

Ptm
Pusat Tenaga Malaysia

Sustainable Energy Development

Seminar On The Promotion On Energy Efficiency & Conservation For Major Industries In South East Asia

**Sedona, Yangon, Myanmar
24th November 2006**

KTAK **Ptm** **AMDB** Arab-Malaysian Development Berhad (Textiles) (Company No. 6385-K) **Tarab**

Ptm
Pusat Tenaga Malaysia

MIEEIP Background

Ptm
Malaysia Energy Centre

The Malaysian Industrial Energy Efficiency Improvement Project (MIEEIP) started in the fourth quarter of 2000 with the main aim to:

Removing Barriers to industrial Energy Efficiency & Energy Conservation

Pusat Tenaga Malaysia

MIEEIP Objectives



To improve Energy Efficiency in Malaysian industrial sector by:

- ⦿ Removing barriers to efficient industrial energy use
- ⦿ To create a sustainable institutional capacity to provide EE sources and a conducive policy, planning and research framework
- ⦿ By Focusing on 8 energy-intensive manufacturing sub-sectors namely **Wood, Food, Glass, Cement, Rubber, Pulp & Paper, Iron & Steel, Ceramic** in order to maximize gains & attainment of targets

Pusat Tenaga Malaysia

JG Containers



**Experience And Application OF
Energy Efficiency &
Conservation in
JG Containers(M) Sdn. Bhd –
Glass Industry**

Pusat Tenaga Malaysia

Presentation Topic



- **Company Background**
- **Auditing process**
- **Existing Energy Profile**
- **Existing Energy Consumption Figures**
- **Energy Management**
- **Energy Audits Background**
- **Energy Audit recommendations**
- **Energy Measures Already Implemented**
- **Closing remarks**
- **Conclusion**
- **General**

Pusat Tenaga Malaysia

COMPANY BACKGROUND



- **Established in the Year 1972**
- **Located in Klang, Malaysia**
- **Present Production : 120 TPD Container Glass Production(Before 2002- 90 TPD)**
- **Present Turnover : RM36 M**
- **Product Range: Beverage, Pharmaceuticals and food industries**
- **80% of production- local sales**
- **20% of production – export sales**

Pusat Tenaga Malaysia

ENERGY AUDIT HISTORY



- ADB Audit during 1992 - Partial Audit
- Internal Audit in 1996 - Comparison with similar glass company belonging with same group in India
- Pusat Tenaga Malaysia Audit in 2001 - Total comprehensive audit
- PTM Audit highlighted the energy use of 8.0 GJ/ Ton of Glass melted in JG is very high as compared to average of 5.0 GJ/ Ton of glass melted in Europe. In some countries, the figure is even lower which is 4.8 GJ/Ton.
- The PTM programme formed the basis for the foundation of JG's EE initiatives



Pusat Tenaga Malaysia

Energy Profile from EA in 2001



- Glass manufacturing is High Energy intensive Industrial Sector.
- Energy Cost contributes over 20% of Turnover. Consumption For -2000

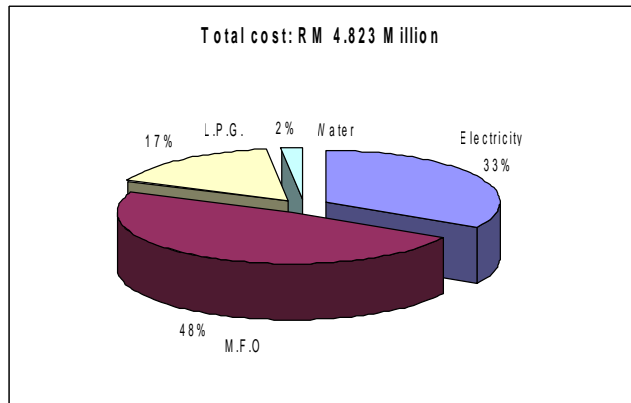
Utility	Units	Consumption		Cost RM M	% Cost
		Qty	%(GJ)		
Electricity	MWH	8358	15.0	1.6	33.0
MFO	Cu.M	3367	70.0	2.34	48.0
LPG	Cu.M	307090	15.0	0.81	17.0
Water	Cu.M	36500	--	0.09	2.0

Pusat Tenaga Malaysia

Utility Consumption Analysis



● Utility Consumption - January 2000 - December 2000



Pusat Tenaga Malaysia

Recommendations Of PTM Audit 2001



- 1) To Reduce Heat loss in Annealing Lehr.
- 2) To Improve Forming Machine Efficiency.
- 3) To Reduce Compressed Air Loss.
- 4) To improve Lighting.
- 5) To Preheat Batch using Furnace Exhaust.
- 6) To Recirculate Water.
- 7) To Improve Furnace Efficiency



