

附錄二：AESIEAP技術委員會三組工作小組簡報資料

◇ 第一工作小組





WG1 추진경위

'09. 2. 8

TC First Meeting/ Malaysia : WG 3 operation voted

'09. 5 ~ 7

※KEPCO

- TC WG1 Leader(Dr. Hwang) confirm(5. 7)
- TC WG1 leader notice → AESIEAP Office
- WG1 composition and establishing operation plans (7. 2)
- Recruit members (8 Countries 11 people)
- WG1 Submitting activity plans → AESIEAP Office(7. 23)



Part

2

WG1 To Be Technology exchange and activity plans



WG1 Action Plan

Goal

Technology development of power sector → Smart Grid

Plan

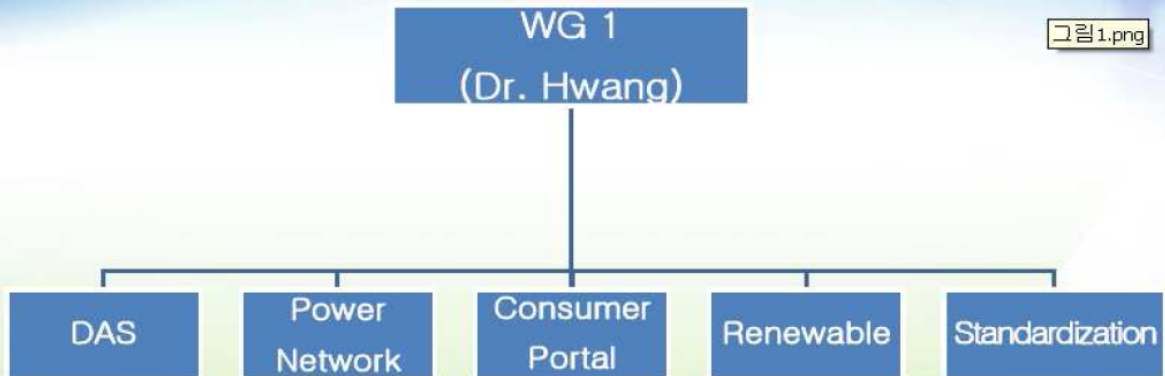
composition of organization, give duty of fulfillment, regular meeting

Contents

- Divided department per main item → 5 Departments
- Sharing technologies of Smart Grid
- Discussing measures of standardizing technologies of SG
- Visit to the site of smart grid pilot project in member nations



WG1 Composition(Plan)



※ 2person per each department



WG1 performed duties of each department

○ Understanding main system of power company member

○ Analyzing problems and deducting improvement

○ Presenting future model of each part



WG1 period of Activity

First step

- 3 month(August ~ October)
- Constructing organization and inform the duty

Second step

- Opening the meeting among WG1members
- Venue : Discussing among members
- Consideration of opening the meeting in Jeju Island Korea October 2010

