



การไฟฟ้านครหลวง  
Metropolitan Electricity Authority

# Electric Vehicle Infrastructure Development of EV Charging Stations in Thailand

# Electric Vehicle Infrastructure

## Development of EV Charging Stations in Thailand

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# Topics

MEA's Overview

Objectives

MEA's EV & Quick Charger Projects

Conclusion

Q & A

# MEA's Overview

MEA : Metropolitan Electricity Authority

Business : Electric Utility

Services Area : 3,192 km<sup>2</sup> (Bangkok, Samut Prakarn  
and Nonthaburi)

Populations: 10.4 Millions (approx.)

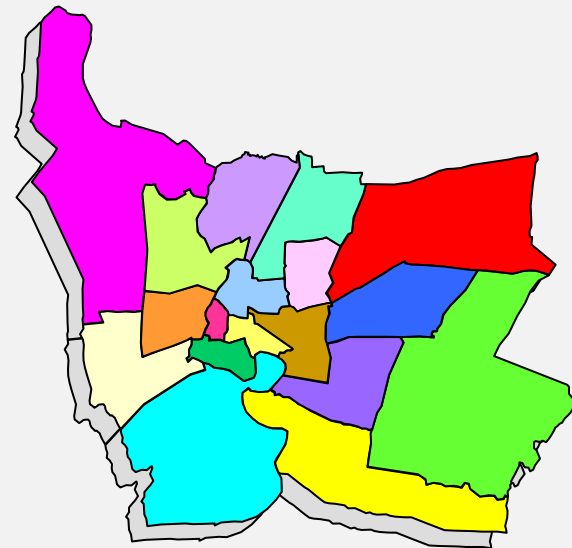
Customers : 3.28 Millions



# MEA Service Area

18 DISTRICTS

covering 3,192 sq.km.





# Objectives

Study EV and Charger Technology

Prepare Distribution System and infrastructure

Evaluate EV performance

Evaluate quick charger performance



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## Feasibility Study of Electric Vehicles in Bangkok area with Mitsubishi Motors (Thailand) Co., Ltd.



MEA and Mitsubishi Motors (Thailand) Co, Ltd. signed MOU on 6 September 2011.  
Mitsubishi lent MEA 1 i-MiEV for feasibility study for 9 months



# Electric Vehicles Demonstration Project

- Cooperation with Chulalongkorn University from September 2011 to March 2013
- The project consists of
  - Obtain 1 electric vehicle and a charging station
  - Data collection on the usage of an electric vehicle and charger
  - Design on charging system
  - Recommendation on the standard of charger

## The test bedding of electric vehicle with Nissan Motors (Thailand) Co., Ltd.



MEA and Nissan Motors (Thailand) Co, Ltd. signed MOU on 7 August 2013. Nissan lent MEA 1 Nissan LEAF for feasibility study for 8 months

## The Feasibility Study on Quick Chargers for Electric Vehicles with ABB Co., Ltd. in year 2014



MEA and ABB signed MOU on 29 April 2014. ABB contributed quick charger TERRA 51 for installed at Bang Yai district office.



