Communicating with managers

Your Chief Executive has delegated to you responsibility for developing and implementing your Council's Cities for Climate Protection™ inventory and action plan. So far so good. But how can you attract and maintain the attention of management and councillors? This strategy sheet provides some advice.

Five tips for improving communication

1. Brief management and councillors at key points in the process

Seek 'live' briefings with management and relevant councillors at key points in the development and implementation processes. Remember, your Council is making a serious commitment on behalf of your community, so councillors and senior management need to be informed and involved. Focus the content of briefings on key findings (such as opportunities associated with new facilities), preliminary proposals for measures, and overviews of the inventory and action plan. Include specific recommendations for their consideration and identify emerging issues that require evaluation.

2. Report performance regularly

A regular reporting system is important in keeping you informed about progress yourself, but it also gives you a way of maintaining the attention of management. A simple, easy-to-interpret report (preferably simple graphs) of performance relative to key indicators should be sent to relevant managers and councillors each month or quarter. It should include dot points raising major successes and problems, and how they are being addressed. It can also flag key issues that will require management decisions in the near future.

Organise publication of this regular report in internal and community newsletters and/or on bulletin boards in libraries and other high-visibility locations, for the information of all staff, councillors and the community.

By negotiating regular reporting by key operational groups (see *Possible Indicators* in the information sheets in Section 2), their commitment can be encouraged and accountability achieved.

3. Present material for maximum impact

Most organisations have standard formats for presenting information to management or Council. Make sure you know what is expected in your organisation, and follow the guidelines. It is a good idea to talk to the accounting section about presenting the financial aspects of proposals: you should seek their assistance with draft proposals until you feel confident you can follow the accepted approach.

Usually, a proposal will include:

- summary of proposed action;
- costs and benefits of the proposal;
- risks, added benefits and other considerations;
- implications for the organisation and the community;
- resources to be used;
- milestones and outcomes;
- recommendations for approval.

Strategy sheet S3 *Financial evaluation of projects* can help you make sure costs, benefits and risks are fully considered.

Proposals should be brief. They should provide the right amount of information in a form that enables management or Council to make clear and specific decisions to approve actions. It is good practice to include no more than four recommendations in one proposal.

4. Get feedback on failures, then respond

When a proposal to management or Council fails to gain approval, actively follow-up to find out the reasons. Then develop a revised proposal that addresses the problems raised. It may be necessary to discuss the details of a problem with the specific manager or councillor who raised the concern.

5. Develop alliances

Often other people in your organisation can help you raise the priority of the CCP™ program. Your work involves organisational change, efficiency improvement, quality assurance, improved accountability and continuous improvement, and other people in the organisation may be pursuing similar objectives. Coordinating your activities and developing integrated strategies increases the chances of success.

A harsh reality is that environmental programs are often stereotyped as warm, fuzzy and costly. Linking your program to activities that are seen as cost-effective or strategically important can enhance its status.

Problems and opportunities you may face

Scepticism: Many people see environmental programs as costly and likely to interfere with core activities. Make sure your proposals for CCP™ measures and your overall action plan are business-like and clearly show opportunities to improve organisational performance as measured against recognised criteria. Benchmarking and performance indicators provide a basis to highlight where unusually high costs or significant opportunities for savings or other beneficial outcomes exist.

Crises: Often an equipment failure or other crisis creates an unexpected need for investment in equipment. Make sure you are ready to offer advice on how to make that investment help reduce greenhouse gas emissions. This is the time when the cost of a greenhouse response measure can be minimised, and some barriers to adoption can be at their lowest. But it's also a time when quick, decisive action is essential, and this atmosphere of urgency can mean that

simple solutions which can be quickly implemented to solve the obvious problem can tend to be bulldozed through. Such solutions often prove to be expensive or problematic in the long run. Examples of crises/opportunities include:

- after complaints about poor lighting, the union discovers that office lighting levels are below Australian Standard requirements. Obvious solution: install more light fittings—a costly and inconvenient exercise. Smart option: arrange for cleaning of light fittings and replacement of lamps with high-light-output, high-efficiency 'triphosphor' fluorescent tubes and reflectors. Offering people well-designed fluorescent desklamps in major problem areas could also help. This saves capital and operating costs, and avoids inconvenience while reducing greenhouse gas emissions instead of increasing them.
- an extension to a building overloads the existing airconditioning. Obvious solution: install additional airconditioning. Smart option: use lower-cost strategies such as upgrading insulation of ceilings and ductwork, installing shading (or window films) and improving lighting efficiency, so the existing airconditioning plant can cope. (Note that it would have been even better to consider these issues when the extension was being designed; see *New investments* below.)

Inadequate or short-term investment and decision-making criteria regarding energy efficiency and environmental issues: Overcoming these barriers may require education, negotiation with accounting staff and, sometimes, councillor and management support. The best solution is to negotiate a formal policy. For example, Energy Smart Partners in the NSW Sustainable Energy Development Authority (SEDA) scheme formally commit to implementing any measure demonstrated to have an internal rate of return better than 20 per cent. This is roughly a five-year payback, but it is equivalent to earning 20 per cent per annum interest on the investment, a much higher rate than Councils can achieve through their usual investments. (See also Strategy sheets S3 *Financial evaluation of projects* and S4 *Purchasing policies*.)

New investments: It is important to take advantage of every opportunity when decisions are being made on new facilities or equipment. This is often the cheapest, easiest time to incorporate technologies and systems that reduce greenhouse emissions. Seek management approval to be involved in the decision-making processes, and ensure you have sufficient budget to draw on expert advice. Each investment decision affects greenhouse gas emissions for between five and 50 years, so it's important to get decisions right.

