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24 September 1999

Dr Neil Byron
Commissioner
Building Performance Study
Productivity Commission
Locked Bag 2
Collins Street East
MELBOURNE VIC 3003

Dear Dr Byron

Re: **Productivity Commission Study -
Improving the Future Performance of Buildings**

The South Australian Government welcomes the opportunity to contribute to the Productivity Commission Study and is pleased to refer you to the enclosed response. I apologise for the lateness of the submission and hope that there may still be opportunity for it contribute to your deliberations.

The submission was prepared by the Department for Administrative and Information Services (DAIS), in consultation with the Office of Energy Policy within the Department for Primary Industries and Resources. DAIS has a primary policy role in the area of Building Asset Management and Project Risk Management on behalf of government in South Australia. The Commission's field of study has relevance to current DAIS building asset management practices and a number of research initiatives presently underway.

For the purpose of the study the SA Government submission has taken a broad approach that describes the processes and practices associated with the government's Strategic Asset Management Framework; a joint initiative prepared with the Department of Treasury and Finance in 1996. Discussion includes consideration of building performance measures and makes particular reference to environmental performance issues.

As a member of the Australian Procurement and Construction Council (APCC), DAIS is currently participating in a national agenda which has relevance and consistency with the Productivity Commission's study.

Please contact Mary Marsland, Director Building Management if you wish to seek clarification or expansion in relation to any aspects of the submission on Ph: (08) 82265169.

Yours sincerely

Anne Howe
ACTING CHIEF EXECUTIVE
DEPARTMENT FOR ADMINISTRATIVE
AND INFORMATION SERVICES

SOUTH AUSTRALIAN GOVERNMENT SUBMISSION

RESPONSE TO

PRODUCTIVITY COMMISSION STUDY:

IMPROVING THE FUTURE
PERFORMANCE OF BUILDINGS

SOUTH AUSTRALIAN GOVERNMENT SUBMISSION

RESPONSE TO PRODUCTIVITY COMMISSION STUDY - IMPROVING THE FUTURE PERFORMANCE OF BUILDINGS

Background

SA Government has a building asset base valued in the order of \$10 billion at replacement cost. In broad terms, health and public housing assets each comprise about one third of the portfolio and education and other government agencies account for the remainder. A large proportion of these assets were built in the period 1950 to 1975 as a response to the post war "baby boom" and post-war immigration.

Since that time new built asset acquisition has decreased considerably in line with a significant diminution in net population growth (approximately one third of the national level). Asset demand has also been influenced by reductions in the size of the state public sector and increased outsourcing of a number of Government services.

As a consequence of this the Government of SA has included the need for better asset management in its ongoing Government reform strategy since 1994 when a Commission of Audit reviewed the states finances.

The primary asset management objective of the SA Government is to rationalise it's asset holdings and to improve the performance of existing assets it continues to hold. Whilst efforts are made to ensure the performance of new assets is optimised to minimise recurrent liabilities and the consumption of non-renewable resources, the improvement of existing buildings and the processes by which they are managed is considered equally important.

The following describes a number of recent and on-going initiatives of the SA Government in response to improving the future performance of its building asset portfolio.

Introduction

The Department for Administrative and Information Services (DAIS), has a primary policy role in the area of Building Asset Management and Project Risk Management on behalf of government in South Australia. The Commission's field of study has relevance to current DAIS building asset management practices and a number of research initiatives presently underway.

Many of the current DAIS initiatives involve articulation of the life-cycle functions ie, planning, procurement, management and disposal, and supporting tools and techniques described in the Strategic Asset Management Framework published jointly by DAIS and the Department of Treasury and Finance in 1996. For example, an approach is being developed to assess building asset performance against a range of measures that together, indicate 'fitness for purpose'. These include consideration of whether the building is in the right location, its functional suitability, various physical environmental factors, utilisation and financial performance. The latter indicator includes consideration of whole of life costs and specifically offers opportunity to consider environmentally sustainable design features and management strategies relating to energy consumption.

