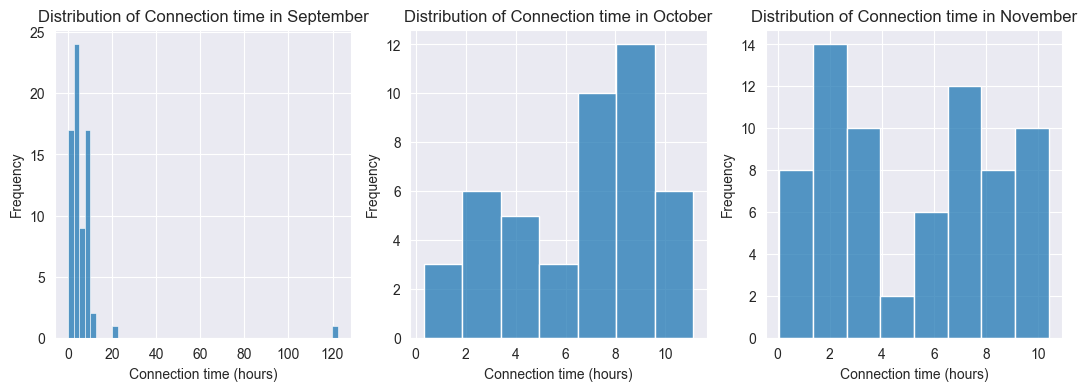
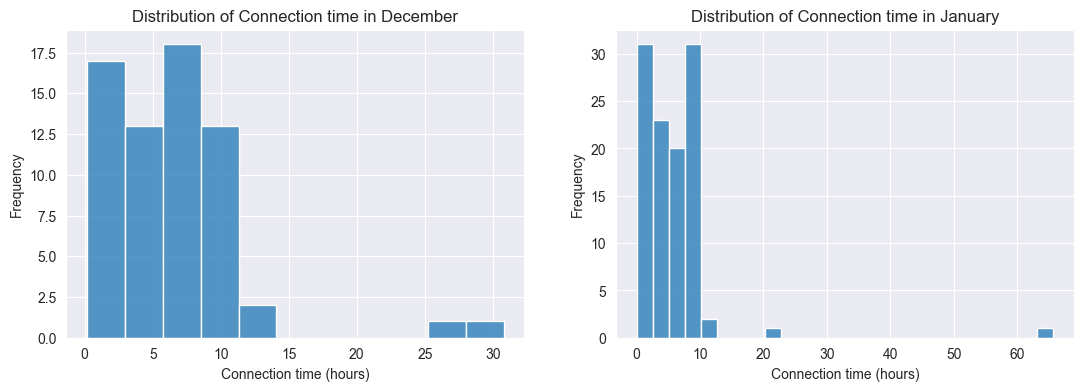
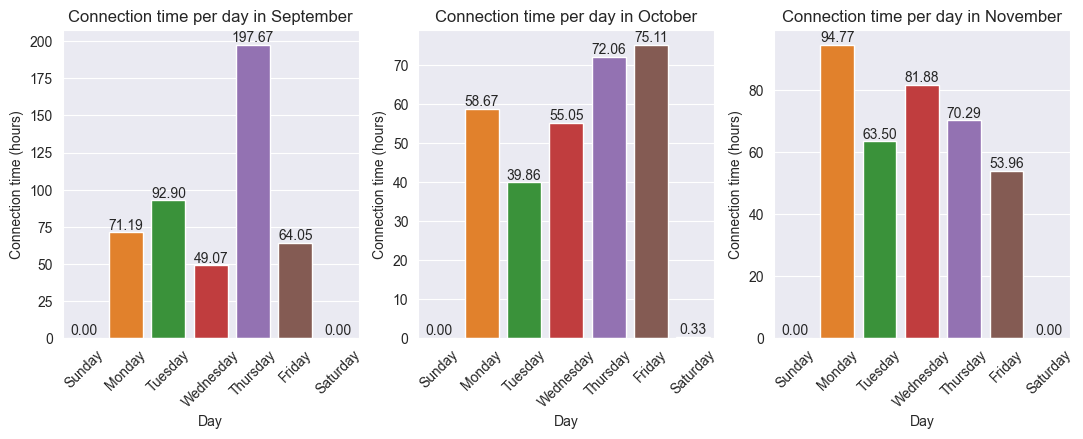
**CONNECTION TIME DISTRIBUTION**

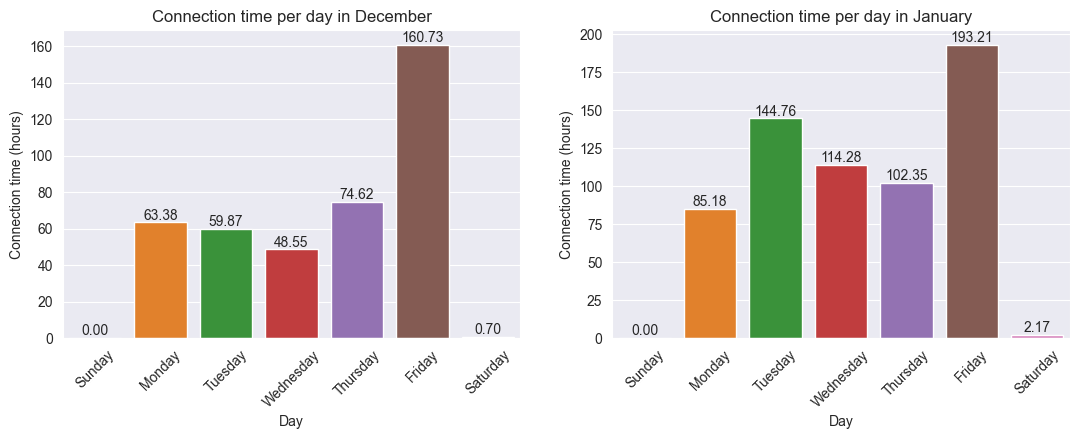
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The connection time is skewed to the right in September, December and January. These are due to high connection times, which occur very less frequently, compared to other connection times in the respective months. To avoid generalizing wrongly due to these outlier connection times, the median is used to calculate the connection time, instead of mean, for the days of the week in each month. This is because the mean is more affected by these outliers.

**TOTAL CONNECTION TIME (MONTHLY)**



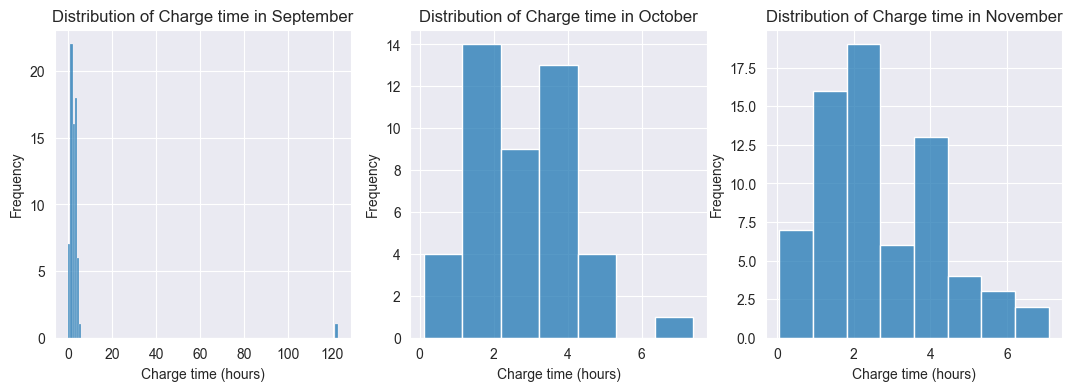


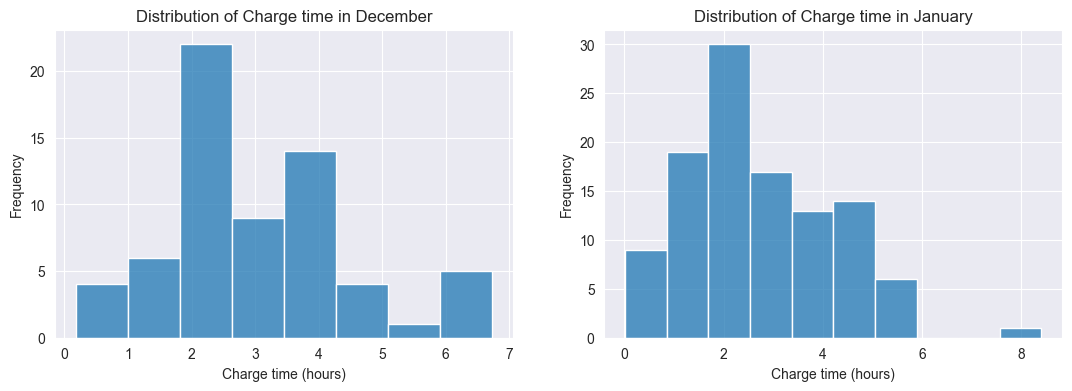
**MEDIAN CONNECTION TIME (HOURS) FOR EACH DAY IN EACH MONTH**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| September | - | 7.64 | 5.72 | 3.11 | 8.07 | 3.57 | - |
| October | - | 7.39 | 4.48 | 8.80 | 7.60 | 7.88 | 0.33 |
| November | - | 6.60 | 3.74 | 6.71 | 6.06 | 3.56 | - |
| December | - | 3.18 | 7.06 | 3.08 | 9.34 | 6.34 | 0.70 |
| January | - | 4.70 | 7.45 | 5.13 | 5.14 | 3.98 | 2.17 |

No employee connected their EV on Sunday. Some connected on Saturday in November, December and January.