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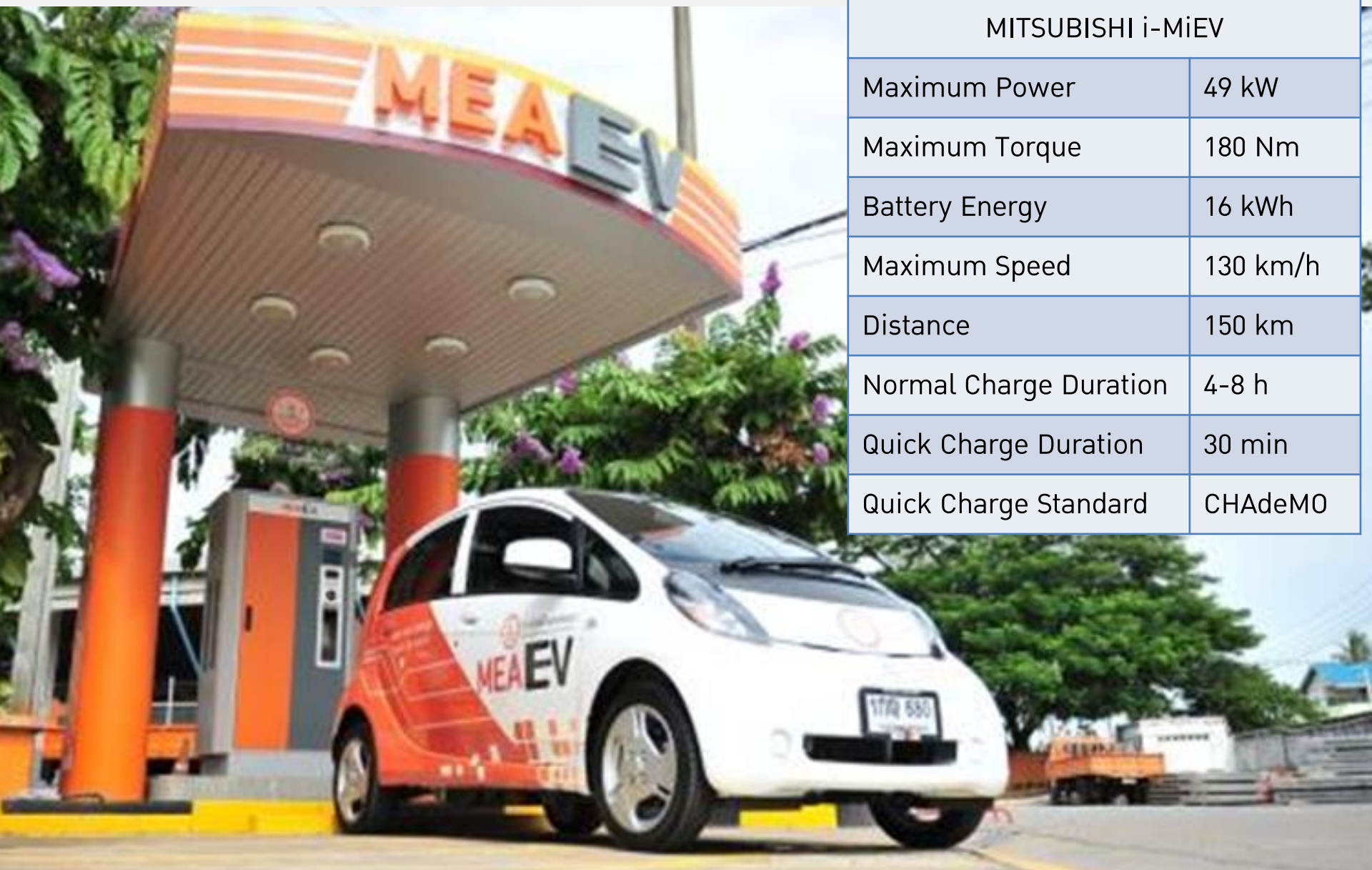
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## Electric Vehicles and Chargers Plan

	2012	2013	2014	2015
EVs	5	5	5	5
Quick Chargers	5	5	-	-



### MITSUBISHI i-MiEV

Maximum Power	49 kW
Maximum Torque	180 Nm
Battery Energy	16 kWh
Maximum Speed	130 km/h
Distance	150 km
Normal Charge Duration	4-8 h
Quick Charge Duration	30 min
Quick Charge Standard	CHAdeMO



BYD e6

Maximum Power	75 kW
Maximum Torque	450 Nm
Battery Energy	60 kWh
Maximum Speed	140 km/h
Distance	300 km
Normal Charge Duration	48 h
Quick Charge Duration	1-2 h
Quick Charge Standard	GB/T20234





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## Head Office, Pleonchit





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## Wat Liab District Office





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## Samsen District Office





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## Bang Khen District Office





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## Bang Yai District Office





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## Lat Krabang District Office





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## Rat Burana District Office



