

Module 3: Assessing the Organisation

Organisational capacity for energy management can be related to six key functions:

- ◆ Policy and planning
- ◆ Organisational structure for energy management
- ◆ Skills and knowledge of employees
- ◆ Marketing of and communicating about energy efficiency
- ◆ Energy information management
- ◆ Financing of energy management

This module provides a means of assessing the capacity of the organisation relative to these six functions, and of action planning to develop capacity. The Energy Management Matrix and other subsidiary assessment matrices developed in the UK are used as a basis for assessment and planning.

Module 3 Learning Objectives

After completing this module you will be able to:

- ◆ Assess the organisation in regard to six critical management functions;
- ◆ Use the organisational assessment to build consensus around energy the critical issues, and to plan actions that will increase organisational capacity.

3.1 Assessing your Organisation – The Energy Management Matrix

In assessing the organisation's preparedness to implement, or progress in implementing, an energy management strategy, it is important to consider all three aspects that were raised earlier: the organisational, the human and the technical factors.

The Best Practice Program in the UK has produced a matrix that is a very useful tool to carry out this assessment. This matrix has been devised to:

- ◆ help you identify and describe the current priority attached to different aspects of energy management in your organisation
- ◆ indicate alternative ways of organising energy management.

3.1.1 How to use the matrix

To use the matrix you need to identify those issues that are currently more critical or more in need of review than others. Detailed guidance on how to do this is given below.

In summary you should:

- ◆ profile your organisation on the matrix
- ◆ concentrate on those columns where you can make the most progress
- ◆ identify obstacles to progress and decide how these might be overcome

- ◆ identify opportunities for improvement and decide how these can be exploited
- ◆ involve others, both senior managers and end users, in this process.

3.1.2 Description of the matrix

The matrix provides a quick, easy to use but effective method to establish your **organisational profile**. As seen in Figure 3.1, each column of the matrix deals with one of six organisational issues: policy, organisation, motivation, information systems, communicating and investment. The ascending rows, from 0 to 4, represent increasingly sophisticated handling of these issues. Your aim is to move up through these levels towards current 'best practice' and, as you do so, to develop balance across the columns.

3.1.2.1 The Levels

The performance descriptions for each strategic element are given in the matrix cells. However, it is useful first to characterise the organisation in general based on the levels 0 through 4.

At **Level 0**, energy management is non-existent. There is no energy policy, no formal assignment of responsibility for energy management, no deliberate training. Energy consumption is not monitored, and there is no program to create awareness of energy use within the organisation.

At **Level 1**, there is some commitment to addressing energy use, even though there is no explicit policy. Awareness of energy efficiency as a corporate concern is created informally, but monitoring of energy use is done only to a very limited extent.

At **Level 2**, senior managers accept the importance of energy management, but there is little active support for energy management functions. Some responsibility for energy management has been allocated, usually within a technical department, and there may be some communication on these matters with other departments. The main weakness of the organisation at this level is the lack of commitment from top management.

At **Level 3**, energy management is taken more seriously by senior managers and is an integral element of overall organisational management. Energy costs may be charged back to energy account centres or operating departments. There is a comprehensive system of energy data collection, analysis and reporting, and there is a program of promotion and investment in energy efficiency.

At **Level 4**, there is a clear delegation of responsibility for energy consumption throughout the organisation. Those who are so designated—energy managers, energy committee chairs, etc.—regularly use informal and formal communication channels to promote energy efficiency throughout the organisation. The information system is comprehensive, and energy consumption information is regularly monitored against specific targets; cost-benefit analysis of measures is routinely carried out. There is very evident commitment to energy management at the most senior levels.

3.1.2.2 Organisational profile

When you draw a line through each of the matrix cells which best describes your organisational approach to energy management, you will probably find that some aspects are more advanced or sophisticated than others. This is not unusual. Your organisational profile will show you those aspects where some further attention is required to ensure energy management is developed in a rounded, effective way.

Only by developing energy management evenly will you be sure of getting the most out of your investment.

3.1.2.3 Using the matrix to promote organisational change

If you are going to help bring about the organisational changes and development required to improve energy management, you need a way of:

- ◆ identifying the issues with the highest priority
- ◆ assessing the quality and level of support which you are being given
- ◆ focussing on the present situation and identifying where the organisation should go next.

3.1.2.4 Establishing your organisational profile (Source: *Good Practice Guide 306, Energy Management Priorities – A Self-assessment Tool*)

There are ten straightforward steps to using the matrix as a tool for assessment, for building consensus on the issues, and for planning.

