



INDUSTRY INSIGHTS

PREPARING FOR A CARBON CONSTRAINED ECONOMY – THE CHALLENGE OF DOING ENERGY EFFICIENCY WELL

INTRODUCTION

The Energy Efficiency Opportunities (EEO) program was introduced in July 2006 to improve the identification, evaluation and public reporting of energy efficiency opportunities by large energy using businesses.

Corporations that use more than 0.5 petajoules of energy per year are required to undertake a rigorous and comprehensive assessment of their energy use and identify cost effective energy efficiency opportunities with up to a four year pay back period. Approximately 215 corporations are registered for the program representing around 60% of business energy end use and 45% of total energy end use in Australia. Companies were required to complete their first assessments by 30 June 2008 and must publicly report the outcomes of those assessments, including their business response, by 31 December 2008.

As companies complete their first energy assessments, it is timely to review the lessons companies are learning as they engage in a deeper understanding of how and where energy is used in their businesses. This article draws on corporate presentations and panel discussions from a series of Energy Efficiency Opportunities workshops co-ordinated by the Department of Resources, Energy and Tourism in May-June 2008. It involved representatives from Rio Tinto, News Limited, National Australia Bank, Bunker Freight, Nyrstar, Goodman Fielder, Wesfarmers, Alcoa Australia, Midland Brick, Orica, Origin Energy, Xstrata and Adelaide Brighton. The paper captures shared insights from industry speakers about ways of optimising a business's response to energy efficiency and provides practical suggestions that other companies can use.

It is clear that even the most experienced companies are continuing to learn from their involvement in the EEO program and have been surprised by both the challenges and the benefits which have emerged from it. Their insights challenge some of the common myths or misconceptions about energy efficiency, for example

This article pulls together a selection of views expressed by company speakers at the national EEO workshops held in May-June 2008, in the context of undertaking energy efficiency opportunity assessments. The linking narrative has been co-authored by consultants working for the Department of Resources, Energy and Tourism and members of the Energy Efficiency Opportunities (EEO) team.

that companies which use large amounts of energy already optimise its use or that energy efficiency is easy to implement. Results are indicating however, that where the EEO framework is implemented effectively it is helping companies to reduce costs, increase energy productivity and prepare industry for a carbon constrained economy.

EEO assessments identifying significant additional savings

There is a perception that because energy makes up a high percentage of operating costs for many large energy using companies they must already have found all cost effective energy efficiency improvements. However, the EEO assessment framework requires companies to look at energy in more detail and to question assumptions. A common comment from industry speakers was that they had found a surprising number of opportunities that improve business and energy productivity.

Bunker Freight Lines spend around 30% of their operating budget on fuel, but the requirement of the EEO program to gather good energy data and investigate its use by different variables and on a more frequent basis has helped them to learn a lot more about how it can be used more efficiently:

“When first exposed to the EEO program the first thing I said was ‘not another government program!’ But the program opened our eyes to the countless possibilities in not only reporting what energy we use, but drilling down and starting to think about how we use our precious energy. In this field we all fall for the trap that we are at world’s best practice—we have always done it this way; it’s our industry and we know better—but we need to open our minds and think outside the square. Because when you think you know it all; or are the best at your game, that’s when you stop learning. There are always savings. Evaluate every opportunity no matter how silly it looks—you may be surprised.”

Val Gomez, National Workshop Manager, Bunker Freight Lines

Bunker Freight Lines has recently completed a trial energy assessment using the EEO framework. The assessment has identified 32 energy efficiency opportunities which have a payback of four years or better. Eight of these opportunities have been investigated in detail and have the potential to deliver savings of at least \$4,415,000 for a one-off investment of \$2,586,000, reducing fuel consumption by at least

12%, reducing greenhouse gas emissions by 13%, and with a payback of 1.7 years.

Nyrstar’s lead smelter at Port Pirie is also very energy intensive, consuming around 5 PJ of energy at a cost of \$50 million each year. Prior to their involvement in the EEO program the company had limited energy monitoring systems at a process level and no specific resources allocated to energy management:

“The level of rigour which was required for the program was quite daunting. We had been involved in Greenhouse Challenge Plus for a few years but the business had been quite slow in driving change. We were concerned that we had very limited measurement and monitoring of energy consuming or producing processes. We didn’t have an energy management team in place so responsibility for the assessment was assigned to the Business Improvement Network—the Deputy General Manager and Business Manager for each site—in consultation with other business units such as Procurement and Sustainable Development.”

Moira Coffey, Business Improvement Analyst, Nyrstar



New Volvo fleet arrive at the Bunker Freight Lines Head Office workshop as part of the program of introducing newer and more efficient fleet to assist Bunker meet identified energy savings targets.

By utilising the EEO framework and building on existing business systems, Nyrstar have developed a much better understanding of energy use across the process and the opportunities they have to recover lost energy. Opportunities identified during the process, if implemented, will save the company around \$5 million per year for an initial investment of \$9 million, a return of less than two years.

