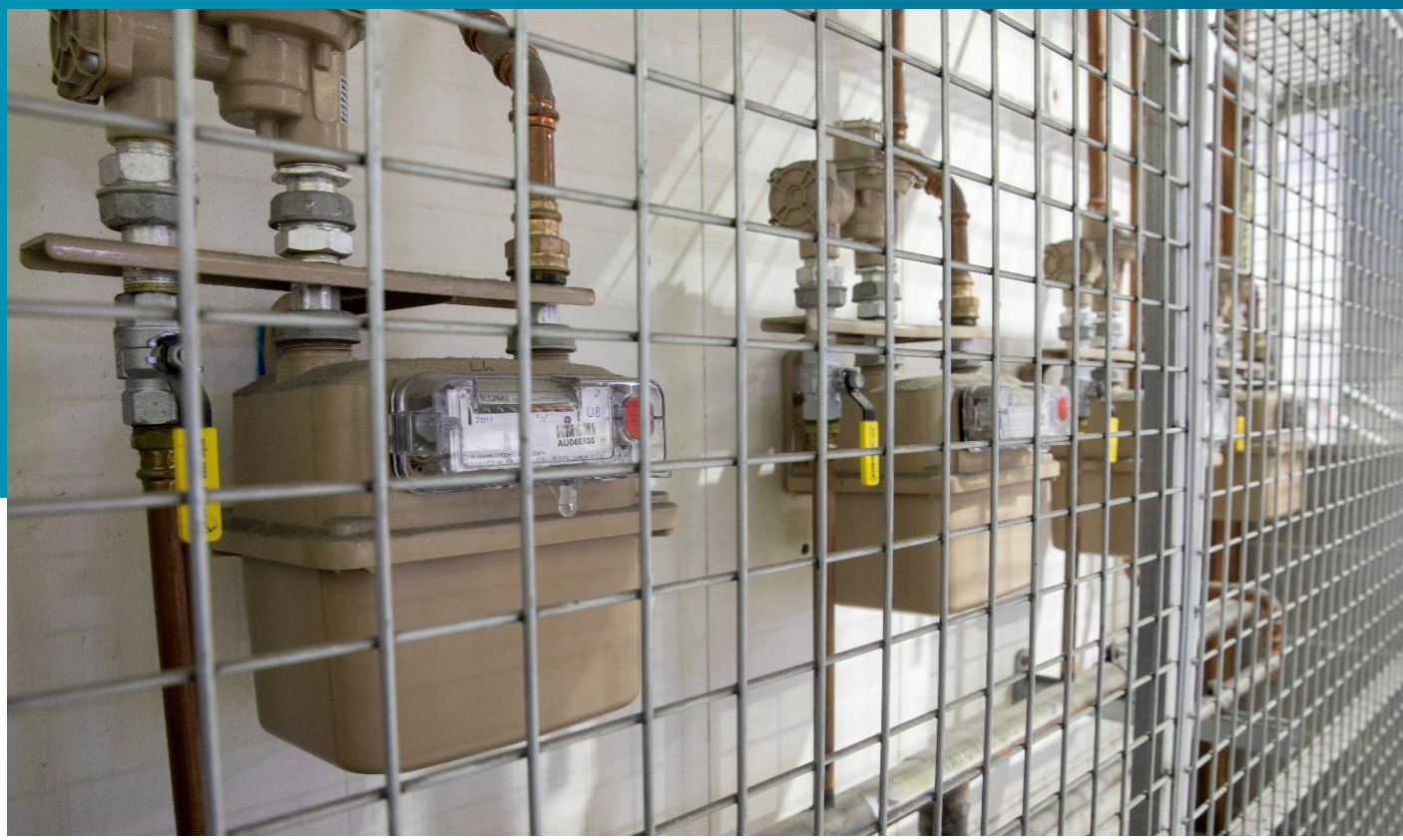
NABERS

The Rules

Metering and Consumption

Version 2.5 — April 2025



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Contents

1 Introduction

1.1 General

The National Australian Built Environment Rating System (NABERS) is a performance-based rating system managed by the **National Administrator**.

NABERS ratings are expressed as a number of stars, as follows:

NABERS rating	Performance comparison
6 stars ★★★★★★	Market leading building performance
5 stars ★★★★★	Excellent building performance
3 stars ★★★	Market average building performance

An accredited NABERS energy or water rating is awarded when the **National Administrator** certifies a rating completed by an **Assessor**. The **National Administrator** may independently audit the rating and assist in resolving complex technical issues.

This document contains **Rules** for **Assessors** on the topic of metering and consumption that are common across all NABERS energy and water ratings.

These **Rules** provides guidance for **Assessors** where such systems are present.

These **Rules** will supersede *NABERS The Rules — Metering and Consumption*, v2.3, 2023.

These **Rules** will be read in conjunction with the following documents:

a) *NABERS The Rules — Energy and Water for Apartment Buildings*
b) *NABERS The Rules — Energy and Water for Hotels*
c) *NABERS The Rules — Energy and Water for Offices*
d) *NABERS The Rules — Energy and Water for Public Hospitals*
e) *NABERS The Rules — Energy and Water for Residential Aged Care and Retirement Living*
f) *NABERS The Rules — Energy and Water for Schools*
g) *NABERS The Rules — Energy and Water for Shopping Centres*
h) *NABERS The Rules — Energy and Water for Warehouses and Cold Stores*
i) *NABERS The Rules — Energy for Data Centres*
j) *NABERS The Rules — Energy for Retail Stores*
k) *NABERS The Rules — Thermal Energy Systems*

Note: NABERS is undertaking a programme of works to integrate these **Rules** with the existing **Rules** for the NABERS Tools. **Rules** not listed above will be integrated progressively over the course of several years.

1.2 Interpretation of the Rules and Rulings

These **Rules** are to be read in conjunction with the respective NABERS **Rules** or **Ruling** as they apply to the specific building type. **Rulings** are used to address specific issues that may arise after the publication of the **Rules**.

Note: **Rules** texts are amended as required by additional **Rulings** which are published on the NABERS website at www.nabers.gov.au.

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

Assessments for an accredited rating must comply with the version of the **Rules** and any relevant **Rulings** current on the day the rating application is lodged to NABERS, unless—

a) the **National Administrator** has specifically approved otherwise in writing; or

b) the assessment is conducted under the terms of a NABERS Commitment Agreement which specifies an earlier version of the **Rules**.

1.3 Situations not covered by the Rules

Assessors must comply with these **Rules** unless prior approval has been sought and approved by the **National Administrator**.

Where appropriate, **Assessors** may contact the **National Administrator** to propose an alternative methodology, outlining the circumstances and rationale. Prior approval for use is required and may be granted conditionally, on a case-by-case basis and at the **National Administrator's** discretion.