Step 1: Make a photocopy of the matrix from Figure 3.1. Consider each column, one at a time. Mark the place in each column that best describes where you think you are currently located. Place your mark in the appropriate cell or between cells if you think this is more accurate.

Step 2: Then join up your marks across the columns to produce a graph line. This is your Organisational Profile. It will give you an overall indication of how balanced energy management is in your organisation.

Don't worry if the Profile is uneven. This is the case in most organisations. The peaks represent where your current effort is most sophisticated. The troughs indicate where you are least advanced.

Step 3: Make a second photocopy of the matrix and ask your line manager to repeat the process, marking it up in the same way.

Step 4: Compare your Organisational Profiles. Where they disagree, discuss your assessments to see if you can reach an agreed compromise position. If you can agree on the Profile, draw it on a third photocopy. If you can't agree, draw both Profiles on and label them as your separate views. Do not regard failure to agree as a problem. It simply reflects your different viewpoints and understanding.

Even if you agree, you may find it instructive to ask others to fill in the matrix, particularly if they are involved with the management of energy consuming systems. Their Profiles will tell you how others in your organisation see energy management. This can help you obtain a broader perspective on the issue in terms of organisational strengths and weaknesses. Where you have collected this information, include their labelled Profiles on the third photocopy.

Step 5: Working on your own, decide which columns contain issues that are most important in your own particular circumstances. Choose two columns where you would most like to see a change or improvement. Then list what you see as the five main obstacles impeding your progress to the next level up in each of these columns. Then identify three key opportunities for improving your performance.

It will not always be the columns with the lowest score that warrant immediate attention. If the obstacles you identify seem insurmountable from where you stand, or if there are no obvious opportunities for improvement, then you may be better off

investing your limited time and attention elsewhere. Remember too that others in your organisation's hierarchy or located in other departments, may be able to remove obstacles or to create opportunities which are simply not open to you. Try to identify where this is so and what they need to do if they are to help.

Step 6: Ask your line manager to repeat this process.

Step 7: Again compare your lists. If you disagree, try to reach a consensus. If you can't, simply amalgamate your lists of obstacles and opportunities.

Step 8: Pass a photocopy of the matrix to your senior managers and ask them to repeat the exercises done by you and your line manager. Ask them to return the results to you for collation. Include their Organisational Profiles on the third photocopy.

Step 9: Write up the collated results in a report to your senior managers. Include all the labelled Organisational Profiles on the matrix and the collated lists of obstacles and opportunities. End with a set of recommendations proposing how identified obstacles can be overcome and how opportunities can be exploited. Where you are unable to do this, table a series of questions for senior managers asking what they believe needs to be done to improve the present situation.

Step 10: Use the dialogue started by these exercises to construct, in negotiation with your senior managers, an Action Plan for improving energy management over the next twelve months. Include some interim milestones and specify:

- ◆ who is responsible for taking each of the actions listed,
- ◆ and how progress is to be measured at the end of the period.

One possible method for measuring progress is to use the Energy Management Matrix at the end of the period to identify how the Organisational Profile has changed.

3.1.2.5 Interpreting your profile

Experience suggests that organisations that have balanced profiles (as in Figure 3.2)—that is, scores in each column that are roughly equal—progress better than those with unbalanced profiles (Figure 3.3). Therefore, an important use of the matrix is the identification of those areas—the ones with the lowest scores—that should be addressed to bring the profile into balance. This is a valuable tool for action planning, as discussed in Section 3.2.