Third step

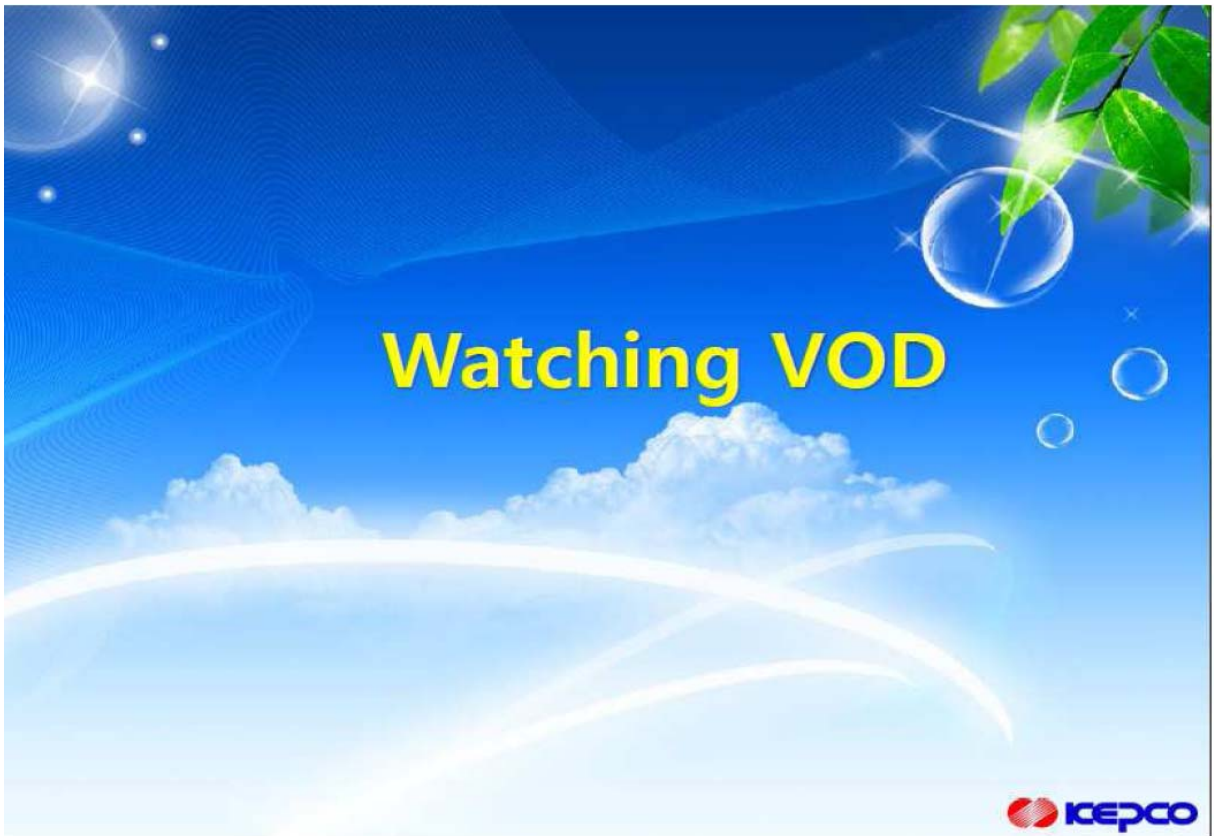
- By 2011 strongly performing
- Interim report of activity result and establishing next plan



Considerations

- **Budget allocation of WG Activity like opening the meeting**
 - Item :Arrangement, cost of stay including flight fee of members
 - Budget : About 25,000 dollars(per person 2,500dollars x 10)
- **Necessity of support**
 - Support participant of each country or AESIEAP support
 - Each power co. requesting
 - Determination of support → Signing CEO report

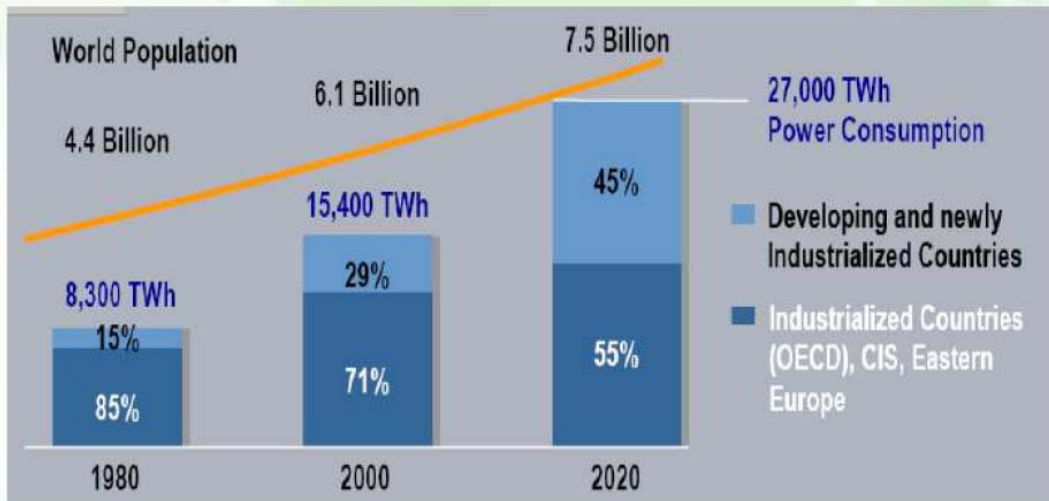




Why do we need Smart Grid?