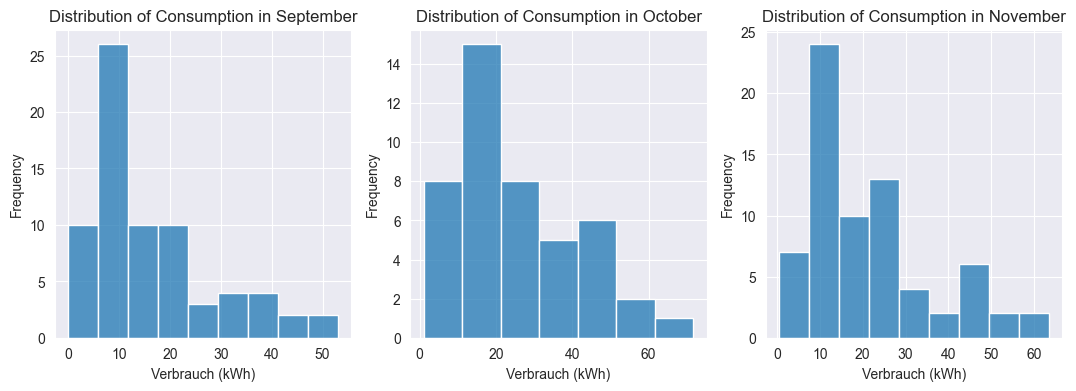
**DISTRIBUTION OF CHARGE TIME**

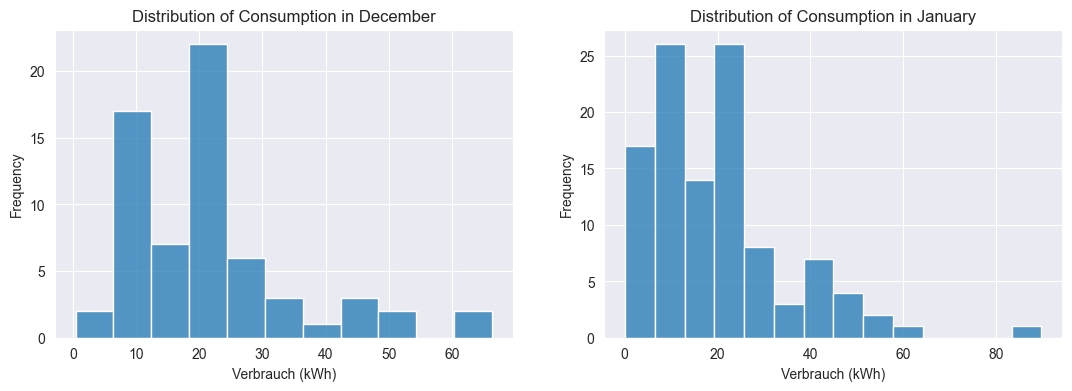




Most of the charge time in September had a duration less than 8 hours. There is an outlier with a charge time of over 120 hours. The rest of the months had a charge time duration less than 8 hours, with majority of the duration falling between 1 and 5 hours.

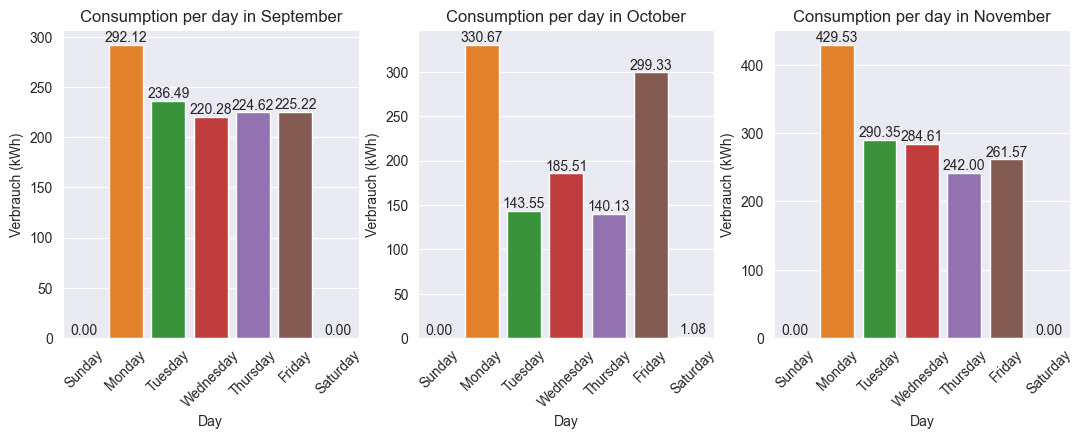
**CONSUMPTION DISTRIBUTION**

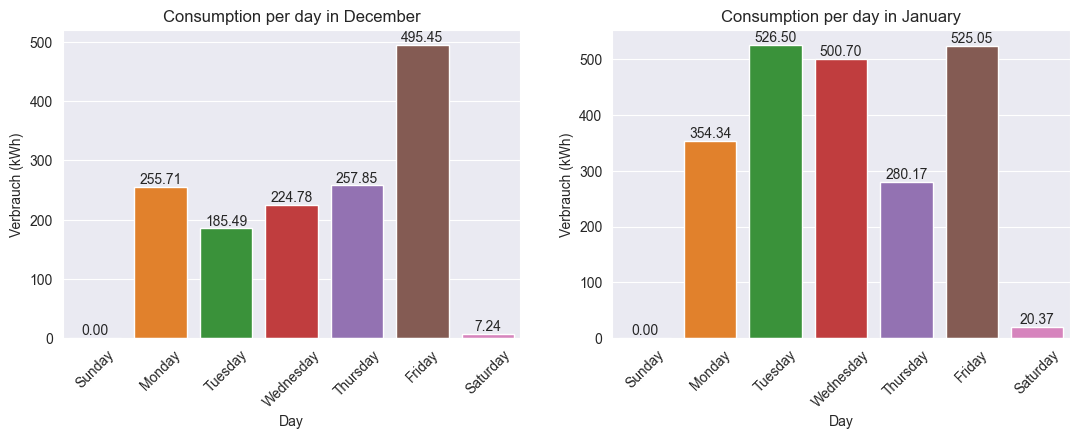




Energy consumption was mostly between 5 and 40 kWh. Consumption was as high as 80 kWh for a charge session in January, with the rest of the months having less than 65 kWh. The energy consumption for all the months seems to be right skewed, which means the mean is consumption is likely to be influenced by outlier consumption (like the 80 kWh) for each month.

**TOTAL CONSUMPTION (MONTHLY)**

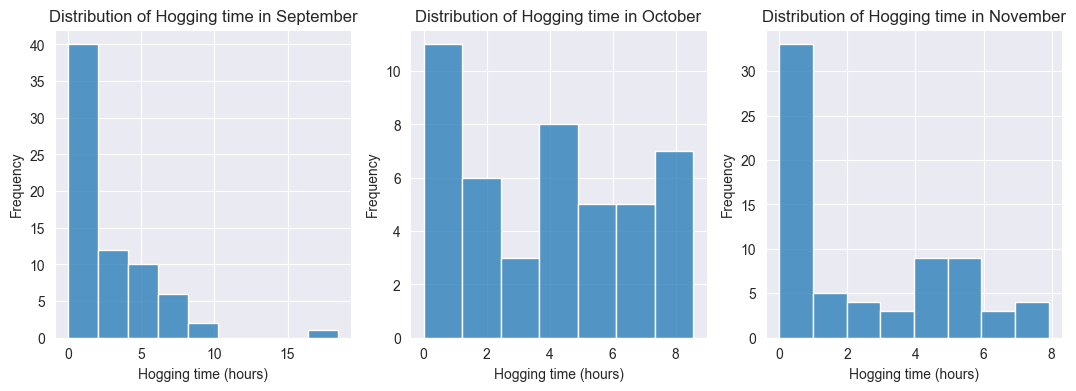


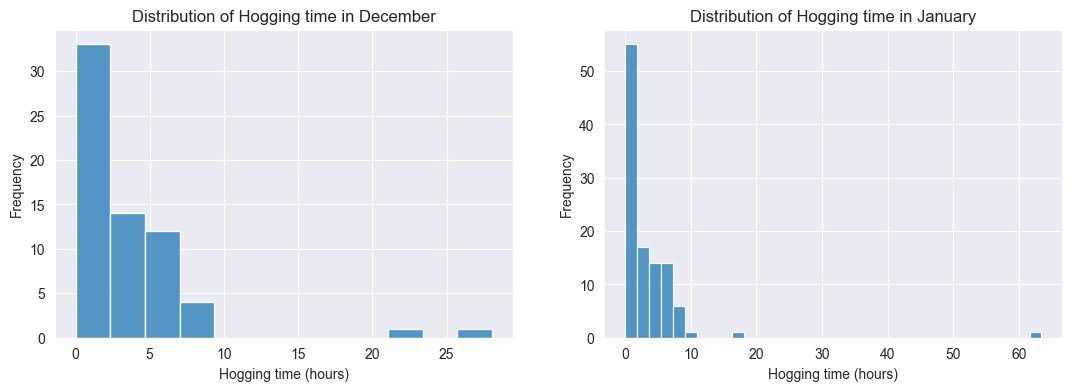


**MEDIAN ENERGY CONSUMPTION (kWh) FOR EACH DAY**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| September | - | 22.411 | 11.308 | 11.280 | 11.961 | 11.208 | - |
| October | - | 40.826 | 18.115 | 22.263 | 12.360 | 30.254 | 1.077 |
| November | - | 23.1115 | 15.640 | 14.791 | 14.1330 | 17.2455 | - |
| December | - | 21.285 | 21.011 | 16.229 | 22.917 | 21.327 | 7.239 |
| January | - | 17.6045 | 21.5595 | 21.9175 | 10.8830 | 15.6500 | 20.3670 |

