

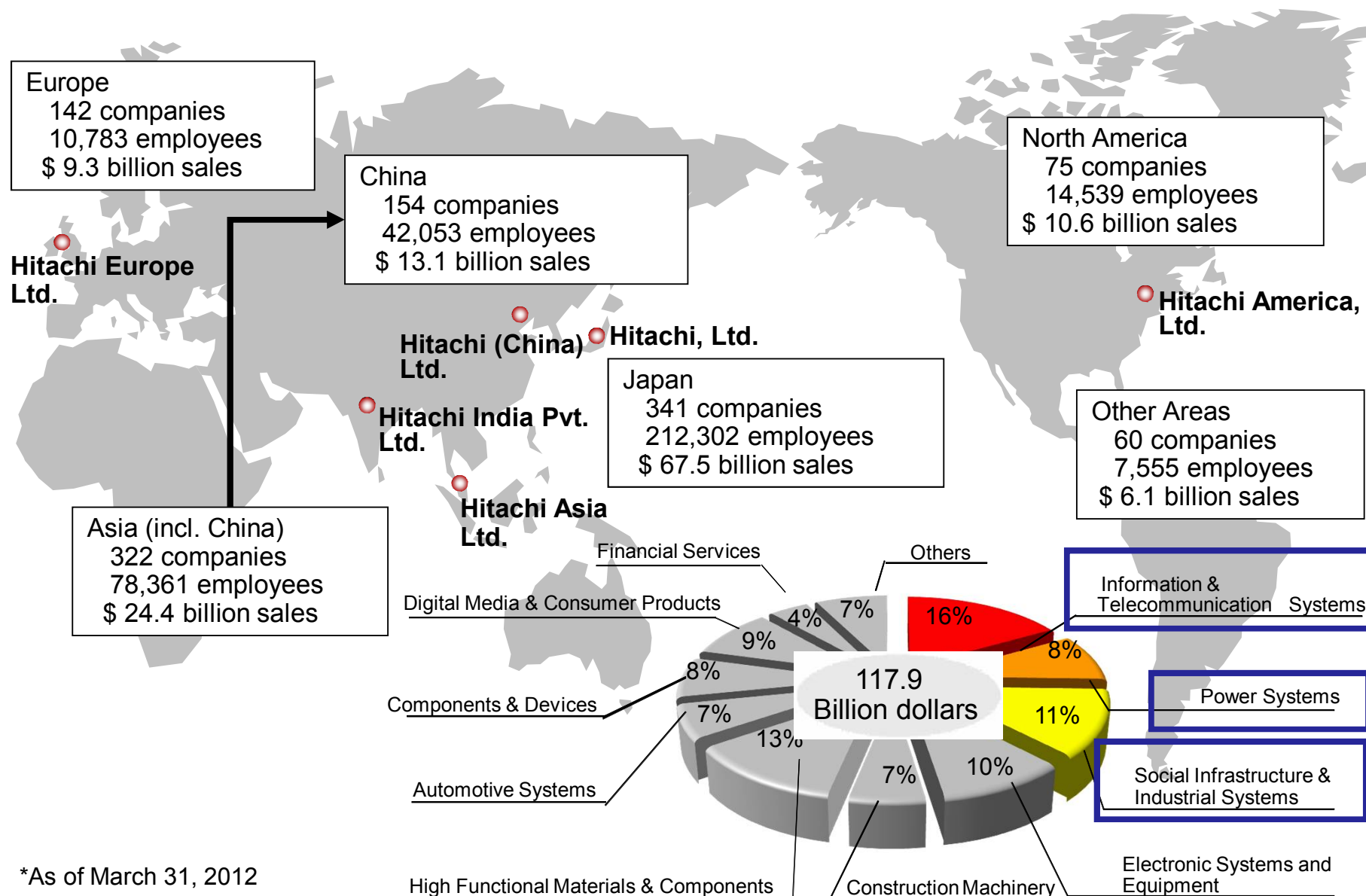
Introduction to Hitachi's Smart City Demonstration Project

- Hawaii Demonstration Project -

February 8, 2013
Hitachi, Ltd.
Infrastructure Systems
New Business Promotion Department

