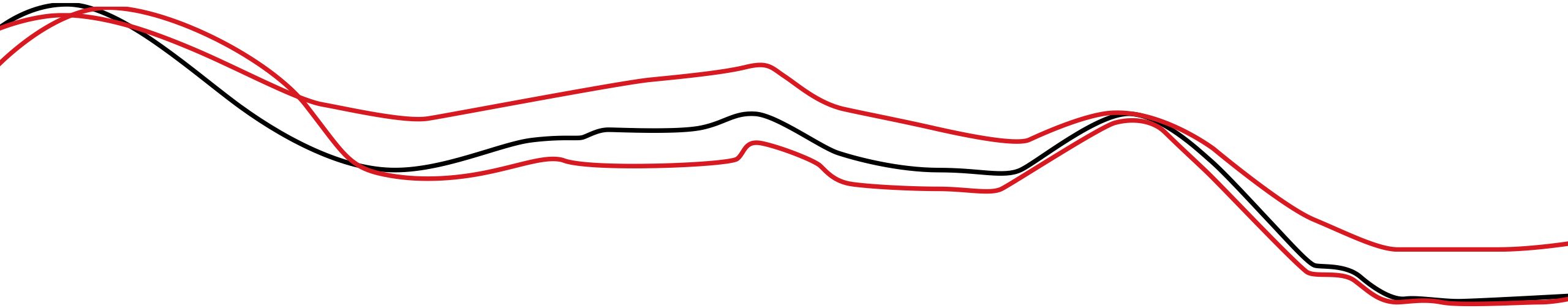
Welcome!

