Group Work on Case Study

"Group 3"

Multicountry Observational Study Mission on Innovative Enterprises Implementing Energy Management System (ISO 50001)

6-10 October 2014 Jakarta, Indonesia

Team Members

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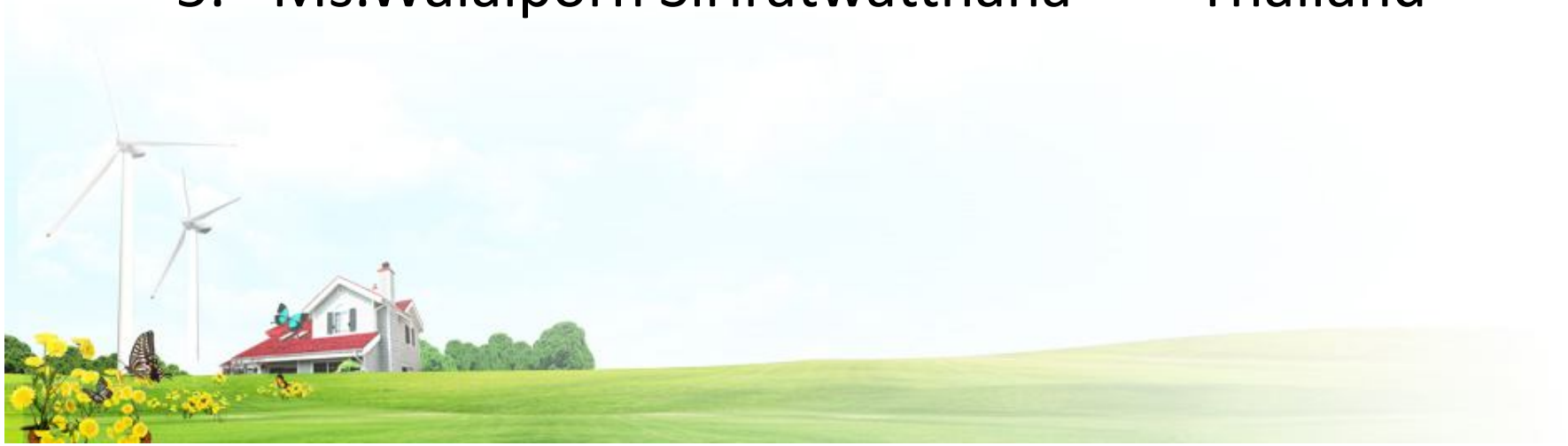
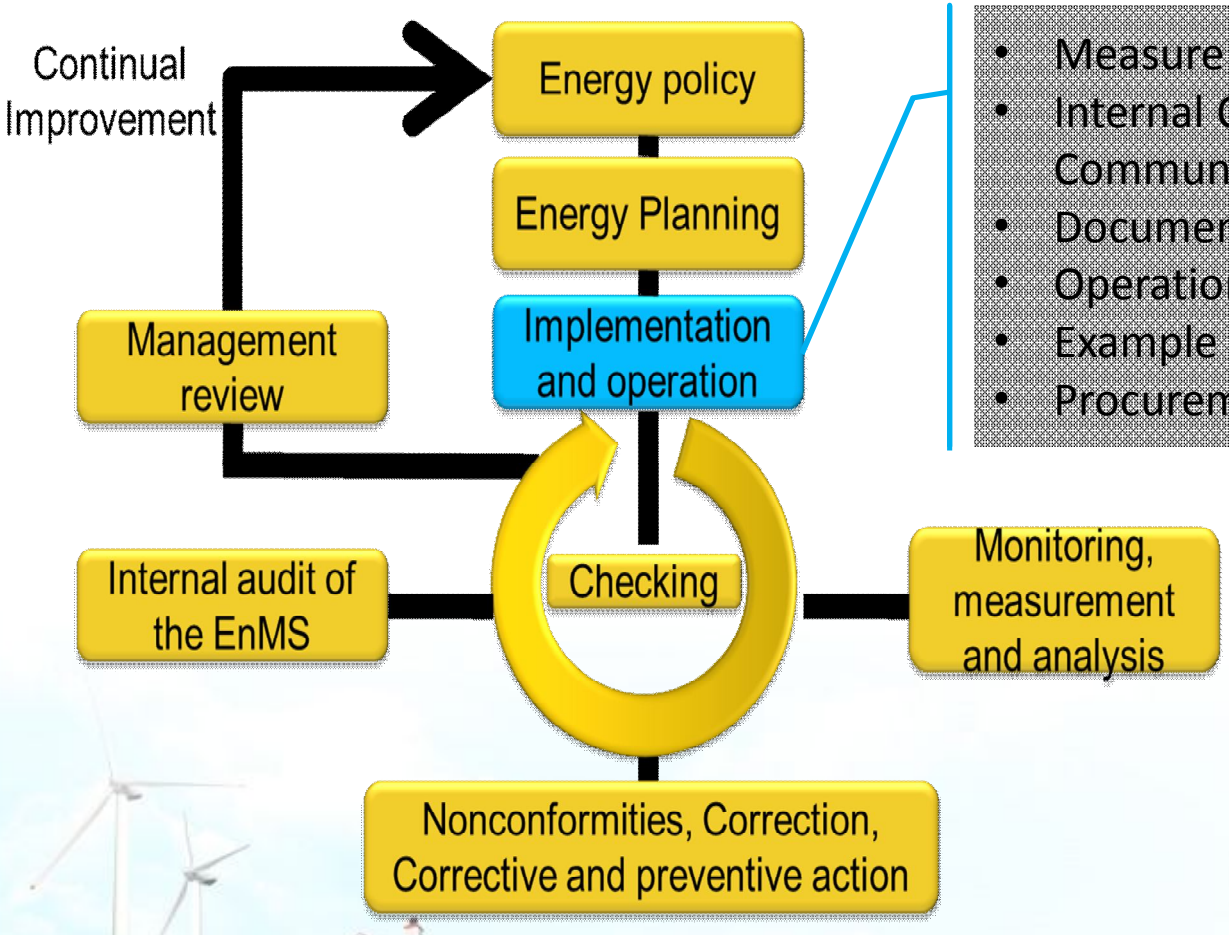


