



Interim Ruling

# On-site Renewable Electricity Generation Systems

Version 1.0 – July 2020



Cover photo: Rooftop photovoltaic system in The Rocks, NSW

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# 1 Introduction

## 1.1 Interim status

This **Ruling** is an interim **Ruling**. The **National Administrator** will work closely with **Assessors** in the implementation of this **Ruling** and will be gathering feedback before finalising the **Ruling**. The interim period is expected to last for six months.

This **Ruling** must be used during the interim period. However, the **National Administrator** may provide rating specific support to assist with the implementation of this **Ruling** prior to its finalisation. This may include pre-approval of delayed implementation and approval of alternative evidence on a case-by-case basis.

The nature of this **Ruling** is summarised in the following table:

**Table 1: Guidance for this interim Ruling**

<b>Application</b>	<p>The interim <b>Ruling</b> will apply to all building sectors eligible for a NABERS Energy rating.</p> <p>The interim <b>Ruling</b> will apply to all ratings submitted from 1<sup>st</sup> August 2020 onwards.</p> <p>Use of the interim <b>Ruling</b> is mandatory during the interim period.</p>
<b>Interim period</b>	<p>The interim <b>Ruling</b> will be subject to review and finalisation in six months from the date of publication.</p>
<b>Exemptions</b>	<p>If an <b>Assessor</b> is unable to meet the requirements laid out in this interim <b>Ruling</b>, the <b>Assessor</b> may apply for an exemption to this <b>Ruling</b> by contacting the <b>National Administrator</b>.</p> <p>Exemptions may be granted conditionally, on a case-by-case basis and at the <b>National Administrator's</b> discretion.</p>
<b>Alternative methodology</b>	<p><b>Assessors</b> must comply with the full interim <b>Ruling</b> unless prior approval has been sought and approved by the <b>National Administrator</b>.</p> <p>Where appropriate, <b>Assessors</b> may contact the <b>National Administrator</b> for use of this <b>Ruling's</b> methodology in alternative applications such as on-site recycled water and rainwater systems. Prior approval is required and may be granted conditionally, on a case-by-case basis and at the <b>National Administrator's</b> discretion.</p>
<b>Feedback and support</b>	<p><b>Assessors</b> are encouraged to provide feedback, as well as any concerns or queries, to the NABERS mailbox at <a href="mailto:nabers@environment.nsw.gov.au">nabers@environment.nsw.gov.au</a></p>

## 1.2 Summary

This document is a **Ruling** for the treatment of **On-site Renewable Electricity Generation (OREG) systems** and their subsequent **renewable electricity**. It provides guidance for **Assessors** where such systems are present.

## 1.3 Scope

This **Ruling** is to be read in conjunction with the respective NABERS **Rules** as they apply to the building type.

Where a conflict between this **Ruling** and existing **Rules** is present, the requirements of this **Ruling** take precedence over the **Rules**.

This **Ruling** applies to any building type eligible for a NABERS rating using the NABERS Energy rating tool.

## 1.4 How to use this document

Text appearing **dark green and bold** is a defined term. Defined terms can be found either in Chapter 2 of this **Ruling** or in the Terms and definitions chapter of the *NABERS The Rules – Metering and Consumption* (v1.0).

The following formatting conventions might appear in this text:

**Note:** Text appearing with a grey background is explanatory text only and is not to be read as part of the **Ruling** or is otherwise not essential for the proper use of this document.

## 2 Terms and definitions

This chapter lists the key terms and their definitions that are integral to the proper use of this document.