Necessity I

■ Increase in power consumption

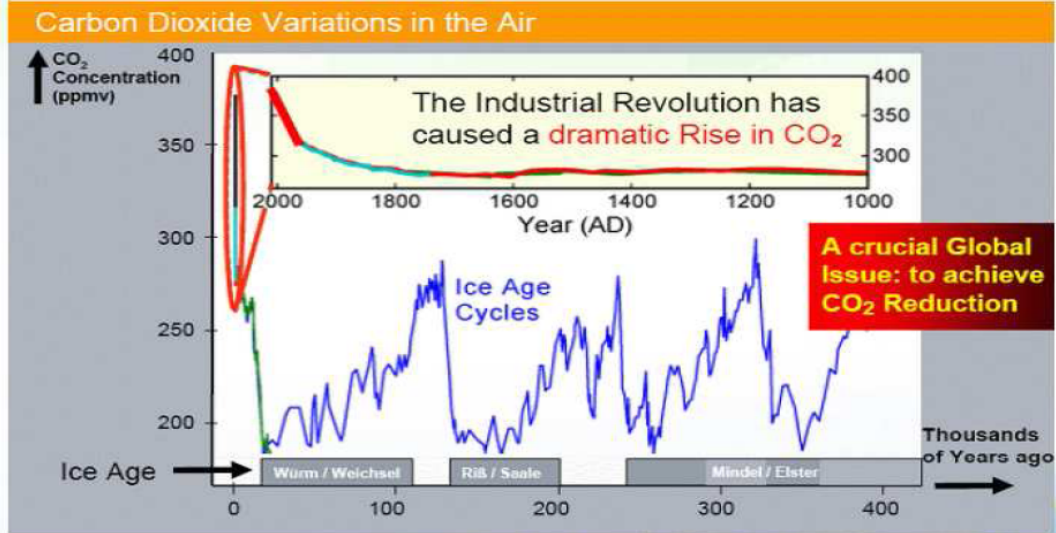


Sources: IEA, UN, Siemens PG GS4 - 2006

Necessity II

Increase in CO2 emission

· IEA, UN, SIEMENS, 2006



14/45

Goals for Smart Grid

CO₂ Reduction

New Growth Engines

Power Grid + IT

Maximization of Utilization

➔ Reduction of Facility Investment

Rational Use of Electricity

➔ Load Factor Improvement

Optimization of Power Flow

➔ Energy Loss Reduction

Low Carbon Energy Sources

➔ Renewable & Energy Storage

Supplier-Oriented

➔ Customer Empowerment

Overseas Business for Growth with Related Industry

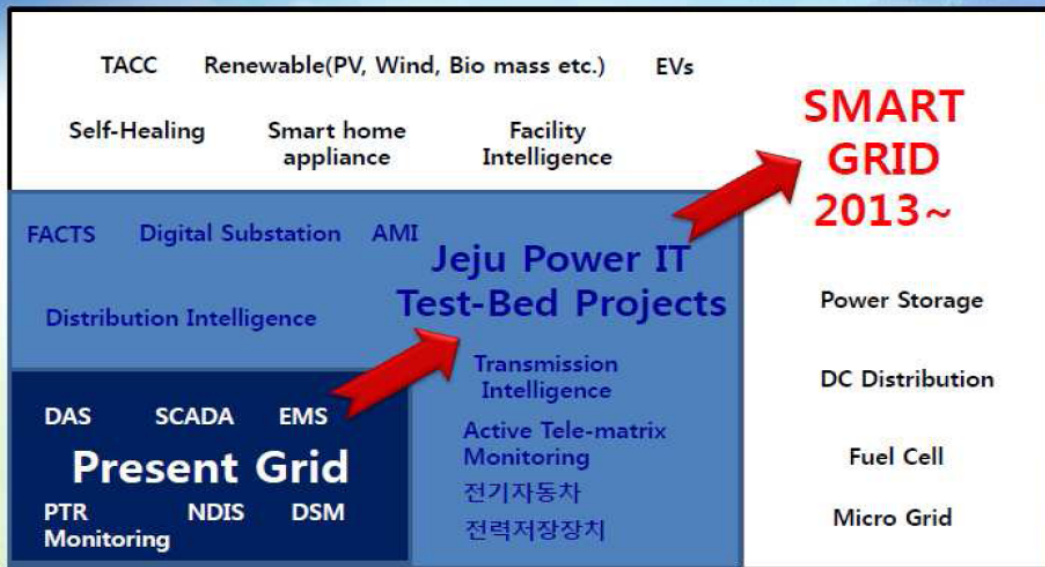
그림1.png



IEC (International Electric echnical Commission)