Many of these initiatives are being driven by the development of a Strategic Asset Management Information System (SAMIS) to support the decision making necessary to effectively implement the Strategic Asset Management Framework.

Strategic Asset Management Framework

Improvement in future performance of buildings is the subject of the Strategic Asset Management Framework (Enclosed). The framework is represented by a three dimensional model describing the life-cycle functions of the building processes that are acknowledged to occur over a number of management levels and the associated organisational requirements necessary for agencies to implement asset management. A range of tools and techniques supports decision making associated with the life-cycle processes.

Although it is noted that the Productivity Commission Study intends to focus on Commercial Property, the SAM Framework is sufficiently generic to accommodate both the commercial drivers and those of public and community service requirements.

Strategic Asset Management Processes

The processes within the SAM Framework are directed towards improving future performance of buildings by assisting agencies:

- ensure that investment in building assets is commensurate with service delivery requirements
- optimise performance throughout the useful life of the asset and set standards to assist government agencies apply sound business principles and rational, effective decision making to asset management practices.

The processes describing the life-cycle functions of the SAM Framework are represented in Diagram 1 (**Appendix 1**), which is structured as follows:

- Corporate Planning
- Asset Performance Review
- Asset Strategy Development
- Definition of Asset Management Plan
- Implementation of Works

As already alluded, many of these initiatives are being driven by the development of a Strategic Asset Management Information System (SAMIS), to support the decision making necessary to effectively implement the Strategic Asset Management Framework. This relationship is outlined in Diagram 1 representing the SAM Framework processes, as is reference to a facilities contract management system FAMIS.

The following discussion outlines the key components of the process framework:

□ Asset Management in a Corporate Planning Environment (Appendix 2.1)

The attached document, from a series of Asset Briefs, titled *'Asset Management in a Corporate Planning Environment* demonstrates a fundamental premise, that strategic asset planning is borne out of the need to support an agency's corporate plan and business service delivery strategy. A range of resources, including human, financial,

information services and asset resources are available to support the business service delivery strategy. As a consequence of resource planning, the broad supporting building asset resources will be identified to match the three building life-cycle functions ie, existing assets to be retained, new assets and those no longer supporting service delivery.

In South Australia, a Government Management Framework defines the respective roles of government and its agencies in the planning and delivery of services. In turn, agency corporate planning describes the business service delivery strategy and corresponding resource plans necessary to achieve government outcomes.

Together, both the GM and SAM Frameworks require agencies to be responsible and accountable for integrated service delivery and resource allocation. This requires performance measurement and full cost disclosure through adoption of accrual accounting principles and practices. Integration of these two models is a major challenge being tackled by government across Australia and overseas.

Clearly, the GM and SAM Frameworks are linked by virtue of the fact that:

- the GMF drives agency service delivery strategies and tactics, which provides a fundamental input to
- the SAM process, which provides the basis for measuring the performance of current assets and as a pre-requisite in substantiating bids for new assets.

□ **Asset Performance Review (Appendix 2.2)**

A brief explanation of the '*Asset Performance Review*' process can be found in Appendix 2.2 from the series of Asset Briefs. The details of the process are being refined as part of the development of SAMIS. Clearly, this research and development is of particular relevance to the Productivity Commission study.

The purpose of undertaking an asset performance review is to enable an agency to establish the status of its building asset stock against a range of service level benchmarks and determine the implications that might arise from any difference from intended service delivery requirements. Decisions as to whether a building asset is capable and suitable for the delivery of the desired services will involve trade-offs between any inherent risks, benefits and the costs of operating strategies.

In an attempt to ensure that assets are 'fit for purpose', asset performance measures are set in the context of an agency's business service delivery strategy. In broad terms, the key strategic asset performance measures currently being developed relate to whether the building is in the right location, its functional suitability, various physical environmental factors (eg, heating, cooling, ventilation, lighting, access), utilisation and financial performance.

