



List of sites our personnel has conducted Energy Audit

No.	Enterprise	Year	Recommended Solutions	Payback Period
1	Bim Son Cement Joint Stock Company	2009	1. Improve kiln combustion efficiency by	< 14months
			- Fixing the leak & reducing false air ingress at the preheater section	
			- Reducing marginally the sintering level of Clinker	
			2. Optimize the air flow to the grate cooler and reduce the vent air losses	1 year
			3. Utilise cooler/cooler vent air as primary air	
			4. Generate electricity from the Waste heat of PH exhaust & Cooler Vent streams	
			5. Install variable frequency drive for identified fan of clinker cooler system	
2	But Son Cement Company	2009	6. Install energy-efficient grinding equipment for coal	
			7. Modify open circuiting in line 1 cement mill grinding into closed circuiting	
			1. Improve kiln combustion efficiency by	< 15months
			- Fixing the leak & reducing false air ingress at the preheater section	
			- Reducing marginally the sintering level of Clinker	
			2. Optimize the air flow to the grate cooler and reduce the vent air losses	2.5 year
			3. Utilise cooler/cooler vent air as primary air	
			4. Replace air cooled Turbulator with Refractory lined turbulator	
			5. Improve insulation at preheaters ducts & Kiln internally	
			6. Generate electricity from the Waste heat of PH exhaust & Cooler Vent streams	
3	Da Nang Steel Joint Stock Company	2009	7. Install variable frequency drive for identified fan of clinker cooler system	
			8. Install a separate compact fan for cooler exhaust in place of existing cooler fan 1451	
			9. Install soft starting device for exhaust fan 1268 of raw mill	
			10. Improve production of cement mill by optimising mill velocity fan	
			1. improve the EAF with eccentric bottom tapping and side walls of water-cooled panels	
4	Tam Diep Cement Company	2009	2. Install two 12T induction furnaces at the scrap bay to facilitate liquid charge to EAF	
			3. Preheat the scrap by installing a scrap bucket preheat-chamber near the EAF	
			4. Replace the Ladle Peheater burner with a recuperator burner	
			5. Replace the pld recuperator at the reheating furnace with a suitably designed new recuperator	
			1. Improve kiln combustion efficiency by	< 20months
			- Fixing the leak & reducing false air ingress at the preheater section	
5	Thai Nguyen Iron and Steel Joint Stock Corporation	2009	- Reducing marginally the sintering level of Clinker	
			2. Improve the clinker distribution at the grate cooler and cooler performance	< 12months
			3. Utilize cooler vent air as primary air	
			4. Generate Electricity from the waste heat rejected at the cooler & preheater exhaust streams	
			5. Install variable frequency drive for identified fan of clinker cooler	< 20months
			6. Modify the discharge duct of preheater fan (341) to reduce pressure loss	
6	Asia Food Processing Co., Ltd (AFC)	2010	7. Optimize energy use in the air blower motor drives (P1 - 1102 & P2 - 1103)	
			8. Optimize energy use in the exhauster fan motor drives (D190-31-1/2)	
			1. Convert to Coke Dry Quenching system to recover heat & electricity	
			2. Improve combustion efficiency at the heating walls of CO batteries and change to mixed gas firing	
			3. Reduce Coke Rate by injecting pulverized Coal at the Tuyeres of the Blast Furnaces	
			4. Improve BF gas cleaning plant and distribution sytem to divert vented BF Gas to CO batteries for mixed gas-firing	
			5. Replace the standard burner in the ladle preheater with a recuperative type burner	
			6. Install a new compact improved design recuperator in rolling mill furnace to enhance flue gas waste heat recovery	11months
7	Dong An Co.,Ltd	2010	1. Replace tolelight with T10 lamps	34months
