Department of Resources Energy and Tourism

Energy Efficiency Opportunities Program:

Mid-Cycle Review

Executive Summary

December 2010

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1 INTRODUCTION AND KEY FINDINGS

The Energy Efficiency Opportunity program (the EEO program) is an energy policy measure requiring Australia's largest energy using corporations to undertake rigorous and comprehensive energy efficiency assessments to an improved regulated standard and publicly report the results. It was announced in the 2004 Energy White Paper in response to identified market failures and organisational barriers to improved energy efficiency by large energy users. The EEO program aims to address some of the information and organisational barriers that may impede the impact of the energy price signal in achieving the best possible energy efficiency.

The *Energy Efficiency Opportunities Act 2006*, associated regulations, and capacity building program commenced in 2006. The program operates in 5 year assessment and reporting cycles (2006-2011). The corporations participating in the program use 30% of Australia's energy use and emit 30% of Australia's greenhouse gas emissions through the combustion and use of energy.

The Mid-Cycle Review was undertaken as part of the evaluation timetable set out in the Explanatory Memorandum of the *Energy Efficiency Opportunities Bill (2005)*. The review was undertaken independently of the Department and this document is an Executive Summary of the final Mid-Cycle Review report.

The Mid Cycle Review aimed to measure the effectiveness of the Energy Efficiency Opportunities program up until mid 2010. In particular, the mid cycle review aimed to measure the impact of Energy Efficiency Opportunities assessment and reporting requirements and the program's communication and capacity building activities on the systems and process that companies use to manage and improve energy efficiency; and that subsequent impact on the identification, decision maker knowledge and uptake of cost effective energy efficiency opportunities.

In summary the review has found that:

- Effective and large energy savings identification and implementation is occurring.
- This is supported by evidence of organisational change associated with improved energy management systems, procedures and behaviour of participating corporations.
- Participating organisations have reported benefits (of differing magnitude) associated with the EEO program bringing greater rigour, structure and focus to their processes and systems, in particular associated with information data and analysis and opportunity identification and evaluation.
- While overall there was a not a correlation between organisational change and savings, there was a moderate correlation between organisational change

and identified energy savings for corporations that identified savings greater than 15% of assessed energy. This sub group, while small, also showed greater implementation rates compared to the other sub groups.

- Reporting to the Board has proved helpful for many corporations through greater awareness at Board level leading to better support for initiatives and understanding of energy use.

- Public and government reporting was raised as an issue for many corporations. Many corporations considered there was too much duplication and reporting the same data in different ways to meet the requirements of both State and Commonwealth schemes. This is a source of irritation amongst corporations who regard multiple reporting and the format as taking resources away from implementing opportunities. Positive comments included assisting corporations to focus, track and implement opportunities.

- The capacity building support provided by the Department was viewed favourably, with the EEO Assessment Handbook, Workshops and EEO Industry Guidelines considered the most effective.

- Actors such as the Global Financial Crisis (GFC), the proposed introduction of the Carbon Pollution Reduction Scheme (CPRS) and community expectations also impacted on corporation's drivers to identify and implement energy efficiency.

2 APPROACH

A three stage approach was used to conduct the Mid-Cycle Review which included a review of existing information, an on-line questionnaire and telephone interviews with corporations participating in the EEO program.

The review of existing information examined reported energy and financial savings, the Assessment and Reporting Schedules (ARS) completed by participating corporations (for interviewees), industry case studies, EEO program documentation and other documentation to provide an understanding of the energy efficiency systems and processes in place within organisations prior to the introduction of the EEO program. An on-line questionnaire was sent to all participants and 36 telephone interviews were conducted to assess corporation performance, behaviour and change by considering key aspects including:

- pre and post EEO program organisational processes, systems and accountability as a means of assessing change;

- non EEO program impacts to understand external influencing factors; and

- understanding barriers (both internal and external) pre and post EEO program which may have hindered implementation of energy efficiency.

