

# GREENER GOVERNMENT BUILDINGS

## Guidelines

October 2016



These guidelines provide an overview of the Victorian Government’s Greener Government Buildings program; the required approach to procuring and implementing energy and water efficiency projects; and the responsibilities of Victorian Government departments and agencies in meeting program implementation targets.

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# 1. INTRODUCTION

Greener Government Buildings (GGB) is a Victorian Government program designed to improve the energy and water efficiency of existing Government buildings and infrastructure. The result will be a more efficient public asset portfolio that can be operated at lower cost, with a reduced impact on the environment.

GGB improves the sustainability of Government finances by implementing sound investments in energy and water efficiency, such as upgrades to lighting, heating, ventilation and air-conditioning systems and the installation of building automation, rainwater harvesting, co-generation (or tri-generation) and solar photo-voltaic (PV) systems.

The program also supports Victoria's energy efficiency and clean technology industry, which means more jobs for Victorians.

GGB achieves energy efficiencies using these three approaches:

1. Energy Performance Contracting and equivalent processes;
2. Quick-Wins

## 1.1 Energy Performance Contracting (EPC) and equivalent processes

EPC and equivalent processes leverage specialist skills from ESCOs and establish a competitive environment for procurement of energy efficiency solutions. Under these processes, a facility (or collective of facilities) is put to market to scope the extent of energy efficiency solutions. Proposals are evaluated on the basis that the ESCO who identifies solutions with the greatest level of savings within the Government's investment criteria will be engaged to undertake the project.

EPC and equivalent projects should aim to maximise operational cost savings within an average **simple payback period of no longer than five years** for all existing buildings or infrastructure where agencies pay the utility bills.

Additionally, each solution proposed by the provider is expected to return a **positive net present value (NPV)** over its life. I.e. the project should not include any solutions that have a negative net present value.

Importantly, ESCOs are required to guarantee the savings associated with an EPC project. These processes are further described in section 2 of these Guidelines.

## 1.2 Quick wins

Quick-wins are solutions with short payback periods (e.g. less than one year), for which the Government has mandated departments and agencies to implement across their facilities by 31 December 2016. Because the expenses and the savings from these measures are operational, and are achieved in the same year, these measures can be implemented within the agency or department's existing operating budget.

## 1.3 Facilitation and support for departments and agencies

The GGB program provides ongoing support to departments and agencies via an established mechanism for project financing and facilitation services for the scoping, procurement, implementation and contract management of EPC and equivalent, and EMBT projects.

## 2. ENERGY PERFORMANCE CONTRACTING (EPC)

The GGB program increases the scale of, and mitigates risks associated with the implementation of energy and water efficiency by following a process known as Energy Performance Contracting (EPC).

### 2.1 INTRODUCTION TO EPC

EPC projects use defined and accepted worldwide industry standards for implementing energy efficiency upgrades to buildings and infrastructure through a low risk and accountable methodology.

The EPC process (see Section 2.2) involves engaging a single contractor, known as an Energy Services Company (ESCO), to identify, design, install and commission upgrade solutions at existing buildings and facilities.

Key to EPCs is the requirement for ESCOs to guarantee a minimum annual saving (e.g. in electricity, natural gas, water, etc.). In the event of a savings shortfall, ESCOs are required to pay the difference to the customer. This transfers the savings risk from the customer to the ESCO.

The EPC method has been demonstrated both in Australia and internationally, to hold many benefits over traditional energy efficiency projects as outlined below.

**Guaranteed Savings:** The ESCO will be responsible for achieving project savings over the life of the contract (generally the same term as the project's payback period), and any shortfall in savings will be reimbursed by the ESCO. Therefore, the EPC minimises risk to both the project performance and the ability to service the finance.

**More savings:** In an EPC project, three ESCOs competitively audit buildings and facilities with the expectation that the company who identifies the most savings will win the contract. Additionally, the nature of an EPC project means that the more savings identified, the larger the contract will be. As a result of this competitive procurement approach, EPC projects have historically proven to identify significantly more savings opportunities than traditional audit and installation services.

**Risk Management:** An EPC will shift many technical and financial risks from the customer to the ESCO. The ESCO assumes risks relating to the performance of the solutions and manages an annual measurement and verification process to demonstrate that performance has been met.

**Continuity and Accountability:** Dealing with a single service provider across the design, construction and measurement and verification stages, provides greater continuity and enables that contractor (the ESCO) to be fully accountable for the project's performance.