			2. Reduce working pressure of 1.5T/hr boiler	
			3. Install one powder tank	13months
8	Tan Long Paper Factory	2010	1. Lighting system - Use efficient lighting system	13months
			2. Block ice machine - optimize and control effective power	34months
			3. Operating and managing opportunities - use properly mechanisms for 3 electricity prices	
9	Thai Duong Private Enterprise	2010	4. Recover heat from flue gas to heating boiler feed water	9months
			4. Replace boiler with a new one	19months
			1. Replace fluorescent lamp T10 with T8	14months
			2. Install VSD for coater motor	20 months
			3. Replace new boiler	48 months

No.	Enterprise	Year	Recommended Solutions	Payback Period
10	Tho Quang Seafood Processing and Export Company	2010	1. Use high efficiency lighting system	13 months
			2. Install loading monitoring equipment and soft starter for compressor motor of 75 kW flake ice machine	36 months
			3. Optimize the cooling system for compressors of Contact Freezer and flake ice maker	46 months
			4. Accumulated cold during low hours to use for air conditioning and producing flake ice in nomar hours	37 months
11	Phu Dong Textile Co.,Ltd	2010	1. Replace T10 lamps with T5 lamps	12 months
			2. Install VSD for motors of sizing and beaming machines.	17 months
			3. Replace new boiler	32 months
12	Phuoc Tien General Trading Company (FUTCO., LTD)	2010	1. Improve factories lighting system	18 months
			2. Use solar energy to dry instead of wood firing boiler	32.4 months
			3. Improve tuna fish drying rooms	12 months
13	Viet A Co.,Ltd	2010	1. Install newly production line of beer ouring automatically according to German technology	54 months
			2. Install CO2 recovery system to supply to fermentation system	21 months
			3. Replace old refrigerant compressor with higher efficiency compressor	22 months
14	Hai Vuong Seafood Company	2010	1. Change location of the cooling tower in zone 1	
			2. Install VSD for feed water pump in zone 1	
			3. Install VSD for cooling water pumps	
			4. Change location of the cooling tower in zone 2	
			2. Install VSD for feed water pump in zone 3	
			3. Install VSD for cooling water pumps in zone 3	
			7. Heat insulation for gas pipeline in zone 3	
			8. Install water filter system	
			9. Replace current lamps with T5 lamps	
			10. Replace current v-belt with timing belt	
15	Hai Vuong Seafood Company	2010	1. Split AC system into two separate clusters	
			2. Install VSD for chilled water pump of air conditioning system	
			3. Split cooling water pump of AC system into 2 separate clusters	
			4. Install VSD for 2 cooling water pumps of AC system	
			5. Install VSD for the cooling water pump of 300HP Compressor	
			6. Install cooling water pumps for cold rooms (D1 & D2)	
			7. Install water filter system	
			8. Replace current fluorencent lamps with T5 lamps	
			9. solutions for motors of water treatment system	
16	Vietyear Steel Pipe Co., Ltd	2010	1. Establish energy management system	
			2. Turn the main pump of rolling machine off when not in use	
			3. Improve lighting system	0.91 year
			4. Reuse water during washing process and cooling pipes after plating	0.45 year
			5. Recover wasted heat from boiler to preheat feed water	0.86 year
			6. Recover wasted heat from furnace to preheat steel pipe before plating	0.53 year
			7. Install energy management device for motors	1.68 year
17	Dong Hai Ceramic Joint Stock Company	2011	1. Establish energy management system	
			1. Improve factories lighting system	
			3. Replace motor of the 3T grinding machine with high efficiency motor (HEM)	0.73 year
			4. Replace motor of glaze grinding machine with HEM	2.54 year
			5. Replace motor of continuous kiln with HEM	2.48 year