Figure 3.1: The Energy Management Matrix

	Energy Policy	Organising	Skills & Knowledge	Information Systems	Marketing & Communicating	Investment
4	Energy policy, action plan and regular review have commitment of top management as part of a business & environmental strategy "	Energy management fully integrated into management structure. Clear delegation of responsibility for energy consumption. "	All energy users receive specific energy training integrated into other development activities. Workshops facilitate a sharing of knowledge. "	Comprehensive system sets targets, monitors consumption, identifies faults, quantifies savings and provides budget tracking. "	Communicating the value of energy efficiency and the performance of energy management within the organisation and outside. "	Positive discrimination in favour of green schemes with detailed appraisal of all new-build & refurbishment opportunities. "
3	Formal energy policy but no active commitment from top management. "	Energy manager accountable to energy committee representing all users, "	Key energy users receive regular and specific training. Brief awareness training provided to all energy users. "	Monitoring and targeting reports for individual areas based on sub-metering, but savings not effectively reported to user. "	Program of staff awareness and regular publicity campaigns. "	Same payback criteria employed as for all other investments. "
2	Unadopted energy policy set by senior manager or senior departmental manager. "	Energy manager in post, reporting to ad-hoc committee but line management and authority unclear. "	Key energy users receive awareness training, also occasional system-specific training. "	Monitoring and targeting reports based on supply meter data. Energy unit has ad-hoc involvement in budget setting. "	Some ad-hoc staff awareness training. "	Investment using short term pay back criteria only. "
1	An unwritten set of guidelines. "	Energy management the part-time responsibility of someone with only limited authority or influence. "	Key employees participate occasionally in awareness training. Some information passed informally to energy users. "	Cost reporting based on invoice data. Engineer compiles reports for internal use within technical department. "	Informal contacts used to promote energy efficiency. "	Only low cost measures taken. "
0	No explicit policy. "	No energy management or any formal delegation of responsibility for energy use. "	Energy users rely on their existing knowledge. "	No information systems. No accounting for energy consumption. "	No promotion of energy efficiency. "	No investment in increasing energy efficiency in the plant. "

