

The Green Lease Schedule

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Keywords

energy efficiency measures, commercial office buildings, the Green Lease Schedule

Abstract

*“The development of green leases appears likely to be a relatively low cost initiative that has the potential to improve the cost effectiveness of government operations ... Green leases may also change market conditions for the private sector by lowering transaction costs and thus helping to overcome the split incentives between landlords and tenants.” – Australian Government’s Productivity Commission, *The private cost effectiveness of improving energy efficiency*, Page 163*

The Australian Government has developed the Green Lease Schedule (GLS), which is a legal instrument that creates new contractual obligations for tenants and landlords. A GLS is an additional set of clauses to a “normal” building lease contract, A GLS provides for mutual contractual lease obligations for tenants and owners to achieve energy efficiency targets (and potentially other environmental obligations if agreed). This ensures that buildings operate at agreed levels through regular monitoring and addressing issues as they arise. The GLS has been made feasible due to massive reductions in meter costs and changes in digital metering technology that pinpoints, to the minute, energy consumption in both the tenancy and building services. Tenants can now make owners accountable for their buildings’ energy performance. Building owners, using the same technology can also make tenants accountable for their energy use.

A GLS has five standard clauses to promote uniformity, consistency and market acceptance, and to minimise the need for

legal advice on individual lease agreements. The five standards clauses cover:

- 4.5 star Australian Building Greenhouse Rating energy performance
- An energy management plan
- Separate metering for particular building elements
- A building management committee
- Remedial action/dispute resolution clauses

Introduction

The Productivity Commission Inquiry report: *‘The private cost effectiveness of improving energy efficiency’*, in relation to green leases, said:

“The development of green leases appears likely to be a relatively low cost initiative that has the potential to improve the cost effectiveness of government operations. It may also have spill over benefits to the private sector.” Page 163 August 2005.

“Green leases may also change market conditions for the private sector by lowering transaction costs and thus helping to overcome the split incentives between landlords and tenants.” Page 163 August 2005.

The Australian Government agencies occupy almost 2.6 million square metres of office accommodation, which accounts for approximately 13 % of the Australian commercial office property market.

Since 1997, Australian Government agencies have been directly responsible and accountable for Property Operating Expenses (POE). Agencies can now choose accommodation

requirements according to rent values, location, operational needs, building functionality, security and various other government policy requirements such as energy, occupational health and safety and procurement guidelines.

Agencies are now required to manage their own property. When leasing commercial office space, large, medium and some small agencies use tenant advocates/consultants to represent them. Additional to lease administration, tenant advocates/consultants also provide energy procurement and consultancy services to agencies.

Green Lease Schedule (GLS) Key Elements

A GLS is an additional set of clauses to a “normal” Australian Government building lease contract, as set out in the proposed Energy Efficiency in Government Operations (EEGO) policy 6 September 2006. A GLS provides for mutual contractual lease obligations for tenants and owners to achieve energy efficiency targets (or potentially other environmental obligations if agreed). This ensures that buildings operate at agreed levels through regular monitoring and addressing issues as they arise. Through traditional lease arrangements, agencies could not readily guarantee or in some cases even measure whether they are achieving the energy efficiency outcomes they have contracted for. Buildings designed to achieve a 4.5 star Australian Building Greenhouse Rating (ABGR) rating¹ can operate at as little as 1.5 stars without effective management of performance, thereby doubling the energy consumption and costs for the building. (Refer to case studies)

The introduction of the GLS in Australia has been made feasible due to massive reductions in meter costs and changes in digital metering technology that pinpoints to the minute energy consumption in both the tenancy and building services.² Tenants can now make owners accountable for their buildings’ energy performance. Building owners using the same technology can also make tenants accountable for their energy use.

Private sector and government legal advisors have assessed the GLS as providing a set of balanced legal obligations for tenants and landlords, including dispute resolution powers. However, the GLS does create new contractual obligations for tenants and landlords, and so both parties need to understand their obligations when negotiating a GLS.

A GLS has five standard clauses to promote uniformity, consistency and market acceptance, and to minimise the need for legal advice on individual lease agreements. The five standards clauses cover:

- 4.5 stars ABGR energy performance
- An energy management plan
- Separate metering for particular building elements
- A building management committee
- Remedial action/dispute resolution clauses

What does 4.5 stars ABGR mean?

In terms of energy intensity 4.5 stars ABGR equates 172 MJ/m² for tenant light and power and 312 MJ/m² per annum for central services.