			6. Recover heat from flue gas of kiln	
18	Pacific Hotel		1. Energy saving solutions for lighting system	1.83 year
			1. Energy saving solutions for air conditioning system	2.63 year
			1. Energy saving solutions for hot water system	2.23 year
			4. Replace new booster pump	7.46 year
19	TDL Co.,Ltd	2011	1. Establish energy management system	
			2. Lower water consumption	1.9 year
			3. Replace current lighting system with high efficiency lighting system	1.7 year
			4. solutions for air conditioning system	2.8 year
20	Hoa Khanh Textile JSC (Da Nang)	2010	1. Power control for cirulating pump of Zet dyeing machine according to actual demand	3.2 months
			2. Improve factories lighting system	6 months
			3. Power control of circulating pump of small bobin dyeing machine	32 months
			4. Install speed control device for screw compressor	15 months
21	March 29 Textile Garment Joint Stock Company (HACHIBA)	2010	1. Replace T10 fluorencent lamps with T8	1.1 year
			2. Install PowerBoss for motor of hydro extractor machine	1.66 year
			3. Install VSD for the air compressor motor	1.87 year
			4. Install "Sew saver" devices for sewing machine	1.83 year

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			5. Install LED lamps for sewing machine	2.19 year
			6. Replace oil firing boiler with coal firing boiler	0.68 year
22	Thien Tri Paper Co.,Ltd	2010	1. Replace T10 lamps with T5 lamps	1.5 year
			2. Replace 2 standard motors (75kW) of hydraulic grinding machines with high efficiency motors	1.89 year
			3. Replace 6 motors of disk mills (37 kW) with 6 high efficiency motor	2.4 year
23	Hung thinh Paper Co.,Ltd	2010	1. Establish energy management system	
			2. Heat insulation for few steam pipelines and condensing water pipelines	4.06 year
			3. Recover condensing water	0.02 year
			4. Replace VS motor with standard motor which installed VSD	2.85 year
			7. Install VSD for vacuum pump of paper machine no.1 & 2	1.88 year
			8. Install VSD for circulating pump of paper machine no.1 & 2	3.22 year
			7. Install VSD for vacuum pump of paper machine no.3	1.74 year
			8. Install VSD for circulating pump of paper machine no.3	3.23 year
			9. Improve natural light conditions for factories no 1 & 2	10 year
			10. Replace T10 Fluorencent Lamps with T5	4.5 year
24	ALTA Joint Stock Company	2011	1. Establish energy management system	
			2. Use high efficiency and saving energy lamps	1.3 year
			3. Replace new air compressor of install VSD	2.61 year
			4. Use high efficiency motors	2.75 year
			5. Insulating for the blowers to prevent heat losses	0.58 year
25	KYVY JSC	2010	1. Establish energy management system	
			2. Install capacitor cabinet for transformer station	0.33 year
			3. Use high efficiency lighting system	1.13 year
			4. Install VSD for 37 kW air compressor	1.04 year
			5. Install VSD for vacuum fan	1.02 year
			6. Replace 18kW grinding motor with high efficiency motor	4.27 year
26	Dana - Y Steel Joint Stock company	2010	1. Optimize operating power of air compressor	1.16 year
			2. Improve cooling system for steel furnace	0.8 year
			3. Optimize operating power for exhaust fan of kiln embryos	1.48 year
			4. Improve kiln to increase the efficiency of kiln	
			5. Build heat recovery system to supply heat for kiln	1.03 year
			6. Close tightly kiln door	
27	Vietyear tourism - Hanoi JSC (Green Bamboo Hotel)	2010	1. Hot water system - Use Solar water heating system	2.41 year
			2. Lighting system - Replace incandescent lamps with compact fluorencent lamps	0.28 year
			3. Lighting system - Replace T10 lamps with T8 & T5 lamps	0.94 year
28	Pham Thu Co.,Ltd	2010	1. Establish energy management system	
			2. Replace hydraulic motor no. 2 (100HP) with CMG high efficiency motor (60HP)	3.55 year
