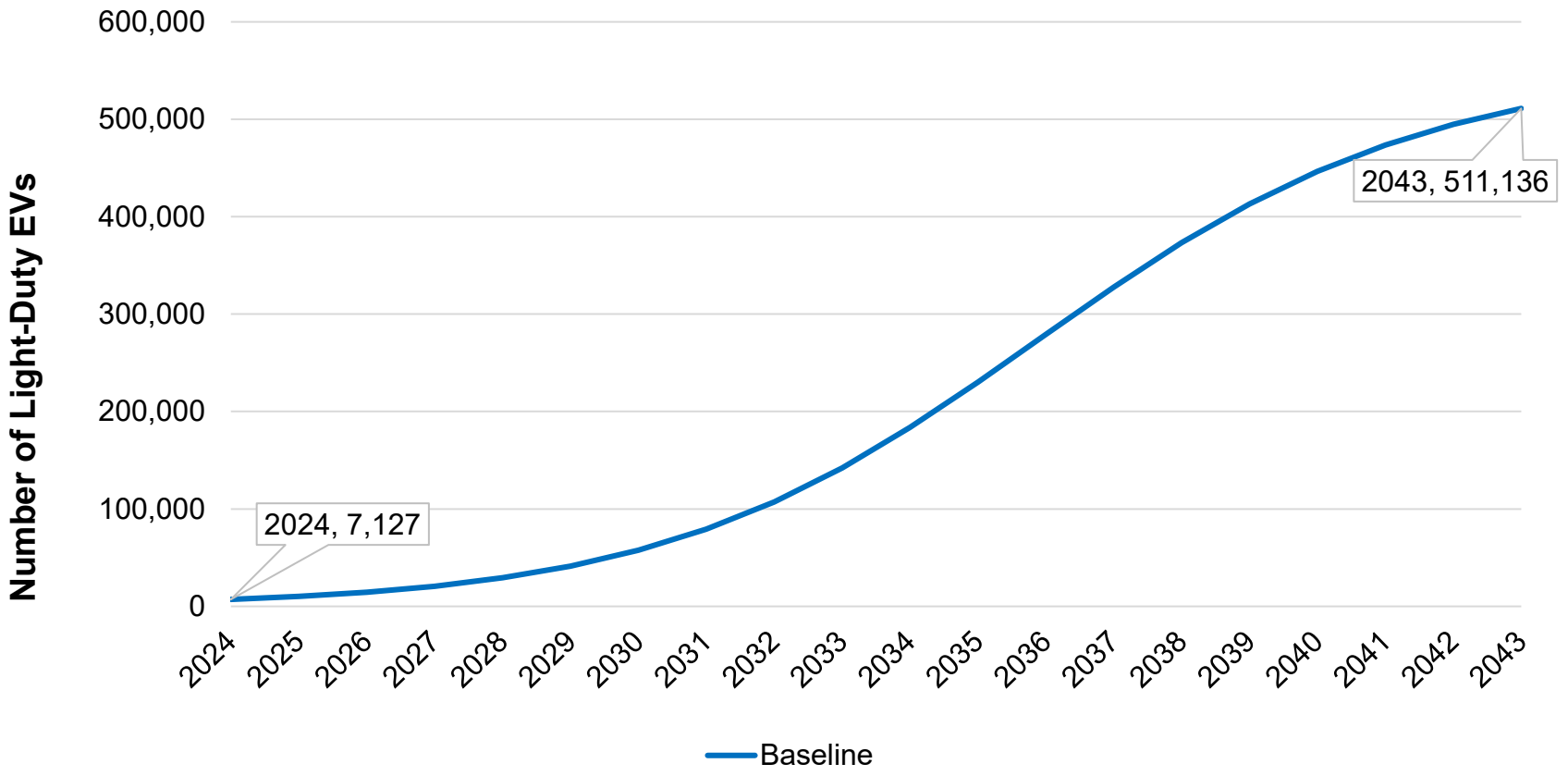
➢ *Energy Impacts*

- Estimates indicate a single light-duty EV could consume an average of 4,428 kWh per year.
- Equivalent to half (52%) of the average annual energy consumption of a residential customer in EPE's service territory,

➢ *Demand Impacts*

- Light-Duty EV charging can create demand spikes between 1.2 and 19.2 kW per vehicle.
- Typical type of chargers used are level-1 (1.2 kW) and level-2 (7.2kW).