“While we started from a very low base we have achieved a significant amount. For example we have worked closely with the senior management team to put energy onto their radar, and energy efficiency is now one of the objectives that we have to achieve amongst all of the other priorities at the site. It’s also a standing agenda item at the board level. My take-home message is that this journey takes time and it takes small steps, but these are key milestones.”

Moira Coffey, Business Improvement Analyst, Nyrstar

One of the barriers to energy efficiency has traditionally been the short payback period (1–2 years) which most companies require for energy efficiency projects. Feedback at the workshops suggested that the EEO requirement for companies to identify and report on all opportunities with a payback period of up to four years has been valuable, particularly within the context of rising energy prices. This was the experience of News Limited:

“I believe the most important part to getting it working is to get the finance right. People have had ideas for years, but in any organisation many good projects don’t get funded. Well, we relaxed the finance rules for the EEO project and said ‘everything with a four-year payback will get considered’. However, while the engineers were there we said ‘let’s look at everything’. We had some projects with six-year payback, such as a replacement of a chiller in Cairns, but we evaluated everything right down to CapEx level.

“One of the things we discovered is that there are lots of reasons, apart from energy efficiency, why people want to see a project implemented. The chiller in Cairns is a good example because it blew up two weeks after the audit. At 37 degrees inside the building they didn’t have much time—we would have had to stop our business— but instead of rushing out to get the first chiller they could find, they said ‘Right, we’ve got the CapEx prepared and it’s for the most energy efficient model available, and it doesn’t matter what the payback is now because

the machine has stopped. Let’s just go out and buy it.’ So it’s been really valuable to have those CapEx’s on the shelf and ready to go.”

Tony Wilkins, Manager Environment and Climate Change, News Limited

Tony Wilkins also noted that payback periods need to be modelled using a variety of assumptions about future energy prices and then regularly reviewed:

“I put the five-year payback projects to the decision makers and they got knocked back straight away, and yet the joke is that if I took them back with today’s energy prices rather than the ones of just three months ago, then they would have just snuck in. I am going to have to continually re-model carbon and electricity pricing, I think every quarter, in this current environment. We are trying to predict the payback of equipment that lasts for 15–25 years so you do need to model a range of assumptions to do that. For example, we looked at tri-generation in WA and it had a seven-year payback when we modelled it at the end of last year.

“However, I am pretty sure that if we remodelled it now then we would actually get it up. That is one of the challenges—to continually think ahead. I wasn’t brave enough to put the electricity prices in that I thought could be possible. I have now learnt to put a range of prices—best, worst and expected— and that is going to help us to get them up.”

Tony Wilkins, Manager Environment and Climate Change, News Limited

Analysing energy data provides new insights into improving productivity

The EEO program requires analysis of energy data from a range of different perspectives to enable companies to develop an understanding of the relationship between activity and energy consumption. For example, it requires companies to develop energy mass balances which increase their understanding of where energy is used and lost along the process. Companies are also encouraged to undertake theoretical benchmarking to establish how little energy could be used in particular production processes. This approach is driving the identification of energy efficiency opportunities.

Traditional business improvement processes tend to focus on the efficiency of production processes, for example material inputs, production waste

and product quality. Energy losses in production or transport tend to be 'invisible' and therefore overlooked. For example, Bunker Freight Lines was already collecting and monitoring data on fuel used by individual trucks and drivers, but the EEO program encouraged them to drill down further:

"One of the opportunities which came up during the assessment was to measure the fuel used for each truck journey to see whether we could isolate any individual factors which influence efficiency. I originally resisted this idea and argued long and hard about it; I said 'engine manufacturers spend billions of dollars trying to improve efficiency so who are we to think we can second-guess them?' But we are now building on the GPS system we have on all trucks to enable us to work out why certain runs use less fuel and how we can improve efficiency, for example through better tyres or more aerodynamic skirts. It comes back to measurement. I hadn't been thinking about measuring fuel efficiency at such a micro-level, but you have to think this way. It's really opened my eyes. Look beyond what you think you're already doing well."

Val Gomez, Bunker Freight Lines

Moira Coffey from Nyrstar also commented:

"One of the benefits of the EEO program was that it gave us the chance to look at our processes from a different point of view. The rigour required was very good for us because we hadn't had a focus on the energy component of the process; it was always about the metallurgical side of the business."

"We decided that we had to invest in data collection up front so that we could work out where we could save the most energy. We learnt a lot from this about how energy is used in different parts of the process. We had commissioned reports in the past which said you could save 5% of your energy, but they didn't say where or how much. This work finally put some detailed numbers around that. The detailed analysis up-front really helped us."

Moira Coffey, Business Improvement Analyst, Nyrstar

Data collection and analysis is therefore one of the fundamental business processes that companies need to undertake to ensure that they understand and manage their energy effectively, can accurately identify energy losses and prepare effective business cases for decision making.