Energy management plans

An essential operational part of the GLS is the energy management plan³. The GLS requires the tenant and owner to agree on an energy management plan to ensure that the building reaches its desired rating and to identify other savings opportunities. The use of energy management plans was supported by the findings of the recent Australian National Audit Office (ANAO) Cross Portfolio of Green Office Procurement Audit Recommendation No. 13, November 2006. The ANAO survey results on actions undertaken are compared to actual energy performance over the five year period 1999/2000 to 2003/04. According to information for this period, those respondents with a systematic or planned approach to energy management and conservation achieved a far better result than respondents without such an approach. For example, respondents with energy plans achieved reductions in energy consumption of 20 per cent as opposed to the 9 per cent achieved by respondents without these plans.⁴ DEW has developed an energy management plan template to reduce the costs to agencies and building owners.

Metering

The GLS also ensures that separate metering is required for tenant light and power and central services (HVAC). The Building Management Committee (BMC) (as represented by the tenant and owner) reviews the 30 minute data on a quarterly basis from the separate meters in accordance with the Energy Management Plan mechanism.

Building Management Committee

A Building Management Committee (BMC) is to be established between the owner and the tenant. The GLS ensures that buildings perform at their design standard using existing property management staff and reports. Building management reports are already produced in most commercial office buildings on a monthly or quarterly basis, including tenant and building owner fault reports, maintenance reports, building inspection reports, monthly mechanical, engineering, electrical, lifts, hydraulics, energy, building management system, fire services, testing and communications reports.

The GLS requires only the non activated items or unresolved report issues to be reviewed by the tenant and owner on a quarterly basis. The GLS ensures that the building/tenancy is proactively managed rather than building or tenancy consuming needlessly energy for several months or years.

Remedial action/dispute resolution

The GLS, like any other contractual agreement, is a negotiated instrument. It has been drafted by the Australian Government Solicitor (AGS) on the basis of mutual obligations between the

1. 4.5 stars ABGR is equivalent to 484 mega joules per square metre for the whole building energy consumption. For information concerning ABGR please refer to <http://www.abgr.com.au/main.asp?section=1&page=>

2. See Annex C.

3. Energy Management Plan is outlined in Annex A

4. Australian National Audit Office Cross Portfolio of Green Office Procurement Audit Recommendation No. 13 /2006

tenant and building owner. The mutual obligation emphasis between the parties endeavours to move away from the legally costly adversary approach. AGS drafted the GLS to avoid any immediate breach of a lease by specifying a multi staged resolution and remedial action process that governs disputes relating to the GLS clauses with litigation as a last resort.

Common sense prevails in the GLS by requiring that a dispute should be first examined by the Building Management Committee (BMC) or at an appropriate management level. However the GLS does allow for a formal process to be followed in case of dispute escalation. The first step is a Remedial Notice which is first issued if the tenant or landlord considers that the other party has breached a GLS obligation. The Remedial Notice is in writing and will request commencement of dialogue or remedial action. The next step is 15 days to meet and agree to a Remedial Plan and timetable. The third step is appointment of an expert to determine the issues and / or an Enforcement Notice if the parties cannot agree. An expert determines the dispute and the decision is binding on the parties. Remedies for breach of the GLS only apply to the GLS and not to other remedies under the Lease

The GLS has also been drafted to allow for non-intentional errors made by the parties in achieving 4.5 stars ABGR by a process of downgrading the ABGR rating. This reduces the likely cost of litigation if the parties dispute the outcome in this regard

Market Impacts

One very important positive market impact is that the GLS has a significant influence on day to day management of various supply contracts that support the tenant and owner to achieve their energy efficient building. An example of such an impact is that there is no point having a 4.5 star ABGR building if the maintenance contractor does not know how to achieve this requirement or is not held contractually responsible for his obligations. The building owner now ensures that the maintenance supply contract meets the GLS energy performance requirements. Another example of the GLS impact is in the area of commissioning the building where contractors are now held responsible that their design and specifications actually perform to the required energy standard.

It has been our market experience that there has been no apparent increase in rents for the GLS requirements as the majority of costs are already incurred by the tenant and building owner. The Government is working closely with the Australian property industry to facilitate the market uptake of green leases and the market reaction to the GLS has been very positive.

The EEGO policy has also made allowances on the basis of cost effectiveness for small government agencies in relation to complying with the policy. No GLS is required for leases under 2 000 m² or for a period of less than 2 years. Agencies in these premises are only expected to ensure they have separate electricity metering and cost effective lighting.

In some minor cases, agencies may incur minor increases in administrative costs in implementing the GLS to ensure delivery of energy efficiency outcomes. DEW provides a range of services and materials to assist agencies with implementation, including a help desk function, regular seminars, templates, fact sheets and standard clauses and guidance notes, as well as an active communication strategy for property lawyers,

outsourced property managers and tenant advocates, building owners, engineers and architects. This has assisted Australian Government agencies and building owners to avoid and contain any such costs.

