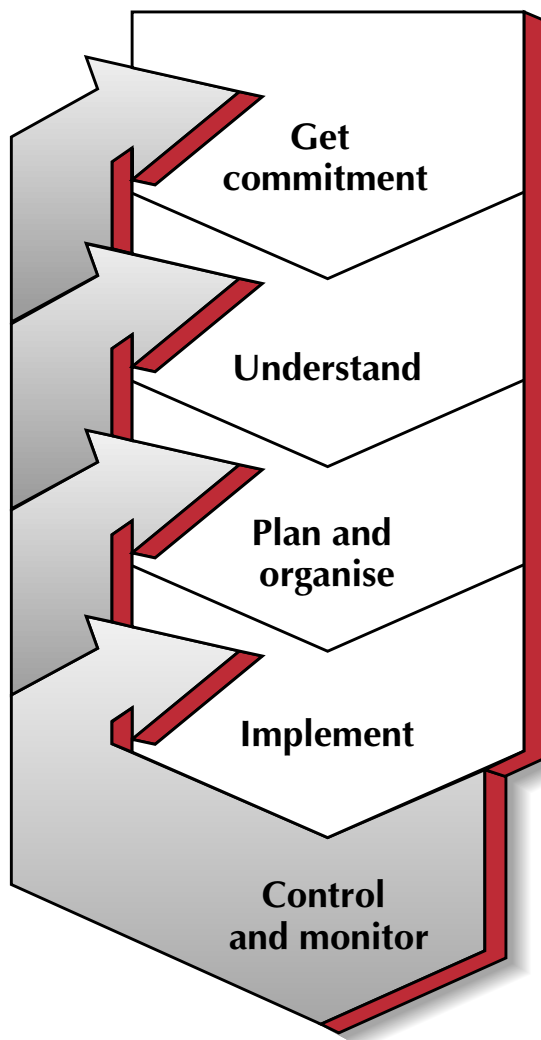


A strategic approach to energy and environmental management



A practical approach to energy and environmental management:

- addresses management issues for competitive and business advantage
- identifies basic steps to achieve positive results
- helps to compile an action plan
- provides a framework for continuously monitoring performance



ENERGY EFFICIENCY

BEST PRACTICE
PROGRAMME

June 1996

A strategic approach to energy and environmental management

Produced for the Department of the Environment by

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CONTENTS

1	INTRODUCTION AND HOW TO USE THIS GUIDE	1
2	THE ENVIRONMENTAL DIMENSION TO ENERGY MANAGEMENT	2
3	ENVIRONMENTAL MANAGEMENT STANDARDS AND PUBLIC REPORTING	3
4	THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT	4
4.1	The need for a strategic approach	4
4.2	Getting commitment	5
4.3	Understanding the issues	6
4.4	Planning and organising a way forward	8
4.5	Implementing the management programme	10
4.6	Controlling and monitoring management performance	13
5	MEASURING MANAGEMENT PERFORMANCE	15
5.1	Performance indicators for energy and environment	15
5.2	The environmental management matrix	15
5.3	Planning performance improvement	16
6	WRITING A DETAILED ACTION PLAN	17
6.1	The policy statement	17
6.2	Setting objectives and targets	17
6.3	Action plans and checklists	18
6.4	Roles and responsibilities	18
7	MANAGING FOR CONTINUOUS IMPROVEMENT	19
7.1	The management audit framework	19
7.2	Carrying out a management audit	19
7.3	Designing an audit programme	22
	REFERENCES	23
	ENERGY AND ENVIRONMENTAL MANAGEMENT MATRIX	Fold-out 20

1 INTRODUCTION AND HOW TO USE THIS GUIDE

This Guide describes a strategic approach to management, focusing on energy and other environmental areas where improved management performance can bring financial benefits.

You don't have to read the whole of this Guide or work straight through it.

How you will use it depends on how far you have already got in looking strategically at energy management in your organisation. If you are just beginning, you may initially only want to use the opening chapters. If you have been practising the approach for some time, you may only want to examine the ideas in the later chapters.

To help you identify what is best for you, each chapter and section is preceded by a short list of its main contents. Those suggesting actions are followed by boxes summarising them.

The Guide is aimed at managers who want to make lasting changes in the way their organisations work; changes which give competitive advantage, and result in sustainable improvements in business performance. The guidance will also be useful to managers in public sector organisations who are accountable for budgets, and need to find new ways of improving the level of service delivery.

For senior managers with both financial and technical interests in management performance, this Guide will provide a framework for integrating energy efficiency and environmental protection

into business management processes. At the operational level, it will be of interest to managers with responsibility for implementing energy and environmental programmes, and achieving positive results.

The strategic approach has been designed around five basic steps:

- getting commitment
- understanding the issues
- planning and organising
- implementing a programme effectively
- controlling and monitoring performance.

In addition to the step-by-step description of the strategic approach, this Guide illustrates three management tools which provide key building blocks:

- an environmental management matrix for **understanding** existing management strengths and weaknesses, and identifying where improvements are needed
- a roles and responsibilities matrix for **organising** resources and shaping individual action plans, and
- a management audit framework for **monitoring** progress and driving continuous improvement.

The Guide will provide an overall approach for managers who are just beginning to recognise the need to manage energy and environmental affairs. It also acts as a 'tool' for managers who have made progress, and want to sharpen their existing programmes.

2 THE ENVIRONMENTAL DIMENSION TO ENERGY MANAGEMENT

IN CHAPTER 2

- *Setting the scene for energy and environmental management*
- *Historic perspectives*
- *Current needs and pressures*
- *Financial benefits of improved performance*

In the 1970s there was a clear need for forceful energy management, with rapidly escalating energy costs which could wipe out profits, or seriously erode publicly funded budgets. That particular energy crisis might now be consigned to history, but growing concern about global climate change, air pollution and depletion of non-renewable resources has provided a new impetus for prudent management of energy consumption.

In more recent years, much broader environmental pressures have begun to change the way in which many companies do business.

- Chlorofluorocarbons (CFCs) are being phased out in response to international agreement on protecting the ozone layer.
- Packaging is being designed to reduce waste and incorporate recycled materials.
- Cars and consumer goods are being designed with dismantling and material recovery in mind.
- Chemical companies are allocating funds to clean up contaminated sites.

At the same time, the same environmental pressures have created opportunities for new products. Ozone friendly aerosols, lead-free petrol, concentrated phosphate-free detergents with minimal packaging; these have all been launched in response to the needs of discriminating consumers with an environmental conscience.

The service industry has also benefited in this new age of environmental awareness. Waste management, facilities management, pollution control, environmental testing; these have all grown on an international scale in response to an explosion in demand. Newly enacted environmental laws and regulations have created the need for extended regulatory enforcement and monitoring agencies, and other public service bodies.

As organisations have set about managing environmental issues, they have seen impressive benefits through improved financial performance. Cutting energy consumption and reducing wastage of natural resources has not only reduced environmental impacts, it has created financial savings which have had a direct impact on profitability, or helped to reduce the effects of budget cuts on public services.

In spite of clear evidence that environmental issues affect both sides of the profit and loss account, the majority of organisations still marginalise energy and environmental management. They consider that it is not central to their core business or service. Managers are unaware of the potential for performance improvement, and the substantial returns that can be made through investing in energy conservation and environmental protection. Or, if they do see the potential benefits, they are unable to push ahead with a management programme which is peripheral to the core business. This Guide will help the managers in this position to drive their programmes forward.

3 ENVIRONMENTAL MANAGEMENT STANDARDS AND PUBLIC REPORTING

There are increasing demands on organisations to publish information about their environmental performance. Already, in some sectors of industry it is established practice to include a statement on the environment in the annual report. Some organisations go further, and publish separate environmental reports describing the releases made by their operations to the environment, and how they manage and control the effects.

Public demand for access to environmental information has increased, and standards of public reporting of environmental information have evolved with time. However, for many organisations, public reporting is restricted to information required by legislation. Only the more enlightened organisations find out who has an interest in their environmental performance, and prepare reports to address their needs.

Interest in environmental performance focuses not only on quantitative issues such as energy consumption, emissions and discharges, but also on how environmental effects are managed and controlled. In other words, there is interest in the process of management, as well as in the results achieved. This interest in environmental management systems has led to the publication of two standards:

- BS 7750 - the British Standard for environmental management systems, and
- EMAS - the European Union's Eco-Management and Audit Scheme.