Procedures not contained within these **Rules** may only be used for a particular rating with prior written approval from the **National Administrator**. Approval to use the same procedure must be sought from the **National Administrator** each time it is proposed to be used. Approval is entirely at the discretion of the **National Administrator**. All written correspondence is required as evidence and should be collected prior to lodging the rating.

1.4 How to use this document

The term "**Rules**" refers to a body of works produced by NABERS that specify what must be examined, tested and documented when an **Assessor** conducts a rating. Wherever the term is used in this document from Chapter 3 onwards, it refers to this document, *NABERS The Rules — Metering and Consumption*. Other **Rules** documents mentioned in the text are distinguished from the present document by the inclusion of their title.

Text appearing **teal** and **bold** is a defined term. Defined terms can be found in Chapter 2 of these **Rules** or in the terms and definitions chapter of the respective **Rules** document.

The following formatting conventions may appear in this text:

⚠ Important requirements and/or instructions are highlighted by an information callout box.

Note: Text appearing with a grey background is explanatory text only and is not to be read as part of the **Rules**.

Example: Text appearing with a green background is intended to demonstrate a worked example of the respective **Rules** section or **Ruling** section.

This is a documentation requirement callout box.

1.5 What is new in this version

This version incorporated changes necessary for the move of co-assess applications from Members online platform to Perform.

It also includes numerous updates to Section 9.3 – *Onsite renewable energy generation systems*, based on feedback from Assessors.

A detailed list of the main changes between this version and the previous version, is given in Appendix B.

1.6 Related documents

The following documents have been referenced within these **Rules**:

NABERS Ruling — Treatment of Cogeneration and Trigeneration Systems, v1.2, 2022

NABERS The Rules — Energy and Water for Apartment Buildings, v2.0, 2022

NABERS The Rules — Energy and Water for Hotels, v4.0, 2022

NABERS The Rules — Energy and Water for Offices, v5.1, 2023

NABERS The Rules — Energy and Water for Residential Aged Care and Retirement Living, v1.0, 2021

NABERS The Rules — Energy and Water for Shopping Centres, v4.1, 2022

NABERS The Rules — Energy for Warehouses and Cold Stores, v1.0, 2022

NABERS The Rules — Energy and Water for Hospitals, v2.0, 2022

NABERS The Rules — Energy and Water for Schools, v1.0, 2024

NABERS The Rules — Energy for Data Centres, v2.0, 2024

NABERS The Rules — Energy for Retail Stores, v1.0, 2024

NABERS The Rules — Thermal Energy Systems, v1.0, 2021

Australian Energy Regulator (AER) Discussion Paper, *Classification of Metering Services in NSW*, December 2012

NSW Office of Environment and Heritage, *Energy Saver Electricity Metering and Monitoring Guide*, 2019

Assessors must use the latest version of NABERS Rules and **Rulings** that have been referenced within 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
acceptable data	**Data** which meets the applicable accuracy and validity requirements of these **Rules**.
acceptable estimate(s)	The values derived from an estimation method permitted by these **Rules** in place of incomplete or uncertain **data**. Estimates that do not satisfy the above specifications are deemed unacceptable and cannot be used in the rating.
Assessor(s)	An accredited person authorised by the **National Administrator** to conduct NABERS ratings.
billing period(s)	The continuous 12-month period of data which is used for an individual meter in the rating.
cloud metering system	An electrical **metering system** where voltage, current and phase data is gathered from an electrical network by sensors. This data is then transmitted via the cloud (a type of **RMRS**) to software that calculates energy usage. Cloud meters are considered “non-cumulative” meters for the purposes of NABERS.
co-assess	An application process that allows the following ratings to be completed within the same lodgement. a) Office tenancy, base building and whole building; or, b) Shopping centre and retail stores
dedicated connection	An **OREG system** which is connected to a single **end use**.
embedded network(s)	A private electricity network that is connected to the parent electricity network or “grid”. **Note:** Most office buildings in Queensland, South Australia and Western Australia use **embedded networks** to supply tenants and the base building systems.
end use(s)	A purpose or activity (or a group of related purposes and activities) that water or energy is used for.
GreenPower	The **GreenPower** program aims to decrease greenhouse gas emissions associated with electricity generation and to facilitate the installation of new renewable energy generators across Australia.

Term	Definition
	Therefore, the purchase of **GreenPower** from energy providers accredited under the National **GreenPower** Accreditation Program (known as a "**GreenPower** Accredited Generator"), is considered to be the purchase of a zero-greenhouse emission energy source.
Gross Lettable Area Retail (GLAR)	The floor area, determined in accordance with the measurement standard for shopping centre area, of spaces that can be used as retail tenancies within the premises to be rated. **Note:** This is essentially the space within the permanent walls of the building, but excluding spaces for: a) Public access and use (including stairs, escalators, lift lobbies and passageways). b) Building mechanical, air conditioning, electrical and other utility services. c) Staff and cleaning facilities (including toilets, tea rooms, and cleaners' cupboards) which are not part of a tenant's fitout. Tenant storage areas not adjacent to the tenancy are also excluded.
Large-scale Generation Certificates (LGCs)	A certificate of renewable energy generated by a renewable energy generator registered with the Clean Energy Regulator.
metering schematic(s)	Diagrams that illustrate the placement and configuration of meters used to measure the consumption of **utilities** in a building. **Note:** These schematics typically show the location of meters relative to the building's reticulation system, as well as any associated devices, such as sub-meters, flow sensors or data loggers.
metering system	A system of one or more devices providing an individual measurement.
NABERS rating input form	The rating input form provided by NABERS for use by **Assessors** in the calculation of accredited ratings. Depending on the NABERS tool, this will either be the: a) NABERS Perform platform; b) NABERS Rate application; **Note:** The **National Administrator** is currently undertaking a process to transition all rating tools to the NABERS Perform platform and will alert **Assessors** if there is an upcoming change in platforms for a particular tool.

Term	Definition
National Administrator	The body responsible for administering NABERS, in particular— a) establishing and maintaining the standards and procedures to be followed in all aspects of the operation of the system; and b) determining issues that arise during the operation of the system and the making of ratings; and c) accrediting **Assessors** and awarding accredited ratings in accordance with NABERS standards and procedures. The functions of the **National Administrator** are undertaken by the New South Wales Government.
Net Lettable Area (NLA)	The floor area, determined in accordance with the measurement standard for rated area, of spaces that can be used as offices within the **rated premises**. **Note:** This is essentially the space within the permanent walls of the building, but excluding spaces for: a) Public access and use (including stairs, escalators, lift lobbies and passageways). b) Building mechanical, air conditioning, electrical and other utility services. c) Staff and cleaning facilities (including toilets, tea rooms, and cleaners' cupboards). The **Assessor** should refer to the relevant measurement standard for rated area documents for a definitive list of inclusions and exclusions.
non-utility metering system(s)	An energy or water **metering system** that is owned or operated by a third party other than a **utility**.
on-sell(ing)	The supply of **renewable electricity** to an **end use** outside the scope of the **rated premises**. **Note:** For an office base building rating, an office tenancy or other **end use** located inside the building is considered to be outside the **rated premises**. The same principle applies for retail tenancies within a shopping centre, where the shopping centre is undertaking a NABERS rating.
On-site Renewable Electricity Generation (OREG) system(s)	A system installed on the **rated premises** that generates **renewable electricity**.
physically metered	A meter is physically installed to separately measure the energy consumption of an **end use**.