Assignment

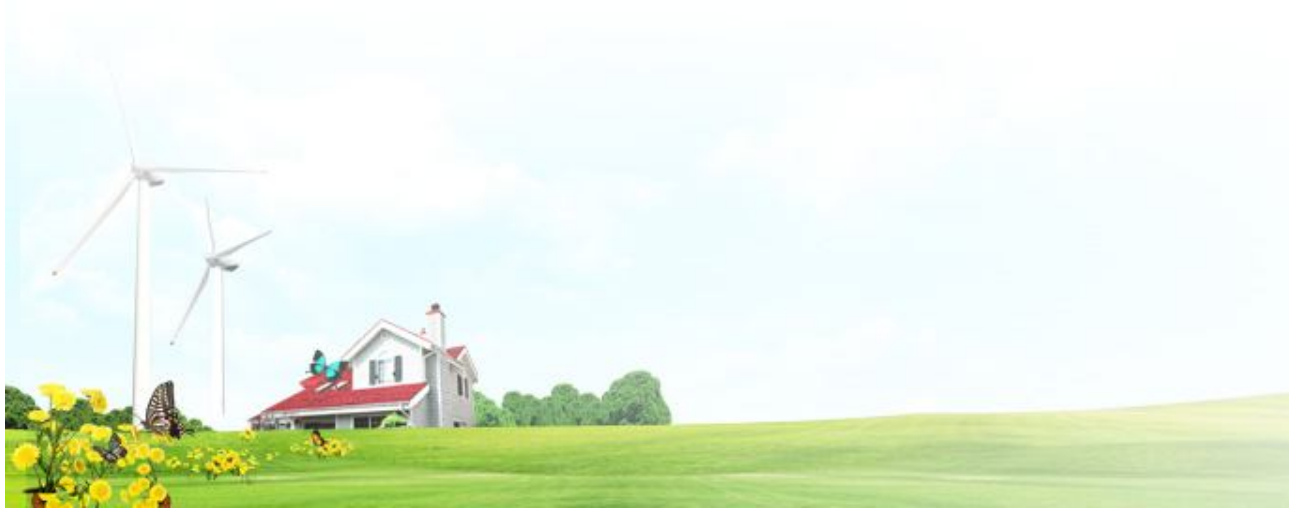
- What we learn?
- Evidence (PPT., Answer the question, Discussion)
- Opportunity to improve EnMS better
- Key Learning Point

