



EMGW Energy Management Insight Award

From Japan to the World!
Energy management evolution
by utilizing group common EnMS

February 3 ,2017

F-TECH INC.

Environment System Team.,
Quality Assurance Section.,
Quality Assurance dept.,
Production Planning Div.,

- 1. Corporate Overview**
- 2. Past Energy Conservation Activities**
- 3. ISO50001 Group Expansion**
- 4. Commendation from CEM**
- 5. Future deployments**
- 6. Summary**

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Corporate Overview(1/2)

Established	July 1, 1947
Head Office	19, Showanuma, Shobucho, Kuki, Saitama 346-0194 JAPAN
Capital	¥4,890 million
Employees	Consolidated Total 8,552 employees (as of September 30, 2016) (solely in Japan, 994 employees)
Stock listing	Listed with 1st section of the Tokyo Stock Exchange. (from September 2006)
Business contents	Development, production and sales of automobile parts, and tooling and equipment associated with them.
Bases	24 bases (7 in Japan, 8 in the U.S., 4 in China, 4 in Asia and 1 in EU)

Major products



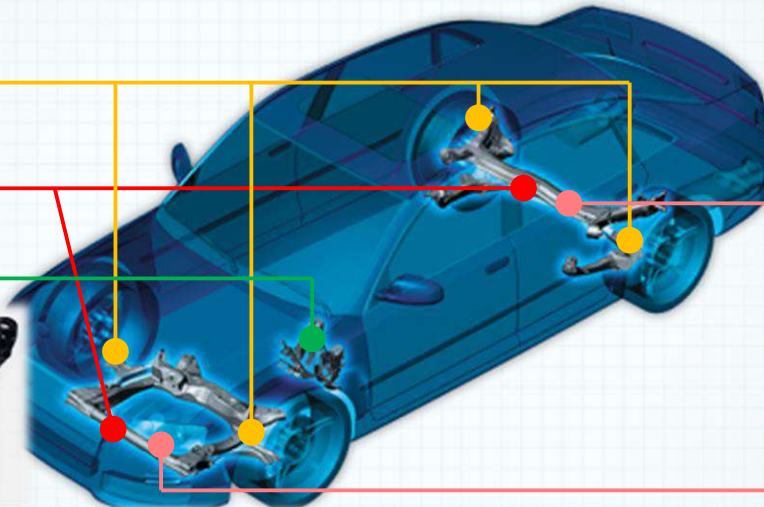
Suspension part



Control parts



Mount parts



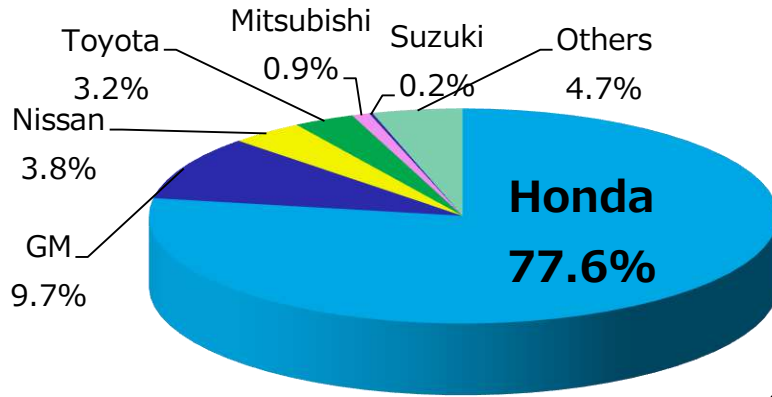
Module



Chassis systems

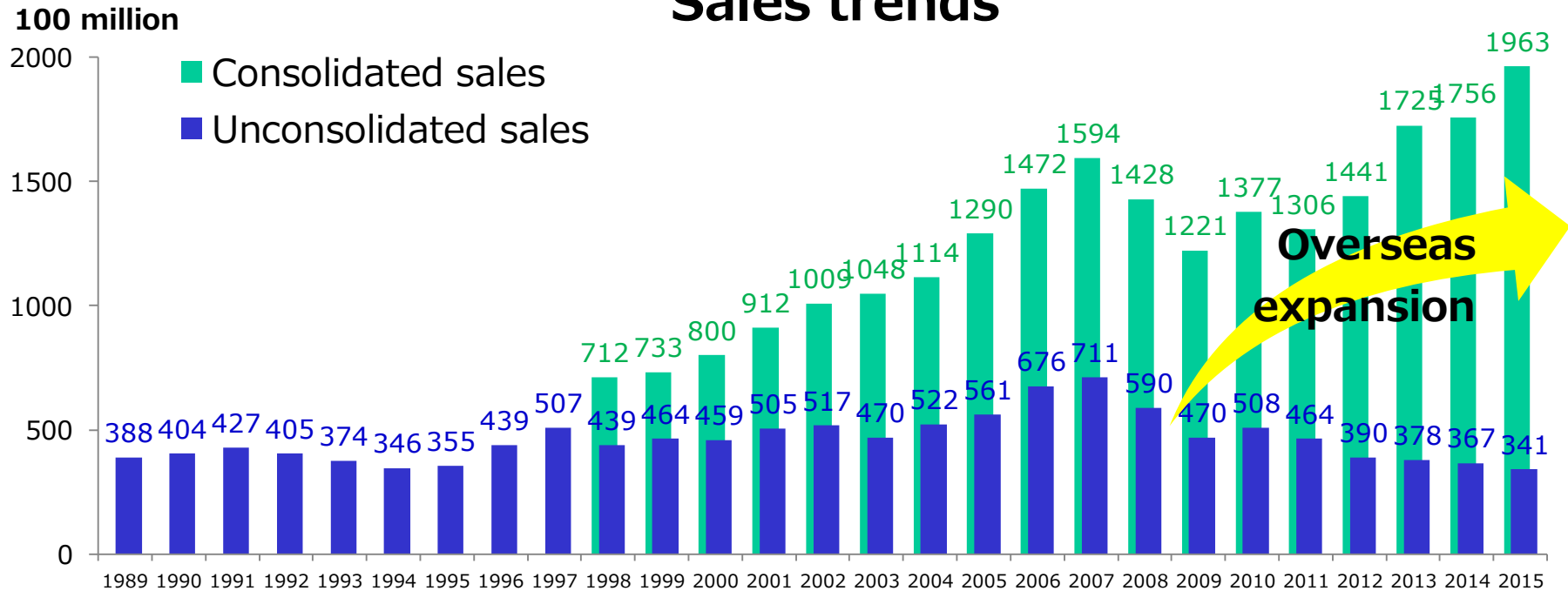
Corporate Overview(2/2)

Sales by customer in 2015



Ftech is a company of
Honda Group

Sales trends



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Road map toward to 2020



**President & Co-CEO
Yuichi Fukuda**

2020
**Achieve to be the
environment frontrunner**

**Achieve the environmental target of 2020
(reduce by 10% compared with 2010)**

2017
Installation of ISO50001 to the group completed
Since 2017

2015
8th Global Environmental Conference
ISO50001 deployment started
to the group. Published Global Ftech Energy
Management System

2011
**ISO50001
published**

2009 to 2016
The 1st to 7th
Global Environmental Conference

2008
**Environment global
deployment start**

2013
ISO50001 certificated
(Kameyama)

2011 to 2012
Overseas bases
Environmental Visit

**This is a main topic
of this report**

**Biodiversity
activities**

