

BABA LAB.

Research on diversification of BEV charging services utilizing IoT

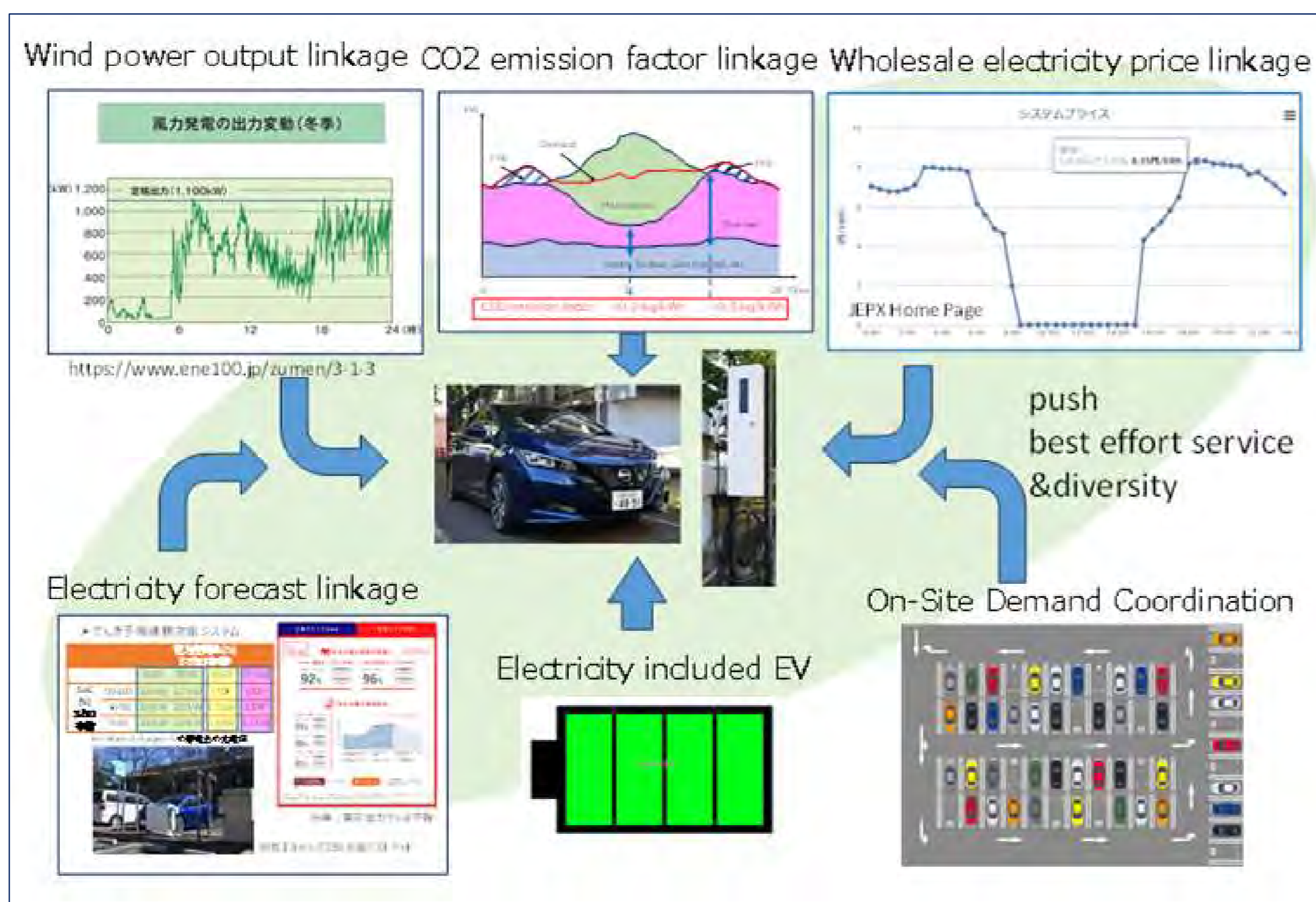