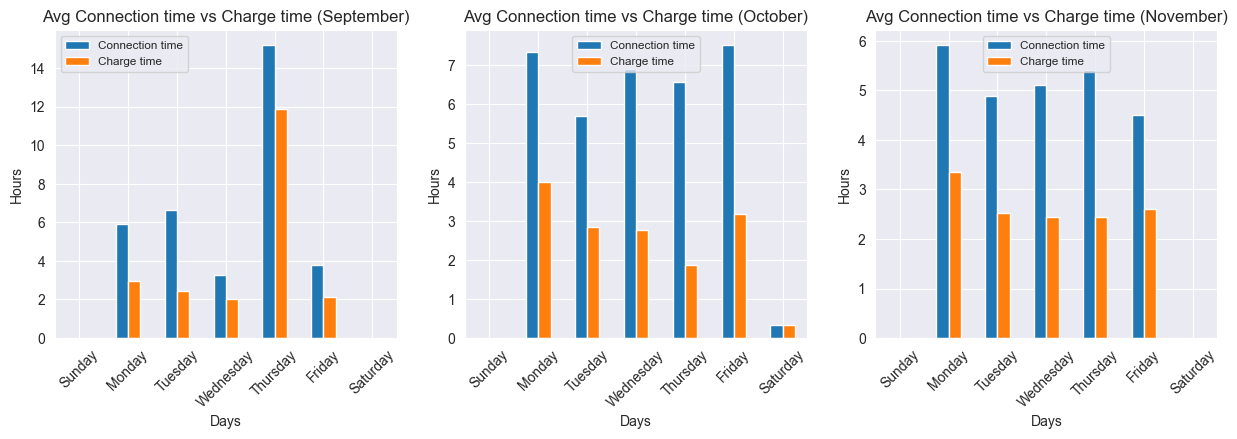
**HOGGING TIME DISTRIBUTION**

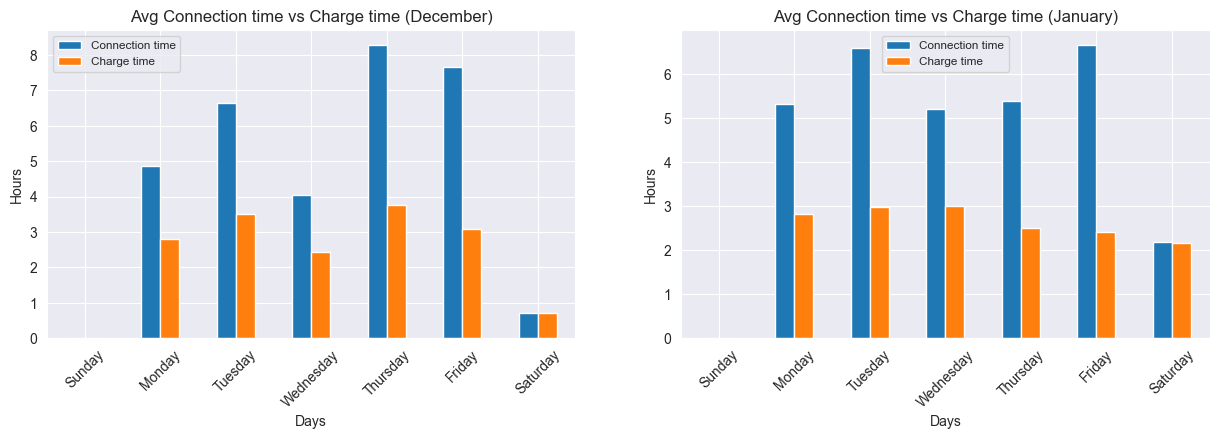




Hogging time in October seems balanced between 0 and 9 hours. In September, only 1% of the hogging time was above 15 hours. 47% of the hogging time in November was less than 1 hour. December and January had longer hogging time with 2 charge sessions above 20 hours (December) and 1 charge session above 60 hours (January).

**AVERAGE CONNECTION AND CHARGE TIME (MONTHLY)**

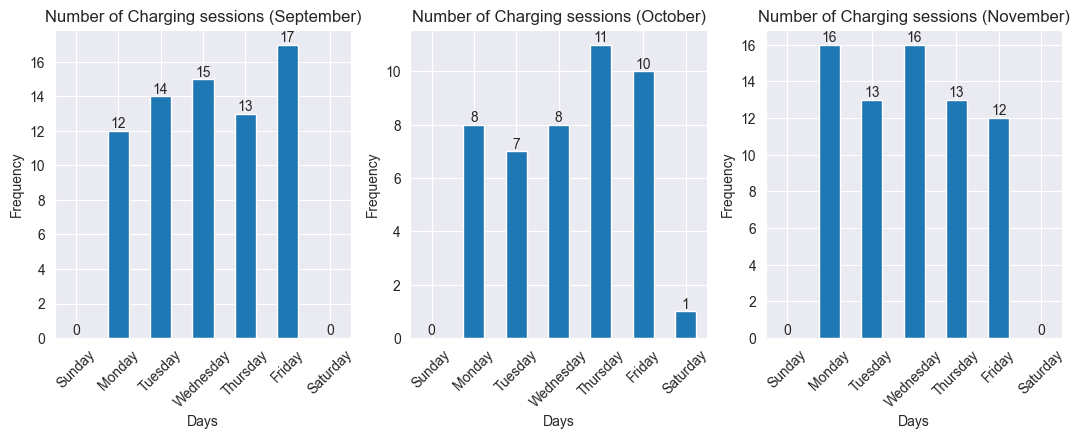


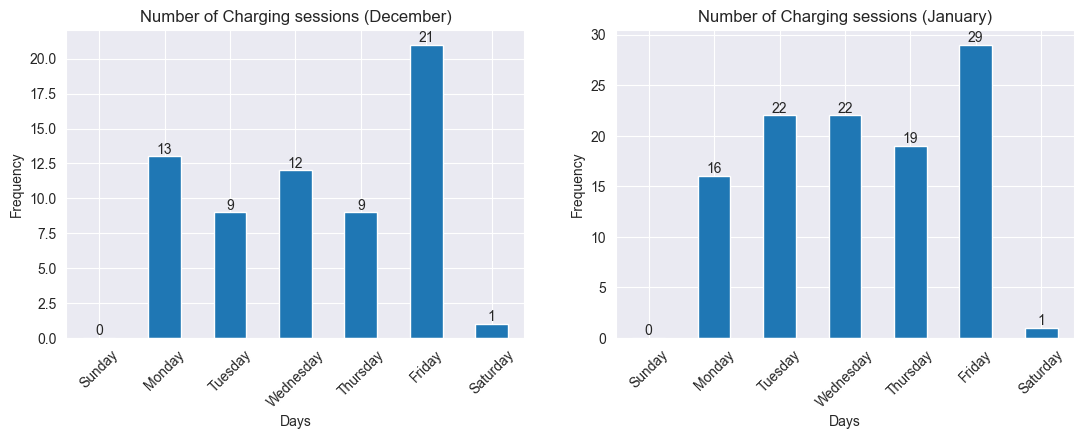


**MEAN CONNECTION AND CHARGE TIME (HOURS) PER MONTH**

|  |  |  |
| --- | --- | --- |
|  | Average connection time | Average charge time |
| September | 6.69 | 4.08 |
| October | 6.69 | 2.82 |
| November | 5.21 | 2.69 |
| December | 6.27 | 3.02 |
| January | 5.89 | 2.71 |

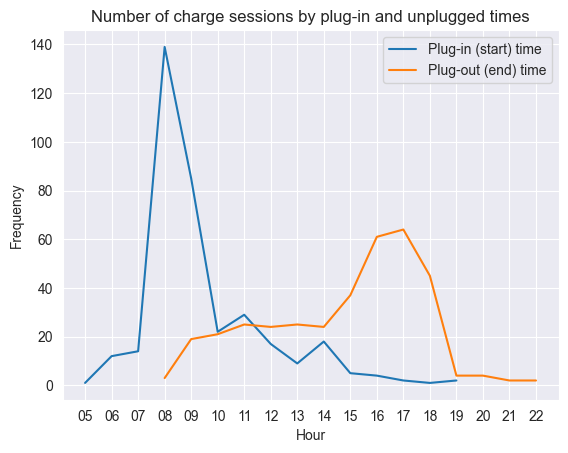
**NUMBER OF CHARGE SESSIONS (DAILY)**

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Most employees charged during the weekdays. There were 3 charge sessions overall that occurred during the weekend (3 Saturday and none on Sunday).

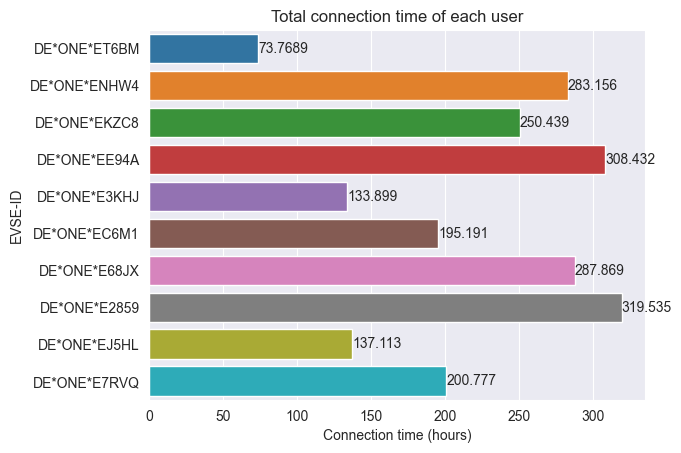
**NUMBER OF CHARGE SESSIONS BY PLUG-IN AND UNPLUGGED TIMES**



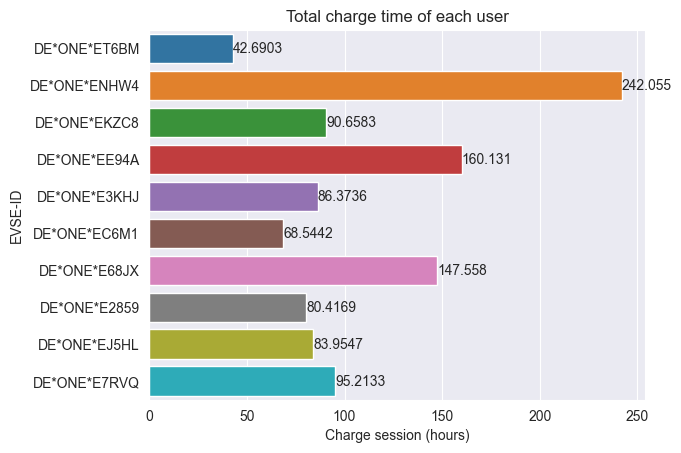
*NB: 24-hour time format used*

Most charging sessions occurred between 08:00 and 09:00. The number of charge sessions reduced as the hour passes towards the evening. Employees unplugged their EVs mostly between 16:00 and 18:00 (4pm to 6pm). The earliest plug-in occurred between 05:00 and 06:00 and the latest between 19:00 and 20:00. The earliest plug-out time was between 08:00 and 09:00 and the latest between 22:00 and 23:00.