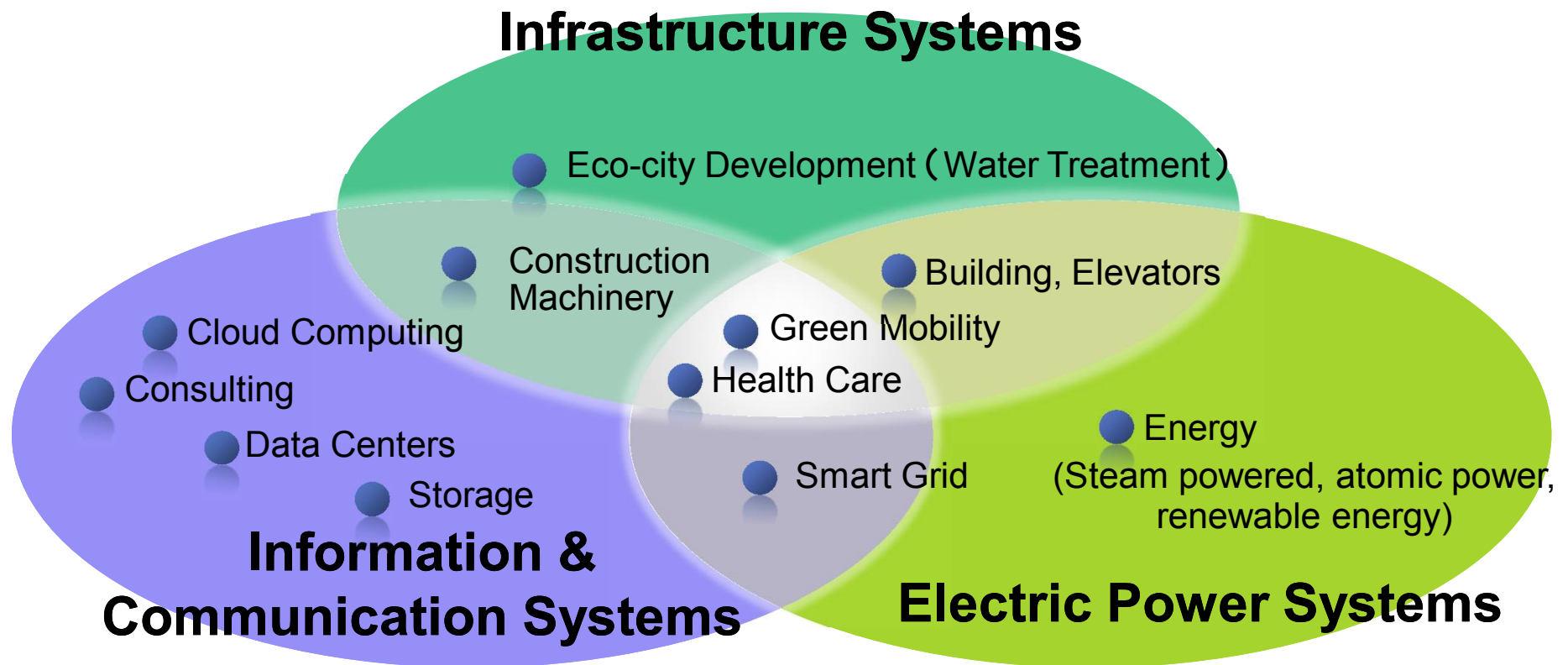
Hiroaki Sugita

1. Hitachi Group Introduction (WW Activities)



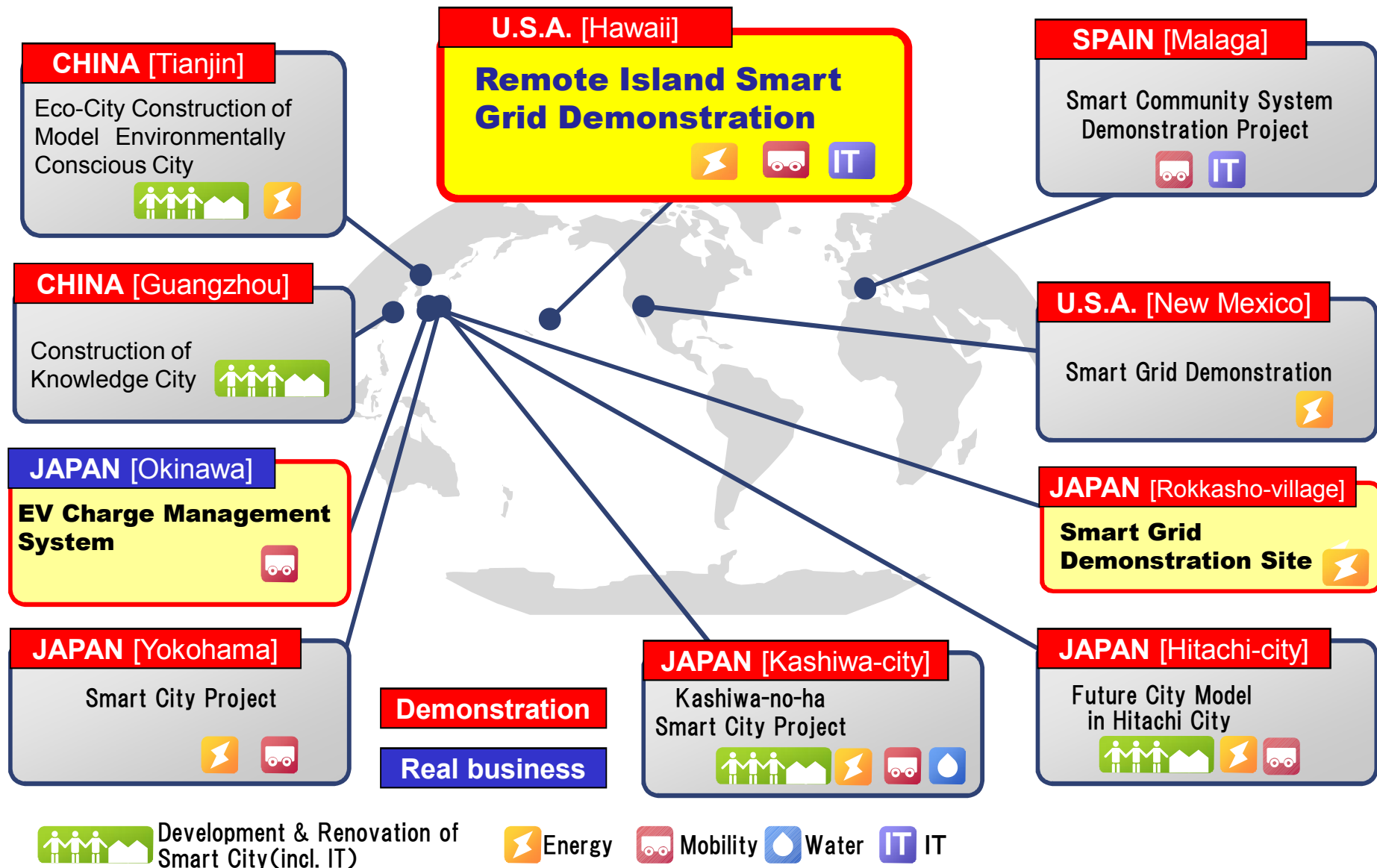
*As of March 31, 2012

2. Hitachi Group Introduction (Social Innovation Areas)



As a global leading company, Hitachi provides multiple solutions to “Social Innovation Areas”.

3. Smart Community Solution (Major 10 Activities)



4. Smart Grid Project in Hawaii

● Island style smart grid demonstration utilizing PV and EV

EV charge

CEMS

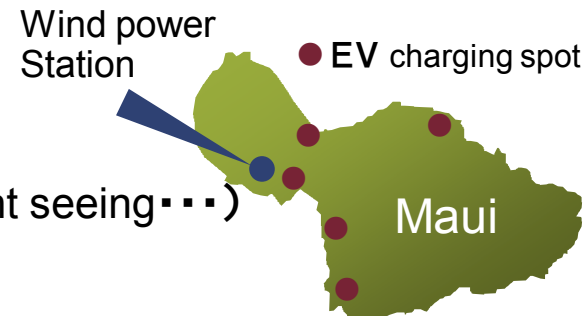
FuPF

■ Energy situation in Hawaii

● Introduction of clean energy(15→40%)

● EV introduction is on the way(transfer, sight seeing・・・)

* Year2030 target



■ Establish a system model for the introduction of clean energy

Demonstrate most advanced smart grid , verify business model issue in system instability



Standardized internationally by joint U.S-Japan project and develop to Similar island and semitropical region