Pusat Tenaga Malaysia

Measures Implemented During 2002



Rebuilding furnace with control systems

Old FURNACE of 90TPD lacked control systems and suffered heat losses since furnace built in 1992. New furnace of 120TPD was built using advanced crown system

Modification of one annealing lehr -

Reconditioned insulation -of 1 of the annealing lehrs - cost of RM50,000, which resulted in energy savings of 750 kWh/day

Executed Measures

Natural gas-powered lehr

One of the old annealing lehrs was replaced with a new energy efficient LPG / NG-fired lehr at a cost of RM 400,000 in November 2002 - production up by 50 %

Water recycling

100 cubic m³/day as drinking water & service water for cooling cleaning cullets. ~ 25 m³ daily - washing the cullets alone →the drain. New filtration system to recycle the water

Pusat Tenaga Malaysia

Energy Demand Status 2003

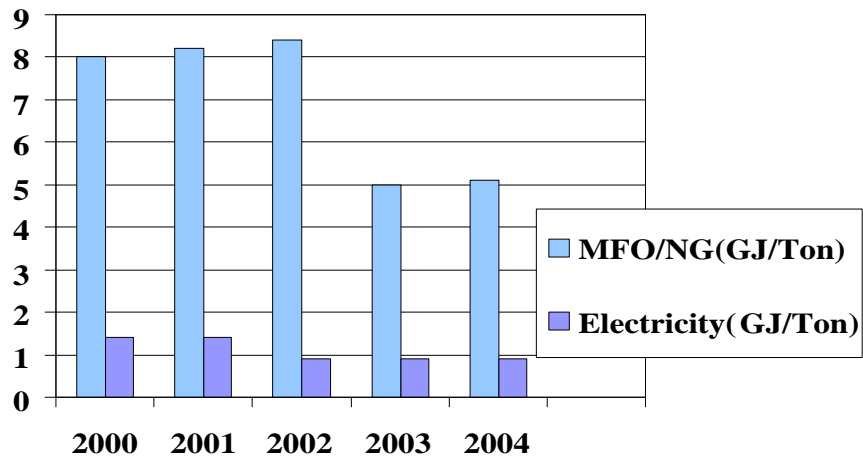


- Glass manufacturing is High Energy intensive Industrial Sector.
- Consumption For -2003

Utility	Units	Consumption Quantity	Cost RM Mil
Electricity	MWH	11,340	2.089
MFO	Cu.M	207,499	2.905
LPG	Cu.M	5,061	0.577
Natural Gas	1000 Cu.M	303	0.150

Pusat Tenaga Malaysia

Comparison Of Energy Consumption For Yr.2000- 2004



Closing Remarks

- Even though the Electricity Consumption is 13% of Total Energy Utilised, Electricity cost component is over 37% of Total Energy Cost.
- Every Effort is required to reduce Electricity consumption & Cost.
- Finally the Specific Energy Consumption should reach below 4.8 GJ / Ton of Glass Melted to reach Industry's Best EE standard.

Continued....

- The investment cost is very high in glass sector to implement EE projects.
- Furnace rebuilt time is more appropriate time to implement major EE projects which comes generally once in 10 years.
- Lack of EE measurement tools & expertise in glass sector hindering the progress.
- Normally during Energy crisis period only, the EE projects are given priority.



INTRODUCTION TO AMDB

Arab-Malaysian Development Bhd (AMDB) textile plant / Taping Fabric (Taifab).

- **Factory Address** :Kamunting Industrial Estate
P.O. Box 98
34008 Taiping, Perak, Malaysia
Tel: 605-891 4000
Fax:605-891 2900
- **Number of employees** : 200
- **Annual turnover** : RM 60 Mil
- **Annual production** : 10.5 Mil. meters
- **Products range** :100% cotton;Polyester Cotton blends; Polyester Viscose blends;(of woven, dyed/finished)
- **Market** :Local and Export (Australia, N.Zealand, EU)

CORE RECOMMENDATIONS



Pre treatment Range

- Heat Recovery from waste water
- Steam Box Auto Control Maintenance

Stenter (Artos Stenter No. 3)

- Fixed type textometer
- Variable Speed Exhaust Fan

Boiler and steam distribution system

- Localized boiler system
- Self Maintain steam trap

Pusat Tenaga Malaysia

POTENTIAL COST SAVINGS



RM 241, 000 / year

Or

USD 63, 142 / year

Pusat Tenaga Malaysia

EXECUTED MEASURES (1)



Replacement of Old Boiler

Before	After
Old Boiler 11 t/h Efficiency :70%	New Boiler 16 t/h Efficiency : >85 %
15 hr/day,25 days/month LFO : 915 l/day	15 hr/day,25 days/month LFO : 686.25 l/day (25 % lower) RM 60 K/month (USD 15.8 K) & RM 720 K/yr (USD 189.5 K)



Arab-Malaysian Development Berhad
(Textiles)
(Company No. 6386-19)



