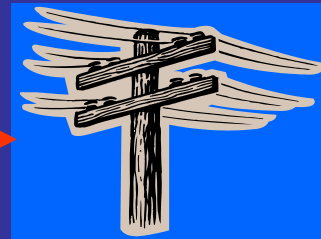
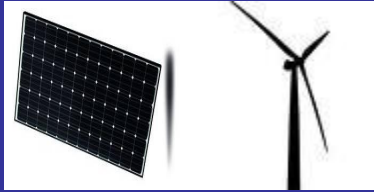


Home Energy Management system in Smart Energy Environment

Dr. Hamid Amir-Alikhani
Panasonic Europe

Smart Grid, Smart metering/Appliances :
is one of important pillars of CO2 reduction,energy efficiency

Large-scale
Renewables



Traditional
Generation

Transmission

Energy
Market

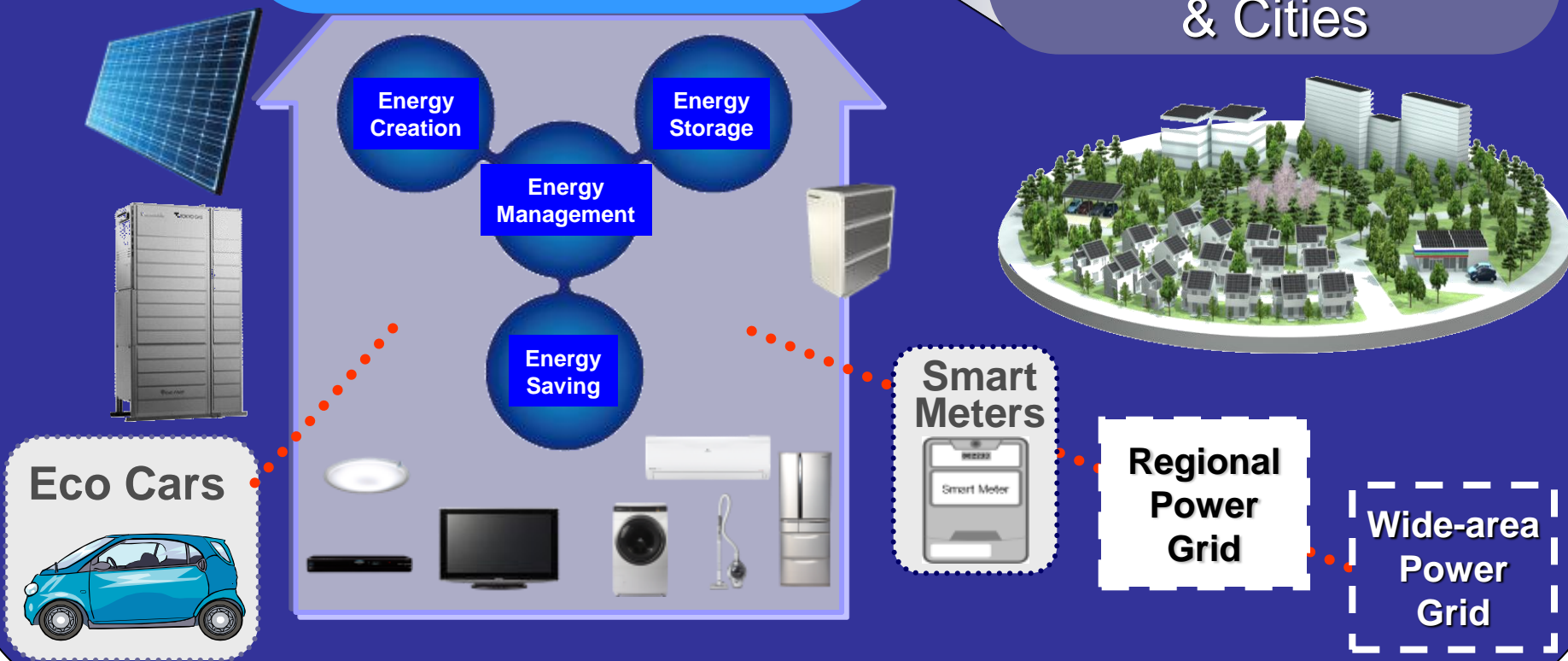
Distribution

Consumer