The pre and post EEO program questions concentrated on the systems associated with the six key elements of the assessment framework, namely: leadership; people; information; data and analysis; opportunity identification and evaluation; decision making and communicating outcomes, rather than the 19 key requirements that underpin the key elements. This organisational change data was then related to the energy savings data reported to the Department as part of the EEO program's reporting requirements to determine if there was a relationship between the reported organisational change and energy savings for a corporation. The results of another survey (Ogilvy Earth, 2010) aimed specifically at senior (C-level) executives, and undertaken in parallel with the Mid-Cycle Review by the Department were also incorporated into the review as appropriate.

3 RESPONSE RATE AND RESPONDENT CHARACTERISTICS

A total of 103 respondents completed the survey out of the 239 corporations invited. The majority of respondents (93%) were EEO program coordinators within their corporations, and the majority of respondents worked within the Environment/Sustainability/Energy section of their corporation. Most respondents were from middle management (44%) followed by operations level (29%) and senior management (28%).

A total of 36 interviews were performed with representative from 27 corporations, equating to 11% of the 239 corporations invited to complete the survey. While, this is a relatively small percentage of the total number of registered corporations under the EEO program, it was considered an appropriate number to supplement the information obtained from the survey as the interviewed corporations represented a cross section of companies.

The Ogilvy C-level survey presents results from 80 interviews, 22 of which were conducted by phone and 58 online between 22 June and 15 July 2010.

4 KEY FINDINGS IN FURTHER DETAIL

4.1 PRE EEO PROGRAM POSITION

The pre EEO program position was determined based upon the findings from the ARS documents submitted by participating corporations to the Department, and the EEO case studies. Based on these sources, the following pre-EEO baseline conclusions can be drawn:

- participating corporations identified that prior to participation in the EEO program, moderate to major organisational changes would be needed to effectively carry out energy efficiency opportunities assessments;

- organisational changes were seen to be needed in particular against four of the six framework key elements of 'leadership', 'people', 'opportunity identification and evaluation' and 'communicating outcomes';

- with respect to the key elements of 'information, data and analysis' and decision making', many corporations predicted only moderate to minor changes being needed; and

- the case studies developed by corporations trialling and undertaking early EEO assessments suggested that more robust analysis of energy data was required to understand energy use, greater resources needed to be assigned to energy efficiency, and procedures needed to be developed to specifically address energy efficiency identification, assessment and implementation. The implementing of these types of changes lead to an improvement in the identification of additional energy efficiency opportunities.

4.2 ENERGY SAVINGS

Energy use assessed and energy savings identified, implemented, under investigation, to be implemented and not to be implemented have been reported to the Government and Public at the end of 2008 and 2009. In December 2008, 199 corporations reported for the first time on the results of their energy assessments and business response completed by June 2008. In December 2009, 186 of those corporations reported for a second time on progress and a further 13 corporations reported for the first time. The data obtained from the reports show the increasing maturity of the EEO program as evidenced by the progression of identified energy projects through the decision pipeline to determine whether they will be implemented or not. *Table 1* presents data to illustrate this trend. In December 2009 corporations had assessed 82 percent of their energy use, compared to 57 percent at the end of 2008.

Table 1 Summary of energy savings identified between 2008 and 2009 with a payback period of four years or less

	Energy (PJ) Savings		
	2008*	**2009**	**% Change**
Assessed Energy	1019	1376	35%
Identified energy savings	62.5	93.1	62%
Implemented energy savings	11.5	24.3	111%
Energy savings to be implemented	22.7	32.0	32%
Energy savings under investigation	22.2	26.8	21%
Energy savings not to be implemented	1.4	10.0	614%

Source: DRET (2010a)
*Rounding has caused opportunities for each business response category not to add to the total identified.
Note that energy savings to be implemented and implementation commenced have been listed together as to be implemented.