Figure 3.2: A Balanced Profile

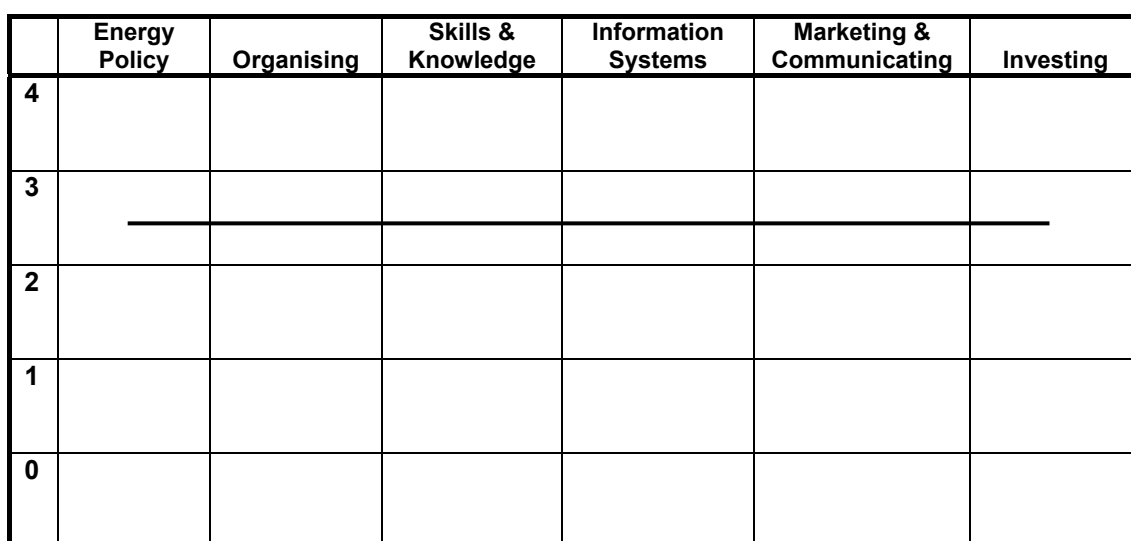


Figure 3.3 An Unbalanced Profile

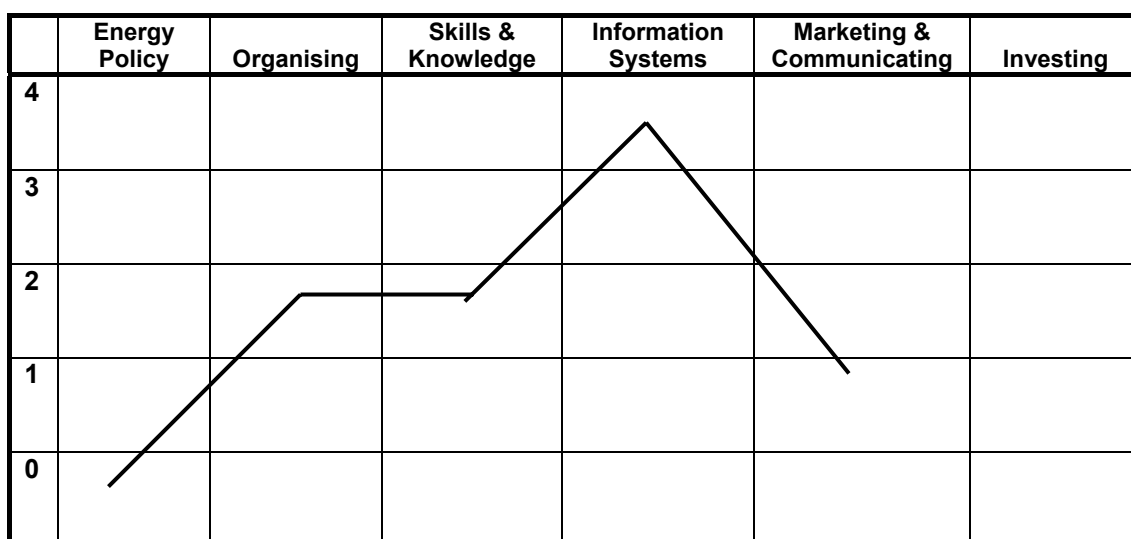
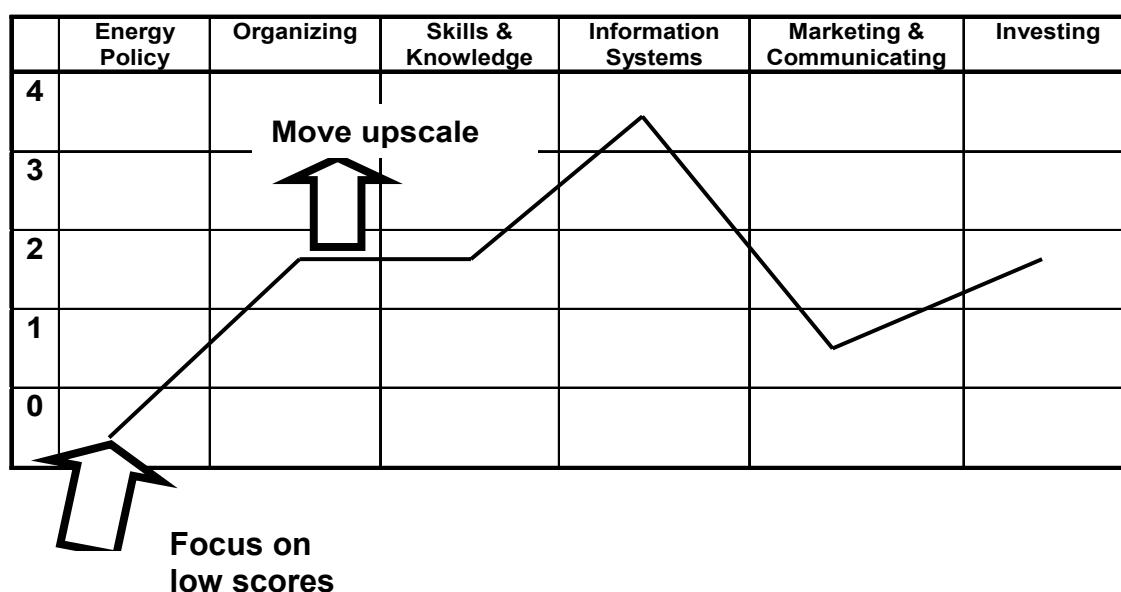


Figure 3.4: Interpreting the Profile



3.1.2.6 High matrix scores pay off

Experience with companies from various sectors suggests that there is a correlation between their scores on the Energy Management Matrix and the energy savings that they achieve. That is, developing the competencies associated with good energy managing companies pays off in real energy savings.

Three cases from the UK illustrate the point. In **Good Practice Case Study 341: Energy Management – Awareness and Motivation**, we see a loose correlation between Digital Equipment Corporation's improved rating on the Energy Management Matrix and a verified reduction in electricity consumption of 12.5%. Similarly, The Sears Group (ref. **Good Practice Case Study 327: Energy Management – staff awareness and motivation**) and British Telecommunications (ref. **Good Practice Case Study 324: Energy Management – staff awareness**) undertook comprehensive training and communication activities that led to improvements in their EM Matrix ratings while reporting significant savings. Table 3.1 below gives details of the ratings and improvements.