The role of Councillors and Council committees

Councillors are the elected representatives of the local community. They shape Council policy and participate in major decisions through both formal committees and informal processes.

Often, one or more councillors has a strong personal interest in environmental issues. Their involvement in developing and implementing policy, monitoring performance and influencing senior management can be pivotal. But there is also scope to demonstrate to councillors with interests in other areas, such as local economic development or social justice, that energy efficiency and greenhouse response measures can help achieve their objectives, too.

Monitoring and reporting

Using indicators and benchmarks

Indicators and benchmarks are important tools in monitoring the success of your action plan and reporting on progress—within Council, to the Cities for Climate Protection™ campaign operators, and to the community.

The CCP™ computer software calculates a number of useful indicators for use in monitoring and reporting. These are fairly broad in nature. It makes sense to use more specific indicators for individual measures where appropriate.

Indicators are simply measures of performance. For example, annual cost of energy purchased is an indicator. By recording and reporting values of indicators, staff and managers can identify trends, make comparisons, and set targets against which performance can be assessed.

Use of appropriate performance indicators is a common management tool—for example, most organisations monitor expenditures against budgets. Using indicators to monitor the performance of your organisation's strategies for reducing greenhouse gas emissions will help you to:

- identify areas where good results are being achieved so you can learn from successes;
- focus on areas where emissions are high or increasing, so you can identify problem areas and address them early;
- collect information needed for your CCPtm reporting;

Benchmarks are reference points against which performance may be measured. Typical benchmarks include:

- performance of similar facilities;
- performance of the same facility in the past;
- an earlier forecast or estimate of performance—a target;
- 'best practice', as identified from international literature or technical analysis;
- best theoretically feasible performance.

Selecting indicators

The most appropriate indicators will vary from organisation to organisation and may even differ between sections of an organisation. You may develop indicators to monitor the performance of particular programs or activities (an energy management program, for example), as well as the performance of the organisation as a whole.

Key criteria for selecting indicators are:

- Can the information be collected relatively easily?
- Is the information of reasonably consistent accuracy?

- Is the indicator meaningful to management and staff?
- Does the indicator provide early warning of problems or opportunities?

Indicators of **participation**, **process** or **impact** may be used. These are described below.

Participation indicators

These indicators reflect the extent of participation within an organisation, for example:

- number or percentage of sites reporting greenhouse gas emissions to management quarterly;
- percentage of total annual greenhouse gas emissions being addressed by greenhouse strategies.

Process indicators

These indicators chart your progress through the process of implementing your emissions reduction strategies—progress not necessarily visible using *impact* indicators. Often, these indicators reflect milestones. Some examples are:

- regular reporting of greenhouse gas emissions is in place;
- organisational change has occurred which facilitates implementation of the greenhouse strategy (for example, establishment or expansion of an energy management team);
- staff have been trained in relevant issues (the indicator could measure the proportion of staff trained);
- greenhouse criteria are incorporated in purchasing criteria for equipment, buildings and the like;
- requirements have been developed for suppliers to provide data on greenhouse gas emissions related to, for example, goods purchased or facilities designed;
- benchmarks have been established for performance comparisons.

Impact indicators

These indicators document actual outcomes—the effects of measures and action plans. For example:

- levels of emissions;
- number and/or size of new emission-reducing actions identified and/or implemented;
- emissions relative to baselines, targets or forecasts;
- energy efficiency of new equipment compared with that of existing equipment.

They are often related to the level of an organisation's activity or the size of the community—for example, greenhouse gas emissions (or energy consumption):

- per thousand dollars of turnover or expenditure;
- per capita;
- per square metre of floor area;

- per client, child cared for, etc.

Possible indicators are suggested in the relevant information sheets in sections 2 and 4 of this workbook:

Presenting indicators

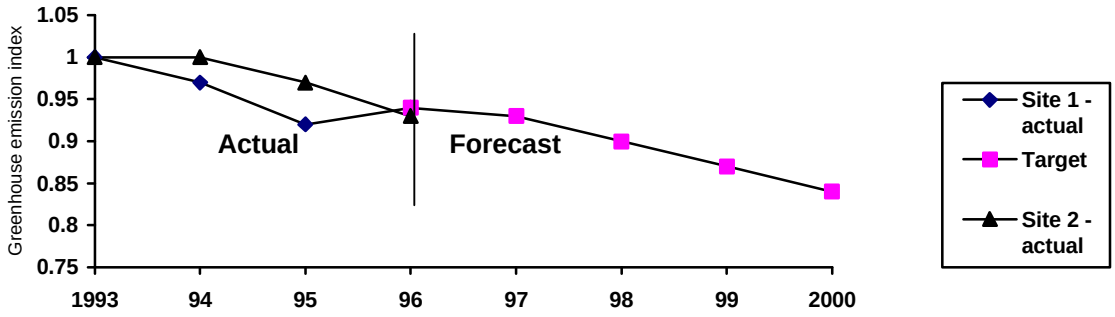
A single value of an indicator is of little use. Indicators are tools for comparison, for example:

- between different types of activity (annual emissions due to heating and cooling compared with annual emissions due to running lighting); different strategies (using gas or electricity for cooking); or different sites;
- against targets;
- over time (for example, trends in emissions per thousand dollars of expenditure on an activity).

