



****Private & Confidential****

Energy Reduction Headlines: WOS MAN Case Study

Introduction

EcoEnergy Consultancy focus on areas, issues and categories such as:-

- Site assessment / energy audit
- Energy benchmarking / best practices
- Renewable energy technology assessment
- Feasibility studies
- Photomontage images
- Financial planning
- Environmental Impact Assessment eg ecology, noise, landscape, etc
- Planning applications & related issues
- Project management of installations, maintenance, decommissions
- Facilities management of renewables

Summary

Client:	Confidential*
Location:	West of Scotland
Industry:	Electronics Manufacturing
Turnover:	£37m (Group > £1bn)
Profit:	£11.5m
Employees:	468
Remit:	Reduce energy usage / bills

* Consultancy client unable to publish corporate information due to industry sensitivities

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As per our remit, we conducted in-depth reviews and studies of the energy consumption and usage of the client's main assets including:

- general property & associated overheads
- manufacturing processes
- ordering, storage & delivery costs/methods
- office functions
- employee procedures

The results of the reviews and feasibility studies identified considerable scope for reductions in actual power consumed and the opportunities to reduce operating and incurred energy costs- ***an example of implemented recommendation projects are detailed on attached table.***

The costs of the energy saving projects range from zero capital investment and immediate energy savings to modest capital investment but an average **investment payback of less than 6 months** has been achieved across the vast majority of projects carried out.

The energy saving actions that the expertise at EcoEnergy has worked on and have successfully implemented for the WOS MAN client, has resulted in the **energy savings & reductions** of:

Annual Saving

Electricity & natural gas consumed: 37 Million kWh

Actual energy costs: £1.5 Million (50%)



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Examples of recommended & implemented energy saving projects

PROJECT	SAVING PER ANNUM (kWh)	SAVING PER ANNUM (£)	PROJECT COST (£)	SIMPLE PAYBACK (Months)	CARBON SAVINGS (Tonnes CO2)
Switching off excess equipment surplus to requirements	2,080,000	£139,103	£850	0.1	894
Rebalance heating control valves in air-handling units to prevent overheating (gas)	3,699,010	£93,487	£480	0.1	1,591
Reduce site wide fan filter unit speeds to match actual requirements	873,600	£58,127	£800	0.2	376
Reduce the house vacuum pumps running from 3 to 2 to match site requirements	288,288	£19,279	£100	0.1	124
Programming and activation of off-peak controls on office air conditioning systems	262,080	£17,438	£1,100	0.8	113
Switching off of non-essential air-handling units & use of natural ventilation	87,360	£5,813	£100	0.2	38
Reduction in fan speed of support area air-handling units	43,680	£2,906	£100	0.4	19
Rebalance chilled water & close 3rd port on control valves for site temperature control	174,720	£11,301	£950	1.0	75
Survey entire make up air system blank off open ends & reduce fan speeds using variable speed drives	1,560,000	£76,358	£7,500	1.2	671
Install off-peak timer on canteen kitchen exhaust fan	131,040	£8,719	£500	0.7	56
Install variable frequency drive on canteen & office supply fan	157,248	£10,463	£3,000	3.4	68
Survey entire exhaust systems, replace non-return dampers, reduce fan speeds using variable speed drives	338,000	£16,544	£7,500	5.4	145
Install variable speed drives on water treatment plant pumps	683,656	£44,219	£96,000	26.1	294
Reconfigure cooling systems secondary pumps from 2 duty pumps to 1 with auto changeover	262,080	£8,852	£1,140	1.5	113
Shutdown excess floor space / accommodation	436,800	£29,063	£980	0.4	188
Install variable frequency drives on gas bunker exhaust fans	208,000	£10,181	£2,100	2.5	89
Install of variable speed drives on incoming raw water pumps	175,000	£5,561	£2,950	6.4	75
Close excess production areas and consolidate into one building	20,800,000	£740,261	£1,000,000	16.2	8,944
Install "free-cooling tower" on cooling water system	2,600,000	£87,812	£116,000	15.9	1,118
Install new bulk gases plant	900,000	£46,658	Lease	Lease	387
Install new compressor fitted with a variable frequency drive	1,040,000	£35,125	Lease	Lease	447
TOTAL	36,800,562	£1,467,269	£1,242,150	10.2	15,824