An international standard for environmental management (ISO 14001) is being published.

By achieving certification against one of these standards, organisations can demonstrate that they comply with their stated environmental policy and objectives, and have established a sound basis for managing and continuously improving environmental performance.

In meeting the requirements of these standards, organisations have to consider their impacts on the environment, including their use of natural resources, and the indirect impacts from energy consumption.

As certification against these environmental management standards gains momentum, following on the widespread uptake of the international quality management standard (ISO 9000), there will be added incentives for organisations to develop and implement environmental management programmes. For many organisations, where energy consumption is the main, perhaps only, significant impact on the environment, it will be appropriate to reflect this in the emphasis.

The approach described in this Guide will help organisations set off in the right direction towards building an environmental management system or a corporate environmental reporting framework. However, it is not a substitute for the detailed advice and specialist guidance that will be needed in organisations which are focused on comprehensive environmental management systems, certification to one of the management standards, or environmental report production.

IN CHAPTER 3

- *Introducing public reporting and environmental management standards*
- *External interest in environmental performance*
- *Environmental management standards*

Effective dialogue increases environmental accountability

Evolution of public reporting				
Approach to disclosure of environmental information	Tell them what you have to	Tell them what you want to	Tell them what you think they want	Tell them what they say they want
Report content	Obligatory disclosure	Best practice	Programme implementation	Performance improvement goals

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT

IN CHAPTER 4

- *Introducing the strategic approach to energy and environmental management*
- *Five key steps*
- *Maintaining impetus*

4.1 THE NEED FOR A STRATEGIC APPROACH

In spite of good intentions at the outset, many managers find that their energy and environmental management programmes soon falter or lose direction. Barriers are raised to impede progress as people begin to question the need for performance improvement, or the value it can bring.

Keeping a sense of direction can be difficult as other issues compete for attention and resources. Energy and environment can slip down everyone's priorities, and specific actions can end up being relegated from 'must do' to 'maybe do' status.

Management programmes only succeed in delivering sustainable performance improvement when there is a clear sense of direction, and when the programmes provide a strategic overview of the process of achieving improvement. The strategic approach outlined in this Guide consists of five simple and logical steps, intended to keep the management process on track and avoid the many barriers which are raised to hinder its progress. The approach is focused on energy, but can equally be applied to environmental management.

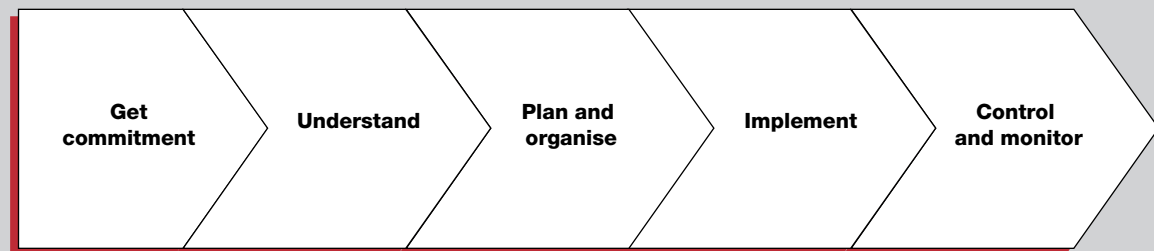
The five-step strategic approach involves:

- getting commitment from the top level in the organisation
- understanding the issues
- planning and organising an effective management programme
- implementing the programme
- controlling and monitoring performance.

Not all organisations will need to start at the beginning, but wherever they join it, each step should be tackled in sequence. Information acquired from controlling and monitoring can be used to review and modify the on-going management programme. The last step in the approach, therefore, provides valuable feedback for continuous improvement.

Moving through each of the five steps, resources are aligned with current needs, and not wasted on premature attempts to force-fit new management processes.

A systematic approach is needed for effective energy and environmental management



- | | | | | |
|---|--|--|--|--|
| <ul style="list-style-type: none"> ■ Get support from the top. | <ul style="list-style-type: none"> ■ Quantify energy usage. ■ Identify management strengths and weaknesses. ■ Analyse stakeholders needs. ■ Anticipate barriers to implementation. | <ul style="list-style-type: none"> ■ Develop a policy statement. ■ Set objectives and targets. ■ Develop detailed action plans. ■ Organise roles and responsibilities. | <ul style="list-style-type: none"> ■ Initiate priority actions and investments. ■ Carry out training and raise awareness. ■ Integrate energy and environment into business process. ■ Communicate performance. ■ Overcome barriers. | <ul style="list-style-type: none"> ■ Carry out management audits. ■ Review progress. ■ Seek continuous improvement. |
|---|--|--|--|--|

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT

4.2 GETTING COMMITMENT

The visible commitment of senior management underpins all successful management programmes, and is vital to getting a programme kick-started. Everyone has to be reassured that the whole organisation is taking the programme seriously, and that this is not an issue which can be ignored in the hope that it will go away.

But top level commitment cannot be assured on every management initiative, and senior managers have to be convinced that their commitment will actually benefit the organisation, and will be consistent with their strategic business or service delivery goals.

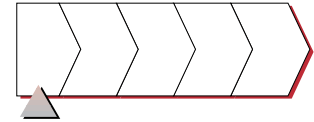
Getting new issues onto the senior management agenda can be difficult. Energy and environment may not necessarily be new issues, but they may be prejudiced by misunderstanding, or the failure of previous programmes to deliver anticipated improvements.

Chairman, chief executive and board commitment to improving energy and environmental management performance can be secured or reaffirmed, by highlighting the benefits, and showing that the approach is well founded. Starting from scratch or breathing new life into an established programme should begin with a clear statement of the benefits that can be expected from improving energy and environmental management, and the steps that will need to be taken to bring about the improvements.

Energy management can be used as an effective illustration of the business benefits of improved environmental management. At this early stage in a programme, attention should be drawn to the potential for all-round improvements and competitive advantage, for example:

- Expenditure - costs savings from improvements can often increase profits on the spot, producing an increase far more easily than by other means available, such as increased turnover. The adequacy of the return on projects can often be justified by the energy savings that result, directly or indirectly.
- Efficiency - more efficient production of goods or services improves the competitive advantage for businesses and the accountability for public sector organisations.
- Social responsibility - cutting energy consumption demonstrates an awareness of environmental impacts and signals commitment to environmental protection.
- Total quality - an approach to energy which is consistent with the pursuit of quality in all activities.
- Communication - energy efficiency and environmental protection are topical issues, and successful initiatives here can spin off into examples of good management practice for internal and external communication.

Care should be taken not to raise false expectations or promise arbitrary cost savings, in winning commitment. The right time to tackle targets for cost savings and other benefits is at the planning stage.



Get commitment

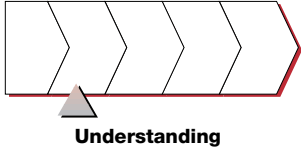
- *The need for commitment from the top*
- *Getting energy and environmental issues onto the boardroom agenda*
- *Convincing senior management*
- *Starting new programmes*
- *Breathing new life into existing programmes*
- *The benefits of energy and environmental management*

Getting commitment

ACTION POINTS

- Identify the senior manager or managers with interest or responsibility for energy and environmental issues.
- Prepare a short summary of the benefits that energy efficiency can bring.
- Establish the basic criteria for an energy policy and for a strategic action plan based on the contents of this Guide.

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT



- *What is really needed*
- *Avoiding excess data*
- *First steps in gathering information about energy use and waste disposal*
- *Finding out who interested parties are, and what they expect from energy and environmental management*
- *Anticipating barriers that will hinder progress*
- *Performance indicators (chapter 5 gives more detail)*

4.3 UNDERSTANDING THE ISSUES

The collection of quantitative information about current energy and environmental management performance is essential. However, collecting data for its own sake can be a waste of effort and resources, and at this stage, managers should look carefully at energy and environmental issues in a broad context.

4.3.1 Measuring current performance

In the field of energy management, understanding starts with the collection of reliable data on current energy consumption, and includes:

- compilation of available statistics
- benchmarking against published data for comparable operations, and
- carrying out simple 'health checks' to highlight the most obvious areas for waste reduction.