Term	Definition
<b>dedicated connection</b>	An <b>on-site renewable electricity generation system</b> which is connected to a single end user (see Figure 1).
<b>embedded network</b>	<p>A private electricity network that is connected to the parent electricity network or 'grid'.</p> <p><b>Note:</b> Most office buildings in Western Australia, South Australia and Queensland use embedded networks to supply tenants and the Base Building systems.</p>
<b>On-site Renewable Electricity Generation (OREG) system</b>	A system installed on the premises that generates <b>renewable electricity</b> .
<b>on-selling</b>	<p>The supply of <b>renewable electricity</b> to an end user outside the scope of the <b>rated premises</b>.</p> <p><b>Note:</b> For an office Base Building rating, an office tenancy or other end user located inside the building is considered to be outside the <b>rated premises</b>. The same principle applies for retail tenancies within a Shopping Centre, where the Shopping Centre is undertaking a NABERS rating.</p>
<b>renewable electricity</b>	<p>Electricity that is derived from sources that are regenerated, replenished or, for all practical purposes, cannot be depleted. For NABERS purposes, these sources are wind and solar.</p> <p><b>Note:</b> If the <b>Assessor</b> would like other sources to be considered under this <b>Ruling</b> they should contact the <b>National Administrator</b>.</p>
<b>shared connection</b>	An <b>on-site renewable electricity generation system</b> which is connected to multiple end users (see Figure 2.a and Figure 2.b).

# 3 On-site Renewable Electricity Generation (OREG) systems

## 3.1 General

**Renewable electricity** generated for use within a building type may be either:

- a) Directly connected to the **rated premises** (i.e. a **dedicated connection**); or
- b) Connected to multiple end users through a **shared connection**, such as in an **embedded network**. In this **shared connection**, the **On-site Renewable Electricity Generation (OREG) system** may be situated before or after the **rated premises'** meter.

Examples of **OREG system** arrangements have been provided in Figures 1, 2.a and 2.b.

## 3.2 Dedicated connection

Where the **OREG system** is directly connected to the **rated premises**, the grid electricity that is supplied to the **rated premises** will be reduced.

**Renewable electricity** which is exported from the **rated premises** directly into the grid cannot be deducted from the **rated premises'** electricity consumption data.

Where the **rated premises** is exporting **renewable electricity** to the grid, the consumption data for the grid energy imported and the **renewable electricity** exported must be clearly distinguishable. If the meter cannot output a separate grid import and export value, this **Ruling** cannot be used and the premises may be deemed unrateable. **Assessors** should contact the **National Administrator** if this has occurred for confirmation and further guidance.

Where the **rated premises** is an office Whole Building rating (i.e. the minimum energy coverage of both the office Base Building and all Tenancies), the **rated premises** may only apply the **dedicated connection** method. See Figure 1.