## Bang Khunthian District Office



## Samut Prakarn District Office

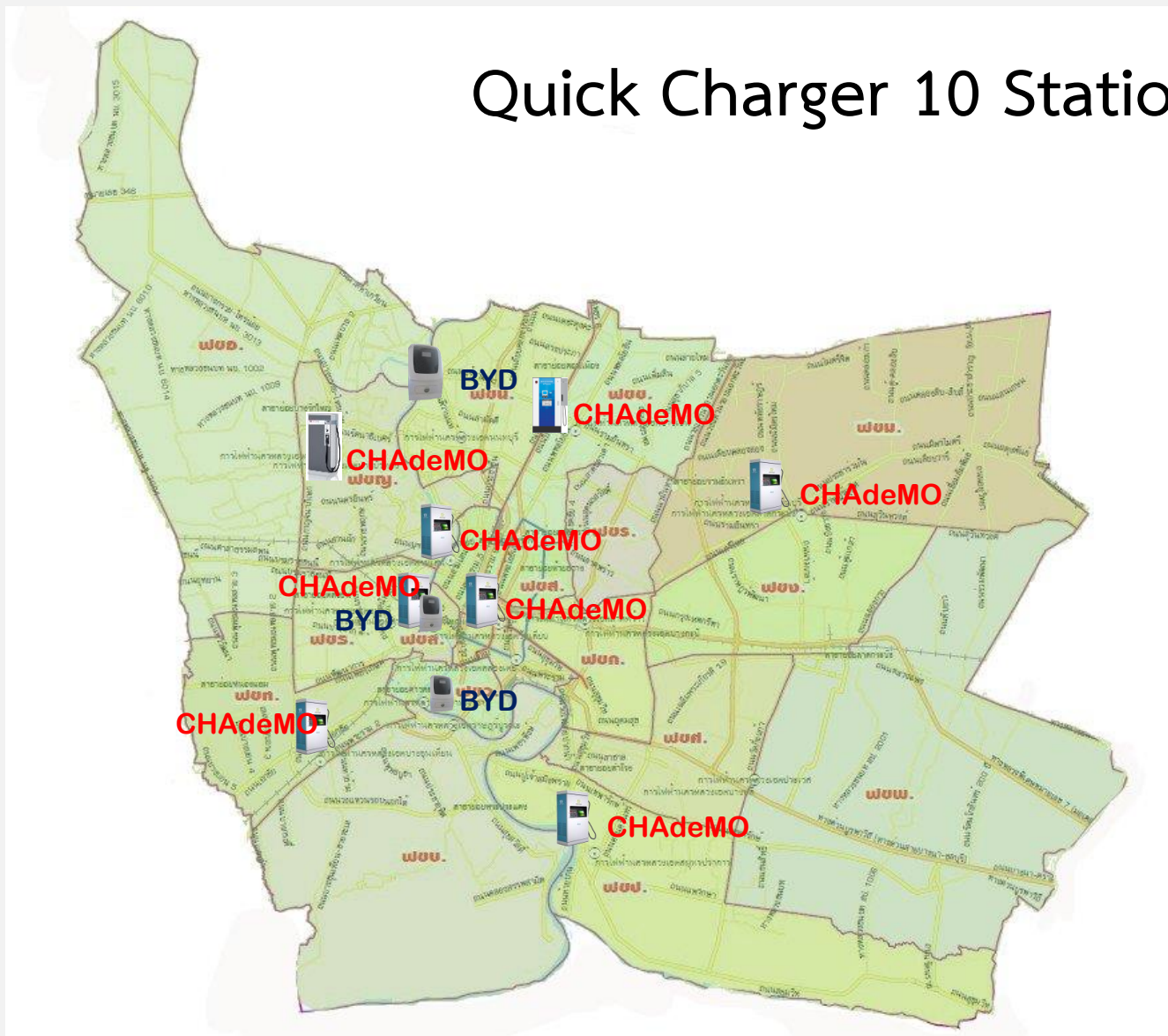


## Logistics and Product Department, Nonta