

# **Comments on Regulation of EVCS and Protection of Customer Rights**

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# Political and Economic Environment on EV

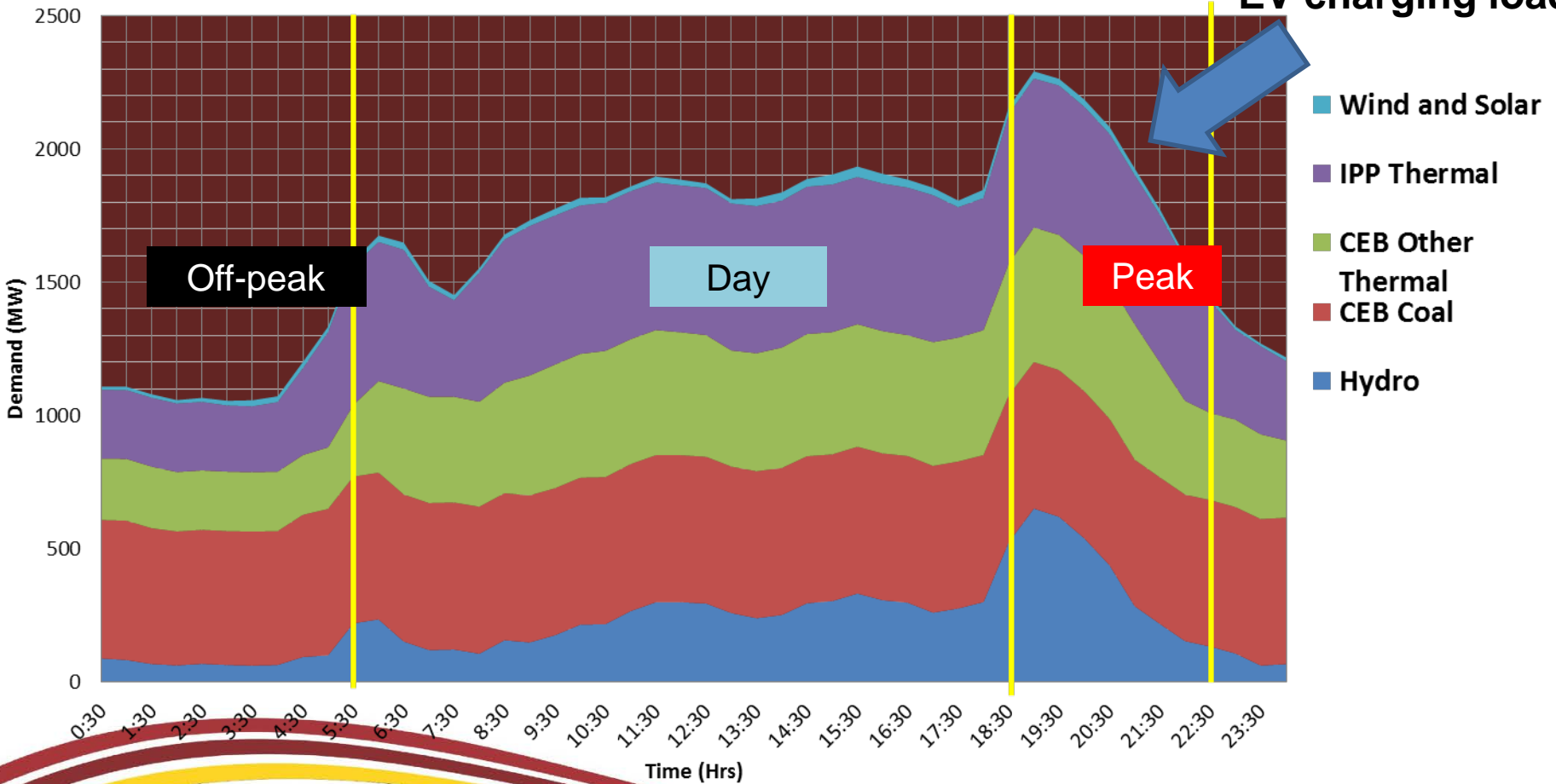
- Government had identified shifting towards Electric transportation as a key strategy to reduce body level atmospheric pollution and to relieve the country on the dependency of liquid petroleum based fuels used for transportation (Diesel and Petrol)
- The draft National Energy Policy - identified diversification of transport energy from Oil to Electricity as a strategy to realize the policy element “Enhance Self Reliance”