**Disclose the
environmental
information**



What is ISO50001

ISO50001 is

ISO50001 is called Energy Management System. The emission of greenhouse gases and energy costs can be reduced by building the systems and processes required by ISO50001.

Relationship between ISO50001 and ISO14001



ISO50001 (Energy cost reduction)
= Aggressive international standards directly linked to company profits

◆ Global Environmental Conference (Since 2009)

- Sharing of energy saving effective measures (since 2009)

施策数	第2回	第3回	第4回	第5回	第6回
CO ₂	24	35	40	43	43
廃棄物	16	8	10	10	18
水資源	7	6	2	4	6
その他	8	14	8	2	24
合計	55	63	60	59	91



- Provided Basic Energy Saving seminars (2012)



- Provided Energy Visualization seminars (2013)



◆ Performed Environmental Visit to overseas plants (2011 - 2012)

- Suggested energy improvement measures through the on-the spot energy diagnosis



- Provided directions of energy visualization ideas



“Honda Green Purchasing Guidelines” was revised in 2011,
Honda has added E(Environment) to their QCDD evaluation categories.

Environmental Management Activities		<ul style="list-style-type: none">• Establishment of an environmental management structure and ISO14001 certification• Establishment of an environmental management structure from viewpoint of the product life cycle
Corporate Activities		<ul style="list-style-type: none">• Promotion of environmental activities to reduce green house gas emissions in all areas of corporate activity
Products	Product Fuel Economy	<ul style="list-style-type: none">• Suggestions for products(parts and materials) (Weight reduction, lower resistance and power conservation)
	Chemical Substance Management	<ul style="list-style-type: none">• Establishment of a structure and management of chemical substances (Compliance with the Honda Chemical Substance Management Standard)• Submission of the data for chemicals contained in products

Source :

Create above tables based on information from Honda Green Purchasing Guidelines in July 2011

Our customer's environmental policy was also strengthened.

