



## **The Effectiveness of Utilizing Electric Charging Station & Electric Car Charging Station to Increase Electricity Consumption**

Studi ini merupakan penelitian yang dilakukan oleh PLN Research Institute dan sedang dalam tahap pengembangan lebih lanjut  
Dimohon untuk tidak mengutip menyadur materi dalam penelitian ini tanpa seizin PLN Research Institute

# The Role of PLN

Provision of electricity charging infrastructure for battery-based electric vehicles

**+7.000**

**Public Charging  
Station**



However, has it been effective?



PLN

# Research Methodology

## Types and data sources

- Primary (seminars and questionnaires)
- Secondary: documentation and information from PLN

## Validity & Reliability Test



### research approach

- Qualitative (Questionnaires, Seminar)
- Quantitative (Descriptive statistical analysis, Logit regression analysis)



### Data collecting

- Existing User= 126 respondent
- Potential User= 231 respondent



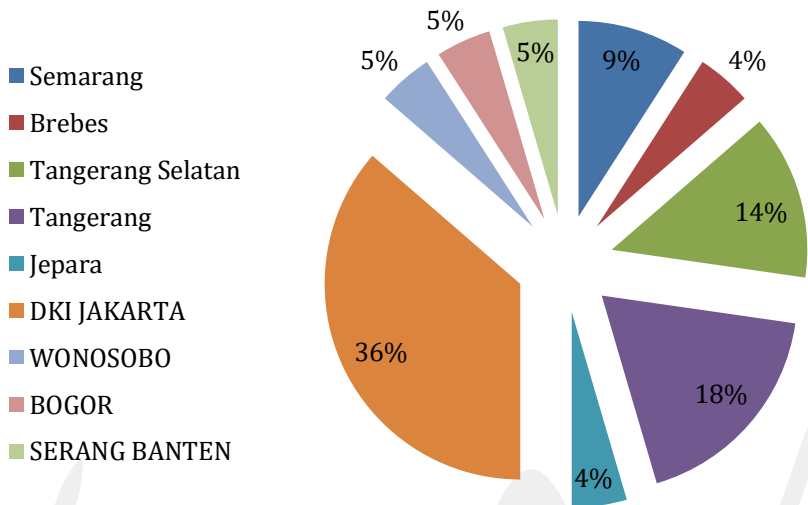
### Analysis Technique

Descriptive statistical analysis, Logit regression analysis

# Profile of Respondents



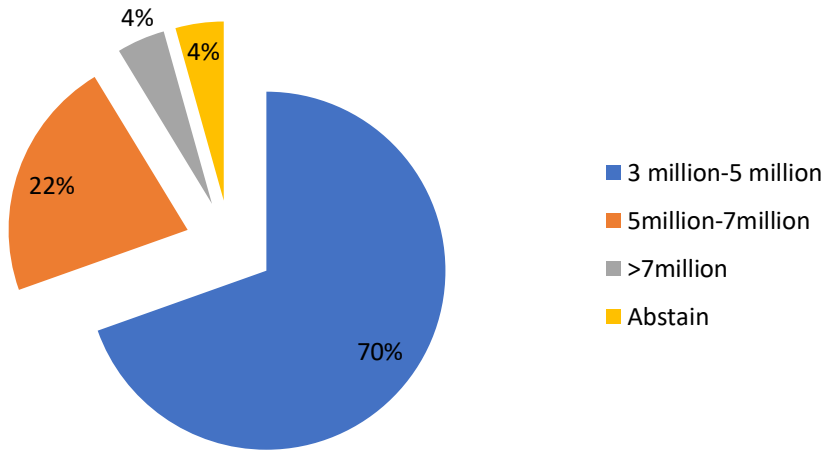
Distribution of Electric Car Charging Station User Respondents



### 36% of Electric Car Charging Station User Respondents from DKI Jakarta

36% which shows that the percentage of DKI Jakarta is spread across Central Jakarta, North Jakarta, South Jakarta, East Jakarta, and West Jakarta.

Distribution of Household Head Income

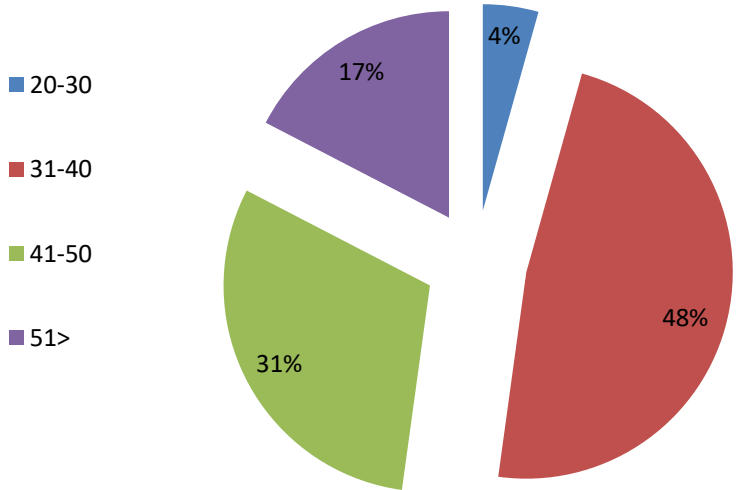


### 70% of Electric Car Charging Station users have an income of 3-5 million

There are only 4% of respondents with an income of more than 7 million, which means that for people with salaries between 3-5 million, SPKLU and electric vehicles are not prestigious things.



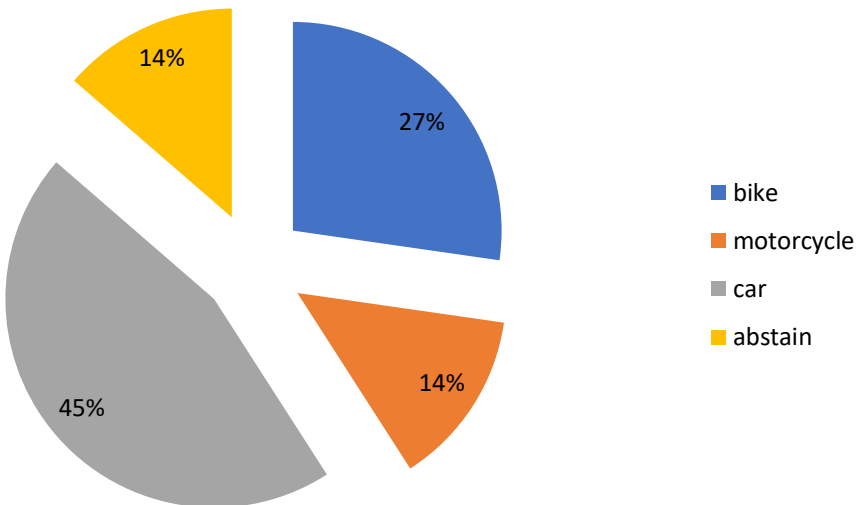
### Range of Age (years old)



**48% of Electric Car Charging Station user respondents were aged 31-40 years old**

Most of the Electric Car Charging Station users were aged 31-40 and 41-50 years. This shows that Electric Car Charging Station users are productive age

### Type of Vehicle



**45% of Electric Car Charging Station users own an a car**

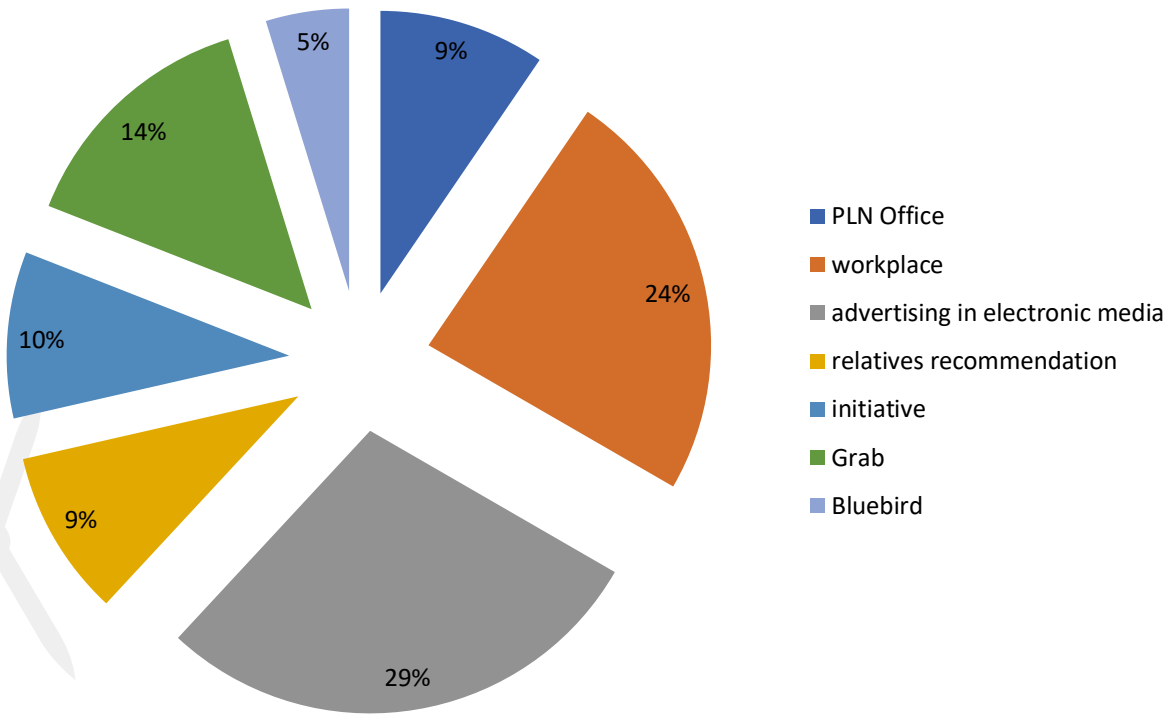
Most of the Electric Car Charging Station users own electric vehicles in the form of cars (45%) and bicycles (27%). However, there were 14% of respondents who abstained. The brands owned by respondents are almost the same as Hyundai, Xiaomi Qi cycle, and others



29% of Electric Car Charging  
Station user respondents know  
about electric vehicles from  
advertisements in electronic  
media

