



EnMS Program in Korea

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KOREA ENERGY AGENCY

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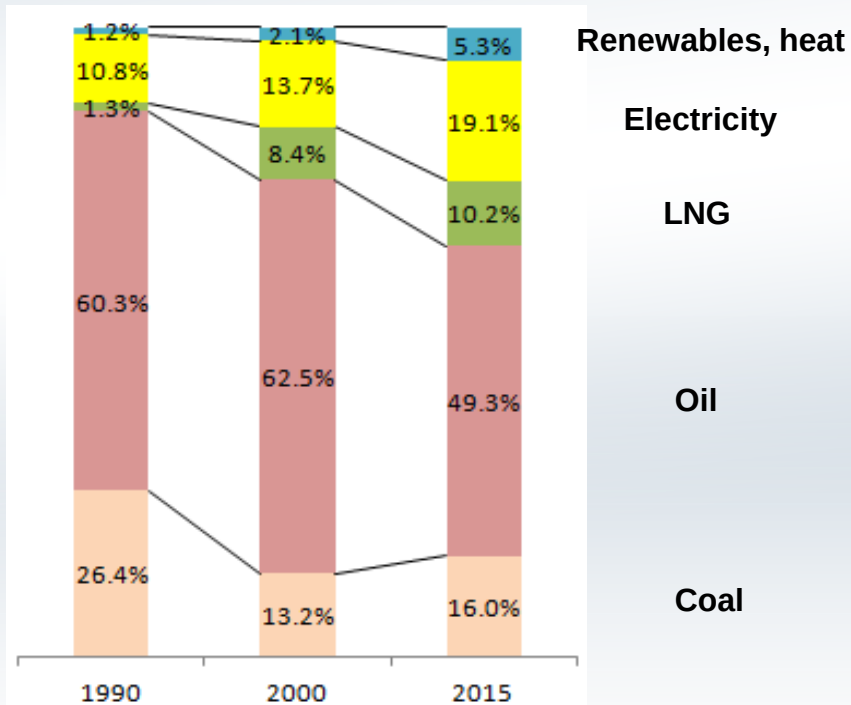
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Future Work

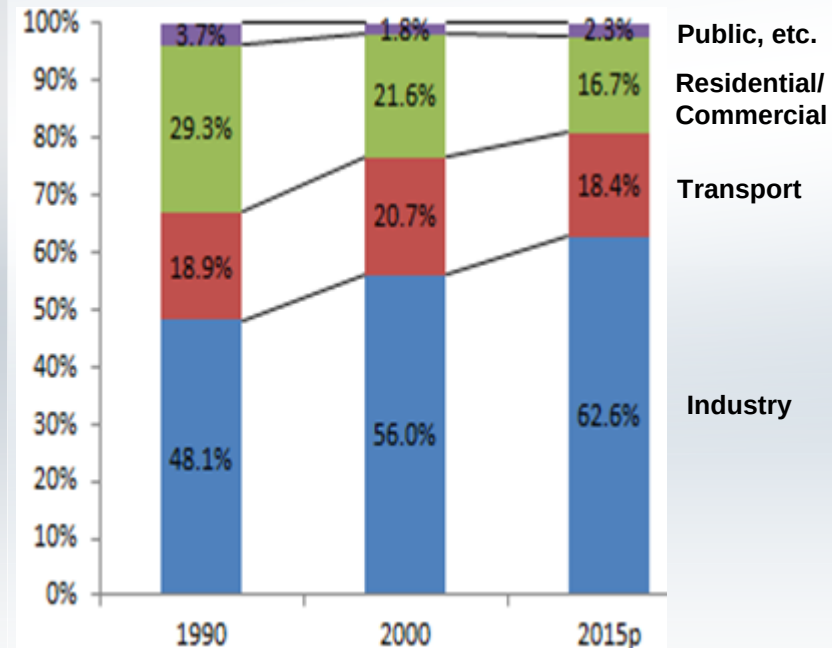
1. Energy Consumption

- High dependency on imported energy : **95.2%**
- Cost of energy import: **102.7 billion** in 2015
 - 23.5% of total import

