



Building Energy Management System in Korea

June. 2015

**KOREA ENERGY
MANAGEMENT CORPORATION**

CONTENTS

I. Examples of BEMS in Korea

II. BEMS policy in Korea

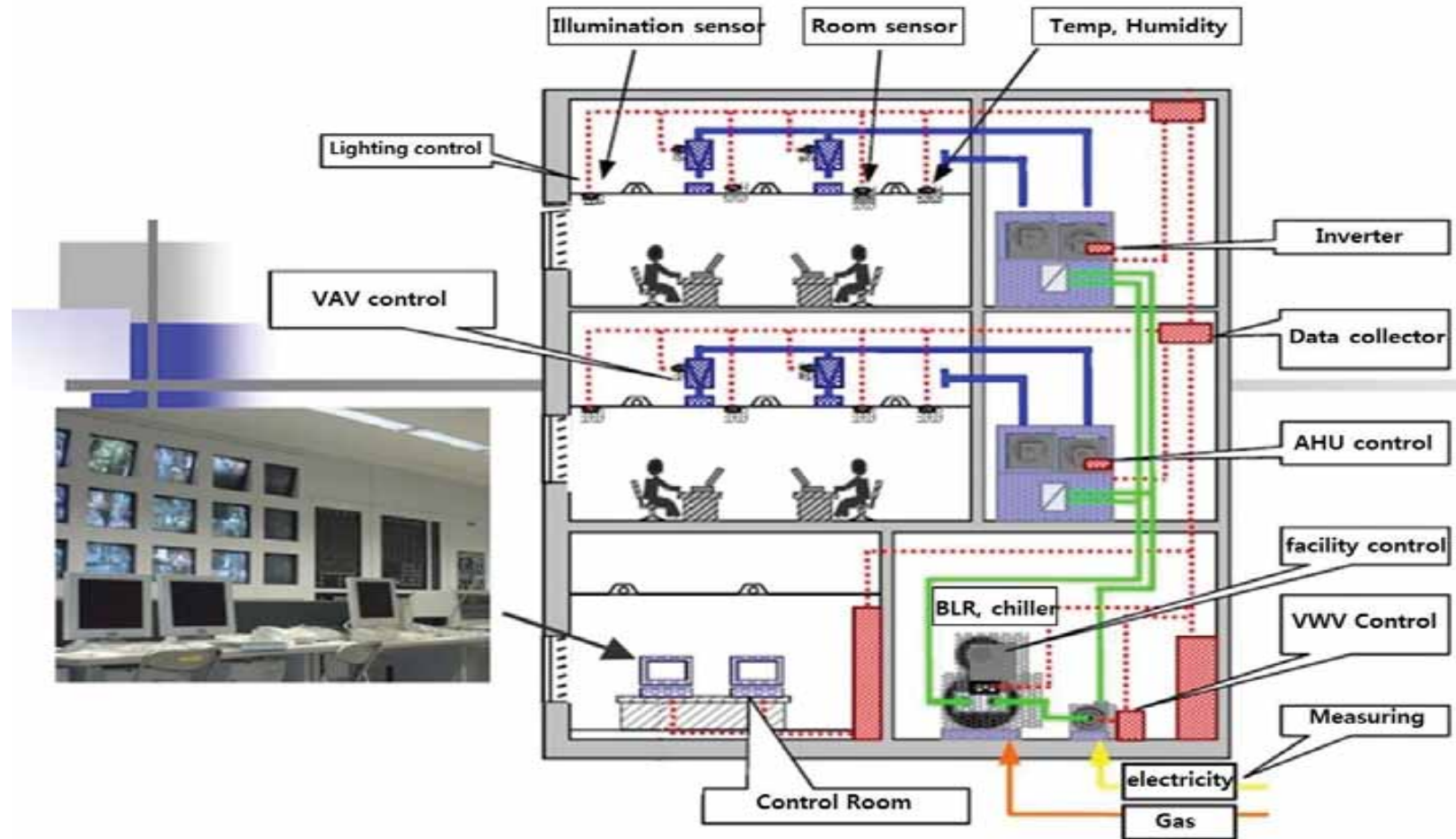


I. Examples of BEMS in Korea



BEMS (Building Energy Management System)

Building control, management, operating system for supporting efficient energy use and maintaining pleasant indoor condition