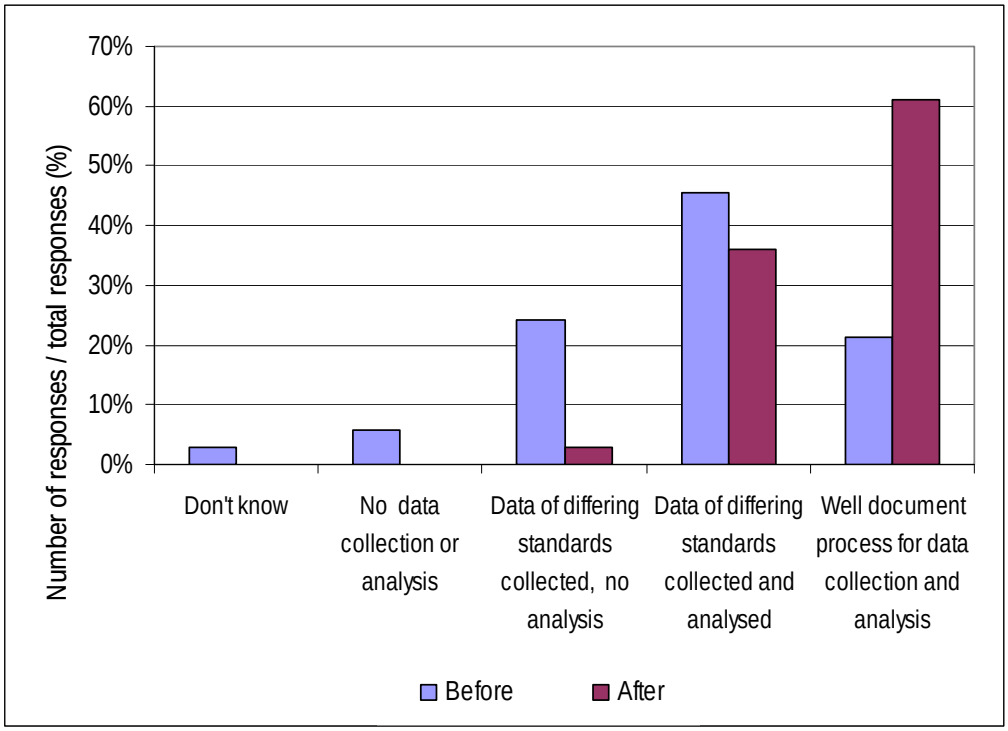
The energy use and savings reported by corporations are significant. By December 2009, 199 corporations reported identifying opportunities with less than a four year payback to save 93.1 PJ of energy per year or 6.8 percent of their assessed energy use. This is a significant increase of 49 percent on 62.5 PJ of energy savings identified by December 2008. In December 2009 corporations reported they had implemented or commenced implementation 47.8 PJ of savings or 51.3 percent of identified savings. This is an almost two fold increase (97.5 percent) on 2008 results when corporations had implemented and commenced implementation 24.2 PJ or 42.0 percent of savings identified.

4.3 ORGANISATIONAL CHANGE

Organisational change was assessed by comparing the survey responses for questions about the systems and processes underpinning the six key elements before and after the introduction of the EEO program. The survey results illustrate that organisational change has occurred, and in addition, that the EEO program has brought greater rigor, structure and focus to the processes and systems corporations have in place. This in turn has resulted in improved identification and evaluation of energy efficiency opportunities.

The largest organisational changes reported are in the 'information data and analysis' key element, as illustrated in *Figure 1*, which was also considered to be the most effective and important element of the assessment framework. The 'decision making' and 'communicating outcomes' requirements of the assessment framework were considered to be the least effective requirements, though all are seen as important. The 'decision making' requirement was also the least changed as a result of the EEO program.