As with any lease obligations, the GLS does carry potential legal risk, which is minimised through the stepped dispute resolution process. Alternative green leases are now being generated and promoted by other market participants. The GLS is being taken up by large private sector property portfolio corporations as a future proofing and good practice business strategies. By having its own GLS, the Australian Government can protect its interests and minimise its risks, rather than accepting a building owner's green lease.

Why is energy efficiency important?

Energy use contributes more than 95 per cent of the Australian Government's greenhouse gas emissions. Improved energy efficiency by Australian Government agencies will reduce Australia's total energy consumption and help to meet its greenhouse gas emission reduction targets. It also demonstrates Government leadership and encourages wider market acceptance of related management tools and other efforts to mitigate further climate change impacts. This can be achieved through good energy management and using cost effective methods that do not distort markets or reduce productivity

Figure 1 demonstrates that government wide energy savings (approximately \$ 16 million per annum) have been achieved through improved energy management. New tools, enhanced management practices and technology have identified potential additional savings for existing buildings, new buildings and major refurbishments. The GLS incorporates these new initiatives to manage energy well.

Lease-based partnership management model

The 2006 EEGO policy acknowledges the need for cooperation between building owner and tenant (and any relevant service providers and contractors). It addresses traditional structural barriers to implementation, such as split incentives between developers, building owners and tenants, by ensuring that the parties with influence over key aspects of energy performance obtain some benefit from implementing the improvements. It provides a transparent legal and management framework, the GLS to ensure that the parties identify and address problems promptly and efficiently.

Attaching a GLS to a lease for a commercial building obliges both the tenant and building owner to work towards achieving the operational ABGR requirement. The emphasis is on prevention and rectification, rather than retribution. The GLS and Energy Management Plan (EMP) templates make it easier to identify problems, work out who is responsible and ensure that appropriate steps are taken to remedy the situation promptly. This approach recognises that there is an ongoing relationship between the parties and reduces the need for litigation and penalties in resolving disputes.

Enhanced value for money

The EEGO policy and (GLS) principles puts the Australian Government's value for money and whole of life costing procurement principles into action. An improved building energy management framework, regular performance review and en-

Total Energy Use (Excluding Defence Operations) and the Number of Public Servants

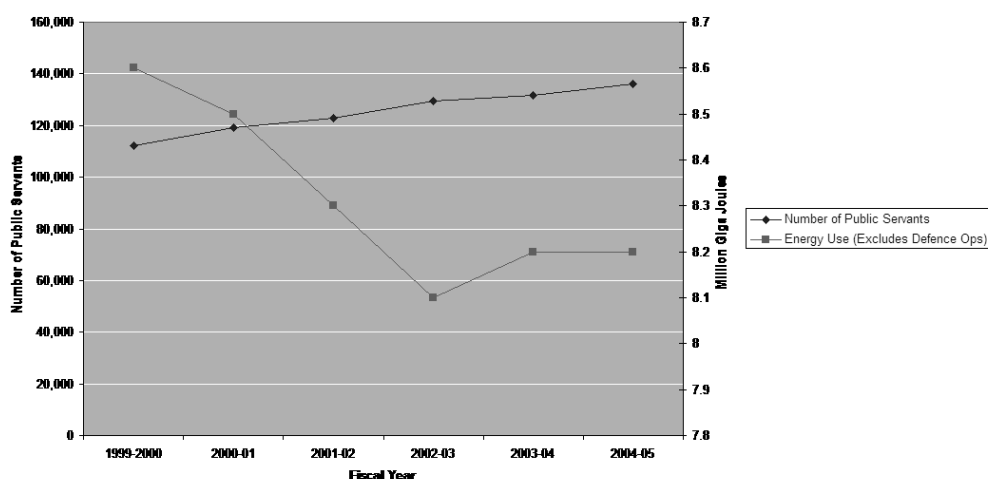


Figure 1

forcement mechanisms can ensure that agencies get what they paid for and that projected energy and dollar savings are actually realised for the life of a building or lease.

Improved consistency across Government

The GLS templates aim to provide consistency in lease agreements across agencies. They focus on a few essential energy management components to achieve and maintain the target ABGR rating with optional clauses covering water, waste and other issues. Minor variations may be negotiated where agencies have less bargaining power or to accommodate occupational health and safety, heritage, security or other special or conflicting requirements. The GLS will minimise the need for compliance effort through a clear assignment of responsibilities and dispute resolution processes.

Other risks have been addressed by providing templates and guides and by focusing on good practice, rather than best practice. The systems-based approach ensures that good energy management does not depend on the expertise and motivation of individual employees (or contractors) or on pure chance.