5. Demonstration Organization & Schedule



Other supporting partners

Nissan Motor Co., Ltd.
Advanced Energy Company
U.S. Verizon Gr.
Okinawa Electric Power Company

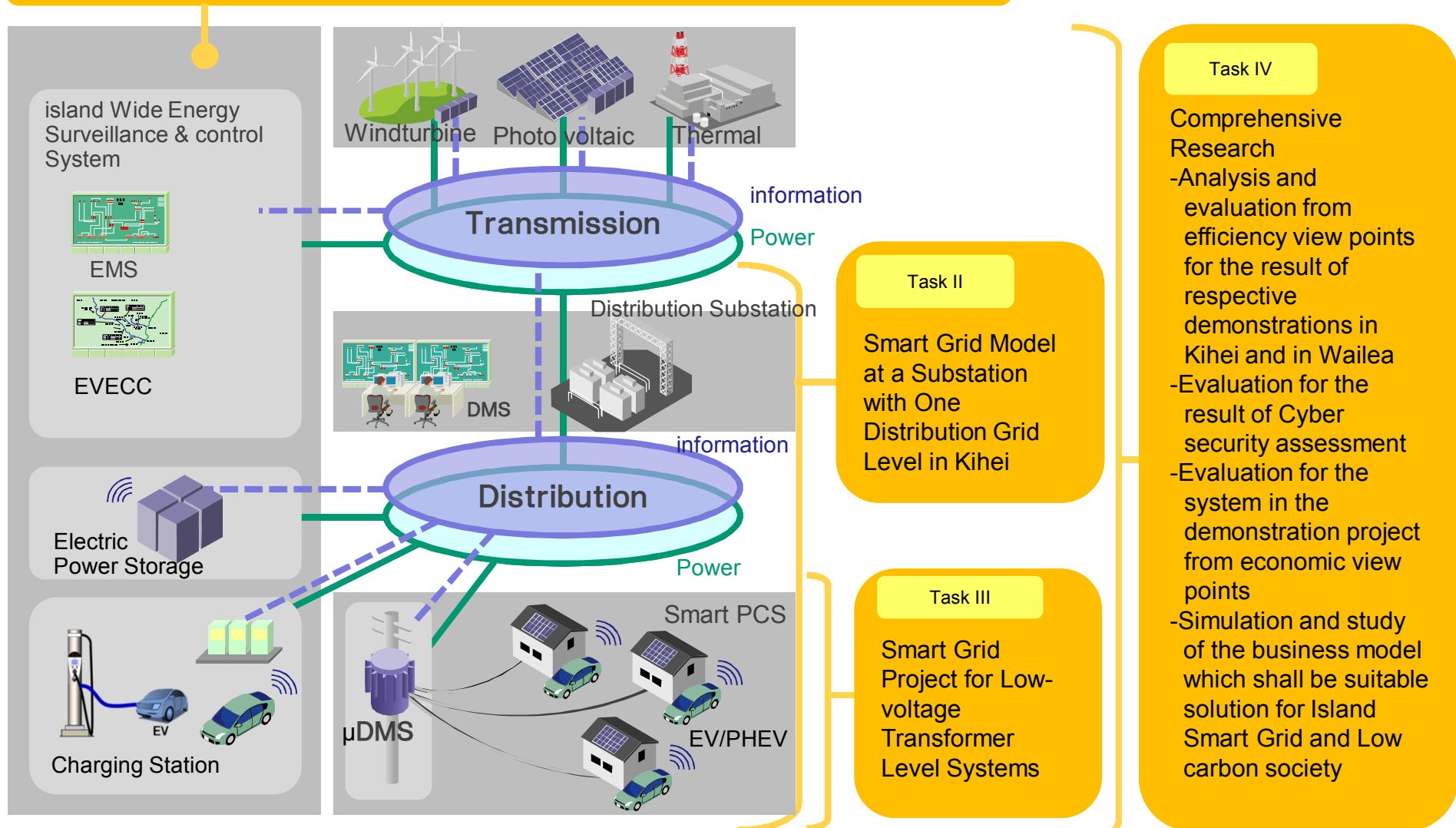
Demonstration Schedule

2011	2012	2013	2014
Feasibility Study			
	System Impact Study		
	System Design		
	Construction		
		Demonstration	

6. Overview of Demonstration Project

Task I

EV Based Remote Island Smart Grid Model on Maui



7. 6 targets to achieve for success in this world-leading PJ

1 Maximum utilization of renewable energy

“Advanced Load Shift” helps to shift the energy demand by integrating the forecast information of renewable power generation into the current model.



