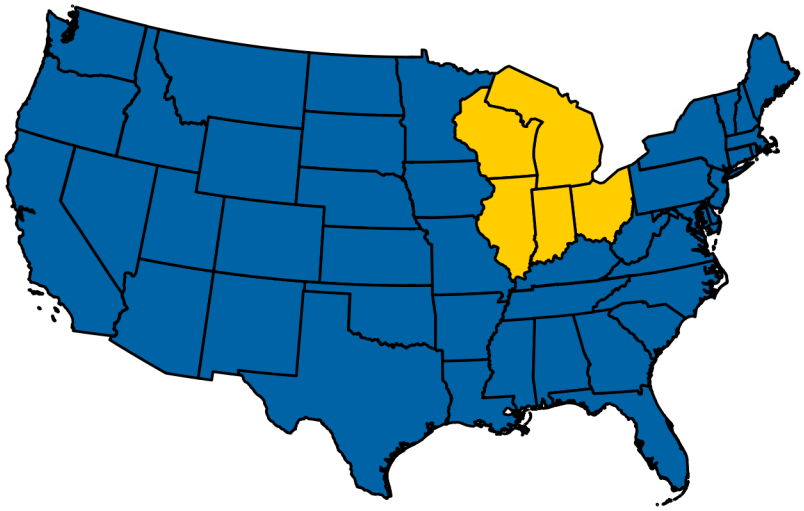


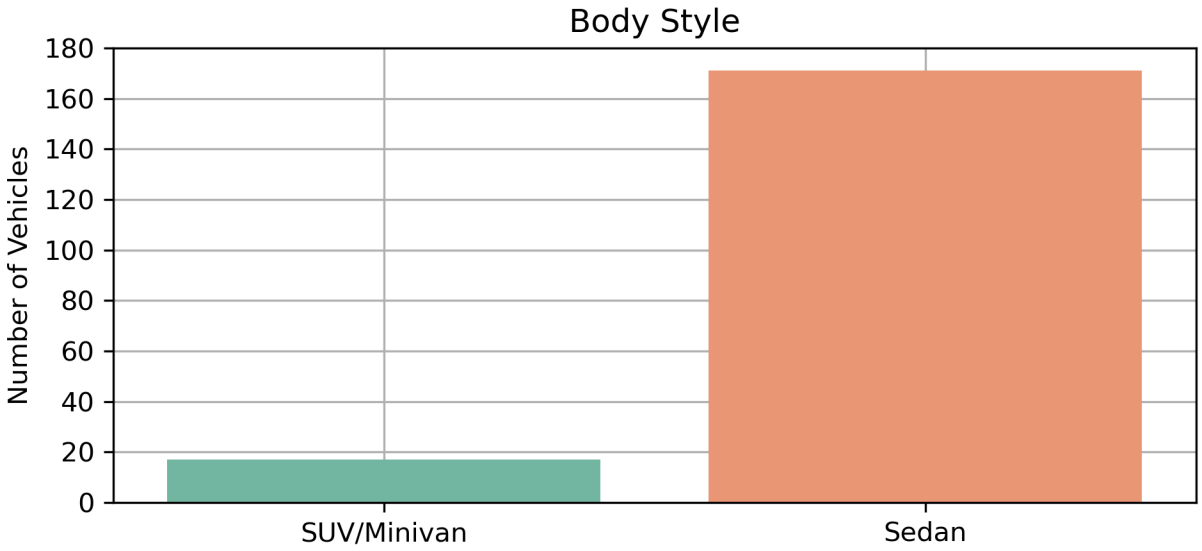
EV WATTS Individual Fleet Analysis

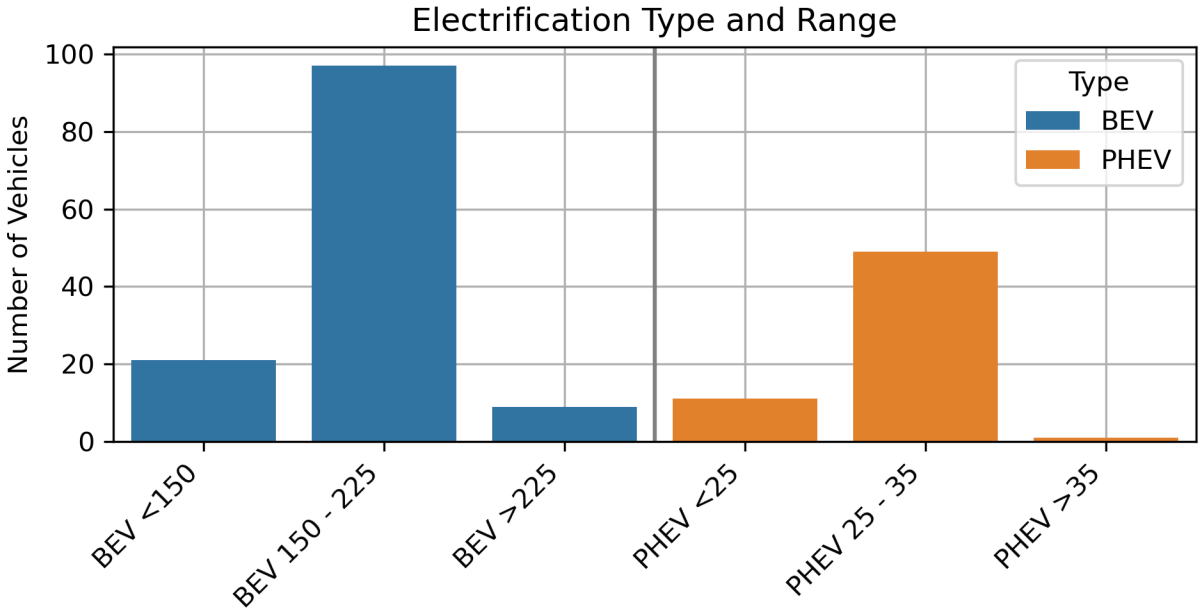
Fleet Vehicle Report: East North Central

This report provides a breakdown of personalized fleet statistics compared with the national Electric Vehicle Widescale Analysis for Tomorrow's Transportation Solutions (EV WATTS) dataset. EV WATTS addresses a growing need for practical information on vehicle electrification. The EV WATTS project team collects operations and charging data from telematics devices on electric vehicles (EVs) with partners across the U.S. The project applies proven data collection and analysis methodologies to collect, validate, clean, anonymize, analyze, and summarize data from various EV technologies and applications. Analyzing this data helps better understand charging patterns and operational performance to inform the U.S. Department of Energy's research. For more information and to access an interactive interface that displays statistics and findings from the entire EV WATTS dataset visit www.evwatts.org.