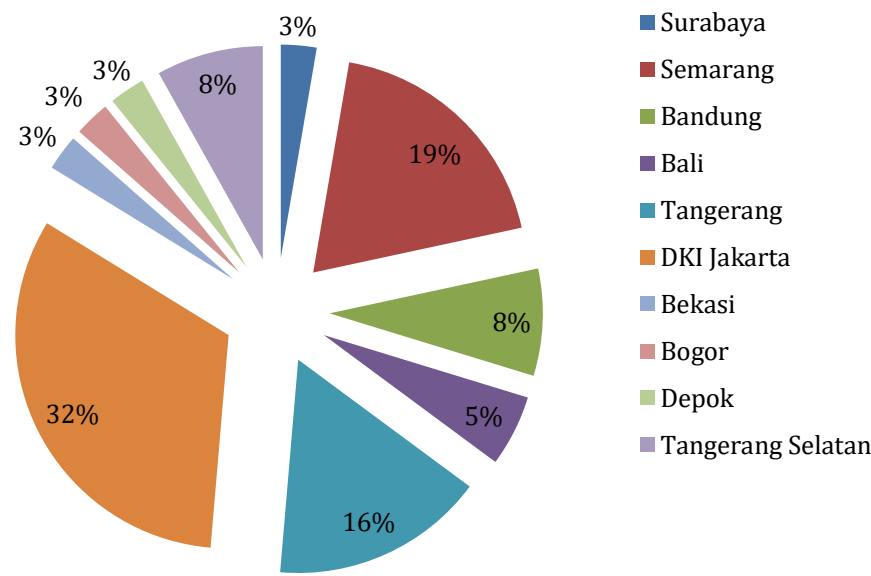
Most of the respondents know about electric vehicles from advertisements in electronic media. However, there is clear information that some respondents received information from the Grab or BlueBird companies regardless of whether or not they have cooperation with PT PLN

First Time Knowing Electric Vehicles





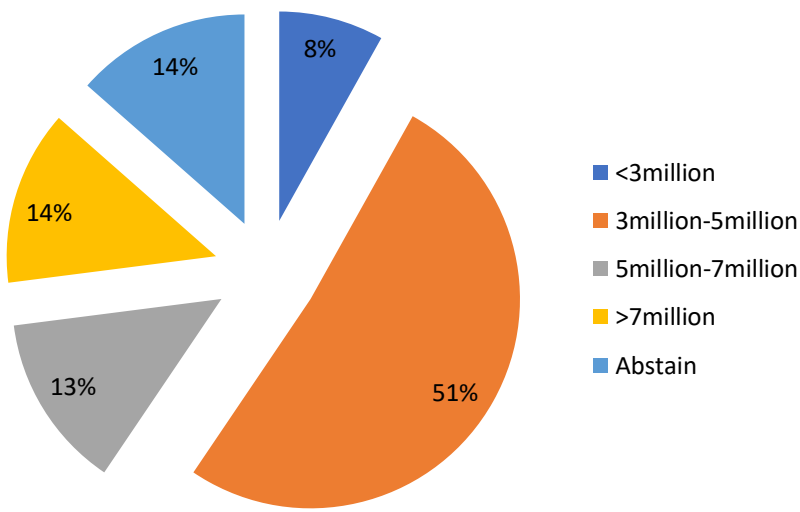
Distribution of Electric Car Charging Station User Respondents



32% Respondents who use electric vehicles who have not used the Electric Car Charging Station come from DKI Jakarta



Distribution of household head income

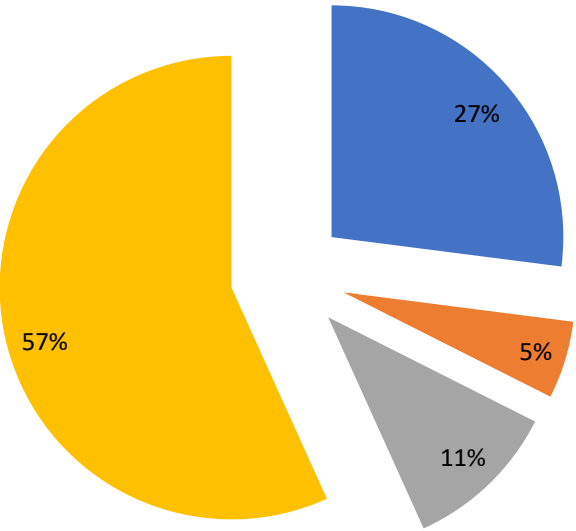


51% of potential Electric Car Charging Station users have incomes of 3-5 million



Jenis Kendaraan

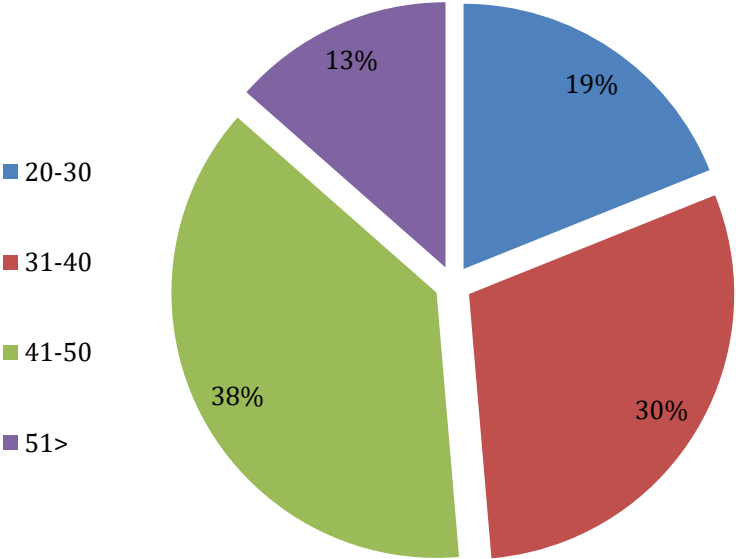
■ bike ■ motorcycle ■ car ■ abstain



57% respondents who use the Potential Electrical Car Charging Station do not own an electric vehicle

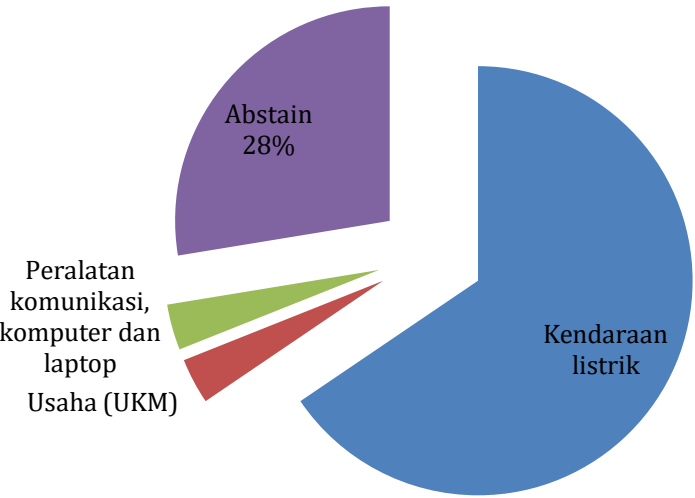


Range of Age (years old)

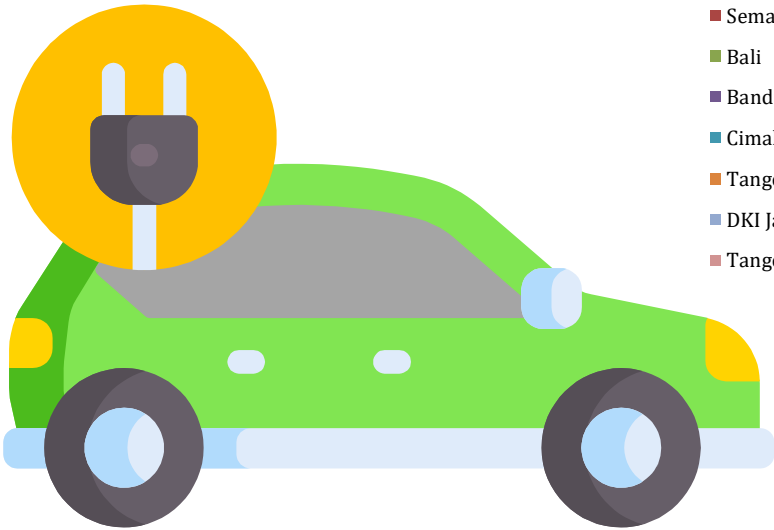


38% respondents of potential Electrical Car Charging Station users were aged 41-50 years old

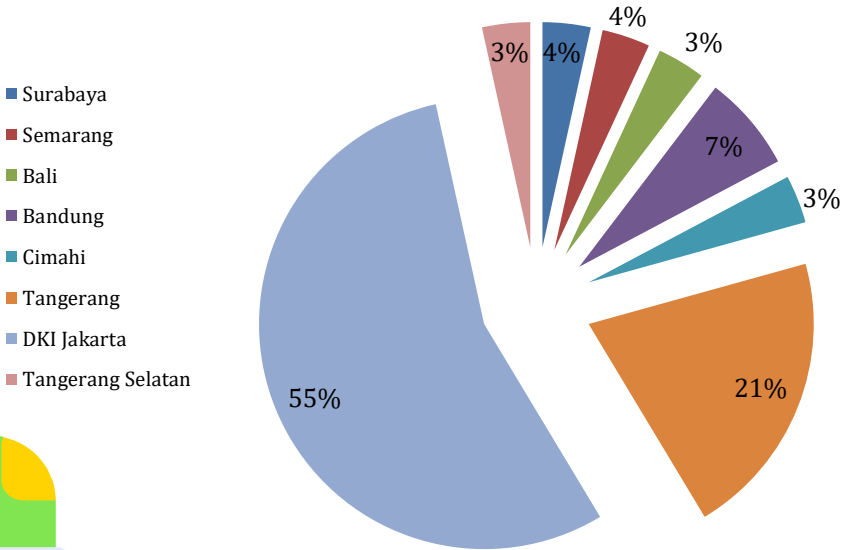
Use of Electric Charging Station for Electric Vehicle



66% respondents use Electric Charging Station for Electric Vehicle to charge their electric vehicles while the remaining 3% is for businesses and electronic equipment respectively.