Background③ Relationship with Energy Conservation Law

Energy Conservation Law

ISO50001

《Original contents》

- The target is a company that uses 1500kl or more
- Renewable energy indirectly reduces fuel usage
- There is a criteria including specific technical and numerical criteria
- Qualified person for Energy Management required

《Common contents》

- Energy management and operation
- Setting objectives and targets
- EnPIs management
- PDCA cycle improvement
- Concept of energy review and baseline
- Top participation

《Original contents》

- For all organizations
- Organization can define management scope
- Paperwork and storage
- Internal audit
- Energy service contract


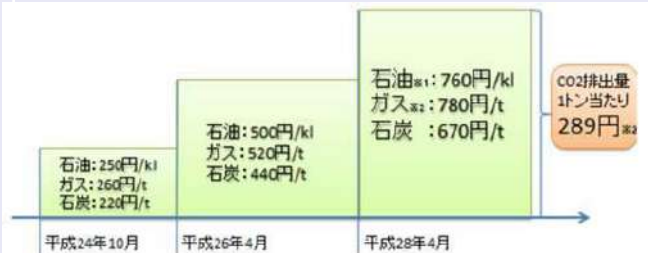
Ensure compliance with the Energy Conservation Law by acquiring ISO50001 certification

- **Legal regulations**
- Comply with management standards
- Japan limited

- Voluntary management
- With authentication
- **International standard**

**By conducting ISO50001 activities,
we can ensure compliance with the Energy Conservation Law.**

Background④ Increase Energy Costs

Applicable items	From when	Price increase
TEPCO(Tokyo) raised price	April, 2012～	<u>2.61yen/kWh</u>
Chubu Electric Power raised price	April, 2014～	<u>1.41yen/kWh</u>
Renewable Energy Surcharge	July, 2012～	<u>0.22yen/kWh</u>
Environment Tax 	October, 2012～ 	<u>289yen/t-CO2</u> Electricity 0.11yen/kWh City gas 0.65yen/Nm ³ LPG 0.78yen/kg Gasoline 0.76yen/L Kerosene 0.76yen/L

**For above reasons,
about 10% energy costs increased at 3 bases in Japan**

Summary of activities background

Enhance customer’s environmental activities

Japan shrinking Overseas expansion

Compliance with the Energy Conservation Law

Sharing improvement measures at conference

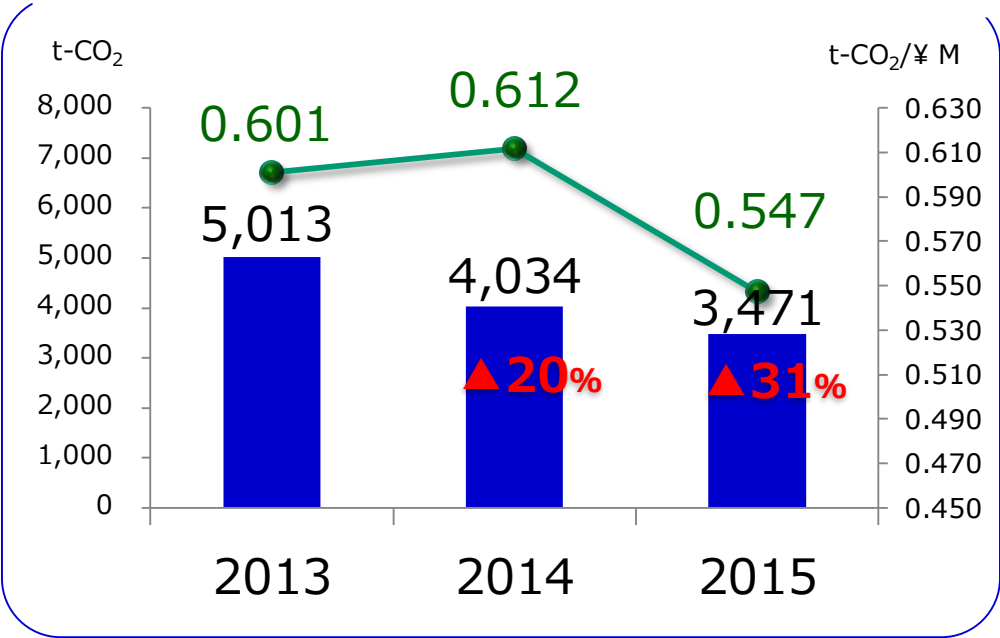
Environmental VISIT

Energy cost increase in Japan

The 1st to be certified among automobile parts manufactures in Japan



CO₂ emissions of 3 years (Kameyama)