Consumption by sources

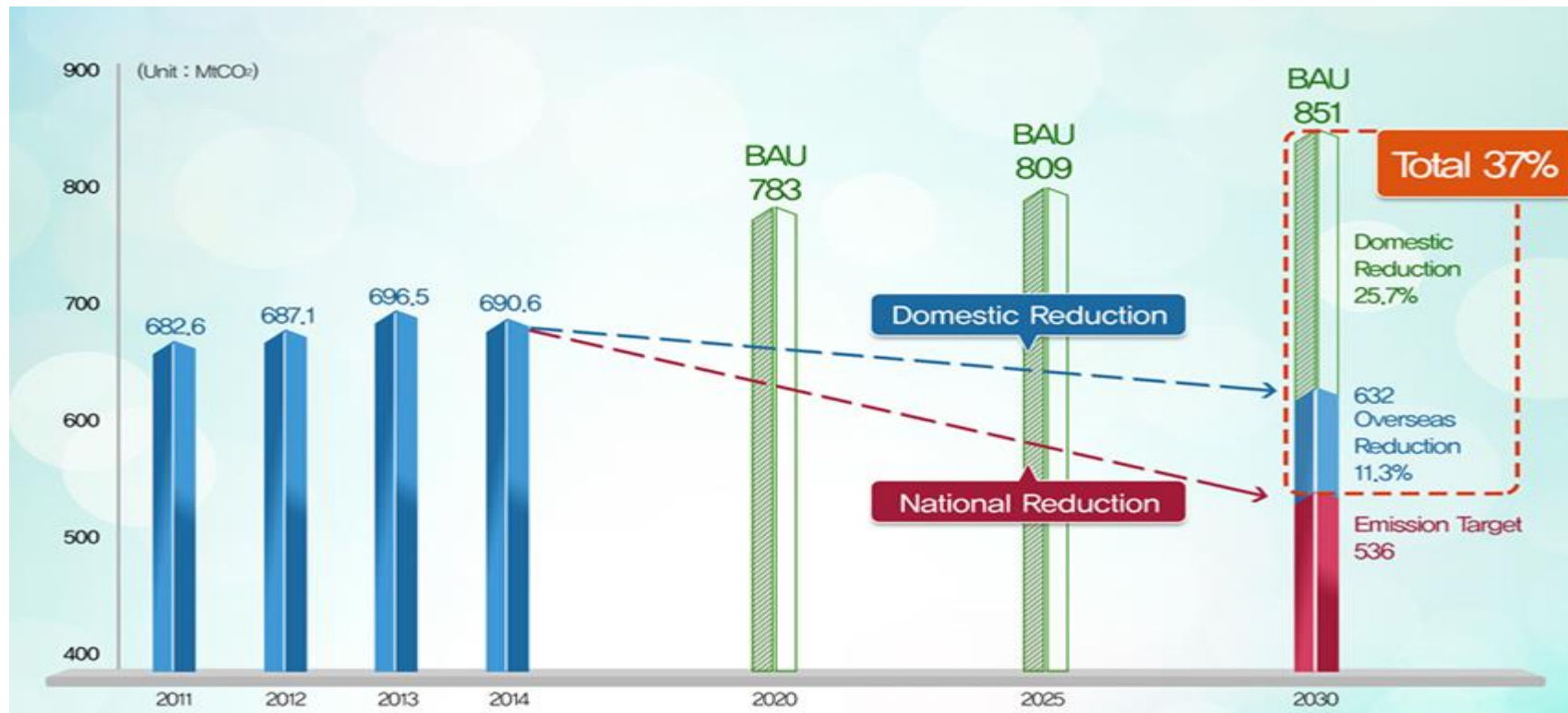


Consumption by sectors

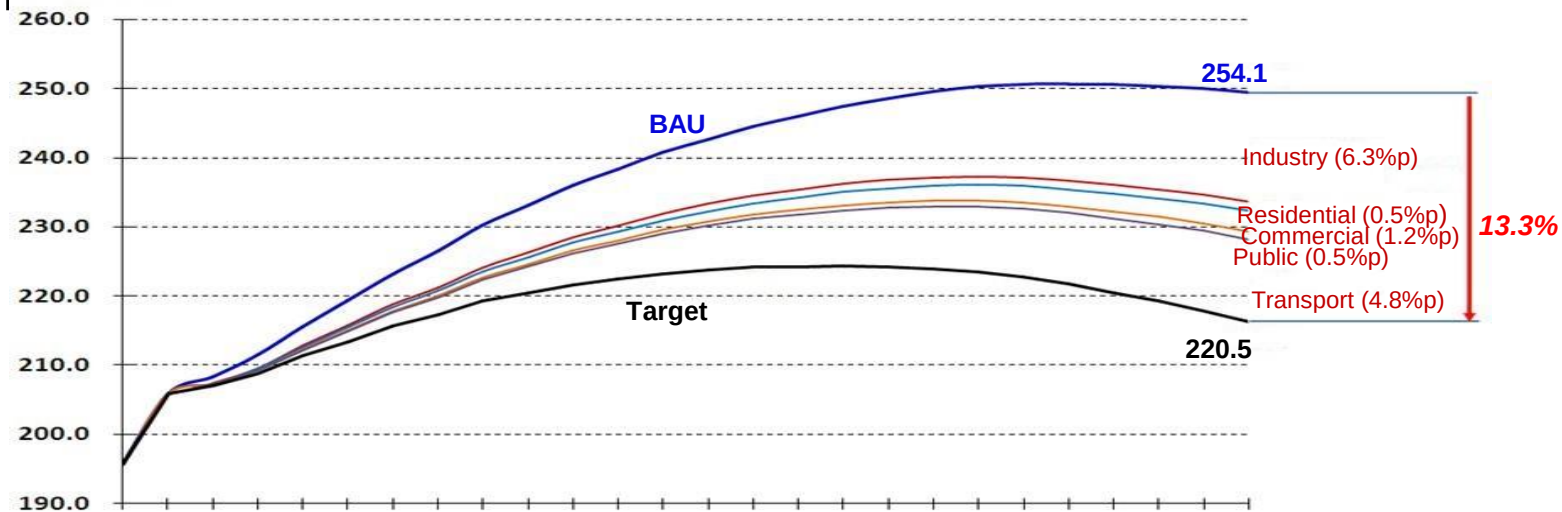


2-1. GHG target

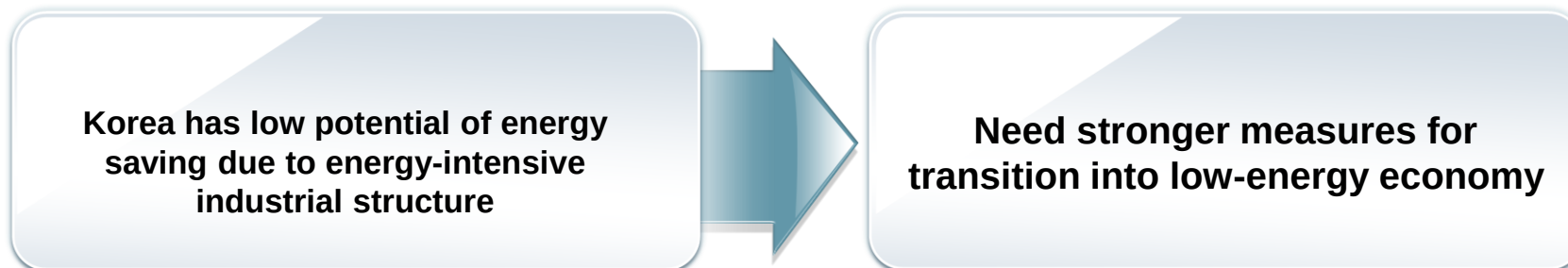
- Korea submitted intended nationally determined contribution(INDC) in COP 21
 - putting forward an economy-wide target to reduce its GHG by **37%** below business-as-usual(BAU) emission of 850.6MtCO₂e by 2030



- Korea announced the 2nd Energy Mater Plan, reducing its final energy consumption by **13%** relative to the BAU scenario