Other environmental information that could be collected at this stage might include estimates of atmospheric emissions, effluent discharges and waste disposals. Collecting data should not become an obsession for managers, because this diverts attention and can cloud business issues.

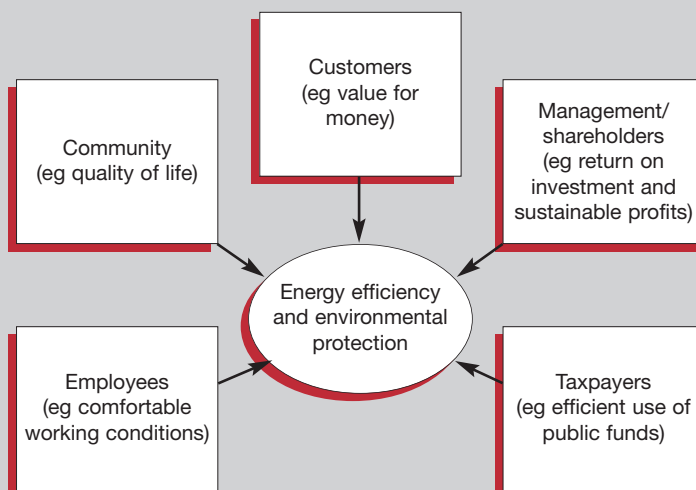
Understanding should extend well beyond the collection of data, to all areas of management performance. Management strengths and weaknesses are dealt with in more detail in chapter 5, in which an energy and environmental matrix is used to obtain a greater understanding of existing performance and improvements needed.

4.3.2 Analysing stakeholder needs

In both energy and environmental management, interest in performance extends beyond the managers themselves to a broad range of groups and individuals referred to as stakeholders. Managers need to know who the relevant stakeholders are, and how their needs are expressed. Examples of stakeholders are:

- customers – who buy goods or make use of services
- investors – such as individual shareholders or the financial community in general, including banks, insurance companies and other lending institutions
- taxpayers – who fund public services
- employees – who work in the organisation
- the community – such as neighbouring residents, businesses and public facilities.

A diverse range of stakeholders have an interest in energy efficiency and environmental protection



Stakeholder groups also include regulatory authorities protecting public interests, and both local and national environmental groups.

Understanding stakeholders and their needs reveals the extent of interest in energy and the environment. As the management programme is developed and implemented, the analysis of stakeholders' needs provides an essential check that the most important issues and concerns are being addressed.

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT

4.3.3 Identifying barriers to progress

The understanding step is not complete until the potential barriers to a new management approach have been examined. Once the implementation step gets underway, there will be many reasons why people think that they need not take energy and environmental management seriously.

inevitable resistance to change, managers will need to compete with other new initiatives for attention and resources. To ensure that they are not diverted or seriously impeded by these barriers, it will be necessary to overcome resistance, and sell the programme in such a way that it stands out from all the other issues which demand priority.

These potential barriers need to be recognised as early as possible. As well as overcoming the

Energy efficiency and environmental protection will yield many benefits, but success is not guaranteed - some common barriers and misconceptions

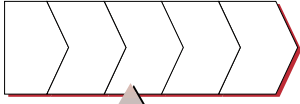
- The effort of the individual will make no difference.
- The return does not justify the effort.
- Management has more important issues to address.
- Energy efficiency is discretionary.
- Energy and environmental investments are high risk.
- Nobody thinks it's an issue.
- We don't have the time and resources.
- Issues are not reported effectively.
- Staff are apathetic towards energy and environmental issues.
- There is no value for the individual.
- Senior management only pay lip service.
- There is no clear responsibility or accountability.
- Middle management is overloaded and fails to act on senior level commitment.
- The subject is technical and peripheral to the business.
- The organisation lacks the necessary technical skills.
- The organisation has no money to invest.
- There is no opportunity for staff involvement.
- There is no workable policy.
- Targets for saving are unrealistic or unrelated to business needs.
- There is no competitive edge to be gained.
- There is a lack of appreciation of contribution to bottom line amongst general and financial managers.

Understanding the issues

ACTION POINTS

- Collect available, but not excessive, data and begin to benchmark energy consumption and waste production against similar organisations.
- Prepare a list of your most important stakeholders and analyse their interest in energy and environmental management.
- Make a list of the barriers you think will be raised in your organisation to new energy and environmental initiatives.

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT



Plan and organise

- *Writing a policy statement to drive the organisation forward*
- *Setting objectives and targets which can be used to track progress*
- *Developing a day-to-day action plan (move to chapter 6 for more detail)*
- *Assigning roles and responsibilities to typical energy and environmental functions*

4.4 PLANNING AND ORGANISING A WAY FORWARD

Strategic goals will only be achieved if driven day-to-day by tactical actions. This step focuses on the creation of detailed tactical action plans that will drive the programme forward. It starts with the development of an energy and environmental policy, and shows how this is used to create detailed action plans, and to allocate resources.

4.4.1 Formulating policy

Formulating a policy for energy and environmental management can be a long and detailed process, and can go (it doesn't have to) to the very heart of the organisation and its culture. A coherent and effective policy statement provides the foundation to the planning step, and successful policies can be recognised as having five key attributes which convey senior management commitment and set performance standards that the organisation is seeking to attain. Detailed guidance on developing an effective energy policy is addressed in a separate Good Practice Guide No 186 obtainable from BRECSU.

Planning gets underway with the development of the policy statement and, through the interest that this generates, it provides a unique opportunity for raising management awareness generally, and consolidating senior management commitment. The signing and distribution of the policy statement itself are also key events, providing photo-opportunities and stories which can be used to communicate important energy and environmental management messages throughout the organisation.

4.4.2 Setting objectives and targets

In securing senior management commitment it will have been necessary to identify the potential for improvement. Additionally, the policy statement will have made commitments to achieving particular goals or standards of energy and environmental management.

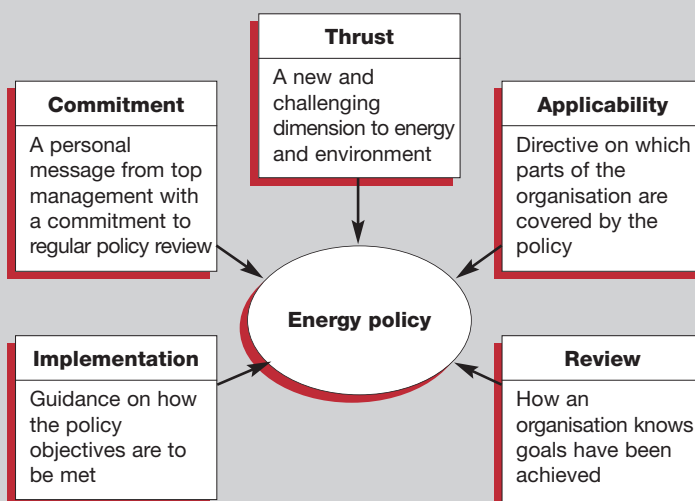
Objectives may be set out in the policy statement itself, or may need to be developed by local management as a policy requirement. Whatever the case, objectives can be expressed as the desired outcome of a specific policy commitment.

Targets are detailed performance requirements, often quantitative, which need to be met in order to fulfil objectives. Targets have to be realistic, meaningful and achievable under normal operating circumstances.

Once the policy statement has been issued, sets of objectives and targets need to be drawn up for each part of the organisation to deliver the policy commitments. In developing the objectives and targets, managers will need to draw on the information that they gathered at the understanding stage, taking account of both quantitative and qualitative aspects. Particular attention will need to be given to:

- assessing waste reduction targets and calculating the cost and potential returns on investment
- building on management strengths and identifying and assessing significant gaps in resources
- expressing objectives and targets in ways which provide real incentives for people at all levels in the organisation.

The five key attributes of an energy and environmental policy



4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT

4.4.3 Developing action plans

Once objectives and targets have been agreed, action plans have to be drawn up which drive the management process forward, and define what has to be done on a day-to-day basis. These are the tactical, or detailed action plans which guide managers on what has to be done to operate effectively. Action plans keep the programme on track, and are used to measure and track the performance of individual managers.