The latter indicator coupled with physical environmental factors provides scope for detailed consideration of whole of life costs and specifically offers opportunity to consider environmentally sustainable design features and management strategies relating to energy consumption.

Although the Productivity Commission research study proposes to identify a wide range of building performance indicators, the associated Issues Paper appears to dwell upon sustainable performance issues. The discussion herein takes the broader view. However, DAIS is pursuing the matter of sustainable development in a number of ways.

Significantly, it is playing a supporting role to the Office of Energy Policy (within the Department of Primary Industries and Resources) through the auspices of the recently established National Greenhouse Strategy.

Accordingly, this submission includes a significant contribution from the Office of Energy Policy, particularly in relation to Section 3, 'Input Savings Technologies'.

The Office of Energy Policy is contributing to improved commercial building performance in the wider community through several initiatives like its 'Greenhouse Gas Targets Program', 'Small Business Energy Saver Kit' and other National Greenhouse Strategy measures.

DAIS is currently involved in a national benchmarking study relating to commercial properties as a member of the Government Real Estate Group. Further consideration of this study is detailed in **Attachment 1**.

The performance assessment process employs a risk management approach consistent with AS/NZS 4360-1999: Risk Management, to assist in measuring performance and setting priorities. This approach allows intervention actions to be prioritised and issues ranked on the basis of their severity ie, consideration of consequences and likelihood.

The outcome of the performance assessment process is a Performance Status Report that allows the asset to be categorised according to whether the asset is:

- Performing satisfactorily or
- Performing unsatisfactorily due to..
 - Under-performance or
 - Over-performance.

This in turn provides a preliminary indication of which assets to retain, refurbish or renew, rationalise or dispose and also identifies circumstances where new assets might be a consideration. The process will also identify changes in behaviour of the asset over time, indicating performance trends.

□ **Asset Strategy Development**

Having determined where new assets may be necessary and which are to be retained or disposed of, strategies are developed to satisfactorily manage each of these three life-cycle functions.

Capital Investment Strategy (Appendix 2.3)

DAIS has prepared a Project Initiation Process for the development of a capital investment strategy for new buildings. An outline of the process is discussed in a 'Project Initiation Process (PIP)for Capital Works' Asset Brief (refer Appendix 2.3).

The '*PIP for Capital Works*' emphasises the need for quality corporate planning and robust evaluation prior to any firm decision being made to acquire new assets. It recognises that the greatest opportunity to influence the eventual solution is at the initial 'front end' planning stage, and that consideration of life-cycle cost issues and use of input saving technologies later in the project often incur a cost penalty. It furthermore emphasises a life-cycle approach to project costing, recognising that costs in-use are significant and over the life of the asset can exceed the initial capital outlay.

When the use of input saving technologies is considered as an afterthought, and late changes are made to building proposals, the costs of the changes are often higher than they would have been if they were incorporated at the beginning. This higher cost can undermine the economic viability of input saving technologies for the project. To avoid this situation, life-cycle costing and the consideration of input saving technologies are being incorporated into design briefs.

The process detailed in '*PIP for Capital Works*' involves corporate planning, concept development and evaluation, project definition and delivery and is supported by the attached Asset Brief, '*Dais Project Services.- Risk Managing Government Building Projects*' describing the DAIS approach to risk managing government building projects (**Appendix 2.4**).

This approach is consistent with other state governments. As a member of the Australian Procurement and Construction Council (APCC), DAIS has been involved in the development and implementation of a national approach to building procurement. This work includes the release of a National Code of Practice for the Building and Construction Industry and preparation of a National Prequalification Criteria Framework, which uses environmental management as one of a number of prequalification criteria.

