

SMART GRID DEFINITION

Bring knowledge to power

Information and Communications technology

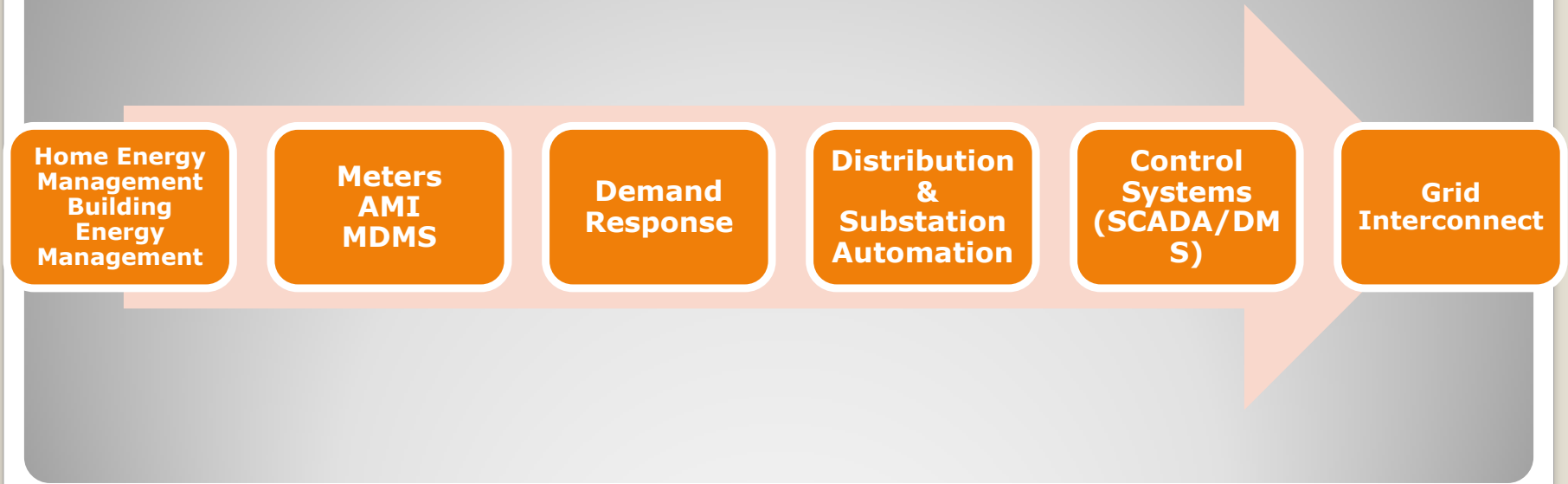


Behaviors of suppliers and consumers



Improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity.

SMART GRID OBJECTIVE AND GOALS



To **transform** the electric grid to achieve sustainable energy future for the public good.

Smart grid goals may be classified by numerous different categories: On aggregate level (Global, National, Operators), Technical, operational and marketing.

SMART GRID BENEFITS

By **optimizing** a non-optimized system or a system that was built without long term planning, we can expect a substantial profit.

The **profit** is directly related to the **gap** between the existing grid situation and the best available technology at the date of implementing.

By **sharing** the power consumption data with the end user and to share the profit by "smart" energy utilization we can expect a real power consumption optimization/profit of 5 to 10%.

SMART GRID BENEFITS...

Having 13 GW installed, it is equivalent to **non-building** a power station of 1,000 MW equivalent to 1,000,000,000 \$ Capex and 1,000,000,000 \$ Opex. The associated **emission reduction** impact is also huge depending on the technology used in the same point of time: gas, coal, renewable etc'...

The side **benefit** is by having a "smart" control and knowledge of the grid the country will be able to optimize decisions on the next power generation technology and renewable integration.

SMART GRID WORD EXPERIENCE

Different ways of deploying the smart grid concept as a result of the choice and the specific needs and background of the grid **before** adopting the smart grid technologies.

The need to find an adequate **incentive** to implement the smart grid technology is one of the important issues.

This phenomenon is called "CAPEX time-shift problem".

The various technologies applied in the smart grid projects represent the wide picture and emphasize that **smart metering** is a small part of the smart grid concept.

SMART GRID TECHNOLOGIES

- Communication
- Information technology - IT
- Demand response
- Meter Data Management - MDM
- Smart metering
- Centralized Grid Mngm't System
- Energy storage
- Security
- Transmission
- Billing
- Load sharing
- Monitoring and Diagnostic Tools
- Sub-station control and automation
- Electrical vehicles
- Smart home and building
- Renewable energies
- Real time data acquisition
- High efficient appliances
- High efficient industrial equipment
- Energy efficiency in industry
- Customer education
- Data Analyzing Tools And Expert Systems

Interoperability & Standardization