



i am action matters

Environmental Upgrade Agreement:
Tenant contributions technical guidance

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Building owners can collect tenant contributions to environmental upgrades as long as the contributions do not exceed the utility savings resulting from the upgrade. The tasks described below are designed to assist professionals developing the tenant contribution calculations, measurement and verification, and assisting with the Environmental Upgrade Agreement (EUA) annual reporting. Figure 1 over the page provides a visual representation of the tenant contribution process.

1. Schedule 4: Lessee cost savings estimation and methodology

Schedule 4 of the EUA contract provides a summary of the maximum tenant contributions being recovered for the upgrade, which is generally completed by a consultant on behalf of the owner.

To be able to complete Schedule 4:

- the estimated savings need to be calculated,
- the baseline usage measured,
- the savings calculation methodology agreed, and
- the maximum total contribution amount to environmental upgrade charges per charge payment that may be collected from tenants.

A Measurement and Verification Plan (M&V Plan) needs to be developed and agreed to document savings estimation, measurement and verification methodology. The M&V Plan is an integral part of Schedule 4 and should be developed in conjunction with the saving estimation process.

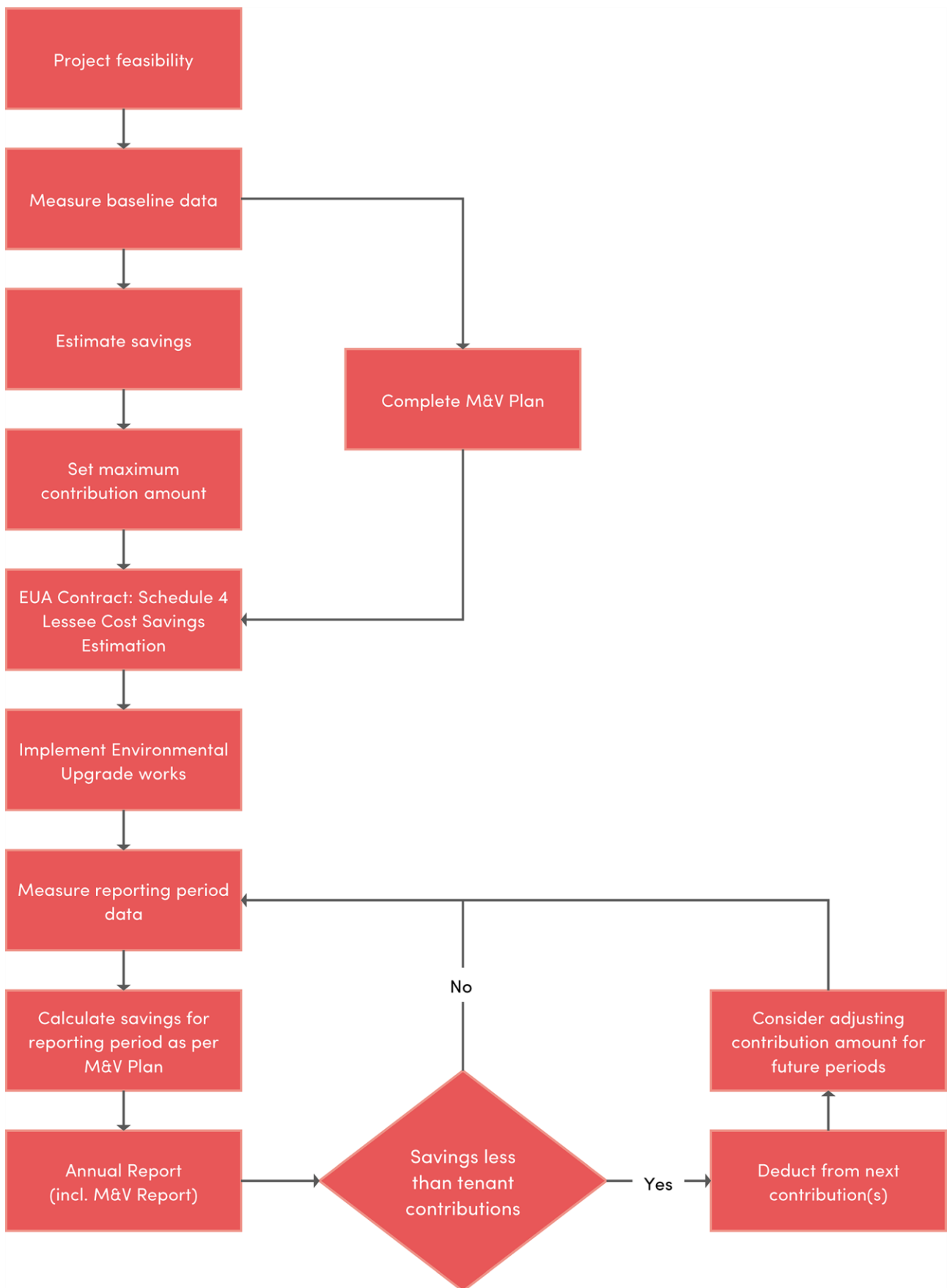
Measurement and Verification Plan (M&V Plan)

The M&V Plan documents the process for measuring and verifying the utility savings resulting from the upgrade in each annual reporting period. The extent of the M&V Plan will depend on the type of upgrade, ranging from simple for lighting upgrades, water efficient fixtures etc, to more complex for verifying the benefits resulting from deep building upgrades. The measurements may be as short as an instantaneous measurement after commissioning, or continuous over the reporting period. The M&V Plan should include a periodic inspection plan to verify equipment is still in place and operating as planned.

The data gathered for measurement and verification will be used for the annual tenant contribution reconciliation process and for the building owner's annual report.