Term	Definition
potential error	The total of all estimates (including assumptions, approximations, and unverified data) included in the rating assessment. The **NABERS rating input form** automatically calculates the **potential error** based on the data provided. **Note:** The maximum **potential error** that can be included is 5%. Rating applications with a **potential error** greater than 5% will not be eligible for a rating.
primary utility account	For stand-alone water ratings, the **primary utility account** is the water account with the highest consumption, taken before any non-utility meter exclusions. For ratings that include energy, the **primary utility account** must be an energy account, and can always be the electricity meter with the highest consumption, taken before any non-utility meter exclusions. For ratings where the energy consumption associated with a gas account (when converted to joules and taken before any non-utility meter exclusions) is higher than that of any electricity account, an **Assessor** may choose to use the gas account as the **primary utility account** at their discretion.
rating period(s)	The 12-month base period for the rating, requiring at least 12-months of **acceptable data** upon which the rating is based.
rated premises	The tenancy or building to be rated.
rating scope	The scope of the rating — either base building, whole building or tenancy.
Remote Meter Reading System (RMRS)	System whereby meter readings and other crucial meter data are sent to a data collection system. Such a system provides virtual meter access when physical access is not possible.
renewable electricity	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. **Note:** If the **Assessor** would like other sources to be considered under this **Rule**, they should contact the **National Administrator**.
Renewable Energy Certificate (REC) Registry	An online registry system in Australia for renewable energy certificates, administered by the Clean Energy Regulator (CER).
Renewable Energy Indicator (REI)	Displays the proportion of the building's energy that comes from on-site renewable energy generated and offsite renewable energy procured.

Term	Definition
Renewable Energy Target (RET)	The amount of electricity generated from renewable sources as a part of the Commonwealth Government's scheme. The **RET** contribution to the grid varies from State to State and Territory to Territory.
reticulation diagram(s)	Overarching layout of the distribution system for a building's **utilities**, such as water, gas, or electricity. These diagrams show the flow of the **utility** from the main source (e.g, electrical substation, boundary water supply, boundary gas connection) to the individual points of **end-use** (e.g, taps, machinery, hot water plants).
Rules	Authoritative document produced by the **National Administrator** that specifies what must be covered by an **Assessor** in order to produce a rating**.**
Ruling(s)	An authoritative decision by the **National Administrator** which acts as an addition or amendment to this document.
shared connection	An **OREG system** which is connected to multiple **end uses**.
single line diagram(s)	A diagram depicting all the key electrical infrastructure at a premises. The diagram must note all meters and sub-meters (both physical and virtual), as well as power sources and **end uses**. The diagram must be labelled so as to be interpretable by someone not familiar with the premises, with meter numbers or labels clearly identifiable.
utility	An organisation or company that holds a licence to retail electricity, gas or water, and that sells energy or water as its primary business. This definition excludes: a) Landlords which **on-sell** electricity or water where they neither hold a licence nor have a network exemption (see Section 7.3.4). b) Third-party contractors, such as meter reading providers.
utility metering system(s)	An energy or water **metering system** that is owned and operated by a **utility**.
validation	The process of checking the configuration of a **metering system** for a NABERS rating, and if necessary, adjusting and re-checking, to ensure the configuration is correct.
virtually metered	The energy consumption of an **end use** is calculated by subtracting data of one meter from another.

3 Key concepts and procedures

3.1 General

As part of a NABERS rating system, specific **Rules** provide requirements within the specific rating tools. These **Rules** apply to any building type eligible for a NABERS energy or water rating and must be read alongside the **Rules** for that specific building type.

Table 3.1 below is an overview of what is presented in this document. Each step contains important information in the process of determining energy and water usage and conducting a NABERS rating.

Table 3.1: Overview of metering and consumption requirements

Step	Task	Reference
1	Identify all the sources and supply points of energy and/or water and confirm that they are permitted by NABERS.	Section 4.2
2	Check the sources and supply points to confirm that the required minimum energy and water coverage can be met.	Section 4.3
3	Confirm the types of supply points and meters that are present and adhere to **validation** requirements as applicable.	Section 4.4
4	Calculate the consumption from each of the **utility metering systems** to be considered when calculating the rating, including correction for any estimates or missing data.	Chapter 5
5	Calculate the consumption from each of the **non-utility metering systems** to be included in the rating, including correction for any estimates or missing data.	Chapter 6
6	Where **non-utility metering systems** have been used to calculate consumption, validate these meters in accordance with these **Rules**.	Chapter 7
7	Calculate the consumption from any small **end use** estimations and batch supplies.	Chapter 8
8	Calculate the consumption from any renewable energy and water captured on site.	Chapter 9
9	Calculate the Renewable Energy Indicator.	Chapter 10

3.2 Standards for acceptable data and estimates

3.2.1 General

Assessment of all accredited NABERS for energy or water ratings must be based on the **acceptable data** or **acceptable estimates** specified in the **Rules** (including applicable **Rulings**) or as directed by the **National Administrator**.

Data and estimates must be of an acceptable standard. The decision process for determining **acceptable data** and **acceptable estimates** in Sections 3.2.2 and 3.2.3 must be followed, except where another process is specifically allowed by a provision of these **Rules**.

Note: Specific procedures related to standards for **acceptable data** and **acceptable estimates** in individual sections of these **Rules** take precedence over the standards in Section 3.2.2 and 3.2.3. Where specific procedures are followed, the requirement for compliance with Sections 3.2.2 and 3.2.3 is deemed to be satisfied.

⚠ **Assessors** must enter data into the **NABERS rating input form** as it appears from its original source. For example, rounding should be avoided.

3.2.2 Acceptable data

If accurate and verifiable **acceptable data** is available, it must be used. Where a section of the **Rules** allows more than one type of data source to be used and no particular priority is given, the following order of preference applies:

a) Data obtained directly by the **Assessor**.

b) Data provided by a third party without a significant interest in the operation or performance of the building or its equipment (such as an energy or water **utility**), including one of the following:

   1) Documents or other records provided by a third party which can be verified by the source, e.g. **utility** bills.

   2) Documents or other records which cannot be independently verified but whose authenticity and accuracy is attested to by a credible and responsible person without a conflict of interest.

   3) Written information provided by a credible and responsible person, which includes their full name, position and contact details of the person giving the information.

