

Many of the compendium studies are beyond the scope of a 1-month project or have irrelevant topics (to cars/transportation, GM's goals, etc.). Most of the relevant studies and their short descriptions are summarized here!

| Chapter | Studies and Descriptions |
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| 2 | <p>3- section 3, EV charging load considering occupant travel behavior</p> <p>4- statistical model, lightweighting, perceived costs/adoption, driving patterns- see appendix for datasets</p> <p>5- battery swaps versus charging</p> <p>6- charging, renewable energy</p> <ul style="list-style-type: none"> - https://midcdmz.nrel.gov/apps/sitehome.pl?site=BMS (energy) <p>8- charging infrastructure and demand- can't find EV charge start and end times in stated NHTS dataset</p> <p>13- ev battery lifespan formula, applications to NHTS based on trip/person travel patterns and temps</p> <p>15- power demand and charging prediction with machine learning</p> <ul style="list-style-type: none"> - https://ev-database.org/#sort:path~type~order=.rank~number~desc range-slider-range:prev~next=0~1200 range-slider-acceleration:prev~next=2~23 range-slider-topspeed:prev~next=110~350 range-slider-battery:prev~next=10~200 range-slider-towweight:prev~next=0~2500 range-slider-fastcharge:prev~next=0~1500 paging:currentPage=0 paging:number=9 - Behavior from trip data in NHTS- motivations, start/end times, parking <p>16- distance needs and requirements for EVs</p> <ul style="list-style-type: none"> - Commute Atlanta dataset can't find but NHTS could be substituted maybe <p>19- Charging load with Monte Carlo- can't find exact load data used though</p> <p>21- Charging load distribution prediction- find data</p> <p>22- EV perceptions and manufacturing trade offs</p> <p>25- load prediction and simulations, output power- uses NHTS and derives data for new features like charging times and photovoltaic power</p> <p>26- charging load with NHTS and Monte Carlo, takes into account location, so maybe relates to congestion</p> <p>31- Gasoline super users as target for EVs marketing and transitions</p> <ul style="list-style-type: none"> - Consumption from NHTS data, income for feasibility of transition to electric <p>34- congestion, routing, and EV efficiency (first part of the study)</p> <ul style="list-style-type: none"> - Need to ask for data, so probably not available publicly <p>36- charge load balancing through schedule optimization</p> <ul style="list-style-type: none"> - NHTS and EV database- can't find actual database <p>38- cost-emission tradeoffs, coordinated charging and scheduling</p> <p>39- charging price and scheduling optimization for load</p> <p>40- charging load</p> <p>42- battery degradation</p> <p>43- selective emissions reduction by targeting certain engines</p> |

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| | 44- EV adoption household characteristics 46- charging load and optimization 49- transportation and power stresses- uses Greensboro so can apply to other areas 51- dynamic charging prices to alleviate congestion 53- vehicle-to-grid power optimization 55- charging demand based on household, availability optimization 56- charging load and energy demand based on travel factors 57- charging policies for power optimization |
| 3 | 3- market and policy impacts and benefits on EV adoption and perceptions <ul style="list-style-type: none"> - Data in appendices? confirm 4- NHTS emissions derivations for autonomous vehicles |
| 5 | 3- environment features on travel choice- can be used for marketing for vehicles <ul style="list-style-type: none"> - NHTS and ACS survey data - https://data.census.gov/table?q=acs&y=2022 not sure how to find raw data, everything is aggregated into tables - https://lehd.ces.census.gov/data/ origin-destination datasets 6- clustering of trips for socio-demographics for travel mode preferences- marketing to vehicle users? |
| 6 | 11- only provides an overview of technology interventions, make an actual study on crashes- maybe focus on teen driving behavior? <ul style="list-style-type: none"> - https://www.nhtsa.gov/nhtsa-datasets-and-apis car brand ratings for crashworthiness from federal agency, complaints and defects for vehicle safety 15- apply ownership of cars methodology to EVs |
| 7 | 7- Prediction prices, seems like beginner-friendly topic <ul style="list-style-type: none"> - Exact dataset not found and contains other features not in NHTS 19- vehicle miles driven, forecast patterns among location/other factors 20- ridesharing factors, users, demographics <ul style="list-style-type: none"> - Used Populus dataset, but private company requires payment for access probably |
| 8 | 2- crash risk and severity factors of individuals, environment, and road conditions <ul style="list-style-type: none"> - uses public databases, but not shown how data was scraped |
| 10 | 12- EV travel use frequency/miles compared to regular cars using NHTS, explores different types of EVs 13- ridesharing, idle vehicle use, NHTS 20- ridesharing factors and adoption/travel patterns <ul style="list-style-type: none"> - https://data.cityofchicago.org/Transportation/Transportation-Network-Providers-Trips-2018-2022-/m6dm-c72p/about_data Chicago b/c more detailed than NHTS |
| 11 | 9- EV rebates, consumer demographics in comparison to regular cars |

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| | <ul style="list-style-type: none"> - NHTS and EV consumer data from California - https://cleanvehiclerebate.org/en/survey-dashboard/ev <p>13- EV perceptions and innovations- made own survey, but raw data doesn't seem available</p> |
| 12 | <p>1- pick-ups and drop offs for shared autonomous vehicles</p> <ul style="list-style-type: none"> - Pricing and congestion/fleet size and density on ridership in simulations - Austin specific parking data and NHTS user characteristics used |

Useful Database for EV Model Statistics :

- <https://ev-database.org/cheatsheet/range-electric-car>