Flexibility to integrate other sustainability outcomes and reporting frameworks

The GLS framework can be adapted to include clauses that cover water and waste management, cleaning contracts, alternative transport options and other environmental management issues.

Minimum Energy Performance Standards (MEPS)

An essential component of implementing the GLS initiative is to ensure a detailed policy guidance framework for its application.

Purpose

Minimum energy performance standards (MEPS) aim to encourage agencies to progressively improve their energy performance and meet the revised energy intensity targets through the procurement and ongoing management of energy efficient office buildings and appliances. The focus is on being cost effective from day one. This is most likely to be achieved when energy efficiency is considered from the beginning of a project

and is incorporated into other design, construction and procurement proposals.

New office buildings & major refurbishments

All new and substantially refurbished buildings, whether owned or leased by the Australian Government, must meet minimum energy performance standards based on the Australian Building Greenhouse Rating Scheme (ABGR) or other approved scheme.

For the purposes of EEGO policy, a 'major refurbishment' includes work that impacts at least 2 000 m² and represents:

- over 50 per cent of the base building, such as changes to the building envelope, HVAC system, other plant & equipment, and common areas; and/or
- over 50 per cent of the tenanted area, such as changes to workstation layout, lighting, switching, floor and window dressings, and office appliances and equipment.

Lower performance standards or variations to lease requirements may be permitted where it is not cost effective or practical to achieve the minimum 4.5 stars ABGR or equivalent standard.⁵

An independent ABGR performance assessment must be undertaken for all new buildings and major refurbishments within 15 months of handover.

New lease agreements & Memorandums of Understanding (MOUs)⁶

All lease agreements and MOUs for new office buildings, major refurbishments and new leases over 2 000 m² must include:

- a mutual obligation to achieve and maintain the relevant ABGR or equivalent performance standard;⁷

5. Refer to Annex B.

6. MOUs are used when one government department/agency leases premises from another department/agency.

7. This obligation should also be extended to facility managers, tenant advocates, maintenance contractors, cleaners, security and other relevant sub-contractors. Also note that the type of lease is relevant, e.g. gross leases provide a financial incentive for the building owner to select energy efficient plant and equipment (P&E) and to operate it in a way that minimises energy consumption of central services but not necessarily tenanted areas. Net leases should require building owners to consult with tenant on selection of P&E.

- annual ABGR (or equivalent) performance validation by an independent assessor;
- separate on market status digital metering of tenanted areas and central services (and computer centres where cost effective);⁸
- establishment of a formal management committee comprising both tenant and building owner representatives (or integration into an existing building management committee);⁹
- development of an Energy Management Plan outlining minimum procedures required to maintain the relevant performance standard; and
- remedial action/dispute resolution clauses.

Departments and agencies must note in their annual energy intensity report if any of these elements were not included in a lease for a building over 2 000 m² and with a lease term of over two years.

ONGOING ENERGY MANAGEMENT FRAMEWORK

Lease agreements for buildings over 2 000 m² must include an obligation to:

- commission an annual independent ABGR (or equivalent) performance assessment;
- review metering data and other building reports at least quarterly;
- establish an internal energy or building management committee; and
- develop an energy management plan.

Ongoing energy management provisions are also highly recommended for buildings that are owned & occupied by the agency (i.e. not leased) and in existing leased buildings where this is cost effective and likely to facilitate energy performance or reporting improvements.

An effective ongoing energy management framework ensures that the building will achieve and maintain its potential energy performance standard. Most buildings operate well below their design rating unless there is a clear delineation of tenants' & building owners' roles & responsibilities; and processes to monitor, review and enforce achievement of specified performance standards.

Exceptions – Lower energy performance standards

Short term leases (i.e. less than two years including options) do not require any specific energy performance standard. These are deemed to be consistent with the policy (regardless of their level of energy performance) and do not need to be reported.

In all other cases where achieving 4.5 stars ABGR or equivalent may be impractical or not cost effective, agencies or their

representatives may submit a proposal for a lower energy performance standard to DEWR for consideration.¹⁰

While exceptions may apply, lower energy performance standards affect future property operating expenses and average portfolio energy intensity levels. They also take the same amount of time and other resources to properly manage a less energy efficient building.

Possible Exceptions to Minimum Energy Performance Standards

Purpose

This guidance note outlines the Energy Efficiency Government Operations (EEGO) Policy's requirements when achieving 4.5 stars ABGR or an equivalent energy performance standard is impractical or not cost effective. This may be due to factors such as: short lease terms; smaller tenancies; location constraints; or specific heritage, security or other design or operational imperatives that limit agencies' bargaining power and capacity to negotiate energy efficiency improvements in existing or new buildings.