Table 3.1: Tabulation of Reported Savings and EM Matrix Ratings

		Energy Policy	Organising	Motivation	Information Systems	Marketing	Investment	Rating	Net Change	% Savings
The Sears Group GPCS 327	Before	0.5	1.0	3.0	2.0	2.0	2.0	10.5	11.5	7.2
	After	3.5	3.5	4.0	3.5	4.0	3.5	22.0		
British Telecom GPCS 324	Before	1.0	2.0	1.0	1.0	1.0	3.0	9.0	10.0	3.0
	After	4.0	2.0	3.0	3.0	4.0	3.0	19.0		
Digital Equipment Corporation GPCS 341	Before	1.5	1.0	0.5	1.0	0.0	1.0	5.0	13.0	12.5
	After	3.5	3.0	3.0	4.0	3.5	1.0	18.0		

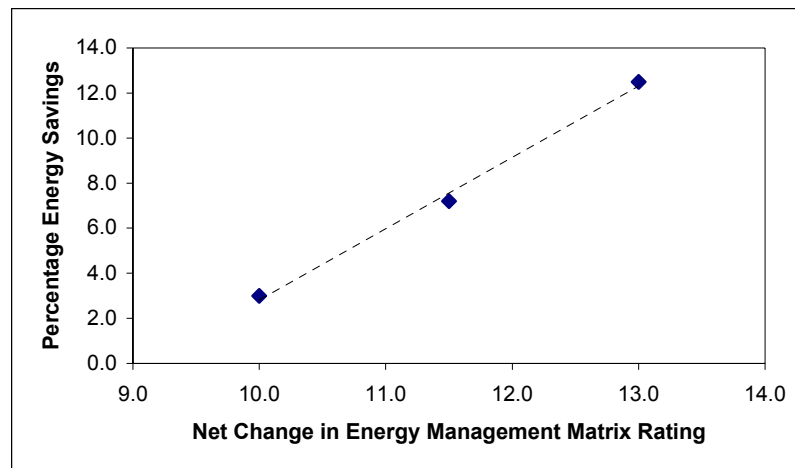


Figure 3.5: Correlation between Savings and EM Ratings from Good Practice Case Studies

Figure 3.5 plotted from the data of Table 3.1 clearly demonstrates the correlation between energy savings and the organisation's EM Matrix rating.

A Case Study: The Woodbridge Group

The Woodbridge Group is an international company with 58 sites worldwide that implemented energy management by addressing the specific factors listed in the Energy Management Matrix. The payoff was significant with over \$600,000 of annual savings identified initially in the Canadian operation, and a corporate goal of 10% reduction established.

Critical success factors for Woodbridge related to the Energy Management Matrix included:

- ◆ **Energy policy:** there was top management commitment, expressed through the company's Health, Safety and Environmental (HSE) Policy with the statement "reduction of energy consumption and the resultant release of greenhouse gases";
- ◆ **Organizing:** energy management was fully integrated into the organizational structure through its HSE business practices and ISO14001; plants developed standard operating procedures to incorporate energy management practices;
- ◆ **Skills and Knowledge:** employees were empowered to act on energy management priorities, educated and trained to develop the knowledge and skills needed to operate plant systems at optimum efficiency;
- ◆ **Information Systems:** an Energy Reduction Management System was implemented to routinely collect energy use data, analyze it, set annual reduction targets, and report systematically throughout the organization;
- ◆ **Marketing and Communicating:** campaigns employing posters, in-house publications, and other means heightened the awareness of all employees regarding the company's energy management goals, processes and achievements.

The conclusions that the company drew from its experience in getting started on energy management were:

- ◆ Identify "Low Hanging Fruit" Opportunities, that require limited capital spending
- ◆ Work on changing behaviours
- ◆ Report Baseline Data and Projects
- ◆ Share Information Amongst Various Sites
- ◆ Get Everyone Involved
- ◆ Use External Resources – International best practice, Energy Websites (e.g. U.S. DOE), Suppliers/Consultants

3.2 Action Planning

The insights gained into organisational needs through the assessment of corporate culture and the use of the Energy Management Matrix need to be translated into an energy management action plan. Very simply, this plan involves the identification in very specific terms of:

- ◆ what needs to be done
- ◆ who will do it
- ◆ when it will be carried out and completed
- ◆ what resources are required.

This is not to suggest that action planning is a simple process. To be effective, the tasks must be feasible and clearly defined. The right people need to be mandated to carry out the tasks.

Timing is critical; in a plant environment, the task must be scheduled around operational constraints. For example, some tasks can only be done when the plant is down; others, such as those related to data collection, can only be done when it is operating.

Resource planning is probably the most difficult part. It cannot be assumed that the people required to do the job can be automatically deployed. If there are funding requirements, it may be necessary to make a “business case” for the task (see Module 8).

