**Victorian Energy Efficiency Target Amendment (Project-Based Activities) Regulations 2016**

1. **Objective**

The objective of these Regulations is to amend the Victorian Energy Efficiency Target Regulations 2008 to provide for project-based activities that meet specified criteria to be prescribed activities.

1. **Authorising provision**

These Regulations are made under section 75 of the **Victorian Energy Efficiency Target Act 2007**.

1. **Commencement**

These Regulations come into operation on 1 October 2016.

1. **Principal Regulations**

In these Regulations, the Victorian Energy Efficiency Target Regulations 2008 are called the Principal Regulations.

1. **Definitions**

 In regulation 4 of the Principal Regulations **insert** the following definitions—

*“****accredited statistician*** means a person accredited as a statistician by the Statistical Society of Australia Inc.;

***approved Benchmark Rating method*** means a Benchmark Rating method approved under regulation 6AB;

***approved M&V advisor*** means a person approved under regulation 6AE;

***approved project plan***, in relation to a project, means a project plan approved under regulation 6AA;

***baseline period***, in relation to a project, means:

1. if the approved project plan states that Schedule 37 applies, a period that ends:
	1. no more than 24 months before the day activities that comply with the criteria specified in Part A of Schedule 37 begin to be undertaken in accordance with the approved project plan; and
	2. before the day activities that comply with the criteria specified in Part A of Schedule 37 begin to be undertaken in accordance with the approved project plan, unless the ESC is satisfied, having regard to advice from an approved M&V advisor, that effects of the project can be temporarily suspended so that conditions prior to the project being undertaken can be measured;
2. if the approved project plan states that Schedule 38 applies, a 12 month period that ends no more than 18 months before the day activities that comply with the criteria specified in Part A of Schedule 38 begin to be undertaken in accordance with the approved project plan;
3. if the approved project plan states that Schedule 39 applies, a period of at least 3 months and no more than 15 months, which ends no more than 18 months before the day activities that comply with the criteria specified in Part A of Schedule 39 begin to be undertaken in accordance with the approved project plan;

***benchmark rating report***, in relation to a project, means a report for the building where the project is undertaken, which contains:

1. the address of the building; and
2. the rating of the building determined in accordance with the approved Benchmark Rating method specified in the approved project plan; and
3. the start day and end day of the period (***the rating period***) to which the rating relates; and
4. the energy consumption of the building for the rating period, with electricity consumption and gas consumption separately itemised; and
5. the values of additional variables (if any) which contributed to the rating;

***control premises***, in relation to a project to which Schedule 39 applies, means a group of sites:

1. that are randomly selected from the population; and
2. where no activities described in the approved project plan that meet criteria specified in Part A of Schedule 39 are undertaken;

***energy consuming product*** means a product that consumes electricity or gas;

***forward creation period***, in relation to a project, is the period of 10 years commencing immediately after the implementation start time of the project;

***GreenPower program*** means a voluntary government accredited program that certifies renewable energy supplied to consumers is in addition to what is required under the *Renewable Energy (Electricity) Act 2000* of the Commonwealth;

***implementation start time***, in relation to a project, means the time normal operations are capable of commencing after all changes to be implemented by the project are completed;

***monitored energy***, in relation to a project to which Schedule 39 applies, means the monitored energy specified in the approved project plan;

***population***, in relation to a project to which Schedule 39 applies, means the group of sites described in the approved project plan.

***reporting period***, in relation to a project, means:

1. if the approved project plan states that Schedule 37 applies, a 12 month period commencing:
	1. immediately after the implementation start time of the project; or
	2. immediately after a previous reporting period for the project, but not more than 9 years after the implementation start time;
2. if the approved project plan states that Schedule 38 applies, a 12 month period commencing:
	1. after the end of the baseline period for the project (if there is no previous reporting period for the project); or
	2. immediately after a previous reporting period for the project, but not more than 7 years after the end of the baseline period;
3. if the approved project plan states that Schedule 39 applies, a period of at least 3 months and no more than 15 months commencing:
	1. after the end of the baseline period for the project (if there is no previous reporting period for the project); or
	2. immediately after a previous reporting period for the project, but not more than 7 years after the end of the baseline period;

***site*,** for the purposes of regulation 6(4) and Schedule 39, means a building or part of a building for which consumption of monitored energy is measured by means of:

1. a meter or meters used to measure energy consumption for billing purposes; or
2. a meter or meters that, to the satisfaction of the ESC, provides a reasonably accurate and unbiased measure of the monitored energy consumed;

***treatment premises***, in relation to a project to which Schedule 39 applies, means a group of sites:

1. that are randomly selected from the population; and
2. where, at each site in the group, all activities described in the approved project plan that meet criteria specified in Part A of Schedule 39 are undertaken;”.
3. **Prescribed activities**

After regulation 6(3)(g) of the Principal Regulations, **insert**—

“ (h) undertaking a project, at a building that is capable of being assessed under an approved Benchmark Rating method, that—

(i) comprises one or more activities that comply with the criteria specified in Part A of Schedule 38; and

(ii) is undertaken in accordance with an approved project plan.

(4) For the purposes of section 15 of the Act, undertaking a project that comprises one or more activities that comply with the criteria specified in Part A of Schedule 39 at a group of sites in accordance with an approved project plan is a prescribed activity.

