Road Tripping in an EV

United States & Canada

Survey Time

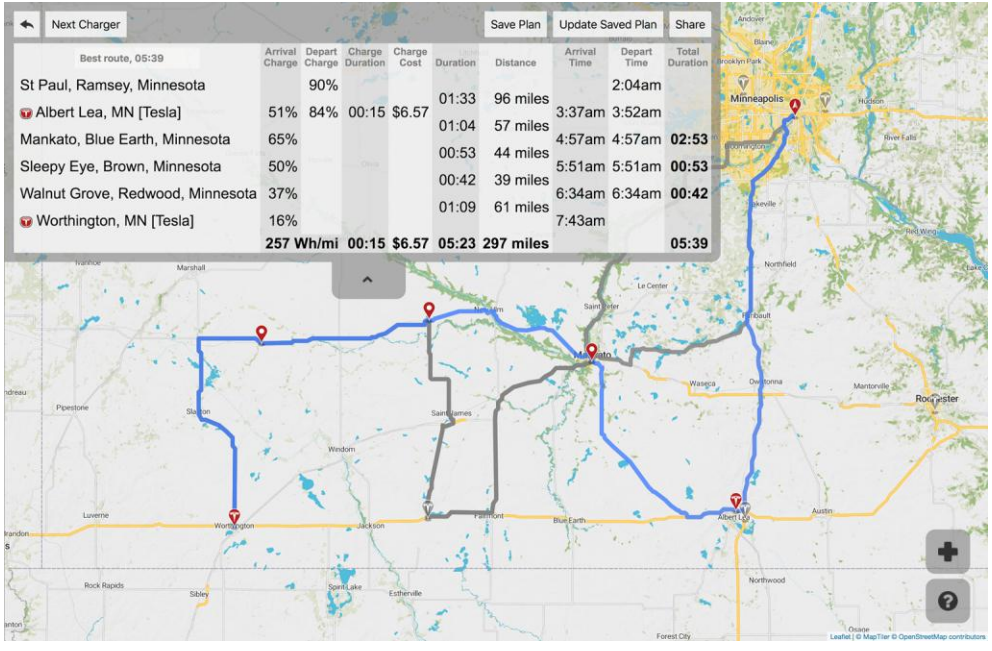
Who’s gone on a road trip

…in an EV?

My 2019 trip

- About 11,862 miles
- Over 2.8 MWh of electricity
  - Amount used in New York City in 22 seconds (2012)

Planning


Next Charger
Save Plan
Update Saved Plan
Share
Best route, 05:39
Arrival Charge
Depart Charge
Charge Duration
Charge Cost
Duration
Distance
Arrival Time
Depart Time
Total Duration
St Paul, Ramsey, Minnesota
90%
2:04am
Albert Lea, MN [Tesla]
51%
84%
00:15
$6.57
01:33
96 miles
3:37am
3:52am
Mankato, Blue Earth, Minnesota
65%
01:04
57 miles
4:57am
4:57am
02:53
Sleepy Eye, Brown, Minnesota
50%
00:53
44 miles
5:51am
5:51am
00:53
Walnut Grove, Redwood, Minnesota
37%
00:42
39 miles
6:34am
6:34am
00:42
Worthington, MN [Tesla]
16%
01:09
61 miles
7:43am
257 Wh/mi
00:15
$6.57
05:23
297 miles
05:39
Minneapolis
Rochester
Marshall
Northfield
Le Center
Mankato
Waseca
Pipestone
Slayton
Saint James
Windom
Luverne
Worthington
Jackson
Fairmont
Blue Earth
Albert Lea
Austin
Rock Rapids
Sibley
Spirit Lake
Estherville
Northwood
Forest City
Leaflet | © MapTiler © OpenStreetMap contributors

Planning

Determine destination and/or route

- Where are you going?
- What is your route to get there?
- Anywhere interesting your route could take you?

Planning

Driving time and stopping points

- How far can you drive per day?
- What kind of locations will you spend the night?