Department of Human and Social Systems

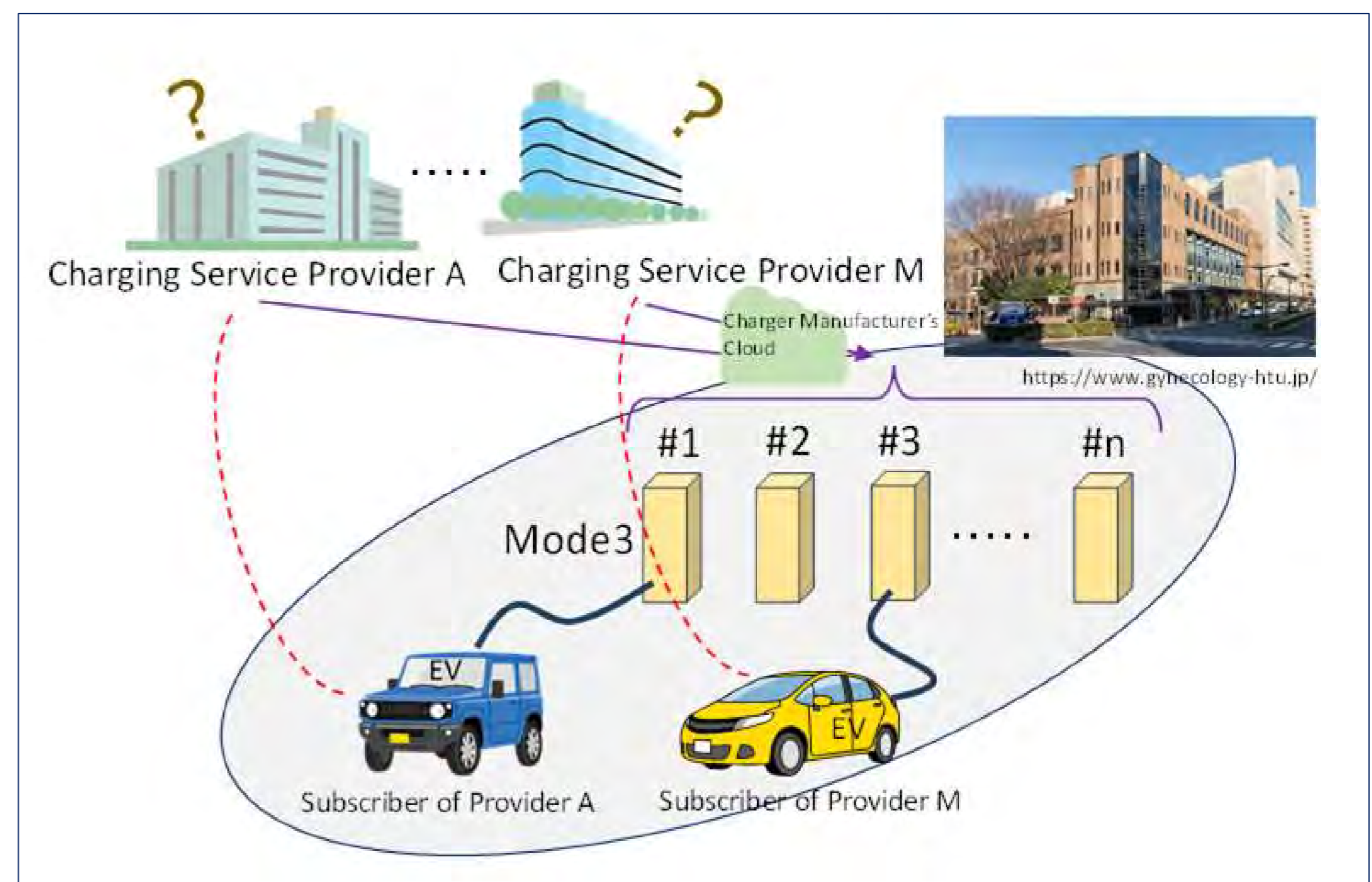
Engineering of Distributed Energy Resources Utilizing