The value of an indicator may vary for reasons that aren't related to your strategies (because of the limitations of measuring equipment, for example, or because of seasonal variations). In cases like these, the figures might have to be adjusted in some way so they can be effectively compared. This is risky as it can distort the picture rather than clarifying it, so seek expert advice before you start manipulating indicator values. You might also have to collect data for some time before meaningful trends are obvious or useful comparisons can be made. For example, winter gas consumption might decrease because of unusually warm weather, rather than because of any change in behaviour.

Performance can also be compared by creating an **'index**'—expressing the value of an indicator as a proportion of a reference value—as shown in figure S2-1. Because actual values aren't represented, using an index can also protect confidentiality of data while still showing trends or relative values.

Figure S2-1. Using an index to compare trends. In the example, values of an indicator for two different sites are 'indexed' against 1993 levels. (The 1993 values are represented as '1' for both sites, even though the actual values may be different; the levels in subsequent years are then expressed as proportions of the 1993 levels.)



Reporting progress

Good reporting within your organisation is critical to the effectiveness of your greenhouse gas reduction strategies (see Strategy sheet S1 *Communicating with managers*).

Your commitment to the CCP™ campaign requires you to provide only a limited amount of information. But if you report additional information—failures as well as successes—you can enhance the credibility of your reports and therefore increase the public relations benefits of your greenhouse strategy as well as building community involvement.

USEFUL TECHNIQUES FOR MONITORING PROGRESS

Annual repeat of your inventory

Your initial inventory told you about your emissions in a recent year before you enrolled in the CCP™ campaign. Preparing this initial inventory will have highlighted a number of areas where data collection was inadequate. Repeating the inventory at yearly intervals will provide feedback on improvements in data collection, as well as showing you how your actions have affected your greenhouse gas emissions and allowing you to report back to the CCP™ operators.

Review of a technical audit

If you undertook energy and waste audits when developing your action plan, you can conduct brief review audits every year to compare your performance with that of the earlier time. The review audit, which need not be as detailed as an original baseline audit, will reveal how your action plan is working. It is also likely to reveal additional opportunities that have arisen.

Track each project

The most direct and important means for many organisations to demonstrate their reduction in emissions or improvements in energy efficiency is to document projects implemented and savings achieved. Use of appropriate performance indicators will help in this process. Documentation of all major projects will help you track your progress and remain on target. It will also provide the information you need to substantiate your claims of savings made under the program.

Financial evaluation of projects

Opportunities to improve energy efficiency and reduce greenhouse emissions are often opportunities to cut costs and improve services as well.

In developing your organisation's CCP™ action plan, potential measures should be thoroughly and fairly evaluated. For councils, many actions are aimed at delivering social or other non-financial outcomes, so it should be remembered that financial evaluation is only one element of a comprehensive evaluation of an option. Nevertheless, if a greenhouse reduction measure meets financial as well as social criteria, this creates a strong case for adoption.

It is important that clear and fair financial criteria are applied to measures. Seek advice from your financial group about the criteria applied in normal investment decisions, so that you can use comparable criteria in evaluating measures to reduce greenhouse emissions. Note that different financial thresholds may be applied to different kinds of decisions: make sure you apply the kinds of criteria usually applied to *core* Council activities, as tougher criteria are often applied to non-core activities.

Many opportunities for reducing greenhouse gas emissions are missed because their financial attractiveness is hidden by:

- not considering all the costs, and basing decisions on purchase price alone;
- not considering all the benefits;
- expecting investments to pay for themselves too quickly;
- ignoring the low risk of investments in waste and energy minimisation, which makes actions with even a moderate return very attractive.

Consider all the costs

Initial cost is often the prime consideration when investing in new equipment, but a choice made on this basis alone can commit you to paying too much every month for many, many years. This can be a particular problem where the capital budget and future operational budgets are treated separately, which can occur with anything from the purchase of a small printer to large building projects. A measure that increases the capital cost beyond the budget limit may be rejected, regardless of the potential for future savings.

Running costs

Consider all the likely running costs over the life of the equipment or process. These could include:

- energy (e.g. electricity, gas, transport fuel);
- materials (e.g. consumables, maintenance, water, waste disposal);
- labour for operation, maintenance, administration, etc.

Both energy and materials use have implications for greenhouse emissions as well as for your financial bottom line.

Since many investments in reducing greenhouse emissions involve an up-front expenditure balanced by future savings in operational costs, it is extremely important to specify an appropriate lifetime over which to calculate the savings. Failure to fully consider future savings could lead to rejection of a worthwhile emissions reduction measure.

'True' capital costs

While adopting a more energy-efficient solution may increase direct capital costs, it will usually create capital savings elsewhere. For example, a more efficient lighting system will reduce the load on the electrical and cooling systems, and so reduce the capital cost of these items—if the designers of these systems make appropriate adjustments to their calculations. The true capital cost can only be assessed when all 'avoided' capital costs are subtracted from the more obvious purchase price.

Count all the benefits

Energy and waste management actions often have benefits other than the obvious reductions in direct costs. For example, converting from incandescent (including low-voltage) lamps to fluorescent, compact fluorescent, and metal-halide light sources:

- increases lamp life, and so reduces the cost of ordering, purchasing, storing and installing replacement lamps; and
- improves lighting reliability.

Some of these 'flow-on' benefits are easy to evaluate; others will be hard to quantify but may help you get the investment approved. Product and equipment suppliers should be able to help you to identify these additional savings.