Fleet Breakdown

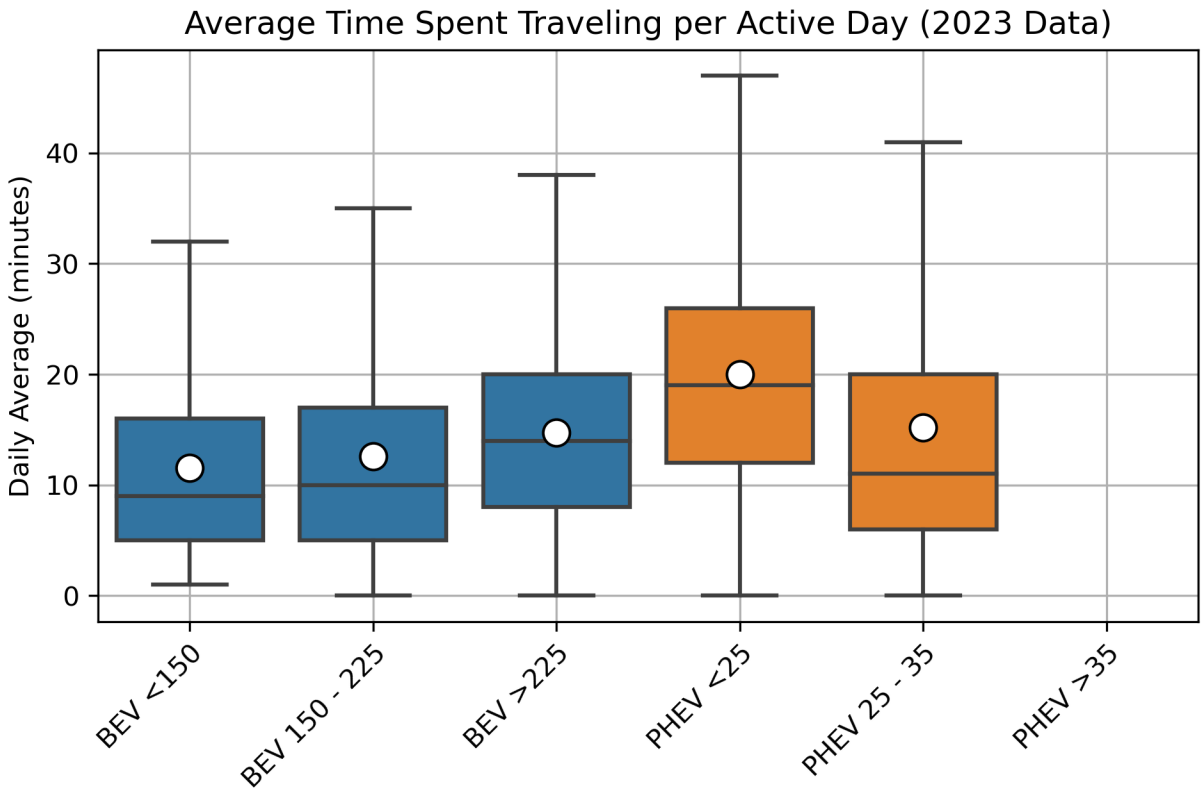
The following fleet breakdown categorizes each vehicle in the fleet by *Body Style*, *Vehicle Model*, and *Electrification Type and Range (miles)*. This categorization provides an overview of your EV fleet make-up, and serves to help differentiate between various types of fleet operations. For example, battery electric vehicles (BEV, which only uses electricity) may have different travel and charge time behaviors compared to plug-in hybrid electric vehicles (PHEV).


Body Style
Number of Vehicles
180
160
140
120
100
80
60
40
20
0
SUV/Minivan
Sedan


Electrification Type and Range
Number of Vehicles
100
80
60
40
20
0
Type
BEV
PHEV
BEV <150
BEV 150 - 225
BEV >225
PHEV <25
PHEV 25 - 35
PHEV >35