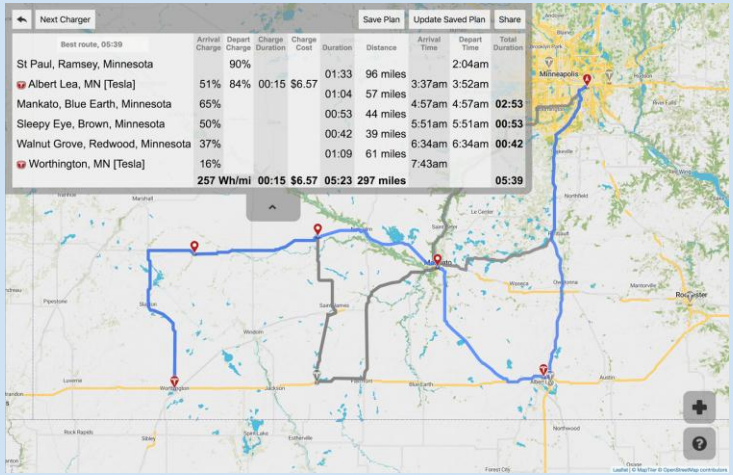
Planning

Tools

- A Better Route Planner
- RV Parky
- PlugShare
- A spreadsheet for tracking waypoints and stops