Allow projects enough time to pay for themselves

In Australia, energy management and greenhouse emission reduction initiatives are often expected to pay for themselves in just one or two years (achieve a one- or two-year 'payback period'). In Europe, many organisations consider an eight-year period to be very satisfactory. And, for systems with long lives, much longer payback periods can be justified.

Short payback periods may be justified for investments where opportunities for increased revenue or reduced costs will be created for a limited time only, and management must be confident it will recoup its money quickly. For example, advertising expenditures must repay their costs over a short period.

However, waste and energy efficiency projects often have a life of 10–50 years, so longer payback periods are acceptable. Indeed, to apply a short payback criterion to a long-lasting measure is false economy, as options with much larger lifecycle savings may be rejected.

The term 'payback' doesn't tell the whole story anyway. 'Return on investment' (discussed below) is a better concept as it acknowledges that the financial benefits start flowing immediately, rather than only after the 'payback period' has elapsed. For example, the Sustainable Energy Development Authority (SEDA) in NSW expects its program participants to apply energy-saving measures that achieve a 20 per cent per annum real rate of return—roughly a five-year payback period.

Calculating return on investment

The return is the net benefit each year resulting from the investment. This is expressed as a percentage of the real amount invested (the purchase price minus any 'avoided' capital costs).

This return can be compared with the cost of capital, or the return that could be gained from alternative investments. For example, a Council may gain a return of 6 per cent per annum (or 4 per cent real return after subtracting 2 per cent inflation) by investing funds in banks. In principle, investment in an energy-saving measure that achieves higher than 4 per cent p.a. real rate of return on investment over its life would bring a greater return than the standard investment strategy. It is clear that applying a two-year payback period (requiring roughly a 50 per cent rate of return) is a very stringent investment criterion that may lead to rejection of measures with very attractive financial returns far above those available from traditional investments.

For example, a compact fluorescent light fitting may have a purchase price (including lamps) of $80, which is $40 more than an equivalent incandescent light fitting. The incandescent fitting uses a 75 watt lamp, and the compact fluorescent version uses two 9 watt lamps (total power 25 watts including the ballast). The light operates for 3,000 hours per year. Replacing lamps costs $5 for labour. The incandescent lamps have a life of 1,000 hours and the compact fluorescent lamps 8,000 hours.

The **maintenance costs** of the two fittings are:

Lamp type	Life (hours)	No. changes per year	Cost per lamp change			Cost per year
			Lamp	Labour	Total	
Incandescent	1,000	3.0	$1	$5	$6	$18.00
Compact fluorescent	8,000	0.76*	$4	$9	$13	$9.75
Maintenance saving						*$8.25*

* The fitting has two lamps; a similar fitting using one lamp would require half the number of lamp changes

The **energy costs** of each lighting fitting are:

Lamp type	Total power (watts)	Energy per year (kWh)	Energy price (cents/kWh)	Energy cost per year
Incandescent	75	225	8	$18.00
Compact fluorescent	25	75	8	$6.00
Energy saving		*150*		*$12.00*

The **return on the investment** for the compact fluorescent compared to a standard lamp fitting is:

$$\frac{\text{Net savings}}{\text{Net investment}} = \frac{(\$8.25 + \$12)}{\$40} = \frac{\$20.25}{\$40} = 50.5\% \text{ pa}$$

More sophisticated methods of calculating rates of return on investment can also be used; these can include factors for depreciation of equipment value, inflation, etc. Liaise with your financial group to find out the methods they use and, if they place insufficient emphasis on operating costs, work with them to revise their methods.

Consider risk as well as return

What your organisation regards as an acceptable rate of return (sometimes called an investment 'hurdle rate') generally depends on the riskiness of the investment—the higher the risk, the higher the return needed to justify the investment.

With energy-efficiency projects, the risk is normally very low because:

- you can be relatively confident about the return (as long as the building or equipment continues to operate, the savings will be realised); and
- you can calculate the potential savings relatively accurately (based on projected energy prices and past experience of energy savings potential).

This low risk means that energy management programs can be considered attractive investments even with a modest return. You might therefore consider implementing such programs wherever the annual return on funds invested is appreciably above the cost of capital—which could range from the 'lost opportunity' cost of not receiving interest on a bank deposit (say 5 per cent p.a.) to the overdraft rate (say 15 per cent p.a.).

What about 'Net Present Value'?

The concept of 'Net Present Value' or NPV can sometimes be useful in evaluating potential projects. NPV converts into today's dollars the value of all cash flows (in and out) over the life of a project, including the effects of price rises, inflation and the cost of capital.

The NPV for a range of different options (including doing nothing) can be calculated, and the option with the highest NPV chosen.

The effort of working out an NPV is probably not justified for initiatives where you've calculated the return on investment as relatively high (say, over 25 per cent p.a.), because in such cases the NPV will always be higher than the 'do-nothing' option. NPV calculations are probably not necessary for small investments either (say, less than $2,000).

However, Net Present Value can be useful where:

- the return on investment is close to your organisation's 'hurdle rate'; or
- future cash flows will be uneven (for example, equipment will be replaced or overhauled); or
- the prices of inputs (labour, electricity, gas, liquid fuels, parts) are increasing at different annual rates.

But beware. Calculating an NPV involves specifying an annual 'discount rate' for the estimation of future savings—the rate at which the value of future savings is reduced. This discounting is meant to offset the returns that could be gained by investing the same money in alternative investments. But applying a high discount rate can heavily reduce the value placed on future savings. For example, at a discount rate of 5 per cent p.a., a dollar saved 15 years from now is valued at 48 cents, but at a rate of 20 per cent, that dollar saved is valued at only 6.5 cents.

