

Example Energy Management Plan

Some generic guidelines,
the foundation of a 5-year Action Plan



Example Energy Management Plan

Management Actions

Category:	Immediately	In next 12 months	In next 3 years	In next 5 years
Responsibilities	Document existing (ad hoc) energy management responsibilities. Determine how it should be structured. Form an initial energy management team from facilities and energy staff.	Write energy management into the job descriptions of staff on the energy management team. Appoint a senior energy manager to the team. Establish regular meetings to review and direct progress on plan. Consider a full time energy manager position.	Continue regular productive meetings. Appoint a dedicated energy manager, if needed. Energy team to report to top level management in a succinct and accessible manner.	Energy manager and energy team continue managing energy optimisation programme. Continue presenting good reports to top management and stakeholders.
Strategy	Circulate and communicate first 5 yr mgmt plan. Set initial targets.	Detailed, realistic 12 month+ energy management plan for each area.	Update the energy management plans to match actual experience.	Update the energy management plan to exploit new opportunities.
Savings Targets	Set targets - perhaps a 10% reduction of energy use within 5 years. This should be benchmarked per m2. It should also be broken down into year by year targets - eg: 4% saving after 1 year, 6% after 2 years etc.	Review the savings achieved and update targets. Adjust the action plans accordingly.	Review the savings achieved and update targets. Adjust the action plans accordingly.	Review the savings achieved and update targets. Adjust the action plans accordingly.
Budgets	Determine what the appropriate funding streams are, and determine what procedures and timeframes are needed to access the funding.	Submit next years budget to top level management early with a good plan - accurate costs estimated.	Consistently achieve budget deadlines for capital and operational funding.	Maintain effective budget management.
Staff Training	Send 2 staff members to an energy management course followed by a presentation to senior management.	Send 2 more staff to an energy management course or run in-house seminars.	Expand energy management training to include all staff who can influence energy use.	Expand energy management training to include all staff.

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Analytical Actions

Category:	Immediately	In next 12 months	In next 3 years	In next 5 years
Energy Purchase Analysis		Check all monthly invoices and some half hourly data for accuracy and report results. Is the price OK? Is the consumption reasonable?	Continue to analyse energy purchases to minimise costs.	Continue to analyse energy purchases to minimise costs.
Energy Contracts & Tariff Selection/Analysis	Prepare to get new energy contracts.	Secure new electricity and gas contracts to avoid unmanaged price risk.	Secure new electricity and gas contracts to avoid unmanaged price risk.	Secure new electricity and gas contracts to avoid unmanaged price risk.
		The terms of all new energy accounts should be scrutinised. Each account should be integrated into the purchase system.	Any new accounts should be planned and well managed.	Continue managing new accounts.
Energy Trend Analysis	Consider which meters to web-enable and where sub-meters are needed.	Enable the meters and analyse the data. Are the savings targets being achieved?	Install and manage any other meters needed.	Install and manage any other meters needed.
		Begin monthly trend analysis of daily data. Identify changes in energy use patterns.	Automate the trend analysis.	Maintain operation of automated trend analysis.

Example Energy Management Plan

Technical Actions

Category:	Immediately	In next 12 months	In next 3 years	In next 5 years
Audits	Complete a nationwide level 1 energy audit on all the sites.	Complete level 2 energy audits on 10 sites with high energy consumption.	Ongoing reporting and auditing primarily to detect any exceptions in energy use patterns.	Maintain an energy audit database of major energy using sites.
		Complete level 3 energy audits at major sites where useful.	Complete level 2 energy audits on all other sites with high energy consumption.	Re-audit some of the first sites, based on experience.
			Complete level 3 energy audits at major sites where useful.	
Operational Changes	Notify staff of the recommendations resulting from the level 1 audit report.	Implement the recommendations with the following process: specify the recommendation, consult the appropriate staff, authorise and document the work and then check the changes.	Optimise operational changes using "continuous commissioning".	Optimise operational changes using "continuous commissioning".
		Analyse the preventative maintenance planned for facilities.	Optimise the preventative maintenance of facilities.	Optimise the preventative maintenance of facilities.
Capital Improvements		Notify the staff of the recommendations resulting from the level 2 audit reports, and begin to implement improvements.	Implement the recommendations with the following process: specify the recommendation, prepare a detailed design with a cost and time schedule, engage contractors, commission systems.	Further implementation and commissioning of recommendations from energy audits.
Monitoring and Verification			Use portable loggers to short-term monitor the capital improvements. Create a link to a trend analysis to confirm the savings persist.	Continue monitoring and verification of capital improvements.
New Construction & Fitouts		Develop a standard design brief incorporating energy use.	Refine the design brief based on experience.	Re-refine design brief(s).
		Work with the architects to demonstrate a space which exhibits "best-practice" for energy use. This will include the best lights, HVAC, windows etc.	Improve the energy efficiency of the demonstration spaces based on experience. Develop a method of assessing the productivity of staff in these spaces.	Publish the results of the case studies on the demonstration space as part of a public relations campaign.