#### 2.1.1 Which sites or buildings should be included in an EPC?

The EPC process is most suitable for facilities (or a group of facilities) with a high energy consumption (i.e. greater than 1 GWh of electricity consumption per annum), and buildings with complex systems where the best energy saving solution may not be easily identified.

When scoping an EPC project, it is often simplest to include all areas and systems within the buildings (i.e. all opportunities that can be found within the building). There may be certain scenarios however, where exclusions are appropriate. For example, at sites that agencies deem to have a practical life of less than five years (e.g. a leased facility with five years remaining, or a building planned for demolition or significant refurbishment), it may be appropriate to either define a shorter maximum payback period when tendering (e.g. to payback within the remaining lease term), or defer the

implementation of works at those sites until there is a greater opportunity (e.g. the lease renewed for a longer period, or the tenant moves to a new building).

### 2.1.2 What technologies are included in an EPC?

As part of an EPC project, ESCOs are responsible for identifying, designing, validating, installing, commissioning and guaranteeing the performance of all technologies implemented. As such, there is no requirement on the agency to perform audits and design solutions on their own prior to the EPC process.

ESCOs will be requested as part of the tender process to propose a project (typically consisting of a variety of energy conservation measures) with a blended payback period that averages no more than five years.

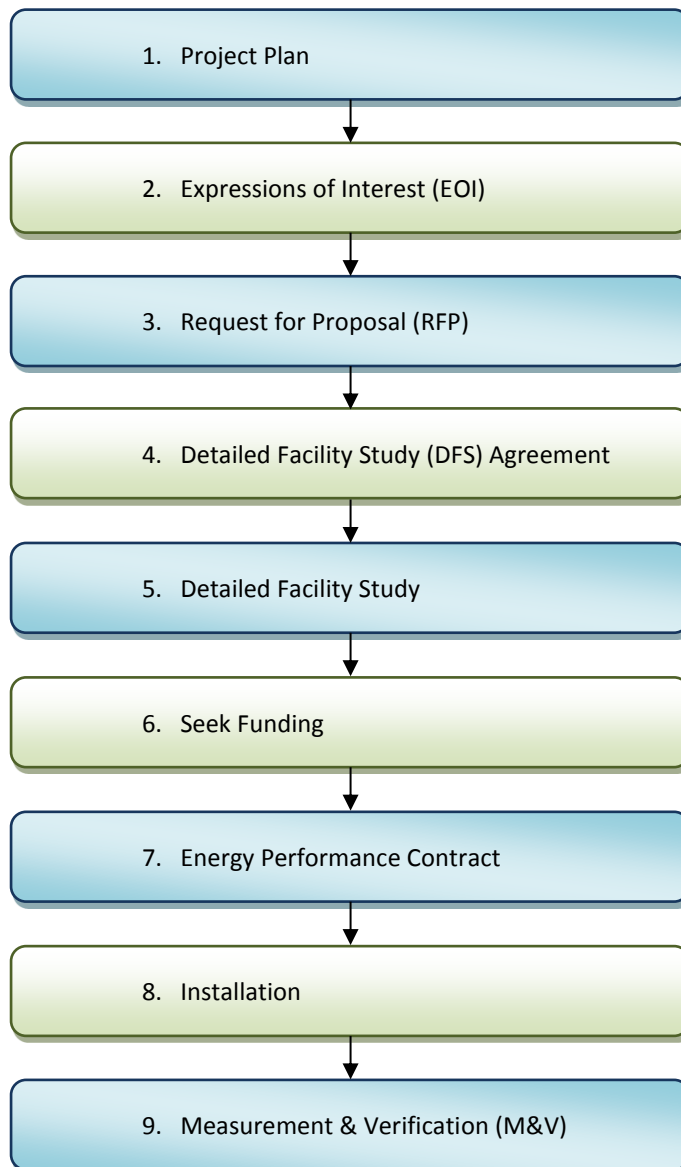
Typically, ESCOs will seek to include the following energy and water savings solutions:

- lighting replacements and lighting control systems;
- heating, ventilation and air-conditioning system upgrades;
- building automation system solutions;
- water saving opportunities in cooling towers, fire services, toilets, and irrigation systems;
- power factor correction opportunities; and
- on site generation solutions such as co-generation and solar power;

The blended payback period allows for solutions to be included that have individual payback periods of longer than five years, and others shorter than five years, as long as the overall project payback period does not exceed five years. Additionally, each measure included in the project should achieve a positive net present value (i.e. demonstrate that it will at least pay for itself within its expected life).