Light-Duty Electric Vehicle Forecast



Light-Duty Electric Vehicle Forecast Summary

Year	No. of Vehicles	Demand * (MW)	Energy ** (MWh)
2024	7,127	4	31,558
2025	10,190	6	45,121
2026	14,540	8	64,383
2027	20,686	11	91,598
2028	29,302	16	129,749
2029	41,237	22	182,597
2030	57,506	30	254,637
2031	79,192	40	350,662
2032	107,246	53	474,885
2033	142,168	70	629,520

* Forecasted CP Demand
** Forecasted Energy considering average yearly commute

Medium-Duty Electric Vehicle Impact

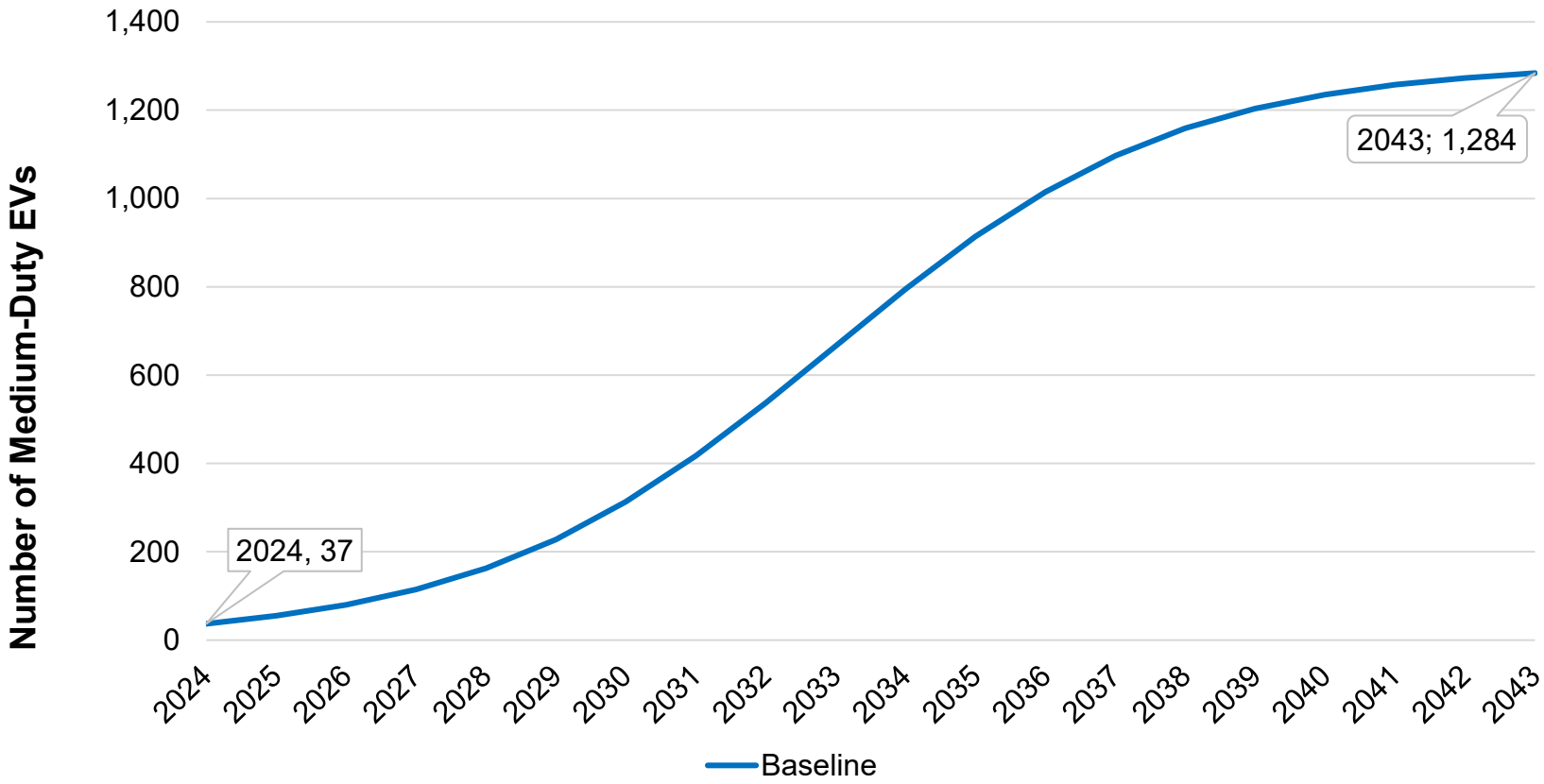
➢ *Energy Impacts*

- Estimates indicate a single medium-duty EV could consume an average of 14,966 kWh per year.
- Equivalent average annual energy consumption of 2 residential customers in EPE's service territory.
- Compared to light-duty EVs, medium-duty EV energy consumption is on average 4 times greater.

➢ *Demand Impacts*

- Medium-duty EV charging can create demand spikes as high as 180 kW per vehicle.
- Expected most predominant type of chargers:
  - Level-2 (19.2kW)
  - Level-3 DCFC (25-50 kW)

Medium-Duty Electric Vehicle Forecast



Medium-Duty Electric Vehicle Forecast Summary

Year	No. of Vehicles	Demand * (MW)	Energy ** (MWh)
2024	37	0.24	554
2025	55	0.36	823
2026	80	0.52	1,197
2027	115	0.75	1,721
2028	163	1.06	2,439
2029	228	1.48	3,412
2030	313	2.03	4,684
2031	417	2.71	6,241
2032	537	3.48	8,037
2033	666	4.32	9,967