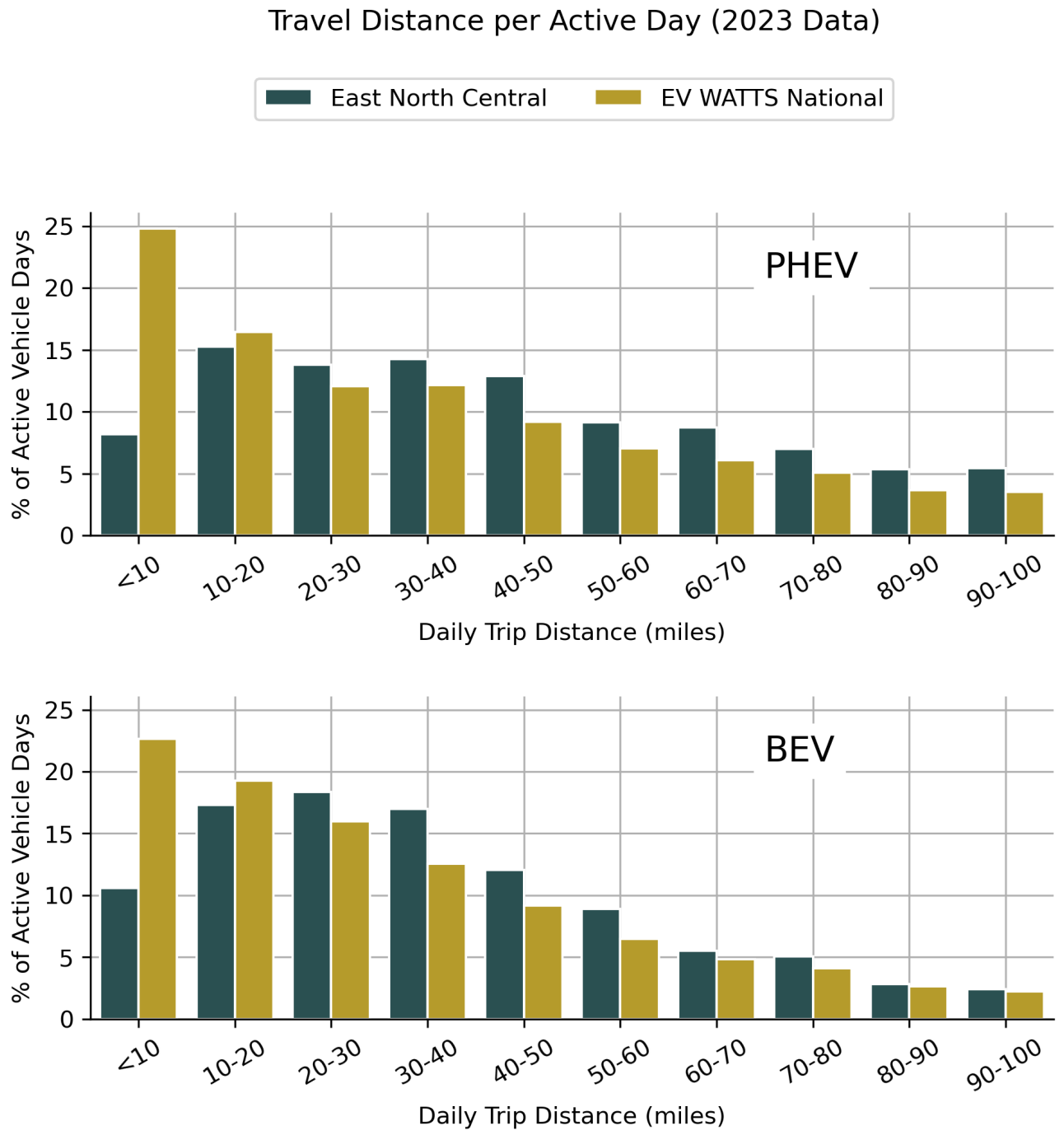
Travel Distances

The *Average Time Spent Traveling by Vehicle Type and Range* plot visually shows the distributions in duration of daily trips (minutes) between each electrification level for your fleet. The white dot represents the mean daily trip length for each electrification level. The mean is greater than the median (the line in the box) because the median is less impacted by outliers. PHEVs are typically driven longer than BEVs, based on the national EV WATTS data set. Some figures include only recent data as noted to show current trends in the results rather than all data collected since October 2019.