Example Energy Management Plan

Management Costs and Benefits

Action:	Costs			Benefits		
	After Year 1	After Year 3	After Year 5	After Year 1	After Year 3	After Year 5
Assign energy management responsibilities	6 people on energy management team, each working for 2 hours/month x 12 mon/yr = 144 hrs/yr = \$8,600/yr @ \$60/hr	6 people on energy management team, each working for 2 hours/month x 12 mon/yr = 144 hrs/yr = \$8,600/yr @ \$60/hr. Plus the cost of an energy manager @ \$60,000/yr. Total = \$69,000/yr	6 people on energy management team, each working for 2 hours/month x 12 mon/yr = 144 hrs/yr = \$8,600/yr @ \$60/hr. Plus the cost of an energy manager @ \$60,000/yr. Total = \$69,000/yr			
Develop energy strategy	6 people on energy management team meeting for 3 hours, twice a year = 36 hrs/yr = \$2,100/yr @ \$60/hr	The strategy has already been developed and therefore only needs a review, which will take considerably less time - approximately 10 hrs/yr = \$600/yr	The strategy has already been developed and therefore only needs a review, which will take considerably less time - approximately 10 hrs/yr = \$600/yr			
Set savings targets	Included in the development of the energy strategy above.	The targets will need to be reviewed to ensure they are still reasonable. This will take the energy management team approximately 36 hrs/yr = \$2,100/yr	The targets will need to be reviewed to ensure they are still reasonable. This will take the energy management team approximately 36 hrs/yr = \$2,100/yr	Management actions on their own will not accrue any energy savings		
Plan budgets	This will take the energy management team approximately 50 hrs/yr = \$3,000/yr	This will take the energy management team approximately 50 hrs/yr = \$3,000/yr	This will take the energy management team approximately 50 hrs/yr = \$3,000/yr			
Staff training	Sending 2 staff members away on the training course, with a presentation to senior management following will take about 50 hours each = 100 hrs @ \$60/hr = \$6,000/yr	Sending 2 staff members away on the training course, with a presentation to senior management following will take about 50 hours each = 100 hrs @ \$60/hr = \$6,000/yr	Expanding the energy management training will increase the costs by approximately twice - \$12,000/yr			

Example Energy Management Plan

Analysis Costs and Benefits

Action:	Costs			Benefits		
	After Year 1	After Year 3	After Year 5	After Year 1	After Year 3	After Year 5
Analyse energy purchases	EnergyPro (or equivalent software package) will have a capital cost of about \$15,000. In the first year it will take a while to become familiar with the programme and thus require an average 20 hours/month = 240 hrs/yr @ \$60/hr = \$14,400. The total cost is therefore about \$30,000/yr	The speed of using the programme will increase, thus requiring only about 10 hrs/month of staff time @ \$60/hr = \$7,200/yr	The speed of using the programme will increase, thus requiring only about 10 hrs/month of staff time @ \$60/hr = \$7,200/yr	We expect savings to be approximately 2% of annual expenditure - \$28,000/yr	We expect savings to be approximately 2% of annual expenditure - \$28,000/yr	We expect savings to be approximately 2% of annual expenditure - \$28,000/yr
Ensure best energy contracts secured	The typical cost of negotiating a 2 year electric energy contract is about \$5,000/yr	The typical cost of negotiating a 2 year electric energy contract is about \$5,000/yr , which could be part of the energy managers job description.	The typical cost of negotiating a 2 year electric energy contract is about \$5,000/yr , which could be part of the energy managers job description.	We expect savings to be approximately 5% of annual expenditure - \$70,000/yr	We expect savings to be approximately 5% of annual expenditure - \$70,000/yr	We expect savings to be approximately 5% of annual expenditure - \$70,000/yr
Analyse trends in energy use	This depends on how many sites are analysed and the ease of collecting the data. A best case scenario would be to analyse 6 sites for 1 hr/month, over 12 months = 72 hrs/yr @ \$60/hr = \$4,300/yr	The costs of analysis are likely to drop as the efficiency of the system improves. It may drop to \$3,000/yr	The costs of analysis are likely to drop as the efficiency of the system improves. It may drop to \$2,000/yr	We expect savings to be approximately 2 - 5% of annual expenditure - \$50,000/yr	We expect savings to be approximately 2 - 5% of annual expenditure - \$50,000/yr	We expect savings to be approximately 2 - 5% of annual expenditure - \$50,000/yr