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From Japan to the world ! ISO50001 group deployment

March 2015

ISO50001
Standards

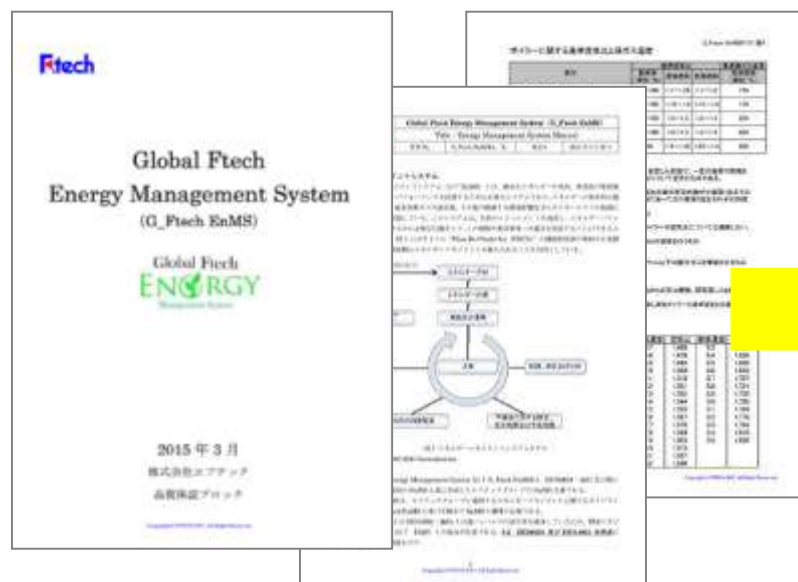
Kameyama
Plant
EnMS

ISO50001
Family of Standard

F-tech
Know-how for
Energy Saving

Published **Global Ftech Energy Management System**

A common document for energy management system
for F-tech group



Consisting of manuals, standards, guidelines and formats, etc.

Characteristics of G_Ftech EnMS

1. Built the structure of energy saving diagnosis
2. Preparation of a Equipment Control Ledger
3. Provided Management Standard
4. deployment of diagnostician of energy saving
5. Integration of EMS and EnMS
6. Advance Visualization of Energy