Action plans operate at different levels within an organisation. To be effective they should:

- be agreed and approved at the appropriate level of line management, and roll up to the senior manager who is ultimately accountable for energy and environmental management performance
- relate actions to individual objectives and targets which in turn can be traced to specific policy commitments
- assign actions to individuals, with clear deadlines for reporting progress and completion
- indicate the person responsible for approving or signing off the action when it has been successfully discharged
- describe the resources that are available
- facilitate budget negotiations, and confirm adequate budget provisions have been made.

To ensure that action plans build on management strengths and optimise the use of personnel, roles and responsibilities for energy and environmental functions need to be defined and allocated. The use of a roles and responsibilities matrix and the formulation of detailed action plans are described in chapter 6.

The five-step approach enables managers to navigate, and keep energy and environmental programmes on course, to meet their strategic goals. In the same sense, these tactical action plans provide the motive force which keeps the organisation moving and drives it forward as individual actions are accomplished.

The detailed action plan will drive day-to-day energy and environmental management

Policy commitment

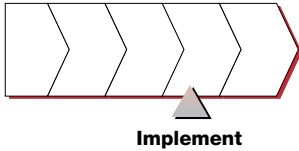
Objectives	Targets	Action	Date	Budget	Assigned to:	Sign-off by:

Planning and organising

ACTION POINTS

- Draft a policy statement around the five key attributes, and have it signed by the head of your organisation.
- Draft objectives and targets and have these accepted and approved by senior management.
- Develop action plans and complete a roles and responsibilities matrix.
- Have key people develop individual action plans to guide their day-to-day activities.
- Establish monitoring procedures.

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT



- *Deciding where to start with priority actions that will give visible results and build confidence*
- *Training and awareness raising as an essential part of the implementation step*
- *Integrating energy and environmental management into business processes*
- *Broadcasting key success stories to maintain genuine interest in energy and environmental management*
- *Overcoming barriers by providing incentives to achieve specified results*

4.5 IMPLEMENTING THE MANAGEMENT PROGRAMME

Launching a management programme is a highly visible affair, and benefits from the time and effort which has been previously invested in understanding all the issues and putting robust plans in place. The traditional approach of looking for no-cost or low-cost investment, with periodic information campaigns in the workplace, is rarely sustainable over time.

The implementation step is driven forward by the tactical action plans developed at the planning stage. It puts investment in energy and environmental projects alongside complementary management initiatives designed to build on the interest and awareness which is created as the management programme roll-out begins.

4.5.1 Priority actions

Action plans will have been developed from the policy statement, which will have taken into account current levels of performance. Actions will include issues relating to management, as well as investment in energy efficiency and environmental protection.

The no-cost and low-cost actions have an important part to play here in demonstrating the immediate benefits which business or budget managers can gain from savings in energy expenditure, water consumption, waste disposal and so on. When the time comes to invest in higher cost projects, for example longer term energy saving or meeting tougher emission standards, the success of these early initiatives can be used to back up the new proposals.

Priority should be given at the implementation step, therefore, to actions which yield a positive outcome, which are supportive of the longer term actions, and will create a positive outlook, helping the management programme to flourish. Running alongside these priority actions are several initiatives which should be undertaken in parallel to ensure the success of the implementation step.

4.5.2 Training and awareness

Raising awareness of energy and environmental issues is an essential component of the management programme, and should be tackled at all staff levels, from the boardroom downwards. As well as transferring essential know-how to the people who will deliver the benefits of the management programme, training and awareness-raising will also:

- build greater understanding of the importance of energy efficiency and environmental protection, both locally and on a global scale
- create a sense of ownership in the management programme and the results which it delivers
- facilitate the dissemination of technical information
- focus attention on the key issues.

Awareness campaigns are best woven into the implementation step, when there are opportunities to publicise top management's commitment to energy and environmental management.

Training programmes should cascade down through the management line, carrying the message that everyone needs to be a player in energy efficiency and environmental protection. A top-down approach ensures that the policy commitments and the strategic approach are effectively communicated. Attention also needs to be given to feeding information back up the management line. Supervisors need to become aware of potential problems at lower staff levels to enable them to advise senior management. They, in turn, will then be able to understand more fully the nature of any barriers which have to be overcome.

4.5.3 Integrating with business processes

Using the roles and responsibilities matrix (described in chapter 6) will reveal the extent to which energy and environmental issues encroach on more traditional management functions.

For example:

- financial managers may be best placed to collect energy and environmental statistics, and compile focused reports expressed in meaningful terms

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT

- purchasing managers can use energy efficiency and other environmental criteria when choosing suppliers
- target-setting and training functions can be assigned to operational managers
- marketing managers can monitor the importance of energy and environment to customers or service users
- external relations managers can begin to shape public reporting on energy and the environment.

Creative use of the roles and responsibilities matrix for energy and environmental affairs will highlight the opportunities for combining many of these functions in an integrated management structure.

The technical aspects of energy and environment will continue to be important, but they are particularly important when 'customer' driven. Technical investigation in the future should be focused on internal customers. For example, the evaluation of new projects may be undertaken to ensure that energy savings and environmental protection have been fully taken into account.

4.5.4 Communicating performance

Management success needs to be widely communicated, to ensure that stakeholders know that their interests are being addressed. Information has to be well targeted, and expressed in terms which the target audience will understand.

Business and budget managers need to see performance expressed as cost savings. Energy and environmental costs should be reported relative to productivity or service delivery parameters, to ensure that cost savings from improved management performance can be distinguished. For example, in manufacturing industry it is useful to have energy cost reported for a particular unit of production. In the service sector, where energy is consumed mainly in buildings, it may be more appropriate to have energy cost reported relative to floor area.

Environmental stakeholders, such as local residents, are less interested in seeing financial data. For them, data should be expressed in terms of releases to the environment, both from direct

emissions and discharges, and from indirect emissions through the consumption of electricity.

Performance can be communicated through marketing channels, where there is a customer interest, say, in the life cycle characteristics of products, or the polluting potential of the manufacturing process. Increasingly, consumer interest in environmental performance, driven partly by uptake of the various management system standards (BS 7750, EMAS and ISO 14000) will intensify reporting requirements along the supply chain.

Employees are valuable stakeholders, and should be regularly updated on progress. Their interests are different from other stakeholders, and might focus on:

- profitability and efficiency as an indicator of job security
- the creation of a pleasant and safe working environment
- benefits to the local community
- performance relative to other branches of the organisation, or competitors.

Prior analysis of stakeholder needs will pay rewards at the implementation stage by highlighting the most efficient form of communication. Many stakeholders will be less interested in having a simple snap-shot of current performance; they prefer to see how an organisation has performed over time. As more information is accumulated, it is possible to report incremental improvements, and show year-on-year changes which are indicative of continuous improvement.

Finally, if communications are to be truly effective, it is important to remember that stakeholders should not be over-burdened with information.

4.5.5 Overcoming barriers to progress

Implementing an energy and environmental programme inevitably leads to changes, many of which are not immediately welcomed. Getting people to buy into new ways of working means dismantling the barriers which are raised as new programmes start to be implemented. Many of the barriers can be anticipated at the planning stage,

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT

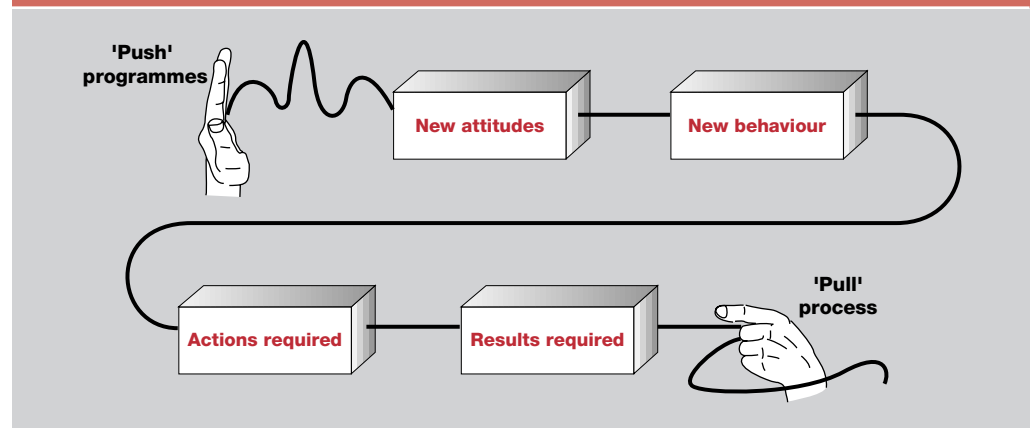
but new ones will emerge as implementation gets underway.