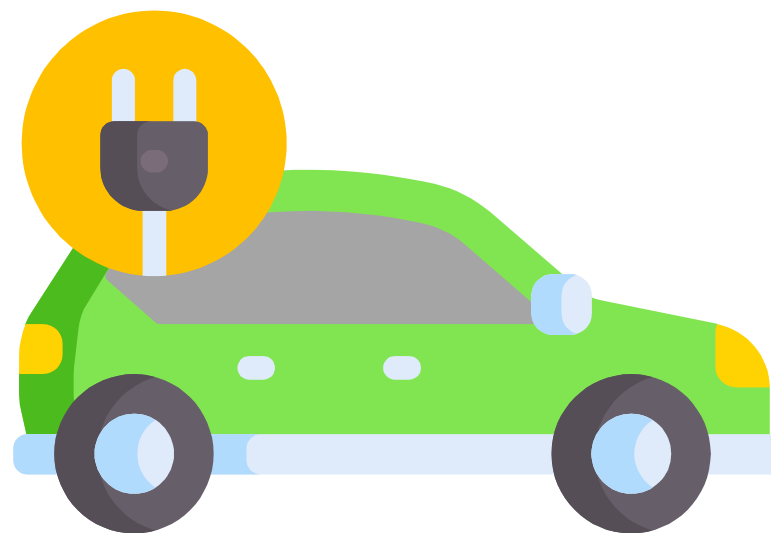
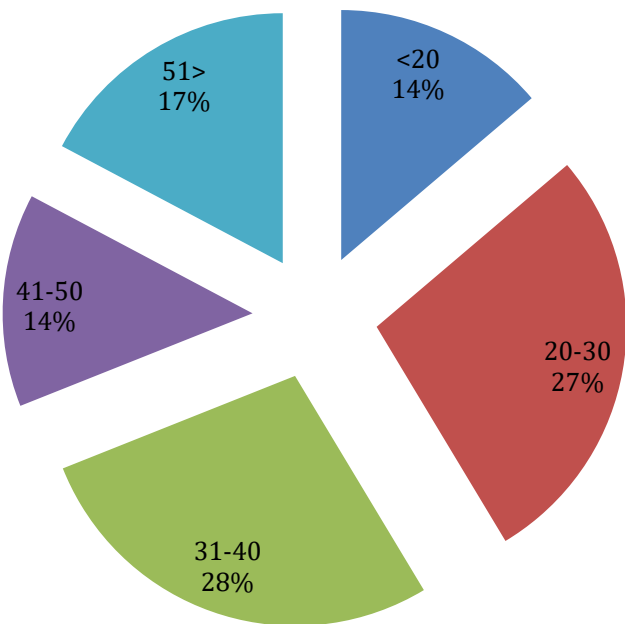


Distribution of Electric Charging Station User Respondents



55% Respondents who use Electric Charging Station for electric vehicles come from DKI Jakarta

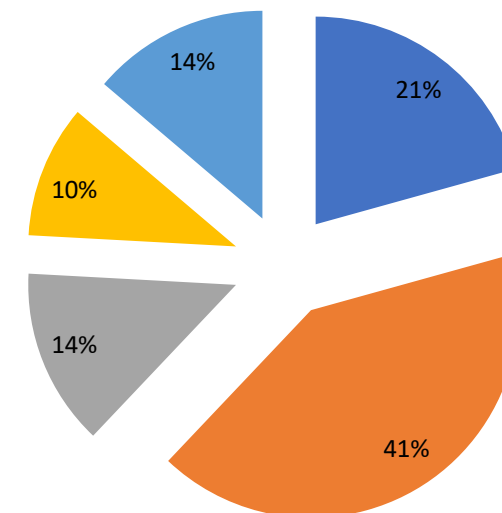
Range of Age (Years Old)



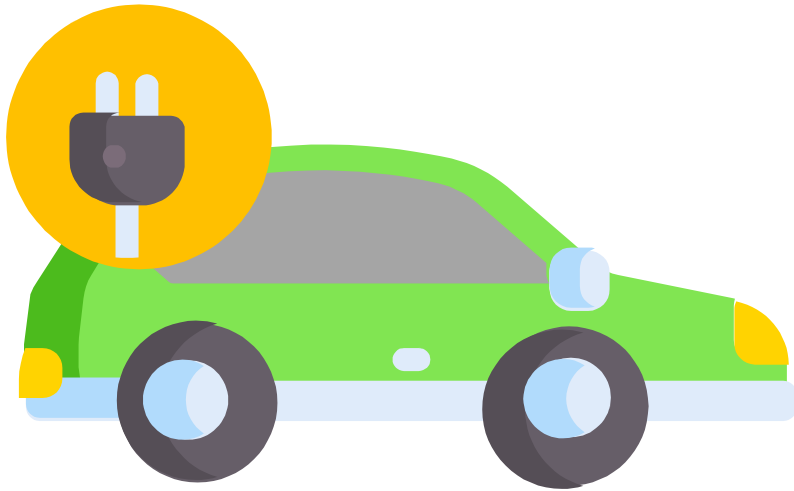
28% of respondents using Electric Charging Station for electric vehicles are aged 31-40 years old

Distribution of household head income

<3million 3million-5million 5million-7million >7million Abstain



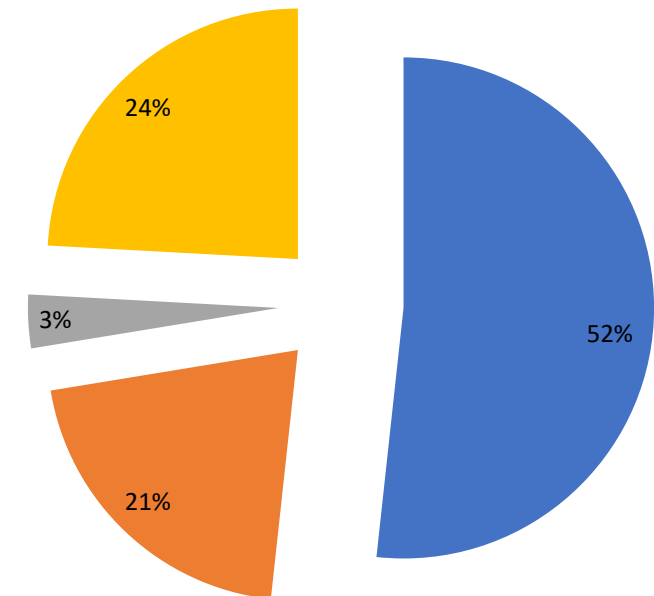
41% of Electric Charging Station for electric vehicle respondents have an income of 3-5 million



52% of respondents who use Electric Charging Station for electric vehicles have electric vehicles in the form of bicycles

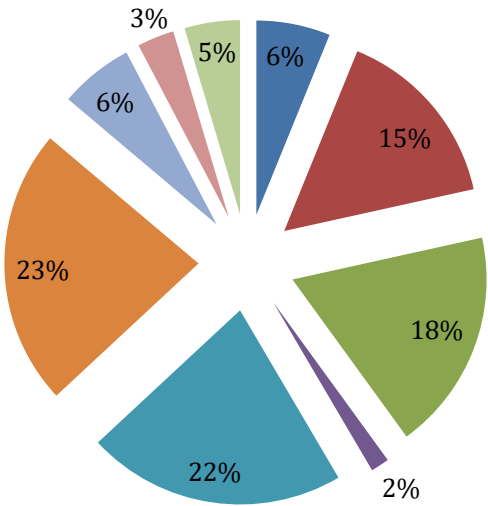
### Type of Vehicle

■ bike ■ motorcycle ■ car ■ Abstain

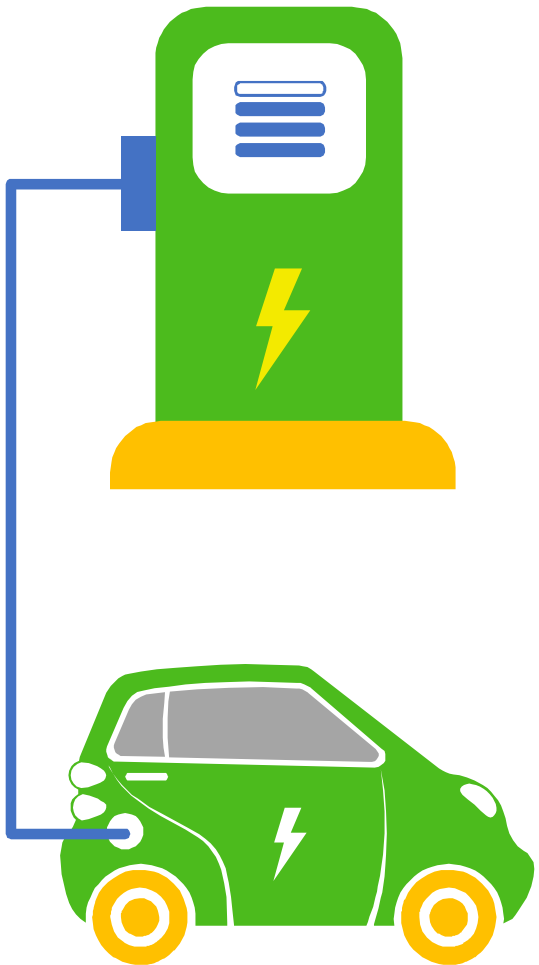


Distribution of Potential Electric Charging Station Respondents

- Surabaya
- Semarang
- Bali
- Bandung
- Tangerang
- DKI Jakarta
- Tangerang Selatan
- Baten
- Abstain

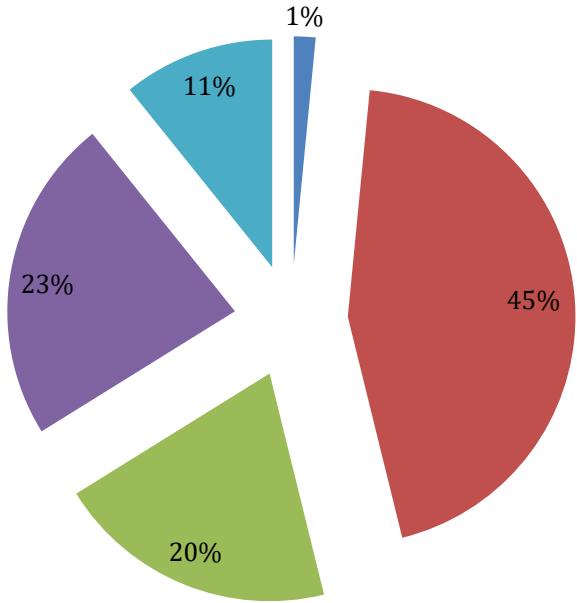


23% of potential Electric Charging Station for electric vehicle users are from DKI Jakarta