<https://www.babahiroyukilab.iis.u-tokyo.ac.jp/>

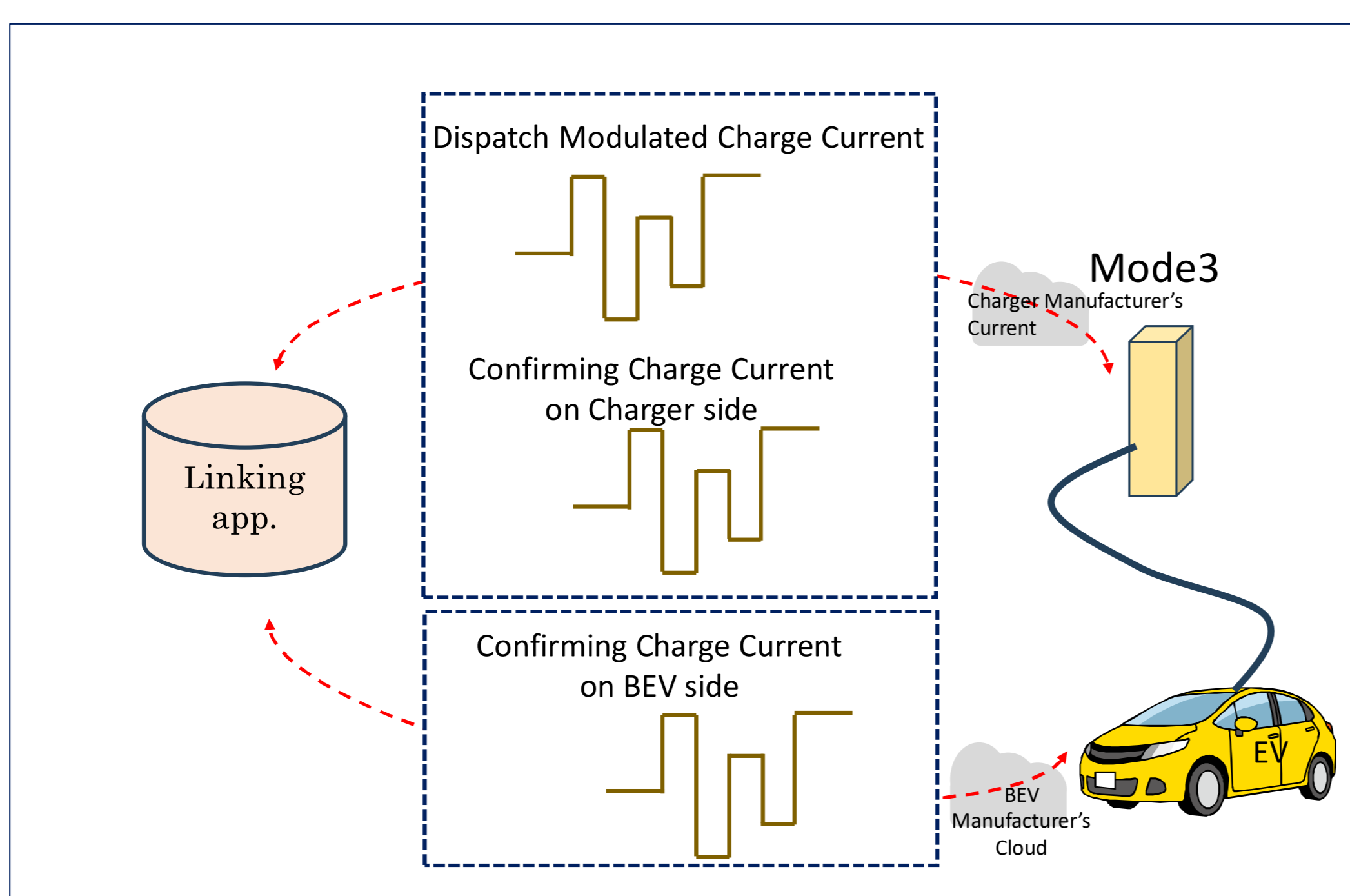
Today, the avoidance of global warming has become a global theme, and solar and wind power generation are being promoted on a large scale. These are called variable renewable energy resources, and the major difference between them and conventional power plants is that they are subject to surpluses or shortages. Therefore, the participation of power demand devices that absorb these fluctuations is also necessary, and charging and discharging electric vehicles (BEVs) is expected to play a significant role in this regard. There are several types of BEV chargers, but the type called Mode3 ordinary charger is low-priced and suitable for widespread use. However, the standard for this model does not specify the function of individual linking function. This means that charging service providers cannot tell which charger their customers' BEVs are currently connected to. This makes it impossible to provide a wide variety of charging services. Therefore, my laboratory has devised a technology that actively changes the charging current of the charger to create a pattern, obtains that pattern on the BEV side as well, and determines that the BEV is connected if the two coincide, which we have named the modulated charging current. If social implementation of the method of assigning patterns to chargers is realized, the charger will serve as a lighthouse in the ocean.