When calculating the NPV of proposed measures to reduce greenhouse emissions, ensure that NPVs are calculated for a range of discount rates, so informed judgements can be made. It is sometimes said that whoever specifies the discount rate determines the outcome of the decision; there is some truth in this.

Who can help?

Accountants, financial advisers and financial institutions

Registered energy auditors

Spreadsheet software (most programs contain Net Present Value calculators)

See also Strategy sheets:
S1 *Communicating with managers*
S4 *Purchasing policies*
S5 *Leases and contracts*

Example: Investing in the future

Newcastle City Council has taken an innovative approach to funding energy efficiency and greenhouse programs. A global budget for energy is allocated each year, based on the size of the energy bills being paid *before* the Council introduced its energy management program. Financial savings from implementing energy programs can then be re-invested in further energy- (and money-) saving activities. Council expenditure on energy then remains at the level it would have been if no energy savings had been achieved, while the gap between that level and actual expenditure on energy bills provides funding for investment in further savings.

In the short term, Council is no worse off financially, but an increasing proportion of energy funding is diverted from paying energy bills and polluting the environment to investment in an energy program that further reduces energy costs, creates local employment, and builds local expertise in energy efficiency—skills that can be used to make local business more competitive.

Purchasing policies

Buying new equipment or services provides a very cost-effective opportunity to reduce long-term operating costs and greenhouse gas emissions.

A purchasing policy sets out the criteria that will be used to choose which product or supplies to buy.

Tips for greenhouse-aware purchasing

1. Look beyond up-front cost

Often, purchase decisions are based on up-front purchase cost alone, not overall cost to the organisation over the life of the equipment or service contract. Indeed, some organisations allow staff to make purchases below a specified threshold (for example, $2000) without further approval. Such a focus on up-front cost may discourage staff from minimising overall cost to the organisation.

Ongoing costs are often larger than purchase costs over the life of an item of equipment, so it is false economy to ignore them. And lower ongoing costs usually mean lower ongoing greenhouse emissions too.

As an example, consider purchase of a 100-watt lightglobe costing $1 compared with a 20-watt compact fluorescent lamp costing $20, which delivers a similar amount of light. Over its life, the compact fluorescent lamp will cost less than a third as much to own and operate, due to its energy savings (enhanced by further savings on lamp replacement and maintenance costs, as well as reduced airconditioning loads). But it would have been rejected if up-front cost had been the only consideration.

⇒ *Refer to: Strategy sheet S3* Financial evaluation of projects

2. Buy what you really need

Often it is in a supplier's interest to sell larger, more expensive and less efficient equipment than you need, or to skimp on some features to trim purchase cost. Clear specification of your requirements is critical.

For example, many organisations buy 25-litre boiling water units for their kitchenettes. In practice, a much smaller unit of 1.5- to 5-litre capacity is usually quite adequate—it costs several hundred dollars less up-front and is $200 cheaper every year to run, as well as reducing annual greenhouse gas emissions by about 2 tonnes.

3. Seek expert advice when developing purchasing guidelines

Purchasing guidelines shape operating costs for long periods, so the development of high-quality guidelines is an investment in organisational success. Seek input from users of the equipment as well as technical experts.

By linking fees paid for advice to savings achieved, you create an incentive for advisers to help you cut costs and greenhouse gas emissions.

The kind of issues that should be taken into account are listed below.

4. Provide appropriate support for decision-making

Purchasing guidelines and specifications by themselves are often not enough to support high-quality decision-making by non-specialist staff.

Computer networks can now make centralised purchasing support tools available throughout your organisation. For example, a simple computer-based checklist and form covering all costs and greenhouse gas emissions for office equipment can be developed for use by non-specialist staff when seeking quotes. Data can be entered and calculations done automatically for comparison. The data collected can also be automatically added to a database, to save other purchasers time and effort.

Staff training in application of energy efficient purchasing policies is essential. And back-up to assist staff in interpreting information provided by suppliers will also be needed.

Clear instructions are also important. In one case, purchasing staff considered themselves legally liable for damages if a supplier of a less energy-efficient product complained about rejection on the grounds of energy efficiency. The problem was solved when the head of the organisation issued a formal written instruction to consider energy efficiency in purchasing decisions.

5. Ensure suppliers adopt appropriate purchasing criteria

Where a supplier provides a service (such as providing drink vending machines) or is responsible for selecting equipment which will be used by your organisation (for example, lighting installed in a leased office), ensure appropriate criteria for selection of energy-efficient equipment are used. Since you will pay the operating costs, this is important for financial performance as well as greenhouse gas emissions. You could include an incentive in the form of a bonus commission where a supplier achieves savings on your behalf.

6. Ensure staff are trained to operate equipment

Some features designed to save you money and reduce greenhouse gas emissions rely on using equipment appropriately. For example, the energy savings from buying *Energy Star* compliant computers and office equipment will not be achieved if staff do not make use of the energy-saving features. Training and information programs may be needed.

Greenhouse issues to consider . . .

. . . when buying equipment

Consider:

- direct use of energy (usually electricity) **during operation** (see sheets E10 *Office equipment*; E11 *Motors, drives, pumps, fans*);
- indirect use of energy from **reduced cooling loads** in airconditioned buildings. Reducing electricity use by equipment in an airconditioned building is considered to reduce airconditioning energy consumption by 10 to 25 per cent beyond the direct energy saving (see sheets E5 *Heating and cooling buildings*; E10 *Office equipment*);
- contribution to the greenhouse effect from **CFCs, HFCs or solvents** in products (see sheets E5 *Heating and cooling buildings*; E12 *Refrigeration*).