Example Energy Management Plan

Technical Costs and Benefits

Category:	Costs			Benefits		
	After Year 1	After Year 3	After Year 5	After Year 1	After Year 3	After Year 5
Perform audits	1 level 1 energy audits @ \$5,000, 10 level 2 energy audits @ \$3,000 = \$30,000 and 1 level 3 audit @ \$5,000. This gives a total of \$40,000/yr	Another 15 level 2 energy audits @ \$3,000 = \$45,000 and 1 level 3 audit @ \$5,000. This gives a total of \$25,000/yr (\$50,000 over 2 years)	Repeat 5 level 2 energy audits @ \$3,000 = \$15,000. This gives a total of \$7,500/yr (\$15,000 over 2 years)	The audits in isolation will not save any energy		
Implement operational changes	11 sites (10 level 2 audits and 1 level 3 audit), which will take about 2 hours a month to undertake the operational changes = 264 hrs/yr @ \$100/hr = \$27,000/yr	27 sites (16 new audits plus the 11 audits in the first year), which will take about 2 hours a month to undertake the operational changes = 648 hrs/yr @ \$100/hr = \$65,000/yr	There are no new operational changes so the cost will remain at \$65,000/yr	The 11 audits completed thus far will save about 10% of the annual energy expenditure at each site (estimated as \$35,000/yr) in operations and maintenance. 11 sites x \$35,000/yr x 10% = \$38,000/yr	The 27 audits completed thus far will save about 10% of the annual energy expenditure at each site (estimated as \$35,000/yr) in operations and maintenance. 27 sites x \$35,000/yr x 10% = \$95,000/yr	The 27 audits completed thus far will save about 10% of the annual energy expenditure at each site (estimated as \$35,000/yr) in operations and maintenance. 27 sites x \$35,000/yr x 10% = \$95,000/yr
Implement capital improvements	Capital projects will be implemented on the 11 audited sites, which we assume have an annual expenditure of about \$35,000/yr. We assume the projects will save 10% of their annual expenditure with a 2 year simple payback. 11 sites x \$35,000/yr x 10% x 2 yr SPB = \$77,000/yr	Capital projects will be implemented on the 16 new audited sites, which we assume have an annual expenditure of about \$35,000/yr. We assume the projects will save 10% of their annual expenditure with a 2 year simple payback. 16 sites x \$35,000/yr x 10% x 2 yr SPB = \$112,000 over 2 years = \$56,000/yr	There are no new capital projects.	The 11 audits completed thus far will save about 10% of the annual energy expenditure at each site (estimated as \$35,000/yr) from capital projects. 11 sites x \$35,000/yr x 10% = \$38,000/yr	The 27 audits completed thus far will save about 10% of the annual energy expenditure at each site (estimated as \$35,000/yr) from capital projects. 27 sites x \$35,000/yr x 10% = \$95,000/yr	The 27 audits completed thus far will save about 10% of the annual energy expenditure at each site (estimated as \$35,000/yr) from capital projects. 27 sites x \$35,000/yr x 10% = \$95,000/yr
Monitor success of capital projects	5 sites, each costing about \$2,000 to commission, monitor and verify the performance following the energy audits - \$10,000/yr	5 sites each year, each costing about \$2,000 to commission, monitor and verify the performance following the energy audits - \$10,000/yr	5 sites each year, each costing about \$2,000 to commission, monitor and verify the performance following the energy audits - \$10,000/yr	We estimate the performance of the capital projects will be improved by 25%. \$35,000/yr x 25% = \$9,000/yr	We estimate the performance of the capital projects will be improved by 25%. \$95,000/yr x 25% = \$9,000/yr	We estimate the performance of the capital projects will be improved by 25%. \$95,000/yr x 25% = \$9,000/yr
Improve energy efficiency of new construction work	This depends on the amount of new construction and change in capital costs. We estimate \$20,000/yr	This depends on the amount of new construction and change in capital costs. We estimate \$20,000/yr	This depends on the amount of new construction and change in capital costs. We estimate \$10,000/yr	This depends on how much new construction work is completed. We estimate \$20,000/yr	This depends on how much new construction work is completed. We estimate \$60,000/yr (\$20,000 more each year)	This depends on how much new construction work is completed. We estimate \$100,000/yr (\$20,000 more each year)