Many of the participants in the EEO program did not realise how little they understood about their energy use until they started to undertake the assessment. For example, when Midland Brick became involved in a trial assessment for two of their oldest kilns (kilns 7 and 8) they quickly realised that their data collection system was inadequate:

"A dawning light for the plant manager, was that he really didn't have a good way of measuring gas consumption in this plant. Gas accounts for 68% of the operating cost of the plant and electricity 27%, so 95% of the cost was gas and electricity. So we really had to look at metering. We did a lot of investigation and came up with a simple vortex gas meter to replace the old turbine gas meter installed in the 1970s. We can now instantaneously measure our gas pressure, temperature and consumption. We're able to benchmark it properly. Previously we had an error of around 10% of what had been allocated and billed to the plant."

Greg Smith, General Manager Operations, Midland Brick

After the new sub-meters had been installed Midland Brick discovered a significant variation in energy use between two kilns:

"In 2006 kiln 7 was running at 2.73 MJ per tonne of product and kiln 8 at 2.38 MJ when we started the program. Once we got the metering fixed that became obvious, so the question was asked, 'why?' We discovered that a previous kiln manager a decade or so ago had made some adjustments to the burner to improve internal turbulence and therefore heat transfer. He removed venturi blocks and increased circulation. We had one kiln with venturi blocks and one without, and vastly different gas consumption on the two kilns. This had been hidden from us before because the sub-metering wasn't working properly."

"In 2007 we made incremental changes and energy used by kiln 7 dropped to 2.71 MJ. Then in May we had to shut down kiln 8 due to a fire, so we took the opportunity to get some of these projects done. Because we had a full time project manager on the job all of the work had been planned and equipment organised. As a result we were able to drop consumption in kiln 7 to 2.33 MJ. So we made a substantial reduction."

Greg Smith, General Manager Operations, Midland Brick



Energy Efficiency Coordinator, Nigel Hogarth (right) and Kilns Supervisor, Mike Robson, discussing the Midland Brick kiln door project.

The efficiency improvements at Midland Brick have not only saved them energy and money. The better utilisation of waste heat for drying the bricks has also improved productivity and product quality.

While detailed data analysis is essential to provide companies with the information they need to identify energy efficiency opportunities, this technical data needs to be converted into a form which can be easily

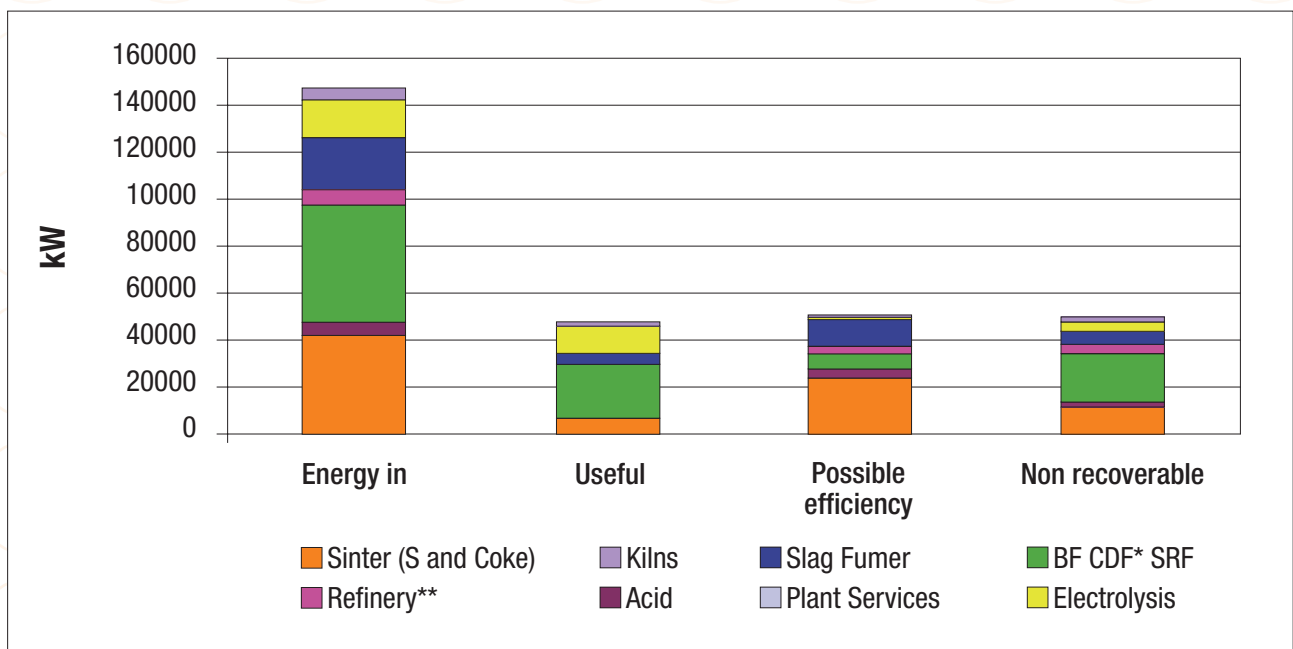
communicated and understood by senior managers and the board.