DAIS has implemented a prequalification approach in the selection of contractors to reduce risk and support best value in the procurement process. Through the Construction Industry Advisory Council, DAIS has provided the building and construction industry a forum to develop strategic direction for industry and opportunity for dialogue with government. This provides industry and government opportunity to develop a common approach to improvement initiatives within the building and construction industry.

The Real Estate Management (REM) Division within DAIS is responsible for managing the government's office accommodation portfolio which represents over 400,000 square metre of floor space. Through the auspices of REM the South Australian government services the Government Office Accommodation Committee (GOAC). GOAC is an advisory body to the Minister for Administrative and Information Services. Its role is to ensure the cost effective provision of government office accommodation. Enclosed Asset Brief, Government Office Accommodation describes the role of REM and GOAC, **Appendix 2.5**.

□ **Strategy for Management of Assets to be Retained (Appendix 2.6)**

The accompanying Asset Brief, '*Management of Existing Assets*' describes the process of developing an implementation strategy to achieve effective and efficient asset management and gives guidance in its application.

The process of developing an implementation strategy, executing it and reviewing performance for subsequent improvement initiatives is complex. From the profile of individual performance measures described in the *'Asset Performance Review* process, an integrated, holistic approach is taken to the development of intervention strategies.

The resultant strategy for managing existing assets describes a program of work including investment and occupancy management services, developing strategies for optimal asset operation and performance with respect to renewal, upgrade, maintenance and operating issues such as utilities, energy, cleaning and security.

Improvements to service delivery are being achieved on behalf of government through contracting out the facilities management activities associated with government buildings in metropolitan Adelaide. Although a number of external service providers are now involved, government has retained and continues to service one of the contracts with its own Building Maintenance Services group.

These facilities management contracts offer the potential to reduce the life-cycle costs of assets. A provision for gain-sharing, through innovation in the contracts, is intended to encourage the use of input saving technologies.

For facilities management contracts to effectively identify savings..

- The contract must be set up in a way that provides all parties adequate incentive to find and pursue savings;
- The facilities manager must be pro-active, and
- The facility owners and occupiers must value and promote savings initiatives.

It can be difficult to implement savings initiatives in buildings subject to facilities management contracts that are identified by third parties, because each party must obtain some benefit from the changes for them to go ahead. The formula for sharing these savings is often subject to complex negotiation.

Supporting Tools and Techniques

□ Supporting Tools

Strategic Asset Management Information System (SAMIS) (Appendix 2.7)

Implementation of the SAM framework is being promoted by working with agencies in the development of a spatially oriented, Strategic Asset Management Information System (Appendix 2.7). Although not mandated, SAMIS will provide functionality accessible to agencies across state government.

The primary aim of the project which has evolved into a spatially oriented, Strategic Asset Management Information System (SAMIS), is to deliver strategic information and analytical tools that will assist agencies meet the objectives of the *Government's 'Strategic Asset Management Framework*. In particular, the system will assist agencies in matching their assets with business service objectives and in optimising asset performance throughout the asset's useful life.

□ **Supporting Techniques**

The decision-making processes described above need to be supported by a number of techniques including demand and value management, project evaluation using cost benefit analysis and lifecycle costing. The application of risk management is another key technique used by DAIS.

Input Savings Technologies (IST's)

In conjunction with the Office of Energy Policy, DAIS has produced, 'Energy Management Guidelines' to assist government agencies and external consultants in developing effective and efficient energy saving strategies. The guide is consistent with the SAM Framework by stressing a life-cycle approach to consideration of energy saving.

In another joint initiative with the Department of Education, Training and Employment, DAIS has prepared a guideline on, 'Environmental Design' which although promoting broad design principles, necessarily details benchmarks that focus on design for education facilities.

In April 1998, the Office of Energy Policy launched its 'Greenhouse Gas Targets Program', which was accompanied by the production of a 'Greenhouse Targets Handbook'. The Program is one of a number of sustainable energy initiatives directed towards the South Australian public sector. **Attachment 2** provides additional comment in relation to issues raised by the Productivity Commission under Section 3 of the Issues Paper, 'Input Savings Technologies'.