Planning > Tools

A Better Route Planner

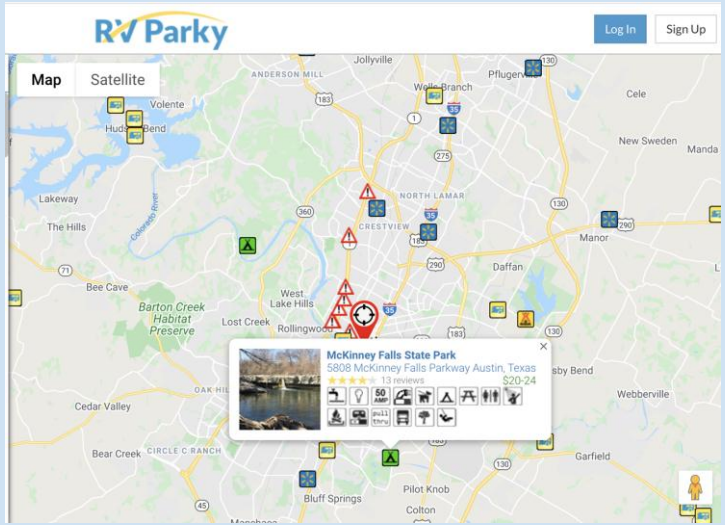


- Customizable
- Timetables
- Distances
- Saved Plans
- Long Distance
- Has App

https://abetterrouteplanner.com/

Planning > Tools

RV Parky

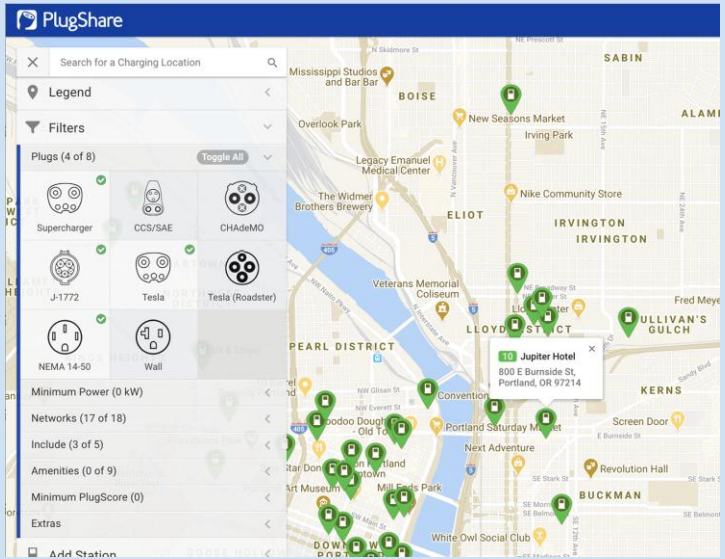


- Filter by amenities
- Filter by outlets
- Filter by site type
- Has App

http://rvparky.com/

Planning > Tools

PlugShare

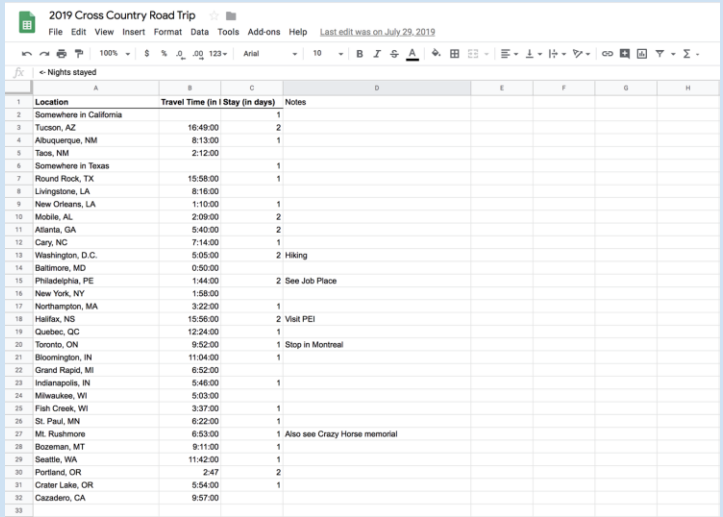


- Filter by charge types
- Filter by networks
- Long Distance
- Local charging
- Has App

https://www.plugshare.com/

Planning > Tools

A Spreadsheet



2019 Cross Country Road Trip

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<- Nights stayed

	A	B	C	D	E	F	G	H
1	**Location**	**Travel Time (in h**	**Stay (in days)**	**Notes**				
2	Somewhere in California		1					
3	Tucson, AZ	16:49:00	2					
4	Albuquerque, NM	8:13:00	1					
5	Taos, NM	2:12:00						
6	Somewhere in Texas		1					
7	Round Rock, TX	15:58:00	1					
8	Livingstone, LA	8:16:00						
9	New Orleans, LA	1:10:00	1					
10	Mobile, AL	2:09:00	2					
11	Atlanta, GA	5:40:00	2					
12	Cary, NC	7:14:00	1					
13	Washington, D.C.	5:05:00	2	Hiking				
14	Baltimore, MD	0:50:00						
15	Philadelphia, PE	1:44:00	2	See Job Place				
16	New York, NY	1:58:00						
17	Northampton, MA	3:22:00	1					
18	Halifax, NS	15:56:00	2	Visit PEI				
19	Quebec, QC	12:24:00	1					
20	Toronto, ON	9:52:00	1	Stop in Montreal				
21	Bloomington, IN	11:04:00	1					
22	Grand Rapid, MI	6:52:00						
23	Indianapolis, IN	5:46:00	1					
24	Milwaukee, WI	5:03:00						
25	Fish Creek, WI	3:37:00	1					
26	St. Paul, MN	6:22:00	1					
27	Mt. Rushmore	6:53:00	1	Also see Crazy Horse memorial				
28	Bozeman, MT	9:11:00	1					
29	Seattle, WA	11:42:00	1					
30	Portland, OR	2:47	2					
31	Crater Lake, OR	5:54:00	1					
32	Cazadero, CA	9:57:00						
33								

- Track next stops
- Plan driving legs
- Checklists
- Log data
- Have apps

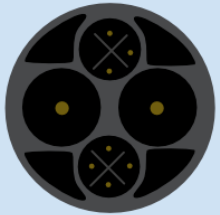
Charging on the road

Charging on the road

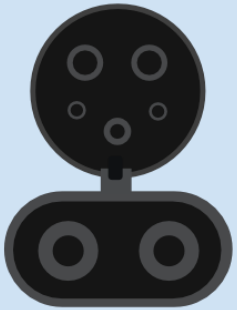
Charging Standards

- DC Fast Charging
  - Tesla Supercharger
  - CHAdeMO
  - CCS 1
- AC Level 2 Charging (slow)
  - J1772
  - Tesla

Tesla Supercharger



CHAdeMO



CCS Combo Type 1

Charging on the road

Charging Logistics

- DC Fast charging is usually measured in minutes
- AC Level 2 charging is measured in hours
- Locate via app or car navigation
- A Better Route Planner great companion
- Charge enough to get to next charger
- Time for bathroom and meal breaks (every 2-3 hours)

Charging Costs

- Charging networks have different rates
- A Better Route Planner gives you that cost
- Calculate approximate charging costs with car's Wh/mile or miles/kWh efficiency
  - (Wh/mile) ÷ 1000 x miles x ($/kWh)
  - miles ÷ (miles/kWh) x ($/kWh)
- Charges by minute are harder to calculate

Charging at destinations

Charging at destinations

Charging Options

- Public charging stations
- Campgrounds
- Private homes

Planning > Charging at destinations

Charging equipment

- Portable EVSE
- Adapters for EVSE
- Outdoor extension cord
- J1772 adapter (for Teslas)
- When using plug adapters be sure your car does not charge more than 80% of outlet rating.