Nyrstar employed a consultant to prepare the energy mass balance and convert the results into a simple Sankey diagram. This was then converted into the diagram, shown at Figure 1, which clearly identifies what and where energy is used, where energy is lost and what losses can be recovered. This has been particularly useful when presenting energy opportunities to the Chief Financial Officer and other decision makers by indicating exactly where and how big savings will be achieved. This approach also demonstrates one of the benefits of allocating an energy efficiency program to the business improvement team—they will fashion and communicate it in a way that is linked to core business.

Through their analysis of the data and a series of workshops, Nyrstar was able to identify more than 450 ideas, which were then distilled down to a list of 190 ideas using a ‘value-ease’ model which helped them to prioritise (Figure 2). The company is using the energy data and analysis generated from their assessments to help them to develop future strategies to prepare for a carbon constrained economy.

“Outside of EEO, more importantly, and this is why we decided for the business improvement teams to get involved in this project, is to think about what is

Figure 1: Energy efficiency analysis for Nyrstar (Moira Coffey, EEO workshop presentation, Adelaide, 2/6/08)



Nyrstar's strategy going forward. You won't find the beautiful targets and objectives, and all those kinds of things for Nyrstar yet, but we are in the process, now that we know what we do know and we know what the size of the opportunities are, we can start to think about what is the most appropriate strategy for us going forward."

Moira Coffey, Business Improvement Analyst, Nyrstar

The benefits of reporting

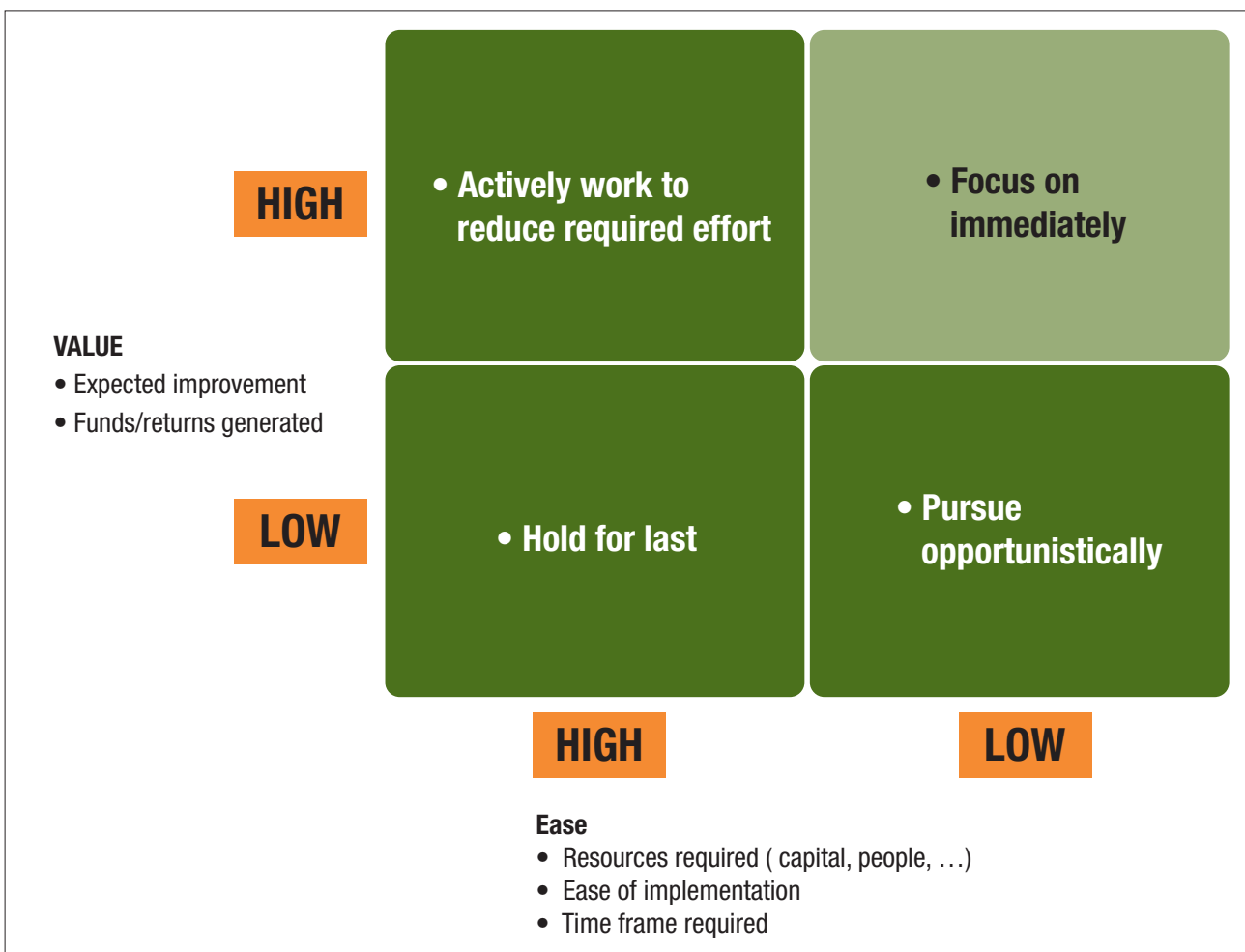
As energy prices rise and the issues of climate change come increasingly to the fore, stakeholders are expecting companies to demonstrate their commitment to improved energy efficiency. Several speakers commented that EEO's reporting requirements are consistent with or have enhanced their existing systems for transparency and accountability. As Neil Marshman from Rio Tinto

pointed out, this has become even more important given the increased interest of investors in energy and greenhouse performance.