Process for seeking DEWR endorsement

When seeking DEWR endorsement for a lower performance standard, departments, agencies or their representatives should:¹¹

- demonstrate to DEWR how the specific constraint affects the achievement of the default minimum energy efficiency performance standard (4.5 stars ABGR or equivalent);
- nominate an appropriate ABGR rating or equivalent that can be achieved and maintained over the life of the lease or building; and
- provide supporting documentation.

DEWR endorsement is not required for new leases that are less than two years in length (including any options for extension) as they do not need to meet a minimum energy performance standard.

Short term leases (< 2 years)

Short term leases reduce an agency's market power and make it difficult to justify energy efficiency measures requiring longer payback periods. However, it may still be possible and desirable to voluntarily specify 4.5 stars ABGR or equivalent and/or to negotiate minor refurbishments and good energy management practices.

Medium term leases (2 – 5 years)

Achieving 4.5 stars ABGR or an equivalent energy performance standard for medium term leases of between two and five years may not always be cost-effective. Where this is likely to

8. Preferably with separate revenue meters for tenanted areas.

9. A formal management committee is not required where tenanted area is less than 50 percent of total net lettable area.

10. There is scope in the GLS template to downgrade the performance standard if the original design rating proves not to be viable for the remainder of the lease term. Contact DEWR for details.

11. Agencies should allow at least five working days for DEWR review of documentation and response.

be the case, agencies should discuss options with DEWR to agree an outcome that can be reported as fully consistent with implementation of the policy.

Lease options

Where an agency wishes to exercise a lease option to remain in their current premises, it should obtain an independent ABGR or equivalent assessment. Where the building is found to be operating below the relevant minimum energy performance standard, agencies must be able to demonstrate that they have conducted market testing of more energy efficient alternative premises and have tried to negotiate cost effective energy efficiency improvements, preferably as part of a comprehensive voluntary improvement plan.

While exercising a lease option does not generally provide scope to vary the lease agreement, building owners may agree to capital works or changes to energy management procedures that reduce their costs, encourage the tenant to extend the lease or provide other benefits, especially if a refurbishment is planned.

Location constraints

Where an agency has less market power or flexibility due to a policy directive to locate in a specific area or site, it should consult with DEWR to consider what can be achieved in a restricted property market. For example, cheaper rent in some regional areas may offset the cost of lighting upgrades or other energy efficiency improvements if the pay back period is less than the lease term, especially where a refurbishment is planned.

Heritage, security or other constraints

Where a heritage classification, heritage planning scheme, security requirement or other design or operational requirement constrains the integration of internal or external energy efficiency measures, agencies or their representatives should consult with DEWR to consider their options or to seek endorsement for a performance standard of lower than 4.5 stars ABGR or equivalent.

Note: Buildings with specific heritage, security and other constraints may have higher maintenance and operational costs that provide extra incentive to minimise energy costs.

Tenancy fit-out

A minimum energy performance standard of 4.5 stars ABGR or equivalent for tenant light and power applies when more than 50 per cent of the tenanted area is undergoing a tenancy fit-out.

Even seemingly cosmetic changes, such as painting, recarpeting and changing window dressings, can have a significant impact on heating and cooling loads and lighting requirements. Agencies or their representatives may, however, seek a DEWR-endorsed exception as long as the proposed fit-out is not likely to result in increased energy consumption.

Exceptional circumstances

Requests for a lower performance standard may be considered if the government is already committed to an alternative standard or a government decision necessitates an unexpected change to accommodation circumstances with little notice.

However, exceptions are not intended to apply where the problem is caused primarily by a failure to pre-plan accommodation needs or to ensure a sufficient lead time (at least 18-24 months) for the procurement process. In such cases, the Government has little bargaining power and is likely to pay far more for energy as well as rent and other outgoings. This does not represent value for money from the government's point of view.

Conclusion

The GLS works on the basis on a collaborative contracting arrangement between the tenant and building owner. It brings added value to supply contracts from the tenant and owner perspectives. The GLS actually addresses the issue of poor building commissioning of central plant and equipment together with tenant fitout especially lighting performance. The GLS is a practical mechanism to actually get buildings to actually perform to what they have been designed for energy efficiency initiatives. I refer you to a suite of GLS at our web page www.greenhouse.gov.au/government and we would be delighted to provide our insights into this unique new area of commercial property law that assist the owner and tenant achieve their business outcomes.