The M&V Plan should be developed in accordance with industry or government standards such as International Performance Measurement and Verification Protocol (IPMVP) or Project Impact Assessment with Measurement and Verification (PIAM&V) under the NSW Energy Savings Scheme for energy efficiency upgrades, and other industry standards for water and waste upgrades.

Figure 1: The tenant contribution process



The following items should be specified in the M&V Plan, where applicable.

Measurement boundary

The boundary may be as narrow as the flow of energy or water through a pipe or wire, or as broad as the total energy consumption and demand of one or many facilities. Describe the nature of any interactive effects beyond the measurement boundary together with their possible effect on project savings.

Meter specifications

Identify and document the metering points, and period(s) if metering is not continuous.

For non-utility meters, specify:

- meter type, make, model and characteristics,
- specifications, including accuracy and precision,
- meter reading and witnessing protocol,
- meter commissioning procedure, including dates
- calibration process/procedure, and
- data handling procedure and method of dealing with lost data.

Responsibilities

Assign responsibilities for reporting and recording the utility data, independent variables and static factors within the measurement boundary during the reporting periods.

Expected accuracy

Evaluate the expected accuracy associated with the measurement, data capture, sampling and data analysis. This assessment should include qualitative and any feasible quantitative measures of the level of uncertainty in the measurements and adjustments to be used in the planned savings report.

Budget

Define the budget and the resources required for the savings determination, both initial setup costs and ongoing costs throughout the reporting period.

Quality assurance and record keeping

Specify the quality assurance and record keeping procedure that will be used for savings reports and any interim steps in preparing the reports.

Measure baseline data

Document the facility or system's baseline utility demand and consumption as well as corresponding influencing parameters within the measurement boundary. The baseline data required is determined by the planned measurement and verification approach, measurement boundary and scope of the savings calculation, and may include short term metering, spot measurements, and data from manufacturer specification sheets.

The baseline documentation should include:

- An inventory of major utility using equipment/and or services within measurement boundary
- The baseline measurement period
- The baseline utility consumption and demand data

- Values for the relevant independent variables (that affect the utility consumption and/or demand) over the baseline measurement period (e.g. weather data, production data etc)
- A definition of the prevailing operating conditions over the baseline measurement period (known as static factors). These prevailing conditions may include occupancy, operating conditions etc. Also include details of operating conditions of major utility using equipment (e.g. schedules, setpoints, actual temperatures and pressures etc), and details of any significant equipment problems or outages during the baseline period

Savings estimation

The savings estimation should include estimations on both utility savings and cost savings.

Utility savings should be estimated based on an engineering method that is best suited to the upgrade. For example, savings from a lighting upgrade can be estimated using the *Commercial Lighting Formula* in the Energy Savings Scheme. Savings from a HVAC system upgrade can be estimated using engineering calculations.

Cost savings should be estimated based on utility saving estimation, utility price forecast and any grants/funding/certificate available. For upgrades of common areas, building owner utility prices should be used, and for upgrades of tenanted space, the tenant utility prices should be used.

Indicate if Energy Savings Certificates are to be generated under the Energy Savings Scheme for the project. If so, include the method(s) to be used and details of the proposed Accredited Certificate Provider.

Detail the calculations and modelling assumptions used to estimate the annual utility and costs savings and the maximum contribution amount.

Where applicable, include:

- Savings calculation equation
- Engineering calculations
- Any variables estimated, including actual values used and source of estimates, along with justification, and potential impact on the savings calculation through a sensitivity analysis
- Data conversions and corrections
- Adjustment methodology
- Acceptable statistical criteria

Set the maximum contribution amount

Individual tenant contributions can be determined once the baseline has been established and the upgrade savings estimated. This is generally done by apportioning the estimated savings according to leasing documents. The maximum tenant contribution amount should not exceed the tenant's estimated savings from the environmental upgrades.

Completing Schedule 4

The total maximum summary amount of tenant contributions is to be included in Schedule 4 of the EUA. The methodology used to calculate the savings, and a statement from the consultant that the methodology meets this Technical Guideline is to also be included in Schedule 4.

2. Schedule 8: Annual report

Under an EUA the building owner is required to submit an annual report to the council by 1 August each year. The annual report should provide details of the works completed and the verified savings achieved as a result of the upgrade. Schedule 8 of the EUA contract provides the template to complete the annual report.

Basis for adjustment

For each annual report, the utility savings must be calculated by comparing baseline usage to reporting period usage, under a common set of operating conditions. The conditions are likely to be those of the reporting period to allow an avoided utility calculation, but may be some other set of fixed conditions to calculate normalised savings.

To perform an avoided utility cost calculation, records of the operating conditions during the reporting period are used to adjust baseline period utility consumption to compare to the reporting period usage.

Savings calculation methodology

Specify the exact data analysis procedures, models and assumptions used to calculate utility and costs savings in each annual report. For each model used, report all coefficients, constants, statistical metrics and the range of independent variables over which it is valid.

The methodology should include the reporting of:

- energy savings in kWh or megajoules, and tonnes of CO₂e,
- water savings in kL,
- waste or material savings in tonnes or m³ for each type of waste or material,
- transport savings in tonnes of CO₂e,
- pollution savings in ppm or mg/m³.

Where applicable, include:

- The savings calculation equation
- Engineering calculations
- Any variables estimated, including actual values used and source of estimates, along with justification, and potential impact on the savings calculation through a sensitivity analysis
- Data conversions and corrections
- The adjustment methodology
- Acceptable statistical criteria

Completing Schedule 8

The annual savings data collected through the M&V process provides the verified savings data needed to complete the annual report template (Schedule 8). The annual report also requires information about works completed, estimated savings for comparison, and tenant contributions and NABERS ratings, if applicable.

Annual reports can also be completed using NABERS assessment reports or other regulatory reports that capture appropriate annual savings information.

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