Global Energy Management System Implementation: Case Study

India

Raymond Ltd.

Raymond Ltd Jalgaon division is one of the 4 Textile units established in year 1979 with manufacturing capacity of 79 lakh meters per annum of worsted suiting. Worsted division manufacturing Worsted Suiting fabric with polyester-wool and polyester-viscose blends.

Raymond Limited, Textile Division, Jalgaon

1. Plant electric consumption reduced significantly after implementation of ISO 50001.

Mr. Sanjay Bokare (Dy.GM-Engg.)

2. ISO 50001 is a very handy tool to reduce production cost by implementing various energy measures.

Mr. Sanjay Sharan (Works Director)

Raymond Lifestyle Business

Case Study Snapshot	
Industry	TEXTILE
Location	Jalgaon, Maharashtra
Energy Management System	ISO 50001
Product/Service	Manufacturing and Supply of Grey Mended Fabrics
Energy Performance Improvement (%)	((1053516-722499)*100)/1053516 =31.42%
Annual energy cost savings	=331017*7 =23.17 Lacs
Cost to implement	23.00 Lacs
Payback period	1 Year

Business Benefits Achieved

Coal Saving up to 208 Ton (Sept.15-upto Jan.2016) by replacement of inefficient 10 TPH boiler with 6 TPH Boiler. 2.4 Lacs units has been saved by replacement of 36 watt tube light with 16 watt LED tube lights (Nov.2015-upto jan.2016). 0.68 Lacs units has been saved by Installation of VFDs in Dyeing machine circulation Pump. 0.027 Lacs Units has been saved by replacement of fluid coupling type motor with new energy efficient motor with VFD. 1.2 Lacs units savings expected by conversion of chiller plant into normal humidification plant. 18000 kl water has been saved by

recycling of 50% of effluent water by installation water of RO Plant

Company Profile

Raymond Ltd Jalgaon division is one of the 4 Textile units established in year 1979 with manufacturing capacity of 79 lakh meters per annum of worsted suiting. Worsted division manufacturing Worsted Suiting fabric with polyester-wool and polyester-viscose blends. Turnover of Jalgaon unit was Rs. 7277 lakh for previous year. Raymond Ltd. Jalgaon is ISO9001, 14001 and OHSAS certified company.

Business Case for Energy Management

While making operational budget for financial years, cost of energy is main focus area. As the raw material and energy cost increasing day by day which leads to higher manufacturing cost. To sustain in market for longer time with marginal profitability we need to control manufacturing cost. Since cost of raw material is not in our hand we can reduce manufacturing cost by controlling energy uses .This leads us to implement the EnMS system. Since we are identified as designated consumer under PAT (Perform Achieve and Trade) scheme by Bureau of Energy Efficiency, India we need to compile with legal requirements

Keys to Success

- Each and every department power should monitored and recorded in proper way.
- Production data of each process should be up to date.
- Every data should be accurate and up to date.
- Top management commitment

EnMS Development and Implementation

Business Benefits

Coal Saving up **to 208 Ton** (Sept.15-upto Jan.2016) by replacement of inefficient 10 TPH boiler with 6 TPH Boiler. **2.4 Lacs units** has been saved by replacement of 36 watt tube light with 16 watt LED tube lights (Nov.2015-upto jan.2016) **0.68 Lacs units** has been saved by Installation of VFDs in Dyeing machine circulation Pump. **0.027 Lacs** Units has been saved by replacement of fluid coupling type motor with new energy efficient motor with VFD. **1.2 Lacs units** savings expected by conversion of chiller plant into normal humidification plant. **18000 kl water** has been saved by recycling of 50% of effluent water by installation water of RO Plant. We are one of the very few companies in Textile sector to get certified with ISO 50001:2011.

Organizational

Top management is committed towards EnMS system as it is directly going to affect the cost of operation Also Top Level management encourages EnMS system by providing separate fund for EnMS system Top level management involve HODs of each department to take decision regarding EnMS implementation and use available resources for this. An energy team was formed comprising of young and energetic members with experienced members. Each team member responsibilities has been clearly defined and taught to every one member.

Energy review and planning

Identified current energy sources. Evaluated past and present energy use and consumption. Based on the analysis of energy use and consumption, identified the areas of significant energy use. Identified the facilities, equipment, systems, processes and personnel working for, or on behalf of, the Organization that significantly affect energy use and consumption. Identified other relevant variables affecting significant energy uses. Determined the current energy performance of facilities, equipment, systems and processes related to Process. Identified significant energy uses. Estimated future energy use and consumption. Identified,

prioritize and record opportunities for improving energy performance. On the basis of energy review we have drawn energy baseline for each SEU and set the target for each department.

Development and use of professional expertise, training, and communications

Company hired professional for the guidance and implementation of EnMS 50001. He provided training in-accordance with various level of employees regarding awareness of EnMS system and their implementation. Top management is also committed towards EnMS system as it is directly going to affect the cost of operation. Top Level management encourages EnMS system by providing separate fund for EnMS system. We have provided Idea box in every departments for shop floor workers suggestions. We have provision for incentive for best suggestion of the month, to encourage the workmen about these system. At middle level, there is a monthly meeting regarding effective implementation of EnMS system

Tools & resources

We have taken guidance of BEE certified energy auditor. We have also taken guidance of ISO 50002:2014, ISO 50003:2014, and ISO 50004:2014. ISO 14001:2008 was also become very handy tool for implementation of EnMS system.