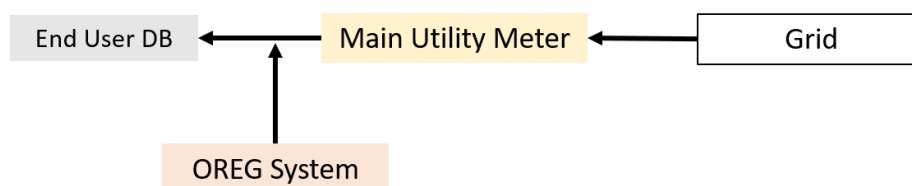


Figure 1: Example of a dedicated connection arrangement



**Note 1:** “DB” in the figure refers to “distribution board”.

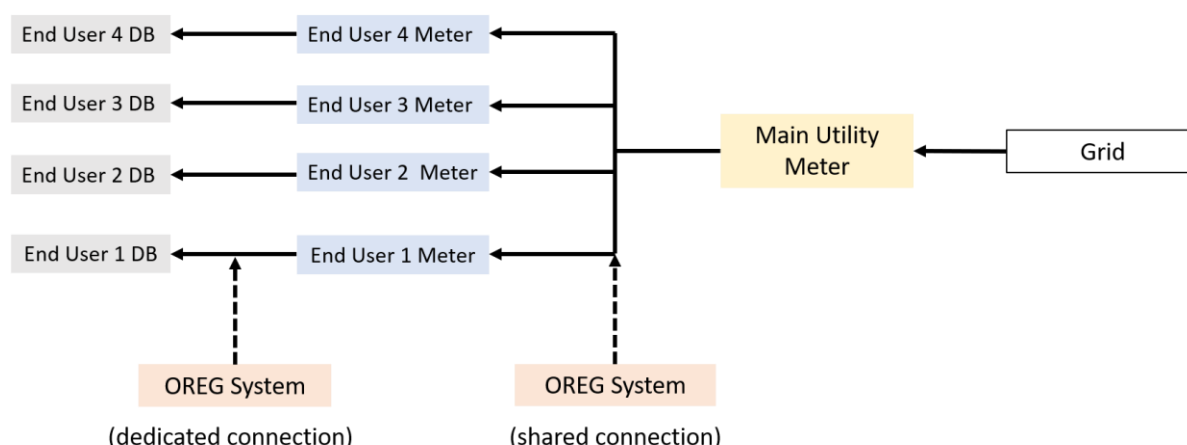
**Note 2:** **Renewable electricity** generated on-site in a **dedicated connection** should not be included in a premises’ external supply sources. Instead, the **renewable electricity** will partially offset a building’s electricity consumption and the rating will improve due to the smaller amount of electricity drawn from the grid.

## 3.3 Shared connection

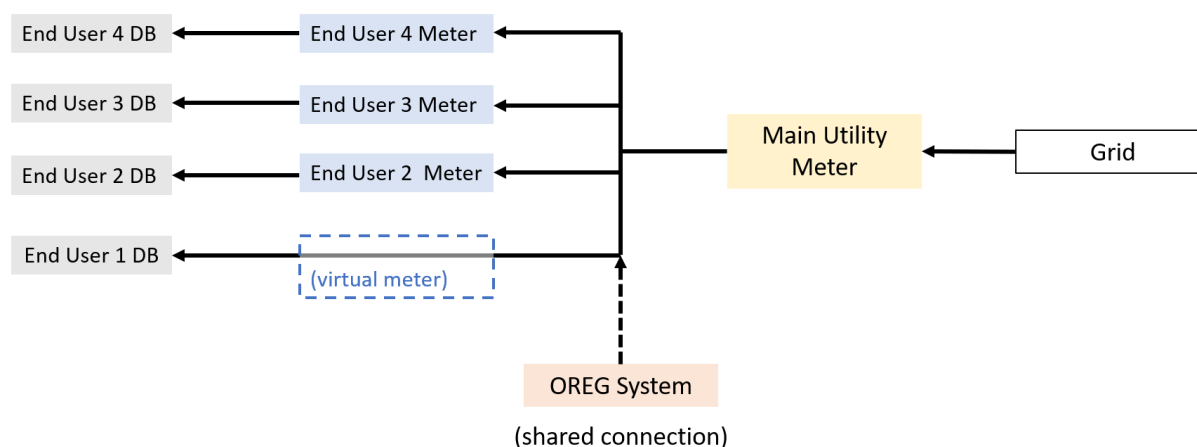
### 3.3.1 General

A **shared connection** is characterised by an **OREG system** feeding into a shared network, such as an **embedded network**, with multiple users downstream of the site’s utility meter (refer to the examples in Figures 2.a and 2.b).

A **shared connection** may also export **renewable electricity** to the grid. Where a **shared connection** is exporting to the grid, this exported amount cannot be deducted from the **rated premises’** electricity consumption data.



**Figure 2.a: Arrangement with OREG systems connected to the shared network**



**Figure 2.b: Arrangement with an OREG system connected to the shared network with a virtual meter**



**Note 1:** Each end user may represent a different **rated premises** (e.g. tenancies and office Base Building, or multiple building types on a shared main meter).

Where an **OREG system** is present in a **shared connection**, the following priority listing for the allocation of **renewable electricity** must be followed:

- a) Allocation by claim;
- b) Allocation by proportional consumption; and,
- c) No allocation permitted.

These methods are outlined in Sections 3.3.2 to 3.3.4 below.

All end users within the **embedded network** must be adequately metered in accordance with *NABERS The Rules – Metering and Consumption* (v1.0). This includes the **OREG system**.