Annex A



Australian Government

**Department of the Environment and Water Resources
Australian Greenhouse Office**

ESSENTIAL ELEMENTS OF AN ENERGY MANAGEMENT PLAN FOR GREEN LEASE SCHEDULES

This document lists the essential elements of an Energy Management Plan (EMP) for Green Lease Schedule (GLS) parties interested in producing their own EMP. DEH has also produced a sample EMP template and can provide further information for each of these essential elements. Fact Sheets are also available outlining EMP and GLS background information. The sample EMP template and fact sheets are available at www.greenhouse.gov.au/government

For more details refer to DEW web page www.greenhouse.gov.au/government

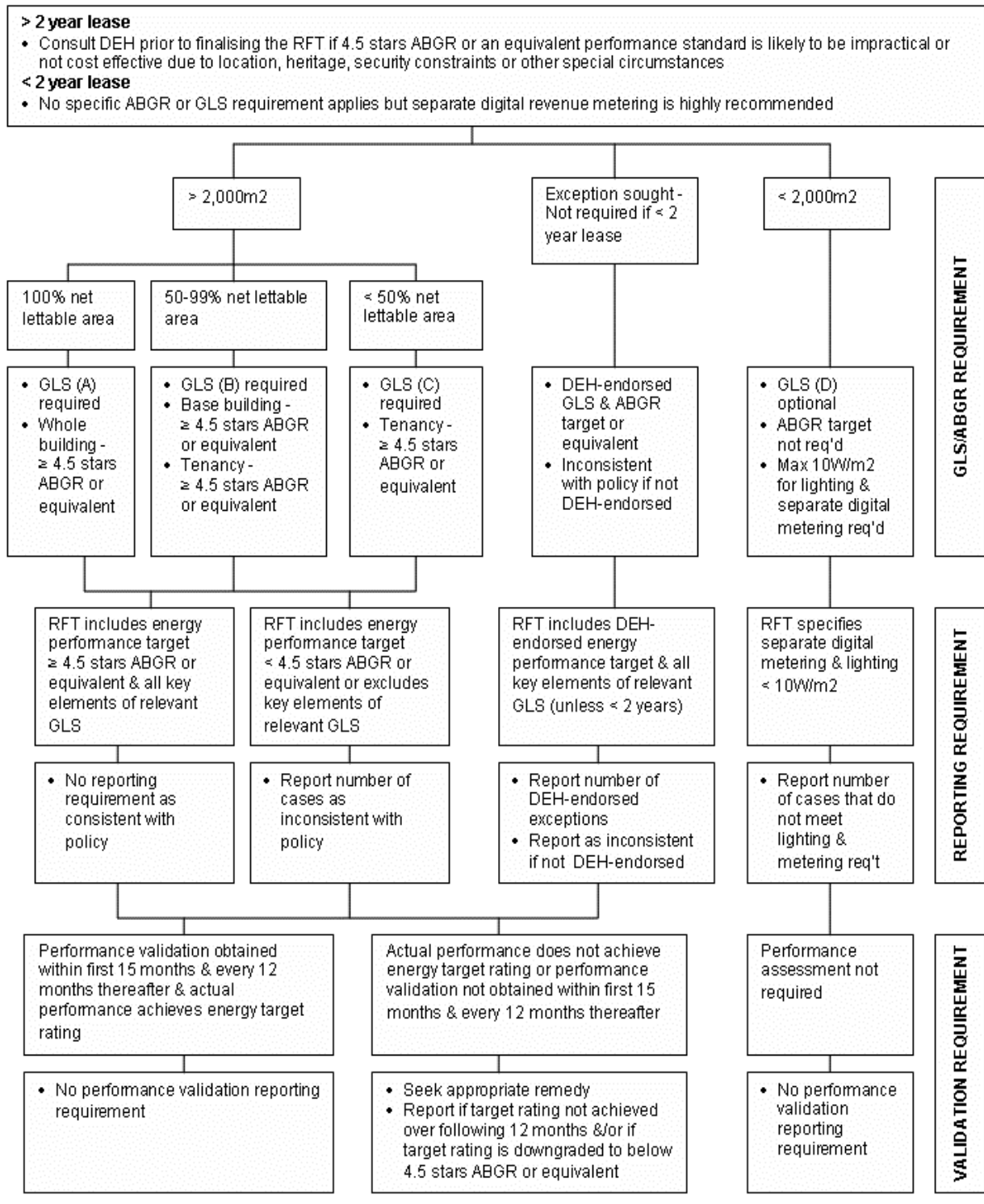
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The purpose of an EMP is for parties to meet and maintain the required Australian Building Greenhouse Rating (ABGR) as outlined in the <i>Energy Efficiency in Government Operations (EEGO)</i> policy. The following 14 elements are essential for consideration in drafting, managing and reviewing the EMP.		
Element	Description	
1	EMP Principles	Commitment of tenant and owner Investment in energy efficiency where cost effective and appropriate Knowledge - awareness and education of saving energy strategies
2	Key strategies	Ensure that business cases for energy efficiency measures are based on whole-of-life cycle costs including benefits of such improvements Determine the role of the tenant and owners energy representative in energy management Analysis and management of energy data Training for key stakeholders Management of changes to fit out and plant that impact on energy efficiency performance.
3	Relevant Stakeholders	List the relevant stakeholders that will help the parties meet and manage the ABGR and define their responsibilities and the potential impact(s) of each on energy efficiency objectives
4	Risks /Impact on ABGR	Identify the risks that may impact on the ABGR rating and ensure the EMP addresses each one.
5	Metering	Separate metering for tenant light and power and central services Analyse 30 Minute interval energy data reports quarterly (check for exceptions)
6	Building Commissioning	Factors which could affect ABGR rating identified, checked and fixed so as to be fully operational as per building design. Rectification of building and fit out faults
7	Tenancy information	Keep proper records of ABGR rating parameters: Area (NLA) Personnel numbers Occupancy hours Meter readings Computer numbers
8	Online ABGR rating check	Perform a monthly check, for more information see http://www.abgr.com.au/new/default.asp?docid=289
9	Technical Measures	Determine potential energy efficiency measures available from the following end use categories: HVAC Lighting Office Equipment Other Plant (e.g. water heating)
10	Non Technical measures	Assess performance in the key energy management areas and develop a management plan for at least the following categories: Leadership – Committee structure , authority levels responsibility and reporting Planning – work plans milestones and reporting dates Awareness – case studies, newsletters, stickers, web site Measurement – online data, KPIs, targets, sub metering Investment – business case, funding Supply – tariffs, data access and metering
11	Applicable GLS	Examine the lease obligations stated in the applicable GLS A1 A2 B1 B2 C1 C2
12	GLS reporting requirements (All reports need to comply with the GLS requirements to be activated either by landlord or the tenant)	Building Management Committee (BMC) (Energy representatives for BMC, meeting minutes) EMP (development, review and EMP Performance Report) Audit and ABGR Certificate Energy data reports Remedial Plan Maintenance contracts Fault reports Base building anomalies and Tenant anomalies
13	Landlord Responsibilities (The building owner needs to monitor the following reports by exception to ensure that the ABGR rating is not affected)	Energy; Metering; Engineering; BMS; Fault reports; Testing; Lifts; Carpark; Communications; Commissioning; Hydraulics; Mechanical ;Electrical; Fire service ;OH&S; Capital works; Minor works
14	Tenant Responsibilities (The tenants need to monitor the following reports by exception to ensure that the ABGR rating is not affected)	Monitor Faults (Tenancy); Metering; Maintenance; Staff levels Equipment; Lighting controls; Computer rooms; Blinds; Vents; Fitout changes; Controls; Energy procurement; Cleaning Landscape; Storage; Water (Optional); Waste (Optional)