The following issues are also relevant (although they are beyond the scope of this workbook):

- emissions relating to **producing materials** for, and **manufacturing**, the product;
- emissions relating to delivering the product, especially **packaging**;
- emissions associated with **consumable materials** (especially paper) used during the operating life of the equipment.

. . . when buying electricity, gas and other fuels

As competitive markets open up, more electricity suppliers are offering 'green' electricity tariffs. For a small increase in the unit price, the supplier will guarantee that the electricity you use is from renewable energy sources and has near-zero greenhouse gas emissions. If switching to a green tariff is accompanied by efforts to improve energy efficiency, the extra cost of the 'green' electricity can be offset by the energy savings.

When negotiating contracts to purchase energy, aim for a pricing structure with lower fixed supply charges and greater emphasis on demand-related charges and marginal unit price: these costs can be influenced by energy management strategies, while fixed supply charges can't.

And when evaluating the potential savings from energy-efficiency measures, don't just use today's energy prices as the basis for cost-benefit analysis. Indications are that prices for contestable customers (those who are eligible to negotiate contracts directly with suppliers) have been unsustainably low in the early stages of the competitive energy market. It is false economy to make equipment purchases on the assumption that such low energy prices will continue. The likelihood that greenhouse emissions trading and even carbon taxes will be introduced also means energy prices may be driven upwards in the foreseeable future. A reasonable position may be to base cost–benefit calculations on electricity prices 1–2 cents per kilowatt-hour higher than 1999 contestable prices.

⇒ *Refer to: Energy sheet E3 Negotiating energy contracts*

. . . when buying services

Arrangements with consultants and contractors are an excellent opportunity to help you reduce your own greenhouse gas emissions or influence suppliers to reduce *their* emissions. For example, in tender documentation, service providers can be asked to detail their environmental/greenhouse performance.

⇒ *Refer to: Strategy sheet S5* Leases and contracts

Who can help?

Equipment suppliers

Sample request to suppliers for information about a photocopier

Forms which itemise all relevant features and costs can be sent to tenderers to fill in. The process may need to be voluntary initially, to give suppliers time to collect the necessary data.

(Note that this example includes issues which are beyond the scope of this workbook, but should still be considered in a purchase decision.)

Model		
Purchase cost	$	
Cost of maintenance contract, 5 years	$	
Cost of paper (4,000 reams @ $6 ea)	$	
Duplex fitted (30% credit on paper cost)	–$	
Duplex easy to use (user to test)	Rate 1 to 5	
Cost of toner (for 2 million copies)	$	
Energy Star compliance	Yes/no	
Estimated energy consumption (5 years)	kWh	
Cost of energy consumption (5 years at xx cents/kWh assumed)	$	
Time to start copying from 'sleep' mode (30 sec or less preferable)	Seconds	
Recommend or approve use of recycled paper?	Yes/no	
Max. recycled content recommended	%	
Packaging recyclable or returnable?	Yes/no	
Disposal arrangements:		
• designed for disassembly to facilitate recycling of components?	Yes/no	
• does the manufacturer arrange recovery for remanufacture/recycling?	Yes/no	

Leases and contracts

Ensuring that leases and service contracts provide clear and appropriate signals and rewards is a very powerful way of improving energy efficiency and reducing greenhouse gas emissions. The right contract can help you reduce your own emissions as well as influence suppliers to reduce theirs.

Contracts are widely used to specify the relationship between a Council and service providers, consultants or contractors. These parties may provide council services to the community, design or specify buildings, equipment or materials; They may install, commission or maintain equipment, or provide other services. The decisions they make often have long-lasting impacts on greenhouse gas emissions.

Councils may lease some of the buildings they occupy and some of the equipment they operate. If lease agreements do not adequately specify performance in areas that affect energy efficiency and greenhouse gas emissions—such as maintenance or regular upgrading—the Council can be locked into higher levels of emissions (and operating costs) for years or decades.

Service contracts

Where Council contracts a third party to provide community services (rubbish collection, for example, or the operation of a leisure centre, library or other facility):

- Ensure that the contract provides feedback and incentives to the people who have the power to control energy consumption. This power is often shared between the Council as the property owner (with control over purchasing, modification and replacement of major equipment, buildings and so on) and the service provider (with control of daily operation, maintenance and minor equipment). For example, if Council does not have total control over energy consumption, the service contract should not specify that Council pays all energy costs (otherwise those actually using the energy have no financial incentive to reduce their consumption).
- Consider sub-metering to accurately apportion energy (and water) consumption and costs, rather than relying on arbitrary percentages or floor area, etc.

For contracts relating to the design or purchase of equipment or buildings:

- Negotiate target energy performance levels to be confirmed by monitoring after commissioning, with penalties for failing to achieve targets.
- Establish incentive arrangements for the consultant which come into effect if the building or equipment exceeds specified targets while maintaining quality of service.
- Specifically allocate time and resources for analysing the performance of the design and exploring options which may reduce energy consumption—and require formal presentation of the findings of these studies to you as client as well as to selected independent experts (for example, an energy consultant or someone from a relevant government agency).