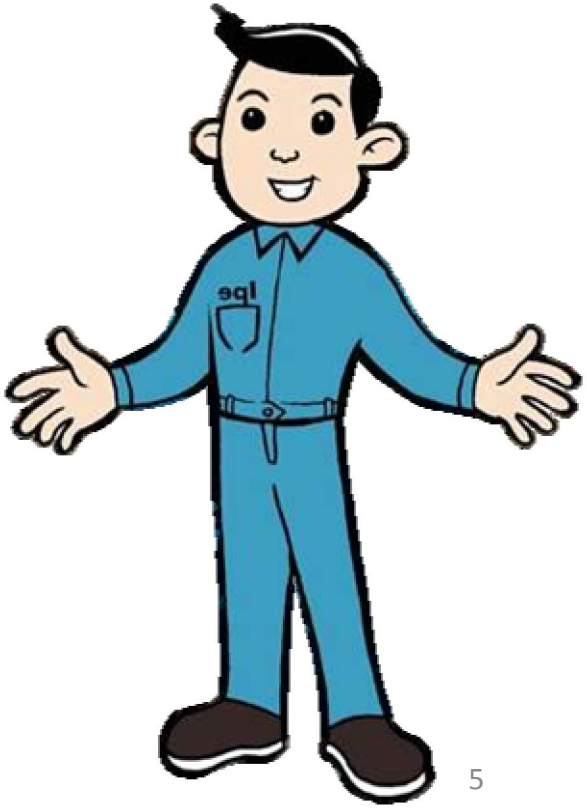
Group 3 Assignment



- Measure on Competence and Awareness
- Internal Communication and External Communication
- Document / Record Control System
- Operational Control
- Example of New Design (Recent)
- Procurement Requirement

PT Indonesia Power

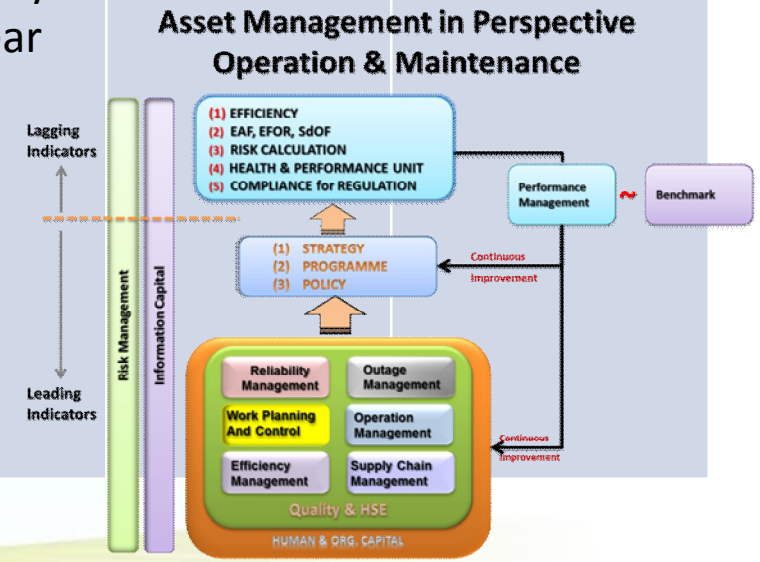




Measure on Competence and Awareness

- Clause 4.5.2 Competence, training & awareness

Require ment	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Training Need	**Course:** HAKIT **Frequency:** Twice a year **Certification:** Approved by Industrial Department **Course:** DEKLAD **Target:** Operation (GT, Boiler, Steam Turbine) **Frequency:** New employee (1-2 Week) / employee mobilization to other dept. / Refresh every year (1-3 Day) **Certification:** Yes **Course:** External Training at Mitsubishi Japan **Target:** Operation & Maintenances **Frequency:** Every Year (2 Week) **Certification:** Yes	Training for Sub-contractor	Not following ISO 50001 but follow Asset Management System (PASS 55)



Measure on Competence and Awareness

- Clause 4.5.2 Competence, training & awareness

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Training Need (Con't)	• Career Mapping System • Internal Ranking System for Competency (by HRD Dept.) • Point Based Competency Evaluation • New Competencies are identified & relevant trainings are provided	-	-