The **key** of the achievement
of ISO50001
is

***Energy Review**

***Energy Review = “Energy saving diagnosis”**

STEP 1

Identification
of
energy source

STEP 2

Energy
diagnosis
plans

STEP 3

Startup
meeting, data
collection



STEP 4

Plan to
measure
energy

STEP 5

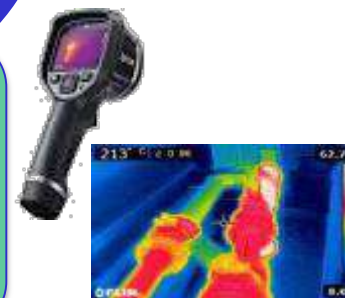
Site audit

Energy diagnostician



STEP 6

Analysis
Energy
diagnosis report



STEP 7

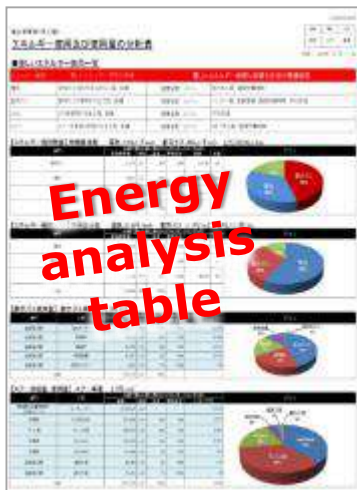
Completion
Meeting

[Output]
Opportunity to
improve and
significant
energy use

Diagnosis
report for the
energy
improvement
proposal



Energy
analysis
table



Preparation of Training Program for Energy Diagnosticians

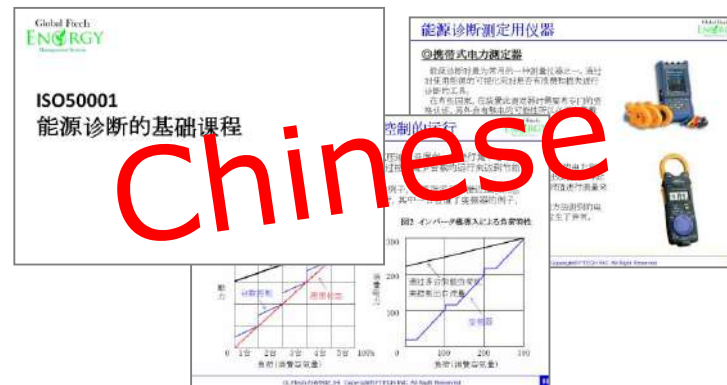
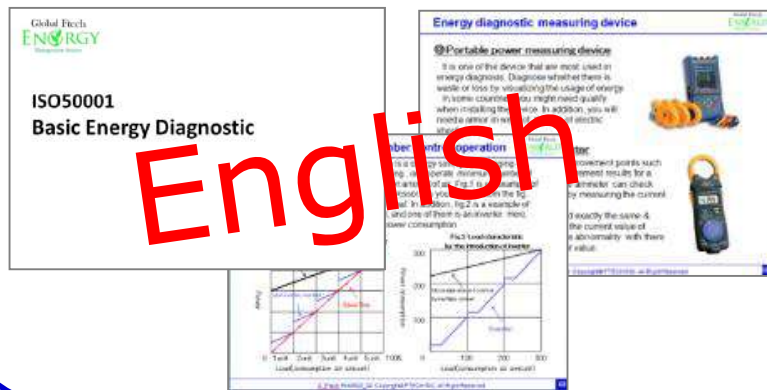
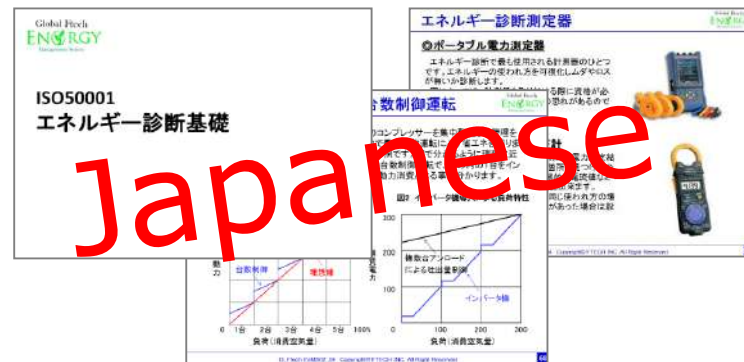
Preparation for **trainings required to perform energy saving diagnosis**

⊕ Basic lecture for energy saving diagnosis

- EnMS energy review
- Basic energy saving
- Knowledge and points of diagnosis
- Task extraction
- How to input the energy diagnosis report

⊕ Lecture for energy visualization analysis method

- Focused point of the visualization



Preparation of Equipment Control Ledger

- Formalized the Equipment Control Ledger to **organize energy consumptions and focus points for energy saving.**

図1 設備管理台帳(ポンプ、ファン、ブローヤ)

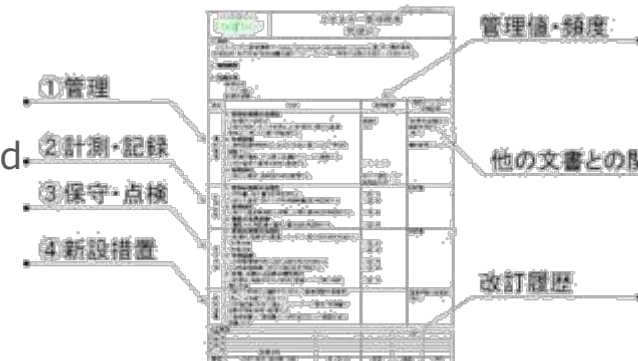
種類	省エネ着眼点
照明	照明の種類など
空調	COP/APF効率など
ボイラ	エコマイザ有無、圧力、ボイラ効率など
燃焼機器	設定温度、廃熱利用など
流体機器	インバータ有無、台数制御、モータ種類など
クーリングタワー	インバータ有無、ファンON/OFF機能など
コンプレッサ	インバータ有無、設備構成、供給圧力など

Preparation of Management Standard

- Prepared the Management Standard which is **management guidelines regulating optimum application of energy** based on the Japanese energy saving law.

In overseas plants, they have operation manuals for equipment but don't have any management guidelines focusing on the optimum application of energy. It depended on the individual's experiences or skills.

Improvement measures are important but at first, how to use energies without wasting them is more important.



China (since Jan. 2016)



From Japan to the world!



As & Oc (scheduled from 2017)



JPN (Kameyama)



NA (since Jul. 2015)

F&P AMERICA MFG.,INC.