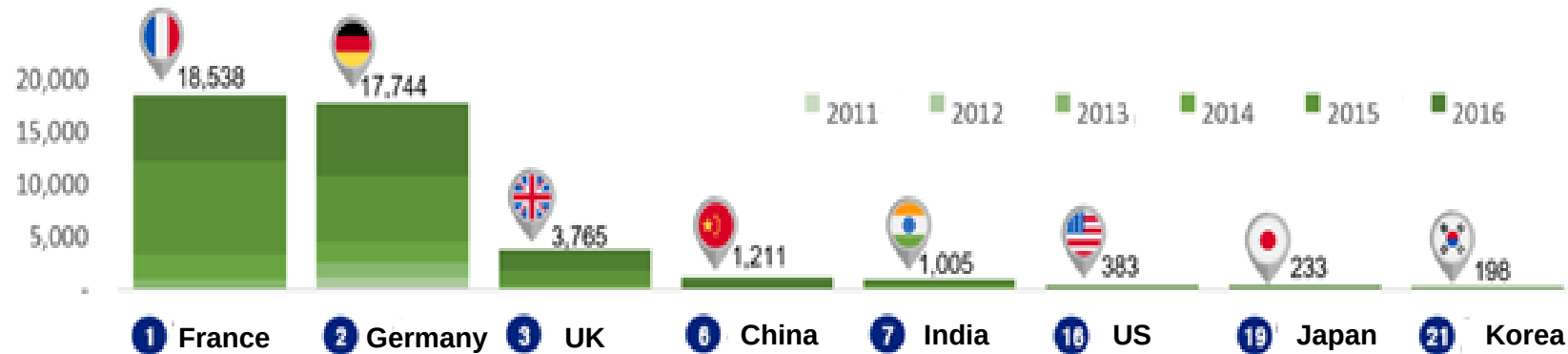


Improve energy-intensity to **30% of 2011 level** through national energy master plan(~'35)



Global status of ISO 50001

- Certified companies are spreading mainly in Europe
- Korea is 21th in world-wide level
 - Korean Companies usually think that “there is no incentive to get certification of ISO 50001.”



Definition of EnMS in Law

- Article 2 of Energy Use Rationalization Act
 - The term "energy management system" means a management activity system under which an **energy user** or **energy supplier** establishes management **objectives** for **improving the efficiency of energy use**, and manages human and physical resources systematically and continuously in accordance with certain procedures and methods **to achieve the management objectives."**



Focus on establishment of energy objectives and achievement of the objectives.

Support EnMS in Law

- Article 28-2 of Energy Use Rationalization Act

(1) The Minister of Trade, Industry and Energy shall encourage energy users or energy suppliers to introduce company-wide energy management systems for **enhancement of energy efficiency**, and may **provide necessary support** to any person who introduces such.