"So why implement energy efficiency? For those people who have been asleep over the past 18 months, an emission trading scheme is coming. Around 88% of our emissions are energy related ... there is a tight nexus between energy and greenhouse. The bottom line is that with emissions trading we're going to have to do something further about energy efficiency. Our employees expect it. Our investors are starting to expect it. We spend a lot on energy so if we can save money the CFO rather likes it."

Neil Marshman, Chief Climate Change Consultant, Rio Tinto

Figure 2: The 'value-ease' model used by Nyrstar (Moira Coffey, EEO workshop presentation, Adelaide, 2/6/08)



Companies have benefited from EEO's reporting requirements as both a management and reporting tool:

"We absolutely support the Energy Efficiency Opportunities program. It helps companies like Alcoa to improve accountability, to communicate best practices and to pick up best practices, while driving real improvements in energy use, and that's important to us."

Alan Cransberg, Managing Director, Alcoa Australia

With energy contributing around one-third to the cost of producing a bag of cement, Adelaide Brighton sees the benefits of a program which increases the rigour and accountability of its energy management program:

"We are committed to the EEO process because we see it as an opportunity to raise standards for energy management within the company, to put energy efficiency opportunities in front of the highest level of corporate management, to tap into all levels of the company for efficiency ideas, and to demonstrate Adelaide Brighton's performance to stakeholders through public reporting. We also have a philosophy of 'you can't change what you don't measure' so EEO fitted well with that."

Ros de Garis, Group Sustainability Manager, Adelaide Brighton

For National Australia Bank, the EEO reporting requirements provides them with an important framework to track their progress towards carbon neutrality:

"The EEO reporting structure is one that we were very pleased to take on board because it does provide us with a really good structure to make sure that we are appropriately identifying opportunities and that we're tracking the progress of these."

"It provides us with control over a very wide range of projects, which can range from something simple like movement sensors to something more complex like co-generation. It provides an opportunity to put everything together under one program so that we can see how we're tracking towards our overall goal of carbon neutrality. I should also say that being a bank, we have a regular requirement to report all of this information right up to board level; we report on a six-monthly basis to a board committee who oversee our public commitment to carbon neutrality and want to see on a regular basis that we're making

progress towards it. While this is a high-level view it forms the basis of a more detailed report that goes through our systems to provide updates on our climate change agenda and is ultimately reported to the board."

Trevor Moore, Head of Environment and Sustainability, National Australia Bank

Addressing the challenges

While industry speakers and panel members agreed that energy assessments identify additional cost effective opportunities, many also commented that it is both difficult and complex to put into practice. In the words of Neil Marshman, Consultant, Rio Tinto:

"There is a myth that industry has always been told, that there are \$50 notes lying around on the factory floor (from energy efficiency improvements) and that any 'blind Freddy' can go in and pick them up. That has put us back because management has said 'just go and send blind Freddy in to pick them up' and blind Freddy hasn't turned up with the \$50. This (energy efficiency) is a hard and messy process and it has to be managed accordingly."

Neil Marshman, Consultant, Rio Tinto

The perception that energy efficiency is an easy process to implement has been counterproductive because it has encouraged companies to underestimate the resources and the processes required for success. Some of the implementation challenges which were mentioned by industry speakers include inadequate resources, a lack of commitment from some staff and management, and competing demands on capital and resources. One of the suggestions from Val Gomez at Bunker Freight Lines is to ensure that senior management is totally committed and providing leadership from the top:

"As with any worthwhile project, the assessment process requires full commitment at the top level of the company to make sure that it works properly. If the commitment is there then the assessment becomes more manageable. People also need to be empowered and given the resources to look at this project as an opportunity to save money rather than just something to satisfy the government."

Val Gomez, National Workshop Manager, Bunker Freight Lines

The fact that EEO is a legislated requirement provides energy champions with another tool to encourage participation and compliance:

“There is no doubt that this program has helped us to identify opportunities which save energy and reduce emissions, which we would not otherwise have implemented. I like the formal approach of EEO even though some businesses resist the ‘big stick’. While I sympathise with the resourcing issues because I also face them, personally I like having the legislative requirement in my back pocket in case the environmental argument for saving energy and the business argument about saving money are not enough to convince people to change.”

Mike Searles, National Environment Manager, Goodman Fielder

Two of the industry speakers also spoke about the need to ensure that energy efficiency is ‘owned’ by key people in the organisation. People need to understand the contribution they can make to the organisation’s goals through their own work and their achievements need to be recognised:

“Make sure it’s owned by the line. You may get there by your own personal talent but the people who run the operations need to own it. Then look at how your organisation rewards the results. You need to have very transparent measures. While the line managers might be focused on whatever the objective is, whether its environment, safety or operational improvement, the more you can get every single employee being part of the winning side and winning solution then the more effective you will be.