(5) For the purposes of section 15 of the Act, undertaking a project that comprises one or more activities that comply with the criteria specified in Part A of Schedule 37 in accordance with an approved project plan is a prescribed activity if the project is undertaken at:

 (a) for a project relating to energy used in supplying central services for a building—a building that is classified under Part A3 of the Building Code as Class 2 or Class 3; or

(b) for any project—a business premises or a non-residential premises.”

1. **Regulation 6AA, 6AB, 6AC, 6AD and 6AE inserted**

After regulation 6 of the Principal Regulations **insert**—

“**6AA Project plan approval**

1. The ESC may approve a project plan for the purposes of regulation 6(5) if the plan:
2. identifies that regulation 6(5) and Schedule 37 will apply to the project; and
3. is received by the ESC prior to the implementation start time; and
4. specifies the address of the premises where the project will be undertaken; and
5. describes the purpose of the project; and
6. identifies the service or services affected by the project; and
7. includes a risk management plan; and
8. identifies the accredited person who will undertake the project; and
9. includes a statement from each affected consumer of electricity or gas that they consent to the project being undertaken.
10. The ESC may approve a variation to a project plan approved under (1) if:
	1. there is no change to the address of the premises specified in the project plan; and
	2. there is no change to the purpose of the project described in the project plan; and
	3. there is no change to the service or services identified in the project plan; and
	4. the risk management plan is updated to reflect the variation; and
	5. if the variation includes changes other than a change to the accredited person identified in the project plan—no certificates have been created for the project at the time the variation is submitted to the ESC.
11. The ESC may approve a project plan for the purposes of regulation 6(3)(h) if the plan:
12. identifies that regulation 6(3)(h) and Schedule 38 will apply to the project; and
13. specifies the approved Benchmark Rating method that will be used to calculate energy savings under Schedule 38; and
14. specifies the address of the building where the project activities will be undertaken; and
15. specifies the baseline period for the project and the rating of the building, determined using the approved Benchmark Rating method, for the baseline period; and
16. identifies the service or services affected by the project; and
17. includes a risk management plan; and
18. is received by the ESC before the day the project activities begin to be undertaken; and
19. identifies the accredited person who will undertake the project; and
20. includes a statement from each affected consumer of electricity or gas that they consent to the project being undertaken.
21. The ESC may approve a variation to a project plan approved under (3) if:
	1. there is no change to the address of the building, the approved Benchmark Rating method or the baseline period specified in the project plan; and
	2. there is no change to the service or services identified in the project plan; and
	3. the risk management plan is updated to reflect the variation.
22. The ESC may approve a project plan for the purposes of regulation 6(4) if the plan:
23. identifies that regulation 6(4) and Schedule 39 will apply to the project; and
24. describes the project activities that comply with the criteria specified in Part A of Schedule 39; and
25. describes the population of sites for the project; and
26. identifies the sites in the treatment premises and the sites in the control premises; and
27. specifies the monitored energy for the project as:
	1. electricity; or
	2. gas; or
	3. electricity and gas; and
28. specifies the sub-method in Schedule 39 that will be used to calculate the energy savings; and
29. if the sub-method uses regression modelling, specifies the variables to be used in the regression model; and
30. includes a risk management plan; and
31. the ESC is satisfied, having regard to advice from an accredited statistician, that:
	1. the sites in the treatment premises and the sites in the control premises have been selected from the population described in the project plan using a random selection method; and
	2. the randomisation generated a selection where the monitored energy consumption and values of the independent variables (if any) is balanced for the control premises and treatment premises; and
32. is received by the ESC before the day the project activities begin to be undertaken; and
33. identifies the accredited person who will undertake the project; and
34. includes evidence that each affected consumer of electricity or gas has consented to the project being undertaken.
35. The ESC may approve a variation to a project plan approved under (5) that takes effect at the start of a reporting period if:
36. the variation does not remove any sites from the population, the treatment premises, or the control premises; and
37. the addition of sites (if any) does not change the ratio of the number sites in the treatment premises to the number sites in the control premises; and
38. the is ESC is satisfied, having regard to advice from an accredited statistician, that:
	1. any added sites have been selected using a random selection method; and
	2. the randomisation generated a selection where the monitored energy consumption and values of the independent variables (if any) is balanced for the control premises and treatment premises;
39. there is no change to the service or services identified in the project plan; and
40. there is no change to the monitored energy for the project; and
41. the risk management plan is updated to reflect the variation; and
42. the variation is received by the ESC before the day any new or revised project activities begin to be undertaken.
43. The ESC must not approve a plan under this regulation for a project if the ESC is not satisfied that the project is reasonably likely to reduce greenhouse gas emissions.

**6AB Benchmark Rating method approval**

The ESC may approve a Benchmark Rating method for the purposes of regulation 6(3)(h) and Schedule 38 if:

1. the method produces a rating for a building, being a rating that does not take into account whether electricity is purchased under the GreenPower Program and is based on:
	1. measured energy consumption at the building; and
	2. additional variables (if any) that are measured or sampled in accordance with a publicly available methodology that the ESC is satisfied is reasonably accurate and reliable; and
2. the method is created and maintained by an administrator, who, to the satisfaction of the ESC, is experienced in building performance benchmarking; and
3. a reverse calculator is available to determine a building’s energy consumption from the building’s rating; and
4. the rating is published in a report that is capable of being used as a benchmark rating report for the purposes of Schedule 38; and
5. ratings produced using the method may be independently audited.