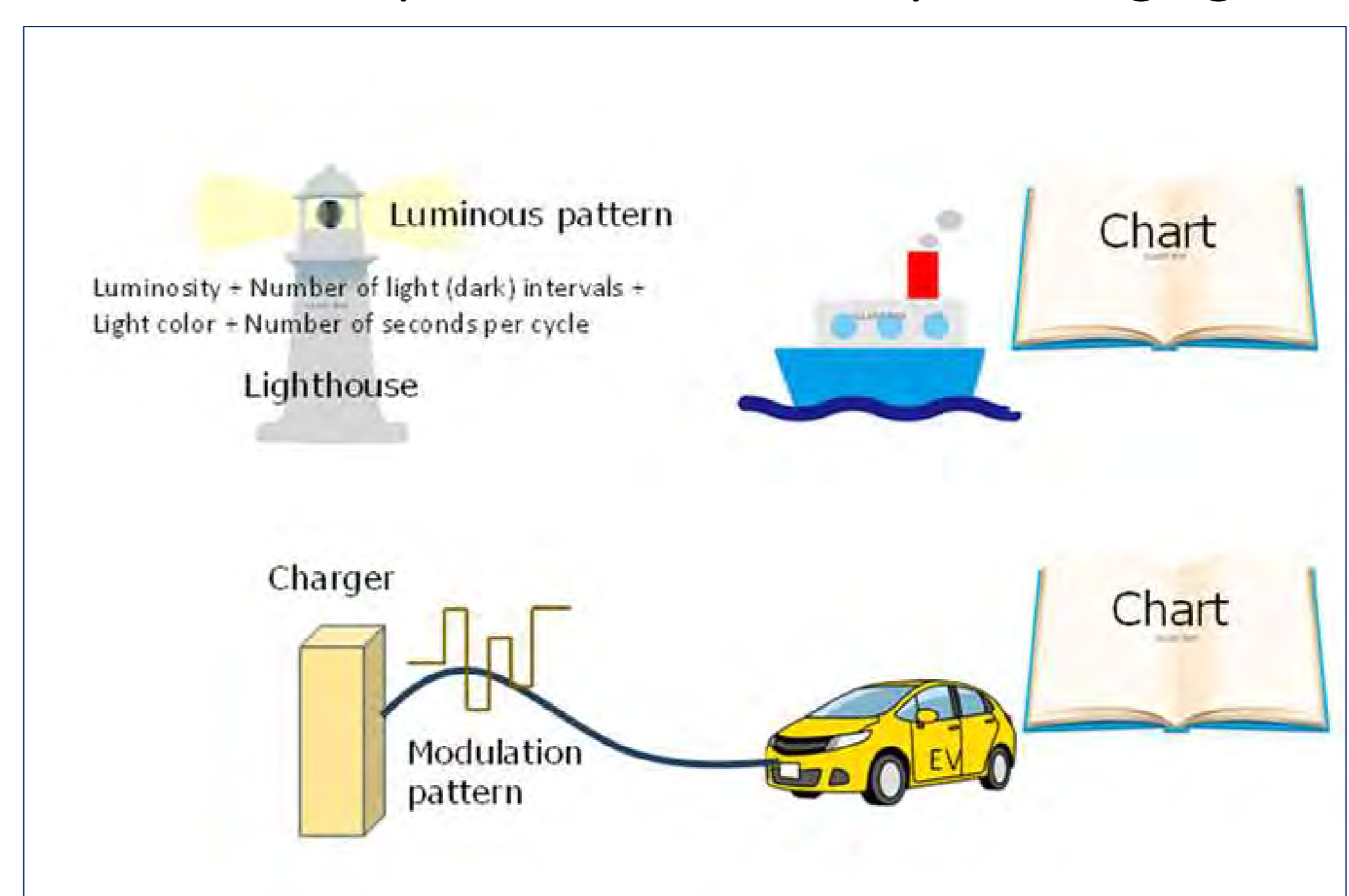
Various BEV charging services can be envisioned



Lack of individual linking function that hinders the provision of a variety of charging services



The charging current is actively changed, and if the change on the charger side and the BEV side are the same, it is judged to be connected.



Chargers can be given the same role as lighthouses