   4) Verbal information provided by a credible and responsible person, recorded in writing by the **Assessor** with the full name, position and contact details of the person giving the information.

c) Data provided by the owner commissioning the rating, or a third party with a significant interest in the operation or performance of the building or its equipment (such as a facility manager, technical contractor or equipment supplier), including one of the following:

1) Documents or other records provided by a party to an agreement or transaction which can be verified by another party to the same agreement or transaction, e.g. contracts or other legal agreements.

2) Documents or other records which cannot be independently verified but whose authenticity and accuracy is attested to by a credible and responsible person without a conflict of interest.

3) Verbal information provided by a credible and responsible person, recorded in writing by the **Assessor** with the full name, position, and contact details of the person giving the information.

3.2.3 Acceptable estimates

If **acceptable data** is not available, estimates (including assumptions, approximations and unvalidated data) can be used if they are deemed to be **acceptable estimates** in accordance with these **Rules**.

Acceptable estimates must total to no more than ± 5 % of the overall rating greenhouse gas emissions or water consumption, as calculated when using the **NABERS rating input form**. Where they are greater than 5 %, the building cannot be rated until sufficient **acceptable data** and/or **acceptable estimates** have been obtained.

3.3 Alternative methodologies

Assessors may be required to use alternative methodology for obtaining or interpreting data for an assessment where standard methods outlined in the NABERS **Rules** cannot be applied. At a minimum, the alternative methodology must be one of the following:

a) Equivalent to the preferred method in terms of its results, accuracy and validity.

b) Acceptable in place of the preferred method, subject to the data resulting from the alternative method being treated as an estimate in accordance with Section 3.2, or other specified conditions on the use of the data.

All alternative methodologies must be approved by the **National Administrator** prior to use. For further information, please contact the **National Administrator**.

4 Supply points and minimum coverage

4.1 General

This chapter focuses on Table 3.1, Steps 1 to 3:

Step 1: Identify all the sources and supply points of energy and/or water (e.g. meters and batch delivery) and confirm supply points used in the rating are permitted by NABERS.

Step 2: Check the sources and supply points to confirm the required minimum energy and water coverage can be met.

Step 3: Confirm the types of supply points and meters that are present, and adhere to **validation** requirements as applicable.

For documentation requirements, see Section 11.2.

4.2 Energy and water sources and supply points

4.2.1 Conducting site visit

The **Assessor** must identify all energy and/or water sources and supply points to the premises. A thorough site inspection must be conducted in order to ensure that all instances of energy and/or water have been considered in the **Assessor's** analysis for the rating.

The **Assessor** must identify the following (as relevant to the **rating type**):

a) All sources of supplied external energy, including, but not limited to—
   1) electrical, including renewable;
   2) gas;
   3) diesel;
   4) geothermal; and
   5) thermal (chilled, heating or condenser water).

b) All sources of supplied external water, including but not limited to—
   1) ground water;
   2) fire services water;
   3) bore water;
   4) external surface water, such as untreated dam water; and
   5) externally supplied recycled water sources — whether potable or not.

c) For office ratings, all sources of energy and/or water to shared facilities used by the occupants, including—

1) car parks; and
2) end of trip facilities.

> **Note:** An “end of trip facility” is a designated space containing facilities such as, secure bicycle storage, showers, changing facilities, lockers and drying space for clothes, for use by staff and visitors of the building.

d) For residential aged care and retirement living ratings, all sources of energy and/or water to shared facilities used by the occupants, including—
   1) On-site kitchens used commercially;
   2) communal laundries;
   3) on-site laundries used commercially;
   4) on-site indoor and outdoor pools and spas for residents’ use; and
   5) gyms for residents’ use.
e) Energy or water exported from the premises for other uses.

> **Note:** **Assessors** must refer to the *NABERS Ruling for Shared Services and Facilities* for the treatment of shared services and shared facilities in precincts and mixed-use buildings.

4.2.2 Evidence of inspection and identification of supply

Notes and photos must be kept as evidence of the inspection. All of the following steps must be taken to ensure that no instances of energy and/or water have been missed:

a) Ask the building managers/facilities managers to identify all the energy and/or water sources and associated accounts for the **premises**, including batch-delivered supplies, renewable energy generated on-site, purchased renewable energy generated offsite and recycled water.

> **Note:** The **Assessor** should not assume that all energy purchased from a **GreenPower** accredited generator is **GreenPower** accredited. For further details, see Section 10.4.2.

b) Review service drawings, where available, to identify all supply points (e.g. **single line diagrams**, electrical circuit schedules and other electrical diagrams, gas and diesel pipe schematics, and water **reticulation diagrams**).
c) Review the premises (including plant rooms and switchboards) to check all equipment requiring different types of energy and/or water supply is covered by the identified supply points (e.g. electricity, gas, diesel, potable water, recycled water).
d) Review the premises to check for any unmetered sources of water and/or energy to the premises.
e) Ask building managers/facilities managers to identify all the services on-site that may be shared with other premises, and the energy and/or water supplies and associated accounts for those services.
f) Collect all details of **end uses**, sources and meters relevant to the inspection (e.g. details of an electrical meter recording consumption of a tenancy **end use**).

For documentation requirements, see Section 11.2.1.

4.2.3 Unmetered sources

Water or energy from unmetered sources can only be used for ratings if 12 months of **acceptable data** can be obtained. For example, water supplied from a river, bore or well for **end uses** must be able to be measured or estimated accurately according to these **Rules** for a full 12-month period.

This requirement does not apply to the following sources, which can be reused without penalty:

a) Water used for fire systems.

b) Heat exchange systems where the water is returned to the source.

c) Natural groundwater seepage into basements that would normally be discharged.

d) Rainwater collected on-site.

e) Condensate collection.

For documentation requirements, see Section 11.2.2.

4.2.4 Supply points permitted by NABERS

Supply points are used to determine consumption. The following supply points are permitted by NABERS:

a) **Utility metering systems**: These are to be used in preference to **non-utility metering systems** and do not need to be cumulative meters.

b) **Non-utility metering systems**: These must meet the requirements of Section 4.4 and Chapter 6.

- Batch delivery supply bills where the supplier has stated the quantity supplied.

c) Thermal meters (see *NABERS The Rules — Thermal Energy Systems*).

In some cases, an **Assessor** may not be able to determine consumption from a supply point. If this occurs, other methods, such as estimation, are allowed in specific situations in accordance with these **Rules.** These are described further in Chapter 8.

4.3 Minimum energy and water coverage

4.3.1 General

Once the sources and their supply points have been determined, **Assessors** must ensure that all the required energy and water **end uses** for each rating are covered. These are listed in the **Rules** documents for each rating and are not repeated here.

If an **end use** is required to be included in the rating but is not covered by one of the supply points identified, then the **Assessor** must use one of the alternative allowable methods listed in Chapter 8 to ensure the minimum energy or water coverage requirements can be met.

The energy associated with electric vehicle charge points does not form part of the minimum energy coverage and is not required to be included. Emissions associated with moving vehicles are not included in the scope of ratings.

