

COMBINED LEGS FROM WESTERN MASSACHUSETTS TO CHICAGO, IL										
Item	Time	Description	Location	Make	kWh Added	Cost	Charging Time	Time (Hrs)	Ave. Power (kW)	Miles Since Stop
1	Fri Jun 18, 9:59 AM	Walmart 2152	Albany, NY	Electrify America	29	\$13.47	1:01:35	1.03	28.25	81
2	Fri Jun 18, 2:47 PM	Waterloo Premium Outlets	Waterloo, NY	Electrify America	50	\$23.22	1:37:13	1.62	30.86	179
3	Fri Jun 18, 5:24 PM	Walmart 2586 Cheektowaga	Cheektowaga, NY	Electrify America	24	\$11.22	0:54:33	0.91	26.40	101
4	Fri Jun 18, 7:43 PM	Walmart 2278 Erie	Erie, PA	Electrify America	9	\$2.37	0:14:54	0.25	36.24	96
5	Sat Jun 19, 9:03 AM	Xfrmer Station Contemporary Art Space	Cleveland, OH	EV Go	34	\$18.00	1:00:52	1.01	33.52	97
6	Sat Jun 19, 12:58 PM	Blue Heron Service Plaza	Genoa, OH	Electrify America	41	\$18.82	1:19:10	1.32	31.07	93
7	Sat Jun 19, 2:36 PM	Indian Meadow Service Plaza	West Unity, OH	Electrify America	16	\$7.38	0:39:52	0.66	24.08	56
8	Sat Jun 19, 7:01 PM	Wilbur Shaw Travel Plaza	Rolling Prairie, IN	Indiana Toll Rd.	26	\$8.58	0:54:00	0.90	28.89	121
9	Sat Jun 19, 9:10 PM	Target T2613	Chicago, IL	Electrify America	36	\$15.48	1:38:20	1.64	21.97	74
TOTAL					265	\$118.54	9:20:29	9.34	261.28	898
AVE.					29.4	\$13.17	1:02:17	1.04	29.03	99.8

**Table 1.** The charge history from Massachusetts to Illinois.

A few observations:

- The most common DCFC station by far was by Electrify America. Their stations can be found at nearly every rest stop along I-90, and at many Walmarts (and there are Walmarts EVERYWHERE).
- The drive from western Massachusetts to Chicago is 14 hours, and my charging time was about  $\frac{2}{3}$  as long as my driving time, at 9h 20min.
- On average I was adding 29.4kWh per session, which is about 112 miles a pop (assuming a rate of 3.8 miles/kWh).
- Assuming an internal-combustion engine (ICE) vehicle of equivalent size at 30mpg, and an average cost of gas at [\\$3.063/ gal](#), driving 898 miles would cost me \$91.68 ( $\$3.063/\text{gal} \div 30\text{mpg} \times 898 \text{ miles}$ ). So in this case charging (\$118.54) ended up being a bit more expensive than buying gas, but still pretty comparable depending on conditions. Bear in mind that these DCFC stations are always going to be relatively expensive compared to charging at a Level I or Level II station.
- Some nitty-gritty stuff: While my EV can charge at 50kW, and the stations are rated for 50kW (and even higher), I found that the stations will peak at 50kW but not hold that for very long. It is common for charging power to decline significantly after the state of charge has reached 80%, but I found a linear decline in charging power starting at much earlier state of charges (SOC's). You can see here that the average power over the course of the entire leg was 29kW. This was a far cry from expected, as more often than not I was starting from a low SOC, somewhere between 10-20% (where you'd expect charging power to remain high from that point and on), and then rarely charged it past 80% as the rate slowed down so much that it wasn't worth my time to wait there when I could just hit the road and get to the next station.