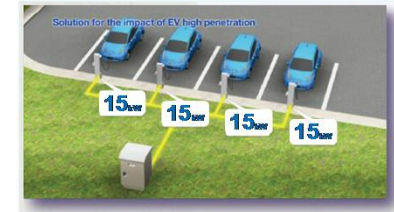
2 Direct Control of home electric appliances

“Direct Load Control” systems directly control electric appliances and EV chargers to save energy without imposing stress on user convenience.



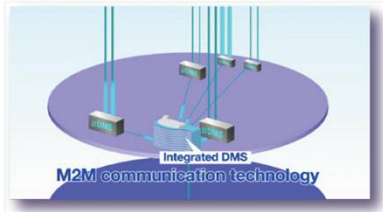
3 Solution for the impact of high EV usage

We have developed a multi-channel quick charger that allows flexible charging for multiple EVs at the same time.



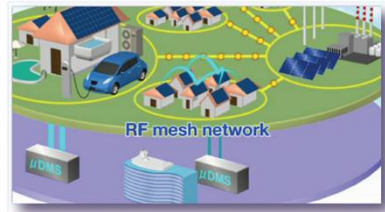
4 Cyber Security

“M2M network security technology” ensures robust security level by protecting sensitive information that could be obtained from the control data of home electric appliances.



5 Autonomous Control System

“M2M networking” and **“RF mesh network, 3G Cell base network, ...etc”** provide flexible and highly responsive energy control for home electric appliances.