Range of Age (Years Old)

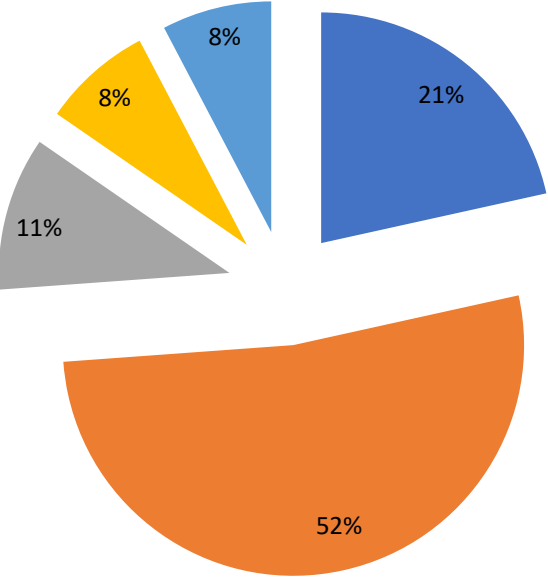
- <20
- 20-30
- 31-40
- 41-50
- 51>



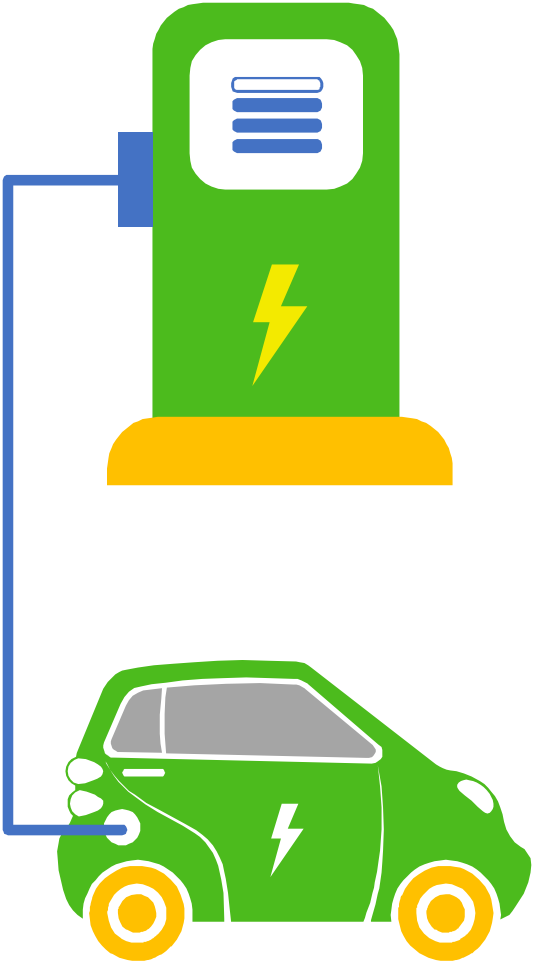
45% of potential Electric Charging Station for electric vehicle SPLU users are 20-30 years old

Distribution of household head  
income

<3million 3million-5million 5million-7million >7million Abstain

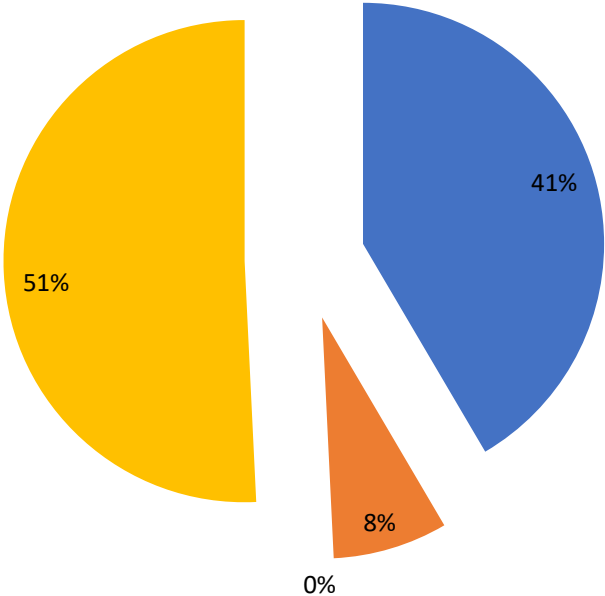


52% of potential Electric Charging Station for electric vehicle users have an income of 3-5 million



Type of Vehicle

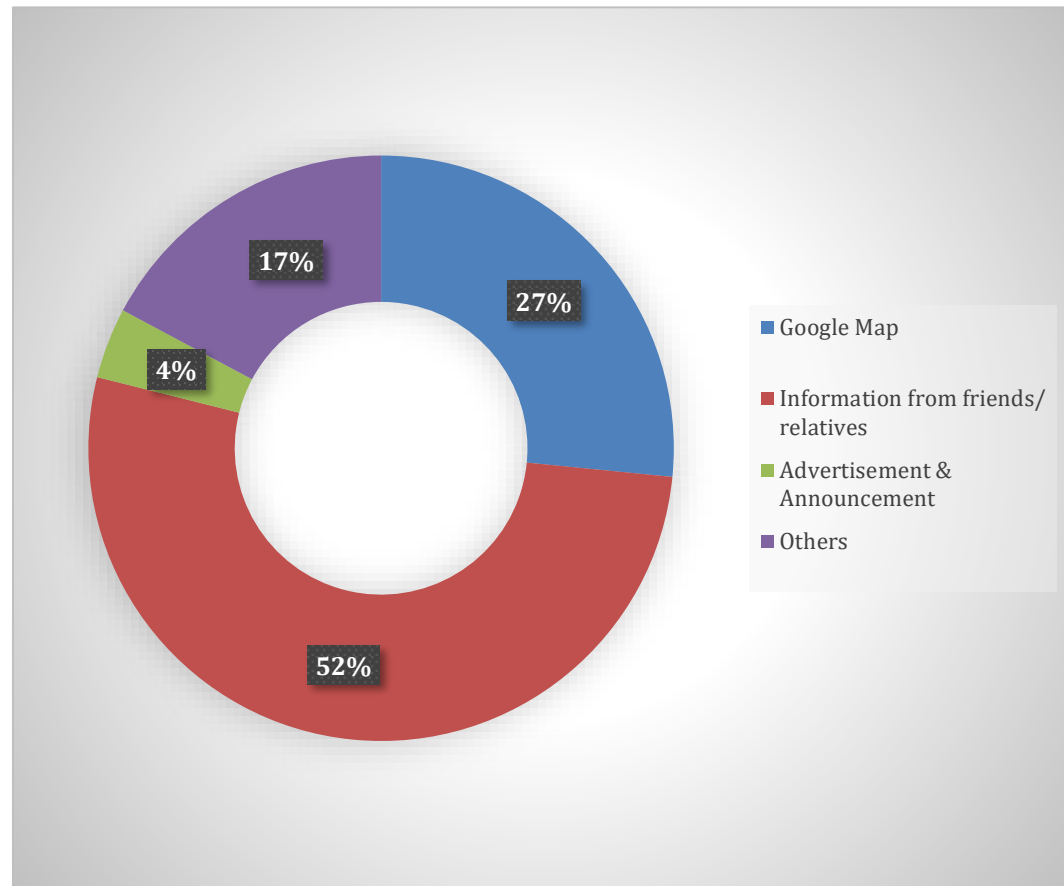
bike motorcycle car abstain



51% of respondents who use potential Electric Charging Station for electric vehicles do not have an electric vehicle

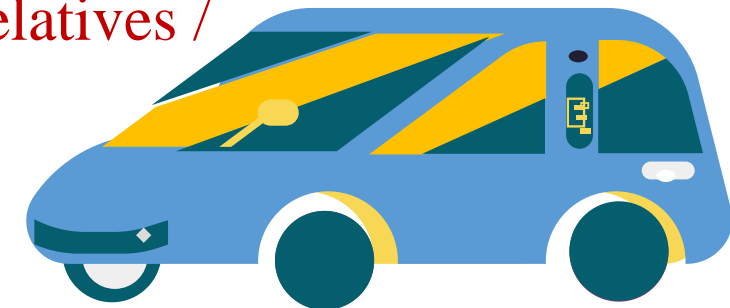
# CONDITIONS OF USE ELECTRIC CHARGING STATION/ ELECTRIC CAR CHARGING STATION

## Sources of Information Regarding Electric Charging Station/ Electric Car Charging Station



Of the 357 respondents who knew about Electric Charging Station/ Electric Car Charging Station only 247, but there were 256 respondents who knew the location of the Electric Charging Station/ Electric Car Charging Station

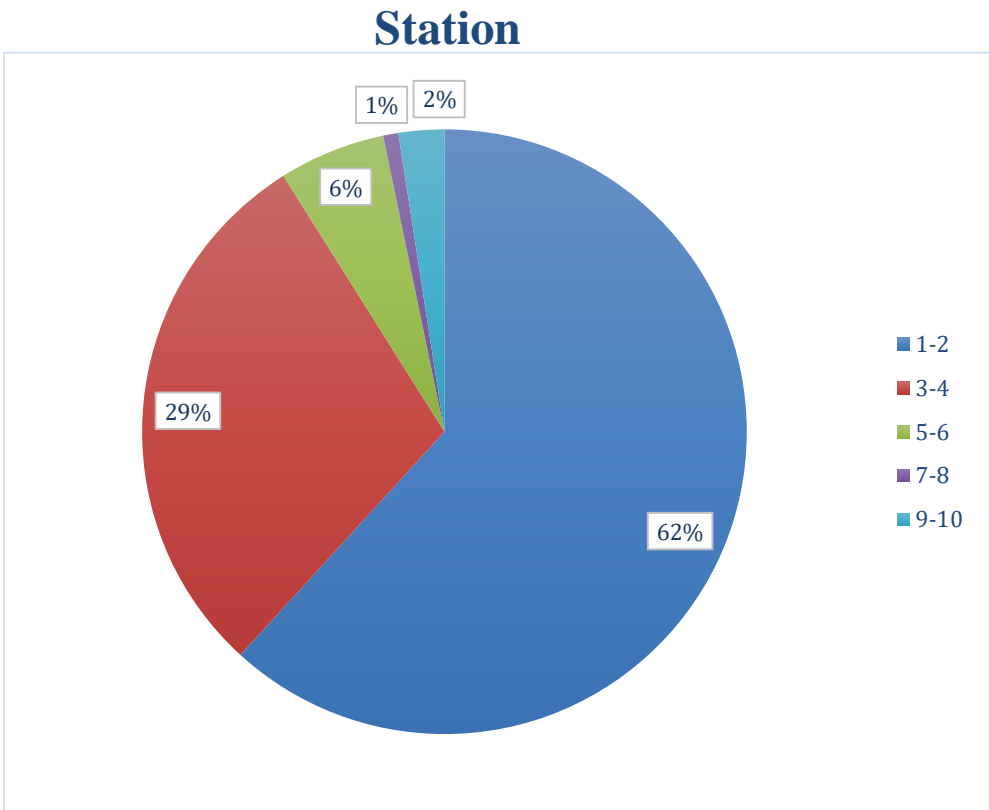
52% of respondents know the location of the Electric Charging Station/ Electric Car Charging Station from information of relatives / friends