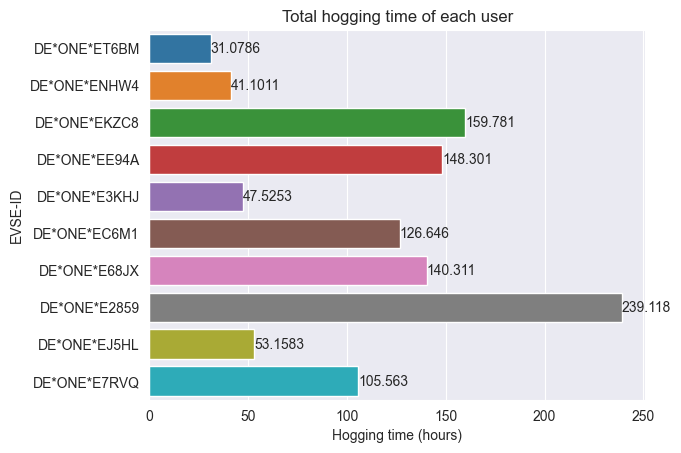
**CONNECTION TIME OF EACH EMPLOYEE**



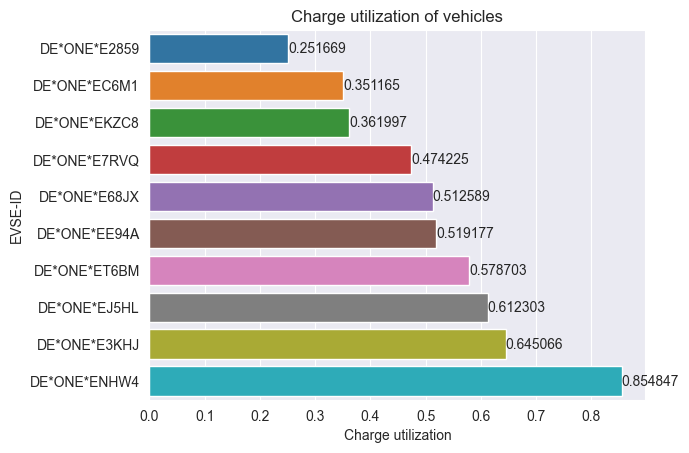
**CHARGE TIME OF EACH EMPLOYEE**



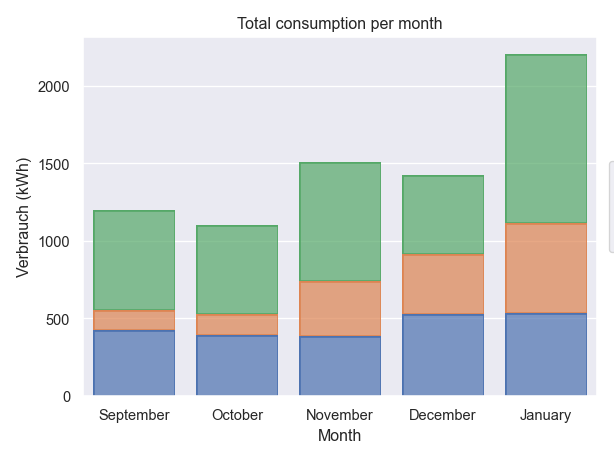
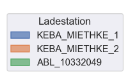
**HOGGING TIME OF EACH EMPLOYEE**



**CHARGE UTILIZATION**



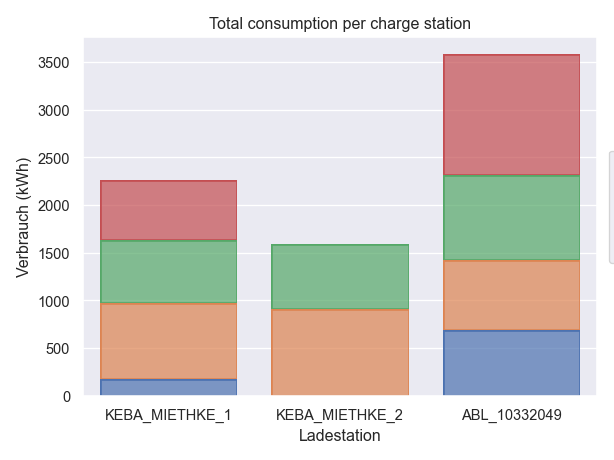
**CONSUMPTION PER MONTH**



|  |  |
| --- | --- |
| Month | Total energy consumption (kWh) |
| September | 1198.732 |
| October | 1100.265 |
| November | 1508.063 |
| December | 1426.529 |
| January | 2207.120 |

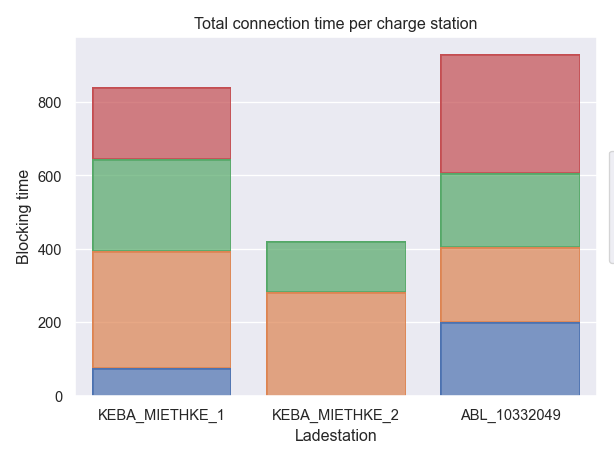
**CONSUMPTION PER CHARGE STATION**

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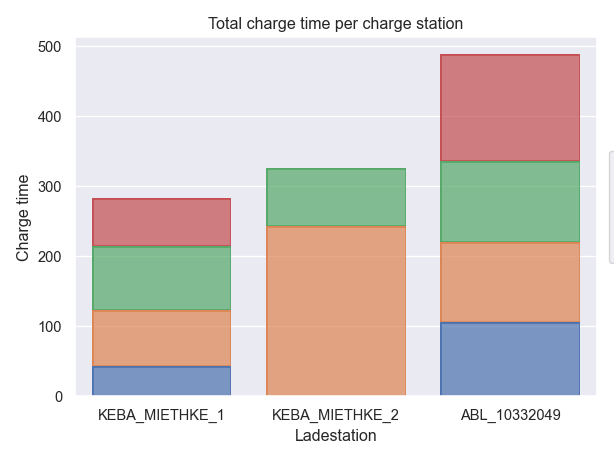


|  |  |  |
| --- | --- | --- |
| Standort | Ladestation | Total energy consumed (kWh) |
| Fritz-von-der-Lacken-Strabe | KEBA\_MIETHKE\_2 | 1593.571 |
| Ulanweg | ABL\_10332049 | 3589.279 |
|  | KEBA\_MIETHKE\_1 | 2257.859 |

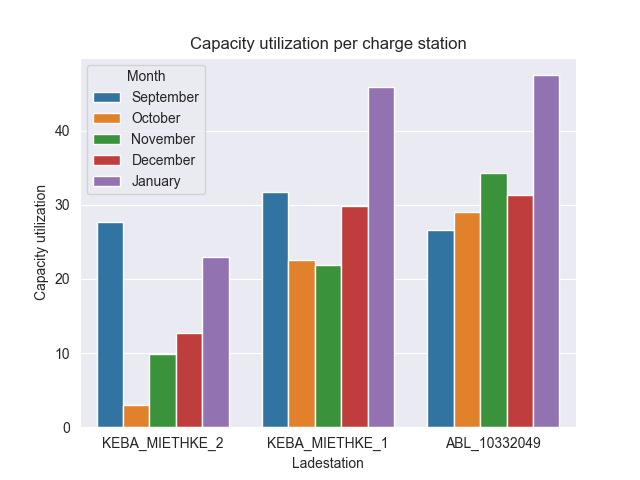
**CONNECTION TIME PER CHARGE STATION**



**CHARGE TIME PER CHARGE STATION**

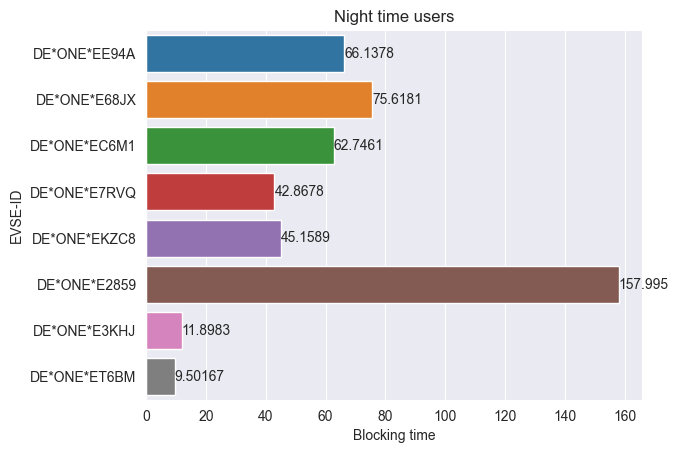


**CAPACITY UTILIZATION**

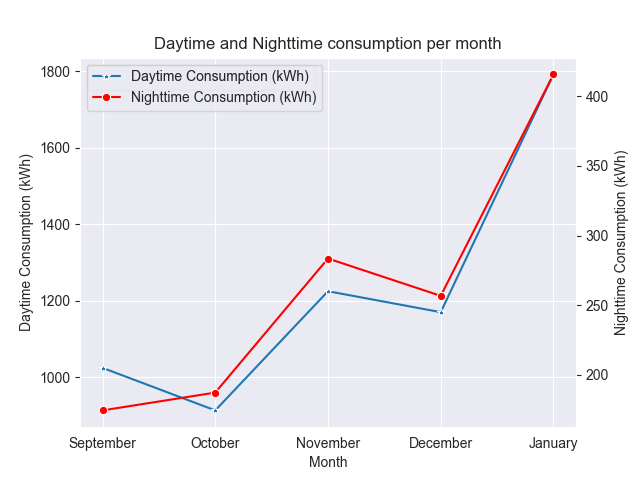


Capacity utilization increased generally in the charge stations over the months from October to January. Overall, the average capacity utilization for ABL was 33.7%, for Keba\_1 was 30.4% and Keba\_2 was half as utilized as Keba\_1, with 15.2%.