Measure on Competence and Awareness

- Clause 4.5.2 Competence, training & awareness

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Awareness	• Safety Tool Box Meeting for operation every morning	Not sure awareness cover EnMS or not	-
Record shall be maintained	• Plant personnel inform about the availability of record (Certification, List of Attendance)	-	-

In House Training GATE CYCLE by Mr Yudi Hidayat (Operation Manager PERAK GRATI PP)

Internal and External Communication

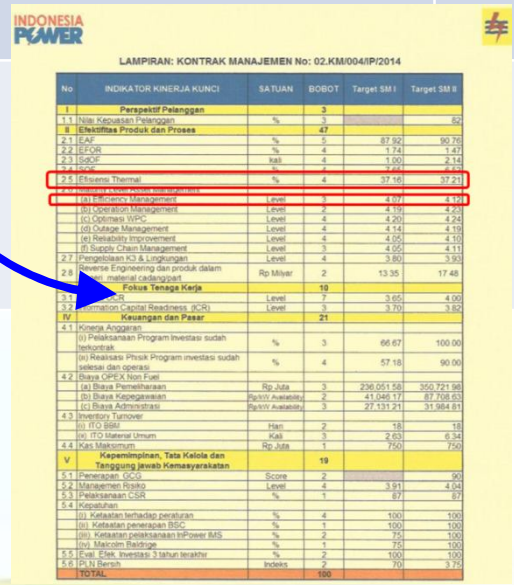
- Clause 4.5.3 Communication

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Internal Communication	• Display of Policy • Display of Objectives & Target • Display of Energy Consumption on electronic display board • 5S Productivity Tool	-	Process for comment or suggest for EnMS Improvement
External Communication	• -	The decision for external Communication is not evident	
Process for comment or suggest for EnMS Improvement	• Incentive program for providing new idea for improvement (1 Idea 100,000 Rp.)	Detail of the scheme may be further explored	

Document & Record Control System

- Clause 4.5.4.1 Documentation Requirement

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Scope & Boundary of EnMS	• -	Not seen	-
Energy Policy	• -	Not seen	-
Objective, Target & Action Plan	• Efficiency Management & Thermal Efficiency Targets	Action Plan	-
Supporting Documents including records for ISO 50001	• Procedure • Manual book for handling device • SOP for O&M		-


INDONESIA POWER

LAMPIRAN: KONTRAK MANAJEMEN No: 02.KM/004/IP/2014

No	INDIKATOR KINERJA KUNCI	SATUAN	BOBOT	Target SM I	Target SM II
I	**Perspektif Pelanggan**		3		
1.1	Nilai Kepuasan Pelanggan	%	3		82
II	**Efektifitas Produk dan Proses**		47		
2.1	EAF	%	5	87.92	90.76
2.2	EFOR	%	4	1.74	1.47
2.3	SoDF	kali	4	1.00	2.14
2.4	SOF	%	4	2.60	2.60
2.5	Efisiensi Thermal	%	4	37.16	37.23
	(a) Efficiency Management	Level	3	4.07	4.13
	(b) Operation Management	Level	2	4.19	4.23
	(c) Optimasi WPC	Level	4	4.20	4.24
	(d) Outage Management	Level	4	4.14	4.19
	(e) Reliability Improvement	Level	4	4.05	4.10
	(f) Supply Chain Management	Level	3	4.05	4.11
2.7	Pengelolaan K3 & Lingkungan	Level	4	3.80	3.93
2.8	Reverse Engineering dan produk dalam [illegible] material cadang/part	Rp Milyar	2	13.35	17.48
III	**Fokus Tenaga Kerja**		10		
3.1	[illegible]	Level	7	3.65	4.00
3.2	Information Capital Readiness (ICR)	Level	3	3.70	3.82
IV	**Keuangan dan Pasar**		21		
4.1	Kinerja Anggaran				
	(i) Pelaksanaan Program Investasi sudah terkontrak	%	3	66.67	100.00
	(ii) Realisasi Phsik Program investasi sudah selesai dan operasi	%	4	57.18	90.00
4.2	Biaya OPEX Non Fuel				
	(a) Biaya Pemeliharaan	Rp Juta	3	236.051.58	350.721.98
	(b) Biaya Kepegawaian	Rp/kW Available	2	41.046.17	87.708.63
	(c) Biaya Administrasi	Rp/kW Available	3	27.131.21	31.984.81
4.3	Inventory Turnover				
	(i) ITO BBM	Hari	2	18	18
	(ii) ITO Material Umum	Kali	3	2.63	6.34
4.4	Kas Maksimum	Rp Juta	1	750	750
V	**Kepemimpinan, Tata Kelola dan Tanggung jawab Kemasyarakatan**		19		
5.1	Penerapan GCG	Score	2		90
5.2	Manajemen Risiko	Level	4	3.91	4.04
5.3	Pelaksanaan CSR	%	1	87	87
5.4	Kepatuhan				
	(i). Ketaatan terhadap peraturan	%	4	100	100
	(ii). Ketaatan penerapan BSC	%	1	100	100
	(iii). Ketaatan pelaksanaan IMPower IMS	%	2	75	100
	(iv). Malcolm Baldrige	%	1	75	100
5.5	Eval. Efek. Investasi 3 tahun terakhir	%	2	100	100
5.6	PLN Bersih	Indeks	2	70	3.75
	TOTAL		100		