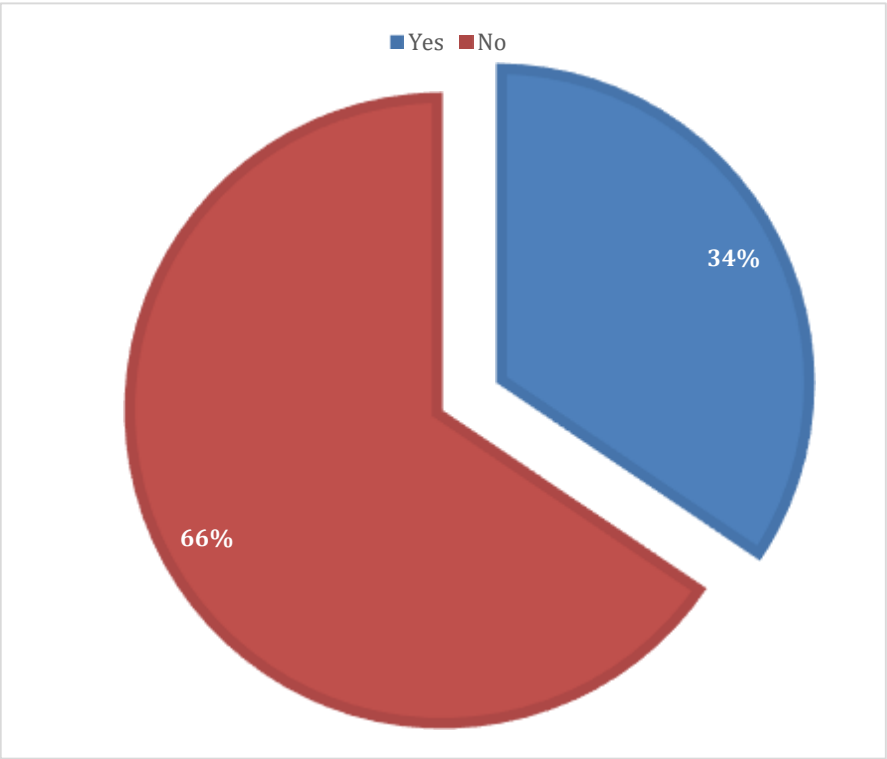
The number of the nearest Electric Charging Station/ Electric Car Charging Station



34% or 123 respondents who know the number of closest Electric Charging Station/ Electric Car Charging Station stated that the number of closest Electric Charging Station/ Electric Car Charging Station is 1-2

CONDITIONS OF USE ELECTRIC CHARGING STATION/ ELECTRIC CAR CHARGING STATION

Number of Respondents Who Know the Number of Nearest Electric Charging Station/ Electric Car Charging Station

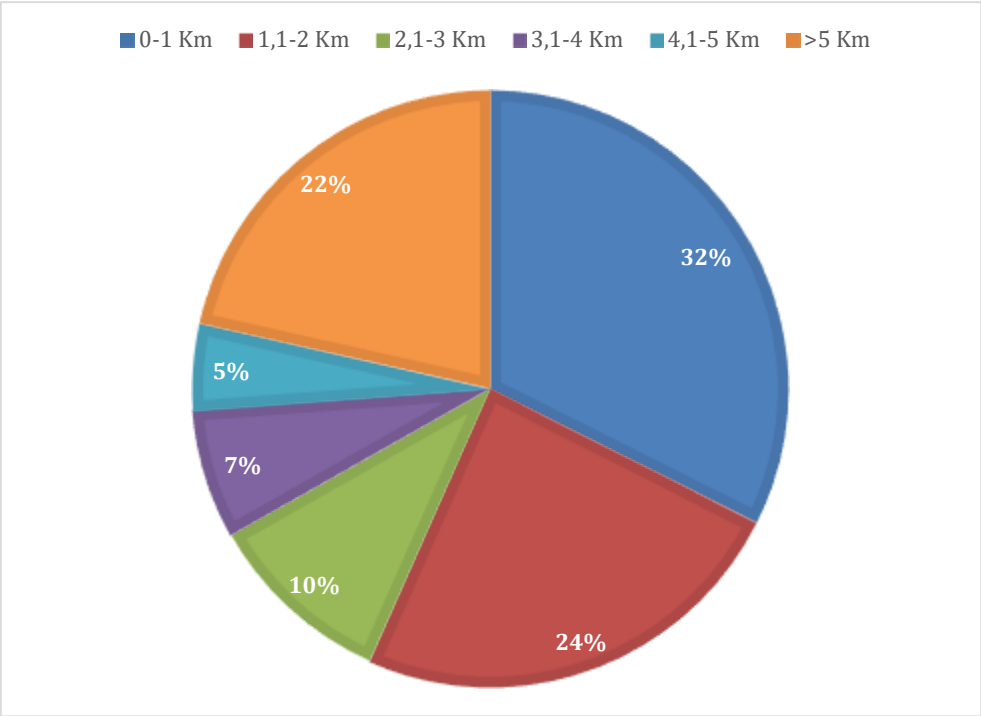


66% of the total respondents did not know the number of the closest Electric Charging Station/ Electric Car Charging Station





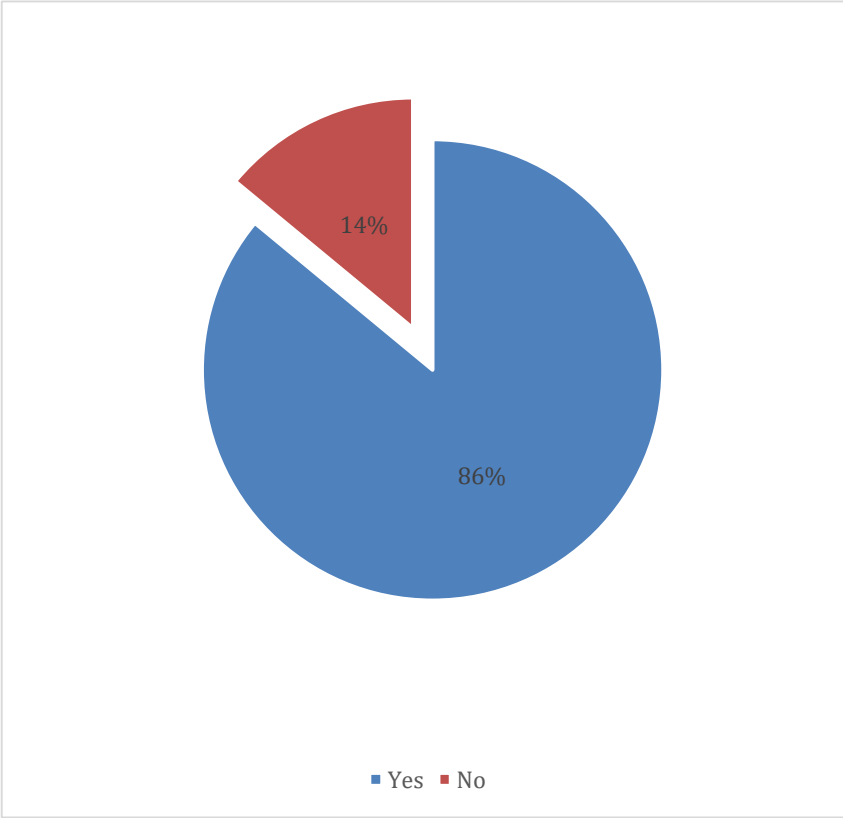
**Distance between dwelling and the nearest  
Electric Charging Station/ Electric Car  
Charging Station**



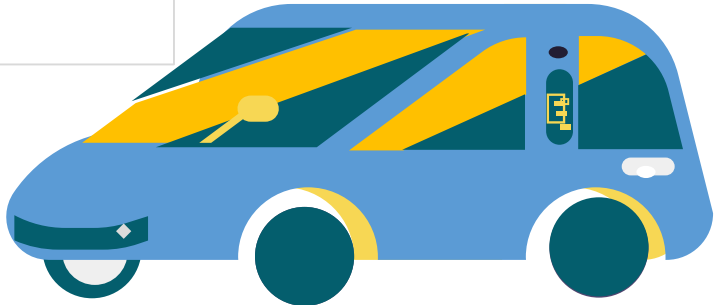
Of the 256 respondents who know the location of the Electric Charging Station/ Electric Car Charging Station, the majority of the distance between the respondents’s dwelling and the Electric Charging Station/ Electric Car Charging Station is 0-1 Km (32% of respondents)