Buri



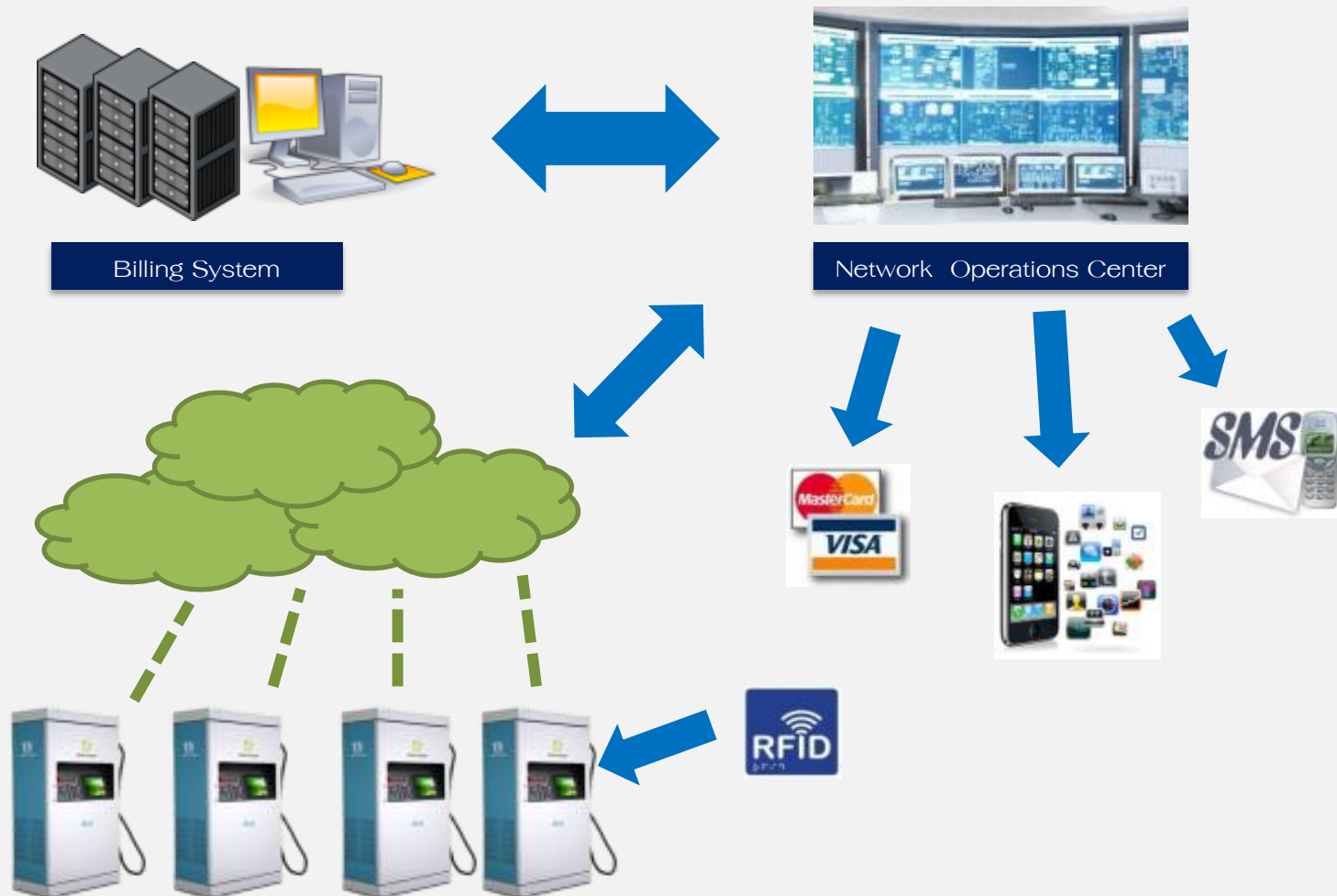


## Quick Charger 10 Stations

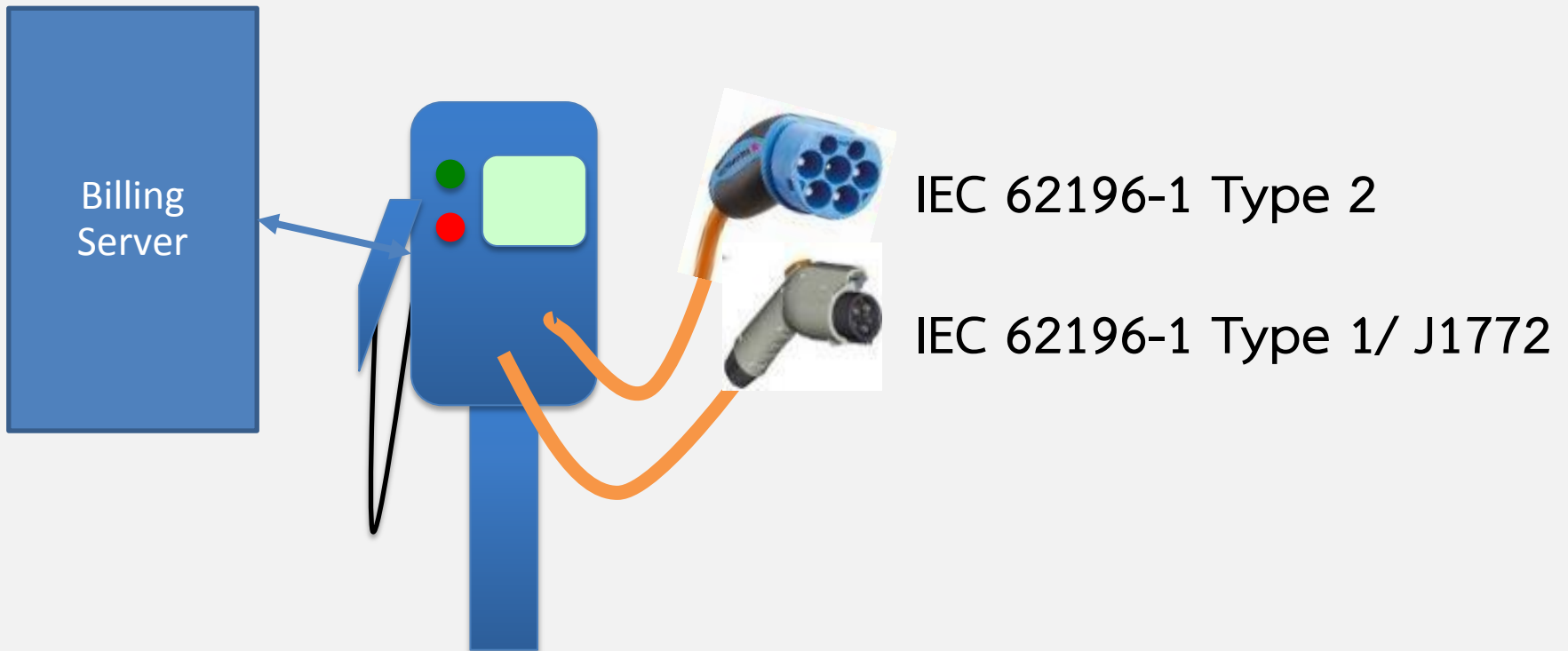