Pusat Tenaga Malaysia

EXECUTED MEASURES (2)



Reduce Boiler Daily Operation Time

Before	After
Daily start up time : 6.00 am	Daily start up time : 6.40 am
Old boiler requires 1 hr start up period to supply steam	Old boiler requires 20 minutes start up period to supply steam RM 12 K/month (USD 3.1 K) & RM 144 K/yr (USD 38.1 K)



Arab-Malaysian Development Berhad
(Textiles)
(Company No. 6386-19)



Pusat Tenaga Malaysia

EXECUTED MEASURES (3)



3) Steam Traps

- o Maintenance Dept. - weekly checking on steam Traps at various machines
- o Reduce the steam loss to minimum
- o More than 50 pcs. of inefficient or damaged steam traps - replaced for the past two years.



Arab-Malaysian Development Berhad
(Textiles)
(Company No. 6386-19)



Pusat Tenaga Malaysia

EXECUTED MEASURES (4)



4) Auto Temperature Control for steam supply for Washing Basins.

- The front section of Perble Range - installed with Auto Steam Control Valves to regulate temperature
- Mill will gradually replace more area to use Auto Temperature Control devices for steam supply



Arab-Malaysian Development Berhad
(Textiles)
(Company No. 6386-19)



Pusat Tenaga Malaysia

EXEPECTED MEASURES (1)



5) Convert to Natural Gas burning for our Steam Boiler

- The NG line has reached the outside of the factory. Construction work and agreement with Gas Malaysia is finalizing.
- NG is expected to provide gas supply for Boiler early next year.
- With the LFO price at RM0.848/ liter (USD 0.22/l) presently and NG at RM0.49 /Sm³ (USD 0.122/m³)
- Conversion to burn on NG ⇒ Calculated cost savings
 - RM132 K /month (USD 34.7 K/month)
 - RM1.6 Million/yr (USD 421.1 K/yr)



Arab-Malaysian Development Berhad
(Textiles)
(Company No. 6355-10)



Pusat Tenaga Malaysia

SUMMARY



Recommended	Actual
RM 241 K / yr USD 63.4 K / yr	RM 866 K / yr USD 228 K / yr (4 times higher than recommended!)



Arab-Malaysian Development Berhad
(Textiles)
(Company No. 6355-10)



Pusat Tenaga Malaysia

Thank You



Our Function :
PTM is the agent for public & private energy sectors

Navigation: About us, Programmes, Publications, Resource centre, Jobs & Opportunity, Contact us, Site directory

Left Column:
- We Offer: Energy Efficiency, Data on Energy Efficiency, Clean Development and build Mechanism, energy efficiency, Energy Statistics, Regional Projects, Consult ANIE Projects, Rental of PTM Building equipment, Regularly updated information on energy, A well equipped resource centre, In-house publications, A complete ESCO's directory
- Malaysia Energy Database Information System
- Energy Audit Equipment
- Weekly Info Energy: Maxco seeking usaha kerjasama jimat tenaga palm oil to be used to power car engines, Harga minyak tidak boleh terus diundi, Ekonomi diparkasa, Biofuel station in the pipeline, Biofuel Startup, Biofuel policy a boon to palm oil industry: Sabri, Call to solve biofuel tariff issue first

Center Column:
- 12:55 AM Monday 5th September 2005
- New PTM Building (Zero Energy Office)
- Malaysia Industrial Energy Efficiency Improvement Project (MIEEIP)
- Biomass Generation & Co-generation in Palm Oil Mill in Malaysia (Biogen)
- Malaysia Building Integrated Photovoltaic (BIPV) Technology Application Project

Right Column:
- PTM Membership Update: Currently we have a total of 102 Members: 80 Corporate Members, 42 Individual Members, List of PTM Members, Why become a member?, Download registration form (Corporate, Individual)
- Highlights: Download new ICRA Paper & Newsletter
- Upcoming Events: National Convention for Energy Professional 2005: Achieving Sustainable Development Through Fossil Fuel Conservation, Venue: Hilton Ballroom 1, Crown Plaza Mutiara Hotel, Date: 15th September 2005, MIEEIP - Building Integrated Photovoltaic (BIPV): Architecture, Engineering & Standards, Venue: Hilton Kuala Lumpur, Date: 12th September 2005 (1 day seminar), To participate please download the brochure, MIEEIP - Building Integrated Photovoltaic (BIPV): Policy & Financial Frameworks Promoting Sustainable Photovoltaic (PV) Markets, Venue: Hilton Kuala Lumpur

Footer: Pusat Tenaga Malaysia

Pusat Tenaga Malaysia
Level 8, SAPURA@MINES
No. 7, Jalan Tasik
The Mines Resort City
43300 Seri Kembangan
Selangor
Website: www.ptm.org.my
E-mail: info@ptm.org.my