Annex B

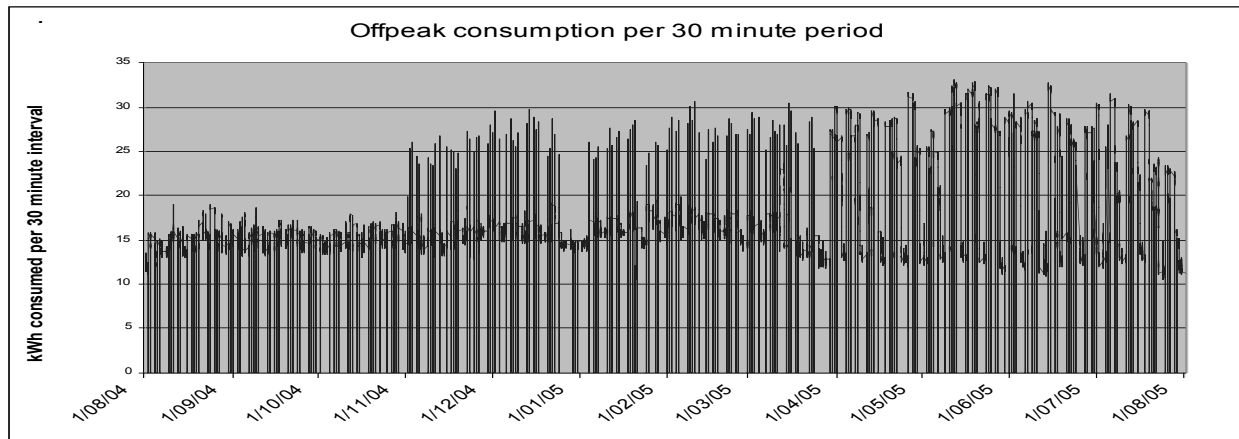
**GLS/ABGR, REPORTING & PERFORMANCE VALIDATION RE-
QUIREMENTS FOR NEW LEASES**



Annex C

CASE STUDIES

Case studies 1, 2 and 3 are examples of real Australian Government agencies identified as part of the development of the EEGO. They indicate the sorts of issues that a GLS would quickly identify and address, while these problems could have continued for many months or years unaddressed under a “normal” lease arrangement.