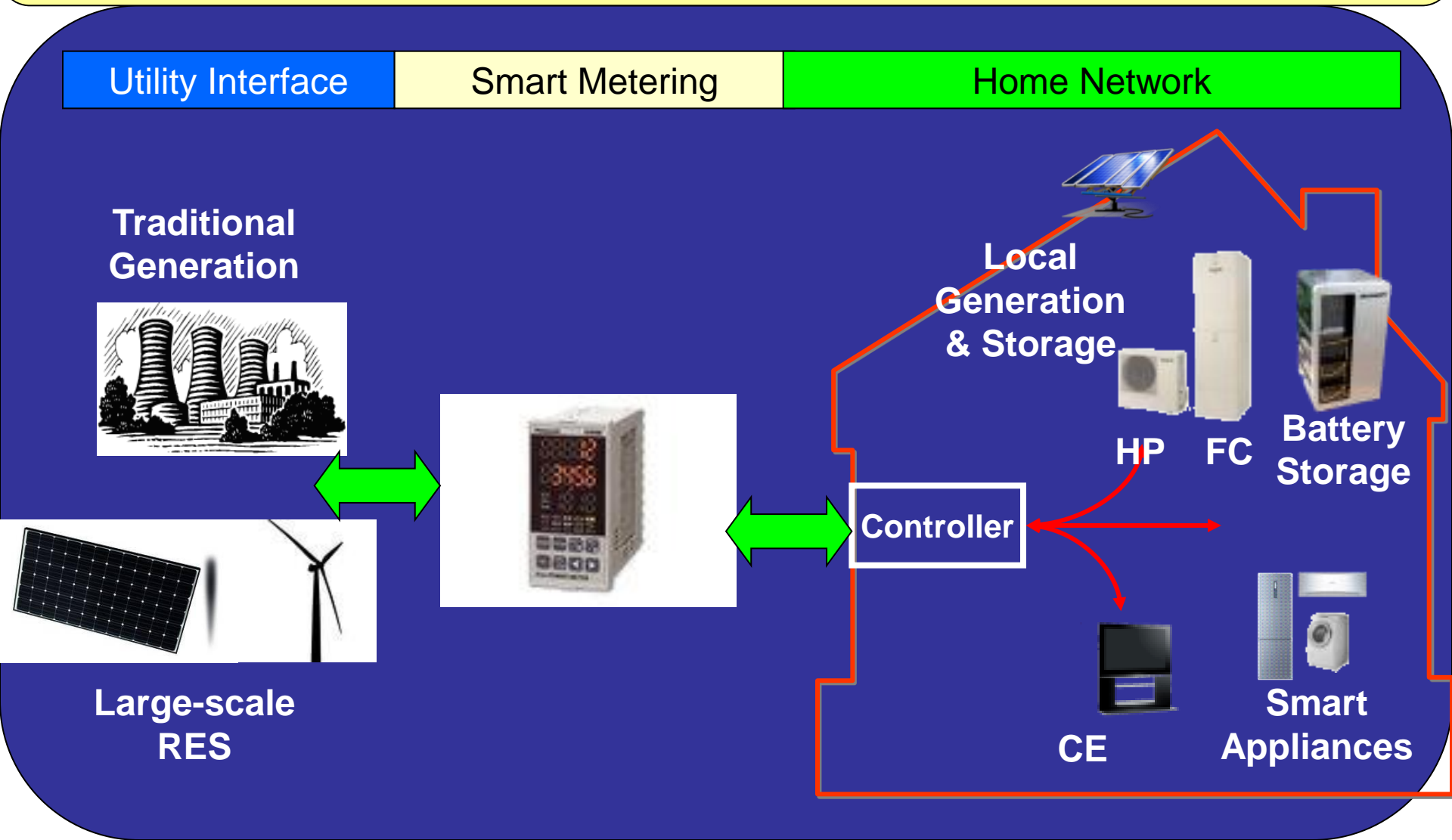
Home/Building energy Management environment: To tackle EU Energy efficiency , CO2 and renewable targets

For the Entire Household

For Entire Buildings & Cities



Smart Grid network components and their standardised Interfaces

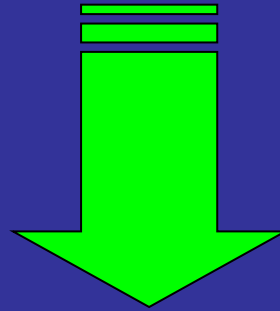


Challenges for Smart Energy

- Smart Grid role out
- Smart Metering Role out
- Demand-side Management
- Smarter Consumers/Consumption