Figure 1 Data analysis and collection before and after the EEO program was introduced (n = 103)



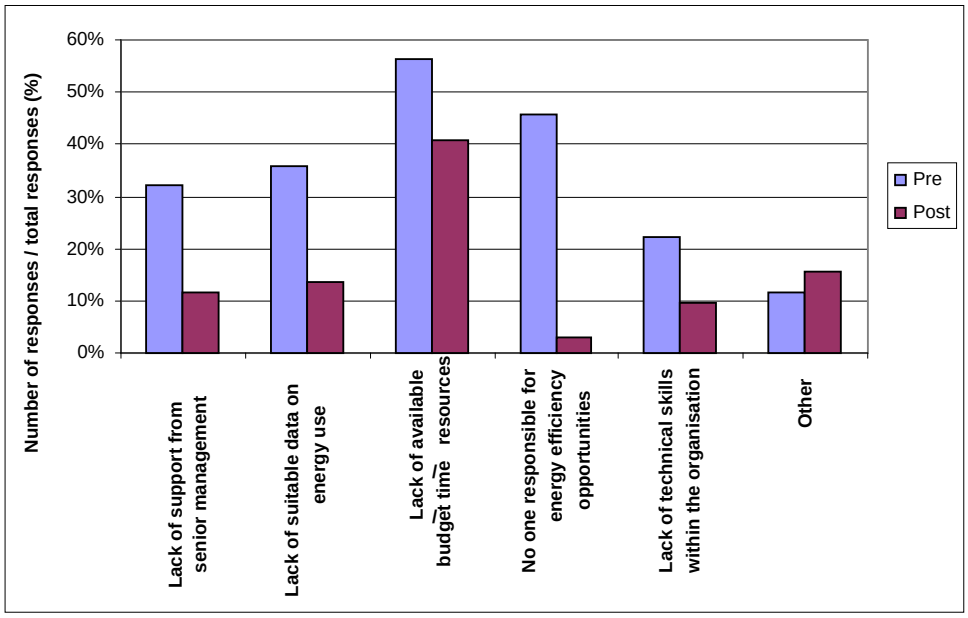
A comparison between overall organisational change at a corporate level (as determined by the survey feedback) and identified energy savings (based on energy data reported to the Department) was also undertaken. This showed there is a moderate correlation between organisational change and identified energy savings for corporations that identified savings greater than 15% of assessed energy. This sub group, while small, also showed greater implementation rates compared to the other sub groups.

While the above conclusions have been drawn based on collective data, at an individual corporate level, it is acknowledged that there are many different variables and business pressures that influence commitment levels and success within the EEO program. Some of these factors have been considered and are discussed below.

4.4 BARRIERS

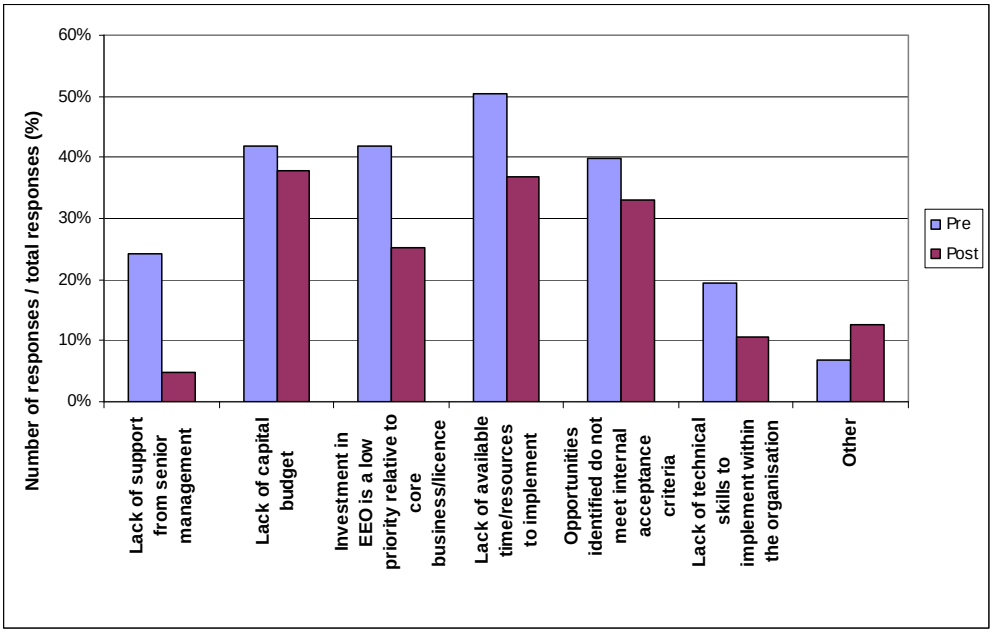
The change in barriers to the identification and implementation of energy efficiency opportunities before and after the introduction of the EEO program was examined through the questionnaire and interviews. Based on responses to the survey, most of the barriers to identification (which are internal) have been substantially reduced since the introduction of the EEO program, as shown in *Figure 2*. This suggests that corporations have changed their internal systems and approaches to overcome these barriers and ensure compliance with the EEO program. The availability of time/resources and budget remains a current and priority barrier to the identification of energy savings.