ENERGY DATA HACKDAYS

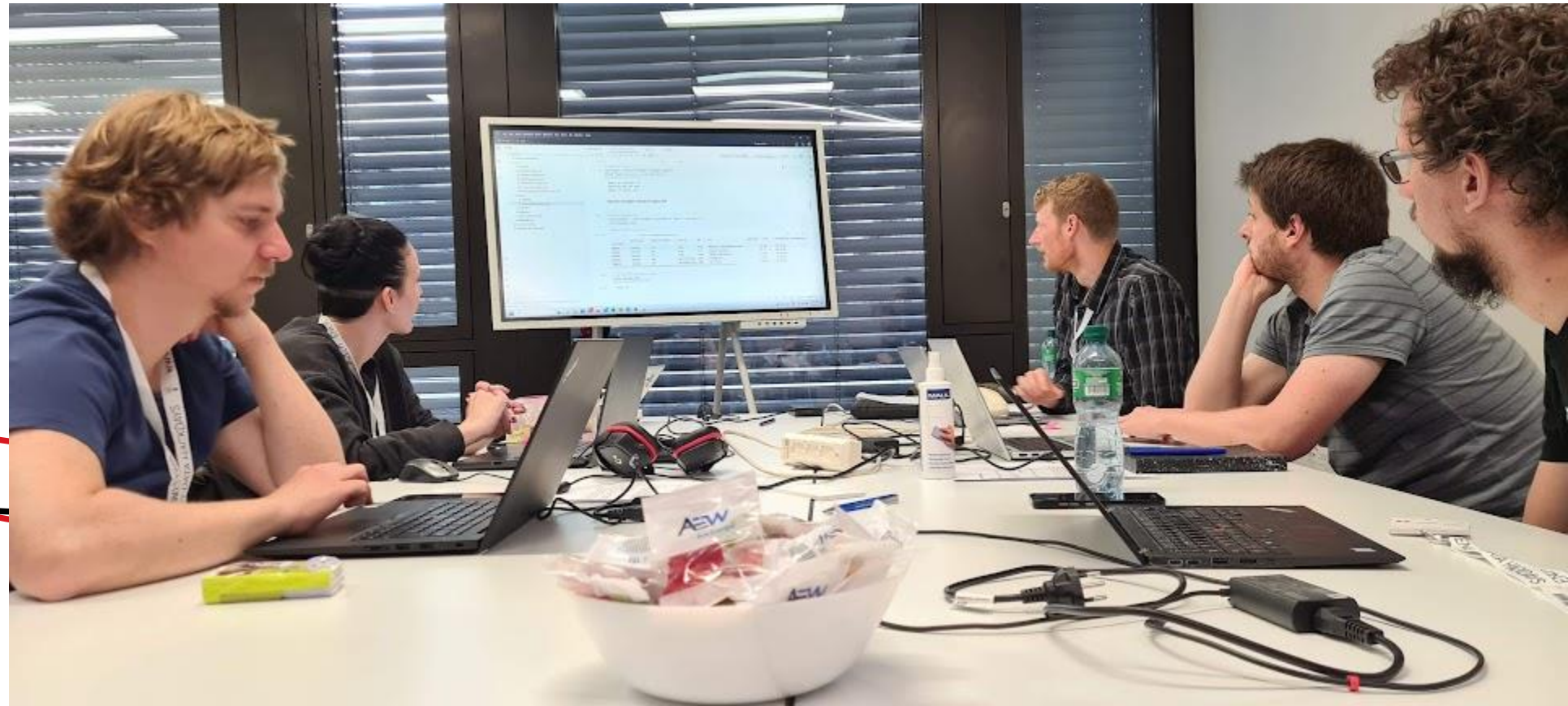


12-13th of September 2024 in Brugg, Switzerland



ENERGY DATA HACKDAYS

This is our Team hard at work



Our Challenge #5

Impact of logistic truck electrification on electrical infrastructure

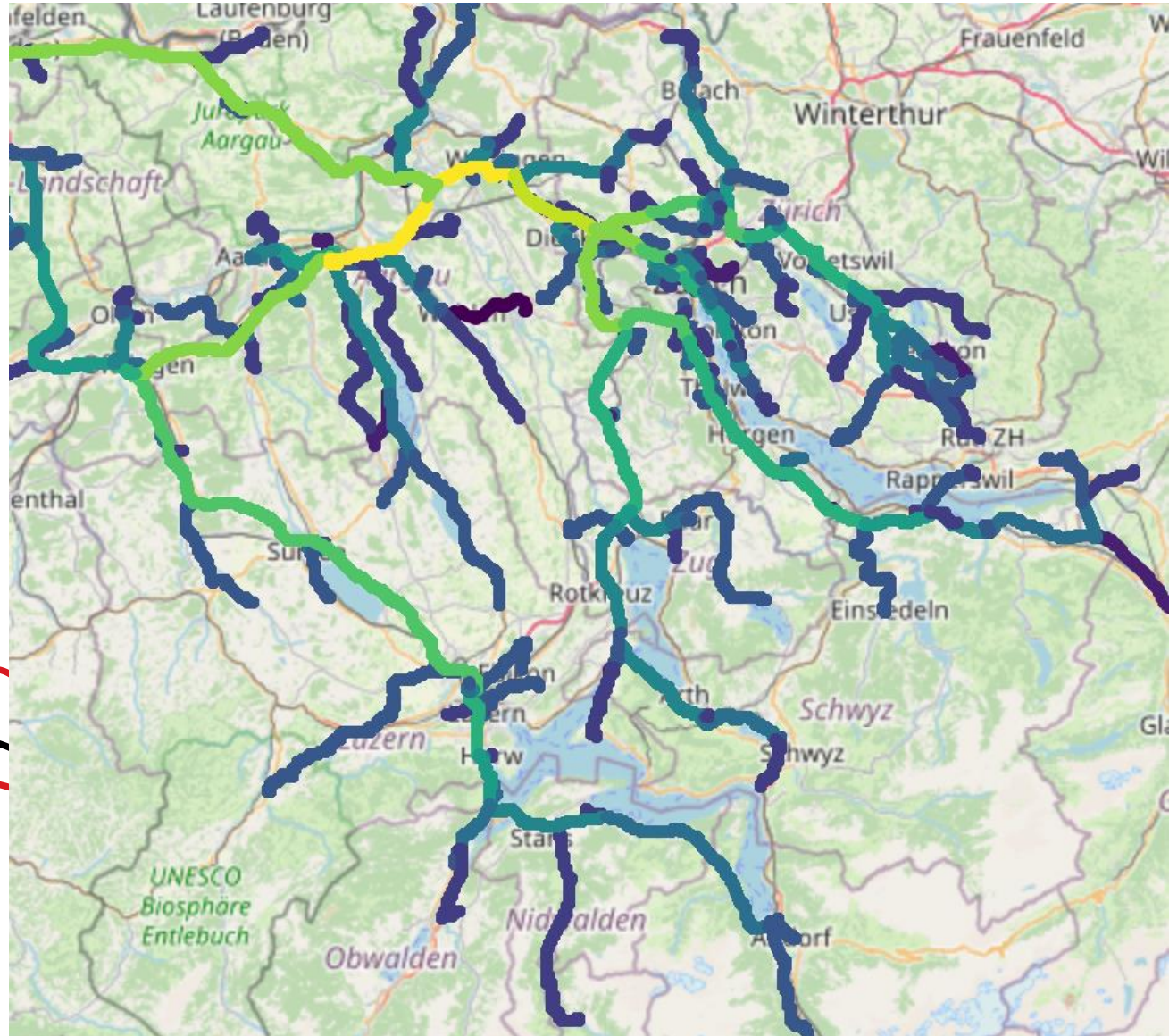
- Our challenge: Asses the operating schedule of the truck fleet and look at its implication on grid connection if electrified.
- Our data: Weekly operating schedule of 160 trucks serving north-eastern Switzerland from the Coop distribution centre in Schafisheim. (under NDA)