“The best way to do this is to make sure there are regular talking points about performance, regular exposure of the issues and problems and regular recognition of people that are doing the right thing. If you have a workforce of 200 people and the top 10 are focused on it but the other 190 couldn’t care less, you haven’t got a chance.”

Alan Cransberg, Managing Director, Alcoa



Engineers at Alcoa Australia undertaking maintenance checks to ensure equipment is operating at maximum efficiency.

“Linking EEO to existing business improvement processes is the key. It’s about you as the champion, identifying people in each business unit who are interested in what you are trying to do, whether that’s water or energy or something else. Once they are on side, and if there are no financial rewards then you have to use recognition. Once they can see the link, for example between the diversity of water supply and the sustainability of their nitric acid plant then your job is done. They will do it from there. It’s not easy; it’s a lot of hard work and a lot of talking.”

Cameron Schuster, Sustainability Manager, Wesfarmers

The need to link energy efficiency to core business systems and processes emerged as a key theme throughout the workshops. The best way to ensure that EEO is implemented successfully is to regard it as a business improvement process rather than a discreet corporate project:

“The environment group in CSBP started off running the EEO program and to some extent still administers and coordinates it, but we have found that linking EEO to existing business improvement processes is in fact the best way to get a result. If you try to run it as a separate program you will fail. This is a conclusion that each of our businesses has come to: you have to build it into existing business processes and make it part of ‘business as usual’.”

Cameron Schuster, Sustainability Manager, Wesfarmers

“It was important to employees that we didn’t have two assessment and reporting systems running in parallel. We therefore built on existing systems like the company management system, which was used to produce an EEO policy and procedure which apply to all of our businesses. We have also integrated EEO into existing plant operating systems, existing data collection systems and our regular management review processes which include a daily review of energy.”

**Ros De Garis, Group Sustainability Manager,
Adelaide Brighton**

Mike Searles from Goodman Fielder also highlighted the need for focus and persistence to ensure that plans are actually implemented:

“You have to stay on top of implementation. You can’t just send a few emails and sit back and wait for that report to hit your desk. I’ve had to go out to these sites repeatedly. I try to leave no more than a couple of months and I make phone calls between time, so they’re constantly hearing from me and they realise that it’s something they have to do. It is an issue that requires a lot of hard work and a significant level of effort from a wide range of very busy people.”

**Mike Searles, National Environment Manager,
Goodman Fielder**

Design an approach to suit your business

The design of an effective energy efficiency program needs to be based on a good understanding of each company’s business drivers, structure, systems and culture. The EEO Framework, while rigorous, provides a flexible approach which can be adapted to meet the needs of individual companies and sites, and several speakers talked about the way that they had designed their own program.

Moira Coffey from Nyrstar highlighted the benefits of carefully considering your approach before embarking on the assessment.

“We could see that there were many different ways that we could have done this program. To ensure we had the right approach we sat around the table with technical experts, managers with particular priorities for the site and a consultant that understood and had experience with EEO. This allowed us to design an approach that is helping us to meet the goals of all of us.”

**Moira Coffey, Business Improvement Analyst,
Nyrstar**

There are clearly different drivers for energy efficiency within companies and the assessment needs to reflect these. Large energy users such as Alcoa and Rio Tinto already have energy efficiency targets and energy management systems, but they acknowledge that there is room for learning and continuous improvement of approaches besides management systems. Energy prices and energy security are a major concern for these companies and they are always looking for and finding new opportunities to increase efficiency.

For other large companies, such as National Australia Bank and News Limited, energy efficiency is one of many strategies which are being pursued to meet carbon goals and targets. News Limited has announced that it plans to become carbon neutral by 2010 through a range of strategies, including a 20% reduction in emissions through efficiency improvements and the use of renewable energy. National Australia Bank’s response to climate change is driven by the concerns and aspirations of employees, changing community expectations, an understanding of the risks and opportunities associated with climate change and emerging regulatory frameworks, such as EEO.

Mike Searles from Goodman Fielder explained that his company had adapted the EEO assessments to accommodate the ‘peculiar issues and problems’ of their three divisions, which relate to the nature of their operations:

“The commercial division makes margarine and cooking oils which are manufactured at a small number of large sites. Each of these sites has been assessed in detail. However, in the baking division we have around 20 bakeries that are more or less the same, so they lend themselves to a representative assessment. This involves assessing a few sites in detail; and then rolling out the findings to the other sites. The third division—home ingredients—have announced that they are opening a brand new facility in Western Sydney, so we decided that we would get the most value by looking at the new facility and trying to influence capital decisions about what boilers, air conditioners and so on will be installed.”