**NIGHTTIME USERS**



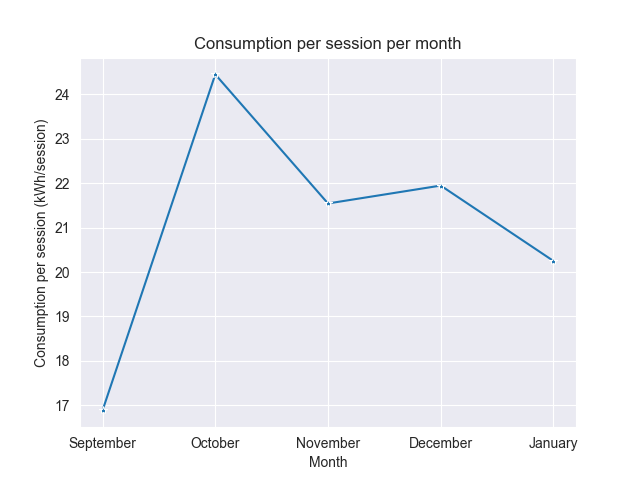
**DAYTIME AND NIGHTIME CONSUMPTION**



Although different in numbers, the energy consumption for daytime and nighttime users had similar trend pattern over the months. Daytime and nighttime consumption were highest in January with 1791.419 kWh and 415.701 kWh consecutively. Daytime consumption was lowest in October while Nighttime consumption was lowest in September

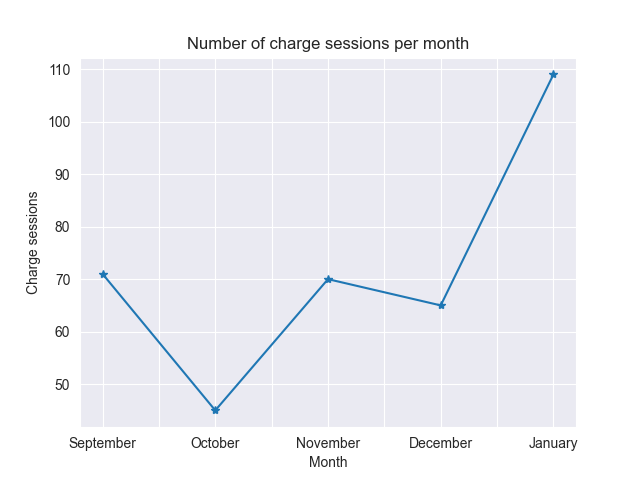
|  |  |  |
| --- | --- | --- |
| Month | Daytime consumption (kWh) | Nighttime consumption (kWh) |
| September | 1024.149 | 174.583 |
| October | 912.891 | 187.374 |
| November | 1224.488 | 283.575 |
| December | 1169.745 | 256.784 |
| January | 1791.419 | 415.701 |

**CONSUMPTION PER SESSION PER MONTH**

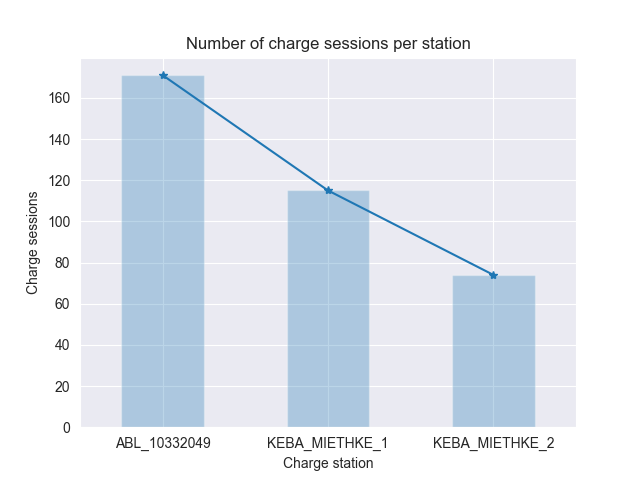


Assume an average consumption of 5.5 km/kWh. When 7440.709 kWh total energy was consumed, 40923.8995 km was driven by the employees. On average, 21.014 kWh of energy was consumed per charge session. This means that per charge session, 115.577 km was driven emission-free.

**CHARGE SESSIONS PER MONTH**

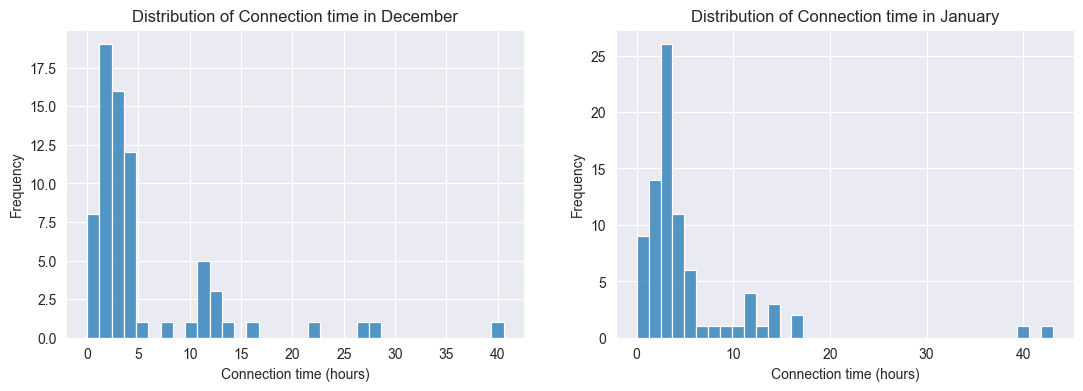
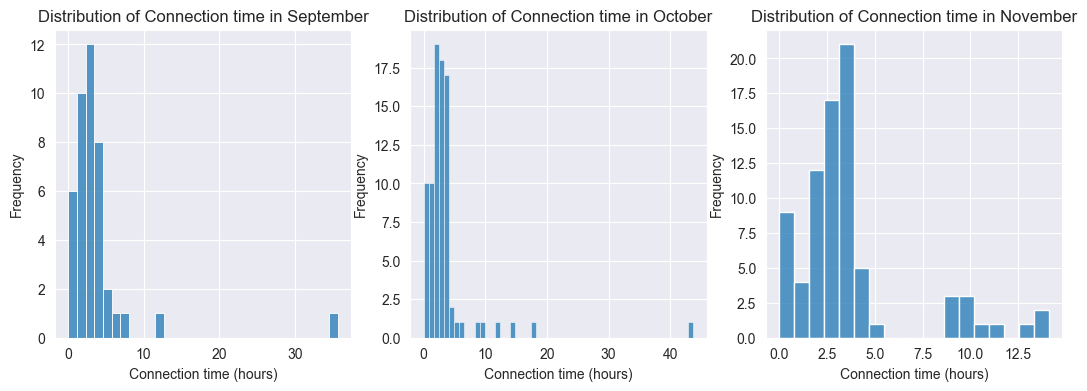