The urge to bring about changes in behaviour and attitudes quickly is understandable, but should be resisted. Blitz campaigns which set about changing the rules of the game rarely, if ever, succeed in the long run.

People develop attitudes and complex patterns of behaviour in order to achieve results which are beneficial to them. New attitudes and behaviours can be encouraged by illustrating the benefits

which result from a new approach to energy and environmental management, and by describing the actions that have to be taken in order to get the benefits. Managers who lead their people towards the benefits of a new approach, rather than pushing them into new patterns of behaviour, are more successful in bringing about change. With energy and environmental management, there are sufficient incentives, for both individuals and the organisation as a whole, to motivate people in overcoming the common barriers which have hindered progress in the past.

Energy and environmental management should be pulled towards the required goal of all-round performance improvement, rather than pushed by changing behaviour



Implementing the programme

ACTION POINTS

- Agree a priority list of energy saving or waste reduction projects which will have a rapid and visible impact on your organisation's performance.
- Initiate training programmes for all levels of staff from top management awareness to more detailed training for local managers.
- Create a sense of ownership in energy efficiency and environmental protection.
- Work with all your organisation to identify opportunities to integrate energy and environment into all processes.
- Compile information and prepare outlines to illustrate the most appropriate reporting format.
- Communicate success.
- Ensure that line managers understand the barriers to implementation, and work with them to define incentive targets.

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT

4.6 CONTROLLING AND MONITORING MANAGEMENT PERFORMANCE

4.6.1 Beyond monitoring and targeting

Once a management programme has been implemented, procedures are needed to ensure that management performance is monitored and controlled. In energy management the concept of monitoring and targeting (M&T) is well known, and focuses attention on the measurement of energy consumption and the identification of cost reduction opportunities with attractive returns on investment.

The M&T concept is sound, and can be extended to other areas of environmental management which are amenable to quantitative measurement. However, many important aspects of energy and environmental management performance are not easily quantified, and cannot be monitored by numerical indicators.

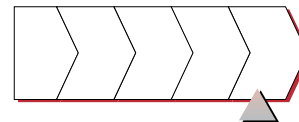
So, whilst M&T has a role in the monitoring and control step of this approach, it needs to be part of a systematic process which embraces all aspects of energy and environmental management.

4.6.2 The management audit process

In energy management, the term 'audit' is generally taken to describe the comparison of energy consumption measurements with predetermined or target levels. Its purpose is to determine patterns of energy consumption and opportunities for savings. The measurements can be from a wide range of activities, from walk-rounds to detailed surveys.

In environmental management, the term 'auditing' has also been used to describe a wide range of activities, all of which differ from the commonly held view of an energy audit.

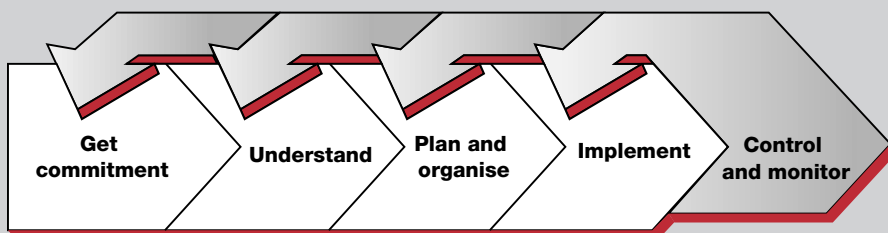
To avoid confusion, in the context of monitoring and controlling a management programme, the term 'management audit' is used. The management audit is closer to the view of an environmental audit, in that it includes a systematic examination of management performance, and verification that it is meeting the requirements of certain standards such as: laws and regulations; energy and environmental policy statement; objectives and targets; industry or service sector best practice.



Control and monitor

- *Understanding the need for monitoring, and the broader meaning of energy and environmental audits*
- *Management auditing as a key to continuous improvement*

Effective control and monitoring provides the vehicle for feedback and continuous improvement



- | | | | | |
|------------------------|--|---|--|--|
| ■ Reaffirm commitment. | ■ Identify changes in stakeholder needs. | ■ Revise policy.
■ Reset objectives and targets. | ■ Re-prioritise investments.
■ Improve or rerun training. | ■ Revamp audit process.
■ Improve distribution of audit findings. |
| | | ■ Refine action plan.
■ Reallocate roles and responsibilities. | ■ Rethink business integration and barriers to implementation. | |

4 THE STRATEGIC APPROACH TO ENERGY AND ENVIRONMENTAL MANAGEMENT

An approach to management auditing is described in more detail in chapter 7.

4.6.3 Towards continuous improvement

The use of the management audit process to regularly and objectively review performance against external (eg regulations) and internal (eg policy) standards provides the key to continuous improvement. Taken as part of the strategic approach, management audits generate valuable feedback which enables organisations to look back at the management programme, and where appropriate:

- reaffirm top level commitment
- review and amend the policy statement
- realign objectives and targets
- revise action plans (to accommodate corrective actions)
- redefine roles and responsibilities
- supplement training provisions
- amend reporting arrangement.

Once the management audit process is in place, the programme is self sustaining. Energy efficiency and environmental protection should become integral parts of everyday management, contributing to enhanced profitability and service delivery.

Controlling and monitoring

ACTION POINTS

- Identify performance measures which can be routinely and systematically assessed beyond the monitoring of energy use and wastage.
- Identify the standards against which you want to monitor progress (eg policy statement, environmental regulations, industry best practice).
- Create a comprehensive management audit programme, which is tailored to stakeholder needs, and reports regularly to senior management.

5 MEASURING MANAGEMENT PERFORMANCE

5.1 PERFORMANCE INDICATORS FOR ENERGY AND ENVIRONMENT

'If you can't measure it, you can't manage it' is a useful reminder, but is only true when managers know what to measure, and how to understand and act on the measurements they are making. This is especially so in energy and environmental management.

Gathering data on air emissions, waste discharges or energy consumption in itself will not provide managers with the tools that they need.

In particular, they will not be able to realise the potential benefits of energy efficiency or effective environmental management simply by collecting large quantities of data or preparing lengthy reports.

Quantitative data are meaningless without careful interpretation, and reports are useless if they are not targeted at people with the authority to act.

Performance indicators operate at three different levels within organisations, depending on their scope and potential impact, as indicated in the diagram below. In both energy and environmental management, the starting point for measurement of performance indicators should be at levels A and B. This creates a general overview of current status, and an indication of where current management practices stand. It is only when these have been accomplished that detailed quantitative measurement is appropriate.

5.2 THE MATRIX

The energy and environmental management matrix was developed for energy managers and their line managers as a simple performance indicator at levels A or B. It has been used successfully, since its publication in the Department of the Environment's General Information Report 12, to assess the strengths and weaknesses of energy management in organisations, and indicate overall goals for improvement.

For energy managers whose interests do not extend into other environmental areas, this is still the most useful tool for making a quick appraisal of energy management strengths and weaknesses.

A new management matrix has been developed for use by managers whose interests include energy and environmental issues but who are not, for the time being, building the more sophisticated environmental management systems required to meet the management standards. In organisations intending to build a comprehensive environmental management system and seek early certification to BS 7750, EMAS or ISO 14001, more specialised management assessment tools will be needed.

The new matrix, fully illustrated on the 'fold-out' sheet (p20), looks at energy and environmental management overall.

The matrix covers six main areas. For each area, five levels of performance are identified ranging from level 0 where there are no provisions at all for environmental management to level 4 representing industry best practice.

Level 2 is generally representative of organisations which are able to demonstrate that they are complying with environmental regulations, and are watching their expenditure on energy and environmental services. They may claim to be reducing costs through prudent purchasing of fuel,

IN CHAPTER 5

- *Understanding performance indicators and how they can be used to shape management effectiveness*
- *Using a simple management matrix to assess performance in energy and environment*
- *Setting performance goals, and creating a road map to performance improvement*

The energy and environmental management matrix, shown opposite, is fully illustrated on the 'fold-out' sheet on page 20 of this Guide.