**Mike Searles, National Environment Manager,
Goodman Fielder**

Adelaide Brighton had to adapt their approach to the practical needs of each business unit, which influence how they can carry out energy efficiency opportunity assessments:

“In identifying opportunities, we gave sites the flexibility to do what worked for them. A site with 13 people can do a full assessment relatively quickly. The sites which are bigger broke into smaller groups. Some pulled in cross-functional groups while another had ‘toolbox’ sessions where they took working teams and put in ideas to give them a starting point. We had to give groups flexibility.”

Ros de Garis, Group Sustainability Manager, Adelaide Brighton

Focus on ‘below the line’ behavioural change

There is a perception that regular energy audits and an energy management system based on quality improvement systems such as ISO 9000 or ISO 14000 are all that companies need in order to find and act on energy efficiency opportunities. Experienced industry practitioners have learned that the process is much more complex than this, and one which requires the commitment and capacity of people across the organisation to implement the program. And while a logical, step-by-step process is important, this should be combined with flexibility and an acceptance that there will be ‘learning along the way’. As Moira Coffey from Nyrstar noted, ‘the leadership and people elements of the program ensured that it wasn’t just a ‘tick and flick’ exercise and another report on the shelf.’

Neil Marshman from Rio Tinto commented on his own learning process about the need to combine a systems and behavioral approach (Figure 3):

“We were originally persuaded by the energy efficiency industry to develop what I would call an ‘above the line’ program. This is a systems approach based on the ISO 14000 and ISO 9000 process of ‘Plan-Do-Check - Act’, which includes a policy, standard, targets, evaluation, measurement and reporting.

“Over the last 18 months I have realised that there are a whole lot of issues that are equally important ‘below the line’. It’s not just about systems; it’s also about behaviour. There are a whole lot of things

that we’re doing which are not logically sequenced, around things like leadership, skills and resources, leading practice case studies, demonstration projects, internal communications and a community of practice. Our current focus is on understanding which of these are really working well and driving them through the organisation.”

Neil Marshman, Consultant, Rio Tinto

Many of the other workshop speakers had reached a similar conclusion about the need for effective staff engagement. Tony Wilkins from News Limited noted that:

“Over the past decade I thought technology would fix things for us and allow us to get to our targets. Now I’ve learnt that you can put those reports on the table but if people aren’t engaged it’s not going to happen. The energy audit process has therefore been designed to give a lot of empowerment to local divisions. We started our audit process in 2000 and we got some good results with very little capital, but if we want to go the next step we need to engage people.”

Tony Wilkins, Manager Environment and Climate Change, News Limited

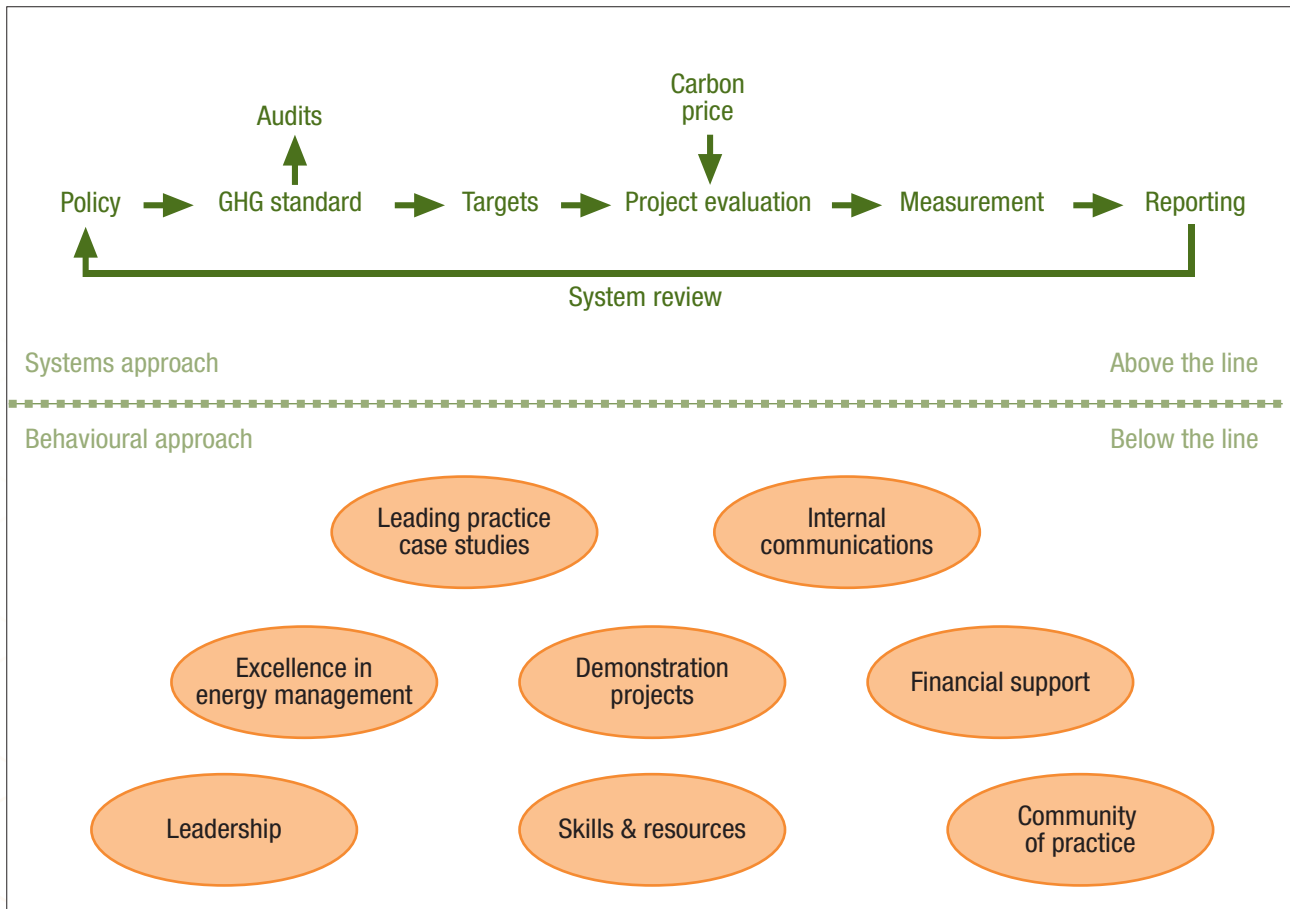
However, this is not an easy process:

“Wesfarmers always likes to go beyond compliance. However, one of the challenges that you have to overcome in the business is a lack of commitment and the fact that everyone is busy, particularly as they have been during the resources boom. That will always be an issue and something that you have to remember when you embark on a program like this.”

Cameron Schuster, Sustainability Manager, Wesfarmers

These problems can be partly overcome by integrating energy efficiency into existing business systems. However, companies have also achieved successful outcomes by communicating the organisation’s objectives and strategies to all staff and by providing an opportunity for them to get involved. Companies report that this will not only improve the program’s effectiveness; it will also have a positive impact on staff morale:

Figure 3: Interaction between a systems and behavioural approach to energy management (Neil Marshman, Rio Tinto, EEO workshop presentation, Melbourne, 22/5/08)



“The enthusiasm from staff was very unexpected, particularly from younger staff members... The program has been very effective from a staff retention point of view. I’m absolutely sure that it’s made people work a little harder and stay with us. It’s made people feel that what they’re doing is important.”

Tony Wilkins, Manager Environment and Climate Change, News Limited

“Our employees have generally enjoyed their involvement in the project, resulting in a boost in morale. The older engineers in particular love this stuff; they love the opportunity to step back and to use their 20 or 30 years of accumulated knowledge on a special project. The benefit of a good societal outcome has certainly helped.”

Mike Searles, National Environment Manager, Goodman Fielder

Mike Searles also noted that improved morale can have a direct benefit for the corporate bottom line:

“I sat down with the Managing Director of the business to talk about the energy efficiency improvements. He said ‘I don’t care about the \$60,000 financial saving; it gets lost in the rounding. What I really care about is that everyone was so involved in the program; they loved it; they were excited; when they turned up to work they kept talking about it; there was a real buzz and excitement’. He said ‘I can’t put a number on what that was worth but I know that it was more than \$60,000’.”

Mike Searles, National Environment Manager, Goodman Fielder

However, staff engagement needs to be carefully managed to balance organisational and individual needs. For example, National Australia Bank manages the increasing number of participants in its environmental committees with a 'light touch':

"Managing the input from all of our 'green teams' is a major challenge for a large corporation: we currently have 24 teams with over 800 members. When you have that groundswell of interest and people who want to be involved and do things, the immediate knee-jerk reaction is 'we have to put some structure around this and we have to control how people operate in our buildings and what they want to do'. We've consciously made an effort to step back from that controlling process. These people are volunteers and they want to do things but they also want to feel they have some control. I would describe it as a light touch."

Trevor Moore, Head of Environment and Sustainability, National Australia Bank

staff on energy efficiency and demonstrate their commitment to external stakeholders through corporate reporting.

Despite the challenges, the EEO program is demonstrating that companies are 'learning by doing' as they integrate energy efficiency into their businesses. This paper aims to share the insights of industry as they work through this process to enhance the capacity of all companies to identify additional, significant, cost effective opportunities, increase their energy productivity and prepare for a carbon constrained economy.

CONCLUSIONS

Understanding and optimising how energy is used is a central component of climate change strategy for all businesses. Participants in the Australian Government's Energy Efficiency Opportunities (EEO) program account for around 45% of Australia's total energy use and therefore have the potential to make a significant contribution to lowering the cost of abatement and reducing emissions prior to the introduction of the Carbon Pollution Reduction Scheme.

Increasing energy efficiency is a complex task. Despite the benefits, it has not been pursued at optimal levels due to barriers such as historically low energy prices, a poor understanding of how energy is used, the perception that a focus on energy will be a distraction from core business processes and the many challenges involved in any organisational change process.

Companies which are devoting time and resources to energy efficiency are however achieving significant results through a deeper understanding of how energy is used in their production processes. Many companies have also used the EEO compliance requirements as an opportunity to review and improve their business and energy management systems, engage with the Board, senior management and

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