Issues Affecting the Implementation of Improved Building Performance Initiatives

• **Agency Organisational Pre-requisites**

The processes describing the SAM Framework require a correspondingly sophisticated level of skill competencies within an agency for its successful application. The organisation structure of an agency forms that all-important third dimension to the SAM Framework, without which its implementation is problematic.

Therefore while the processes and information systems components are a pre-requisite, equally, without an appropriately structured and resourced organisation, experience suggests that implementation is likely to be slow. Adequate training to upskill agencies in asset management is critical to successful implementation.

• **Asset Ownership**

Initial experience has suggested that difficulty with the implementation of strategic asset management has been due, in part to shortcomings relating to a number of key drivers. A fundamental change, which strengthened agency involvement, was ensuring that ownership, responsibility and accountability for buildings rested with the agencies. Furthermore, the advent of accrual accounting provided greater focus on asset ownership and the associated costs of ownership within agencies' financial management plans.

Further work needs to be done to ensure that multiple stakeholders in an asset or project have incentives to produce an efficient outcome. For example, in the case of leased property, the issue arises of tenants paying for the building operating costs but having limited ability to alter the plant (managed by the building owner) providing central services such as heating cooling and lifts. Some people have proposed the solution that leases should specifically include central services in the fixed rental agreement to provide an incentive for the building owner to maintain their plant, and invest in appropriate energy saving initiatives. Unfortunately, this lease arrangement may not provide the incentive benefits that have been envisaged because of the way energy use is measured. Many buildings do not separately meter tenant energy use and central services energy use, and so the energy bill is split according to some arbitrary formula.

Consider, for example, that the energy bills were split 50-50 between tenants and central services, and that this was an accurate reflection of the energy costs. If the building owner upgraded the heating, ventilation and cooling system and reduced the overall energy bill, only half of these savings would accrue to the owner. Similarly, the building owner also shares any reduction in energy consumption by the tenant, diluting the benefit of any energy saving action that the tenant could take.

Without adequate metering, many of the benefits envisaged of lease arrangements that include all central services may not eventuate.

- **Output Based Budgeting**

The more recent development of output based budgeting in government is now providing a much more certain link between the building assets and the service delivery outputs they support. Clearly, outputs are measurable deliverables needed to achieve governments required outcomes and therefore the optimal allocation of asset resources is integral and critical to the realisation of service outputs.

- **Capital Investment in Context**

The separation of capital and recurrent budgets can make it difficult for agencies to focus on life-cycle costs. Many input saving technologies require a larger up-front cost, but result in lower operating costs over their life time. Notwithstanding the provisions for life-cycle costing in the approvals process, the issue can arise that capital funding is more limited than recurrent funding, leading to capital works being optimised for minimum capital cost rather than minimum life-cycle costs. A process that considers the capital and recurrent budgets jointly could encourage a higher focus on life-cycle costing.

In December 1998, Treasury and Finance in South Australia launched an initiative outlined in Circular 308 titled, '1999-2000 Capital Investment Prioritisation Process'. As a consequence, agencies are now also required to demonstrate the direct linkage between the capital bidding process and asset management ie, capital investment must be seen in the context of an agency's Strategic Asset Management Plan. Potential exists to extend the integration of capital and recurrent budget allocation by providing greater emphasis on a life-cycle costing and management process.

Adoption of performance contracting and other innovative project funding methods could also improve the prospects for the joint consideration of capital and recurrent budgets. These arrangements have not been widely pursued in South Australia. One reason for

this could be the accounting treatment of many third-party funding arrangements as finance leases, which are capitalised and used in the state's debt calculations.