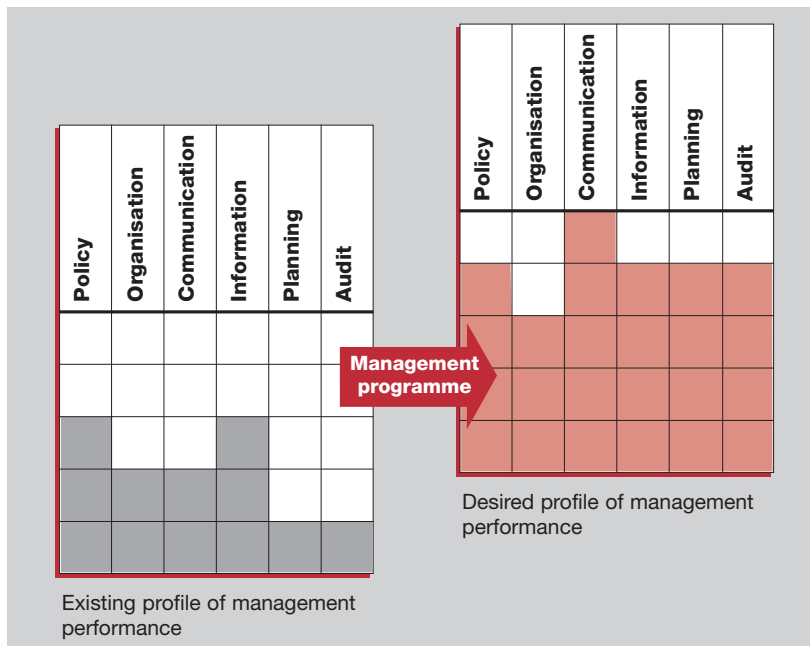
The sheet can be conveniently opened flat, allowing ease of reference to the matrix while reading this Guide.

	Policy	Organisation	Communication	Information	Planning	Audit
4	Signed, approved and published policy, defining a central objective, and identifying the areas of responsibility, with the authority of the top management and dissemination.	Overall responsibility for energy efficiency and environmental performance, with the authority of the top management, and the responsibility for job descriptions and performance objectives.	Regular and positive communication with all staff, including internal and external communication and training channels.	Environmental information, including: energy, waste, pollution, noise, vibration, and other environmental issues; procedures, plans, objectives, performance indicators; emergency operating procedures.	Policy objectives, identified, long-term objectives in energy efficiency and environmental performance, to gain competitive advantage.	Audit programmes established in accordance with BS 7750, EMAS or ISO 14001. Auditors are trained and independent of auditable facility. Audit findings are used to improve the action plan.
3	Signed policy, defining environmental objectives, including a commitment to the knowledge of the staff and the public.	Energy and environmental management objectives, including a commitment to the knowledge of the staff and the public.	Positive, strategic environmental objectives. Regular reports on environmental performance, including: energy, waste, pollution, noise, vibration, and other environmental issues.	Operational procedures for staff, including: energy, waste, pollution, noise, vibration, and other environmental issues; procedures, plans, objectives, performance indicators; emergency operating procedures.	Regular review of all environmental objectives and associated activities, and identified areas for improvement. Regular reports on environmental performance, including: energy, waste, pollution, noise, vibration, and other environmental issues.	Site specific audit programmes which are responsive to major environmental issues. Regular reports on environmental performance, including: energy, waste, pollution, noise, vibration, and other environmental issues.
2	Signed policy, defining environmental objectives, including a commitment to the knowledge of the staff and the public.	Responsibility for energy and environmental management, including a commitment to the knowledge of the staff and the public.	Regular dialogue with staff and management, including a commitment to the knowledge of the staff and the public.	Records with environmental information, including: energy, waste, pollution, noise, vibration, and other environmental issues.	Environmental objectives, identified, long-term objectives in energy efficiency and environmental performance, to gain competitive advantage.	Periodic environmental audits, including: energy, waste, pollution, noise, vibration, and other environmental issues.
1	Informal set of guidelines about environmental objectives, including a commitment to the knowledge of the staff and the public.	Informal and uncoordinated energy and environmental management, including a commitment to the knowledge of the staff and the public.	Informal communication and information, including: energy, waste, pollution, noise, vibration, and other environmental issues.	Information, including: energy, waste, pollution, noise, vibration, and other environmental issues.	Limited assessment of environmental objectives, including: energy, waste, pollution, noise, vibration, and other environmental issues.	No audit programme, or limited environmental inspections carried out. There are no environmental objectives, including: energy, waste, pollution, noise, vibration, and other environmental issues.
0	No written policy statement.	No measures for managing energy and environmental performance, including a commitment to the knowledge of the staff and the public.	No contact with staff and management, including a commitment to the knowledge of the staff and the public.	No documentation with environmental information, including: energy, waste, pollution, noise, vibration, and other environmental issues.	No knowledge of environmental objectives, including: energy, waste, pollution, noise, vibration, and other environmental issues.	No management audit carried out.

Level	Scope	Purpose	Impact
A	Questionnaire	Snap-shot of current status	Raises awareness
B	Review	Rating against best practice	Establishes need for change
C	Detailed survey	Quantitative measurement	Targets priorities for action

Three levels of performance indicator

5 MEASURING MANAGEMENT PERFORMANCE



Profiles of management performance

electricity and other services, but they are not necessarily reducing energy consumption or waste generation. Your target level of achievement will not necessarily be at the top of each area; it will depend upon the needs of your organisation.

Some organisations at level 2 may be aware of the potential benefits of improved environmental performance, but they do not yet have the management capabilities to move up to the next level, where those benefits can be realised.

An organisation can be rated on the matrix in each of the six different areas of management.

- Policy – effective management starts with the publication and distribution of a policy statement.
- Organisation – refers to the organisation of people, the allocation of responsibilities, and their integration with other management functions.

- Communication – deals with the process of listening to stakeholders, and influencing the way in which environmental issues are managed.
- Information – deals with the process of gathering and recording data, and putting it to work constructively, in areas such as training, monitoring and measuring management performance.
- Planning – looking ahead to anticipate future resource requirements, planning for future environmental regulations, and investing in energy saving or environmental control technologies which will benefit the whole organisation.
- Audit – the management audit process involves systematic reviews of management performance against internal and external standards, and provides the route to continuous improvement.

The result is an organisation’s profile for the six management attributes, showing its strengths (high scores) and weaknesses (low scores).

5.3 PLANNING PERFORMANCE IMPROVEMENT

The use of simple performance indicators gives a sense of where management stands right now, and where it wants to be, relative to best practice. In order to move performance in the right direction there has to be a programme in place which enables managers to make things happen, and sustain the changes that are necessary to improve performance.

Sustaining a deliberate management programme requires direction, which is provided by action plans operating at different levels. A strategic action plan is designed to keep the programme on track to meet its goals, and can be viewed as a road map guiding the organisation along the path of performance improvement.

More detailed action plans operate at the tactical level and help to drive day-to-day activities. At both levels, action plans need to be carefully thought out, widely communicated, and rigorously implemented and monitored.

Measuring management performance ACTION POINTS

- Identify the existing performance indicators that your organisation uses for assessing other areas of management effectiveness.
- Fill in the environmental management matrix for your organisation.
- Establish your organisation’s goal and define these on the matrix.
- Work out what you have to do to move from your present to your desired position.
- Discuss the outcome with senior management.

6 WRITING A DETAILED ACTION PLAN

The strategic plan answers the question ‘where are we going with energy and environmental management in our organisation?’ The tactical or detailed action plan on the other hand answers the question ‘what energy and environmental issues need to be addressed today?’

The detailed action plan helps the manager to organise resources, and to accomplish the specific tasks which represent his or her contribution to the strategic goal of energy efficiency and environmental protection. Each manager will have his or her own style of getting things done, and will therefore develop an individual style of action planning.

Taken together, the policy statement and the action plans which are required to implement the policy and achieve stated goals, set the energy and environmental management programme.

6.1 THE POLICY STATEMENT

The policy statement sets strategic direction, and expresses it in such a way that everyone who reads it can understand what they are expected to achieve. Its content and style will be a reflection of top management’s commitment, and the organisation’s leadership style.

