

# How to improve electric cars penetration in Puerto Rico?



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DE PUERTO RICO  
**JRSP**



# *Investment friendly climate to promote electric charging stations deployment is needed*



WE ALL ARE RUNNING AGAINST THE CLOCK TO COMPLY WITH LAW 17-2019 REQUIREMENTS AND TO MITIGATE CLIMATE CHANGE ADVERSE EFFECTS .



THE TARGET IS TO HAVE 100 PERCENT RENEWABLES PENETRATION IN 2050.



ALL GOALS MUST BE ALIGNED WITH THE APPROVED INTEGRATED RESOURCES PLAN DUE DATES.



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## 1. *Planning ahead: Where to locate or site them?*

### Site's Zoning recommendations:

- Grandfathering clauses for existing gas stations.
- Puerto Rico and Municipalities Planning Boards must allow that all or most sites, be used to and for electric charging stations.
- All public and private existing and new parking must be zoned to and for electric charging stations.

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## *2. Planning ahead: How to connect them to the grid?*

Net Metering is already in place!


Net metering and renewables competitive costs related to existing fossil generation, allow the penetration of electric charging stations based only on distributed renewable generation with batteries back-up.

Excess generation can be exported to the grid using net metering.

Stations Owners must always have certain percent of its capacity available for immediate car charging.

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### *3. Planning ahead: How to incentivize them?*

Incentives for infrastructure development. In the continental states are typically used:

- Businesses tax exemptions; grants; loans.
- Subsidized electric rates.
- Rebates per charging ports.

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#### 4. *Planning ahead: Provide today's infrastructure for future charger's technology requirements*



Charging stations are currently classified based on their use:

Residential; commercial and if they are located along highways.



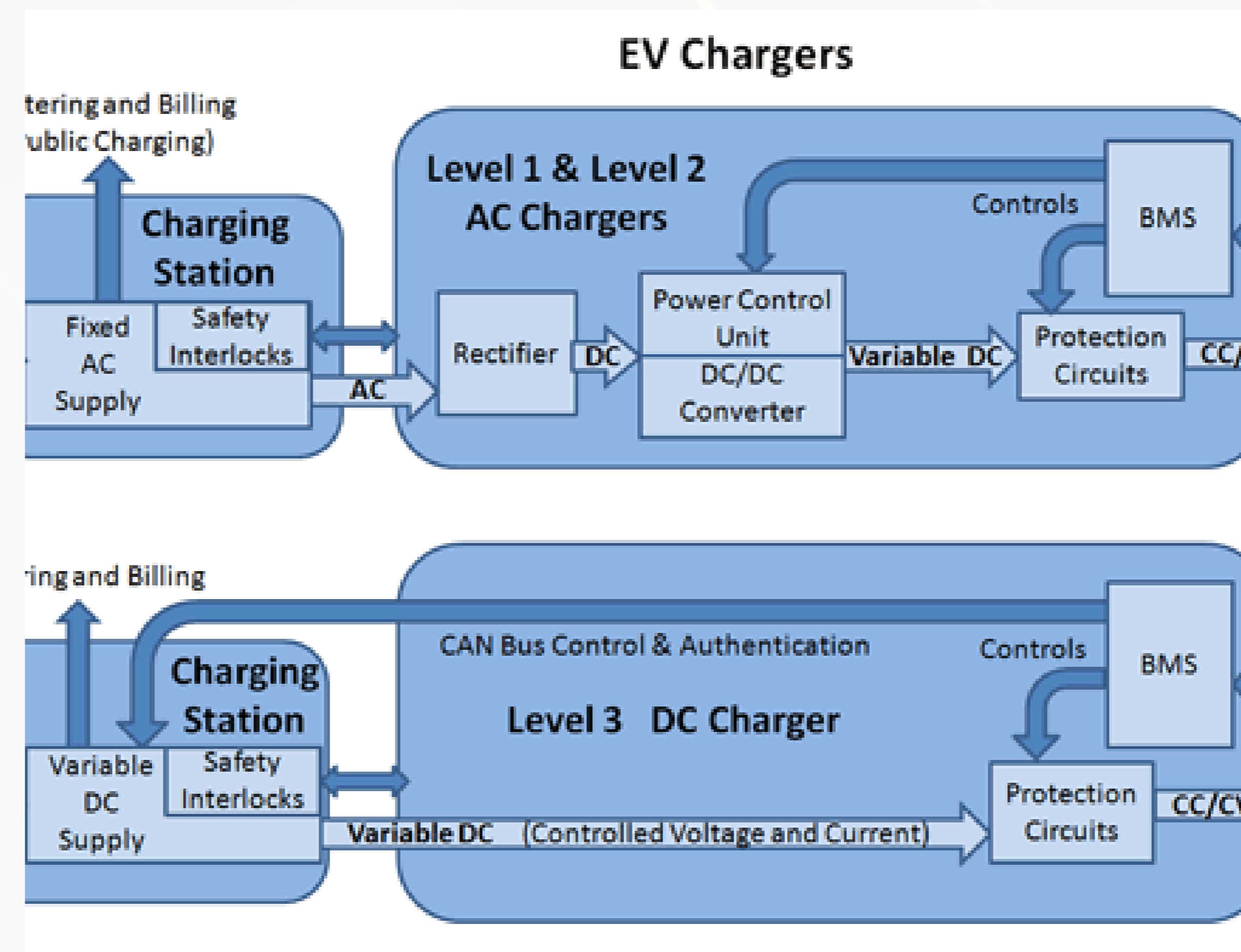
Charging stations types are:

Level 1; 2, 3, and Superchargers.