Law is based on Korean EnMS support Program

Superior EnMS

◆ The Process of S-EnMS

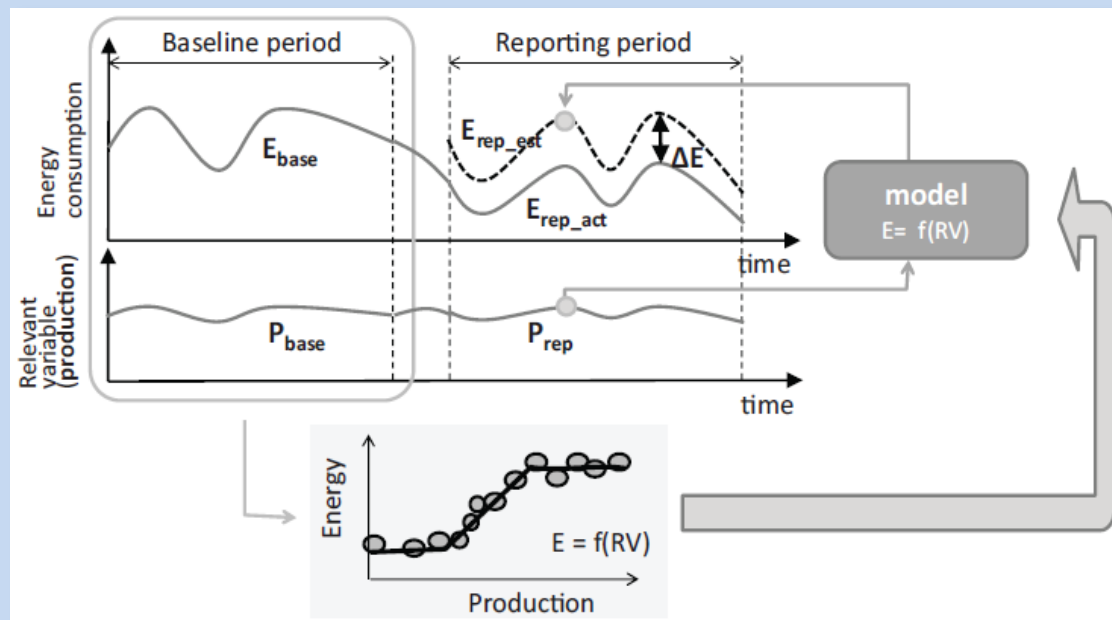
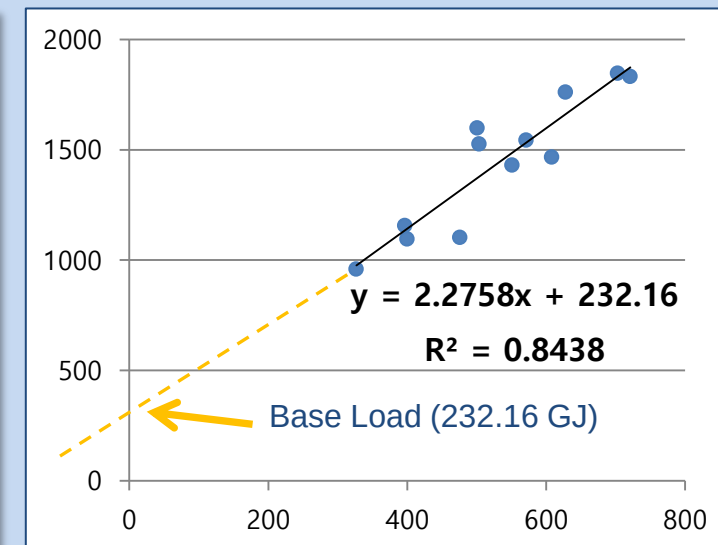
(purpose) KEA is proceeding to create incentives with the government to incorporate S-EnMS program to help the energy intensive companies.

- **(MOU)** KEA has signed the MOU with Energy intensive companies(total 35 sites) to take part in S-EnMS.
- **(training & Audit)** KEA provides 2 times of training to each sites and audits their energy performance