**6AC Persistence model approval**

The ESC may approve a persistence model for the purpose of Schedule 37, which may be used for any project to which Schedule 37 applies, if:

1. the model provides a reasonable estimate of the expected lifetime of an energy consuming product in whole years; and
2. the model provides a decay factor representing the decline in performance of the product each year by taking into account:
3. the type of the energy consuming product; and
4. how the energy consuming product is used; and
5. the environmental characteristics of the premises where the energy consuming product is used; and
6. the model provides the most conservative set of yearly decay factors when applied to more than one group of energy consuming product.

**6AD ESC determinations and specifications relating to Schedule 39**

1. The ESC may determine uplift savings in accordance with Division 5 of Part B of Schedule 39.
2. For the purposes of Schedule 39, the ESC may specify the length of the baseline period and reporting period for a project if the project may result in a seasonal increase in energy consumption.

**6AE M&V advisor approval**

The ESC may approve a person under this regulation if the ESC is satisfied that the person:

* + - 1. is qualified to provide advice in relation to a project to which Schedule 37 applies; and
			2. has relevant experience; and
			3. is sufficiently independent.”
1. **Regulations 8B inserted**

After regulation 8A **insert**—

**“8B Regulations 8 and 8A do not apply for project based activities**

1. Regulation 8 does not apply to a prescribed activity under regulation 6(4) or 6(5).
2. Regulation 8A does not apply to a prescribed activity under regulation 6(3)(h), 6(4) or 6(5).”
3. **Regulation 9A and 9B inserted**

After regulation 9 of the Principal Regulations **insert**—

“**9A Decommissioning list for project based activities**

The ESC may keep a list of the type of products that must be decommissioned if removed in undertaking a prescribed activity referred to in regulation 6(3)(h), 6(4) or 6(5).

 **9B Public register of approved project plans**

(1) The ESC may publish a register of approved project plans in accordance with this regulation.

(2) The details of an approved project plan included in the register may include, but is not limited to:

1. the name of the accredited person who will undertake the project; and
2. where the project will be undertaken; and
3. the method that will be used to measure energy savings.

(3) The ESC may vary details of an approved project plan in the register to reflect any variation approved under regulation 6AA.”

1. **Conditions and circumstances under which a certificate cannot be created**

After regulation 10(3) of the Principal Regulations **insert**—

“(4) For the purposes of section 17(3)(d) of the Act, a certificate cannot be created using Equation 2 in Part B of Schedule 37 for a prescribed activity referred to in regulation 6(5) if:

(a) creating the certificate would result in more than 50,000 certificates being created for the prescribed activity; or

(b) certificates have previously been created for the prescribed activity using Equation 3.

(5) For the purposes of section 17(3)(d) of the Act, a certificate cannot be created using energy savings calculated under Schedule 39 for a prescribed activity referred to in regulation 6(4) if:

(a) tariffs, fees or other charges relating to supply of electricity or gas are increased for one or more sites in the treatment premises without a comparable increase for sites in the control premises; or

(b) occupants of one or more sites in the treatment premises are informed that the site is in the treatment premises; or

(c) occupants of one or more sites in the control premises are informed that the site is in the control premises; or

(d) goods or services aimed at increasing consumption of electricity or gas are targeted at one or more sites in the control premises.

(6) For the purposes of section 17(3)(d) of the Act, a certificate cannot be created in respect of a reduction in greenhouse emissions if a valid certificate has previously been created in respect of that reduction.”

1. **Prescribed greenhouse gas scheme**

For regulation 13 of the Principal Regulations **substitute**—

**“13 Prescribed greenhouse gas scheme**

For the purpose of the definition of ***prescribed greenhouse gas scheme*** in section 3(1) of the Act, the following schemes are prescribed:

1. the scheme established under the *Carbon Credits (Carbon Farming Initiative) Act 2011* of the Commonwealth for the issue of Australian carbon credit units in relation to eligible offsets projects; and
2. the scheme established under  *Renewable Energy (Electricity) Act 2000* of the Commonwealth, excluding Subdivision B of Division 4 of Part 2 of that Act, for the issue of renewable energy certificates.”
3. **Schedules 37, 38 and 39 inserted**

After Schedule 36 to the Principal Regulations **insert**—

“**SCHEDULE 37**

**PROJECT-BASED ACTIVITIES USING THE MEASUREMENT AND VERIFICATION METHOD**

Prescribed activity under regulation 6(5): *undertaking a project that comprises one or more activities that comply with the criteria specified in Part A of Schedule 37 in accordance with an approved project plan at a business premises, a non-residential premises, or, in specified circumstances, at a residential building.*

**PART A—CRITERIA**

**Item**

37A An activity that:

(1) either—

1. installs or removes an energy consuming product; or
2. changes the way an existing energy consuming product is used; or
3. installs or removes a product that affects the energy consumption of an energy consuming product; and

(2) meets the following requirements:

1. if any product listed on the list maintained by the ESC under regulation 9A is removed in carrying out the activity—the product is decommissioned; and
2. if any new product is installed in carrying out the activity and products of that type are listed on the ESC register—the installed product is listed on the ESC register; and

(3) is not undertaken to comply with any minimum standard or mandatory requirement under legislation.

**PART B—CALCULATION OF CARBON DIOXIDE EQUIVALENTS OF GREENHOUSE GASES**

The carbon dioxide equivalent (in tonnes) of greenhouse gases to be reduced by undertaking a project is calculated using Equation 1 of Division 1, where variables are determined in accordance with Division 2.