Document & Record Control System

- Clause 4.5.4.2 Control of Documents

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Document Control System	• Have PASS 55 related documents • Procedure • Manual book for handling device • SOP for O&M	No for ISO 50001	-
Record Control System	• Record every 1 hr • Data entry for analysis and report to Corporate for benchmarking • Record Approval (Operation Log Book) • Master list of record	-	-

Operational Control

- Clause 4.5.5 Operational Control

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Criteria for effective operation	• Plant Operating System by ABB • Critical / key operation identified • Auto & Manual Recording	-	-
Operating & Maintenance	Example of Significant Parameter Controlled •<u>Gas Turbine</u> ○Cleanliness of air into filter (Maintenance every 4 month) ○Blade Washing •<u>Steam turbine</u> ○Clean Condenser tube (Every 4 hr)	-	-
Communicate	• -	Not sure	-

Example of New Design (Recent)

- Clause 4.5.6 Design

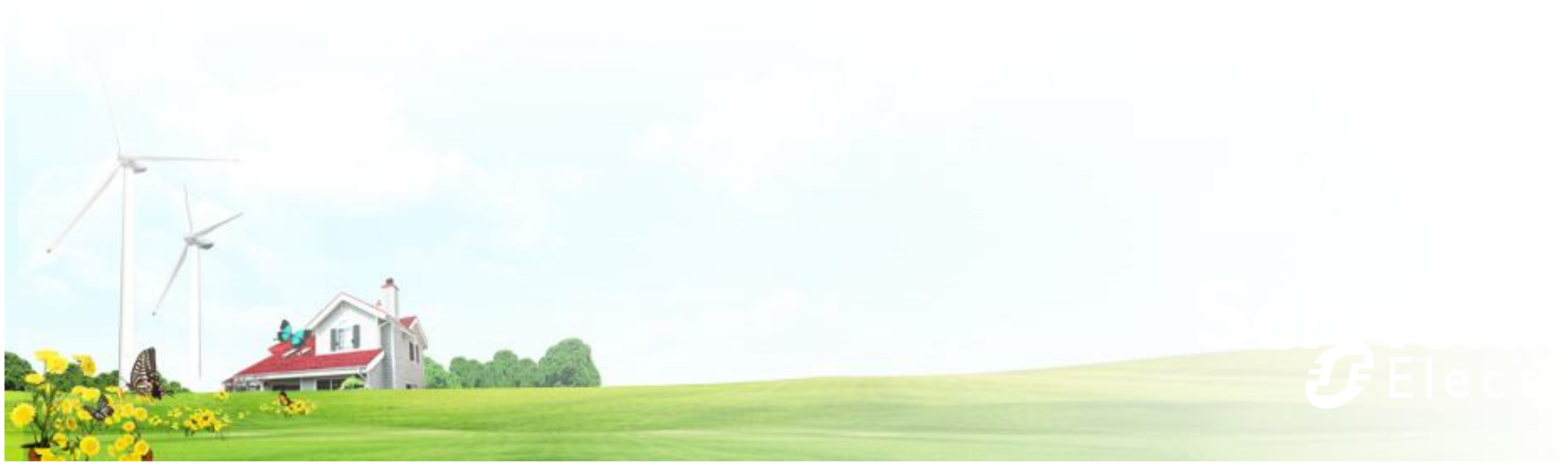
Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
New design / renovated facilities Energy Performance is considered during Specification / Design / Procurement Activities	• **Block 1&2**	No information about Management of Change / Plant Modification	-
	• **Block 3 (New Plant)** <u>Operation Phase</u> - Efficient Operation & Maintenance are responsible by Indonesia Power	<u>Design Phase</u> - No detail available (Specification / Design / Purchasing criteria are responsible by PLN)	-
Record	• -	Not seen	-