**CHARGE SESSIONS PER CHARGE STATION**

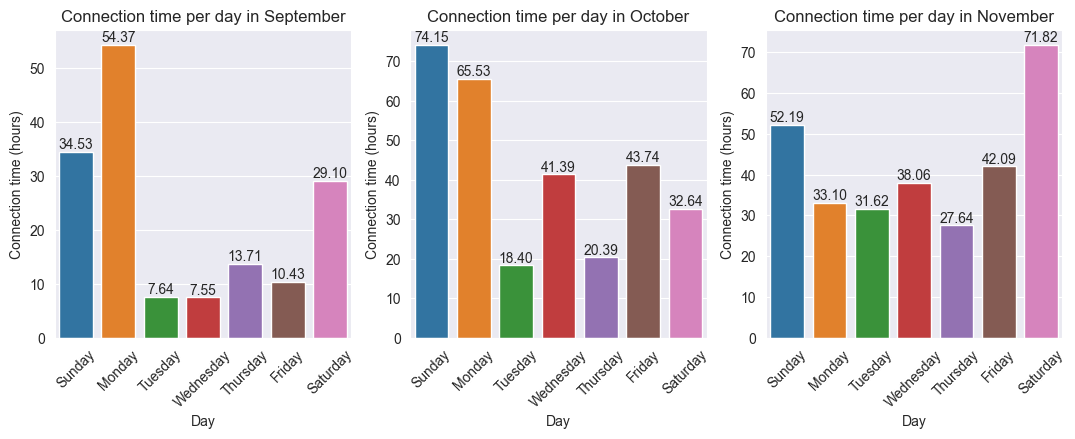


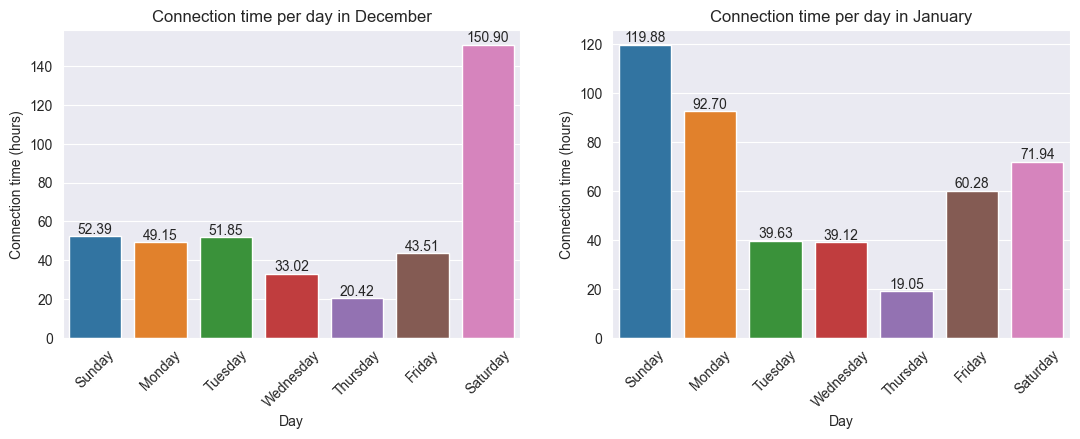
USERS

**DISTRIBUTION OF CONNECTION TIME**

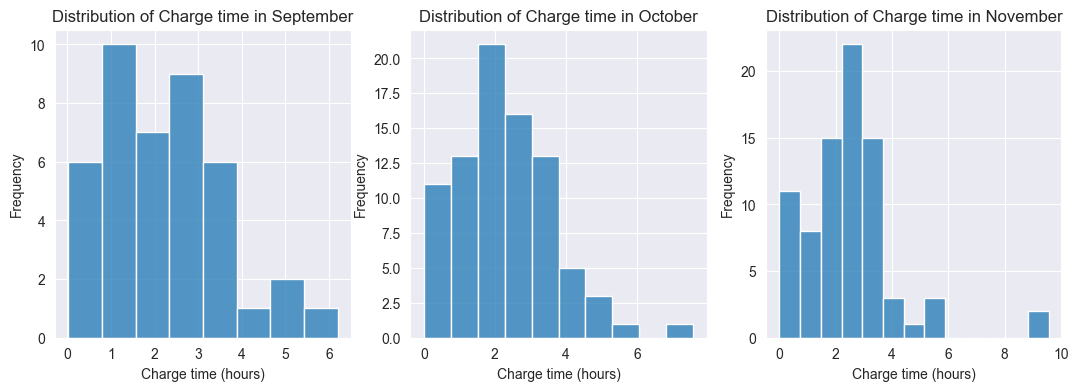


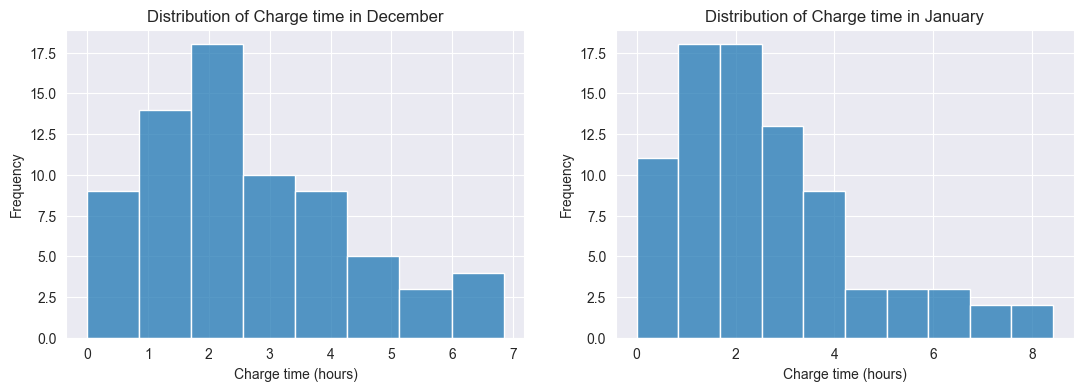
**CONNECTION TIME (MONTHLY)**

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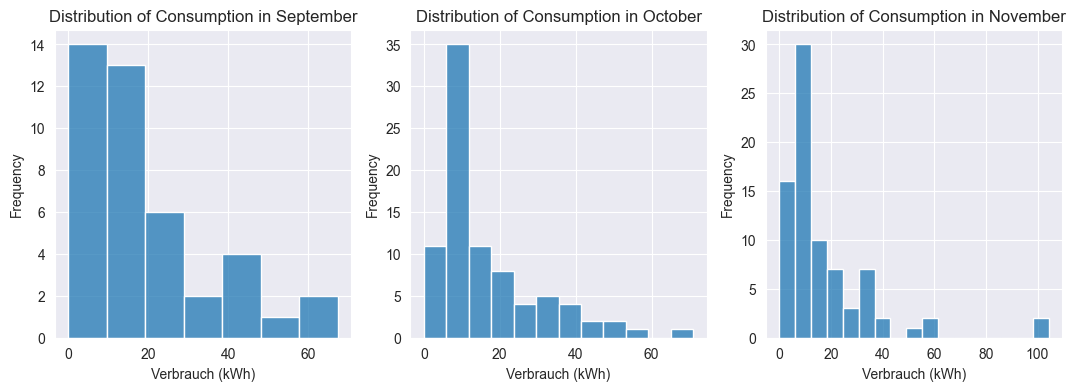
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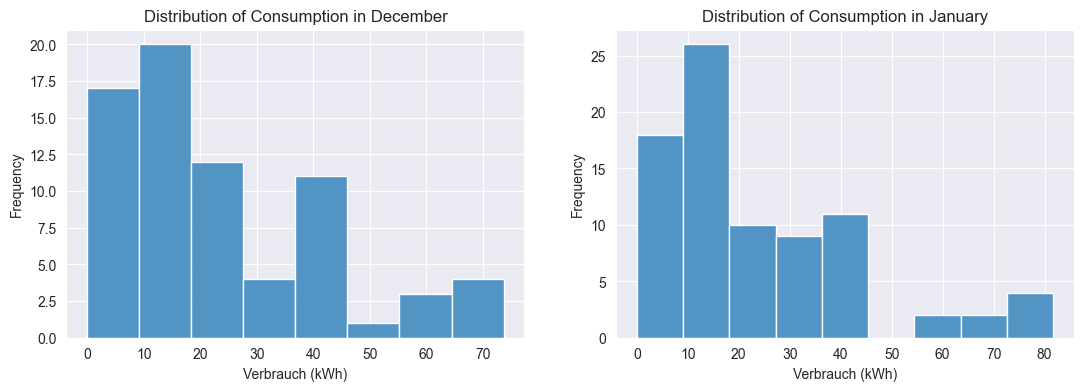
**DISTRIBUTION OF CHARGE TIME**

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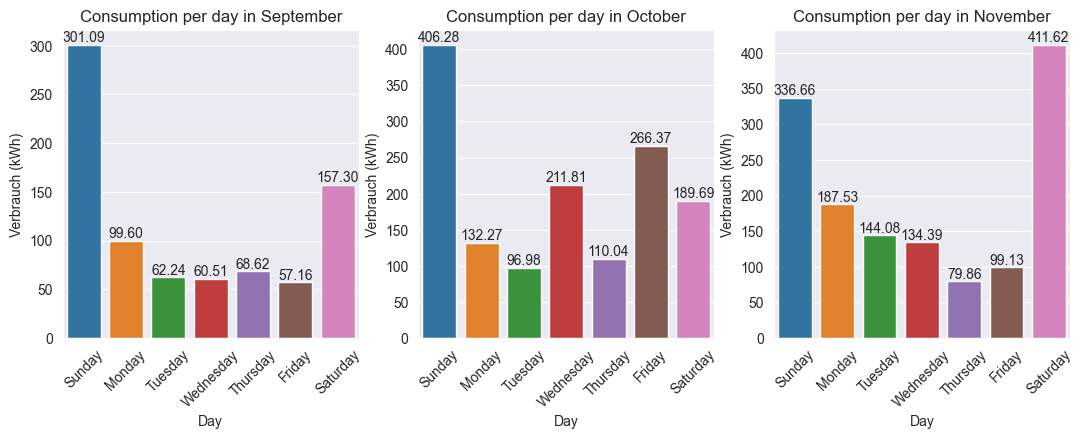
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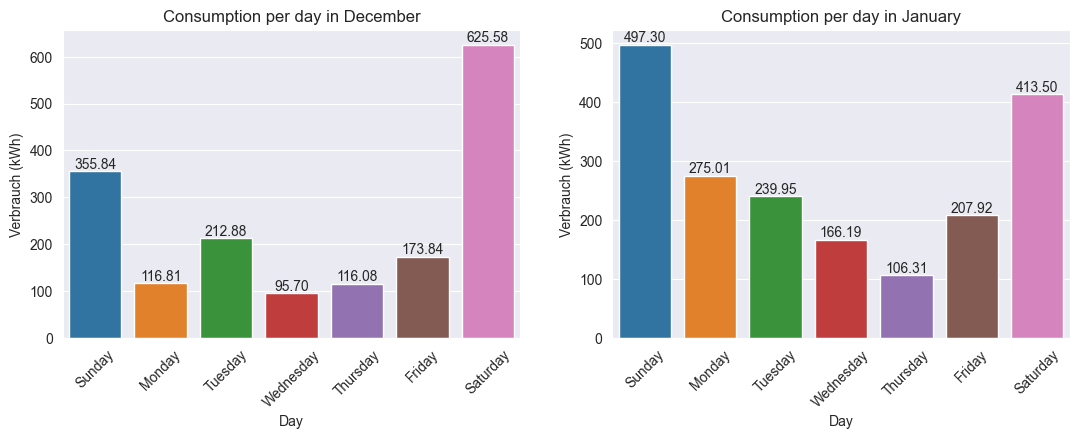
**DISTRIBUTION OF CONSUMPTION**



