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Industrial and Commercial Emissions Reduction Method: Laundry Upgrades

This document provides a brief outline of procedures using M&V "Option C", which involves the use of continuous measurement data from utility meters along with regression modelling to attribute savings across an entire site.

Background: Basic M&V Concept and Method

The basic Concept of M&V is outlined in **Error! Reference source not found.**:

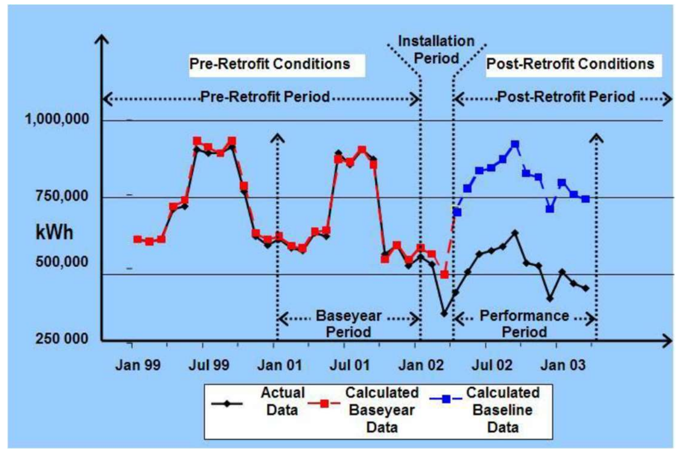

Figure 1: M&V in Concept [source: Australasian Energy Performance Contracting Association]

The project is planned and clearly defined, including a clear scope boundary

- Emissions are measured over the *baseline period*
- A regression model (*baseline model*) is developed and calibrated against relevant measured variable(s)
- The upgrade is installed and commissioned if appropriate
- Emissions (or fuel consumptions) are monitored during the post-upgrade period: E_{Meas}
- The baseline model is used to estimate emissions under business-as-usual conditions[1] in the post-upgrade period E_{BM}
- The difference is attributed as abated emissions: $A_{bound} = E_{BM} – E_{Meas}$

Broadly, there are four steps in running a project that participates in the Emissions Reduction Fund (Figure 2)

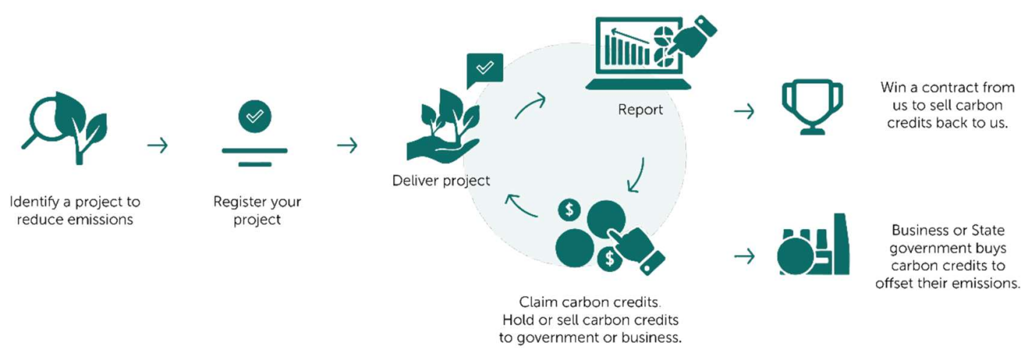

Figure 2: Participating in the Emissions Reduction Fund [source: Clean Energy Regulator. In this figure, "us" = the CER]

- Plan the project, ensure it is eligible, and ensure the proponent holds legal rights
- Register the project with the Emissions Reduction Fund
- Run the project and deliver on project activities
- Report outcomes and claim Australian Carbon Credit Units (ACCUs)[2]

[1] Using published baseline emissions factors for fuel inputs in the first year but with current published values subsequently. This may reduce the number of ACCUs for any given metered electricity consumption in the later years.
[2] AACUs are market traded (e.g. Green-Energy Trading) and vary in value over time. In mid September 2023 they were trading at a little over $30 each.

Procedure

1. Plan and register the project

- Check the project scope against a range of eligibility requirements
- Meet a "fit and proper person" test
- Meet regulatory approvals (e.g. building approvals, permits, grid connection approvals etc.)
- Ensure the project meets the "newness" (additionality) requirements

2. Submit: statement of activity intent

A statement that the activities the project proponent intends to implement would not likely be implemented in the absence of the activities being included in a registered ERF project.

3. Define the implementation boundary

4. Develop a baseline model

A statistical and/or engineering model which identifies the sources of energy and industrial process emissions within the implementation boundary. These sources will be measured during the baseline measurement period to calibrate the baseline model. They will be calibrated against a selection of relevant variables (e.g. quantity of laundry processed, ambient temperature and humidity) and static factors (e.g. volumetric capacity of the dryers).[3] The baseline measurement period is defined such that the equipment undergoes a full cycle of operating conditions.

Energy (and associated emissions) can be calculated based on utility- or sub-metering. Utility metering may only be used when the upgrade will make a significant impact on consumption across the entire metered area (typically the whole site, with impacts above 20% of total emissions), and has the distinct disadvantage meter readings are across long, if regular intervals.[4] It is preferable to use submetering, as this can isolate the retrofitted parts of the site and/or end use applications and provide data at higher temporal resolution; the downside of this is that the meters must be in place for the "full cycle" of operating conditions – when the system is weather dependant, this will typically be 6-12 months.

5. Implement the upgrade

6. Monitor post-upgrade metered energy and estimated emissions

7. Report on the outcomes

Calculate abated emissions as: $A_{bound} = E_{BM} – E_{Meas}$

Where E_{BM} is the total baseline emissions and
E_{Meas} is the post-upgrade emissions

The CER will issue ACCUs following the lodging of a report and an assessment of the claim.

8. Audit

Independent audits are required in line with legislation to a schedule that is determined by the Clean Energy Regulator at the time of project registration – for this type of project we expect three audits, including one with the first report.

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[3] The latter are "parameters that if varied would change the level of baseline emissions… that, under normal operating conditions… do not vary over time, or their variation is small enough to have no observable effect on emissions produced within the implementation boundary". Their inclusion in the measurements enables the model to accommodate unanticipated changes or "non routine adjustments" when reporting.

[4] Smart meters are more common in commercial premises and, although the billing may be quarterly, the utility has far more frequent readings which they are likely to release to the customer or their expert consultants. This is required for demand tariff which is a common choice at this industrial scale.