* Forecasted CP Demand
** Forecasted Energy considering average yearly commute

Heavy-Duty Electric Vehicle Impact

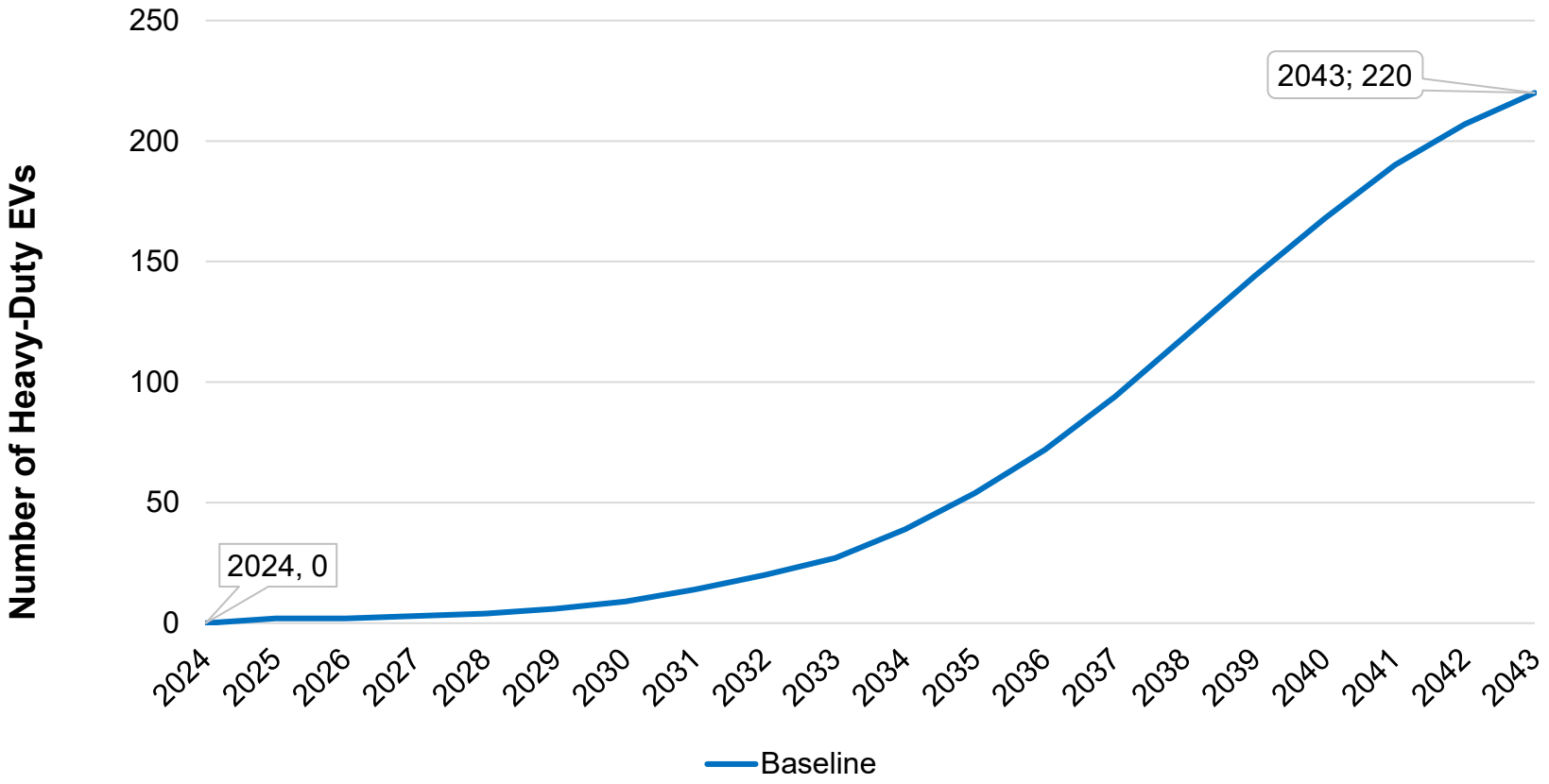
➢ *Energy Impacts*

- Estimates indicate a single heavy-duty EV could consume an average of 111,472 kWh per year.
- Equivalent average annual energy consumption of 14 residential customers in EPE's service territory.
- Compared to light-duty EVs, heavy-duty EV energy consumption is on average 25 times greater and 7 times greater than MD EVs.

➢ *Demand Impacts*

- Heavy-duty EV charging can create demand spikes as high as 2 MW per vehicle.
- Expected most predominant type of chargers:
  - Level-3 DCFC (50 kW-120 kW)
  - Extreme Fast Charging (XFC) (350 kW-2MW)

Heavy-Duty Electric Vehicle Forecast



Heavy-Duty Electric Vehicle Forecast Summary

Year	No. of Vehicles	Demand * (MW)	Energy ** (MWh)
2024	0	0.00	0
2025	2	0.03	223
2026	2	0.03	223
2027	3	0.04	334
2028	4	0.05	446
2029	6	0.08	669
2030	9	0.12	1,003
2031	14	0.18	1,561
2032	20	0.26	2,229
2033	27	0.35	3,010

* Forecasted CP Demand
** Forecasted Energy considering average yearly commute

Heavy-Duty Electric Bus Impact

➢ *Energy Impacts*

- Estimates indicate a single Electric Bus (E-Bus) could consume an average of 43,220 kWh per year.
- Equivalent average annual energy consumption of 5 residential customers in EPE's service territory.
- Compared to light-duty EVs, E-Bus energy consumption is on average 10 times greater.

➢ *Demand Impacts*

- E-Bus charging can create demand spikes as high as 450 kW per vehicle.
- Expected most predominant type of chargers:
  - Level-3 DCFC (25kW School)
  - Level-3 DCFC (50kW-150kW Transit)

Heavy-Duty Electric Bus Forecast