Procurement Requirement

- Clause 4.5.7 Procurement of energy services, products, equipment & energy

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Consider energy use & Efficiency	• -	Not seen	-
Establish & implement criteria for assessing energy use, consumption & efficiency during procurement	• -	Not seen	-

Schneider Electric Indonesia



Measure on Competence and Awareness

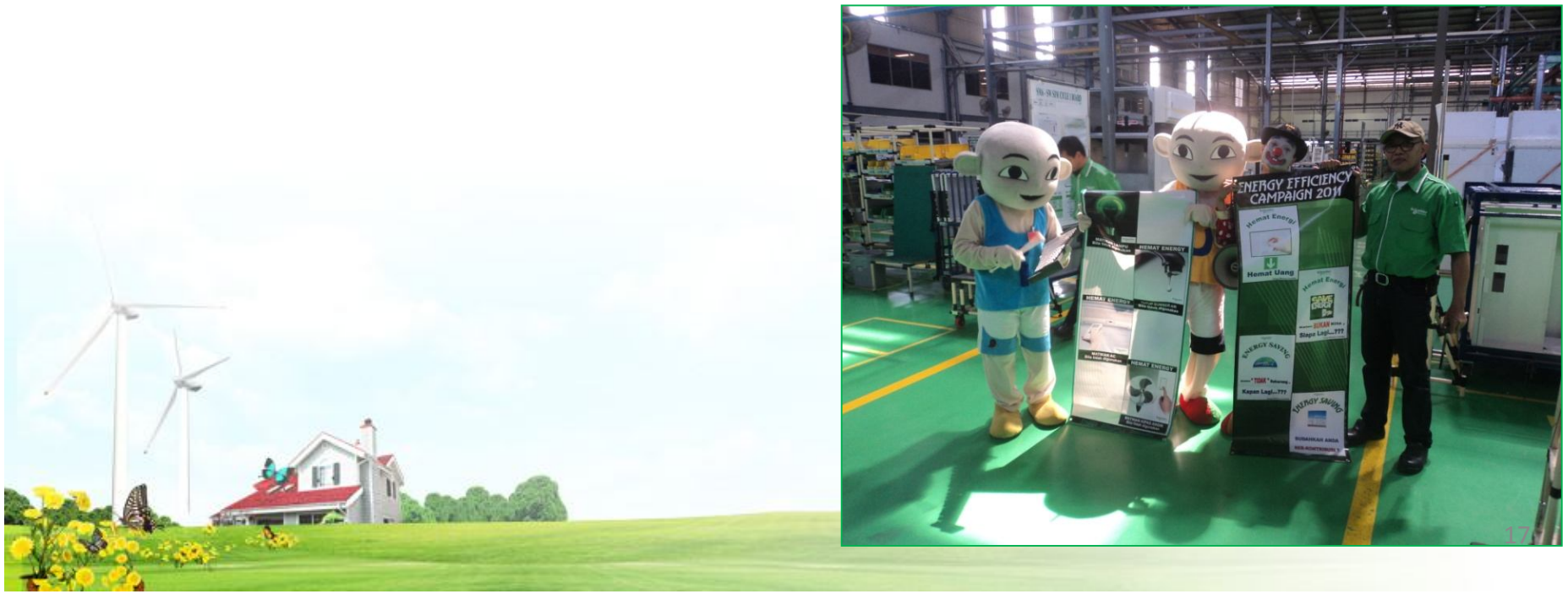
- Clause 4.5.2 Competence, training & awareness

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Training Need	**Connect Trainning Program** Course: In-House Tool (EnPI Tool Software) - All factories use this tool to set EnPI Target: Energy Efficiency Team, Maintenance and Management	- No information about Sub-contractor / Verdor	-
	Schneider Intranet (E-Learning tool) Course: Energy Management Professional Target: All employee (Especially Sales & Marketing / Technically)	-	-