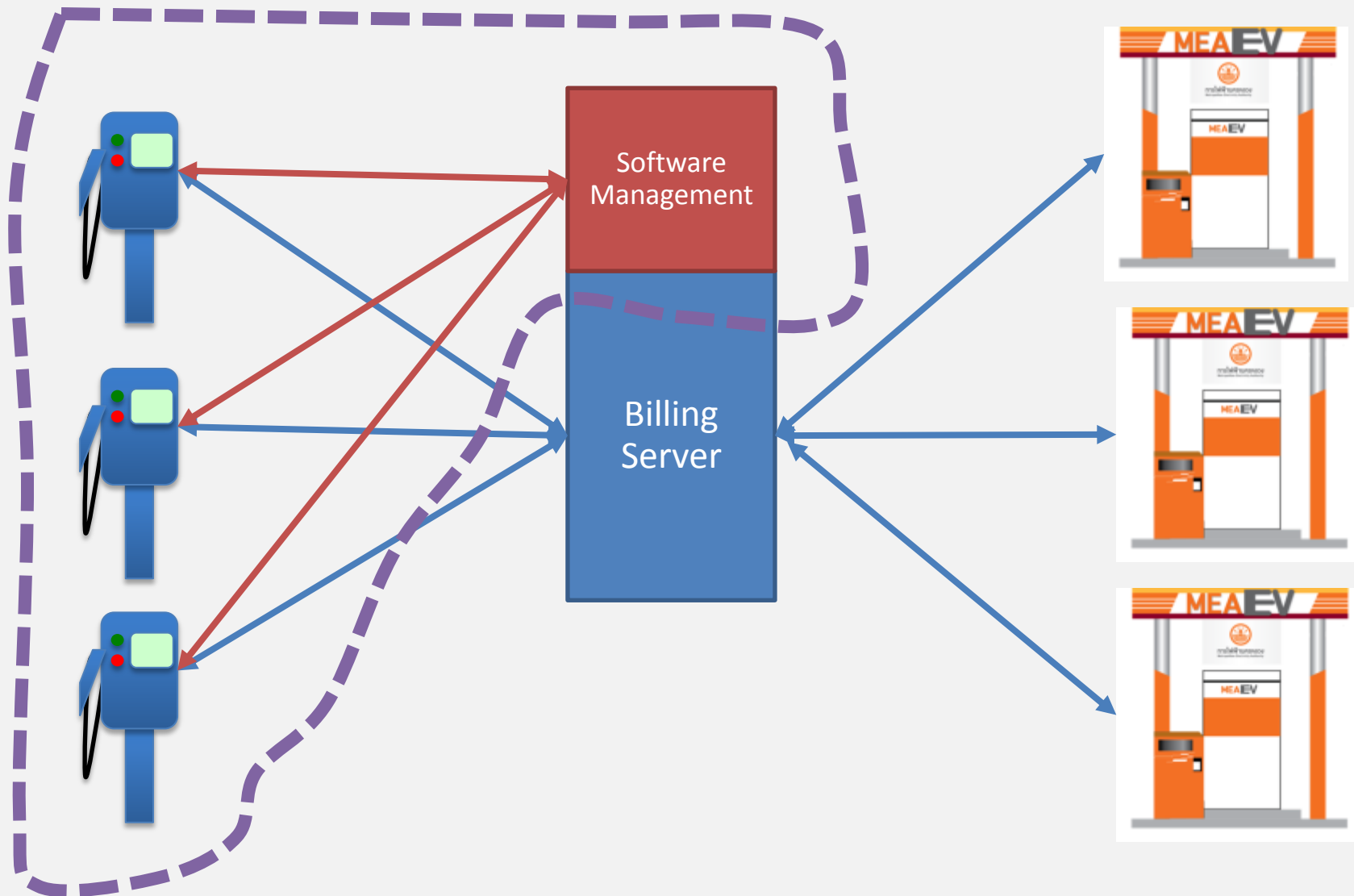


# EV and Charging System Management



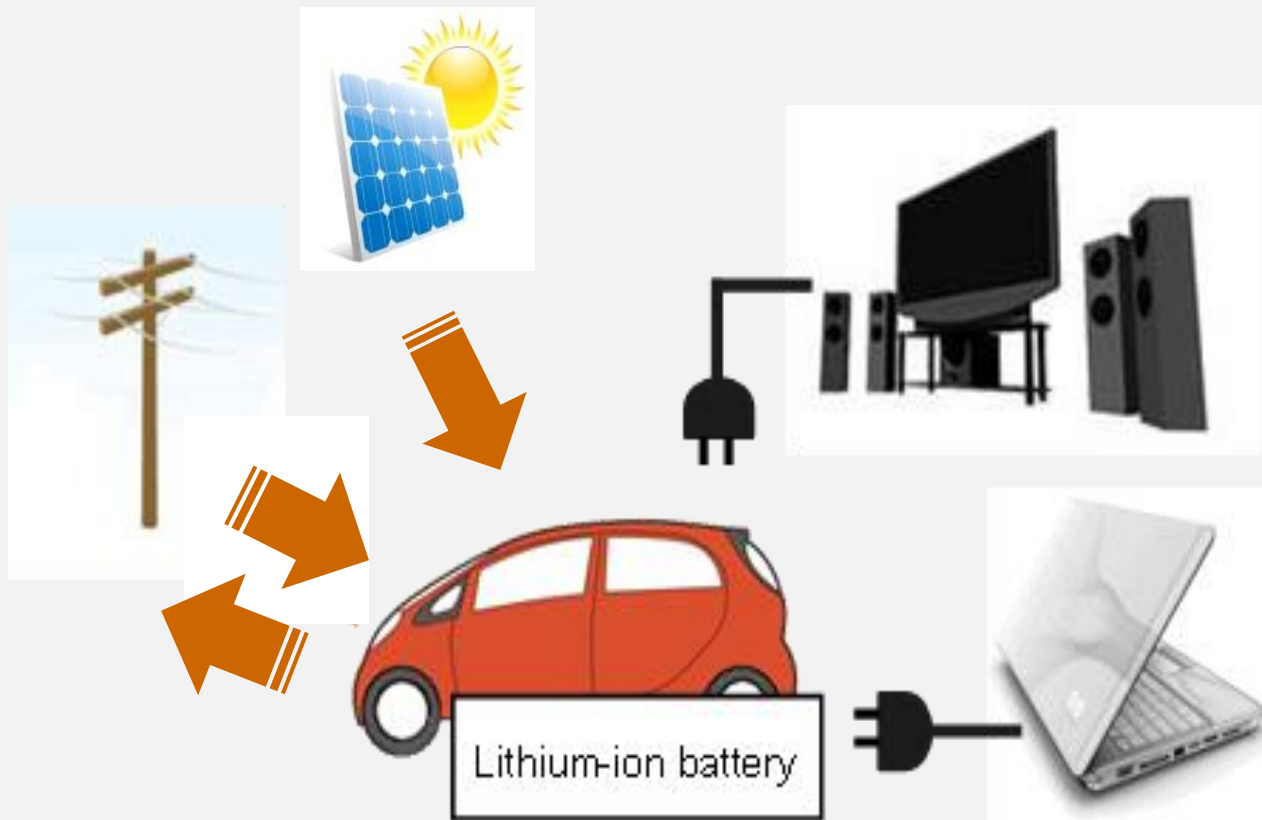








## EV and Smart Grid





## Conclusion

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# Q&A



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# Thank You for your Attention