**CONDITIONS OF USE ELECTRIC CHARGING  
STATION/ ELECTRIC CAR CHARGING STATION**

**Number of Respondents Agree to Increase Electric Charging  
Station/ Electric Car Charging Station**



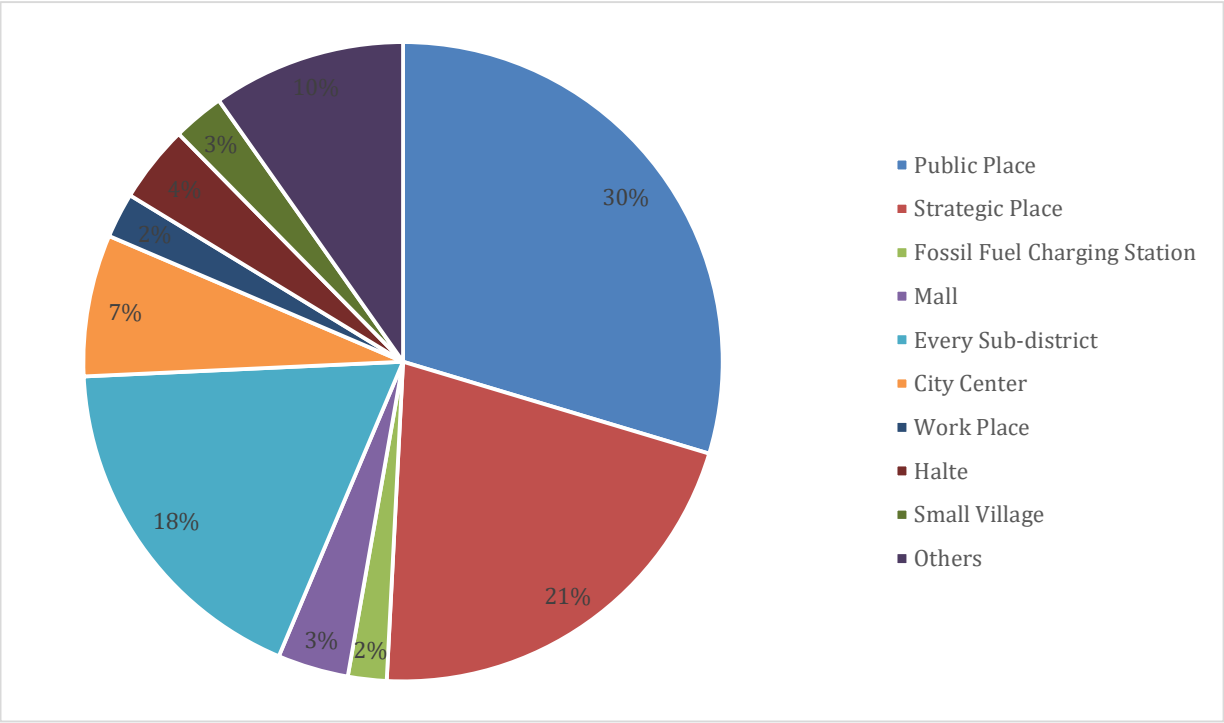
As many as 86% of the total respondents agreed if the number of Electric Charging Station/ Electric Car Charging Station was increased





# CONDITIONS OF USE ELECTRIC CHARGING STATION/ ELECTRIC CAR CHARGING STATION

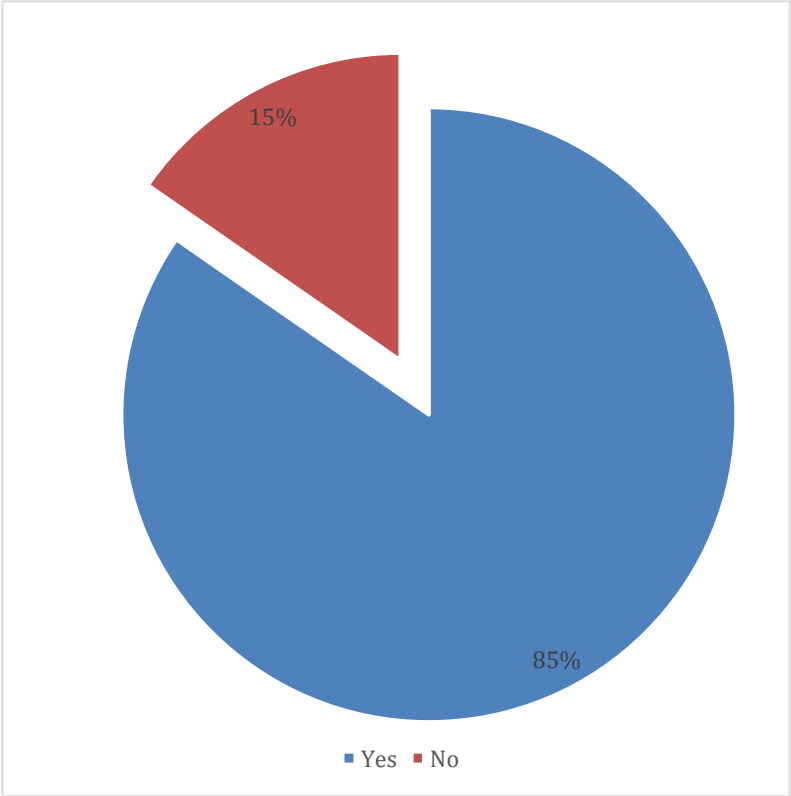
## Recommendations for places to build Electric Charging Station/ Electric Car Charging Station



Recommendations for places to build Electric Charging Station/ Electric Car Charging Station, in public place by 30%, strategic place by 21%, and in every sub-district by 18%

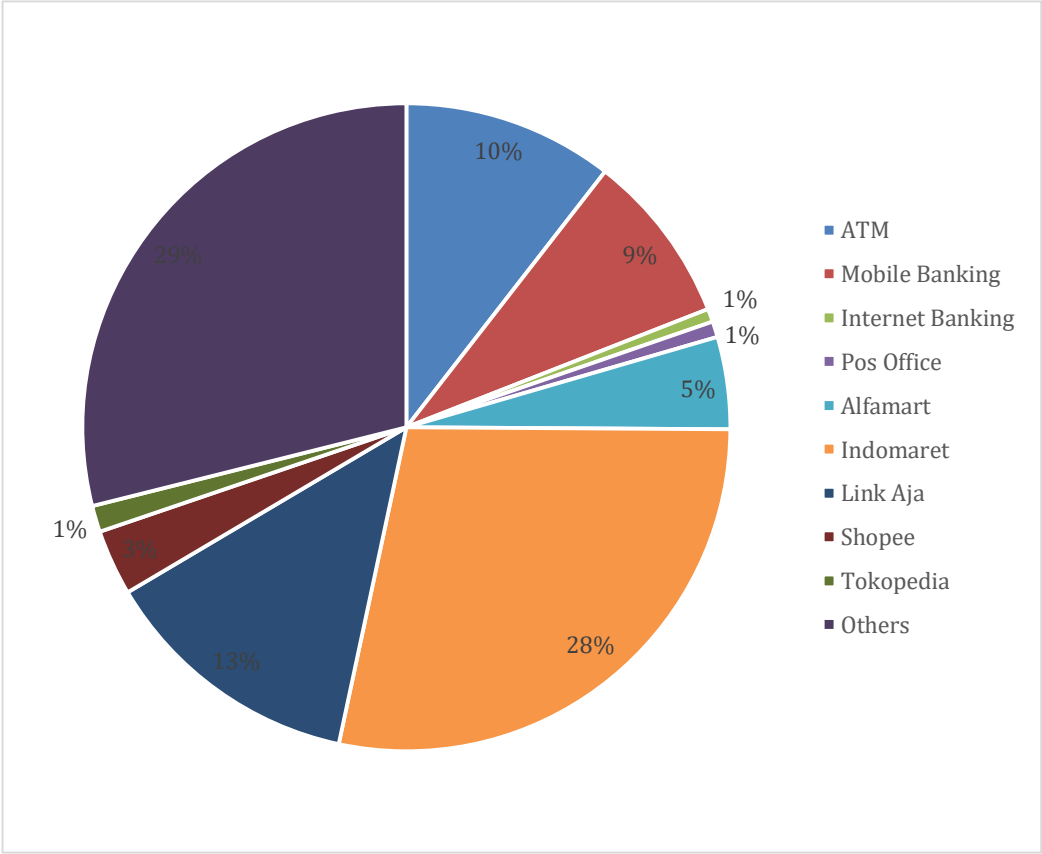
## Number of Respondents Know How to Fill Out Electric Charging Station/ Electric Car Charging Station Balance Tokens

69% of the total respondents who know the Electric Charging Station/ Electric Car Charging Station know how to fill the token balance





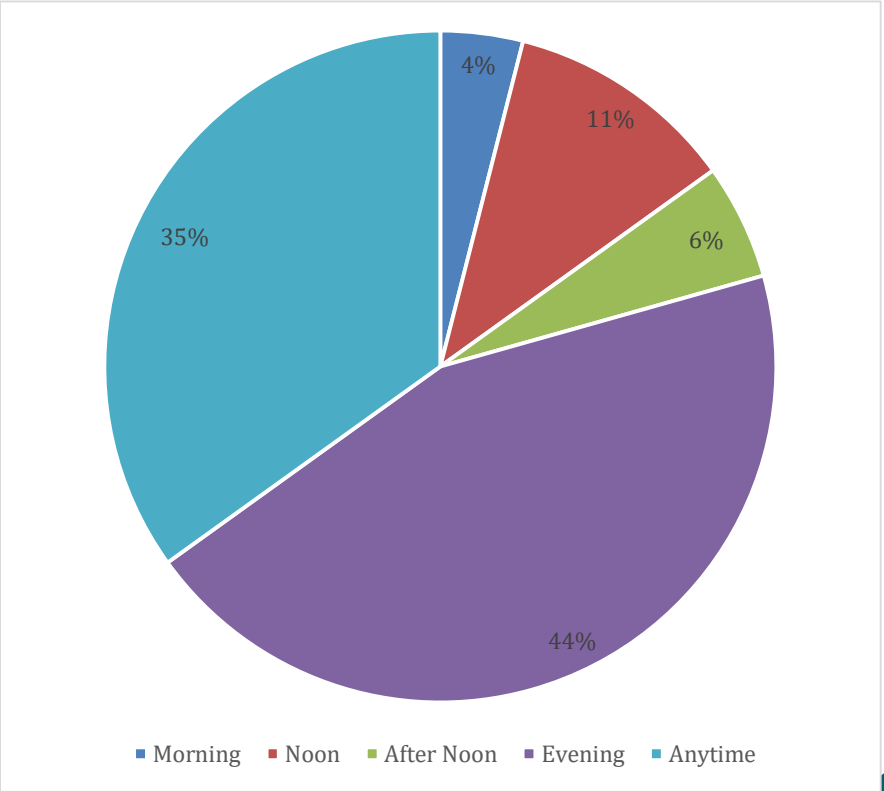
**How to Top Up Electric Charging Station/ Electric Car Charging Station balance Token**