Challenges for Smart Energy: Smarter Consumers/Consumption

- For Smart Grid and energy efficiency to succeed we need to understand the need of the customers and consumers



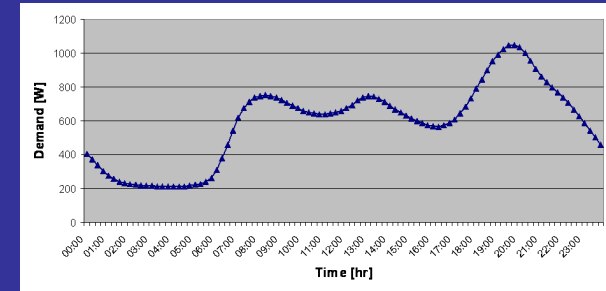
- Business as Usual
- No need to change life style but need to better understand what is being offered.

Challenges for Smart Energy: Smarter Consumers/Consumption

- Important to inform the consumers
- Uniform roll-out of Smart meter across Europe
- Available online services/facilities
- Use of capabilities available at home e.g. Home display
- Benefits of Renewable Energy technology for local Generation

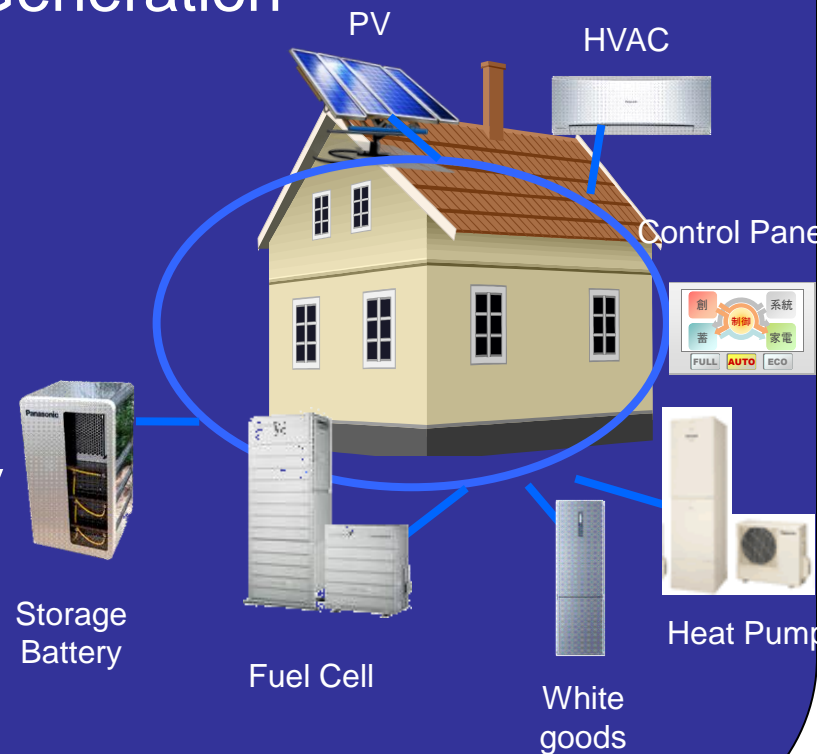
Challenges for Smart Energy: Smarter Consumers/Consumption

- Important to provide incentives
- Smart metering
- Demand Side Management
 - Implement Time of Use (ToU)
 - Stop using appliances while Peak time
 - Actively use appliances while low price
 - Usage of Battery, and/or Heat Pump devices will **resolve such inconvenience**



Challenges for Smart Energy: Smarter Consumers/Consumption

- Important to provide incentives
- Renewable Energy Local / Micro Generation
 - Implement Feed in Tariff (FIT)
 - Reducing the peak load
 - Self-consumption bonus
 - PV with Battery, Heat Pump
- Revert to usage of Storage energy
- Networked enable devices that can respond to command from Utilities



Summary

- Consumers and customers are integral part of any future Smart Grid roll-out
- Understanding consumer usage pattern is important to provide even smarter energy efficiency
- Home/Building provide the backbone of this success ,so far we have seen smarter Appliance, devices and solution for home usage
- Storage Battery is an important part of this solution
- Informed customers and consumers plays an important part in future Smart Energy environment
- Incentives is an important tool which will enable the up-take of the new solutions and technologies by customers
- Regulatory framework will enable stakeholders to role out Smart Meter, Smart Grid, Smart appliances and hence reduction in CO2
- Panasonic is well placed to contribute to the success of Smart Energy