Once the direction is set, it is possible to break out specific commitments from the statement, and explain how they can be accomplished.

In small organisations, there may only need to be one action plan, covering all of the commitments made in the policy. In larger organisations, the top level action plan might simply require management to set up communication channels and devolve responsibility for policy implementation down the line. Individual managers would then need to generate their own action plans, dealing specifically with the management functions assigned to them.

6.2 SETTING OBJECTIVES AND TARGETS

Day-to-day progress has to be measured against objectives and targets which guide managers towards policy commitments, and keep the

organisation on track to meeting its strategic goals. They must be pitched at the right level to provide workable milestones against which performance of individual managers, and the organisation as a whole, can be measured.

Objectives and targets operate at different levels. As an example:

- Top management sets a particular commitment to improve continuously overall environmental management performance, in a way which creates sustainable improvements in profitability or service delivery.
- To demonstrate this, senior managers decide that, as an initial objective, they can reduce wastage and air emissions through improved energy efficiency. Reducing fuel and electrical energy consumption by 10% of current levels within three years is agreed as a target which the organisation can meet.
- Subsidiary objectives and targets are then set to enable line management to deliver on the global target; 10% reduction in three years. These translate into specific operational targets for each part of the organisation.
- The energy manager agrees to objectives which provide the necessary support, such as developing an appropriate monitoring and targeting process within 12 months.
- To meet this objective, the energy manager revises his annual action plan to:
 - agree common methods of measurement for energy consumption, giving a performance indicator which is consistent with policy objectives
 - establish baseline energy consumption by business unit within six months
 - compile a prioritised list of energy saving projects with payback of two years or less
 - introduce energy efficiency review criteria into capital expenditure approval procedure for all new projects
 - provide a consistent basis for business unit managers to report on energy consumption and progress against targets at monthly management meetings
 - review energy efficiency targets with individual business unit managers at the end of the year.

IN CHAPTER 6

- *Analysing the policy statement to create objectives and targets*
- *The difference between strategic and tactical action plans*
- *Building individual action plans which deliver policy commitments*
- *Creating a roles and responsibilities matrix*

6 WRITING A DETAILED ACTION PLAN

Responsible person	Function				
	Director	Mgr A	Mgr B	Asst C	Asst D
Measure consumption	●		□		△
Identify energy cost centres			●	☆	□
Track performance					
Set targets for energy usage					
Develop conservation programme	●	□		△	
Inspect equipment					
Select projects for improvement					
Allocate budget and resources					
Prepare documentation					
Provide training					
Review new projects for energy efficiency					
Carry out energy management audits					

Key △ Perform work □ Responsible for work ● Approval authority ☆ Provide advice (technical support)

A typical roles and responsibilities matrix

Objectives and targets are dynamic, and should be adjusted if they prove to be either insufficiently challenging or over ambitious. Their most important characteristic is that together, they provide a working framework connecting the strategic policy commitment to actions which guide day-to-day operations.

6.3 ACTION PLANS AND CHECKLISTS

Every manager can compile an action plan which creates simple 'to do' lists. To be effective, action plans need to be more than simple checklists. They need to be set up in such a way that the manager tackles detailed tasks systematically, and is sufficiently motivated and equipped to complete the actions.

A comprehensive action plan, which has been reviewed and approved by line management, is a powerful tool. It assigns actions to individuals, who know what tasks they have to carry out, what budget or other resources are available to them, and what deadlines have to be met. Using the format introduced in chapter 4, they can see how their allocated tasks are achieved through associated targets and objectives, to meet policy goals.

Writing a detailed action plan

ACTION POINTS

- Break out your policy statement into specific objectives, and identify realistic and achievable targets for measuring progress.
- Draw up a roles and responsibilities matrix for your organisation, including key energy and environmental functions and the names of individual managers who have a key role to play.
- Ensure that all key players create their own action plans, to guide their day-to-day activities and help them measure personal performance.
- Have all action plans agreed and approved through line management.

6.4 ROLES AND RESPONSIBILITIES

All people have a role to play in energy and environmental management. Success depends on individuals knowing where their responsibilities lie, whether they:

- △ perform work
- accept responsibility for the work
- act as signatory responsible for approving the work
- ☆ just provide technical or other advice.

A roles and responsibilities matrix is another management tool which can be used to map out 'who does what' in energy and environment. It is used to identify the key players on one axis, and the management functions on the other.

At the basic level, the roles and responsibilities matrix simply allocates one of the key players to each management function. At a more sophisticated level, the matrix can be used to differentiate between managers with responsibility and approval authority for each function, and individuals who carry out certain tasks, or provide technical advice, support and back up.

The roles and responsibilities matrix can be a particularly powerful diagnostic tool at the planning stage, in revealing areas where:

- important management functions have not been allocated
- management responsibility is loaded inappropriately on one individual
- several managers are responsible for the same management function.

Taken together, the tactical action plan and roles and responsibilities matrix help to define and document the programme, and provide an effective guide to energy and environmental management.

For effective internal monitoring and control, the management audit has to be carried out regularly. It should record areas of non-compliance (with relevant standards) and corrective actions.

7 MANAGING FOR CONTINUOUS IMPROVEMENT

7.1 THE MANAGEMENT AUDIT FRAMEWORK

In carrying out a management audit, activities are reviewed and evaluated relative to some defined standards of performance. These include the policy statement, and the objectives and targets which flow from it. They also include relevant laws and regulations, and if appropriate, generally recognised best practice standards for the industry or service sector.

To ensure that management audits are carried out systematically and consistently, an audit guide or protocol is used to lay out step-by-step procedures for the auditor. Protocols can take the form of questionnaires or checklists, and are tailored to suit the needs of the organisation.

Using the protocol, the auditor seeks to confirm that the relevant standards are being met, and that energy and environmental issues are being adequately managed. This involves:

- assessment activities using:
 - technical expertise
 - experience
 - professional judgement.
- verification activities using:
 - interviews with personnel
 - review of documents
 - observation and inspection.

Findings are recorded in the audit report which describes areas of non-compliance and the necessary corrective actions.

Where a detailed or tactical action plan exists, the corrective actions reported in the management audit should be assigned to appropriate managers, and assimilated into his or her action plan.

7.2 CARRYING OUT A MANAGEMENT AUDIT

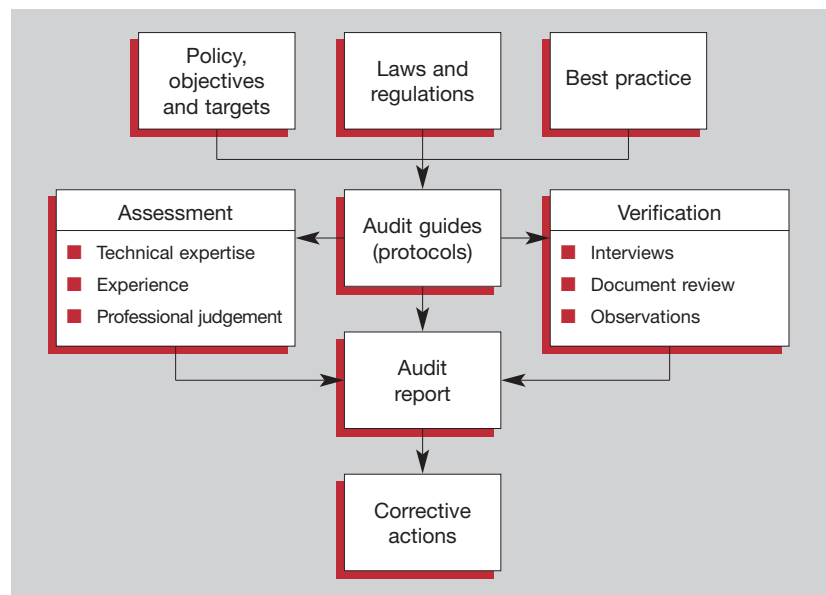
The management audit process is best organised into three component parts

- Pre-audit - where the terms of reference for the audit are agreed, the team is assembled, and relevant information compiled.
- On-site - where the audit team works with local management to assess strengths and weaknesses, gather and verify evidence, and record non-compliance.
- Post-audit - where the findings are documented and reported, and action plans drawn up, or existing action plans amended, for dealing with corrective actions.

