The electric vehicle (EV) system should fulfill the energy needs of EVs to meet the EV users’ driving requirements and enable the system service from EVs to support the power system operation with high penetration of renewable energy resources (RES) by providing necessary infrastructures. In order to realize the functionalities of the EV system, a three-level conceptual EV system has been proposed. The proposed conceptual model comprises the three listed levels:

- management/control level
- information/communication level
- physical level.

The control/management level is dealing with local control or aggregated control concept and market solutions. The information/communication level is comprised of information exchange and ICT infrastructure. The physical level consists of meters, network connections, charging facility and EVs. The details of the three levels have been discussed. The stakeholders and business issues of the proposed conceptual have been discussed as well.