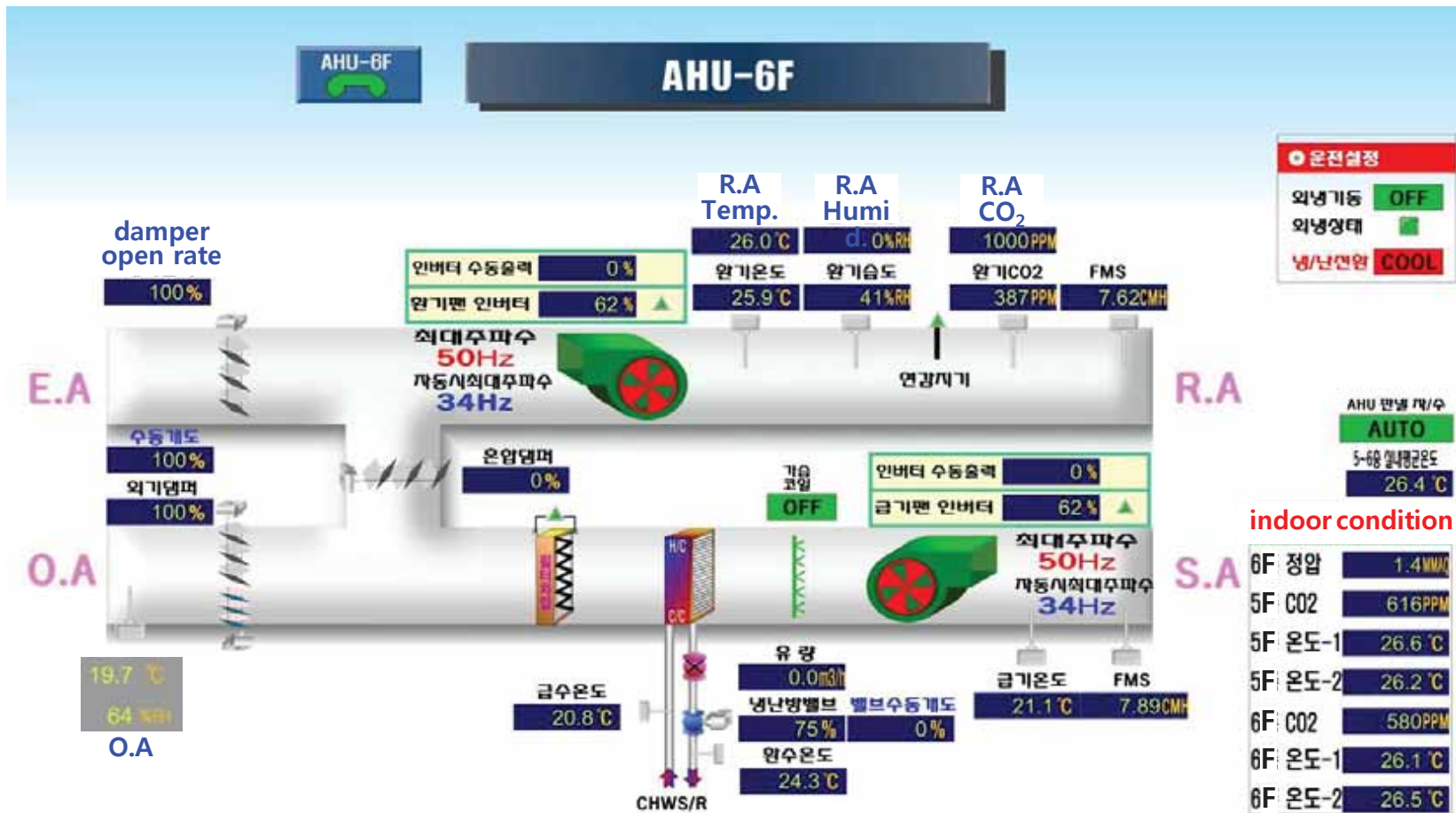


Example of BEMS installation (1)

- (name of building) KT seolleung center (Seoul, Korea)
- (type of building) office
- (year of BEMS installation) 2012
- (contents of installation)
monitoring of energy usage, indoor
condition(Temperature, humidity, CO₂),
controlling AHU, pump, fan etc
- (money of BEMS installation) US \$300,000
- (saving effect) 12% of annual energy usage (\$80,000)



Example of BEMS installation (1)



AHU control with consideration for data from several sensors and meters : temperature, humidity, CO₂ density, air volume etc

Example of BEMS installation (1)



water flow meter



air pressure meter



electricity meter



Temperature sensor



V.V.V.F.



air flow meter

Example of BEMS installation (2)

- (name of building) Yeung-Nam University (Daegu, Korea)
- (year of BEMS installation) 2013
- (contents of installation) real-time energy use monitoring, EHP* control according to class schedule
 - * EHP : Electric Heat Pump (used for cooling in summer & heating in winter)
- (money of BEMS installation) US \$203,000
- (saving effect) 5% of annual energy usage (\$51,000)



Example of BEMS installation (2)



1) energy usage display, 2) peak electricity, 3) energy use state of each building
 4) outdoor air information, 5) electric power usage and peak load

Example of BEMS installation (2)

The screenshot displays the BEMS installation interface for YU Yeungnam University. The interface includes a header with the university logo and navigation tabs for '에너지 모니터링', '통계/분석', and '서비스운영관리'. The main content area is titled '학사스케줄제어' and features a calendar view for setting EHP schedules. The calendar shows dates from 2014-03-13 to 2014-03-20, with time slots from 08:00 to 22:00. A red dashed box highlights the selection menu (1), the EHP On/Off setting (2), and the EHP schedule setting menu (3).

학사스케줄제어 사용방법

1. 년도, 학기, 조회기간, 조회 건물의 실을 선택 후 조회합니다.