Steps taken to maintain operational control (ISO 50001:2011 Section 4.5.5& A.5.5) **and sustain energy performance improvement**

We have made Critical Operating Parameters for each department and monitoring these parameters continuously. We have displayed COP in each department. Daily monitoring of specific consumption of the plant.

Approach used to 1) determine whether energy performance improved – up to 5 points **and 2) to validate results**

1. Monitoring of Monthly monitoring of specific energy consumption of each department.
2. Monitoring of Monthly Power Consumption of the Plant
3. Monitoring of efficiency and machine utilization %.
4. Energy meters have been installed in each area to measure the power consumption.
5. Daily production record.

Cost-benefit analysis

Sr.No.	Project	Annual energy savings kWh	Annual savings in Lacs	Initial cost in Lacs	Payback in months
1	To Convert Chiller Plant Into normal Humidification Plant	120000	10.2	30	35.29
2	To replace 10 TPH Boiler into 6 TPH Boiler		52	60	13.85
3	To install drives in treated water pump	17184	1.46	1	8.22
4	To replace fluid coupling motor with energy efficient motor along with drive	8592	0.73	1.5	24.65
5	To replace conventional tube rode with led	661305.6	56.21	21	4.48

Reducing energy consumption in our manufacturing operations through the establishment of objectives and targets;

Ensuring continual improvement in our energy performance;

Deploying resources and leveraging information to achieve our objectives and targets;

Upholding legal and other requirements regarding energy use, efficiency and consumption;

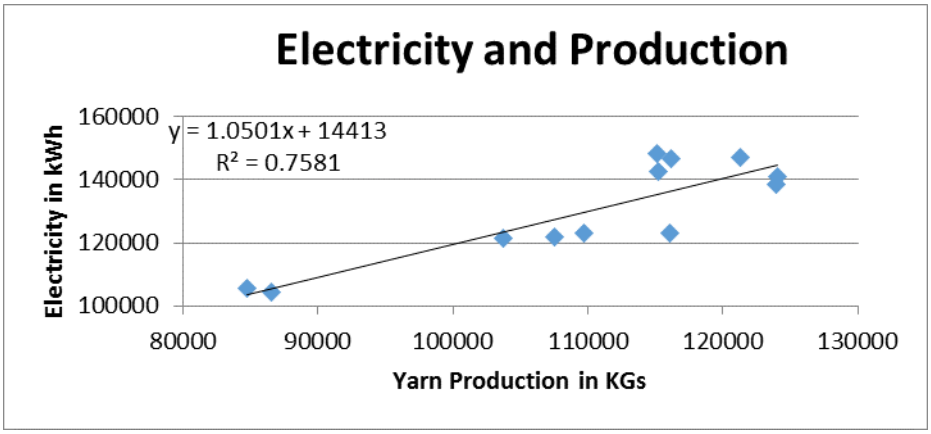
Considering energy performance improvements in design and modification of our facilities, equipment, systems and processes;

Effectively procuring and using energy-efficient products, and services.

Mr.AS Narkhede (GM-Works)

Lessons Learned

1. Energy cost is playing very vital role in manufacturing process.so we need to use energy efficiently.
2. Use of Energy efficient equipment should be our focus.



Actual Vs. expected & target and Savings

Management Target

	Month	UOM	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16
Actual	Electricity	kWh/month	189399	193937	199101	210850	120750	96510	103524	82843	110501	102777	0
	Production	Kgs	129991	118895	115672	128843	122189	111384	125037	95046	127049	120287	0
	Var 1		0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
	Var 2		0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0
	Var 3												
Expected	consumption	kWh	150923	139270	135886	149717	142729	131383	145720	114225	147833	140732	14413
Savings	Actual	kWh/Month	-38476	-54667	-63215	-61133	21979	34873	42196	31382	37332	37955	14413
	Cumulative	kWh	-38476	-93143	-156359	-217491	-195512	-160639	-118443	-87061	-49729	-11773	2640
Target	consumption	kWh	149413	137878	134527	148220	141302	130069	144263	113083	146355	139325	14269
	savings	kWh/month	-39986	-56060	-64574	-62630	20552	33559	40739	30240	35854	36548	14269
	savings CUSUM	kWh	-39986	-96045	-160619	-223249	-202697	-169138	-128400	-98160	-62306	-25757	-11488
	% Variance		-25	-39	-47	-41	15	27	29	27	25	27	100

Through the Energy Management Working Group (EMWG), government officials worldwide share best practices and leverage their collective knowledge and experience to create high-impact national programs that accelerate the use of energy management systems in industry and commercial buildings. The EMWG was launched in 2010 by the Clean Energy Ministerial (CEM) and International Partnership for Energy Efficiency Cooperation (IPEEC).

For more information, please visit www.cleanenergyministerial.org/energymanagement.

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