HEARING REGARDING TARIFF TO BE CHARGED FROM ELECTRIC VEHICLES BY ELECTRIC VEHICLE CHARGING STATION

Background

- The National Electric Vehicle Policy provides that “NEPRA shall develop a policy to enact EV tariffs and to ensure compliance with EV standards and specifications.”

- The Authority in view thereof, in exercise of powers under section 7 read with section 31 of NEPRA Act read with 3(1) of NEPRA Tariffs (Standards & Procedure) Rules, 1998 has decided to initiate proceedings to amend the terms and condition of XWDISCOs and KE's tariff as proposed hereunder;

    - In A-2 Commercial, following may be added for tariff applicable for;

        “ix) Electric Vehicle Charging Stations”

    - In addition in A-2 Commercial, following may be added;

        “The Electric Vehicle Charging Station shall provide “charging service” to Electric Vehicle with a maximum cap as determined by the Authority from time to time.”

- Regarding EVCS standards, specification and relationship of EVCS with DISCOs separate proceeding will be carried out.

Tariff

- What should be the tariff to be charged from EVs by EVCS?
- Whether there should be any maximum cap for tariff to be charged form EVs by EVCS? If so what should be the maximum cap?

Tariff Proposal

- NEPRA had consultations with the following:
  - LUMS Energy Institute
  - USAID
  - NREL
  - US Department of Energy
  - NEECA

Tariff Proposal

EV Charging Stations – Pricing Options

- Private sector to set customer charges/ tariff with no price caps
- Given a ceiling, private sector to compete to reduce tariff below ceiling
- Determine customer charges/tariff for all private EV charging stations

Tariff Proposal

Approaches to Pricing EV Charging Stations

Cost-Plus (Bottom-Up) using DCFC 150KW as a base case

- Availability of CAPEX, OPEX data
- Other assumptions:
  - Debt : Equity
  - Market based cost of funds
  - Utilization Rate – 20% (avg.)
- Electricity input rate – Rs. 20/kWh*
- Tariff Rs.45.08/kWh** (avg.)

*For working purpose only, variable input rate has been assumed and the fixed charges has been converted to variable with applicable load factor
**No taxes, duties, levies and other charges has been assumed in this working.

Tariff Proposal

Approaches to Pricing EV Charging Stations

The Economic Case (Top-Down)

- Cost of running EV should be equal to or lower than the cost of running FFV.
- Assumptions:
  - FFV mileage – 8 to 16km/liter
  - EV mileage – 30 kWh/ 100 miles2
- Rs. 47.7/kWh @ breakeven & Rs. 45.3 @ 95% of FFV.

Thank You

Bottom-Up Approach to Pricing 150 kW EV Charging Stations

Description	LUMS[1]
CAPEX *in PKR*	12,476,000
OPEX *(p.a.) in PKR*	4,200,000
Debt: Equity Ratio	80:20
Cost of Debt	11.25%
Cost of Equity	16%
Revenue Requirement *(p.a.)*	6,311,791
Utilization Assumptions:	*Including Rs. 20/kWh input cost*
25%	Rs. **39.21** /kWh
20%	Rs. **44.02** /kWh
15%	Rs. **52.02** /kWh
	Avg.: Rs. **45.08** /kWh

Assumptions	
ICE/FFV	**EV**
Petrol Price: Rs. 100.93 (Ex. GST)	Electricity Consumption Avg.: 30kWh/100 miles*

											Average
ICE Mileage	**Km/L**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**12**
EV Rate	breakeven	68.13	60.56	54.50	49.55	45.42	41.93	38.93	36.34	34.06	**47.7127**
	at 95%	64.72	**57.53**	**51.78**	**47.07**	**43.15**	**39.83**	**36.98**	**34.52**	32.36	**45.3271**

* Mode of consumption data of 81 EVs (model year 2020 & 2021) taken from www.fueleconomy.org