The Future of KEPCO



10 Power-IT Program

Overview

- Objective : Integrate IT and power systems
- Project : 31 projects to develop core technologies (automation and intelligence) of Smart Grid
- Participation : KEPCO along with 87 corporations, institutions and universities
- Timeline : October 2005 ~ September 2010
- Budget : \$254 million of cash and in-kind



Features of Power IT on each main Study result



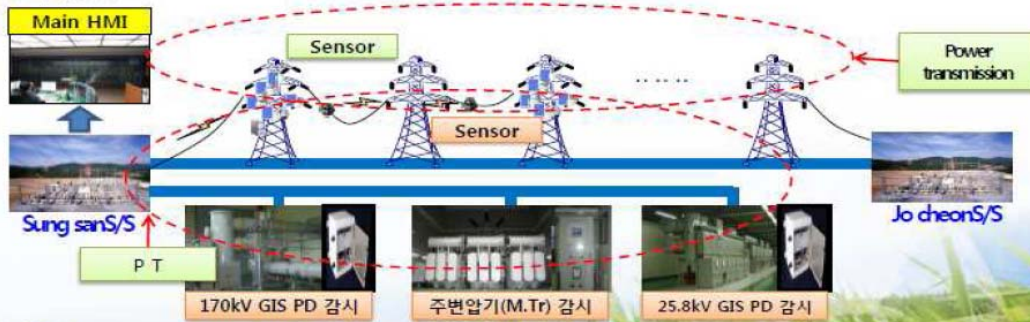
19/45

1. Power transmission/Active telemetrics

Features

Section		Existing	Improvement
Intelligent transmission	func	Operation system(3items)	Using sensor integration monitoring(6item) and counting the capacity of transmission
	contents	○ wind velocity, lighting, image	○ direction of wind/wind velocity, temperature, tension etc.
Active telemetrics	func	Monitoring Analog	Digital monitoring and checking
	contents	○ Monitoring facility of substation	○ status and circumstances of transmission line(8items) ○ monitoring and checking facility of transmission(IED)

※ 구성도



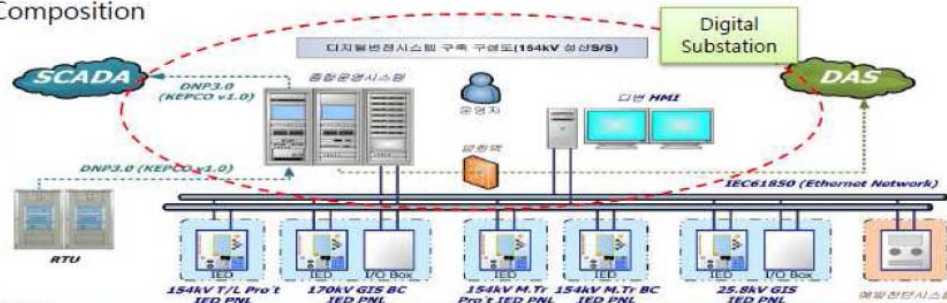
20/45

2. Digital Substation

Features

Section		Existing	Digital substation
Main Function		○ Relay, Aux Ry, F/R, contact... (measuring, monitoring, control, protect, interlock)	○ IED(integration of function, sharing information)
Main contents	communications	○ Hard Wire (circulation)	○ Fiber-Optic (Fiber)
	Data processing	○ Analog Method	○ Digital Method
	circuit	○ electric, machinery Sequence	○ Logical Program

※ Composition



21/45

3. Intelligent distribution

Features

category	Automation distribution	Intelligent Distribution
realization	Monitoring 107items	Monitoring 320items
CONTESTS	S/W ○ Only for DAS(Automation distribution) - volt, current, power factor etc. monitoring - Fault Indicator, manual/automation restoration	○ DAS+SCADA integration - Sag, Swell, Interruption, Harmonic monitoring - Fault Indicator, Distribution connection
	H/W ○ Automation Switch(GA, RA) 2items	○ Intelligent Switch, Thunderbolt & Lightning Arrester etc 20devices