After selected benchmark bases in each region, we started the implementation of energy management

EnMS special team from F-tech (Japan) supported the installation

 **Jul. 2015** **USA F&PA Kick-off**  **Jan. 2016** **CHN FTZ Kick-off**  **Mar. 2016** **CHN FTW Kick-off**



EnMS team formation

Associates training by providing various lectures



Total 48 people participated

Total 19 people participated

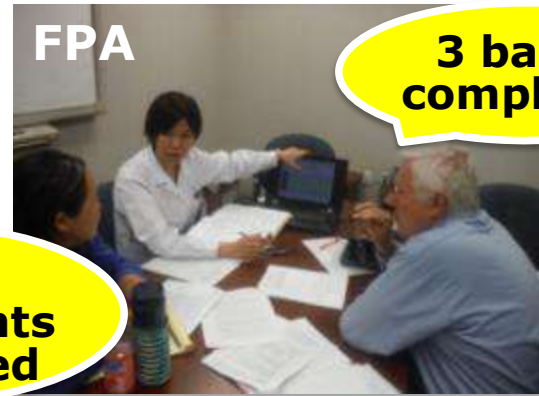
Activities in overseas benchmark bases

EnMS specialist team from F-tech (JPN) supported the installation

Preparation of "Equipment Control Ledger" and "Management Standard"



System formulation



Energy saving diagnosis



Training on how to measure electricity



Reduction of air pressure in the welding process (Kameyama)

✓ **Suspect the limit value or parameter**

STEP1: The air pressure in the welding process is regulated by the Process Quality Control Table.

Set value: 0.55MPa \pm 0.05MPa, Actual value: 0.55MPa

→ **Everyone thinks it can't be changed because it is set by Quality.**



STEP2: First of all, check the impact on the product with the lower limit of the set value!

Set value: 0.55MPa \pm 0.05MPa, Actual value: 0.50MPa

→ No impact !



STEP3: What happens if it is lower than the set value? Check by reducing the air pressure!

Set value: 0.55MPa \pm 0.05MPa, Actual value: 0.30MPa

→ A clump error occurred at 0.30MPa. **No impact when it is at 0.35MPa!**



STEP4: **Revise Process Quality Control Table** to implement the **air pressure reduction!**

Set value: 0.40MPa \pm 0.05MPa, Actual value: 0.35MPa



“Zero” investment Reduced 28,472kwh/year

■ POINT !

In the past we didn't touch any area that quality could affect for energy saving activities, but we now can work on those areas by evaluating the impact on quality through the diagnosis report.

Reduction of air pressure in the welding process (USA & China)

Carry out from the Japanese measure

In the USA and China (FTZ), they conducted the optimization of the air pressure within the set value by confirming quality impact as the same as Japan. In the future, the activity will be expanding including a revision of the set value. Also, in China (FTW), they want to optimize (stabilization) infrastructures such as looped air pipe arrangement and then they will work on the air pressure reduction.



Electricity 66,177kwh/year reduction (USA+China)

■ POINT!

Set an optimal value in each process according to the state of the equipment and infrastructure (pipe arrangement, diameter, etc.)

Boiler air ratio improvement (China)

"Zero" investment

Chinese personnel didn't know what the air ratio was, so we provided an energy diagnosis basic lecture and explained about air ratio. The air ratio was 1.89 that was out of the regulated value in EnMS; 1.25 to 1.40, so the energy has been reduced through discussion with the manufacturer.



Natural Gas 6,991m³/year reduction

■ POINT!

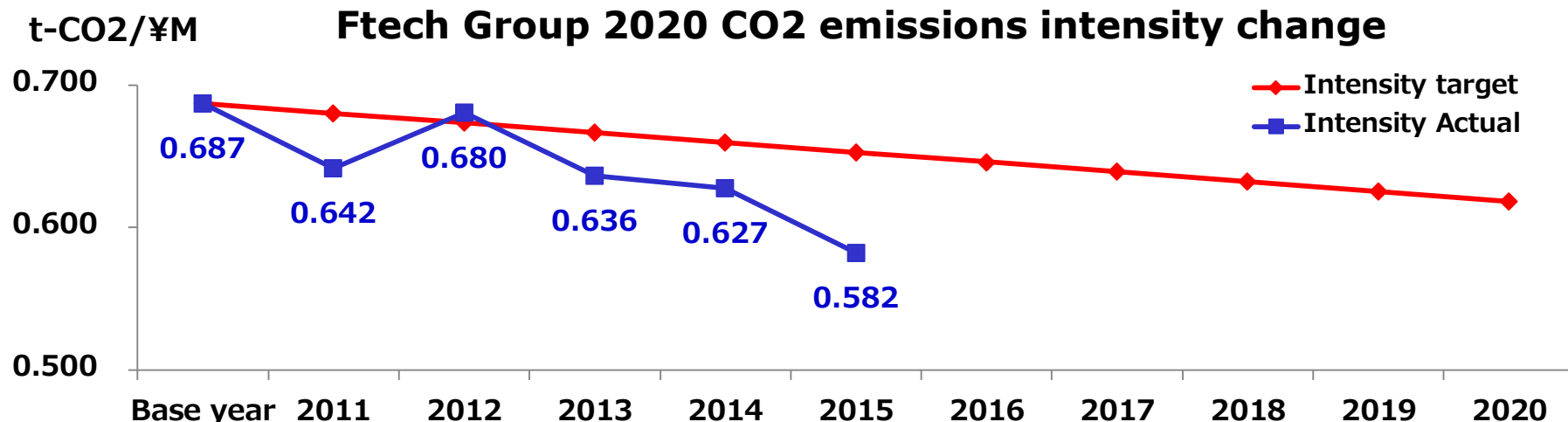
We found out that individual's skills of energy saving were different by country or region, but by deploying the ISO50001, we have been able to enhance their energy saving skills.