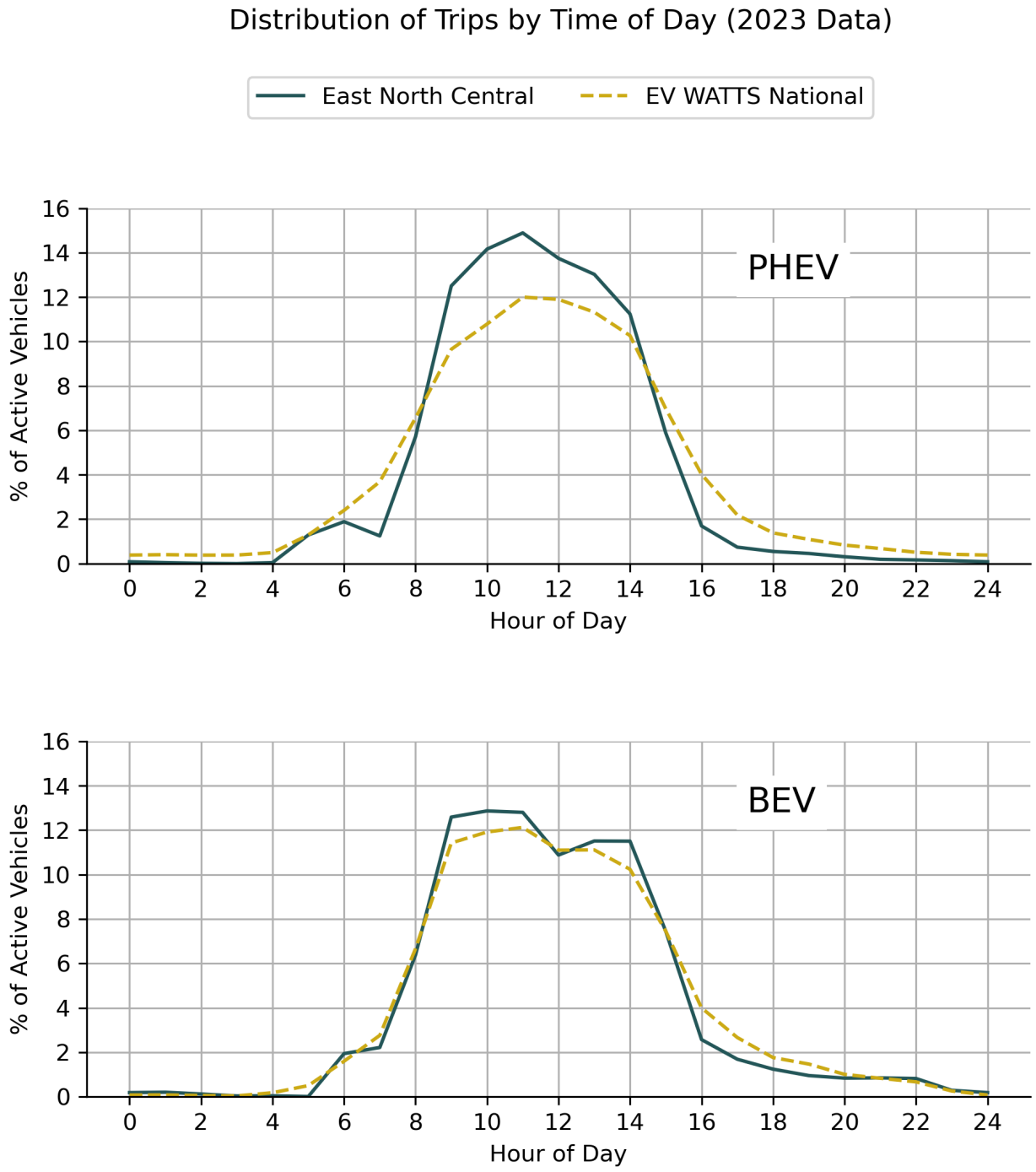


2023 Data	EV WATTS National Mean (minutes/day)	East North Central Mean (minutes/day)
BEV	16.3	12.6
PHEV	17.9	16.1
Combined	16.9	13.9