**Division 1- Equations**

**Equation 1 – Carbon dioxide equivalent to be reduced**

 carbon dioxide equivalent

= electricity savings x 1.095 x RF + gas savings x 0.05523 – counted savings

where:

* electricity savings is calculated in MWh using Equation 2 or 3, taking references to “energy” in Equations 2 to 8 of this Division to mean “electricity”.
* RF is the regional factor, which is 0.98 if the project is undertaken in metropolitan Victoria or 1.04 if the project is undertaken in regional Victoria.
* gas savings is calculated in GJ using Equation 2 or 3, taking references to “energy” in Equations 2 to 8 of this Division to mean “gas”.
* counted savings is the reduction of carbon dioxide equivalent (in tonnes) of greenhouse gases represented by certificates created in respect of activities undertaken within the measurement boundary after the start of the baseline period.

**Equation 2- Energy savings using forward creation method**

$$energy savings=\sum\_{i}^{}(normal year savings×AF×DF\_{i})$$

where:

* $i$ is a year of the forward creation period for the project.
* $normal year savings$ is calculated using Equation 4.
* $AF$ is the accuracy factor determined using Table 1, where the “relative precision” means the relative precision of the normal year savings at 90% confidence level.
* $DF\_{i}$ is the decay factor for year $i$ set out in Table 2, or determined by applying a persistence model approved by the ESC under regulation 6AC to all products installed as part of the activity that were not previously installed at the premises where the project is undertaken.

**Equation 3- Energy savings using annual creation method**

$energy savings=measured savings×AF-previous negative energy savings $

where:

* $measured savings$ is calculated using Equation 5.
* $AF$ is the accuracy factor determined using Table 1, where the “relative precision” means the relative precision of the measured savings at 90% confidence level.
* $previous negative energy savings $ is the absolute value of the total amount of negative energy savings (if any) calculated using this equation for the previous reporting period (if any).

**Equation 4- Normal year energy savings**

$$normal year savings=\sum\_{t}^{}(E\_{BM,t}-E\_{OM,t})+E\_{int}$$

where:

* $t$is an eligible time interval in the normal year.
* $E\_{BM,t}$ is the energy consumption for *t* from the baseline model.
* $E\_{OM,t}$ is the energy consumption for *t* from the operating model.
* $E\_{int}$ is the total interactive energy savings for the project in the normal year, up to a maximum of $0.1 × \sum\_{t}^{}(E\_{BM,t}-E\_{OM,t})$.

**Equation 5- Measured energy savings**

$$measured savings=\sum\_{t}^{}\left(E\_{BM,t}-E\_{meas,t}\right)+E\_{int}$$

where:

* $t$ is an eligible time interval in the reporting period.
* $E\_{BM,t}$ is the energy consumption for *t* from the baseline model.
* $E\_{meas,t}$ is the measured energy consumption for *t*.
* $E\_{int}$ is the total interactive energy savings for the project in the reporting period, up to a maximum of $0.1 × \sum\_{t}^{}\left(E\_{BM,t}-E\_{meas,t}\right)$.

**Division 2- variables**

**Measured energy consumption**

1. The measured energy consumption is the energy consumed by all products within the measurement boundary.
2. If the project includes undertaking multiple similar activities at the same premises, the measured energy consumption can be determined from measurements taken for a sample of the activities if the ESC is satisfied, having regard to advice from an approved M&V advisor, that:
3. the measured energy consumption of each activity can be reasonably described by the same energy model; and
4. the procedures used for sampling produce a random sample; and
5. the calculation of the relative precision used to determine the accuracy factor under this Part includes quantification of the impact of the sampling.

**Measurement boundary**

1. The measurement boundary of a project must include:
	1. all energy consuming products installed, modified, removed or replaced in implementing the project; and
	2. all energy consuming products for which energy consumption is affected by the project; and
	3. every product that is co-metered with energy consuming products referred to in paragraphs (a) or (b).
2. An energy consuming product or a component of an energy consuming product may be excluded from the measurement boundary if:
	1. it is impractical or disproportionately costly to measure changes in the electricity or gas consumed by the product that result from implementation of the project and the ESC is satisfied, having regard to advice from an approved M&V advisor, that the change in the electricity or gas consumed is minor or trivial; or
	2. changes in the electricity or gas consumed by the product is accounted for in the interactive energy savings.

**Site constants**

1. Each project must have one or more site constants.
2. A site constant is a parameter of the premises where the project is undertaken that affects the energy consumed by energy consuming products within the measurement boundary but does not vary under normal operating conditions.
3. For each site constant a standard value must be defined, which is the value the site constant is expected to have under normal operating conditions.
4. The site constants identified for the project must, to the satisfaction of the ESC, having regard to advice from an approved M&V advisor, be appropriate.

**Interactive energy savings**

1. Interactive energy savings are energy savings attributable to the project that are outside the measurement boundary.
2. Interactive energy savings must be estimated in accordance with a repeatable method that:
	1. uses data recorded for the premises where the project is undertaken; or
	2. is consistent with generally accepted estimation approaches in the science and engineering field applicable to effects of that kind.
3. The same method or methods must be used to account for interactive effects in all calculations of energy savings for the project under this Part.

**Baseline energy model and operating energy model**

1. A baseline energy model or operating energy model is a model established by:
	1. regression analysis that:
		1. is based on the value of the measured energy consumption, independent variables and site constants during eligible time intervals in the baseline period (for a baseline energy model) or operating period (for an operating energy model), where at least 80% of time intervals in the period are eligible time intervals; and
		2. has at least six times as many independent observations of the independent variables as the number of parameters in the energy model; or
	2. An estimate of the mean that is based on of the value of the measured energy consumption and site constants during eligible time intervals in the baseline period (for a baseline energy model) or operating period (for an operating energy model), where at least 80% of time intervals in the period are eligible time intervals, and where the coefficient of variation of the measured energy consumption over the period is less than 15%.
2. The operating period referred to in (1) must not start before the implementation start time and must end no later than two years after the implementation start time.
3. A baseline energy model or operating energy model must not be used to calculate energy savings if the ESC is not satisfied, having regard to advice from an approved M&V advisor, that the model provides a reasonably accurate and reliable estimate of measured energy consumption.