Figure 2 Barriers to the identification of energy efficiency opportunities before and after the EEO program



The change in barriers to implementation of energy efficiency opportunities pre and post EEO are different in that the majority of these barriers remain, as shown in *Figure 3*, although not in as many corporations as pre-EEO. This indicates that there remain barriers and obstacles to implementation, however some barriers are being addressed, for example lack of support from senior management. These barriers are generally internal barriers for corporations and feedback from C-level executives (Ogilvy Earth, 2010) identified that 'energy efficiency' is not rated as highly as other investment decisions. This is consistent with the survey results which indicated that 50% of corporations use the one decision making process to assess all projects compared to a specific EEO appraisal criteria for energy savings projects.

Figure 3 Barriers to implementation of energy efficiency opportunities before and after the EEO program.



The barriers to implementation were also reported as a reason for there being some disillusionment with the EEO program from some corporations interviewed, and the perception for some that the EEO program is just a compliance exercise. This is linked to corporations' internal difficulties with implementation, possibly due to where the EEO program sits within the organisation and economic reasons such as a lack of incentives and price signal for carbon.

4.5 CAPACITY BUILDING

In general terms, the capacity building support provided by the Department was viewed favourably, with the EEO Assessment Handbook, workshops and Industry Guidelines considered as being the most effective. This feedback is supported by survey participants and interview responses in which participants noted that they initially found it hard to understand the EEO requirements, however the capacity building activities and materials and access to Client Liaison Officers helped them to better understand what was required.

Feedback to improve the capacity building activities came from the interviews, on-line questionnaire and C-level executives and included the need for expert help from someone who knows their sector and who has *"..real case studies and experiences to share and push us to best practice and cost savings"* and access to greater expertise, people with *"..greater technical expertise, particularly ideas on practical application of capital expenditure.."*.

4.6 REPORTING

The effect of public reporting and reporting to the Board and the CEO was examined through the questionnaire, interviews and results from the survey of C-level executives.

Reporting as a whole was raised as an issue by respondents. Many considered there was too much reporting to meet the requirements of both State and Commonwealth schemes and that the reporting involved duplication due to different schemes requiring data to be presented in different formats, pay back periods and sometimes different units. It was also noted by some corporations that the reporting requirement generally took significant effort which could take time and resources away from the identification, assessment and implementation of energy efficiency projects (it is however noted that reporting and implementation are not always done by the same people).

These findings are reflected in the research undertaken with C-level executives of participating corporations (Ogilvy Earth, 2010) who identified the need to streamline reporting *"because a lot of energy is going on duplication, for example, with the same thing being measured in different ways. The simpler it is, the more traction you'll get".*

Public reporting received mixed responses. Some considered it useful to maintain focus and track opportunities, something not done well prior to EEO. In addition corporations give greater focus to moving opportunities from identified to implemented, and more respondents "agreed" that public reporting had raised the importance of energy efficiency and performance within their organisation than "disagreed", however the duplication and format meant that many companies question its relevance in the current format.