- Ensure that appropriate arrangements for convenient and comprehensive maintenance, such as proper access and adequate metering, are included in the design, and that maintenance programs are put in place during commissioning.
- Consider alternative types of contract which are more likely to encourage energy efficiency, including:

  performance contracting (where the capital for an energy-saving measure is provided by a contractor, and some of the savings are used to repay the capital as well as to provide a profit for the performance contractor);

  build-own-operate (where an external entity funds construction and operation over a specified period, after which ownership reverts to the client. In this case, any reduction in operating cost over the period of ownership and operation accrues to the builder, so more emphasis is placed on minimising lifecycle costs—as long as the contract period is at least 10 years);

  delivered services (where an external organisation is responsible for the delivery of a service, for example, conditioned air, heating or compressed air. Councils contract the service at a set rate, and the service provider must deliver the service—within the agreed parameters—for the best commercial return).

⇒ *See also Strategy sheet S7* Building design and specification

When considering a performance contract:

- check that any easily implemented savings measures have already been put in place;
- check that the property will be used by Council, in a similar role as at present for at least the next five years;
- decide on the length of agreement acceptable to Council (normally 5 to 7 years where the contractor pays for capital improvements);
- contact the Performance Contracting Association for a list of suitable contractors.

Equipment and maintenance leases

- Ensure that the equipment leased is efficient—in terms of energy use and consumables such as paper—by requiring the leasing agency to provide comparative information on running costs of a range of options (see also Strategy sheet S4 *Purchasing policies*).
- Include a clause which requires regular checking and re-setting of energy-saving modes fitted to equipment.
- Require regular checking of energy consumption and corrective maintenance when consumption varies from specification.
- Allow for possible upgrading or replacement of equipment before the end of the lease where technological change would lead to net savings.
- Where practicable, specify equipment with remanufactured components or recycled material content.

Building leases

Councils normally own the buildings and facilities used in providing community services, but may also lease facilities, especially generic buildings such as offices. Council may also lease out facilities it owns, ranging from sporting ground club-houses to offices, halls or carparks.

Normally, a building owner or manager will operate and maintain a building, as well as pay energy bills for central services, in exchange for a regular payment for 'outgoings'. Often, this arrangement does not even include provision for regular reporting of energy costs to tenants, so there is no accountability—other than the level of complaints about discomfort or failed lights. Since most leases run for at least three years and can apply to around half of the total greenhouse gases from activities in the building, it is very important to get them right.

Where Council is the tenant, negotiate a lease including specific clauses which will cut your costs and greenhouse gas emissions (and often those of the building owner as well). Clauses could include:

- requirements for regular reporting (preferably monthly, but quarterly is adequate) of building energy costs and consumption, allocated pro rata among occupants and benchmarked against previous consumption and 'good practice';
- requirements for a once-off comprehensive energy audit to be followed by annual review audits, with reports to tenants covering findings, recommendations and progress on implementation of recommendations;
- provision for building owner and tenants to share energy savings beyond agreed levels as well as the costs of agreed actions to improve energy efficiency;
- requirement that the landlord move to a 'green' electricity tariff (see E3 Negotiating energy contracts); when combined with an effective energy efficiency program, this will cut both costs and greenhouse gas emissions.
- opportunities for incorporating all energy in leased buildings (including base building components) in a Council buying group when negotiating an energy contract (where contestable markets exist).

A comprehensive building maintenance contract should also be required, including:

- a building-specific program of work showing the dates when each activity is scheduled, addressing the particular equipment in the building, and including standard sheets to be filled in by maintenance workers;
- monitoring and adjustment of times of operation of equipment and lighting;
- regular cleaning of equipment and filters;
- regular checking and maintenance of dampers, economy cycle controls, valves etc.;
- regular calibration of thermostats and controls; including those not in the plant room;
- regular cleaning of light fittings and programmed replacement of lamps (with old fluorescent tubes being sent to a lamp crusher for recovery of the mercury they contain); note that programmed replacement reduces labour costs and saves energy by avoiding the need to install excess lighting to allow for degradation of light output (see Australian Standard AS 1680.1, and Energy sheet E7 Lighting overview in this workbook);
- formal reporting of work done;

- opportunity for the tenants and/or their representative to review and require revision of the maintenance program at specified intervals.

Where Council is the landlord:

- negotiate a lease which includes the provision of the services and benefits described above;
- ensure that energy-efficiency upgrades can be undertaken with appropriate sharing of investments and benefits between Council and the tenant.
- when refurbishing, ensure that energy efficiency (and materials efficiency) options are fully evaluated (see 'Contracts relating to the design or purchase of equipment or buildings' under Service contracts on page S5-1).

Who can help?

Agencies such as Energy Efficiency Victoria and SEDA use contracts and agreements with suitable clauses.

The Performance Contracting Association of Australia is developing guidelines for some types of contracts.

The Australian Greenhouse Office might also be able to help (EEST has performance contracting guidelines available, although these have been drafted for Commonwealth agencies).

Working with contractors

Services carried out by contractors offer significant opportunities to reduce energy use. Contractors who use energy inefficiently are wasting your money—the cost of their energy use is passed on to Council as part of the contract price.

When local governments think about energy efficiency, they generally focus on activities that occur within their own offices. Increasingly, however, Councils contract out a wide range of services. Some of these, like the operation of swimming pools and recreation centres, provision of food services, building management and construction, either use large amounts of energy or significantly affect future energy consumption (e.g. when a new building goes into operation). When you contract for a service, you do not give up the opportunity (or responsibility) to use energy efficiently.

In addition to the financial and environmental benefits that can be achieved, the performance of contractors can also contribute to the image you present to the public. Your public face includes not only the activities carried out by Council staff, but also those functions performed on your behalf by contractors.