**Normal year**

1. A normal year comprises a set of values for a 12 month period for each independent variable used in the energy models.
2. A normal year must not be used to calculate energy savings if the ESC is not satisfied, having regard to advice from an approved M&V advisor, that the normal year reasonably represents the expected mean, range and variation of the independent variables used in the energy models in an average year of the forward creation period.

**Measurement frequency, time intervals and eligible time intervals in a period**

1. The length of a time interval is determined by the measurement frequency.
2. The first time interval in a period must start at the start of the period, and each subsequent time interval in the period must start immediately after the previous time interval ends.
3. The length of a time interval used to calculate electricity savings may differ from the length of a time interval used to calculate gas savings, however, time intervals used to calculate the same type of energy savings must be of the same length.
4. A time interval in a period is an eligible time interval if during the time interval:
5. values for the measured energy consumption and all independent variables have been obtained; and
6. all site constants are at their standard values; and
7. the value of each independent variable is an amount that is:
	* 1. at least 95% of the minimum value of the effective range for the variable; and
		2. no more than 105% of the maximum value of the effective range for the variable.
8. The effective range referred to in (4) is:
	1. if the time interval is in the baseline period or reporting period—the range of values of the variable used to develop the baseline energy model; or
	2. if the time interval is in the operating period—the range of values of the variable used to develop the operating energy model; or
	3. if the time interval is in the normal year—the range of values that are in both:
		1. the range of values of the variable used to develop the baseline energy model; and
		2. the range of values of the variable used to develop the operating energy model.

**Division 3- Tables**

**Table 1:**

|  |  |  |
| --- | --- | --- |
| Relative precision  | Accuracy factor if an energy model for the project is developed using an estimate of the mean  | Accuracy factor if all energy models for the project are developed using regression analysis |
| < 25% | 0.9 | 1 |
| 25% to < 50% | 0.8 | 0.9 |
| 50% to < 75% | 0.7 | 0.8 |
| 75% to < 100% | 0.5 | 0.6 |
| 100% to < 150% | 0.3 | 0.4 |
| 150% to < 200% | 0.1 | 0.2 |
| >=200% | 0 | 0 |

**Table 2:**

|  |  |
| --- | --- |
| $$Year (i)$$ | Decay factor |
| 1 | 1.00 |
| 2 | 0.80 |
| 3 | 0.64 |
| 4 | 0.51 |
| 5 | 0.41 |
| 6 | 0.33 |
| 7 | 0.26 |
| 8 | 0.21 |
| 9 | 0.17 |
| 10 | 0.13 |

**PART C- TIME AT WHICH ACTIVITY UNDERTAKEN AND REDUCTION IN GREENHOUSE GAS EMISSIONS OCCURS**

1. The project is taken to have been undertaken at the end of:
	1. for the purposes of creating certificates using a reduction in greenhouse gases calculated using Equation 2—the operating period; or.
	2. for the purposes of creating certificates using a reduction in greenhouse gases calculated using Equation 3—the reporting period.
2. The reduction in greenhouse gas emissions that results from a project is taken to have occurred 6 months after the end of:
	1. for the purposes of creating certificates using a reduction in greenhouse gases calculated using Equation 2—the operating period.
	2. for the purposes of creating certificates using a reduction in greenhouse gases calculated using Equation 3—the reporting period.

**SCHEDULE 38 —PROJECT-BASED ACTIVITIES USING THE BENCHMARK RATING METHOD**

Prescribed activity under regulation 6(3)(h): *undertaking a project, at a building that is capable of being assessed under an approved Benchmark Rating method, that comprises one or more activities that comply with the criteria specified in Part A of Schedule 38 in accordance with an approved project plan.*

**PART A—CRITERIA**

**Item**

38A An activity that:

(1) either—

(a) installs or removes any product or building component; or

(b) changes how an energy consuming product is controlled or operated; or

(c) promotes building occupants to modify their behaviours to reduce energy consumed at the building; and

(2) meets the following requirements:

1. if any product listed on the register maintained by the ESC under regulation 9A is removed in carrying out the activity—the product is decommissioned; and
2. if any new product is installed in carrying out the activity and products of that type are listed on the ESC register—the installed product is listed on the ESC register; and

(3) is not undertaken to comply with any minimum standard or mandatory requirement under legislation; and

(4) does not reduce electricity or gas consumed at a building by replacing electricity or gas supplied to the building with energy from a non‑renewable source that is not electricity or gas.

**PART B—CALCULATION OF CARBON DIOXIDE EQUIVALENTS OF GREENHOUSE GASES**

The carbon dioxide equivalent (in tonnes) of greenhouse gases to be reduced by undertaking a project is calculated is the carbon dioxide equivalent calculated using Equation 1 of Division 1.

**Division 1-Equations**

**Equation 1- Carbon dioxide equivalent to be reduced**

carbon dioxide equivalent = (EB – ER) x 1.095 – counted savings

Where:

* EB is the reporting energy consumption, which is calculated using Equation 3.
* ER is the benchmark energy consumption, which is calculated using Equation 2.
* counted savings is the reduction of carbon dioxide equivalent (in tonnes) of greenhouse gases represented by certificates created in respect of activities undertaken after the start of the baseline period at the building where the project is undertaken.