Jeju Island Demonstration Plan

Jeju Demonstration Project Overview

Goals

: To Develop the Smart Grid into the Business Model and the Export-Oriented Industry

Period

: '09.12 ~ '13. 5 (42 months)

Budget

: USD 222 million

Scale

: 5 parts, 2 substations, 5 distribution lines, 6,000 households



Process

Phase 1

('05.10 ~ '10.9)

- Development of Power IT 10Projects

Phase 2

('09.12 ~ '13.11)

- Technology Development Through
the Field Test
- Making Master Plan for Smart Grid

Phase 3

('13 ~)

- Expansion of Smart Grid



Scale of Test Bed

5 Parts of Smart Grid

Smart Power Grid

- Construction of Real-time Operation and Monitoring for Smart T&D System

Smart Place

- Integrated Management of Electric Power through Demand Response (by Two-way Information Exchange between Consumers and Suppliers)

Smart Transport

- Construction of the Charging Infrastructure and the Control Center for Next-generation Transportation(EVs)

Smart Renewable

- Connecting Renewable such as Wind, PVs to the Grid and constructing Micro-grid Operation Platform

Smart Elec. Service

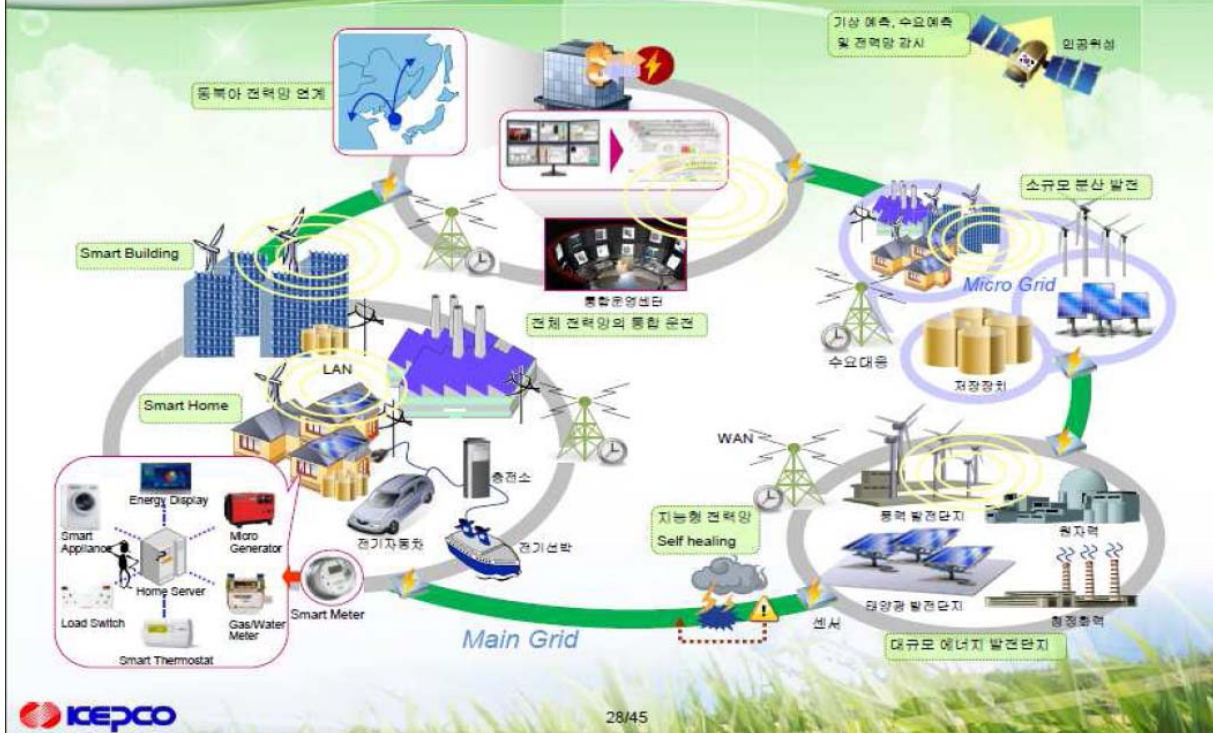
- Development of Various Tariffs and Service Models for the construction of the Future Power Service Infrastructure



Pilot Project Image In Jeju Island



Smart Grid Vision



28/45

Q & A
Thank you