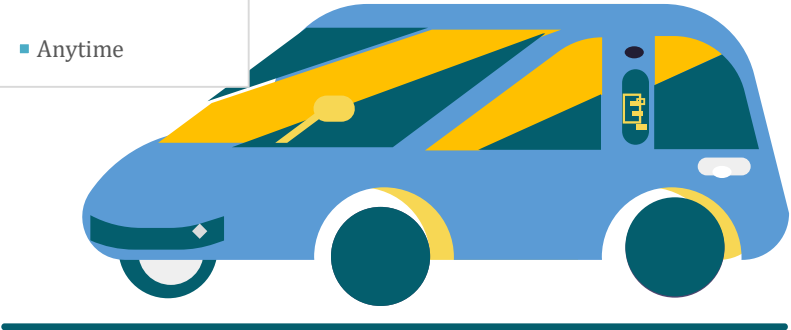
The majority of top up through Indomaret outlets is 28% and other 29% includes cash or cash, collected directly by street vendors, and credit counters

**CONDITIONS OF USE ELECTRIC CHARGING STATION/ ELECTRIC CAR CHARGING STATION**

**Time to recharge at Electric Charging Station/ Electric Car Charging Station balance Token**



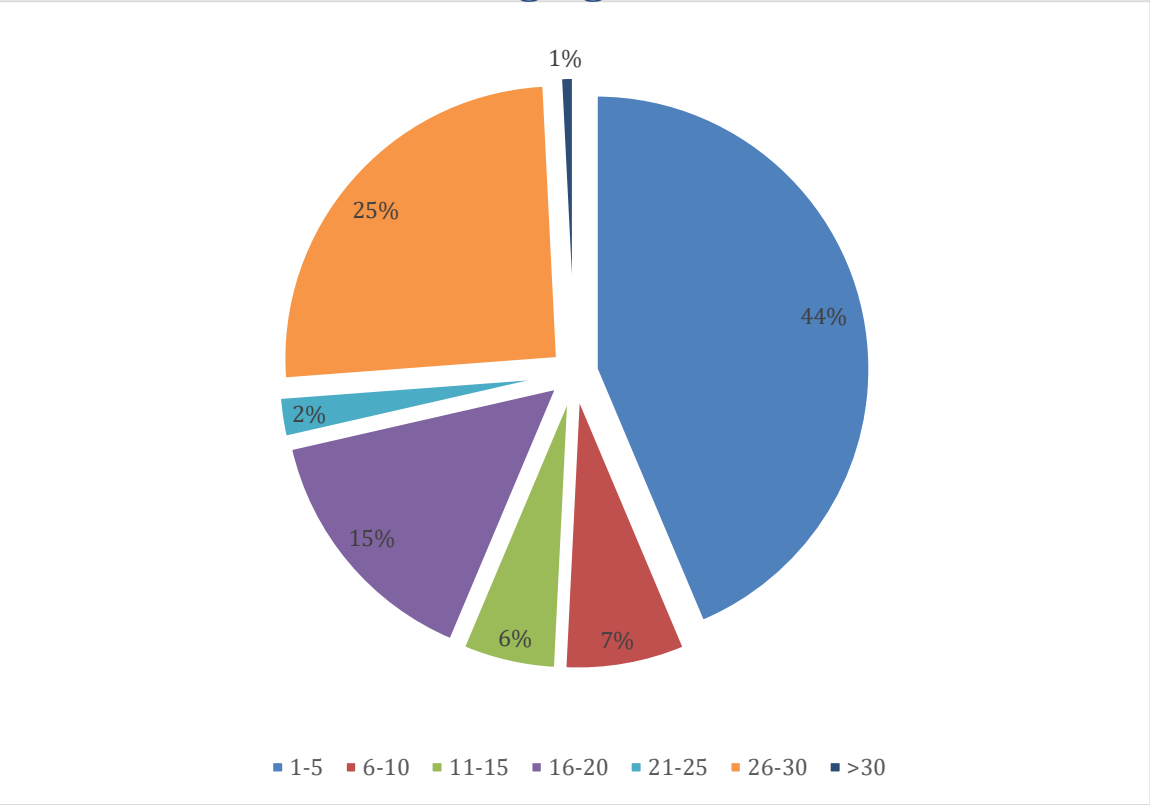
the majority of recharging at SPLU / SPKLU at night was 44% and 35% from time to time.





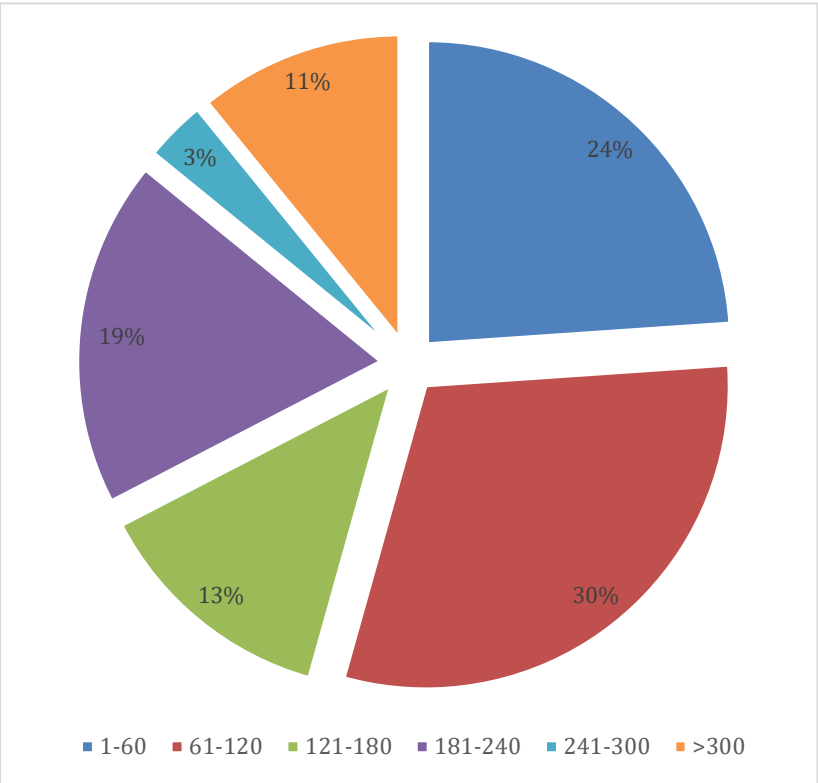
# CONDITIONS OF USE ELECTRIC CHARGING STATION/ ELECTRIC CAR CHARGING STATION

Frequency of Visits to Electric Charging Station/  
Electric Car Charging Station in a Month

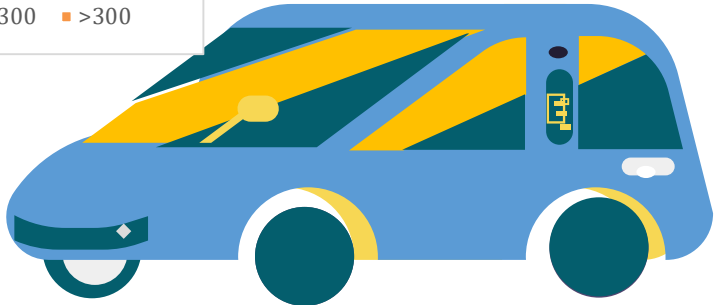


Within a month, the majority of respondents visited the SPLU / SPKLU 1-5 times

Length of Refueling Time at Electric Charging Station/  
Electric Car Charging Station (minutes)

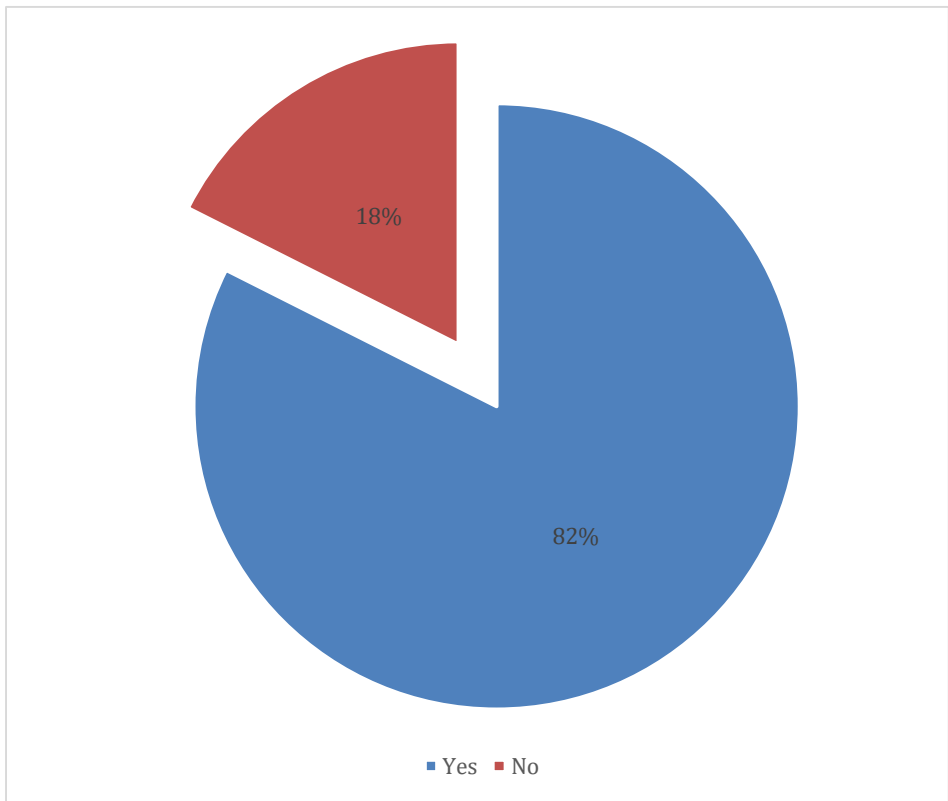


Charging electric vehicles at Electric Charging Station/  
Electric Car Charging Station is mostly done for 61-120 minutes or 1-2 hours