**Note 2:** Other evidence may be used to determine the amount of **renewable electricity** generated by the **OREG system** (e.g. solar inverter data in lieu of metering data). Please contact the **National Administrator** if further information is required.

### 3.3.2 Allocation of renewable electricity by claim

Ownership of the **OREG system** must be substantiated and any **on-selling** of the **renewable electricity** to other end users accounted for.

The maximum permissible allocation of **renewable electricity** to the end user can be no more than the end user's consumption amount.

Where the **rated premises** is seeking to allocate by claim, the following criteria apply:

- a) The **rated premises** is adequately metered for each end user in the **embedded network**, as per the requirements of *NABERS The Rules – Metering and Consumption* (v1.0). This includes metering the **OREG system**.
- b) All meters meet validation requirements as stipulated in the *NABERS The Rules – Metering and Consumption* (v1.0).
- c) There are no gaps or missing consumption data in the metering systems directly concerning the **OREG system**, the grid input and the end user for whom the allocation is made.

When making an allocation by claim, the **Assessor** must provide the following:

- d) Written evidence that demonstrates which party owns the **OREG system**; and
- e) Written evidence demonstrating either:
  - 1) Any contractual arrangements or evidence of payment which specify any **renewable electricity** on-sold to other **embedded network** users; or
  - 2) Confirmation from the owner of the **OREG system** that there is no **on-selling** of **renewable electricity** to other users (a written statement on a company letterhead would suffice).

If the criteria in both (d) and (e) cannot be met, the **Assessor** must proceed to allocate the **renewable electricity** by proportional consumption.

**Note:** For entry into the NABERS Calculator, refer to Appendix B.

### 3.3.3 Allocation of renewable electricity by proportional consumption

Where ownership of the **OREG system** cannot be substantiated or the **on-selling of renewable electricity** to other users cannot be adequately accounted for, the **rated premises** must obtain the consumption data from all meters within the **embedded network** and proceed to the allocation by proportional consumption method.

When allocating **renewable electricity** by proportional consumption, **Assessors** must undertake the following steps:

- a) Obtain the total amount of annual **renewable electricity** generated on-site;
- b) Exclude all **renewable electricity** which has been exported to the grid;
- c) Determine respective electricity consumption of all end users in the **embedded network**;
- d) Allocate the **renewable electricity** generated to the end users by their respective proportion of the total electricity consumed at the premises.

If any of the steps in (a) to (d) above cannot be carried out, the **Assessor** must proceed without any allocation of **renewable electricity** to the **rated premises** (refer to Section 3.3.4).

Refer to Appendix A for an example of where the **Assessor** needs to calculate the proportional electricity consumption.

**Note:** For entry into the NABERS Calculator, refer to Appendix B.

### 3.3.4 No allocation permitted

Where proof of claim cannot be provided and consumption data from any sub-meter is missing, **renewable electricity** must not be allocated to the **rated premises**. In this case, it is assumed that all electricity consumed is sourced from the grid.