## 2.2 THE EPC PROCESS

The diagram below and subsequent sections describe the EPC process.



### 2.2.1 Project Plan

Before engaging with the market the agency should have developed a project plan and completed the following actions:

1. Identified a Project Sponsor (executive level);
2. Identified a Project Manager;
3. Completed the project plan, with assistance from DTF; and
4. Have the project plan (which includes funding estimates), approved by a financial delegate (e.g. Board, CEO, Secretary, Minister).

The project plan should include details of which buildings are to be included in the project (see Section 5 for further details), governance, timelines and risks. A template Project Plan can be obtained from DTF, or downloaded from the GGB website at:

<http://www.procurement.vic.gov.au/State-Purchase-Contracts/Energy-Performance-Contracting>

### 2.2.2 Expressions of Interest (EOI)

After approval of the Project Plan, a call for expressions of interest will be sent to a panel of ESCOs overseen by DTF. These ESCOs have been pre-qualified to provide EPC services to Victorian Government entities.

The call for EOIs will outline the buildings to be assessed, their associated energy and water usage, and an indicative timeline of the proposed EPC project. The ESCOs will review this information and depending on their skills, capacity and willingness to commit, will respond with an EOI. These EOIs will detail the ESCOs willingness to participate in the project tender, their previous experience in energy efficient upgrades at similar facilities and their suitability for the project.

Access to information on members of the EPC services panel may be obtained from GGB facilitators within DTF, or online at:

<http://www.procurement.vic.gov.au/State-Purchase-Contracts/Energy-Performance-Contracting>

### 2.2.3 Request for Proposal (RFP)

After receiving the EOIs, the agency will select **three** ESCOs considered best suited to take part in the project, and provide them with a RFP. Note that a template RFP document is available from DTF at: <http://www.procurement.vic.gov.au/State-Purchase-Contracts/Energy-Performance-Contracting>

The RFP involves all three tenderers competitively auditing the buildings to identify energy (and often also water) conservation measures. Depending on the scale of the portfolio being addressed, it may be necessary to exclude certain buildings from the RFP stage so that the tender may be undertaken in a reasonable timeframe (e.g. 12 weeks), and with a reasonable impact on the ESCOs (which are not being paid for these initial audits).

For example, a project intending to address 30 buildings may be reduced to 6 key buildings to be audited at the RFP stage, with the remaining 24 buildings addressed in the subsequent DFS stage, under contract, by the preferred ESCO.

Each RFP submission will include details relating to the proposed costs and savings of measures identified through the audits. It should be noted that costs savings estimates as stated within the RFP submissions are to an accuracy of within 20 per cent. At the DFS stage, the ESCO will be required to achieve at least 80 per cent of the proposed savings for the DFS to be compliant.

DTF facilitators can provide guidance and support on the evaluation of proposals.



## 2.2.4 Detailed Facility Study (DFS) Agreement

Once RFP Proposals have been reviewed, a preferred ESCO is selected to proceed with a DFS, the next stage in the EPC process. At this stage, the preferred ESCO is notified of their success, and a DFS agreement is negotiated. A template DFS Agreement is available from DTF at:

<http://www.procurement.vic.gov.au/State-Purchase-Contracts/Energy-Performance-Contracting>

The DFS Agreement puts forward the terms and conditions under which the ESCO will perform a DFS on the facilities in scope and the DFS fee.

Once the contract is signed, the ESCO is entitled to invoice for 50 per cent of the DFS fee to cover the costs associated with the RFP phase and the development of the DFS. If the department/agency if cannot access sufficient funds internally, they may invoice DTF for this initial fee, on the agreement that these funds will be repaid after the project construction stage from project savings. i.e. when the department/agency accesses a public account advance, it will include the requirement for the full DFS fee (including the initial 50 per cent) to be repaid.

## 2.2.5 Detailed Facility Study (DFS)

At the DFS stage, the customer and the ESCO collaboratively work to develop a project that meets the customer's objectives, is practicable and achievable. At this stage it is important for the ESCO to seek early and regular customer feedback on the potential for certain solutions to be accepted. E.g. that a new type of lighting will be accepted by staff; that a proposed new chiller is considered acceptable to the facility manager, who will be responsible for its maintenance).

An effective approach has been for the department/agency project manager to establish a working group consisting of staff who will be affected by the project (e.g. facility managers, site managers, finance). This group would coordinate feedback on certain technologies or proposals by the ESCO. This group, being more familiar with the facilities than the ESCO, may also propose ideas for the ESCO to investigate further.