# CEB and Electric Vehicles

## System Electricity Demand on 03.01.2017

Valley filling by EV charging load



# CEB EVCS present and future

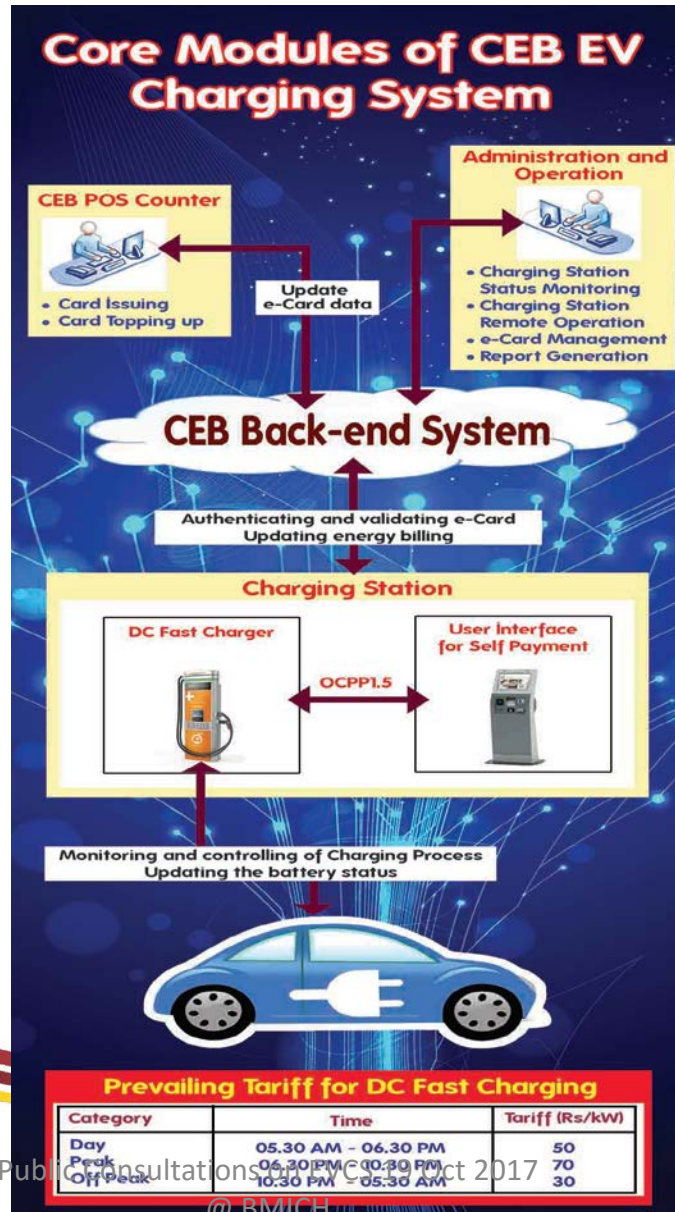
- Kelanitissa Power Station at present



- 6 EVCS by end of 2017 - in Pannipitiya GSS, N-Eliya Area Office , Kandy DGM Office, Kirrilawela CSC, 2 stations at Welippenna
- More EVCS



# CEB Energy Card



# Comments on Regulation

- Regulation should be limited to technical & safety
- Regulation EV charging should be delayed until the EV charging industry matures to allow for competition



# DC Fast Charging

- Should **never be an attractive economic alternative to normal home/office charging**
- EV owners should be **discouraged** to use these facilities except as
  - Away from home alternative
  - Contingency option
- Should **strategically be reserved for long distance EV travelers**, simply due to
  - Limited availability subjected to less investments for such facilities
  - A queue at the facility will lead to higher turnaround time (i.e., multiples of 20 minutes) and it will tend to discourage EV usage



# Charging Connectors

## AC Charging Connectors

Mainly there are two types available in the market.

SAE J1772



- Single Phase
- 120V / 230V
- 19 kW Maximum
- Vehicles:  
Nissan Leaf, Mitsubishi i-MiEV, Kia Soul EV

IEC 62196 Type 2 - Mennekes



- 3 phase / Single phase
- 250V to 400V
- 22kW Maximum
- Vehicles:  
BMW i3, BMW i8





# Charging Connectors

## DC Charging Connectors

### CHAdeMO



- DC 500V
- 60 kW maximum
- Vehicles:  
Nissan Leaf, Mitsubishi i-MiEV, Kia Soul EV

### SAE J1772 Combo 1



- DC 200V – 600V
- 125 kW maximum
- Vehicles  
Chevrolet Spark EV

### CCS Combo 2



- DC 200V to 850V
- 170kW Max
- Vehicles:  
BMW i3, BMW i8



# Standards to be Adopted

## DC fast charging interfaces

- There are following two internationally popular standards
  - CHAdeMO - only for DC charging (Japanese standard)
  - COMBO - combined charging system for both AC and DC (European, North



**Combo 1** – in AC charging, supports only 1 phase

**Combo 2** – in AC charging, supports both 1 phase and 3 phase

In DC fast charging, Combo 1 interface cannot be used with a vehicle having Combo 2 interface and vice versa due to their different physical arrangements

- A regulation is **required** for COMBO interfaces while accepting CHAdeMO (CEB to use CHAdeMO and COMBO 2 in their future DC fast charging facilities)



# Environmental Considerations

- The environmental consideration of disposing main unusable EV batteries, has to be addressed in the regulation.



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Thank  
You

