

PRIVATE SECTOR PERSPECTIVE ON ELECTRIC VEHICLE CHARGING INFRASTRUCTURE DEVELOPMENT

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AGENDA

1. The Unioil Case Study. Four (4) years of experience running EV charging stations in the Philippines since Yr.2017
2. Summary of Issues & Concerns

THE UNIOIL CASE STUDY

- Unioil is the country's 4th largest oil company.
- Complete line of Euro 5 performance fuels in its retail gas stations.
- Since Yr. 2017, introduced two (2) electric vehicle charging stations co-located in a gas station.
- In Yr.2020, installed EV chargers in its main office building to promote Electric Vehicle use.



OUR PAST 4 YEARS OF EXPERIENCE RUNNING EV CHARGING STATIONS IN THE PHILIPPINES



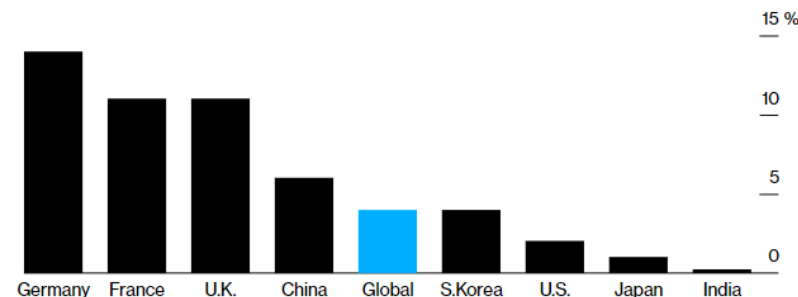
SUMMARY OF ISSUES & CONCERNS

1. Low Demand.

- Electric Vehicles (EV) customers are still few.
- EV cars are still more expensive than internal combustion engine (ICE) vehicles.
- Expected to increase over next 10-15 years.

Slow Take-Up

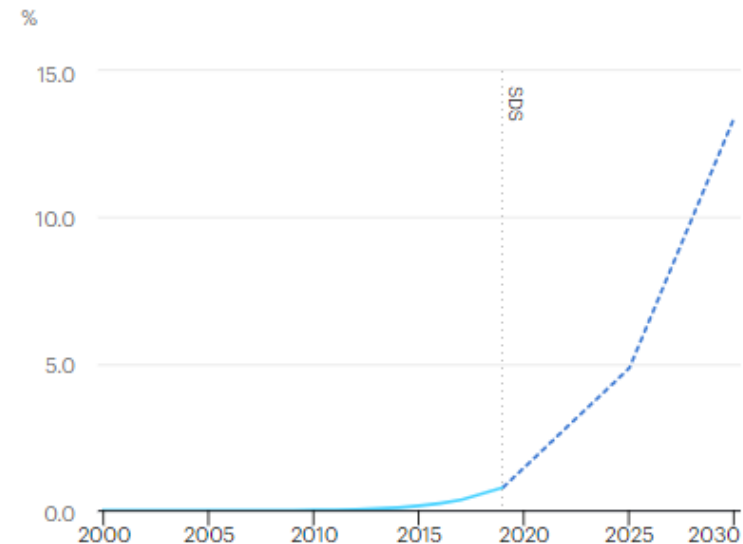
EV sales still lag well behind fossil-fueled cars around the world



Source: BNEF, Marklines
Note: Passenger EV sales in selected markets

Electric car share in the Sustainable Development Scenario, 2000-2030

Open



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● Historical ● SDS

SUMMARY OF ISSUES & CONCERNS

2. HIGH INVESTMENT COST.

- Multiple charging protocol, multiple investment!
- Investment cost for DC charger is approx. P1M to P5M per type.
- Fast changing technology & cost of replacement/upgrades.



ELECTRIC CAR PLUG TYPES



TYPE 1 PLUG

Single-phase plug used in car models from the Asian region.



GB/T PLUG

Similar to the Type 2 plug but with additional male connectors.



CHADEMO PLUGS

Quick charging system developed in Japan.



TYPE 2 PLUG

Triple-phase plug considered to be the standard model in Europe.



CCS PLUGS

Enhanced version of the Type 2 plug, with additional power contacts for quick charging.



TESLA SC PLUG

Modified version of the Type 2 Mennekes plug.

Car makers have come up with different standards for the type of plug used to recharge their electric cars. (Source: The Mobility House)

SUMMARY OF ISSUES & CONCERNS

3. 400V POWER SUPPLY IS NEEDED

- DC Power Requirement : 400 Volts
- Available Power : 220 Volts
- Review of the national Power Energy Plan in support of EV infrastructure network growth is needed.



SUMMARY OF ISSUES & CONCERNS

4. Not Allowed To Charge Fees.
Under our current laws, EV charging stations are not allowed to sell electricity and collect money. Waiting for new EV Law to be passed!

Private sector investors need to be assured of a fair return on investment (ROI).



SUMMARY OF ISSUES & CONCERNS

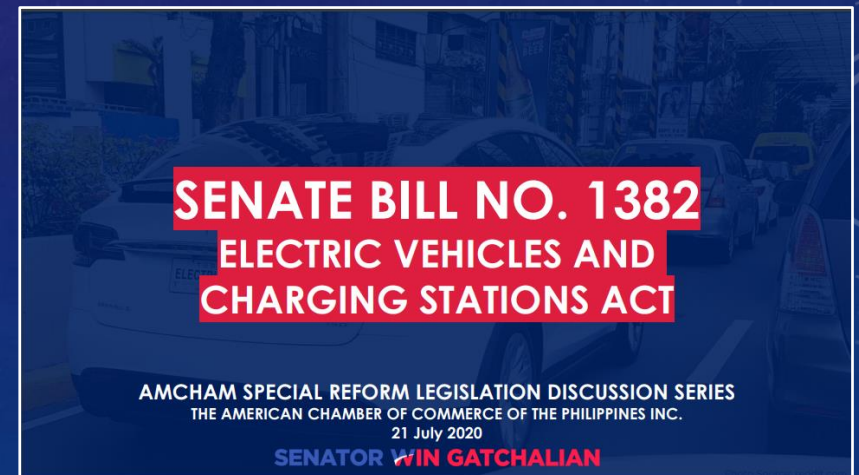
5. GOVERNMENT HELP NEEDED TO SPUR GROWTH

a) New EV Law is needed.

Senate Bill 1382 + Congress Bill.

b) We propose to national government to study the possibility to choose one(1) national EV charging protocol standard

c) Need to review incentives for EV industry (over next 10 years)



KEY TAKE-AWAYS

1. The Electric Vehicle (EV) is a new sunrise industry. It is changing the entire landscape of the consumer behavior on “mobility” choices. The business industry paradigm of mobility & energy is evolving.
2. EV mobility needs a physical network of recharging support stations for it to become mainstream. If not, EV will only be used for short distances + internal combustion vehicles for long distance.
3. The EV industry needs government support (New EV Law, BOI Incentives & Power Energy Plan)
4. Private sector investment is needed to provide the investment needed to expand the EV mobility & support services.

The background is a deep blue gradient with a subtle pattern of white stars and nebulae. Overlaid on this are several faint, white technical diagrams. In the top right, there is a large circular gauge with concentric rings and numerical markings from 0 to 210. In the bottom right, there is a diagram of two concentric circles with arrows indicating a clockwise flow. In the bottom left, there is a partial view of a similar circular diagram. The text 'THANK YOU' is centered in the upper half of the image.

THANK YOU

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