For documentation requirements, see Section 11.2.3.

4.3.2 Checks of sources and supply points

4.3.2.1 Excluded sources

Sources that supply energy and/or water exclusively to **end uses** that are outside the required minimum energy coverage for the **rating scope** can only be excluded from the rating if permitted by these **Rules**.

For documentation requirements, see Section 11.2.4.

4.3.2.2 Additional checks

4.3.2.2.1 Office ratings

For office ratings, **Assessors** must also undertake the following checks, where relevant, of all sources and supply points.

a) *Office base building ratings*:

1) All tenant meters must initially be considered as sources to the base building. They must only be excluded in accordance with these **Rules**. Tenant distribution boards must be reviewed to ensure that none of the base building **end uses** have been connected. Instances of connected base building power and lighting might include cleaner's power points, lifts or lobby lighting on whole floor tenancies.

2) **Assessors** must check all **end uses** to be included for the rating. This includes **end uses** that are located in spaces not included in the rated area calculation.

b) *Office tenancy ratings*:

3) Base building distribution boards must be identified and reviewed to ensure none of the tenancy **end uses** have been connected.

4) **Assessors** must check if a tenancy has been supplied with any energy from the following:

i) Tenant meters on other floors;

ii) Meters in the main switchroom;

iii) Uninterruptable Power Supply (UPS) or essential power systems on other floors;

iv) Diesel backup power systems elsewhere in the premises;

v) Renewable power from an on-site renewable energy system.

If there is any energy from sources listed in i) to v) above, then this energy must be included in the rating.

5) **Assessors** must check all **end uses** to be included for the rating. This includes **end uses** that are located in spaces not included in the rated area calculation.

4.3.2.2.2 Shopping centre ratings

For shopping centre ratings, **Assessors** must also undertake the following checks, where relevant, of all sources and supply points.

a) All tenant meters must initially be considered as sources to the base building. They must only be excluded in accordance with these **Rules**. Tenant distribution boards must be reviewed to ensure that none of the base building **end uses** have been connected.

b) **Assessors** must check all **end uses** to be included for the rating. This includes **end uses** that are located in spaces not included in the **Gross Lettable Area Retail calculation**.

4.3.2.2.3 Residential aged care and retirement living ratings

For residential aged care and retirement living ratings, **Assessors** must also undertake the following checks, where relevant, of all sources and supply points:

a) **Assessors** must check all **end uses** to be included for the rating. This includes **end uses** that are located in spaces not included in the rated area calculation.

b) Distribution boards to be included in the rating must be checked to ensure **end uses** associated with townhouses, villas or non-centrally serviced independent apartment dwellings are not connected.

c) Energy and water **end uses** for retail facilities that are located in the **rated premises** and open to the general public may be excluded provided sufficient submetering is in place.

4.4 Confirmation of metering systems

⚠ Section 4.4 does not apply to *NABERS Energy for Data Centres Rules* IT equipment ratings.

There is no allowance to adjust missing or estimated **utility** bills for a *NABERS Energy for Data Centres Rules* IT equipment rating. See the *NABERS Energy for Data Centres Rules* for further information.

4.4.1 General

Data from **utility metering systems** is to be used in preference to data from **non-utility metering systems**.

Utility metering systems do not need to be validated for a NABERS rating.

Data from **utility metering systems** can be used for inclusions or exclusions, regardless of whether they are non-cumulative or cumulative.

📋 For documentation requirements, see Section 11.2.5.

4.4.2 Use of non-utility metering systems

Non-utility metering systems can be used in the following circumstances:

a) In the absence of a complete set of **utility** data; or

b) Where the data from **non-utility metering systems** provides more reliable data, such as when **utility** reads are too infrequent and require adjustment or the **utility metering systems** are on the high-voltage side of the transformers (see Section 4.4.5); or

c) Where a **non-utility metering system** is a more direct source of consumption data, for example where the alternative would be a **utility meter** and a significant number of exclusions.

Where a **non-utility metering system** is used as primary data source, it may be entered into the **NABERS rating input form** as if it were a **utility metering system**. Normal **validation** requirements for the **non-utility metering system** still apply.

Where **non-utility metering systems** are used, the **Assessor** must record and retain documentation that identifies all **non-utility metering systems**. This includes written reports and diagrams.

Note 1: Where a rating is carried out based on inputs from only **non-utility metering systems**, **Assessors** should, where possible, reconcile all meters against a **utility** meter.

Note 2: Advice from **utility** companies about which meters service the building always needs to be cross-checked on-site to ensure errors have not been made. It is recommended that the meter reading on each meter is recorded at the time of the site inspection.

4.4.3 Meter accuracy for non-utility metering systems

NABERS does not provide specific requirements on the accuracy class for meters. However, it does require that **metering systems** are validated in accordance with Chapter 7**.**

Assessors must ensure that meters installed will accurately read data at the levels expected. For example, if low or variable gas flows are expected, the gas meters installed must be able to measure at these low flows. Particular care should be taken with turbine gas meters and electricity meters rated for much higher currents than are actually being recorded.

The following section (4.4.4) provides further information on different metering types permitted in NABERS ratings.

4.4.4 Types of non-utility meters

4.4.4.1 General

The following sections outline the different types of non-**utility** meters and how data from these meters can be treated for the purpose of a NABERS rating.

Note: Definitions of **metering systems** within Section 4.4.4 are based on the AER, *Discussion Paper: Classification of Metering Services in NSW*, December 2012.

4.4.4.2 Cumulative meters

Cumulative **metering systems**, for the purposes of NABERS, have a permanent on-board counting mechanism which accumulates consumption data.

Note: The above definition of a cumulative **metering system** is based on a "Type 6" meter as defined in Table A.1 of AER, *Discussion Paper: Classification of Metering Services in NSW,* December 2012.

Data from these meters, when used as non-**utility** meters, can be used for allowable inclusions or exclusions in a NABERS rating.

Non-utility metering systems relying solely on records created from pulse readings are considered cumulative if the pulse meter has an on-board counting mechanism to permanently store accumulated consumption data (otherwise known as an absolute count).

4.4.4.3 Non-cumulative meters

Non-cumulative **non-utility metering systems** are meters which do not meet the definition of a cumulative meter.

Note: These meters may include interval meters and "Type 5" meters as defined in Table A.1 of AER, *Discussion Paper: Classification of Metering Services in NSW,* December 2012.

Data from non-cumulative meters must not be adjusted to fill in missing data.

When using data from these meters for an inclusion, the following requirements apply:

a) The data must be reconciled against an energy or water balance from a parent **utility metering system**.

b) Virtual meters must not be used in this reconciliation.

If the data from these meters cannot be confirmed to be 100 % complete using the above requirements (e.g. full interval data is not available), then the data must only be used for exclusions.