An important element of the DFS is the Measurement and Verification Plan (MVP). The MVP should be developed and submitted as part of the DFS, and should be discussed with the department/agency at least 4 weeks prior to lodging to ensure that the proposed approach is acceptable.

The ESCO will eventually submit a DFS to a standard equivalent to a Level 3 energy audit, and the department/agency will be required to decide whether to:

- a. Accept the DFS and agree to implement a project as proposed, in which case the department/agency applies for a loan to cover the full investment cost (including the full DFS fee). Further detail regarding financing is available in section 2.2.6.
- b. Not implement a project with the ESCO. If the DFS was considered to be compliant, the remaining DFS fee will need to be paid to the ESCO by the customer.
- c. Request the ESCO amend the DFS to make it compliant, and acceptable. Ideally, a collaborative DFS would mean only minimal amendments are required at this stage, however.

The standard EPC template stipulates time limitations on this decision, between the submission of a DFS to its acceptance and subsequent EPC execution. If a decision by the department/agency is delayed beyond this agreed time, the ESCO will be entitled to invoice the department/agency for the DFS fee.

## 2.2.6 Funding application

Victorian public sector entities are eligible to apply for funding via a public account advance (as per section 37 of the *Financial Management Act 1994*). Funding applications must come in writing from the relevant Minister to the Treasurer. Note that this is an option, rather than a requirement of the GGB program (i.e. departments and agencies may elect to access alternative funding sources).

In applying to the Treasurer for funding, the department or agency must commit to repay the funds over a period consistent with the project's payback period (i.e. typically around five years), using the project's cost savings to offset loan repayments. On completion of repayment of the loan, the department or agency is eligible to retain 50 percent of savings achieved by the project.

## 2.2.7 Energy Performance Contract

Once funding is approved, the EPC may be signed between the department/agency and the ESCO. A template EPC is available from DTF at:

<http://www.procurement.vic.gov.au/State-Purchase-Contracts/Energy-Performance-Contracting>

The EPC contract includes details of the agreed scope of works (based on the outcomes included in the DFS), commissioning procedure, maintenance schedules, project costs and the performance guarantee, including the MVP.

At the time of signing the EPC, the ESCO is entitled to invoice for the remaining balance of the DFS fee.

## 2.2.8 Works specification

Usually the first deliverable under an EPC is the works specification. The works specification sets out the customer's requirements in terms of documentation, processes and approvals that are required prior to the initiation of construction works. The scope of this stage should be determined by the customer in consultation with the ESCO during the DFS stage, and is described in Schedule 2 of the EPC. Typical requirements of the works specification include:

- A project implementation plan, including Gantt chart, details of resourcing, roles and responsibilities;
- Updating of site plans, if required; and
- Samples of proposed equipment for approval (e.g. lighting) if required.

## 2.2.9 Installation

During the installation, the ESCO may install, or engage subcontractors to install the EPC solutions as agreed in the DFS and the works specification. Variations to the scope may be made with the agreement of the customer.

## 2.2.10 Measurement and Verification (M&V)

The measurement and verification plan (MVP), developed during the DFS stage, and forming Annexure 1 to the EPC, will describe the responsibilities of the ESCO to measure and verify the project savings, and responsibilities of the customer to provide access to supporting data.

The MVP may include the requirement for certain solutions to be measured and verified annually over the term of the contract, however it may also allow for other solutions (e.g. those less prone to

changing in performance over time) to be verified over a shorter timeframe (e.g. a single verification several months after implementation).

The MVP will also stipulate the timing of any reports to be submitted to the customer over the contract term. A template MVP is available from DTF at:

<http://www.procurement.vic.gov.au/State-Purchase-Contracts/Energy-Performance-Contracting>

If savings in any year fail to meet the guaranteed savings (as stated in the EPC), the ESCO is required to reimburse the agency to the degree of the shortfall.

### 3. 'EQUIVALENT' PROCESSES TO EPC

In certain instances it may be deemed by a department/agency, in consultation with DTF, that a project can be delivered more efficiently and effectively via an alternative process to an EPC. These instances may occur where:

- a. an agency's total energy consumption is too low to attract ESCOs to deliver an EPC (i.e. if less than 1 GWh electricity consumption);
- b. the most appropriate energy savings measure/s are already known, and the savings risk associated with those solutions is low. In these instances, the project may derive little benefit from either the guarantee or the competitive auditing that occurs under an EPC, and the department/agency could procure the works directly with suppliers at lower cost and similar risk exposure.