Building partnerships for energy efficiency

Although you can, and should, include your basic requirements in specifications for contracts, you can achieve greater and more innovative efforts if you also work closely with your contractors. Contractors may, after all, be in a much better position than you are to identify the changes in their activities that would improve energy efficiency. Most contractors are quite willing to work on reducing energy use so long as they are not put at a competitive disadvantage.

In your requirements for periodic reporting, you should specify that contractors include progress on agreed upon improvements in energy efficiency. Additional actions beyond those specified by Council should also be included in such reports.

Make contractors aware of your policies

The first step in building energy efficiency into your service contracts is letting current and potential contractors know about your participation in the CCP™ campaign and your efforts to reduce energy use.

You can send out letters to contractors and suppliers to notify them of the adoption of policies and ask for information about the types of greenhouse abatement or energy efficiency strategies they currently use. This step lets contractors know about your intentions well before the actual preparation of tender documents. It also provides you with basic information needed for formulating your requirements.

Include your requirements in specifications for tenders (see Strategy sheet S5 *Leases and contracts*).

If you are undertaking an audit of your activities, you could extend this audit to cover activities carried out by contractors.

Working for 'win-win' solutions

If a contractor delivering a service on behalf of Council needs to make additional financial investments to achieve energy efficiency improvements, it is critical that Council recognise the risks involved for that contractor. There is scope for Council to reduce the level of perceived risk by actions such as:

- **Joint financial arrangements which guarantee recovery of the investment**: This may require a longer-term contract, or an arrangement whereby Council will take over financial liabilities for the investment if the contractor fails to win future contracts. Spreading cost recovery over a longer period reduces the annual cost, making it more affordable for both Council and contractor.
- **Commitment by Council to include in future competitive tendering new provisions** which require a standard of performance consistent with that achieved by the new investment. This would require competing tenderers to invest in equipment of a similar standard, so a contractor offering inferior performance on energy efficiency could not undercut the contractor who has invested.

See also Strategy sheet S5 *Leases and contracts*

Building design and specification

The process of designing a building and its systems influences energy consumption and greenhouse gas emissions for decades to come. It is a critical opportunity to lock-in lower emissions—and to improve the quality of working environments.

Opportunities for saving

1. During the design process

Communication failures between key interest groups, consultants and contractors often lead to inefficiencies, over-design, waste and energy inefficiency. Ensuring effective consultation and cooperation can make a big difference.

For example, the heating, ventilation and cooling (HVAC) system designer must estimate the heating and cooling loads of a building in order to design the HVAC system. This information should be:

- **cross-checked by experts** in lighting and office equipment to make sure excessive allowances have not been made for internal heat loads. For example, modern lighting systems are now often rated at 10 to 12 watts per square metre (and best practice is 6 to 8 watts). If the HVAC designer allows for 20 watts per square metre, this would lead to installation of an extra 100 kilowatts of cooling system capacity in a 10,000 m^2 building—at your cost.
- **used in detailed discussions with the architect** as a basis for reviewing the building design. The load analysis will identify the major elements of the building which contribute to peak heating and cooling loads, and hence determine HVAC equipment capacity and capital cost (and peak electricity demand charges—see E3 *Negotiating energy contracts*) as well as annual operating costs. In many cases, an architect can use this information to make minor modifications such as changing areas of glazing, incorporating shading or adding insulation in critical areas.

Regular project team meetings provide an opportunity to facilitate this kind of communication.

⇒ *See also Energy sheets:*
E5 Heating and cooling buildings
E6 Energy efficiency and the building envelope

2. Through appropriate costing methods

It is critical that all costs and benefits of each element of the building over its life are considered. Since Council is usually an owner-occupant or long-term tenant, it can take advantage of such analysis to maximise lifecycle savings for itself. Many other organisations can expect to have short-term leases only, which makes it more difficult to place full weight on future operational costs when making choices, as someone else may

benefit from their investment. The example above illustrates how investing in a more expensive energy-efficient lighting system can reduce HVAC cost. This also applies to use of advanced glazing systems, improved duct insulation and many other features. Typically, the HVAC system costs over $200 per square metre, so measures which reduce cooling loads (and hence HVAC costs) often reduce the net capital cost of the building. Effective liaison between consultants is necessary to achieve optimum results, and such liaison must be allowed for in their budgets and specified in their contracts.

⇒ *See also Strategy sheet S3* Financial evaluation of projects

3. Through carefully structured contracts and contract supervision

Often, tough negotiation on contract prices leads to contractors cutting corners on design time, comparison of options, financial analysis, consultation with other contractors and consultants, and commissioning of plant and equipment. Contracts should require these processes to be carried out to specified levels and should allocate itemised funds for their implementation. A few hours of design or analysis time can save thousands of dollars in building costs.

Clear guidelines on rate of return criteria for evaluation of energy efficiency measures should be provided. Consultants should also be required to present estimates used for selecting equipment and material for review by the client.

It is important for the client to be actively involved in decisions on issues affecting greenhouse gas emissions. Consultants may be nervous about choosing an option with low greenhouse impact, because it is not the 'standard' solution.

Contractual frameworks can be designed to provide incentives for success in improving energy efficiency. For example, a bonus can be paid if the building exceeds a targeted level of energy efficiency—and/or part of the fee withheld until performance meets agreed targets based on actual energy bills.

New types of contracts are also emerging—such as **performance contracting** or **'build-own-operate'** arrangements— which are more likely to encourage energy efficiency:

⇒ *See also Strategy sheet S5* Leases and contracts

Who can help?

Refer to energy agencies such as Energy Efficiency Victoria and SEDA.