**Equation 2- Reporting energy consumption**

$$E\_{R}=(E\_{N}+ E\_{U})×Regional factor+ E\_{G}×0.0536$$

Where:

* EN is the electricity consumption (in MWh) specified in the benchmark rating report for the reporting period.
* EU is the electricity consumption (in MWh) during the reporting period, at the building where the project is undertaken, that is not included in EN as a result of:
	+ a renewable energy using system being installed at the building between the start of the baseline period and the end of the reporting period, and for which funding has been provided under a prescribed greenhouse gas scheme; or
	+ a change in the metering arrangements at the building between the start of the baseline period and the end of the reporting period.
* EG is the gas consumption (in GJ) specified in the benchmark rating report for the reporting period.
* The *Regional factor* is:
	+ 0.98 if the project is undertaken in metropolitan Victoria; or
	+ 1.04 if the project is undertaken in regional Victoria.

**Equation 3- benchmark energy consumption**

$$E\_{B}=Benchmark Factor×(E\_{NB}×Regional factor+ E\_{GB}×0.0536)$$

Where:

* Benchmark Factor is calculated using Equation 4.
* ENB is the amount of electricity (in MWh) calculated using the reverse calculator for the approved Benchmark Rating method specified in the approved project plan and inputs in accordance with Division 2.
* EGB is the amount of gas (in GJ) calculated using the same reverse calculator and inputs used to calculate ENB,
* *Regional factor* is:
	+ 0.98 if the project is undertaken in metropolitan Victoria; or
	+ 1.04 if the project is undertaken in regional Victoria.

**Equation 4- Benchmark Factor**

$$Benchmark Factor= 1-0.03n$$

Where:

* n is the number of whole years from the end of the baseline period to the end of the reporting period.

**Division 2-Inputs for the reverse calculator**

1. Subject to (3), the inputs for the reverse calculator must be information published on the benchmark rating report for the reporting period.
2. The rating input into the reverse calculator must not take into account whether electricity is purchased under the GreenPower Program.
3. The baseline rating input into the reverse calculator is the rating published on the benchmark rating report for the baseline period, unless the building where the project is undertaken undergoes a renovation or upgrade that requires planning approval, in which case the baseline rating for each reporting period commencing after the renovation or upgrade is completed is the highest of:
	1. the rating published on the benchmark rating report for the most recent reporting period that ends prior to issue of the planning approval; or
	2. the minimum rating (if any) the building is required to meet under the planning scheme that applies to the building; or
	3. if the building is not required to meet a minimum rating, 5 stars for a building that is a data centre or 4 stars for any other building.
4. The percentage breakdown of fuels used in the building where the project is undertaken, which is input into the reverse calculator, must be determined by converting into MWh any measurement of energy consumed at the building that is not measured in MWh.
5. For the purposes of the conversion referred to in (4), if the measurement is not in terms of energy, the energy content factor for that fuel type, determined in accordance with (6), must be used in the conversion.
6. The energy content factor for a type of fuel is:
	1. if the energy content factor for the fuel is listed on the fuel bill, that factor; or
	2. otherwise, the appropriate energy content factor published by the Commonwealth Department of Environment in the August 2015 publication entitled “National Greenhouse Accounts Factors”.

**PART C- TIME AT WHICH ACTIVITY UNDERTAKEN AND REDUCTION IN GREENHOUSE GAS EMISSIONS OCCURS**

For the purposes of creating certificates using a reduction in greenhouse gases calculated for a reporting period:

1. The project is taken to have been undertaken at the end of the reporting period.
2. The reduction in greenhouse gas emissions that results from a project is taken to have occurred at the end of the reporting period.

 **SCHEDULE 39 —PROJECT-BASED ACTIVITIES USING THE TREATMENT AND CONTROL METHOD**

Prescribed activity under regulation 6(4): *undertaking a project that comprises one or more activities that comply with the criteria specified in Part A of Schedule 39 at a group of sites in accordance with an approved project plan*.

**PART A—CRITERIA**

**Item**

39A An activity that:

* + - 1. changes the way electricity or gas is consumed at a site by:
				1. providing information to occupants of the site; or
				2. offering, promoting, providing or facilitates providing of goods or services to:

install or remove any product or building component at the site; or

change the way an existing energy consuming product is controlled or used at the site; or

change the source of energy used by energy consuming equipment at the site; and

* + - 1. meets the following requirements:
				1. if any product listed on the register maintained by the ESC under regulation 9A is removed in carrying out the activity—the product is decommissioned; and
				2. if any new product is installed in carrying out the activity and products of that type are listed on the ESC register—the installed product is listed on the ESC register; and
			2. is not undertaken to comply with any minimum standard or mandatory requirement under legislation; and
			3. does not substitute electricity or gas supplied to a product with a non‑renewable energy source that is not accounted for in calculating energy savings under Part B.

**PART B—CALCULATION OF CARBON DIOXIDE EQUIVALENTS OF GREENHOUSE GASES**

The carbon dioxide equivalent (in tonnes) of greenhouse gases to be reduced by undertaking a project is calculated using the following equation:

$$carbon dioxide equivalent=1.095×\left(\sum\_{t}^{}observed savings-uplift savings\right)$$

where:

* $t$ is a measurement period in the reporting period.
* $observed savings$ is calculated using a sub method in Division 1.
* $uplift savings$ is calculated in accordance with Division 5.