			3. Install VSD for vacuum pumps of paper machines	2.06 year
			4. replace motors of corrugated manufacturing by inverter controlled motor	8.93 year
			5. Replace VS motors of slitting, die-cutting machine by motors installed VSD	5.75 year
			6. Install VSD for waste water pump	1.13 year
			7. Install VSD for Air Blower	2.05 year
			8. Install tolelight at manufacturing areas	18.19 year
			9. Replace current lighting lamp with T5 lamp	2.06 year
			11. Reduce working pressure of boiler no.2 from 9 bar down to 4.5 bar	
			11. Reduce working pressure of boiler no.1 from 6.5 bar down to 5.5 bar	
			12. Recover condensing water to boiler	2.17 year
29	Pacific Steel JSC	2010	1. Improve lighting system	1.73 year
			2. Optimize air supply fan power for 132 kW furnace	2.43 year
			3. Recover heat from kiln flue gas to preheat steel material	0.71 year
			4. Optimize operation of air compressors system	1.98 year
			5. Install VSD for 2 cooling water pumps (75kW) of medium-frequency furnace	1.63 year
30	Song Duong Tissue Paper Company	2012	1. Establish energy management system	-
			2. Install Powerboss for two hydraulic motors	1.53
			3. Install VSD for dump chest pump and machine chest pump	0.51
			4. Install VSD for vacuum pump 220kW	0.8
			5. Install VSD for 90kW air compressor	0.8
			6. Replace 300 lamps of T8 with T5	0.5
			7. Recovery waste heat from flue gas by installing air preheater	0.4
31	Ha tien 1 Cement JSC - Binh phuoc Cement Plant	2012	1. Establish energy management system	-
			2. Improve cooler performance by uniform clinker distribution over the grate plates	1.67
			3. Utilize cooler vent air as primary air	2.02
			4. Generate electricity from the waste heat rejected at the cooler & preheater exhaust streams	5.17
			5. Replace T8 lamps with T5, mercury vapor lamps with sodium lamps	1.55

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			6. Install VSD for air compressor UA1CP01	0.23
32	Saigon - My xuan Paper Co., Ltd	2012	1. Establish energy management system	-
			2. Install VSD for 132 kW vacuum pump	0.48
			3. Install VSD for 22 kW air compressor	0.94
			4. Improve lighting system	1.02
			5. Insulating condensed water pipelines	0.87
33	Cai Lan Oils & Fats Industries Branch at Hiep Phuoc, HCM city	2012	1. Establish energy management system	0.51
			2. Install and synchronize more 90kW compressor integrated VSD	-
			3. Heat recovery from compressors system	0.59
			4. Treating scale in boiler by ultrasonic method	0.62
34	Garment MASCOT Vietnam	2012	1. Using window film for front side glass areas	1.18
			2. Replace all T8 lamps by T5 lamps	2.74
			3. Equip lamp switch in each working area	0.45
			4. Replace outdoor lamp by Solar Lamp	8.41
			5. Repair compressed air leakages	0
			6. Isolation and reduce inlet air temperature of compressors	0
			7. Control fresh air flow for air-conditioning unit through CO2 sensors in workshop	1.96
			8. Equip cooling storage for air-conditioning units in BWH	5
			9. Set up Energy Management System	4.78
35	Crown Ha Noi Co.,Ltd	2012	1. Set up Energy Management System	1.6
			2. Install VSD for 400kW air compressor	2.1
			3. Replace Vacuum pump motor with high efficiency motor	3
			4. Recovery waste heat from flue gas by installing water preheater	1.9
36	Goshi Thang Long Co.,Ltd	2012	1. Set up Energy Management System	1.48
			2. Replace all T8 lamps by T5 lamps	2.07
			3. Equip lamp switch in each working area	1.23
			4. Installation of air conditioning in each clustes wind work	0.55
			5. Isolation and reduce inlet air temperature of compressors	0
			6. Install VSD for 75kW air compressor	0.41
			7. Recovery waste heat from flue gas by installing air preheater	2.59