Many organisations have made the management audit process a policy commitment, so that performance is regularly reviewed and communicated up the management line, and that actions are triggered to deal with unsatisfactory performance.

IN CHAPTER 7

- *Building a management audit framework*
- *Carrying out management audits in three simple steps*
- *Designing an energy and environmental audit programme*



The audit framework

ENERGY AND ENVIRONMENTAL MANAGEMENT MATRIX

	Policy	Organisation	Communication	Information	Planning	Audit
4	Signed, adopted and publicised policy, detailing a continual improvement programme, and how this is to be achieved. Regularly reviewed and disseminated.	Overall responsibility for energy efficiency and environmental protection assigned to senior manager. Line managers have responsibilities in job descriptions and performance appraisals.	Regular and positive two-way reporting with all stakeholders. Established internal communication and reporting channels.	Environmental Management manual exists, detailing action plans, work procedures, policy. Procedures for abnormal/emergency operating conditions.	Future resource requirements identified. Long-term investment in energy efficiency and environmental protection, to gain competitive advantage.	Audit programme conforms with BS 7750, EMAS requirements. Auditors are experienced, trained and independent of auditable facility. Audit findings are built into a dynamic action plan.
3	Signed policy, detailing energy and environmental management options. Irregularly reviewed and limited knowledge of its existence and purpose.	Energy and environmental management function, separate from line management. Defined responsibilities for some line managers regarding environmental issues.	Positive, dialogue established with regulatory authorities. Regular reports on relevant issues to senior management.	Operational procedures for some activities, but not formalised into manual. Monitoring and control details maintained for energy consumption and regulated emissions and discharges.	Regular review of all stakeholder needs, including legislation and associated liabilities, and potential cost savings attributable to environmental management. Provisions made for future spending on projects with short payback.	Site specific audit programme which generates corrective actions, and is reported to senior management. Audits identify non-compliance with regulations, policy and industry good practice.
2	Signed policy statement. No details on how to achieve stated position. Limited adoption and distribution.	Responsibility for energy and environmental management delegated to one professional with some experience or training.	Irregular dialogue established in response to specific requests for information. No communication established between senior management and workforce.	Records and documentation are maintained where they relate to financial control or regulated activities.	Environmental liabilities understood. Investment is geared to regulatory compliance or cost reduction for current activities.	Periodic environmental audit programme to determine compliance with regulations. Energy audits limited to review of total spend and simple facility 'health checks'.
1	Informal set of guidelines about organisation's position on energy efficiency and environmental protection. No specific policy, issues addressed in an ad hoc fashion.	Informal and uncoordinated arrangements for energy and environmental management. Responsive to issues as they arise.	Irregular communication and patchy reporting channels established. Senior management only request environmental information after an incident.	Information, documentation and recording system is uncoordinated and informal. Environmental issues are not addressed in operating procedures.	Limited assessment of environmental liabilities, or potential cost savings. No resources allocated to environmental management.	No audit programme. Infrequent environmental inspections carried out. Focus on regulations. No corrective actions identified or reported.
0	No written policy statement.	No resources for managing energy and environmental issues.	No contact with regulatory authorities or general public. Lack of knowledge/awareness regarding environmental affairs.	No documentation exists. No records of energy consumption or environmental monitoring.	No knowledge of environmental liabilities, or potential savings from improved efficiency.	No management audit carried out.

7 MANAGING FOR CONTINUOUS IMPROVEMENT

7.3 DESIGNING AN AUDIT PROGRAMME

The form of an audit programme will be determined by the size, structure and culture of the organisation, and should be designed around six key considerations.

■ **Goals and objectives**

Generally, audits are intended to provide a mechanism for monitoring and controlling management performance. The long-term corporate goals are given in the organisation's energy and environmental policy statement. Objectives may be medium-term, to show how an organisation will proceed towards corporate goals over 2-5 years or short-term over the next year.

■ **Configuration**

Audit programmes may be typically driven by corporate headquarters, by division, or by individual factories or offices. Whatever configuration is adopted, consistency should be maintained through the use of a common approach and protocols.

■ **Resources**

Auditors need to possess appropriate technical and professional skills to be able to exercise sound judgement. They also need to have a range of interpersonal skills to enable them to carry out the assessment and verification activities. Wherever possible, auditors need to be independent of the operations that they are auditing, and have an agreed budget.

■ **Scope**

The range of operations which are to be included in the audit programme (eg manufacturing, maintenance, retail, offices) need to be established at the outset. The standards against which the operations are to be audited, and the extent to which best practice is used as an audit standard, also need to be defined.

■ **Coverage**

The audit programme should be designed to include all relevant energy and environmental topics, and ensure that the frequency of audits and the proposed range of operations can be matched to the available resources.

■ **Approach**

The approach to auditing reflects management style. Energy and environmental auditing might be integrated into other audit functions, such as quality or health and safety. The use of protocols, the procedures for carrying out site visits, and the reporting format should all be designed to meet the needs of individual organisations.

Using these six parameters, an audit programme can be designed to meet the needs of energy and environmental management, and become an integral part of the broader programme.

Managing for continuous improvement

ACTION POINTS

- Identify existing audit programmes in your organisation (eg quality, health and safety).
- Design a management audit programme.
- Create audit protocols to guide auditors step-by-step through the process.
- Carry out a pilot management audit, using experienced auditors to transfer knowledge and know-how into your organisation.

REFERENCES

FURTHER INFORMATION

There are numerous sources of further information. The following Best Practice programme publications are available from BRECSU or ETSU Enquiries Bureau – see overleaf.

DOE BEST PRACTICE PROGRAMME DOCUMENTS

The following are available from BRECSU.

Good Practice Case Studies

- 148 Energy management. J Sainsbury plc.
- 149 Organisational aspects of energy management. Sheffield MDC.
- 150 Energy Management. Manchester University.
- 151 Energy Management. Manchester Airport.
- 259 Energy Management at the National Westminster Bank plc.
- 324 Energy management – staff awareness. British Telecommunications plc.
- 325 Energy management – training and motivation. HM Customs and Excise.

Good Practice Guides

- 74 Briefing the design team for energy efficiency in new buildings.

- 75 Financial aspects of energy management in buildings - a summary.
- 133 Energy efficiency in the work place - A guide for managers and staff.
- 165 Financial aspects of energy management in buildings.
- 167 Organisational aspects of energy management: a self-assessment manual.
- 186 Developing an effective energy policy.

General Information Leaflets

- 8 Contract energy management guide for building managers and occupiers.

General Information Reports

- 12 Organisational aspects of energy management.

The following are available from ETSU.

Good Practice Guides

- 69 Investment appraisal for industrial energy efficiency.
- 84 Managing and motivating staff to save energy.
- 85 Energy management training.
- 169 Putting energy into total quality – A guide for energy managers.

The Government's Energy Efficiency Best Practice programme provides impartial, authoritative information on energy efficiency techniques and technologies in industry and buildings. This information is disseminated through publications, videos and software, together with seminars, workshops and other events. Publications within the Best Practice programme are shown opposite.

Visit the website at www.energy-efficiency.gov.uk
Call the Environment and Energy Helpline on **0800 585794**

For further specific information on:

Buildings-related projects contact:
Enquiries Bureau

BRECSU

BRE
Garston, Watford WD25 9XX
Tel 01923 664258
Fax 01923 664787
E-mail brecsuenq@bre.co.uk

Industrial projects contact:
Energy Efficiency Enquiries Bureau

ETSU

Harwell, Oxfordshire
OX11 0RA
Tel 01235 436747
Fax 01235 433066
E-mail etsuenq@aeat.co.uk

Energy Consumption Guides: compare energy use in specific processes, operations, plant and building types.

Good Practice: promotes proven energy-efficient techniques through Guides and Case Studies.

New Practice: monitors first commercial applications of new energy efficiency measures.

Future Practice: reports on joint R&D ventures into new energy efficiency measures.

General Information: describes concepts and approaches yet to be fully established as good practice.

Fuel Efficiency Booklets: give detailed information on specific technologies and techniques.

Introduction to Energy Efficiency: helps new energy managers understand the use and costs of heating, lighting, etc.