It is the expectation of the **National Administrator** that this data reconciliation is undertaken by metering providers and not by NABERS **Assessors**.

4.4.4.4 "Soft" meters or equipment sensors

"Soft" meters or equipment sensors provide indirect measurement of energy consumption using known information about the equipment (such as sensors, fan speeds or data output from variable speed drives). With the exception of data from an **On-site Renewable Electricity Generation (OREG) system** inverter, data from these devices must only be used for exclusions in a NABERS rating.

Note: For further details about **OREG system** inverters, see Section 10.3.

Readings from these meters must convert detected current, phase and voltage into an energy reading (measured in kWh) in order to be considered **acceptable data**.

Readings calculated from current and voltage only (apparent power), sensor data (such as fan speeds) or energy readings that are based on intermittent instantaneous power measurements rather than integrated power are not considered **acceptable data**. This is because “soft” meters or equipment sensors are less accurate than physical meters.

Note: For a list of **acceptable data** records and formats, see Table 6.2.

4.4.4.5 Virtual meters

Virtual meters are effectively not physical meters. Virtual meters refer to calculating consumption data, typically by subtracting the data of one meter from another to obtain the difference. They may also include a sum of smaller meters downstream to create a virtual meter.

Note: The above definition of a virtual meter is based on a “Type 7” meter as defined in Table A.1 of AER, *Discussion Paper: Classification of Metering Services in NSW*, December 2012.

Virtual meters cannot be used where an energy and/or water balance against a parent **utility metering system** is required. This includes:

a) Non-cumulative **non-utility metering systems**, where the data is used for inclusions (see Section 4.4.4.3).

b) High-voltage meters (see Section 4.4.5).

All **non-utility metering systems** used for virtual meter calculations must be validated in accordance with these **Rules**.

Virtual meter calculations must be conducted by the **NABERS rating input form**. This means that all non-virtual meter data must be entered, without manipulation, into the **NABERS rating input form**.

Note: For premises with a very large number of virtual meters, there are certain situations where entry of individual virtual meters into the **NABERS rating input form** may not necessary. Advice should be sought from the **National Administrator** to confirm if these situations apply to your premises.

4.4.5 High-voltage electricity metering

NABERS energy ratings are based on low-voltage metering. It is acceptable to use **non-utility metering systems** on the low-voltage (LV) side for the energy use measurements if—

a) a premises’ main electricity **utility metering systems** are situated on the high-voltage (HV) side of the transformers; and
b) there are no connections to energy uses within or outside the premises that bypass the LV meters. The LV meters must cover 100 % of the electricity **end uses**.

The **Assessor** must reconcile the LV meters against the HV meters to ensure that no meters are missing or reading incorrectly. Virtual meters (see Section 4.4.4.5) cannot be used in this reconciliation.

As a guideline, transformer losses are expected to be less than 10 %. Losses above this figure must be re-investigated to find the source of the discrepancy and ensure the losses are not caused by unaccounted power used from the premises.

The **Assessor** may use values above 10 % losses if they have obtained evidence that the losses are not from electricity used by the premises. The HV metering is to be used in absence of this evidence.

The high-voltage **utility metering system** must be used in the absence of non-**utility** low-voltage meters which comply with these **Rules**. No allowance is made for losses in this situation.

For documentation requirements, see Section 11.2.6.

5 Utility metering consumption data

5.1 General

This chapter focuses on Table 3.1, Step 4: Calculate the consumption from each of the **utility metering systems** to be included in the rating, including corrections for any estimates or missing data.

Assessors must comply with the following process to calculate consumption from **utility metering systems** as defined in Table 5.1.

Table 5.1: Process to calculate consumption from utility metering systems

Step	Task	Reference
1	Check the **utility metering system** data format and units, converting where necessary.	Section 5.2
2	For each **utility metering system**, ensure that **acceptable data** is available for the 12-month **rating period.**	Section 5.3
3	Where required, correct **utility metering system** data in accordance with these **Rules.**	Section 5.4
4	Account for recycled water in the rating data.	Section 5.5

For documentation requirements, see Section 11.3.

5.2 Data unit and format checks

5.2.1 General

Assessors must check the data units and formats for each **utility metering system** and convert them where necessary.

Billed quantities may be provided by utilities as either hardcopy **utility** bills or an electronic consumption record. **Assessors** should see Section 5.2.4 for specific requirements on acceptable billing formats.

Some utilities provide a “headline” consumption figure separately from the billed quantities. In the event of conflicting information, the billed quantities always take precedence.

Some **utility** bills will have an overlap of start and/or finish dates between each billing cycle. In the event that this occurs, **Assessors** must amend the dates so that each billing cycle starts the day after the previous billing cycle finishes and the actual meter reading date is at the end of the billing cycle. This ensures that the **NABERS input rating form** can correctly calculate the number of days in the total **billing period**.

For documentation requirements, see Section 11.3.1.

5.2.2 Natural gas bill formats

Some natural gas **utility** bills do not have units listed on them. The **Assessor** must check with the **utility** what the units are, and the conversion factors used.

Note: In general, Western Australian gas **utility** bills do not have units. They are often shown in kWh as the **utility** has divided the MJ value. The **Assessor** should multiply the kWh value by 3.6 MJ/kWh to obtain the energy in MJ.

5.2.3 Units

The units of consumption that **Assessors** should seek on **utility** bills are outlined in Table 5.2.3.

Table 5.2.3: Units of consumption for utility bills

Utility	**Units**
NABERS energy ratings:	
Electricity	kWh (kilowatt hours) or MWh (megawatt hours); GJ (Gigajoules)
Natural Gas	m^3 (cubic metres) at standard temperature and pressure; MJ (Megajoules) or GJ
LPG	LPG must be entered into the **NABERS rating input form** as gas and the units are in MJ, not in L (litres) or m^3 (cubic metres). For NABERS schools energy ratings, LPG data must be separated from Natural Gas, with units in MJ. **Note:** Where LPG bills list consumption in litres, the following formula can be used to convert litres (L) to megajoules (MJ): $Consumption_L \times 25.7 = Consumption_{MJ}$
Fuel oil (diesel, heating oil, etc)	L (litres); GJ
NABERS water ratings:	
Water, all sources	kL (kilolitres) (=m^3)

Note: If the **rated premises** is part of a strata scheme, **utility** bills may include a total building consumption figure but bill on a figure that removes **utility** measured downstream consumption. Care is required to ensure that the correct figure is used, relevant to the rating coverage.

5.2.4 Energy bill formats

Some electrical energy bills present a 'total energy' figure that includes additional factors such as network losses, unaccounted energy or market charges. For a NABERS energy rating the metered energy without any additional network factors must be applied.

5.3 12 months of acceptable data for each utility metering system

5.3.1 General

Consumption data from each **utility metering system** must be reviewed by the **Assessor**. The **Assessor** must ensure that **acceptable data** covers one complete and continuous year, allowing for estimated and missing data as specified in Sections 5.3.2 and 5.3.3.