■ Proposal results of the energy saving measures through the energy saving diagnosis

1\$=110 yen, 1CNY=17 yen

	FPA (USA)	FTZ (China)	FTW (China)	Total
The number of proposals	17	17	13	47
CO2 reduction	2,110t-CO ₂	643t-CO ₂	1,173t-CO ₂	3,941t-CO ₂
Energy cost reduction	¥25,338,000	¥10,715,000	¥16,239,000	¥52,931,000
Required investment	¥48,167,000	¥11,671,000	¥2,746,000	¥62,584,000
Payback	1.9 years	1.0 year	0.2 year	1.2 years

■ 2020 Environment target for CO₂ emission: -10%



21 bases (7 in Japan, 7 in U.S., 3 in China, 4 in Asia)

As an ISO 50001 compliance proof, "self declaration" is one of the options

~ Quote: ISO50001 : 2010~

- "This International Standard can be used for certification, registration and self-declaration of an organization's EnMS."
- " This International Standard is applicable to any organization wishing to ensure that it conforms to its stated energy policy and wishing to demonstrate this to others, such conformity being confirmed either by means of **self-evaluation and self-declaration of conformity**, or by certification of the energy management system by an external organization.

Bases in North America and China chose self-declaration

F&PA(NA) Self-declaration completed,
February 2016



FTZ(China) Self-declaration completed,
December 2016



*FTW(China) self-declaration scheduled to be completed in February 2017

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- 2017, Ftech President Award
- 2017, Honda Excellent Gratitude Award
- 2017, Grand Prize for Excellence in Energy Efficiency and Conservation in Japan
- **2016, CEM EML Award**

2015, Group common EnMS published



2013, Kameyama Plant ISO50001 Certification



We did entry to the CEM Energy Management Leadership Awards to evaluate our activities because we looked to overseas group deployment in the future.



F-TECH INC. Kameyama Plant (Kameyama city, Mie Prefecture)

*October 2013, ISO50001 Certification

2016 Energy Management Insight Award

【Overview】

- Name : CEM Energy Management Leadership Awards
- Purpose : To spread ISO50001 through the recognition of companies and organizations that get ISO50001 certification and to achieve cost saving. In addition, to share best practices concerning energy efficiency improvement and cost reduction of each company and organization
- Target : All ISO50001 certified companies and organizations
- Type : •Award of Excellence for Energy Management (Top 3)
•Energy Management Insight Awards (All organizations that satisfy the application requirements)

※ Clean Energy Ministerial (CEM)

Global forum that consists of 23 major countries and region of the world . This forum is aim at promotion of clean energy.

※ Energy Management Working Group (EMWG)

One of CEM affiliated of the initiative, EMWG for the purpose of promotion of ISO50001 certification. Australia, Canada, Chile, China (Observer), EU, India, Indonesia, Japan, South Korea, Mexico, South Africa, Sweden and the United States participated.