Measure on Competence and Awareness

- Clause 4.5.2 Competence, training & awareness

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Awareness	• Awareness Training on a regular basis (Quarterly)	-	-
Record shall be maintained	• E-Learning tool will record the training hours	-	-



Internal Communication and External Communication

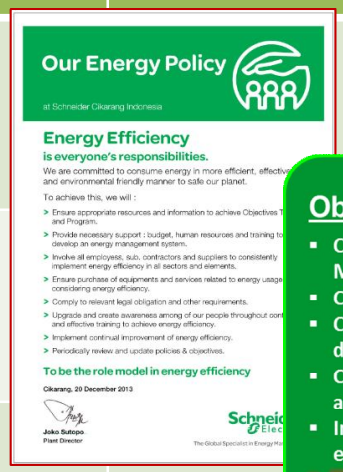
- Clause 4.5.3 Communication

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Internal Communication	• Policy in company website • Banner • Awareness campaign • Kick off meeting to stakeholder	- 	-
External Communication	• EnPI Dashboard Display for visitor	- The decision for external Communication is not evident	-
Process for comment or suggest for EnMS Improvement	• Employee Suggestion System	-	-

Document & Record Control System

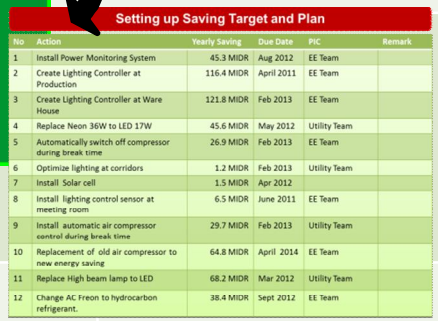
- Clause 4.5.4.1 Documentation Requirement

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Scope & Boundary of EnMS	• Clearly defined by management	-	-
Energy Policy	• Clearly defined		-
Objective, Target & Action Plan	• Clearly defined		
Supporting Documents including records for ISO 50001	• Procedure exists • Manual book for handling device exists • SOP for O&M exists	Evidence not seen	



Objectives :

- Commitment from Top Management.
- Clear vision ad mission.
- Consistency for system development.
- Comply to legal obligation and other regulations.
- Implement continual energy improvement.
- To be the role model in Energy Efficiency



