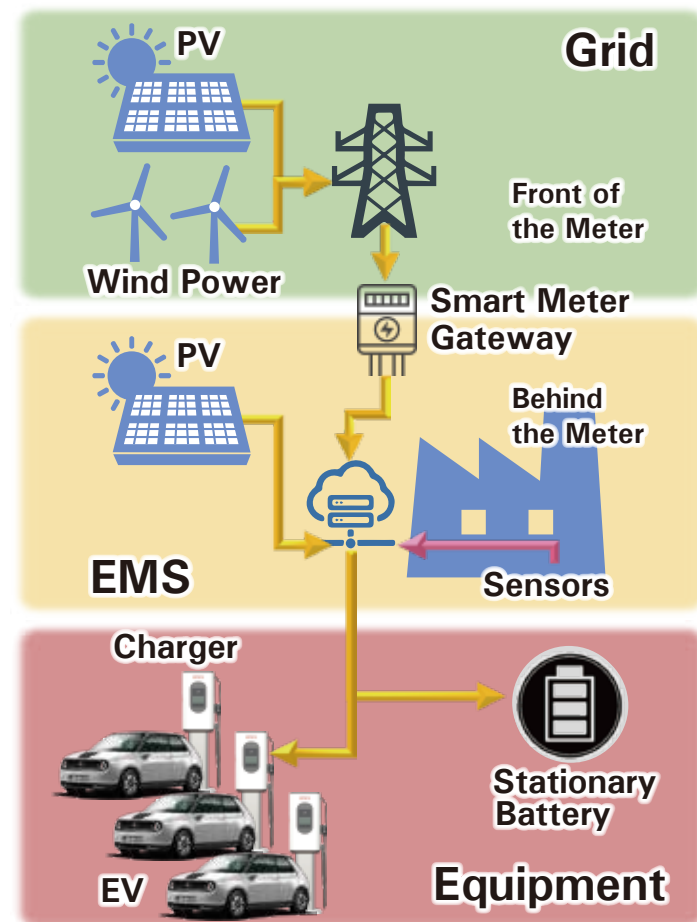


# Honda R&D Europe Energy Management Initiative

## Purpose

Develop energy services that make effective use of renewable energies, save energy, reduce energy costs and CO<sub>2</sub> emissions in Europe, which is the world leader in this field.

## Concept



## R&D Facility and Equipment

**Renewable Energy**  
 PV self consumption/ CO<sub>2</sub> Reduction

**Grid Stabilization**  
 Peak shaving/ V2G operation



**Energy management/ Resource Aggregation**  
 Stabilization / Energy flow Optimization  
 •Aggregation system  
 •EMS

**Measurement & Prediction**  
 Big data processing/ analysis/ demand- supply prediction  
 •Smart meter  
 •AI / Non-linear analysis  
 •Deep learning for prediction

**Charging Infrastructure**  
 Optimal operation of e-mobility  
 •Bi-directional charger  
 •Fast charger  
 Power Manager

**Energy Storage**  
 Energy storage/ Peak shaving  
 •2nd life stationary Battery

※ black:Technology blue:Facility

## Demonstrations

**PV self consumption Project** V1H  
**Energy management with EVs in customer houses equipped with PVs**

Monitor household power consumption and optimize EV charging for maximal use of PV power.



**Charging Manager Project** V2B  
**Energy management for Honda R & D Europe facilities and EV commuter vehicles**

EV charging optimization by monitoring and predicting of power consumption and PV generation.



**V2G service Project** V2G  
**Realization of V2G services using EVs**

Research and demo about technologies required on the EV and charger in order to realize V2G services using EVs.



Contribute to carbon neutrality by developing not only electric vehicles but also energy management services to make effective use of renewable energy sources.