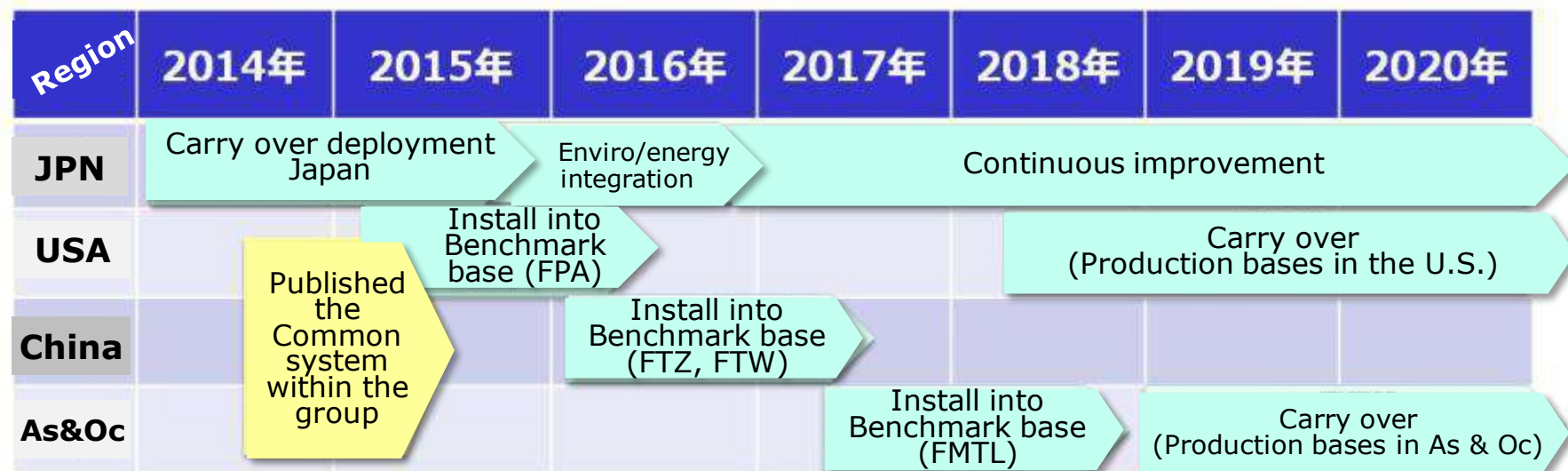
Comparison of CEM and Japan Award

	Energy Management Leadership Award (CEM)	Grand Prize for Excellence in Energy Efficiency and Conservation (Japan)
Selection process	<ol style="list-style-type: none">1) Entry2) Evaluation by experts (Scoring)3) Qualified entries (Insight Award)4) Top 3 highest-scoring entry (Excellence Award)	<ol style="list-style-type: none">1) Document examination (1st step)2) District Presentation Competition (2nd step)3) Submit additional documents for candidate awards4) Field examination review (3rd step)
Evaluation items	<ul style="list-style-type: none">•From 0 to 100 points, 2 areas ,13 items•ISO50001 implementation, resulting business benefits and advice<ul style="list-style-type: none">- Business Benefits (CO2 reduction, cost reduction etc.)- Organizational- Energy Review and Planning- Lessons Learned <div>Important evaluation items</div>	<ul style="list-style-type: none">•Energy saving case example<ul style="list-style-type: none">- Innovation and originality- Energy saving- Versatility/Pervasive- Improved sustainability <div>Important evaluation items</div> <p>*Product/business model area is omitted on this presentation</p>
References	CEM Energy Management Working Group Official Rules <ul style="list-style-type: none">- Selection Process- Evaluation Criteria and Scoring	The Energy Conservation Center. Japan FY2016, Application procedure of Grand Prize for Excellence in Energy Efficiency and Conservation <ul style="list-style-type: none">- Evaluation method- Evaluation items- Awards and public relations

In the case of CEM, as dissemination of ISO50001 is one of the objectives ,the evaluation items are also specialized to ISO50001.

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- ◆ We aim to introduce ISO50001 to all production bases and Japan's EnMS specialized team will continue to introduce EnMS to each base.



- ◆ We will also aim the training of associates who can perform high degree of energy saving diagnosis. In addition, we will share energy saving know-hows by formulating the energy saving database.

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Summary of ISO50001 group deployment

Advance Originality

- Issuance and implementation of group common energy management system

Energy saving

- Contribute to high energy saving both Japan and overseas
(Kameyama Plant : CO₂ emission▲31%)
(3 overseas bases : 47 measures▲3,941t-CO₂ expected)

Versatility Spillover

- Utilization of ISO50001, an international standard
- Use of self-declaration (No certification fee)

Sustainability of improvement

- Standardize the PDCA structure
- Construction of education curriculum

Summary and merit of the award system

- EMLA is an award system specialized ISO50001
- Ftech received other awards as a result of EMLA winning
- Improvement of corporate awareness outside the company and interest in environmental activities increased internally

The 7th Global Environmental Conference (Sep 2016 @Canada)

Thank you for your attention.



Environment section of F-tech group