Wochentag	Tournummer	Tagestournummer	Tourtyp	SAP	VST	Ladefolge	Sort	Abfahrtszeit Beladestelle	Anlieferzeit	Tourendezeit	Motorwagen/Anhänger	LKW-Kapazität	Einheiten
Montag	1S1011	101	Früh	5739	Würenlos Autobahnraststätte	1	B+P	02:25	03:17	04:01	H	48	0
Montag	1S1011	101	Früh	5739	Würenlos Autobahnraststätte	1	BW1	02:25	03:17	04:01	H	48	1

ENERGY DATA HACKDAYS

How it started…

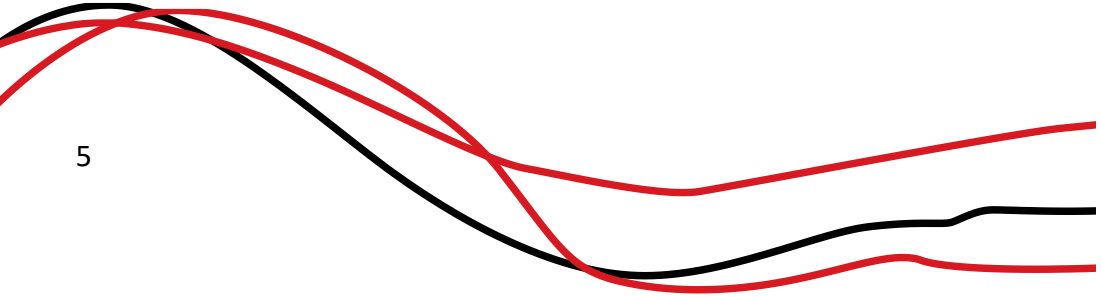
- Look at data and figure out what we can learn from it
- Translate named locations to coordinates
- Setup a local openrouteserver to circumvent API-restrictions and calculate traveled distances
- Get a nice plot from this with frequency of routes taken (This shows possible high-traffic areas in case anyone wants to setup fast-charging stations)