As with EPCs, departments and agencies may seek funding for these types of projects via an advance from the public account, however this will be on the basis that DTF can confirm the savings risk has been effectively addressed (i.e. given there will be no guarantee provided by the contractor). This would include, but is not limited to, the following minimum requirements being addressed:

1. **Average five year simple payback period:** If audits are to be used to inform subsequent works, the audit should be specified to identify projects with an average simple payback period of five years. This figure applies to the entirety of the project, as opposed to specific initiatives within the project (in the same manner as would be specified for an EPC).
2. **Measurement and Verification (M&V):** the project should include an M&V process to ensure the projected savings are adequately verified. A measurement and verification plan (MVP) should be developed, with input from DTF, prior to any works being implemented, based on the template available on the DTF website at:  
  
<http://www.procurement.vic.gov.au/State-Purchase-Contracts/Energy-Performance-Contracting>
3. **Project continuity:** The organisation or individual that undertakes the initial audit and provides design recommendations should also be contracted to oversee or provide advice during the installation and commissioning process, and should be directly responsible for the M&V.

## 4. QUICK-WINS

Quick-wins are solutions that typically have a payback of less than 1 year and can be implemented using the agency or department's current operating budget. Because the savings will be achieved in the same year as the expenditure, the net effect on the operating budget should be close to zero. Government has mandated that all departments and agencies implement the following measures **by 31 December 2016**:

- replace any existing halogen or incandescent lighting with Light Emitting Diode (LED) technologies; and
- configure all computers and laptops to enter a hibernation mode, sleep mode or be automatically shut down to ensure computers are not consuming energy when they are not in use.

### 4.1 CONVERSION OF HALOGEN/INCANDESCENT LIGHTS TO LIGHT EMITTING DIODE (LED)

Halogen and incandescent lamps consume more than 5 times the energy of an equivalent LED. When factoring in the cost of maintenance associated with having an LED which has rated life that is 10 times more than that of a halogen lamp, the amount of savings increase significantly.

While many departments and agencies have already begun to phase out the use of halogen and incandescent lamps, they still remain in many government buildings.

Typically, these replacements have a payback period of less than one year. As a result, departments and agencies are required to undertake this measure within their existing operating budgets.

### 4.2 IMPLEMENTATION OF HIBERNATION/AUTO-SHUTDOWN FOR PCS & LAPTOPS

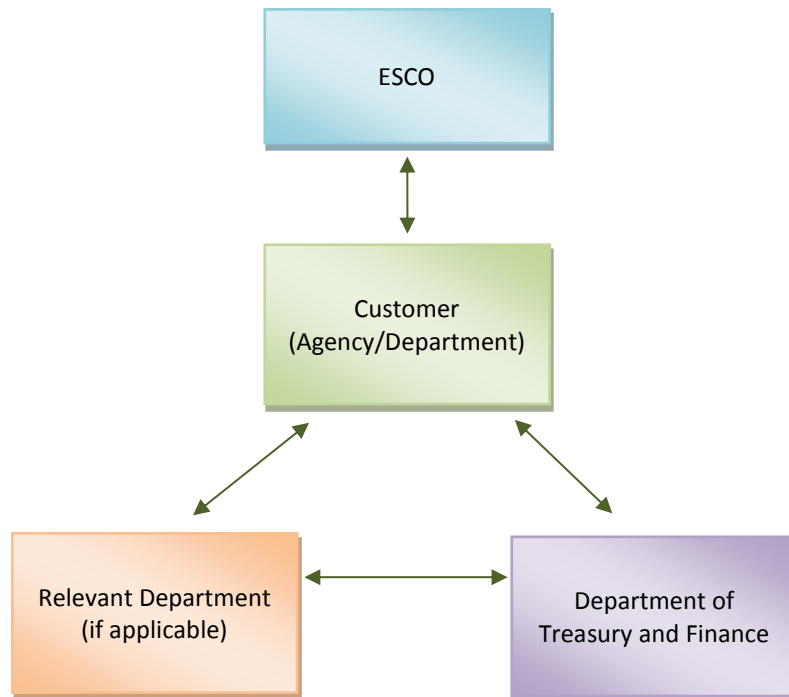
Although the majority of PCs owned by government agencies and departments have sleep mode implemented after a certain time of inactivity, further energy savings can be achieved if computers are put into hibernation or shut down completely.

Government is aware that the current settings are required to allow patching and maintenance to occur outside work hours, however, it is also possible to schedule these to work with the hibernation/auto-shutdown schedule.