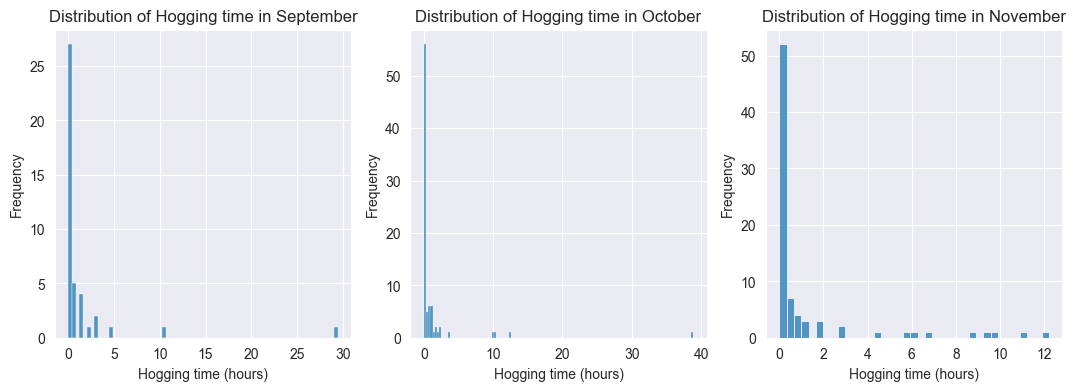


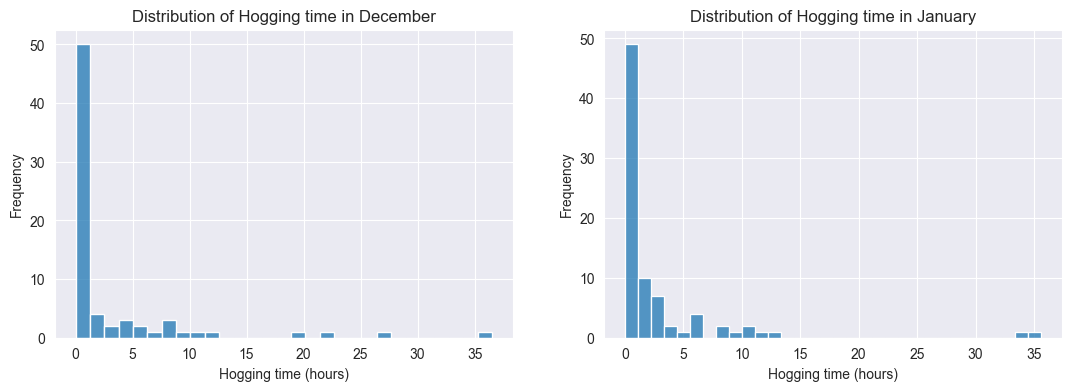
**CONSUMPTION (MONTHLY)**



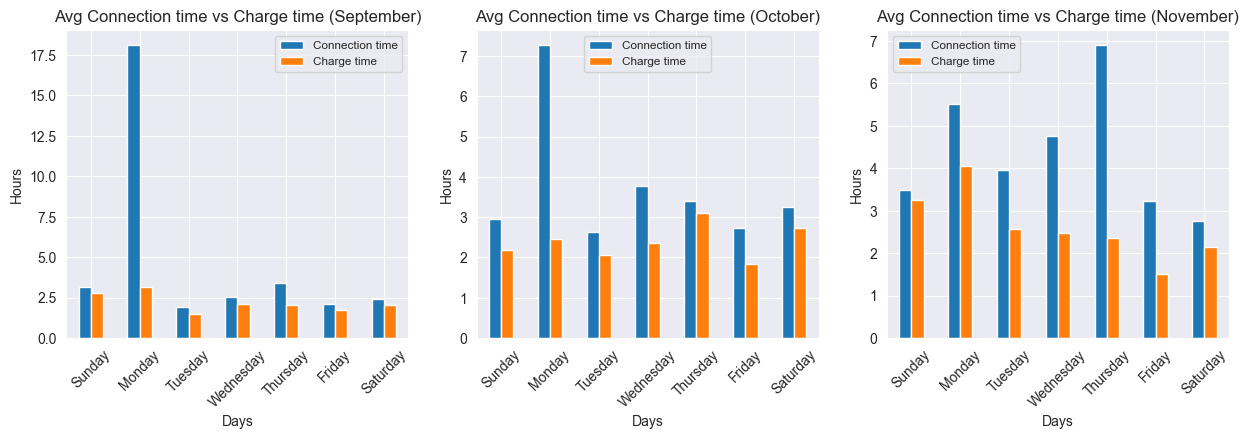


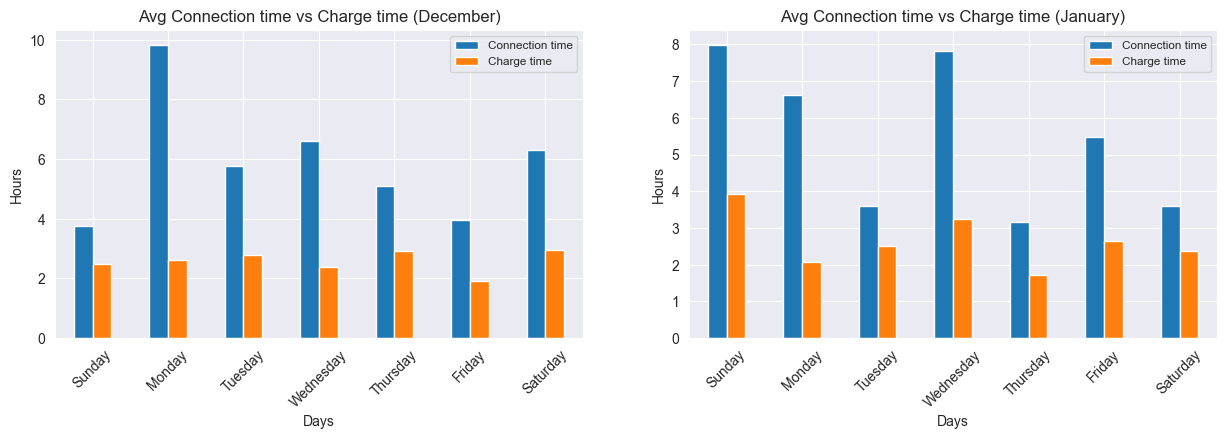
**DISTRIBUTION OF HOGGING TIME**



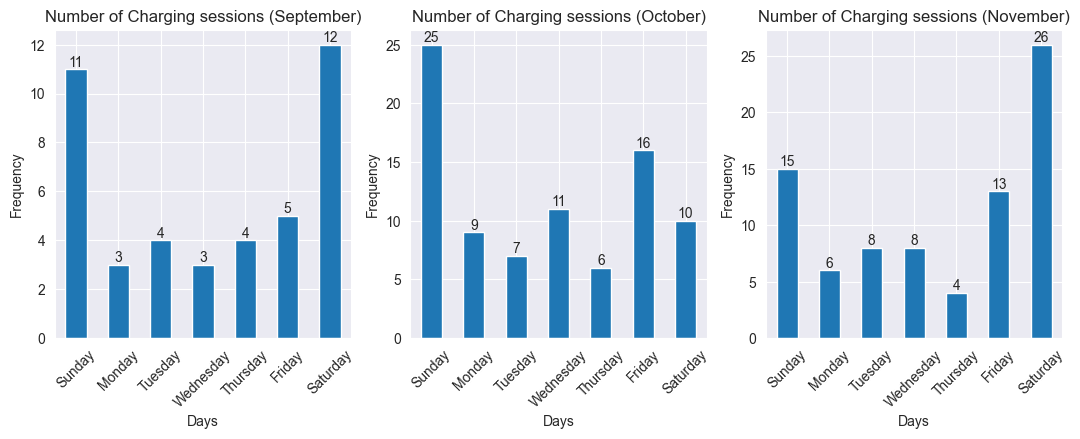


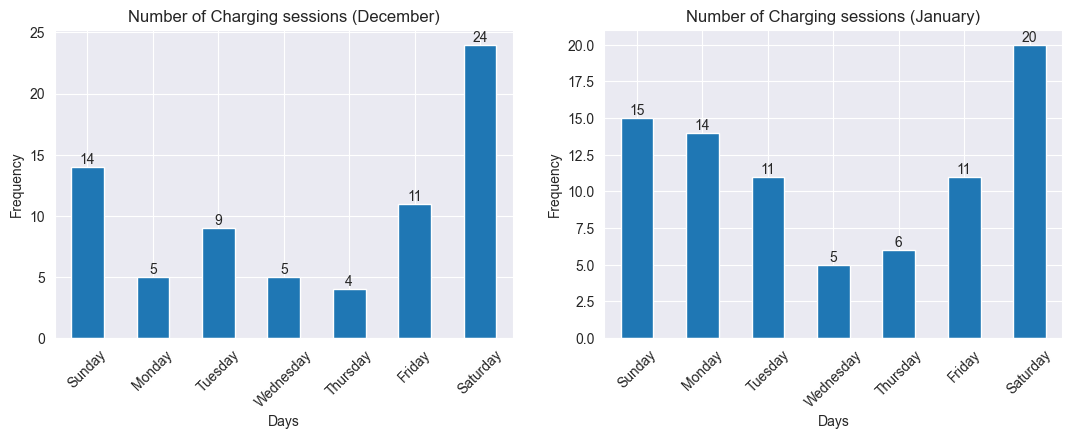
**AVERAGE CONNECTION AND BLOCKING TIMES (MONTHLY)**