- 1) selection menu of period, class room
- 2) EHP On/Off setting
- 3) EHP schedule setting menu (reserve, delete, cancel, save)

II. BEMS policy in Korea



Plans of encouraging BEMS

- **(Jan, 2014)** MOLIT* announced to the media plans to encourage BEMS for efficient energy use and conservation in buildings
 - * Ministry of Land, Infrastructure and Transport in Korea
- **(Education)** supporting universities program of training graduate students for BEMS industry
- **(R&D)** allocating budget for R&D of H/W, S/W related to BEMS
- **(Incentives)** giving incentives to buildings that install BEMS
- **(BEMS model)** planning to make a new BEMS model for small & medium sized buildings in Korea

Incentives for BEMS

- **Tax incentives** (2014~)

- Reducing income tax or corporate tax (3~10% of BEMS installation cost)

size of company	small	middle	large
reducing rate	10%	5%	3%

- **Relaxing regulations** of mandatory energy audit (2014~)

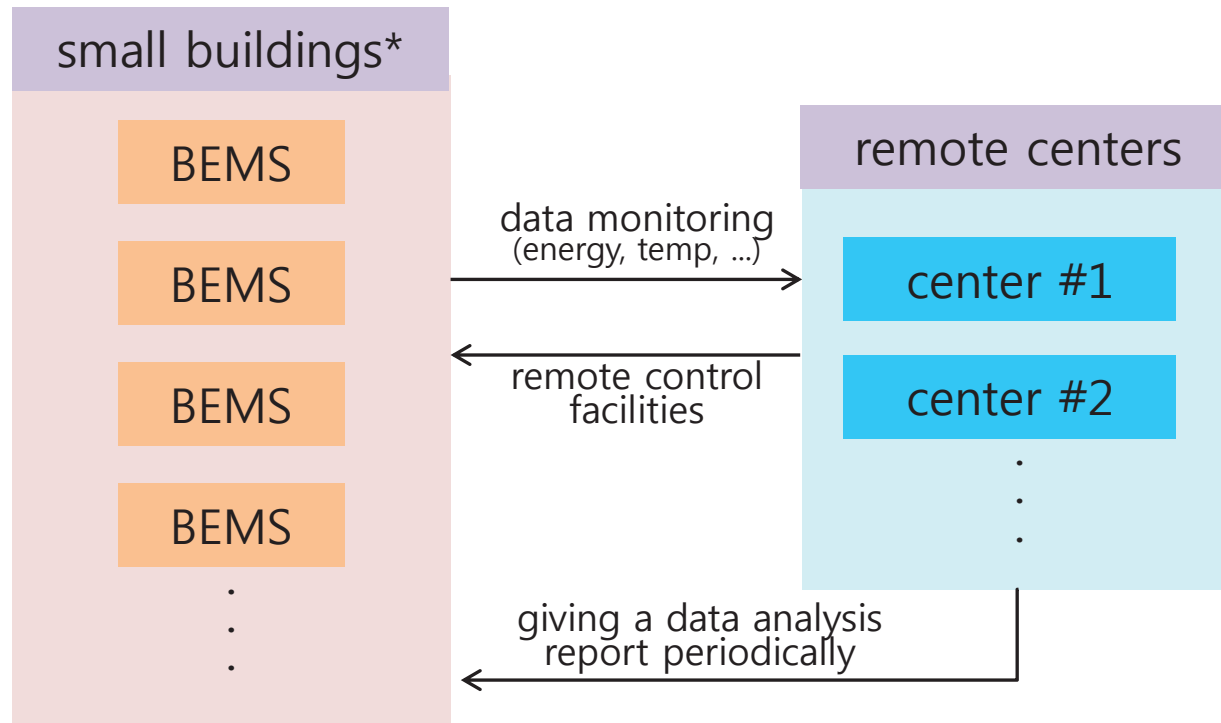
- target : buildings that install BEMS
- period of audit : every 5 years → every 10 years

- **Public subsidy** (2012~)

- supporting rate : 50% of installation cost
- upper limit of support : US \$100 thousand

BEMS model for small buildings

- o planning to make a new BEMS model for small & medium sized buildings in order to improve efficiency of energy use and operating manpower



* small buildings that have no skilled operators, engineers (such as post office, police station, fire station, community service center etc.)

E.D.A.C. in KEMCO

- KEMCO opened an **E.D.A.C.**(**E**nergy **D**ata **A**nalysis **C**enter) on Feb, 2015
 - E.D.A.C. is for remote monitoring real data from BEMS, HEMS, FEMS, ESS and analyzing data such as energy, state of facility, efficiency etc
- E.D.A.C. is enlarging numbers of BEMS connected to KEMCO and is going to provide a **benchmark, statistics** related to energy data in Korea
 - **energy consumption rate** (kWh/m², kWh/person...)
 - **energy consumption patterns** (by time, types of Bdg,
 - **efficiency of facilities** (boiler, chiller, heat pump, AHU etc)





Thank you