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Charging stations technical requirements:

**AC Level 1:**  
Single phase 120 volts, up to 16 amperes, 8 to 16 hours for a full charge.

**AC Level 2:**  
Single phase, 208 or 240 volts, up to 80 amperes, 4 to 6 hours for a full charge.

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DC Level 3:  
200-500 volts DC, up to  
80 amperes. Less than  
an hour for a full  
charge.

Superchargers (Tesla):  
V3 chargers charge at a  
rate of 250kw or 75  
miles in 5 minutes.  
Stations are for Tesla  
customers only.

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## 5. Planning ahead: Simple calculation on costumers' economic benefits (no externalities accounted).

Vehicle Type	Miles per year	Estimated consumption per gallon or kWh	Estimated cost per gallon or kWh	Estimated cost per mile	Estimated total cost per year
Conventional Gasoline	12,000	25 miles per gallon	\$3 per gallon	\$0.12 per mile	\$1,445
Electric connected to existing PREPA grid	12,000	3,000 kWh per year	\$0.21 per kWh	\$0.05 per mile	\$630
Electric supplied from renewable with batteries	12,000	3,000 kWh per year	\$0.12 per kWh	\$0.03 per mile	\$360

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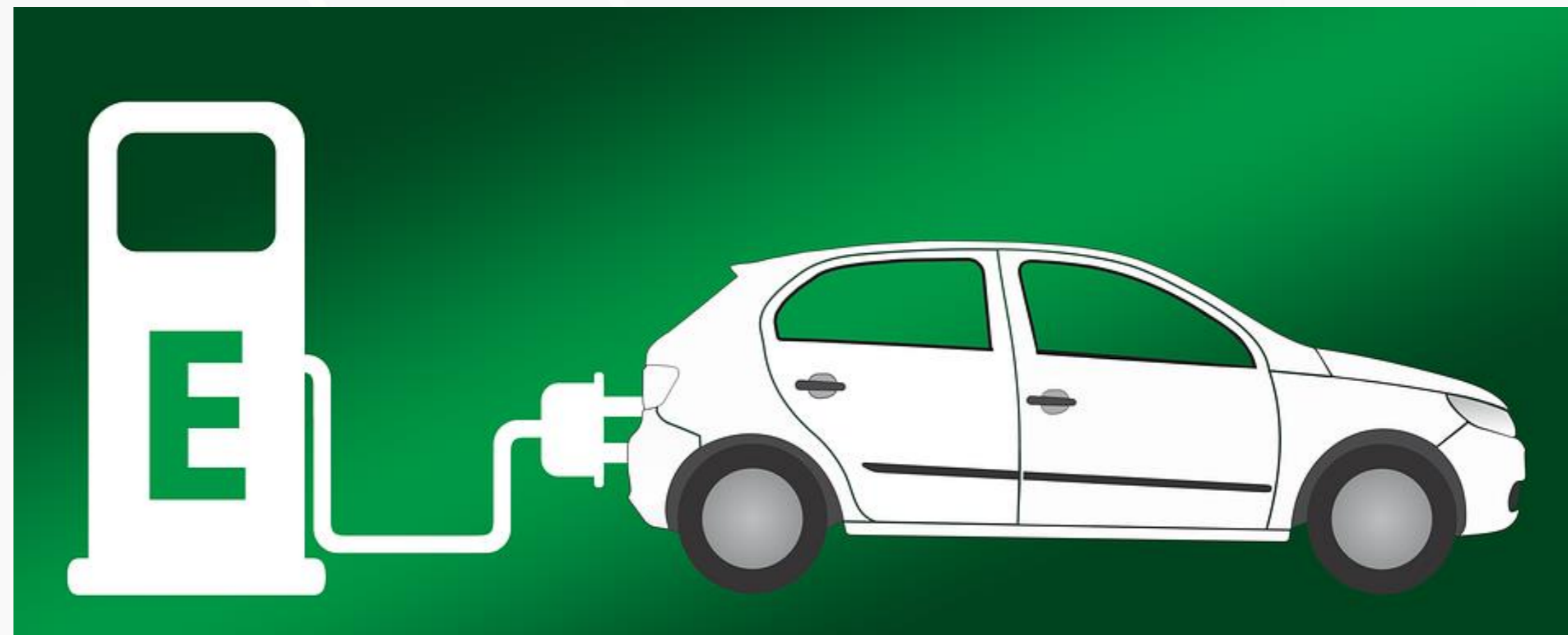


*6. Planning  
ahead:  
Please we  
need you to  
comment  
on:*

1. Will the utility be able to own and operate charging stations?
2. How charging stations' Owners will charge or bill to clients?
3. Must the Government supply the land from its inventory for charging stations development, specially along the highways? Does a special procedure need to be adopted?
4. Must zoning allow for complementary uses, like food trucking?

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QUESTIONS OR  
ADDITIONAL  
COMMENTS?

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