Concept of S-EnMS

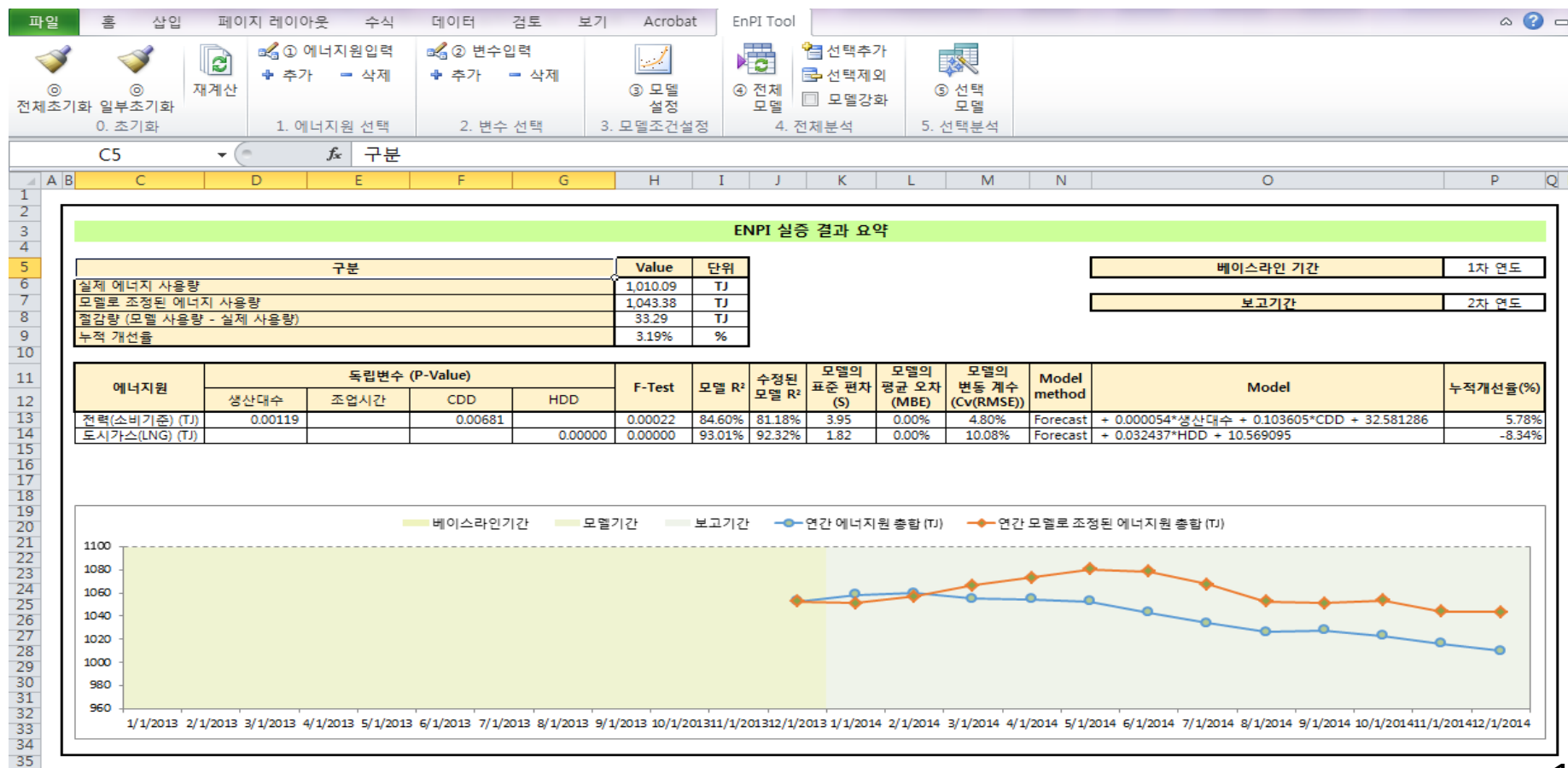
- ◆ **(normalization)** process of routinely modifying energy data in order to account for changes in relevant variables to compare **under equivalent condition**
- Direct comparison of energy consumption between the baseline and reporting period can be accomplished **when, no significant changes** to the relevant variables
- to compare energy performance between two periods **under equivalent conditions, the EnPI and corresponding EnB Should be normalized** using relevant variables



3. EnMS Program in Korea

EnMS EnPI Tool

- ✓ User friendly Excel based easy EnPI Tool using linear regression model
- ✓ Automatically analyze energy savings(GJ), cost savings(\$), improvement rate(%)



Certificate of S-EnMS

- Superior Energy Management System
 - According to KEA regulation of EnMS performance evaluation, KEA gives certificate for Superior Energy Management System
- Incentive : receive **mandatory energy audit exemption**

Achievement period	Energy Performance Improvement	
	Non-ISO 50001 certified	ISO 50001 Certified
1~3years (12~36months)	Over 3%	Over 2%
4years(48months)	Over 4%	Over 3%
5years(60months)	Over 5%	Over 4%

CERTIFICATE Number : _____

***SUPERIOR ENERGY MANAGEMENT SYSTEM
CERTIFICATE***

Certificate Issue Date: 1st Sep. 200c
Date Modified: 1st May 2015

This is to certify that the Superior Energy Performance (3.4% per a year) of :
(Manufacturer)
OOOO Corporation

has been approved by Korea Energy Agency
to the following KEA Regulation :
*Energy Management System Performance Assessment
Managerial Regulation*
in accordance with the Energy Use Rationalization Act.

Certified by _____
President

KOREA ENERGY AGENCY (KEA)