**Division 1-Sub-methods**

**Sub-method 1: Direct comparison**

If the null hypothesis is rejected under Hypothesis Test 1, the observed savings is calculated using Equation 1. Otherwise, the observed savings is zero.

**Equation 1**

$$observed savings=\left(E\_{C}- E\_{T}\right)×\sum\_{S}^{}D\_{S}$$

where:

* EC is the mean daily energy consumption calculated using Equation 2, where the relevant premises are the control premises.
* ET is the mean daily energy consumption calculated using Equation 2, where the relevant premises are the treatment premises.
* S is an included site (as defined in Division 3) in the treatment premises.
* DS is the number of days in the measurement period up to, but not including, the day (if any) that site S becomes affected by attrition under Division 3.

**Equation 2**

$$mean daily energy consumption=\frac{\sum\_{S}^{}E\_{S}}{\sum\_{S}^{}D\_{S}}$$

where

* S is an included site (as defined in Division 3) in the relevant premises.
* ES is the measured energy consumption (in MWh) at site S during the measurement period, determined in accordance with Division 2.
* DS is the number of days in the measurement period up to, but not including, the day (if any) that site S becomes affected by attrition under Division 3.

**Hypothesis Test 1 (null hypothesis: EC ≤ ET)**

1. Calculate t using Equation 3.
2. If t > T(p=0.95), the null hypothesis is rejected.
3. For the purpose of this hypothesis test, T(p=0.95) is:
	1. if NC (as described in Equation 3) is 2400 or less, the value from the standard t distribution table with (NC-1) degrees of freedom and probability 0.95; or
	2. otherwise, 1.6449.

**Equation 3**

$$t=\frac{\left(E\_{C}- E\_{T}\right)}{(sd×\sqrt{\frac{f\_{pcT}}{N\_{T}}+\frac{f\_{pcC}}{N\_{C}}})}$$

where:

* EC and ET have the same meanings as in Equation 1.
* sd is the standard deviation of EC.
* NT is the number of included sites (as defined in Division 3) in the treatment premises.
* NC is the number of included sites (as defined in Division 3) in the control premises.
* $f\_{pcT}$ is 1 or (N-NT)/(N-1), where N=NC + NT.
* $f\_{pcC}$ is 1 or (N-NC)/(N-1), where N=NC + NT.

**Sub-method 2: Difference in differences**

If the null hypothesis is rejected under Hypothesis Test 2, the observed savings is calculated using Equation 4. Otherwise, the observed savings is zero.

**Equation 4**

$$observed savings=\left(C\_{C}- C\_{T}\right)×\sum\_{S}^{}D\_{S}$$

where:

* CC is the mean change calculated using Equation 5, where the relevant premises are the control premises.
* CT is the mean change calculated using Equation 5, where the relevant premises are the treatment premises.
* S is an included site (as defined in Division 3) in the treatment premises.
* DS is the number of days in the measurement period up to, but not including, the day (if any) that site S becomes affected by attrition under Division 3.

**Equation 5**

$$mean change=\frac{\sum\_{S}^{}\left(\frac{E\_{S}}{D\_{S}}-\frac{BE\_{S}}{BD}\right)}{NS}$$

where:

* S is an included site (as defined in Division 3) in the relevant premises.
* ES is the measured energy consumption (in MWh) at site S during the measurement period, determined in accordance with Division 2.
* DS is the number of days in the measurement period up to, but not including, the day (if any) that site S becomes affected by attrition under Division 3.
* BES is the measured energy consumption (in MWh) at site S during the baseline period, determined in accordance with Division 2.
* BD is the number of days in the baseline period.
* NS is the number of included sites (as defined in Division 3) in the relevant premises.

**Hypothesis Test 2 (null hypothesis: CC ≤ CT)**

1. Calculate t using Equation 6.
2. If t > T(p=0.95), the null hypothesis is rejected.
3. For the purpose of this hypothesis test, T(p=0.95) is:
	1. if NC (as described in Equation 6) is 2400 or less, the value from the standard t distribution table with (NC-1) degrees of freedom and probability 0.95; or
	2. otherwise, 1.6449.

**Equation 6**

$$t=\frac{\left(C\_{C}- C\_{T}\right)}{(sd×\sqrt{\frac{f\_{pcT}}{N\_{T}}+\frac{f\_{pcC}}{N\_{C}}})}$$

where:

* CC and CT have the same meanings as in Equation 4.
* sd is the standard deviation of CC.
* NT is the number of included sites (as defined in Division 3) in the treatment premises.
* NC is the number of included sites (as defined in Division 3) in the control premises.
* $f\_{pcT}$ is 1 or (N-NT)/(N-1), where N=NC + NT.
* $f\_{pcC}$ is 1 or (N-NC)/(N-1), where N=NC + NT.

**Sub-method 3: Regression Modelling**

If the null hypothesis is rejected under Hypothesis Test 3, the observed savings are calculated using Equation 7. Otherwise, the observed savings is zero.