□ **Asset Standards and Definitional Consistency**

The introduction of output based budgeting and the linkage of capital funding to agency Strategic Asset Management Plans will assist greatly in improving asset management outcomes within government. However, there is recognition that consistent standards and conventions are essential to undertake comparative portfolio analysis and set priorities for the purposes of direction setting and effective resource allocation.

The SAM Framework and development of SAMIS in South Australia, presents opportunities to support portfolio analysis through adopting consistent standards and conventions being developed.

□ **Life-Cycle Costing**

It has been suggested that among the impediments to implementing lifecycle costing, including the examination and analysis of alternative options through feasibility studies, is the loss of skills and practice among the design professions due to a recent past generation of minimalist cost-focussed design.

One body of thought suggests that as a consequence of fee tendering during the 1980's and 1990's the extent of project research and development, especially in relation to sustainable development, was significantly reduced.

As a consequence, life-cycle cost analysis was one of the first of the cost cutting measures to make design fees more competitive. On the other hand, within government, it could be argued that such pressures should have diminished because current selection methods range across a number of criteria, only one of which is cost.

An issue for clients in specifying environmentally conscious design, has been the lack of certainty that benefits will be achieved over time and that they will exceed the design investment.

In part, this concern could exist because there has usually been no transparent link between the design and operation phases in terms of ensuring actual intended design outcomes are achieved.

For example, one type of construction arrangement is the design and build type of contract. In this arrangement, a single company takes responsibility for designing and constructing the building. One problem with the design and build style of contract is that it can encourage a tight focus on construction costs at the expense of operating costs. Therefore, there is the potential for designs and equipment in these types of buildings to have higher than necessary life-cycle costs.

This has led to the suggestion that other delivery methods that put incentive for building operational efficiencies back to the contractor should be pursued eg, design, construct, operate and maintain over a period of say twenty years. However, considerable care needs to be taken when using this sort of delivery mechanism to ensure that life-cycle cost principles are being adhered to, especially where there is some potential for higher costs to be passed on to the client agency. This is particularly the case for non-standard

projects where industry benchmarks cannot provide good indications of what reasonable costs might be. The Project Initiation Process with its focus on taking a life-cycle approach should mitigate against this possibility.

- **Building energy rating systems**

While there are several options for assessing building energy use, none have achieved widespread use to date. Widely accepted commercial building energy rating systems could act to mitigate perceived risks resulting from the adoption of input saving technologies and the use of low life-cycle cost designs. By easily differentiating high performing buildings from low performing buildings, they could contribute to the development of an explicit market for efficiency in buildings.

Commercial building energy rating systems would fit neatly into the *Asset Performance Review* Process described earlier. The SA Government supports the development of commercial building energy rating systems.

ATTACHMENT 1

**National Office Accommodation Benchmarking
Government Real Estate Group**

ATTACHMENT 1

DAIS Ref

03-311/99/00065

NATIONAL OFFICE ACCOMMODATION BENCHMARKING

GOVERNMENT REAL ESTATE GROUP

The Government Real Estate Group (GREG) is a national body which was formed to promote the exchange of information related to government office accommodation. All six State's and the two Territory's are represented on GREG.

In 1996, at GREG's Annual Conference, it was agreed to nationally benchmark government office accommodation performance in order to assist property managers to improve performance and reduce the cost of office accommodation to government.

Over the past three years, the four benchmarks GREG has chosen to develop and refine are:

- **Vacancy Rate**

The percentage of total marketable office accommodation by area that is directly or indirectly vacant in leased and owned government office accommodation, as at 30 June and 31 December each year, in the city, metropolitan and country regions.

- **Occupational Density**

The average net lettable area per workpoint and the net lettable area per employee in leased and owned government office accommodation for the city, metropolitan and country region as at 30 June each year.

- **Electricity Usage**

The MegaJoule usage of electricity per square metre of net lettable area for a selection of owned government office accommodation in the city, metropolitan and country regions for the year ending 30 June.

- **Total Return**

The percentage return on owned government office accommodation in the city, metropolitan and country regions for the year ending 30 June.