Reporting to the Board and CEO was identified as being useful by more corporations (58.8%) than the public (39.6%) and government (40.6%) reporting. Feedback from the interviews and on-line questionnaire revealed that reporting to the Board also resulted in greater focus on energy data collection and identification of projects. Feedback from respondents included:

- The real value has been in forcing senior management/executives to make decisions on energy efficiency, rather than leaving this with operational teams (although it should be noted that not all corporations noted this and some identified the on-going need to further engage senior management);

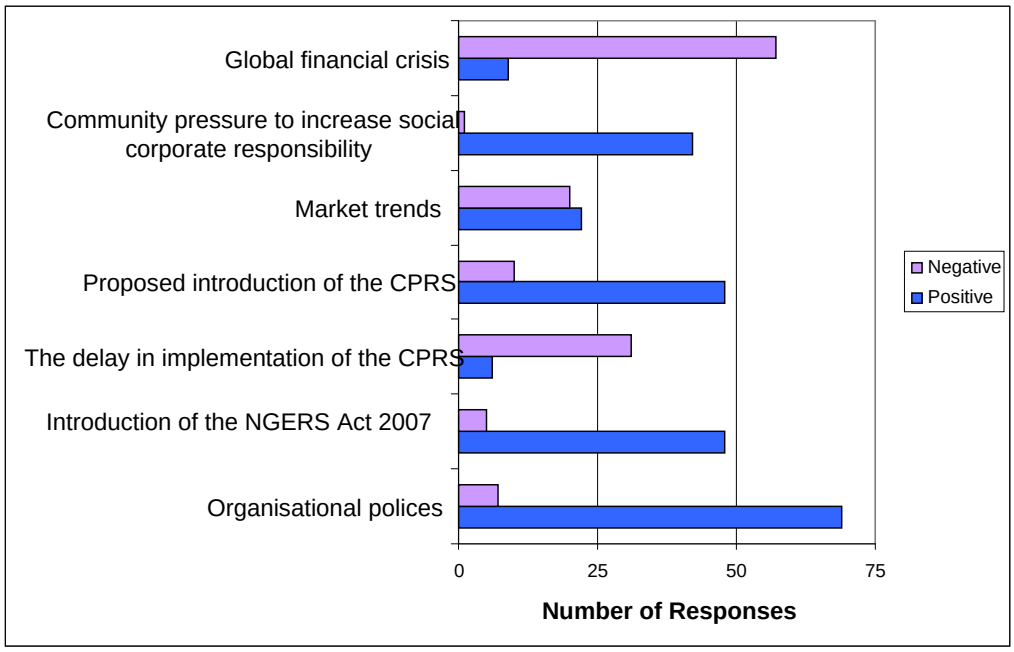
- Government and public reporting is a must have, but doesn't add a lot of value; and

- Reporting to the CEO/Board is done at a high level, though adds weight to the projects and process undertaken; and reporting has been used by some corporations to get projects implemented.

4.7 OTHER FACTORS

The survey also questioned corporations on other factors which may have impacted (positively or negatively) on their EEO commitments. Unsurprisingly the GFC had a negative impact for most of industry. However, a small number of corporations said that the GFC had a positive effect on energy efficiency opportunities due to greater focus on cost (for no or low cost energy efficiency measures). The proposed introduction of the CPRS and the introduction of NGERS was considered to be positive in respect of their impact on corporations' approaches to the EEO program for most corporations, the former in particular linked to the view that a carbon price would generate greater attention and make energy efficiency projects more attractive to implement. However the effects of the GFC and the subsequent failure of passing the CPRS legislation had negative impacts on implementing energy efficiency opportunities for most corporations, as shown in *Figure 4*.

Figure 4 Impact of other factors on implementing energy efficiency opportunities



Another positive factor on corporations' approaches to EEO is the public and community awareness of environmental and sustainability issues, which is creating greater expectations of and within corporations with respect to environmental, sustainability and climate change issues.

5 RECOMMENDATIONS

5.1 EEO ASSESSMENT FRAMEWORK

An overall review of the EEO assessment framework be undertaken with particular attention given to the following:

- Focus more attention on decision making, leadership and engaging senior management and the Board. The survey and interview outcomes suggest that the assessment requirements still need to be bolstered in these areas. There is now an opportunity to focus the EEO program requirements and its capacity building activities on these areas.