Planning > Charging at destinations

Public charging stations

- Use PlugShare to find
- Have app that works with the network
- Some locations offer free charging

Planning > Charging at destinations

Campground charging

TT-30

- Use RV Parky to find
- Some campgrounds require reservations
- Require portable EVSE
- 50 amp: Nema 14-50 @ 240v up to 40 amps
- 30 amp: NEMA TT-30 @ 120v up to 24 amps (adapter must be EV compatible)

Fun fact: TT in “TT-30” stands for Travel Trailer

Charging at friends' homes

- Exterior extension cord is handy
- Handy EVSE adapters:
  - NEMA 5-15
  - NEMA 5-20
  - NEMA 10-30
  - NEMA 14-30

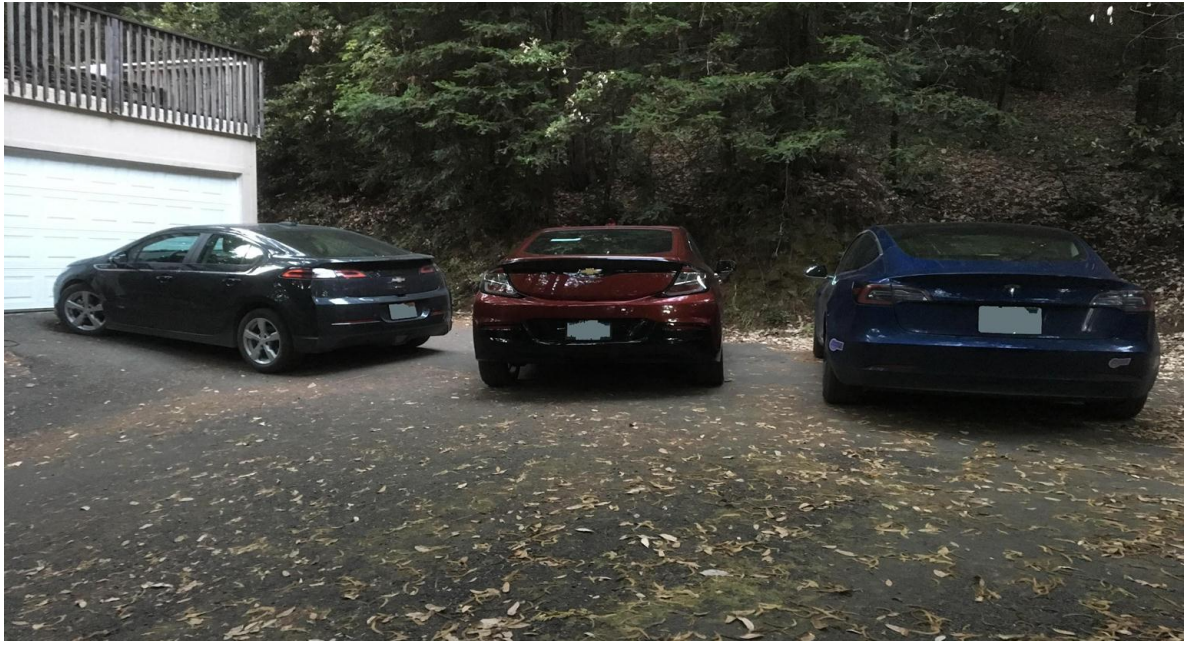
Fun fact: The last number in NEMA outlets is the amperage rating!

Takeaways

Takeaways

- Great way to see the country.
- Driving what amounts to an average of nearly 400 miles a day leaves little time for being.
- I didn’t use all of my adapters.
- Buying food at every charging stop does add up.
- I want to do it again.

Questions?



Cecelia Sullivan

Follow me on future trips.

@Helianthropy

Have a nice trip!