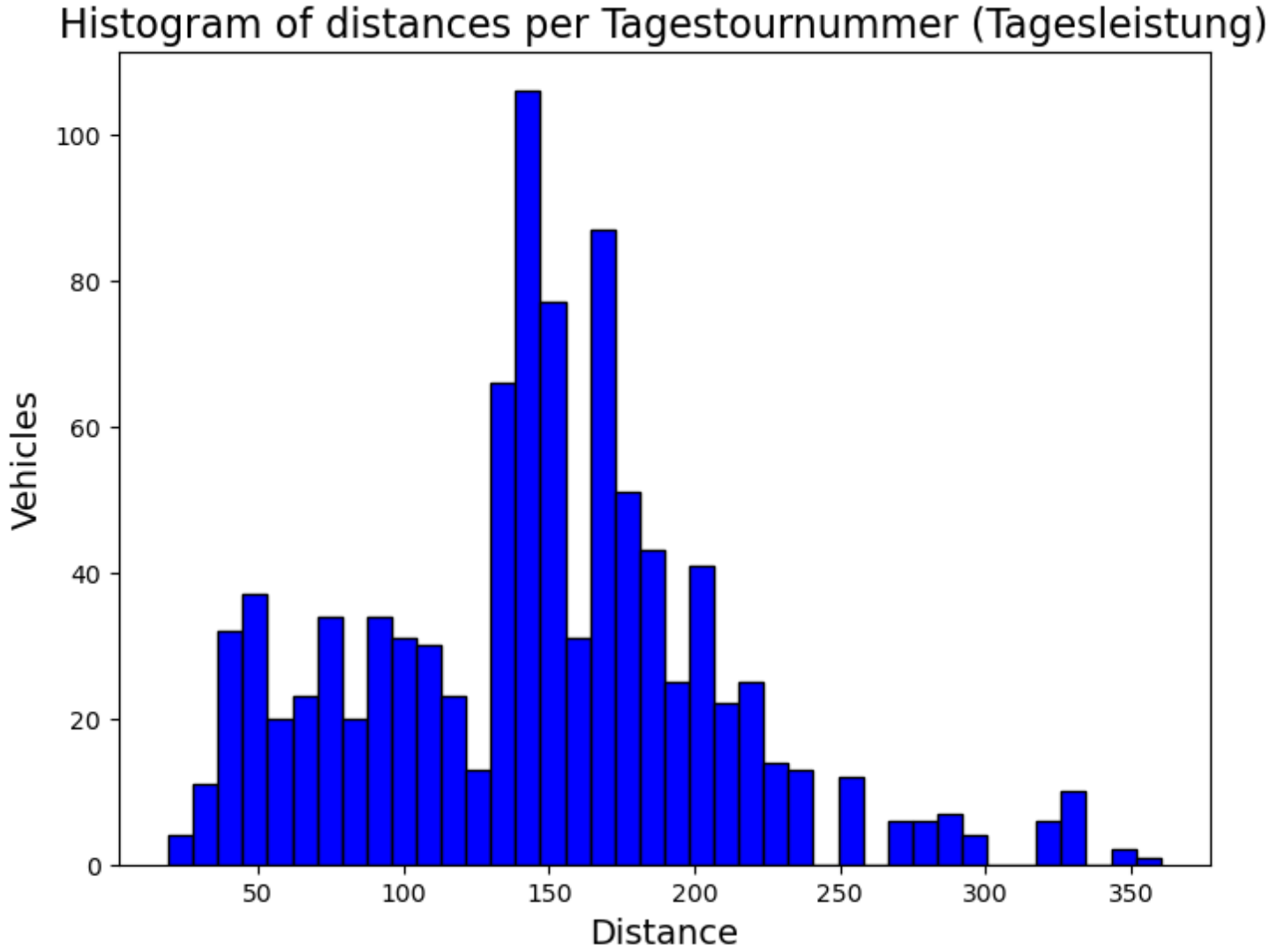


ENERGY DATA HACKDAYS

Distribution of Distances

- A lot of the daily routes can be served with trucks with a range of 200km
- We have not checked how the long routes are distributed trough the weekdays