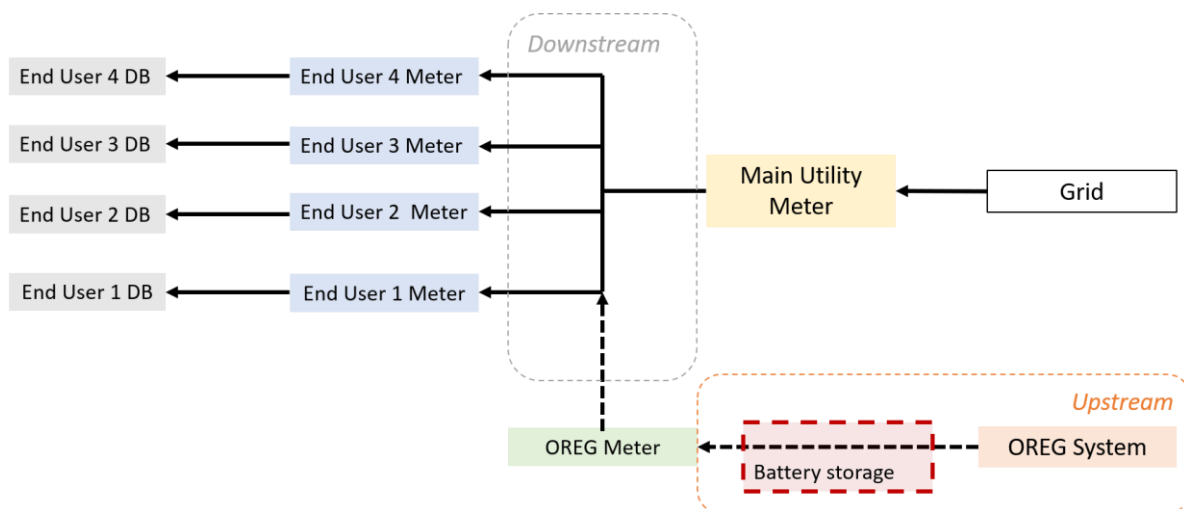
## 3.4 Battery storage

Where battery storage is present for a **rated premises**, the **Assessor** must determine its location in relation to the **OREG system's** meter (refer to the examples in Figures 3.a and 3.b).

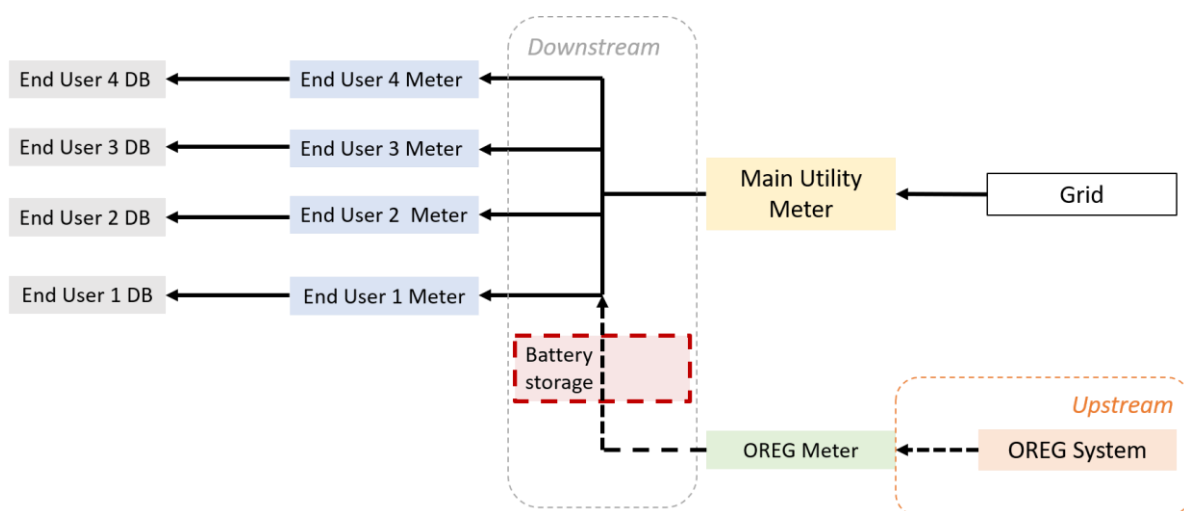
If a battery connected to the system is not metered (neither upstream nor downstream of the **OREG system's** meter), then this **Ruling** cannot be used and the premises may be deemed unrateable. **Assessors** should contact the **National Administrator** if this has occurred for confirmation and further guidance.

If the battery is located upstream of the **OREG system's** meter (i.e. the "generation" side), no additional calculation is required and the steps outlined in the previous sections should be followed.

If the battery is located downstream of the **OREG system's** meter (i.e. the “consumption” side), the steps outlined in the previous sections should be followed. Both the **OREG system** and the grid electricity inputs into the battery must be separately metered to determine the proportion of **renewable electricity** to grid electricity stored in the battery. The battery output must be measured to determine any discharge from the battery to the end users.