- Strengthen the decision making requirement to include provision of a well documented process that addresses EEO projects under separate criteria from core or cost reduction projects.

- Engage senior management directly through a series of workshops which could be used to communicate the outcomes of this review, that is, the identified barriers, some examples of successful energy efficiency projects and how the EEO program and the Department in particular can assist corporations to be more energy efficient.

- Review and refine data and data analysis key requirements so they are more relevant and clear about what is required and useful for each particular sector e.g. transport different to manufacturing.

5.2 REPORTING

- Require corporations entering the EEO program to provide at least two years of energy data prior to EEO participation to provide an understanding of business as usual.

- Continue to reduce the duplication in reporting to State and Federal government agencies.

- Continue to align reporting requirements and boundaries between National Greenhouse and Energy Reporting System (NGERS) and the EEO program. Communicate the integration of the NGERS data reporting with the EEO program data reporting, that is, corporations no longer have to report the same information to both schemes as information reported to NGERS is transferred to the EEO program. Feedback from interviews suggests that this was not well understood.

- Refine the public reporting requirements to make the outputs more accessible to external stakeholders for example discuss energy savings in terms of greenhouse gas emissions or dollar values as well as energy units (i.e. PJ).

- Update the public reporting template so that it is easier to read and understand for comparison by external stakeholders.

- Have information in the public report externally validated.

- Review public and government reporting requirements to ensure public reported information is relevant to market and community and provides the lever intended

and government information is useful for evaluation and analysis purposes. In this way results reported will be able to provide meaningful information on the performance of industry in response to the program, and where potential energy efficiency improvements are most prevalent.

5.3 CAPACITY BUILDING

- Develop case studies of specific projects and for specific sectors with details of success rates and costs to assist corporations in presenting the business case to implement.

- Provide more opportunities for networking for industry and reinvigorate the communities of practice.

- Provide technical checklist style performance information for common pieces of equipment: compressors, pumps, fans, lighting, gas burners, conveyor belts, welders on a website.

- Improve implementation of energy efficiency opportunities by ensuring that the right information reaches decision makers, boards and investors through :

    - reviewing the effectiveness of the legislation requirements and EEO assessment framework; and

    - develop capacity building activities aimed specifically at these groups to assist them to understand better the information reported as a result of the EEO program and how this information can assist in decision making.

5.4 FUTURE EVALUATION

- Potentially use the Mid-Cycle Review survey questions for the end of cycle review to maintain consistency throughout the program and allow meaningful comparison.

- The Mid-Cycle Review could be used as a baseline for subsequent cycles to assess how corporations are progressing with the program, provided the same or similar format is used to obtain subsequent snapshots of organisational change.

- A common energy efficiency indicator by sector or subsector at key process or technical levels would allow comparisons to be made on energy intensity and would assist in the direct comparison of organisational performance. It would allow comparison between corporations within a sector or industry group such as steel production or mining. Information should be supplied as raw data for energy used for production with common inputs defined.

- An energy efficiency indicator should be developed during the first EEO program cycle in consultation with industry to come up with consistent indices and definitions ready for introduction into the second cycle.

- To allow a more in-depth evaluation of the impacts and effectiveness of the EEO program, focussed corporation specific analysis should be undertaken that seeks to understand organisational changes that have occurred in response to the EEO program and also how external variable factors have influenced these rates of change.

5.5 BROADER POLICY CONTEXT

- A price signal for carbon would generate greater attention to energy efficiency and make energy efficiency opportunities more attractive to implement. It would also provide corporations with greater certainty on the direction to be taken by Government on carbon abatement.

- In addition until a mature price signal is in place, it is recommended that incentives be investigated to encourage greater implementation of energy efficiency opportunities by making energy efficiency opportunities more attractive to implement in the context of competing projects for investment dollars.