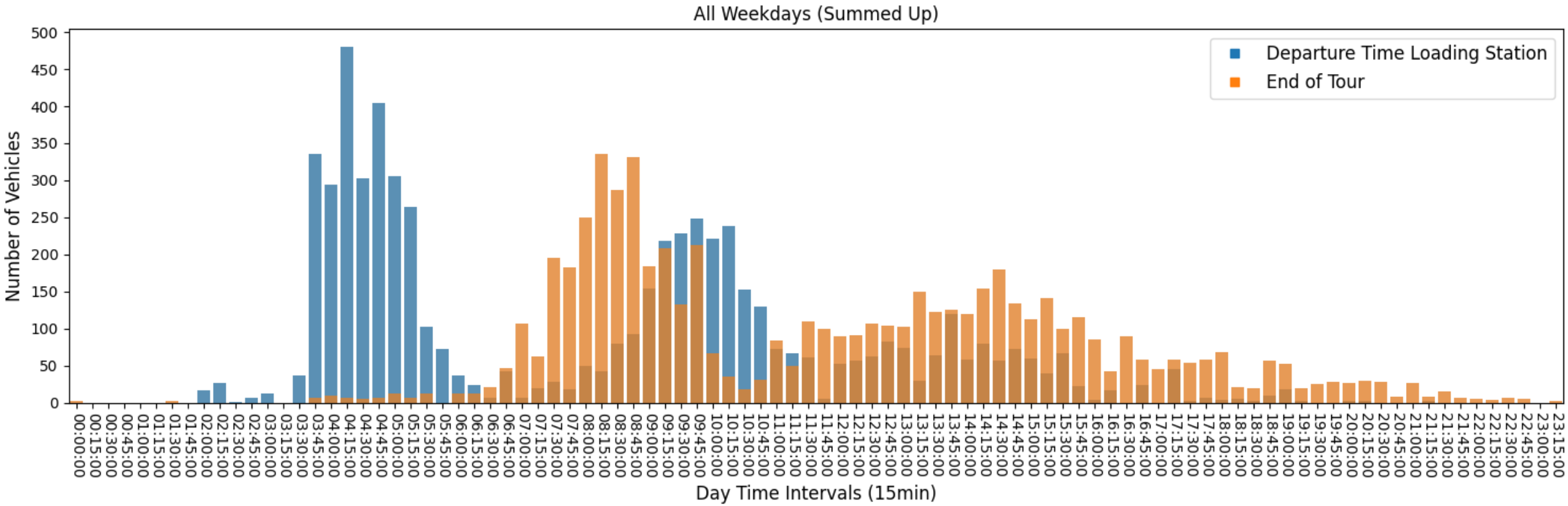




ENERGY DATA HACKDAYS

Distribution timewise

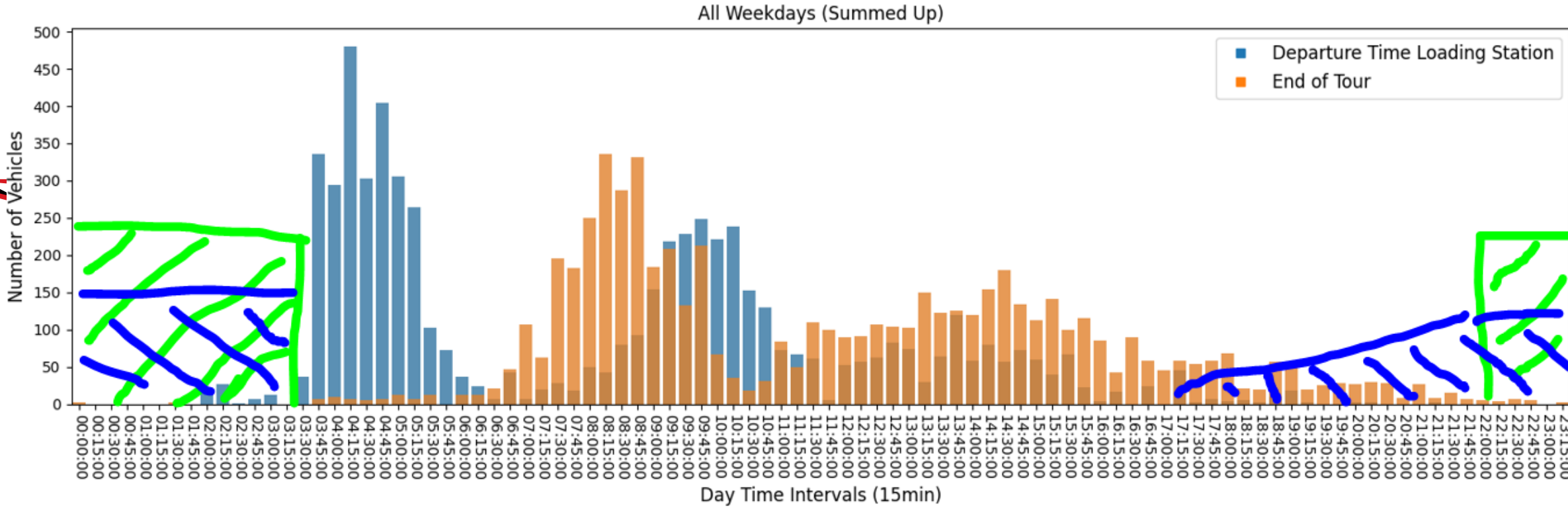
- Check distributions of departures and arrivals
  early start in the Day
- mostly two tours, with a widespread arrival in the evening



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Summarised usage

- An average of 40’000km driven by the fleet everyday approximates to 55MWh used if everything is driven electric.
- If we charge from 22:00-4:00am, we need 9MW of grid connection -> this should be minimized
- 9MW are way too much $$



ENERGY DATA HACKDAYS

Outlook

- Intelligent charging solutions to the rescue!
  We were not able to do this (yet) with our own data, therefore graphs from a previous project
- Example: more than halfed peak power
- Severing and HSLU will work on this for another 1.5 Years