**Figure 3.a: Battery storage located “upstream” relative to the OREG system’s meter**



**Figure 3.b: Battery storage located “downstream” relative to the OREG system’s meter**

**Note:** If the battery is drawing energy from the grid, the battery is always considered to be “downstream” of the generation system’s meter.

### 3.5 Documentation requirements

**Assessors** must retain the following evidence to demonstrate they meet the criteria under Section 3.2:

- Single line diagram or other evidence showing that the **OREG system** is directly connected to the **rated premises** and not shared with other end users.

- b) Documentation confirming any export of **renewable electricity** to the grid and that this exported amount has not been included in any allocation calculations set out in this **Ruling**.

**Assessors** must retain the following evidence to demonstrate they meet the criteria under Section 3.3:

- a) Contract or agreement confirming ownership of the **OREG system**. This may include leasing agreements.
  - 1) Where such a document does not exist, the **Assessor** must provide written correspondence with the client/site confirming where ownership of the **OREG system** lies.
- b) Single line diagram or other evidence showing that the **OREG system** is directly connected to the same **shared connection** as the end user for which the **renewable electricity** is being allocated.
- c) Confirmation of any export of **renewable electricity** to the grid and that this exported amount has not been included in any allocation calculations set out in this **Ruling**.
- d) Contract or agreement confirming any **on-selling** arrangement(s) within the network. This may include Power Purchase Agreements (PPA) with end users within the network. Where such a document does not exist, the **Assessor** must either:
  - 1) Provide evidence of payment. This can be in the form of invoices/bills where the amount of **renewable electricity** is clearly stipulated; or
  - 2) Provide evidence from the **OREG system** owner that they do not on-sell the electricity.
- e) All electricity proportioning calculations.

**Assessors** remain responsible for the accuracy of their ratings and must collect and retain all documentation as per the **Rules**.

If an **Assessor** is uncertain of the evidence type, they should contact NABERS for further information in advance.

# Appendix A – Calculating the proportional electricity consumption

**Example:** A fully metered building is presented with the following:

- The electricity imported from the grid is 1,500 kWh;
- The metered electricity generated from the **OREG system** is 500 kWh; and,
- No **renewable electricity** is being exported to the grid and, as such, no deductions need to be made to the **renewable electricity** being allocated.

To determine the proportional allocation of **renewable electricity** to the Base Building, the **Assessor** must determine the consumption for each end user.

For end user, the metered electricity consumption is as follows:

End user	Electricity consumption (kWh)
Base Building (BB)	1,200
Tenant 1 (T1)	350
Tenant 2 (T2)	250
Tenant 3 (T3)	200

Determine all end users' respective proportion of electricity consumption:

$$BB_{Proportion} = \frac{BB_{electricity\ consumption}}{Sum_{electricity\ consumption} (BB + T1 + T2 + T3)}$$

$$BB_{Proportion} = \frac{1,200}{(1,200 + 350 + 250 + 200)}$$

$$\therefore BB_{Proportion} = 60\%$$

Therefore, 60 % (or 300 kWh) of the **renewable electricity** may be allocated to Base Building.

The respective tenancies would be allocated accordingly:

End user	Proportion (%)	Renewable electricity allocation (kWh)
Base Building (BB)	60	300
Tenant 1 (T1)	17.5	87.5
Tenant 2 (T2)	12.5	62.5
Tenant 3 (T3)	10	50

Therefore the respective net grid electricity consumption would be calculated as follows:

End user	Electricity consumption – renewable electricity allocation (kWh)	Net grid electricity consumption (kWh)
Base Building (BB)	1,200 – 300	900
Tenant 1 (T1)	350 – 87.5	262.5
Tenant 2 (T2)	250 – 62.5	187.5
Tenant 3 (T3)	200 – 50	150

# Appendix B – Input into the NABERS Calculator

## B.1 General

This Appendix provides guidance around input of the **OREG system** and allocated **renewable electricity** to end users in a **shared connection** (see Section 3.3).