3. EnMS Program in Korea

S-EnMS sites in Korea

Total
Saving

5,249,735GJ

No.	Certified year	Site name	Achivement period	Performance rate	Energy Saving
1	2017	LG Electrionics, Inc. LG Digital Park	2years	5.4%	51,489GJ
2	2017	LG Electronics, Inc, Cheongju Plant	1year	3.9%	14,660GJ
3	2017	LG Electronics, Inc. R&D Campus Gasan	1year	4.8%	14,386GJ
4	2017	Kangwonland, Inc.	1year	3.6%	33,137GJ
5	2017	SUNGSHIN CEMENT Co., Ltd. Danyang Plant	3years	2.2%	627,725GJ
6	2017	Maeil Dairies Co.,Ltd. Pyeongtaek Plant	1year	4.0%	31,657GJ
7	2017	LG Display Co., Ltd Paju Display Cluster	1year	3.2%	1,180,412GJ
8	2017	LG Innotek Gumi 1/1A Plant	3years	4.8%	64,476GJ
9	2017	SHINSUNG DELTA TECH CO. Changwon Plant	1year	5.5%	5,183GJ
10	2016	LG Chem Inc. Gimcheon Plant	1year	3.5%	27,067GJ
11	2016	LG Chem Inc. Daesan Plant	1year	4.9%	2,079,919GJ
12	2016	LG Chem Inc. Yeosu SM Plant	2years	7.5%	302,449GJ
13	2016	LG Chem Inc. Ulsan Plant	1year	5.3%	16,312GJ
14	2016	LG Chem Inc. Cheongju Plant	1year	4.0%	80,438GJ
15	2015	LG Chem Inc. Naju Plant	1year	4.3%	95,015GJ
16	2015	LG Chem Inc. Ochang 1 Plant	1year	9.4%	575,258GJ
17	2015	LG Electronics, Inc, Changwon 1 Plant	1year	3.0%	31,730GJ
18	2015	3M Korea Ltd. Naju Plant	1year	3.2%	18,422GJ

3. EnMS Program in Korea

CEM EM Leadership Award

- ✓ **Excellence Award : LG Chem Ochang 1 Plant in 2016**
- ✓ Insight Award : LG Chem Chungju, Daesan Plant & Korea 3M Naju Plant in 2017

Energy Management Winners



Andrew Cooper
New Gold



Yoo JaeJoon
LG Chem



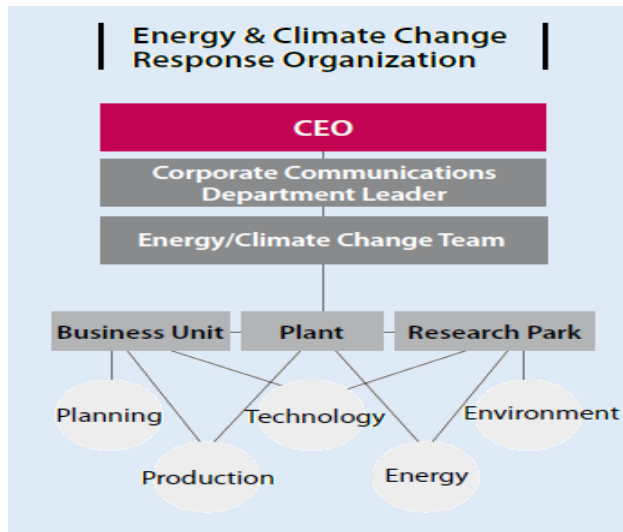
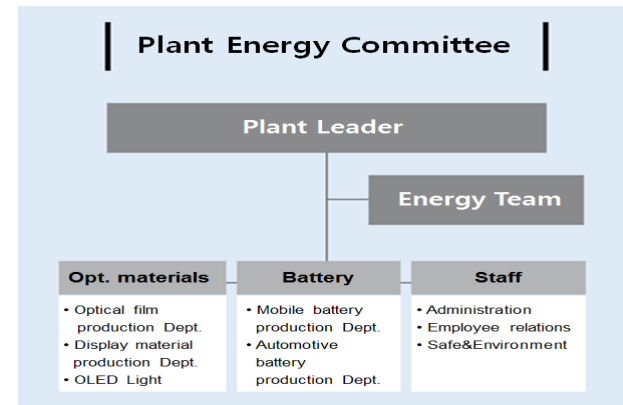
Jennifer Rumsey
Cummins



3. EnMS Program in Korea

Case Study of LG Chem Ochang 1 Plant

ISO 50001 Certification and Top Management



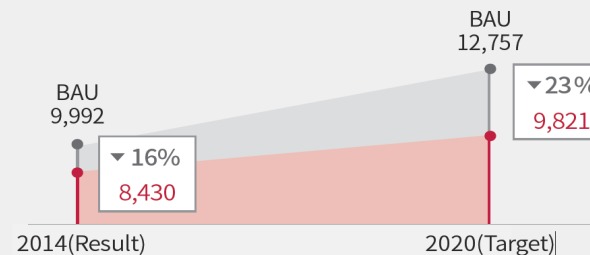
Plant Energy Management System & Target



GHG Reduction Targets and Results

GHG emissions
(Unit: 1,000 tons)