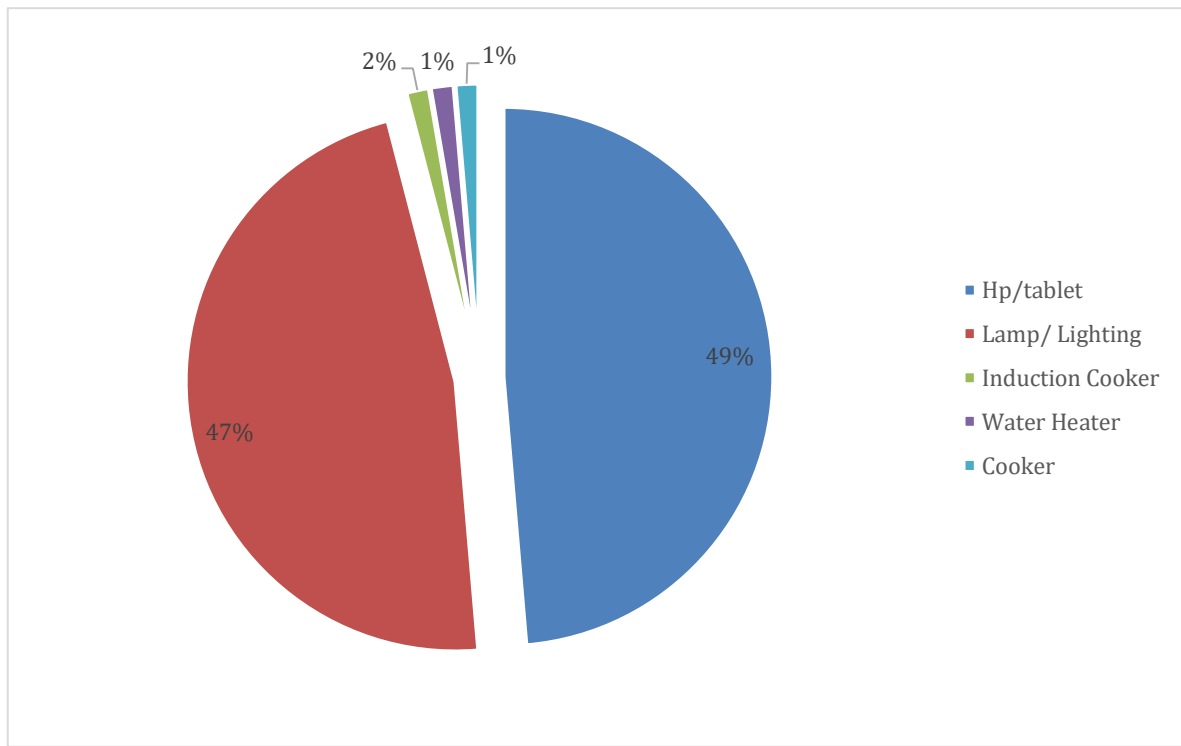




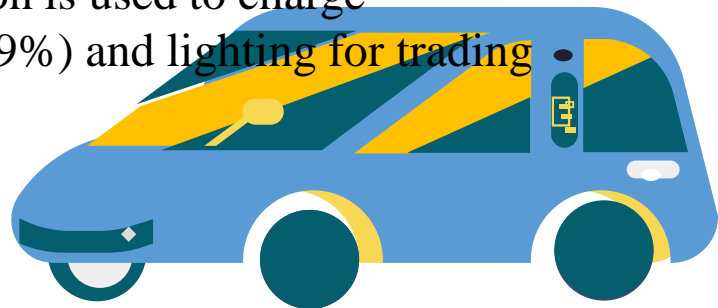
# CONDITIONS OF USE ELECTRIC CHARGING STATION/ ELECTRIC CAR CHARGING STATION



PKL or street vendors use Electric Charging Station to charge their electronic equipment, as much as 82%



Most of this Electric Charging Station is used to charge electricity for cellphones / tablets (49%) and lighting for trading or PKL (47%).

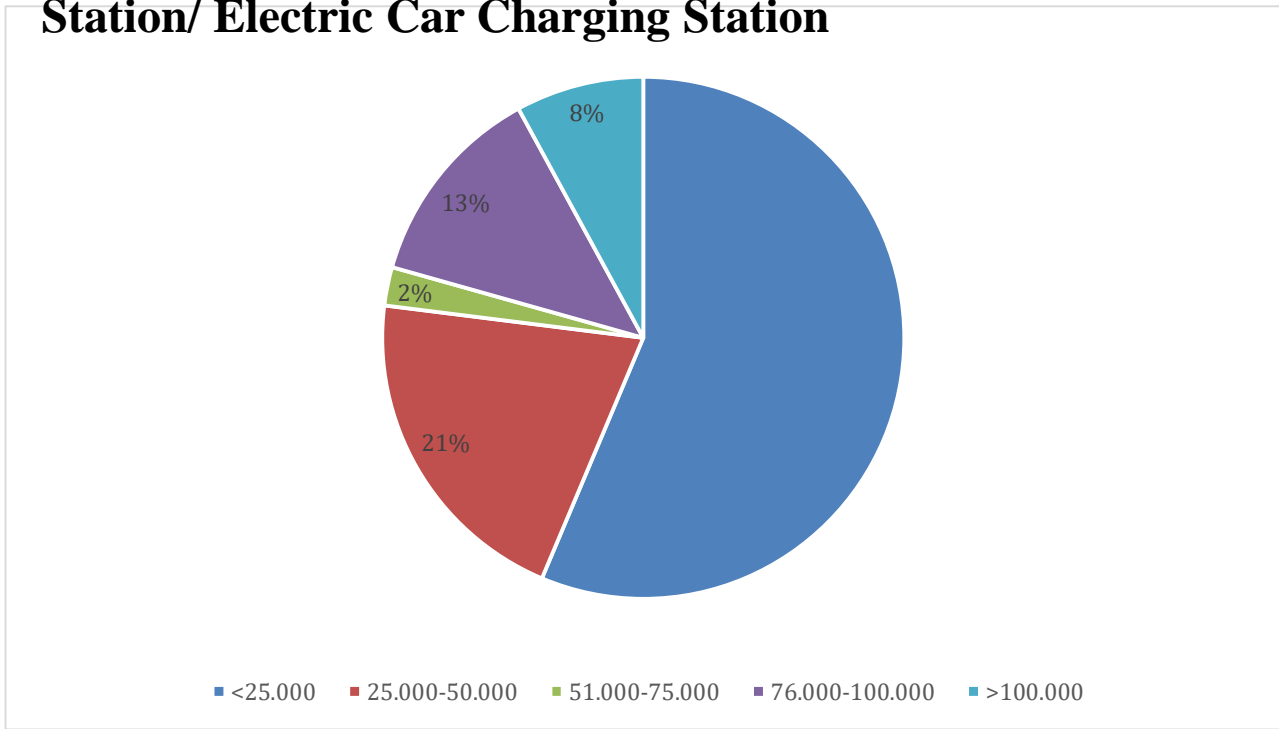
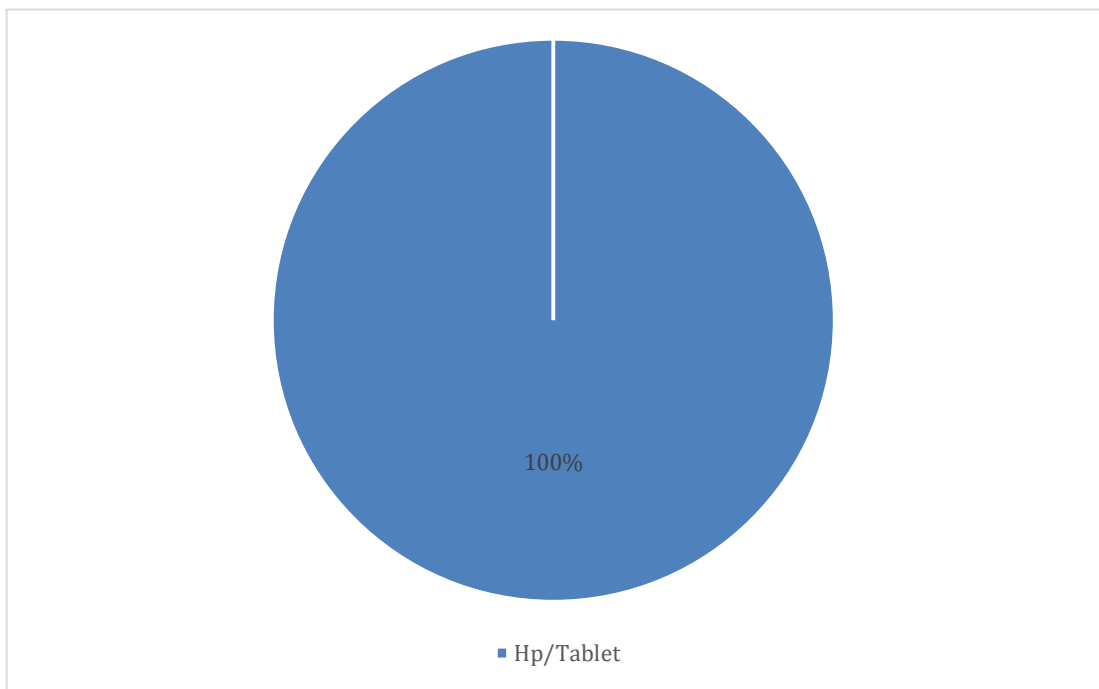




# CONDITIONS OF USE ELECTRIC CHARGING STATION/ ELECTRIC CAR CHARGING STATION

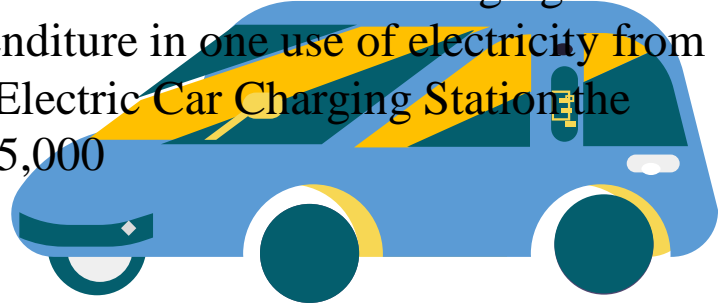
## Average One Time Expenditures at Electric Charging Station/ Electric Car Charging Station

### Electronic Equipment that is charged at the Electric Charging Station



56% of Electric Charging Station/ Electric Car Charging Station users have an average expenditure in one use of electricity from Electric Charging Station/ Electric Car Charging Station the majority is less than IDR 25,000

While waiting for the electric charging of their vehicle, all respondents use it to charge electronic devices in the form of HP / tablets





**THANK**

**YOU**

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