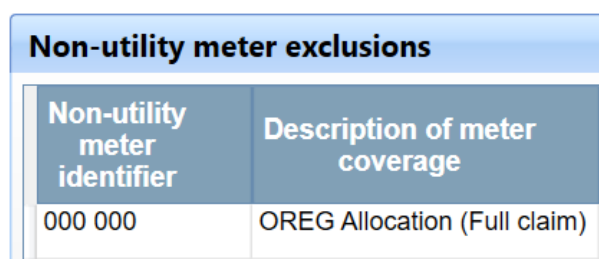
**Dedicated connections** (as per Section 3.2) are not expected to follow the processes outlined below due to their simpler wiring and consumption arrangements (refer to [Figure 1](#)). Should **Assessors** observe the need to enter the **OREG system** into the NABERS Calculator, a **dedicated connection** should follow the steps outlined in Section B.2 below, *Entry into NABERS Rate – Full Claim*.

**Note:** For further guidance or assistance, **Assessors** should contact the **National Administrator** at [nabers@environment.nsw.gov.au](mailto:nabers@environment.nsw.gov.au).

## B.2 Entry into NABERS Rate – Full claim

When entering the allocation as ‘full claim’ into the NABERS Calculator, **Assessors** must:

- Enter the allocated amount as a ‘*non-utility meter exclusion*’ line item; and,
- Clearly identify the **OREG system** under the coverage description box (see Figure B.1):



Non-utility meter exclusions	
Non-utility meter identifier	Description of meter coverage
000 000	OREG Allocation (Full claim)

**Figure B.1: Screenshot of *non-utility meter exclusion* input**

The allocated amount entered is the total renewable electricity generated by the **OREG system**, less the exported and on-sold amount(s).

Under the ‘*Energy Summary*’ tab, **Assessors** must answer ‘yes’ to the question regarding on-site generation providing the **rated premises** with power (see Figure B.2):




**Questions** - Please note these questions will be reviewed in detail by an auditor to ensure compliance with the Rules.

If there is any on-site generation providing Rated Premises with power, have you made sure that:

- the fuels used to generate such electricity are included in the rating, if applicable; and
- any exported electricity to the grid or any other user outside the Rated Premises is not accounted in the rating in agreement with section 6.3 of the Rules and/or the Interim methodology for co/trigeneration systems?

Yes



**Figure B.2: Screenshot of Energy Summary question regarding on-site generation**

## B.3 Entry into NABERS Rate – Proportional consumption

When entering the allocation as 'proportional consumption' into the NABERS Calculator, **Assessors** must:

- Enter the allocated amount as a '*non-utility meter exclusion*' line item; and,
- Clearly identify the **OREG system** under the coverage description box, as well as the percentage factor associated with the allocated amount (see Figure B.3):

Non-utility meter exclusions	
Non-utility meter identifier	Description of meter coverage
000 000	OREG Allocation (25%)

**Figure B.3: Screenshot of non-utility meter exclusion input and percentage factor**

The allocated amount entered is the total **renewable electricity** generated by the **OREG system**, less the exported and on-sold amount(s), and multiplied by the percentage factor as provided in the coverage description box.


Under the '*Energy Summary*' tab, **Assessors** must answer 'yes' to the question regarding on-site generation providing the **rated premises** with power (see Figure B.4):

**Questions** - Please note these questions will be reviewed in detail by an auditor to ensure compliance with the Rules.

If there is any on-site generation providing Rated Premises with power, have you made sure that:

- the fuels used to generate such electricity are included in the rating, if applicable; and
- any exported electricity to the grid or any other user outside the Rated Premises is not accounted in the rating in agreement with section 6.3 of the Rules and/or the Interim methodology for co/trigeneration systems?

Yes



**Figure B.4: Screenshot of Energy Summary question regarding on-site generation**

# Contact us

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