* Scope: Domestic and global plants

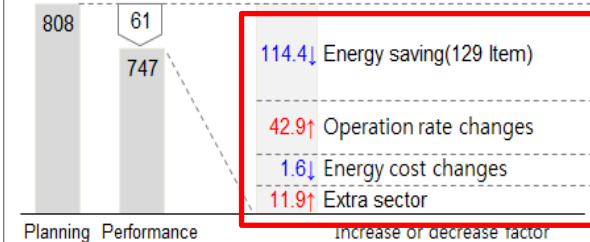
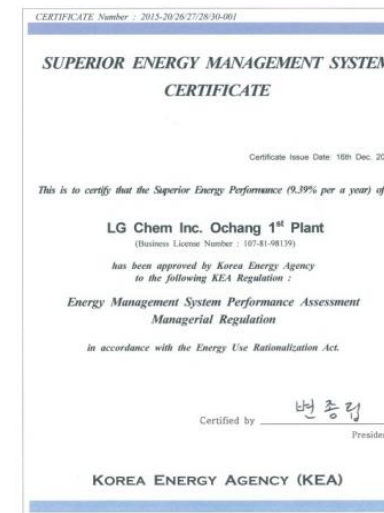


Action & Measurement of Energy Performance

Detailed analysis of the Cost

[Unit: KRW]

- ✓ Excluding the no analysis – saving effect: 102.5 million
- Substantially contributed to the reduction and management activities



Support Program for SMEs

- ✓ MOTIE and KEA support to establish EnMS infra for SMEs
 - ISO 50001 consulting, digital meter & monitoring system
 - From 2014, 77 sites of SMEs participated
- * Annual budget : about \$2.5million



Energy Champion

✓ KEA launched Energy Champion Pilot Program in 2017

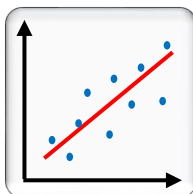
- (MOU) KEA signed the MOU with 21 Energy intensive companies(total 27 sites)
- (Benchmark) Studied National EM programs of US, Germany, Japan etc.

Evaluation

Quantitative 80%
Non- Competitive 20%

- Quantitative : Can select method in 3 options

Option ①



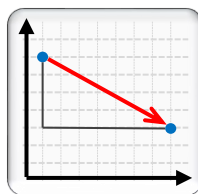
Linear-
Regression

Option ②



Benchmark
Index

Option ③



Grand fathering
of Energy
Intensity

< Distribute Energy Champion Program in Media >

에너지효율 향상 기업 '에너지챔피언'으로 인증

규제중심 에너지-온실가스 정책 탈피, 자발적 감축 유도
21개 기업과 업무협약 체결, 정부인증제도 편입 추진

전기신문, 2017년 06월 14일(수) 11:22



정부가 에너지를 절감하거나 효율향상을 위해 노력한 기업을 대상으로 인센티브를 제공하는 정책을 추진한다. 규제중심의 에너지-온실가스 정책에서 벗어나 기업의 자발적인 에너지 절감을 돕고 실질적이고 새로운 에너지효율 정부지원 프로그램을 마련하기 위한 조치다. 한국에너지공단(이사장 강남홍)은 12일 서울 서초구 JW메리어트호텔에서 우리나라를 대표하는 주요 21개 기업과 '에너지 챔피언 인증제도' 추진을 위한 업무협약을 체결했다고 밝혔다. (중략)

오늘 협약을 통해 에너지공단과 간개 참여기업은 산업체의 자발적인 에너지효율향상과 원단위 개선을 위해 노력하고, 국가 에너지 이용합리화 및 온실가스 감축 사업에 적극적인 참여와 지원을 약속했다. 무엇보다 '에너지 챔피언 인증제도'가 안정적으로 정착될 수 있도록 상호 협력하기로 했다. (후략)

Energy Champion

- ✓ launching Energy Champion Program formally in 2018
 - S-EnMS Program will be integrated in Energy Champion Program





Thank you

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