The first round of performance measurement was undertaken in 1998. The information was useful to measure performance at a point in time, however, GREG's benchmarking initiative will be most useful in future years when participants can track how their performance has changed over time, both in absolute terms and relative to other participants.

GREG is currently examining the opportunity to expand the network to include private sector benchmarking partners to further promote the exchange of information related to best practice in office accommodation management.

ATTACHMENT 2

Environmental Performance and
Input Savings Technologies

Sundry Issues Raised by the Productivity Commission

ATTACHMENT 2

DAIS Ref. 03-311/99/00065

ENVIRONMENTAL PERFORMANCE & INPUT SAVINGS TECHNOLOGIES

SUNDRY ISSUES RAISED BY THE PRODUCTIVITY COMMISSION

- (1) Can commercial buildings' energy consumption be reduced without compromising the facilities provided? Has your firm or agency adopted any, or do you have plans to adopt any ISTs aimed specifically at reducing energy consumption? Have you undertaken any post implementation reviews of the adopted ISTs? How have you assessed whether the adoption of ISTs was worthwhile?

In the early 1990's the Office of Energy Policy undertook several detailed studies of the use of lighting controls in schools (which can be provided on request), namely:

- Primary schools.. Lighting Controls Demonstration Project (Colbert 1991).
- Assessment of Time Controlled Lighting in 13 High Schools (Colbert and Sleep 1990)
- Assessment of Movement Detectors in Schools (Colbert 1992).

The studies point to the potential savings to be made, as well as some of the practical implementation problems of employing input saving technologies in specific types of buildings.

The Office of Energy Policy has also undertaken detailed studies of other input saving technologies, such as cogeneration installations, innovative cooling plant (such as geothermal cooling) etc, and would be happy to provide specific data if requested.

- (2) Many organisations, both government and non-government provide information on ISTs, particularly energy saving technology. Is this information transmitted to the building industry adequately?

The Energy Information Centre, through the Office of Energy Policy, has targeted the residential sector in the past. More effort is now being made to address the energy efficiency of the commercial sector with a *Small Business Energy Savers* kit, for distribution to small business, with a view to expanding this initiative through the *Cities for Climate Protection* program.

- (3) What are the respective roles of government, industry bodies, and research institutions in providing information on the benefits of the adoption of ISTs?

The role of the Government should be as a leader in the incorporation of energy efficient technologies and practices within its own operations, and at the forefront of the greenhouse gas emission reduction programs. Industry bodies should also be responsible for the encouragement of GHG reduction practices and the take up of IST technologies. Research bodies have a role in the provision of reliable energy use data for IST technologies, and up to date monitoring information of newer initiatives.

- (4) How can further up-take of ISTs be encouraged and facilitated in commercial buildings?

Attention to the issues affecting the implementation of improved building performance initiatives identified in the main body of the submission should be the first priority of government.

However, joint government/ industry initiatives and awards programs also provide a highly visible and positive image to the community. The adoption and encouragement of these types of awards across the country could be one method of encouraging the uptake of IST's and energy efficient technologies.

As a major player in the commercial rental market, the Government could also set minimum energy standards for leased and new owned accommodation, effectively setting a minimum performance requirement for the industry.

Appendix 1: Strategic Asset Management Framework	1 page
Appendix 2.1: Asset Management in a Corporate Environment	3 pages
Appendix 2.2 Asset Performance Review	3 pages
Appendix 2.3: Project Initiation Process for Capital Works	4 pages
Appendix 2.4: DAIS PROJECT Services: Risk Managing Government Building Projects	4 pages
Appendix 2.5: Government Office Accommodation	2 pages
Appendix 2.6: Management of Existing Assets	3 pages
Appendix 2.7: Strategic Asset Management Information Systems	3 pages

Copies of these appendices can be obtained through Expo or viewed at the Commission's libraries in Canberra and Melbourne.