 For documentation requirements, see Section 11.3.1.

5.3.2 Check if any bills have been estimated

Consumption from estimated **utility** bills is not considered **acceptable data** and must be corrected before use in NABERS ratings.

It is considered good practice to ensure whether the preceding bill also does not contain estimated data. If the preceding bill contains estimated data or is non-existent, guidance should be sought from the **National Administrator**.

For requirements on correcting estimated data, see Section 5.4.

5.3.3 New utility metering system installations

Where a **utility metering system** is a new installation at the **rated premises**, it is taken to have a start reading of zero from the date of installation unless a meter reading is taken at the time of installation.

Example: A new **utility metering system** might have been installed as a result of a **metering system** replacement by the **utility**.

5.3.4 Check data for anomalies

The **Assessor** must review the monthly or periodic data from each **utility metering system** over the **rating period** and scan the data for anomalies such as—

a) meter rollovers, i.e. where the readings return to "0";

b) meter changes;

c) meter faults;

d) **Remote Meter Reading System (RMRS)** faults;

e) irregular readings; or

f) disproportionate consumption values.

In some cases, consumption may not be an estimate but may still be inaccurate. The **Assessor** must use their experience and judgement to identify any anomalies in the data (accounting for seasonal variation) and investigate any significant anomaly. Any investigation must be documented for audit.

⚠ The **Assessor** must contact the **National Administrator** before proceeding if the anomaly cannot be explained as the rating may not be able to proceed.

For requirements on correcting missing data, see Section 5.4.

For documentation requirements, see Section 11.3.1.

5.3.5 Billing periods

Assessors are required to enter the **billing period** for each **utility metering system** into the **NABERS rating input form**.

For each **utility metering system**, the **billing period** must align with one of the following:

a) The start date of the **billing period** with the start date of the first bill or reading; or

b) The end date of the **billing period** with the end date of the last bill or reading.

Assessors must also align the **billing period** as closely as possible with the **rating period.** In doing so, the **billing period** must also comply with Section 5.3.6, Section 5.3.6.2 or Section 5.3.7, as applicable.

Note: This requirement is to avoid the apportioning of consumption data at the beginning and end of the **rating period**.

Each separate bill provided by the **utility** must be recorded as a separate line item into the **NABERS rating input form** to show the pattern of consumption throughout the **billing period,** along with the exact dates and consumption values for the respective bill.

Note: When entering data into NABERS Perform, a submeter used for electricity exclusions will default to the **rating period** instead of the **billing period** of the respective parent meter. If the parent meter is known, it is recommended to align the submeter to the parent meter's **billing period**.

5.3.6 Aligning rating and billing periods for buildings targeting a rating

5.3.6.1 Single NABERS energy rating or NABERS water rating

The following provisions apply where data cannot be gathered for exactly the same period for different **metering system** accounts:

a) The **rating period** must align exactly with the **billing period** for the **primary utility account**, or the meter reading dates of the primary non-**utility** account where there is no **utility** account; and

b) The **billing period** for each **utility** account must match the dates on the bills.

If the billing dates of the other accounts do not align with the **rating period**, then **Assessors** must ensure consumption data is as close to the **rating period** as possible. The maximum permissible displacement from the **rating period** is 60 days.

5.3.6.2 Combined NABERS energy and water rating

When a combined NABERS energy and water rating is being conducted, the same **rating period** must apply to both ratings. As the **billing periods** for energy and water utilities are rarely exactly the same the **rating period** must, in order of preference, be based on the **primary utility account** of the NABERS energy rating, or on the meter reading dates for the primary non-**utility** account of the NABERS energy rating.

The consumption data for each water source must cover a continuous 12-month period that is displaced from the **rating period** by no more than 60 days.

5.3.7 Co-assess ratings

When a **co-assess** rating is being undertaken, the same rating period must apply to all ratings.

For office buildings, where—

a) a base building rating is conducted, the base building **rating period** is used for all ratings;

b) no base building rating is conducted, the whole building **rating period** is used for all ratings;

c) only tenancy ratings are conducted, the **rating period** for the tenancy with the largest **primary utility account** is used.

For shopping centre and retail stores, the shopping centre period is used for all ratings.

If it is not possible to gather data for exactly the same period for all ratings, the consumption data for each source in each rating must cover a continuous 12-month period that is displaced from the **rating period** by no more than 60 days.

5.4 Adjusting for missing or estimated utility metering system data

5.4.1 General

The **Assessor** must check that the data from **utility metering system** readings do not rely on estimates by the **utility**. If it does, then the method outlined in this section (5.4) must be followed.

The frequency of meter readings should be both—

a) at least as frequent as the **utility** meter's billing frequency; and

b) at least quarterly (i.e. four readings spaced evenly throughout the year).

 For documentation requirements, see Section 11.3.1.

5.4.2 Adjusting for gaps

5.4.2.1 At start or end of billing period

A **utility metering system** may be missing a valid meter reading at the start and/or end of the **billing period** because the bills are missing, or the reading was estimated by the **utility**. To resolve this, **Assessors** can use manual meter readings where no bills with actual readings are available. This reading may be sourced from bills issued outside the **rating period**.

When using manual meter readings, the data must be adjusted as follows:

a) Readings taken before the start of the **billing period** must be treated as if they were taken on the first day of the **billing period**.

b) Readings taken after the end of the **billing period** must be treated as if they were taken on the last day of the **billing period**.

Note 1: This is to prevent unrealistic apportioning of data where regular reads are not available.

Note 2: There is no limit to the age of a manual meter reading that can be used to adjust for a gap at the start of the **billing period**. However, **Assessors** should be aware that as readings taken before the start of the **billing period** are treated as if they were taken on the first day of the **billing period**, the older the manual meter reading, the greater the impact on rating, as more consumption data from outside the **billing period** will be included.

All manual meter readings used must comply with the data requirements of Section 5.2.

Where they are available, the **Assessor** should check these readings against **utility** readings.

5.4.2.2 During billing period where cumulative meter readings are available

5.4.2.2.1 General

In some cases, an energy or water source can be missing a valid **utility metering system** reading during the **billing period** (e.g. if the bill was not available or if the reading was estimated by the **utility**).

The total consumption for the missing period can be accurately determined using the method(s) in Sections 5.4.2.2.2 and 5.4.2.2.3 when valid **metering system** readings are available for the period immediately before and immediately after the missing readings.

The calculated consumption is considered to be **acceptable data** and may be used in the assessment without being added to the relevant **potential error**.

In scenarios where there are several consecutive estimated bills, these should be combined into the one entry when preparing the rating submission.

5.4.2.2.2 Sources other than natural gas

For water, and energy sources other than natural gas, the **Assessor** must:

a) Calculate the total metered consumption in the period by using the meter readings before and after the missing or estimated reading(s); and

b) Obtain any relevant factor required to convert the metered consumption to actual consumption; and

c) Use the actual consumption, as calculated using the relevant factor, as the total consumption for the period.