In this Module, for convenience, we refer to the individual who drives the planning process as the “energy manager”. As noted in earlier, not all companies choose to designate an “energy manager”; however, it is essential that **someone** be charged with the responsibility of leading the energy management agenda, even if that someone carries other responsibilities, such as plant management, maintenance supervision, or whatever. In this module, then, where we use the term “energy manager”, think of that individual who is the energy efficiency “champion” or leader in your organisation.

The Worksheets that follow are provided as a basis for organising the plan. The general principle that applies is that actions need to be taken to move upwards in the matrix, column by column; one level of movement at a time is probably a reasonable objective.

The Modules that follow in this course address each of the organisational issues, and therefore, each of the matrix columns in more detail. Planning is an iterative process; the actions contemplated immediately following organisational assessment will probably be adapted and refined as more is learned about each of these management issues.

Worksheet 3.1: Action Planning Sheet: Energy Policy

Energy Policy
Energy policy, action plan and regular review have commitment of top management as part of a business & environmental strategy "
Formal energy policy but no active commitment from top management. "
Unadopted energy policy set by senior manager or senior departmental manager. "
An unwritten set of guidelines. "
No explicit policy. "

Worksheet 3.2: Organisation - Roles and Responsibilities

Identify the individuals in your organisation responsible for energy.

	Role/Responsibility	Who
1.	Managing distribution of energy	
2.	Defining energy policy	
3.	Capital equipment purchase	
4.	New building construction	
5.	Setting energy savings targets	
6.	Leading energy improvement project	
7.	Reporting to the board regularly on energy efficiency & costs	
8.	Developing project plans for reducing energy waste	
9.	Monitoring progress on energy improvement projects	
10.	Negotiating with energy suppliers	
11.	Reviewing energy usage and costs on an annual basis for the business	
12.	Ensuring that machinery and equipment is shut off when not being used	
13.	Reviewing capital expenditure plans for energy efficiency aspects	
14.	Collecting and distributing energy consumption information	
15.	Member of energy committee	
16.	Management of major energy user department X.	
17.	Reporting to the public and other stakeholders on energy management performance.	
18.	Informing employees about energy efficiency	
19.	Running the boiler house	
20.	Purchasing energy efficient equipment	
21.	Improving process energy efficiency	

Worksheet 3.3: Action Planning Sheet: Organising

Organising
Energy management fully integrated into management structure. Clear delegation of responsibility for energy consumption. "
Energy manager accountable to energy committee representing all users, "
Energy manager in post, reporting to ad-hoc committee but line management and authority unclear. "
Energy management the part-time responsibility of someone with only limited authority or influence. "
No energy management or any formal delegation of responsibility for energy use. "

Worksheet 3.4: Action Planning Sheet: Skills & Knowledge

Skills & Knowledge
All energy users receive specific energy training integrated into other development activities. Workshops facilitate a sharing of knowledge. "
Key energy users receive regular and specific training. Brief awareness training provided to all energy users. "
Key energy users receive awareness training, also occasional system-specific training. "
Key employees participate occasionally in awareness training. Some information passed informally to energy users. "
Energy users rely on their existing knowledge. "

Worksheet 3.5: Action Planning Sheet: Information Systems

Information Systems
<p>Comprehensive system sets targets, monitors consumption, identifies faults, quantifies savings and provides budget tracking.</p> <p style="text-align: center;">"</p>
<p>Monitoring and targeting reports for individual areas based on sub-metering, but savings not effectively reported to user.</p> <p style="text-align: center;">"</p>
<p>Monitoring and targeting reports based on supply meter data. Energy unit has ad-hoc involvement in budget setting.</p> <p style="text-align: center;">"</p>
<p>Cost reporting based on invoice data. Engineer compiles reports for internal use within technical department.</p> <p style="text-align: center;">"</p>
<p>No information systems. No accounting for energy consumption.</p> <p style="text-align: center;">"</p>

Worksheet 3.6: Action Planning Sheet: Marketing & Communicating

Marketing & Communicating
Communicating the value of energy efficiency and the performance of energy management within the organisation and outside. "
Programme of staff awareness and regular publicity campaigns. "
Some ad-hoc staff awareness training. "
Informal contacts used to promote energy efficiency. "
No promotion of energy efficiency. "

Worksheet 3.7: Action Planning Sheet: Investment

Investment
Positive discrimination in favour of green schemes with detailed appraisal of all new-build & refurbishment opportunities. "
Same payback criteria employed as for all other investments. "
Investment using short term pay back criteria only. "
Only low cost measures taken. "
No investment in increasing energy efficiency in the plant. "