**Equation 7**

$$observed savings= -\hat{β}× \sum\_{S}^{}D\_{S}$$

where:

* S is an included site (as defined in Division 3) in the treatment premises.
* $\hat{β }$is the estimated treatment effect (in MWh) from a regression model that:

(a) is developed from measured energy consumption, determined in accordance with Division 2, at included sites (as defined in Division 3) during the measurement period and the baseline period; and

(b) includes an independent variable which identifies whether a site is in the treatment premises or control premises; and

(c) includes an independent variable which represents the measured daily energy consumption at a site in the baseline period; and

(d) includes an independent variable that represents whether electricity and gas consumption data is available at a site in the measurement period; and

(e) may include any other variable or variables for which data is available for both the baseline period and the measurement period; and

(f) the ESC is satisfied, having regard to advice from an accredited statistician, provides a reasonably accurate estimate of the treatment effect.

* DS is the number of days in the measurement period up to, but not including, the day (if any) that site S becomes affected by attrition under Division 3.

**Hypothesis Test 3 (null hypothesis:** $\hat{β }$**≥ 0)**

1. Calculate t using Equation 8.
2. If t > T(p=0.05), the null hypothesis is rejected.
3. For the purpose of this hypothesis test, T(p=0.05) is:
	1. if NT+NC, being the number of included sites (as defined in Division 3), is 2400 or less, the value from the standard t distribution table with (NT+NC-1) degrees of freedom and probability 0.05;
	2. otherwise, -1.6449.

**Equation 8**

$$t= \frac{\hat{β}}{se(\hat{β})}$$

where

* $\hat{β}$ is the estimated treatment effect referred to in Equation 7.
* se($\hat{β}) $is the standard error of $\hat{β}$.

**Division 2-Measured energy consumption**

1. The measured energy consumption for a site during a period is calculated using Equation 9.

**Equation 9**

$$measured energy consumption=E\_{elec}×Regional factor+ E\_{natural gas}×0.0536$$

where:

* Eelec is the electricity consumption (MWh) at the site during the period, determined by means of:
	+ a meter used by an electricity retailer to determine electricity consumption for billing purposes; or
	+ a meter that, to the satisfaction of the ESC, provides a reasonably accurate and unbiased measure of the electricity consumed at the site; or
	+ where a meter at a site has failed, an estimate of electricity consumption, which, to the ESC’s satisfaction, is reasonably accurate.
* Egas is the gas consumption (in GJ) at the site during the period, determined by means of:
	+ a meter used by a gas retailer to determine gas consumption for billing purposes; or
	+ a meter that, to the satisfaction of the ESC, provides a reasonably accurate and unbiased measure of the gas consumed at the site; or
	+ where a meter at a site has failed, an estimate of gas consumption, which, to the ESC’s satisfaction, is reasonably accurate.
* The *regional factor* is:
	+ 0.98 if the site is in metropolitan Victoria; or
	+ 1.04 if the site is in regional Victoria.
1. If the monitored energy specified in the approved project plan is only electricity, Egas is taken to be zero for the purposes of Equation 9.
2. If the monitored energy specified in the approved project plan is only gas, Eelec is taken to be zero for the purposes of Equation 9.
3. If the site becomes affected by attrition (as provided in Division 3), monitored energy consumed on and after the day the site becomes affected by attrition must be disregarded for the purposes of Equation 9.

**Division 3-Included sites and attrition**

1. For the purposes of Division 1, a site in the treatment premises or the control premises is an included site if:
	1. the site has not become affected by attrition in the measurement period, any previous measurement period or in the baseline period; or
	2. the site becomes affected by attrition in the measurement period and the approved project plan does not state that a site affected by attrition is excluded from the beginning of the measurement period.
2. A site becomes affected by attrition on the day monitored energy consumption data at the site ceases to be available as a result of:
	1. a metered account at the site being terminated; or
	2. the occupant of the site making a written request for the site to be excluded from the project.
3. A site becomes affected by attrition on the day of the last valid reading from a meter at the site that fails if:
	1. the meter was used to measure monitored energy consumption at the site; and
	2. the failure is not corrected within:
		1. if the approved project plan includes a procedure for estimating monitored consumption—3 months; or
		2. if the approved project plan does not include a procedure for estimating monitored consumption—1 month.

**Division 4-Measurement periods**

1. The measurement period is a length of time in a reporting period.
2. The first measurement period must start at the start of the reporting period, and each subsequent measurement period in the reporting period must start immediately after the previous measurement period.
3. All measurement intervals in the reporting period must be the same length.

**Division 5-Uplift savings**

1. The uplift savings is the higher of ESuplift calculated using Equation 10 or zero.

**Equation 10**

$$ES\_{uplift}=\left(\frac{ES\_{T}}{N\_{T}}-\frac{ES\_{C}}{N\_{C}}\right)×N\_{T}$$

where:

* EST is the energy savings that relate to the reporting period and included sites (as defined in Division 3) in the treatment premises, and which are attributable to one or more activities for which:
	+ certificates have been created under another Schedule; or
	+ a benefit has been received under a prescribed greenhouse gas scheme.
* ESC is the energy savings that relate to the reporting period and included sites (as defined in Division 3) in the control premises, and which are attributable to one or more activities for which:
	+ certificates have been created under another Schedule; or
	+ a benefit has been received under a prescribed greenhouse gas scheme.
* NT is the number of included sites (as defined in Division 3) in the treatment premises.
* NC is the number of included sites (as defined in Division 3) in the control premises.

**PART C- TIME AT WHICH ACTIVITY UNDERTAKEN AND REDUCTION IN GREENHOUSE GAS EMISSIONS OCCURS**

For the purposes of creating certificates using a reduction in greenhouse gases calculated for a reporting period:

1. The project is taken to have been undertaken at the end of the reporting period.
2. The reduction in greenhouse gas emissions that results from a project is taken to have occurred at the end of the reporting period.”