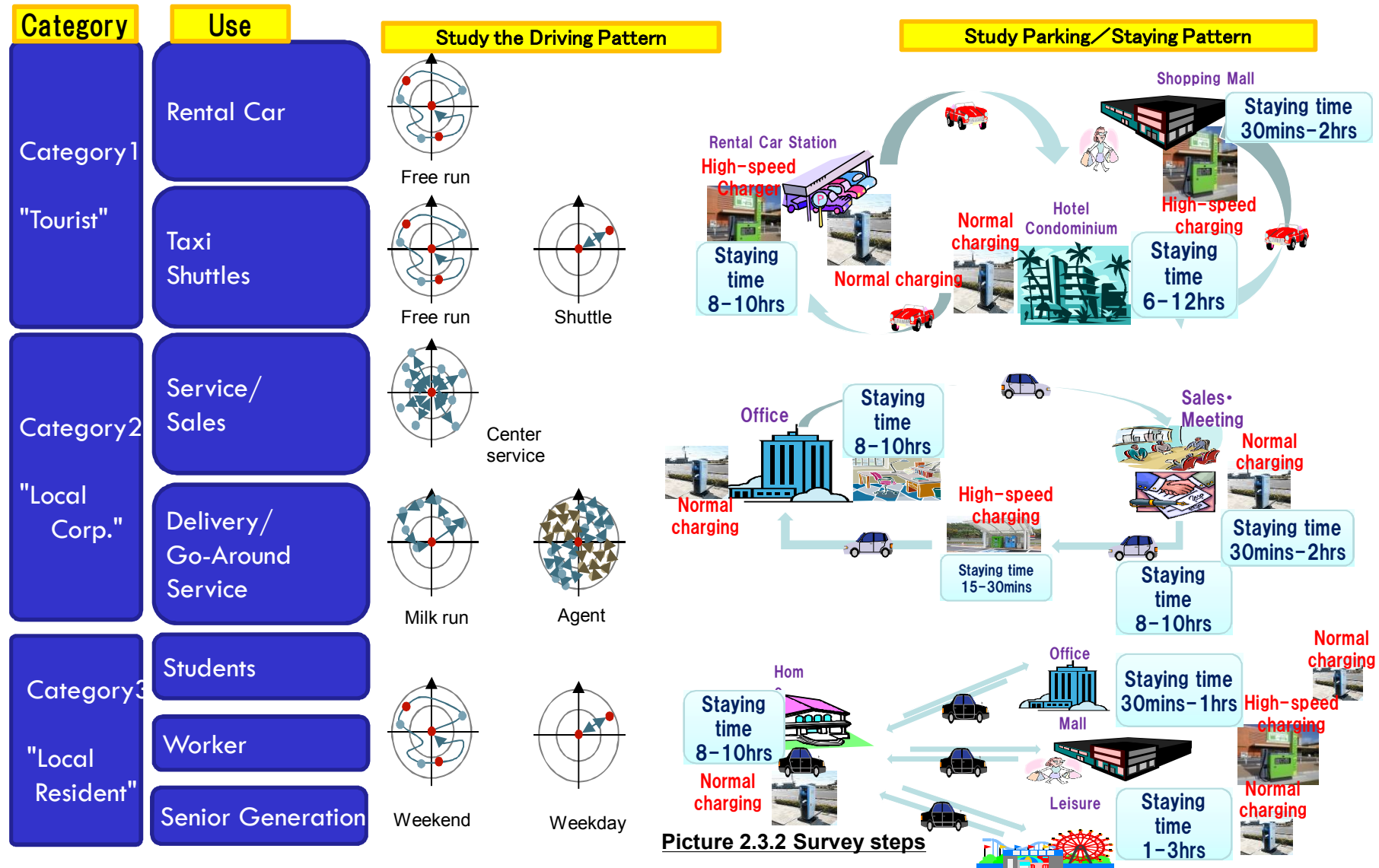


6 Evolution of community and infrastructure

“Information & control systems platform” in conjunction with the **“Smart City Center”** improves QOL of the community by balancing efficient energy use and society's needs.

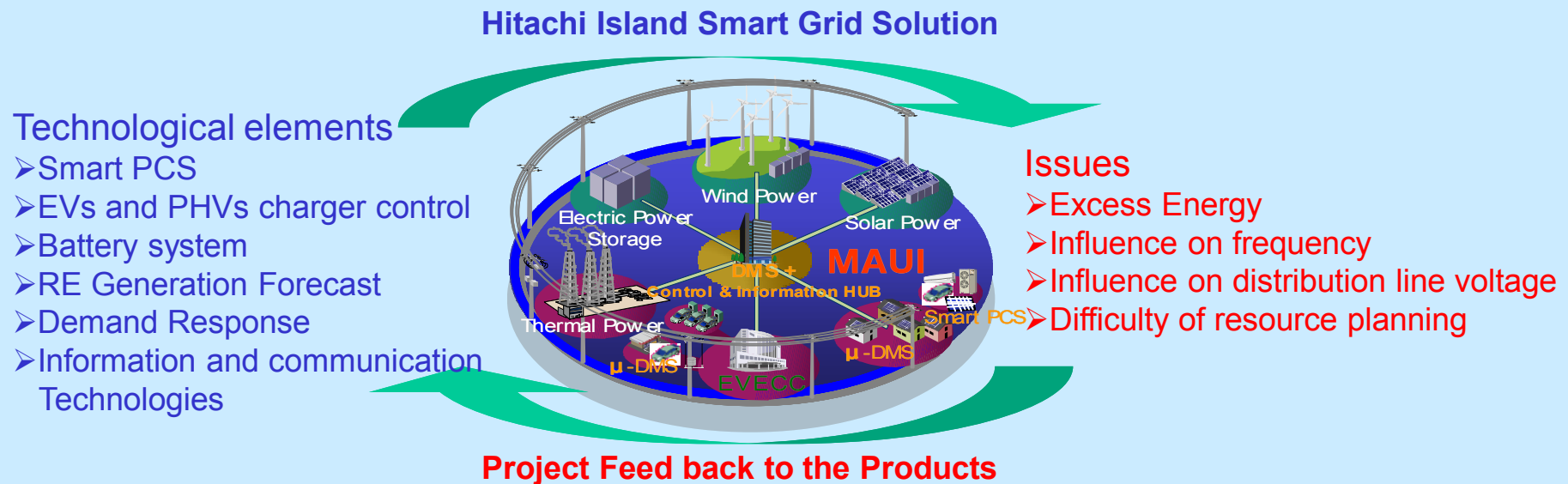


8. The segmentation of EV users



9. An advanced Island Smart Grid Demonstration Project

In Maui, Larger scale renewable energy has been already introduced.
In addition, PV and EV high penetration have been expected.



Basic Policy for Demonstration

Solution for Impact of EV & PV High Penetration

Stable Supply of Electric Power

Maximum Utilization of Renewable Energy

END

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HITACHI
Inspire the Next 