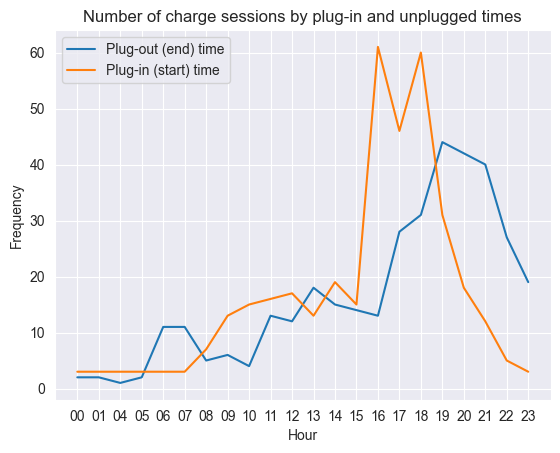


**NUMBER OF CHARGE SESSIONS**

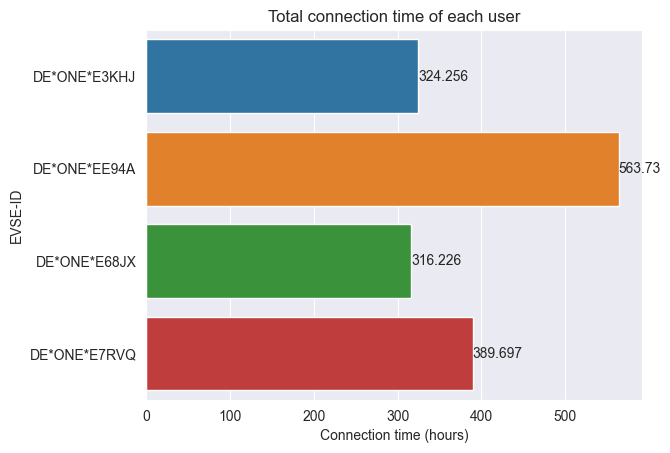




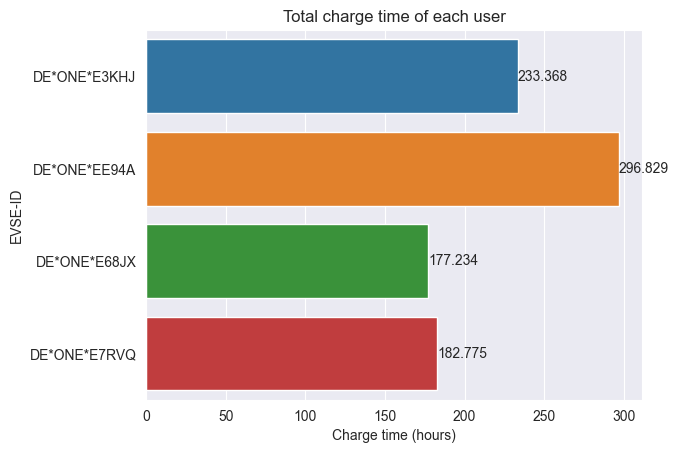
**PLUG-IN AND PLUG-OUT FREQUENCY**



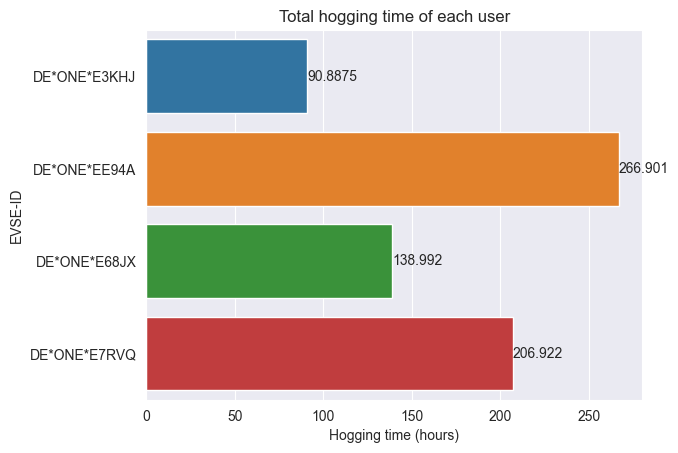
**CONNECTION TIME**



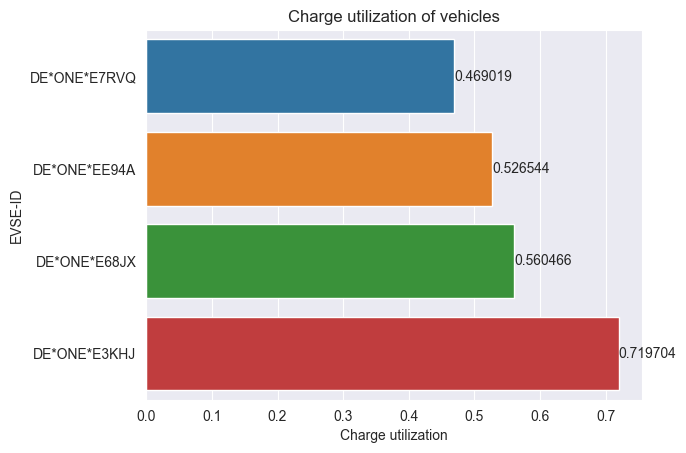
**CHARGE TIME**



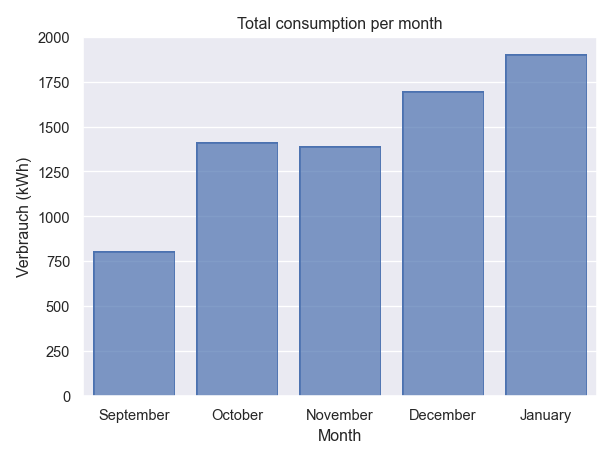
**HOGGING TIME**



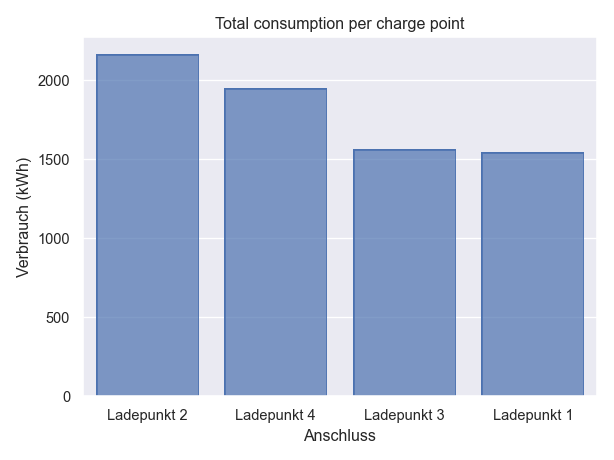
**CHARGE UTILIZATION**



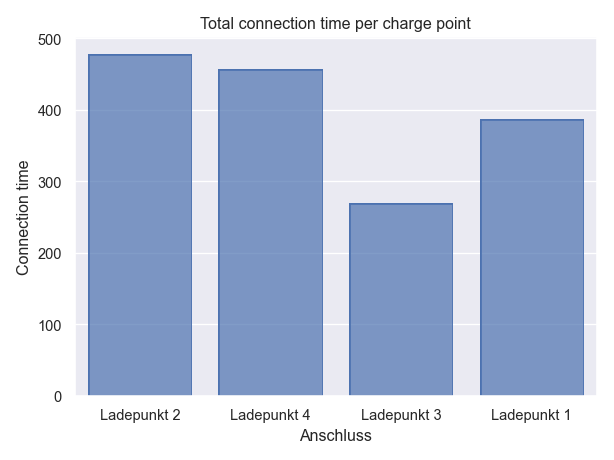
**CONSUMPTION PER MONTH**



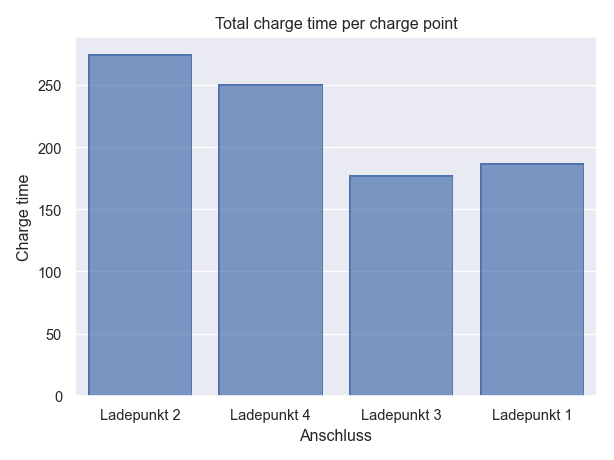
**CONSUMPTION PER CHARGE POINT**



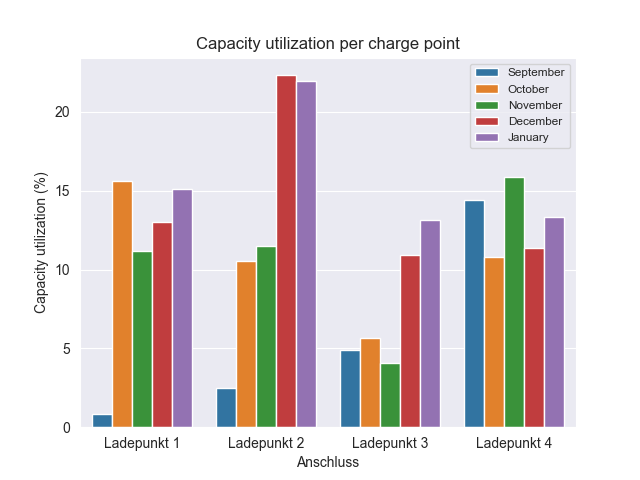
**CONNECTION TIME PER CHARGE POINT**



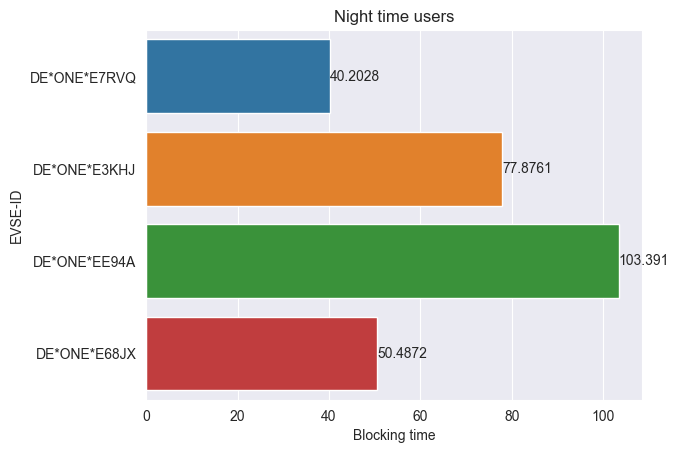
**CHARGE TIME PER CHARGE POINT**



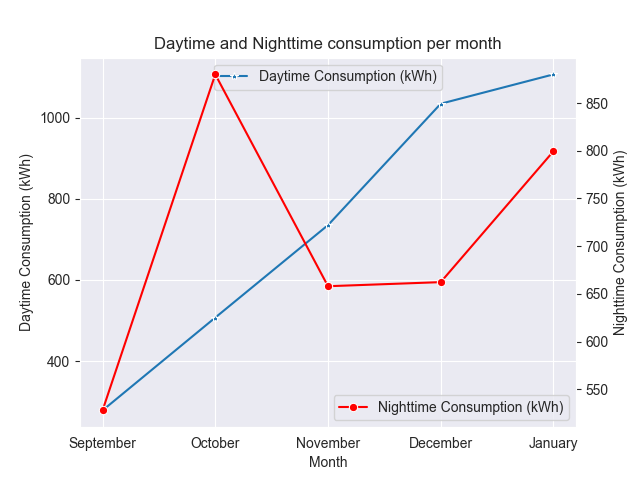
**CAPACITY UTILIZATION**



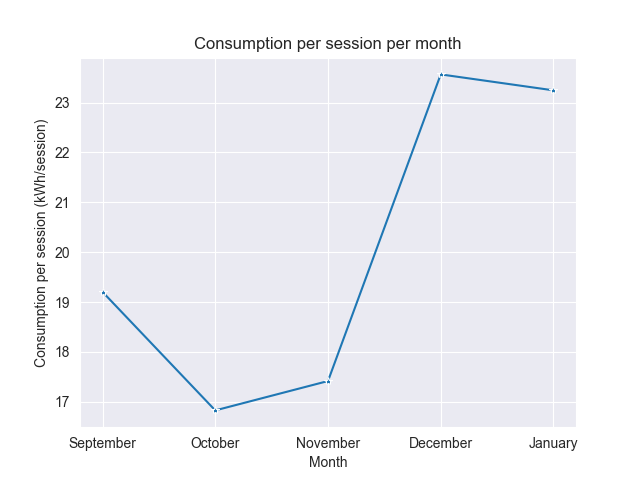
**NIGHTTIME USERS**

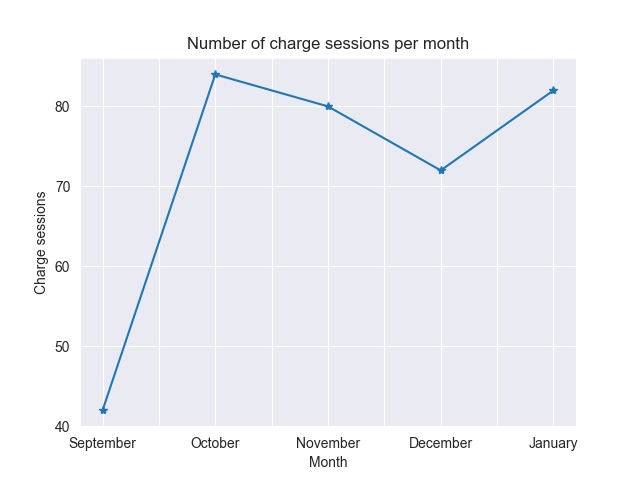


**DAYTIME AND NIGHTTIME CONSUMPTION**



**CONSUMPTION PER SESSION PER MONTH**



**CHARGE SESSIONS PER MONTH**

**CHARGE SESSIONS PER CHARGE POINT**