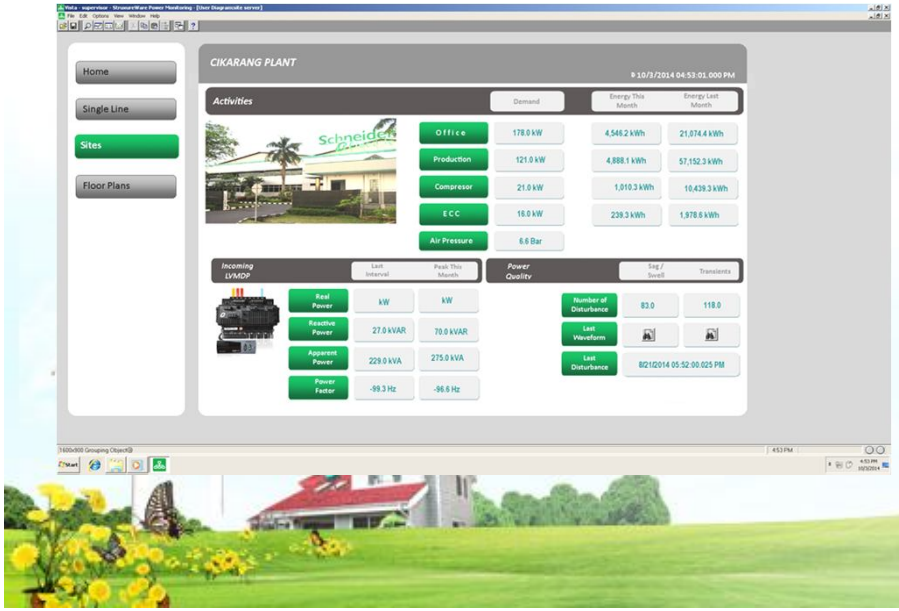
Setting up Saving Target and Plan

No	Action	Yearly Saving	Due Date	PIC	Remark
1	Install Power Monitoring System	45.3 MIDR	Aug 2012	EE Team	
2	Create Lighting Controller at Production	116.4 MIDR	April 2011	EE Team	
3	Create Lighting Controller at Ware House	121.8 MIDR	Feb 2013	EE Team	
4	Replace Neon 36W to LED 17W	45.6 MIDR	May 2012	Utility Team	
5	Automatically switch off compressor during break time	26.9 MIDR	Feb 2013	EE Team	
6	Optimize lighting at corridors	1.2 MIDR	Feb 2013	Utility Team	
7	Install Solar cell	1.5 MIDR	Apr 2012		
8	Install lighting control sensor at meeting room	6.5 MIDR	June 2011	EE Team	
9	Install automatic air compressor control during break time	29.7 MIDR	Feb 2013	Utility Team	
10	Replacement of old air compressor to new energy saving	64.8 MIDR	April 2014	EE Team	
11	Replace High beam lamp to LED	68.2 MIDR	Mar 2012	Utility Team	
12	Change AC Freon to hydrocarbon refrigerant.	38.4 MIDR	Sept 2012	EE Team	

Document & Record Control System

- Clause 4.5.4.2 Control of Documents

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Document Control System	• Proper documentation system exists	-	-
Record Control System	• EnMS software along with sensors, digital meters exists	-	-



Assessment of Energy Management System Documentation

Sample

* Energy Management System :

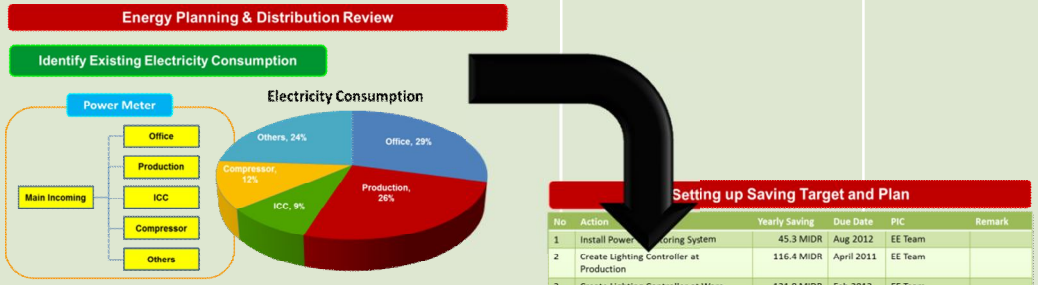
1. Provide Energy Policy → Done
2. Provide Energy Manual → Approval process (14 March 2014)

* Energy Document Control :

No.	Category	New	Revision	Total
1	Procedure	5 (on approval)	7 (Done)	12
2	Instruction	0	1 (Done)	1
3	Best Practice Energy	1 (Done)	0	1

Operational Control

- Clause 4.5.5 Operational Control

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Criteria for effective operation and maintenance activities based on significant energy use	• Clearly defined 	-	-
Operation criteria followed	• Yes		-
Internal Communicate	• Yes		-
Communication for vendor & supplier	• -	Not seen	-

Example of New Design (Recent)

- Clause 4.5.6 Design

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
New design / renovated facilities	• Replace high bay mercury to LED (Still continue) • Replace old compressor with energy efficient compressor • Automation lighting • Intelligence Building Management System (iBMS)	-	-
Energy Performance is considered during Specification / Design / Procurement Activities	• -	Not sure for vendor	-
Record	• -	Not seen	-

Procurement Requirement

- Clause 4.5.7 Procurement of energy services, products, equipment & energy

Requirement	Evidence (Fact)	Not sure (Fact)	Opportunity (Evaluation)
Consider energy use & Efficiency	• Yes	Not seen evidence	-
Establish & implement criteria for Assessing energy use, consumption & efficiency during procurement	• As informed during presentation: • standard form for evaluating procurement by Technical Team & Purchase Team • Also inform the suppliers for specific criteria • Proper purchase specification document available	Not sure Not seen	-

Key Learning Points

- Understand the current situation and put the right things at the beginning process
- The existing system addressed energy efficiency of various facilities as per asset management system (PASS 55). It would be beneficial to upgrade the system in line with ISO 50001 with the least effort for better energy performance
- The technology used for defining EnPI, Target & Objective, analytic for ISO 50001 implementation is exemplary task and also open large opportunity for other companies to benefit from this software too


Q&A