In most cases, the software required is already in place and requires alteration of certain settings to achieve the desired outcome.

## 5. ROLES OF KEY STAKEHOLDERS

The GGB program typically involves three or four key stakeholders and a diagram outlining their relationships is shown in the diagram below. Note that this applies to an EPC process. In instances where an alternative process is followed, the ESCO's position may be replaced by one or more consultants or contractors.



### 5.1 DEPARTMENT OF TREASURY AND FINANCE

The role of DTF is to act as a facilitator for GGB projects. DTF facilitators are critical to securing project funding and bring experience and expertise in energy efficiency, EPC projects and program coordination.

DTF facilitators can provide advice and support to departments and agencies with respect to:

- development of a project plan, internal approvals and appropriate project governance
- access and communication with the EPC service panel;
- preparation of tender and contract documents;
- management of tender processes;
- determining appropriate funding requirements;
- implementation of projects;
- development and approval of measurement and verification plans;
- access to standard tender documentation and contracts;
- access to specialist technical and legal advice if required; and
- coordination of program results and case studies.

## 5.2 ENERGY SERVICES COMPANIES

Energy Services Companies (ESCOs) are experts in the implementation of energy efficiency solutions and act as a head-contractor for GGB projects. DTF manages a panel of pre-qualified ESCOs which departments/agencies access through a tender process.

ESCOs are responsible for:

- Design, installation, commissioning, and measurement and verification of energy and water conservation measures;
- Consulting with the Customer on the viability of proposed solutions;
- liaising with the customers and updating them on the progress of the GGB project;
- managing various sub-contractors as part of the design and installation process; and
- engaging with internal and external stakeholders on behalf of customers (if agreed by the customer).

## 5.3 CUSTOMER

Depending on the type of project, the customer is typically the government agency or department who manages the buildings and pays the utility bills for the site/s. They are responsible for managing the GGB project from planning to completion and are typically required to:

- obtain internal approval for engagement in the GGB program;
- manage the tender process for selection of ESCO;
- provide ESCOs with relevant information for GGB solutions;
- manage the contracts between the ESCO and themselves;
- review and approve documents submitted by the ESCO (e.g. DFS, M&V, etc.);
- review and approve proposed solutions and work specifications;
- engage with internal and external stakeholders to allow ESCOs to deliver works;
- manage the financing of the GGB project;
- review M&V reports post-implementation; and
- update DTF representatives on progress of GGB project

## 5.4 RELEVANT DEPARTMENT

In projects where the department is not the customer, the relevant department is responsible for facilitating the funding application process for the agency. As such, they are required to be across the GGB project at a very high level to assist in obtaining the relevant approvals for funding.

Additionally, departments are responsible for meeting the participation targets set by Government (see section **Error! Reference source not found.**), which apply not only to the properties they directly own and operate (e.g. Department of Health and Human Services (DHHS) offices), but to properties owned and operated by agencies within their broader portfolio (e.g. all health services, the Director of housing, etc.).

To ensure their targets can be met, departments are required to develop and maintain implementation plans outlining which projects will be implemented, and when, and may be required to communicate regularly with portfolio agencies to ensure plans are being implemented.

## 6. ACCOUNTING FOR SAVINGS

As a result of the GGB project, departments and agencies will be able to achieve savings and reduce their operating expenses. It is important that these savings are accounted for correctly, and that departments adjust their budgets in SRIMS accordingly to take account of:

- a. The expected reduction in electricity, natural gas, water and maintenance contracts as a result of the project. The exact level of reduction of each of these items should be described in the EPC and DFS documents (if the process was an EPC); and
- b. The agreed loan repayments, as per the public account advance funding.

While it should be noted that a. and b. effectively cancel each other out, it is important these details be updated to ensure savings can be accurately accounted and tracked.

DTF finance representatives for each department are available to assist with this process if required.



## 7. FURTHER INFORMATION/QUESTIONS

Please contact GGB facilitators at the Victorian Department of Treasury and Finance with any questions:

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Greener Government Buildings website:

<http://www.procurement.vic.gov.au/State-Purchase-Contracts/Energy-Performance-Contracting>

## 8. GLOSSARY OF TERMS

DFS	Detailed Facility Study
DTF	Department of Treasury and Finance
EMBT	Energy metering and building tuning
EOI	Expressions of Interest
EPC	Energy Performance Contract
ESCO	Energy Services Company
GGB	Greener Government Buildings
M&V	Measurement and Verification
MVP	Measurement and Verification Plan
RFP	Request for Proposal