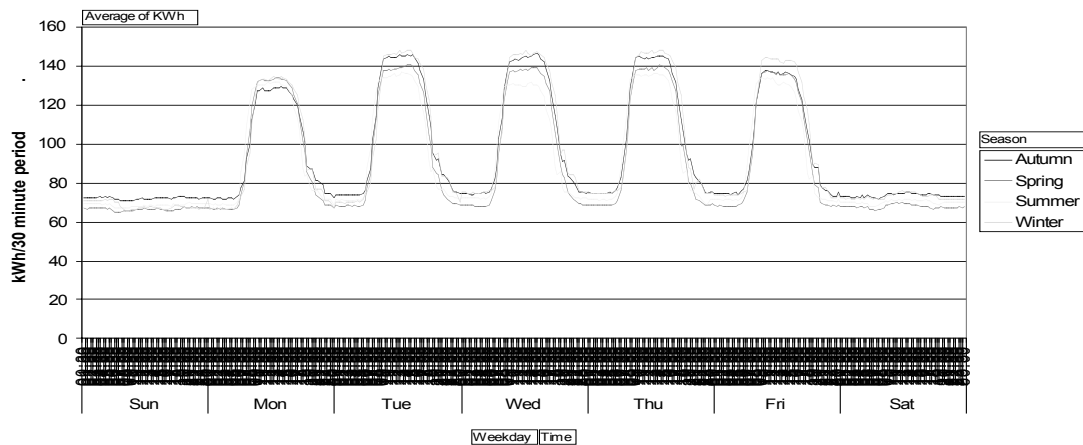


Case 1 – Detect, diagnose and rectify change

Analysis of off-peak consumption in this building demonstrated and diagnosed a serious change in operational behaviour as at 1 November 2004. The sharp increase in off-peak energy consumption was traced back to a change in IT switch off policy overnight. This change in operational behaviour was causing the building’s annual electricity consumption to increase by 7 %. 30 minute metering data allowed easy detection and diagnosis of this operational change.

Month (All)

Tenant light and power

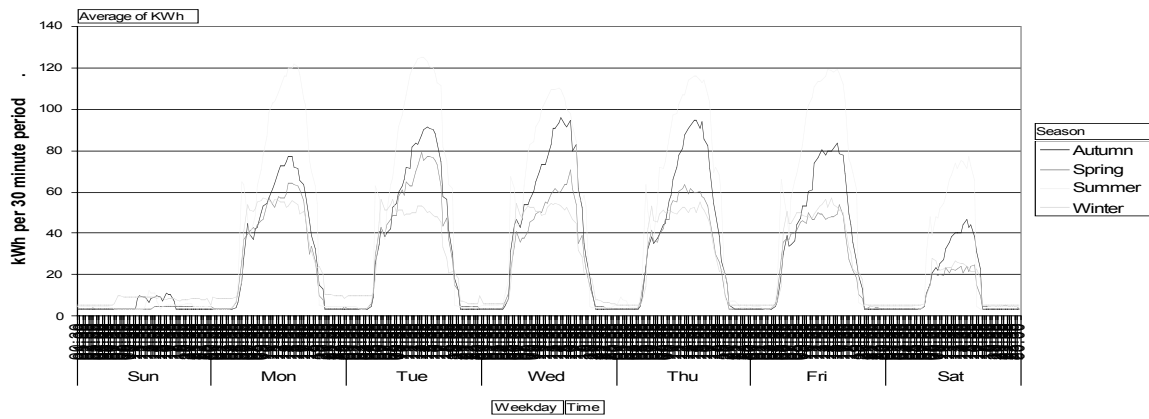


Case 2 – detect and diagnose poor overnight switch off behaviour

Analysis of average weekly energy consumption for this tenancy revealed a very poor overnight electricity consumption turn-down, with overnight consumption approximately 50 % of consumption through business hours. In this building this was traced back to a lighting controls problem, and poor office equipment shutdown procedures.

Month | (All)

Base building consumption by season



Case 3 – diagnosis of after hours air conditioning

This building had little genuine after hours occupancy, and was fitted with after-hours run-on timers. Analysis of weekly consumption profiles indicated considerable operation of the mechanical services during Saturdays. Once discovered, this was investigated in the building's control system, and improved methodologies for after hours servicing investigated.