Example Energy Management Plan

Management Rationale

Action:	Rationale	Costs			Benefits		
		After Year 1	After Year 3	After Year 5	After Year 1	After Year 3	After Year 5
Assign energy management responsibilities	Energy management will receive more focused attention. Processes will be more efficient when the staff duties are clearly identified. An energy manager will give leadership to the energy management team, provide better direction and encourage progress.	\$8,600/yr	\$69,000/yr	\$69,000/yr			
Develop energy strategy	Feedback on the energy management plan will enhance the acceptance of the plan and unify the objectives. It will ensure the goals of the plan are realistic. The usability of the plan will be optimised after a process of refinement. A customised plan for each area will also increase usability, which leads to more effective performance.	\$2,100/yr	\$600/yr	\$600/yr	Management actions on their own will not accrue any energy savings		
Set savings targets	A clear objective is necessary for motivation towards achieving energy savings.	-	\$2,100/yr	\$2,100/yr			
Plan budgets	The speed of securing funding for projects will increase because the administration time will decrease. Requests for funding will be accepted more readily.	\$3,000/yr	\$3,000/yr	\$3,000/yr			
Staff training	The staff will be up-skilled and the senior management will become more involved in energy management.	\$6,000/yr	\$6,000/yr	\$12,000/yr			
Total		\$19,700/yr	\$80,700/yr	\$86,700/yr			

Example Energy Management Plan

Analysis Rationale

Action:	Rationale	Costs			Benefits		
		After Year 1	After Year 3	After Year 5	After Year 1	After Year 3	After Year 5
Analyse energy purchases	Billing errors occur quite regularly. It is worth while to check that each invoice is correct before paying it to avoid being over charged. A good inventory of sites will make energy management a lot easier.	\$30,000/yr	\$7,200/yr	\$7,200/yr	\$28,000/yr	\$28,000/yr	\$28,000/yr
Ensure best energy contracts secured	A far better price will be secured if the contract is tendered well before the current contract expires. It could also mean a longer term contract is available. Knowing the exact details of all the energy contracts should mean there are no unexpected costs.	\$5,000/yr	\$5,000/yr	\$5,000/yr	\$70,000/yr	\$70,000/yr	\$70,000/yr
Analyse trends in energy use	Web-based meters provide a highly effective means of monitoring energy use. Sub-meters provide a level of detail not possible from simply studying the invoices. Most energy efficiency improvements are made by solving anomalies. Analysing the data will reveal these anomalies. Daily data could reveal unusual energy use patterns not revealed by monthly data.	\$4,300/yr	\$3,000/yr	\$2,000/yr	\$50,000/yr	\$50,000/yr	\$50,000/yr
Total		\$39,300/yr	\$15,200/yr	\$14,200/yr	\$148,000/yr	\$148,000/yr	\$148,000/yr

Example Energy Management Plan

Technical Rationale

Category:	Rationale	Costs			Benefits		
		After Year 1	After Year 3	After Year 5	After Year 1	After Year 3	After Year 5
Perform audits	Energy audits are the logical next step towards finding energy savings at each site. This will develop a usable inventory of sites with basic details of the energy use patterns of each. The larger sites justify a more detailed investigation to find energy savings.	\$40,000/yr	\$25,000/yr	\$7,500/yr	The audits in isolation will not save any energy		
Implement operational changes	It is important to have a clearly planned process of implementing recommendations so that it is done quickly and correctly. Good maintenance strategies lead to energy savings without capital investment.	\$27,000/yr	\$65,000/yr	\$65,000/yr	\$38,000/yr	\$95,000/yr	\$95,000/yr
Start capital projects	Implementing capital projects will start the process of achieving energy savings.	\$77,000/yr	\$56,000/yr	-	\$38,000/yr	\$95,000/yr	\$95,000/yr
Monitor success of capital projects	It is important to check that the capital projects are achieving the energy savings expected of them. Documenting the savings will provide justification for the expenditure.	\$10,000/yr	\$10,000/yr	\$10,000/yr	\$9,000/yr	\$9,000/yr	\$9,000/yr
Improve energy efficiency of new construction work	Energy use will become a consideration for all new construction and the administration of the design process will be sped up. As well as providing a future public relations opportunity, it will provide the design team with experience of how to optimise energy efficiency.	\$20,000/yr	\$20,000/yr	\$10,000/yr	\$20,000/yr	\$60,000/yr	\$100,000/yr
Total		\$174,000/yr	\$176,000/yr	\$93,000/yr	\$105,000/yr	\$259,000/yr	\$299,000/yr