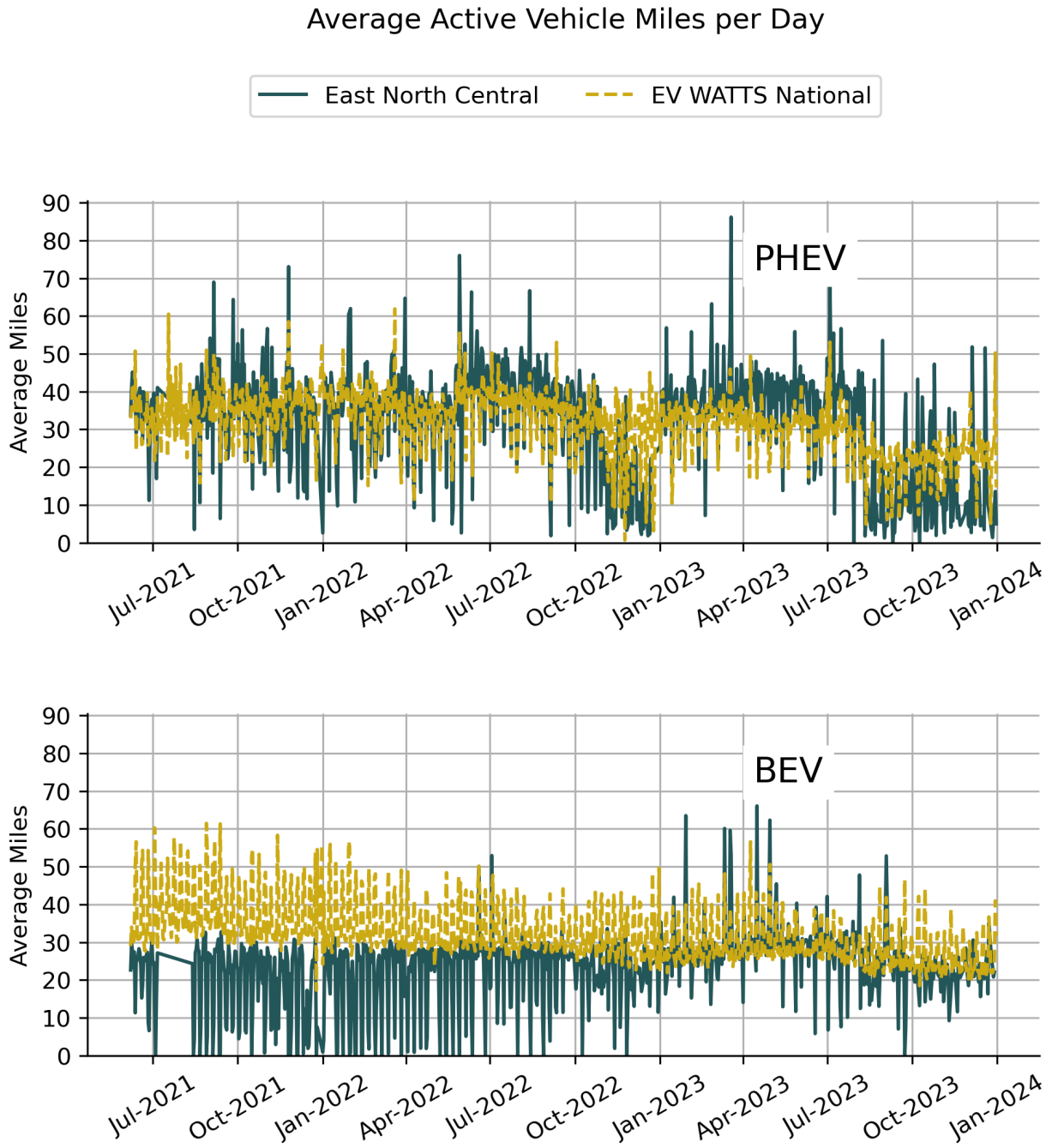
The distribution of *Travel Distance per Day* is calculated using each vehicles' active days. Active days are days in which the vehicle is being driven.



The *Distribution of Trips by Time of Day* helps visually understand when vehicles are actively used. Comparing the curves makes it possible to see differences and similarities between regional and national time of day use patterns.



Average Active Vehicle Miles per Day over time is calculated by excluding days with zero miles driven. The plots focus on the trend between 0 and 100 active vehicle miles per day. While some fleets occasionally have a few days when the average mileage is higher than this, it is rare and were not shown below. This trend helps analyze fleet vehicle usage, particularly between PHEVs and BEVs when the fleet includes both technologies.



BEV Efficiency and Temperature

Temperature is one factor that affects electric vehicle performance. The *Effect of Temperature on Energy Use* shows average BEV watt-hours per mile which can be variable at high or low temperatures due to more limited data points. Fleets with very limited temperature data points will only show a national average.