Note: **Assessors** are to exercise care when performing these calculations and obtain written documentation to confirm the use of any conversion factors if not documented on the relevant **utility** bills.

5.4.2.2.3 Natural gas

Missing gas consumption can also be determined using **metering system** readings. However, additional consideration is required due to the complexities of converting gas **metering system** readings to energy consumption.

Where a bill is missing or estimated but valid **metering system** readings are available before and after the missing period, the gas consumption can be determined using the following method:

a) Calculate the total metered gas flow in the period by using the readings before and after the missing or estimated reading(s).

b) Obtain the correction factor (CF) for the gas meter from the following, in order of preference:

1) The estimated bill for the period (if available) or the average value if there is more than one estimated bill; or

2) Calculating the CF by averaging the CF on the **utility** bills before or after the missing period; or

3) Written documentation provided by the **utility**.

Note: The CF is used to convert the metered consumption from the meter pressure to standard atmospheric pressure. It is sometimes in **utility** bills under an alternative name, such as “pressure correction factor” or “conversion factor”.

c) Obtain the gas Heating Value (HV) at atmospheric pressure during the period between the valid readings. This value must be obtained from one of the following sources listed, in order of preference:

1) Written documentation provided by the **utility** for the period between the two readings or, if not available;

2) The average HV for the period between the two readings, in the case there are **utility** bills (estimated or actual) fully covering such a period or, if not available;

3) The default HV in Table 5.4.2.2.3 must be used for the period between the two readings, depending on the State where the premises is located.

Table 5.4.2.2.3: Default HV based on State or Territory

State/Territory	Default HV (MJ/m^3)
ACT	37.5
NSW	37.5
NT	40.0
Qld	37.5
SA	37.5
Tas	38.0
Vic	38.0
WA	40.0

d) Gas consumption can be calculated using the following formula (see Formula 5.4.2.2.3):

Formula 5.4.2.2.3

$$Gas\ consumption = (R_E - R_B) \times CF \times HV$$

where:

R_E = cumulative meter reading at the end of the missing bill period, in m^3

R_B = cumulative meter reading at the beginning of the missing bill period, in m^3

CF = correction factor

HV = heating value (MJ/m^3)

Example: Two consecutive monthly bills have been estimated by the **utility**. Estimated readings were taken on 31 March and 30 April. Valid meter readings for the period immediately before and immediately after the estimated readings were available in adjacent **utility** bills. The reading for 1 March was 10,000 m^3 and the reading for 31 May was 12,150 m^3.

The pressure CF was obtained from the **utility** bills and was equal to 1.1. The average HV for all the bills between the two accurate readings (including the two estimated bills) was 39 MJ/m^3.

The total gas consumption between 1 March and 31 May can be calculated as:

(12,150 m^3 – 10,000 m^3) x 1.1 x 39 MJ/m^3 = 92,235 MJ

5.4.2.3 During billing period where cumulative meter readings are not available

Where there is an unresolvable gap in the billing data, (e.g. due to a change of supplier or meter), the **Assessor** may calculate an **acceptable estimate** of the unrecorded consumption by interpolating between adjacent bills. The interpolation must be based on the **average** daily consumption figures of the adjacent bills.

The **Assessor** must add the entire **acceptable estimate** of unrecorded consumption to the relevant **potential error**.

Under no circumstances is it permissible to extrapolate outside the available data. The premises cannot be rated if the data does not cover a full continuous 12-month period.

5.4.3 Use of interval meter data from a utility

Some utilities will bill a **metering system** based on a **RMRS** that transmits the consumption data but not the cumulative readings. This makes it impossible to reconcile an estimated bill as meter readings before and after are not available. The method below outlines the procedure for using this data.

The **RMRS** will detect when it does not receive a certain amount of data from the **metering system** and the bill will be listed as an “estimate”. Where this is the case, the **Assessor** must use the following method:

a) Obtain written confirmation from the **utility** that the reason the bill was ‘estimated’ was because of missing data. If it is any other reason, contact the **National Administrator** to obtain approval to use this method.

b) Obtain the complete data set of interval meter readings from the **utility** for the estimated month. Identify all the days where there is missing data (typically a “0” read).

> **Note:** Actual consumption on weekend days may be “0” and therefore care needs to be taken to ensure data identified as missing is actually missing.

c) For day(s) with missing data which occur on:

1) A weekday:

i) Remove the entire 24-hour period of the day(s) that have a missing data point.

ii) The consumption data for removed days are to be interpolated using adjacent weekdays that have complete data.

2) A weekend and the consumption data is to be used for an inclusion:

i) Remove the entire 24-hour period of the day(s) that have a missing data point.

ii) The consumption data for removed days are to be interpolated using adjacent weekdays that have complete data.

3) A weekend and the consumption data is to be used for an exclusion, no alteration to the consumption data is to be made.

d) All consumption data is to be entered into the **NABERS rating input form** as individual line items for the actual and interpolated values.

> **Note:** This means that for an estimated bill, there will be a minimum of three entries for that bill — the actuals on either side of the interpolated value and the interpolated value.

e) The interpolated data is an **acceptable estimate** and must be added to the **potential error**.

> **Note:** This method is only usable for **utility** bills received from **utility metering systems**. For **non-utility metering systems**, see Section 6.4.

5.5 Accounting for recycled water

Each NABERS water rating is broken down into two components:

a) A star rating that is calculated with supplied recycled water.

b) A star rating that is calculated without supplied recycled water.

The first component (a) recognises the use of the externally supplied recycled water and does not include the associated water consumption in the rating (improving the rating). The second component (b) treats externally supplied recycled water as mains water use to reflect the actual water efficiency of the premises.

Assessors must ensure that any unknown portions of recycled water are treated as mains supply. Recycled water should be applied to the rating using the correct inputs into the **NABERS rating input form**.

For documentation requirements, see Section 11.3.2.

6 Non-utility metering consumption data

6.1 General

This chapter focuses on Table 3.1, Step 5: Calculate the consumption from each of the **non-utility metering systems** to be included in the rating, including correction for any estimates or missing data.

Assessors must comply with the following process to calculate consumption from **non-utility metering systems** for the rating as defined in Table 6.1.

Table 6.1: Process to calculate consumption from non-utility metering systems

Step	Task	Reference
1	Check the **non-utility metering system** data format and units, converting where necessary.	Section 6.2
2	For each **non-utility metering system**, ensure that **acceptable data** is available for the 12-month **rating period.**	Section 6.3
3	Where required, adjust **non-utility metering system** data in accordance with these **Rules.**	Sections 6.4 and 6.5

For documentation requirements, see Section 11.4.

6.2 Data unit and format checks

Assessors must check the data units and formats for each **non-utility metering system** and convert them where necessary.

If data from **non-utility metering systems** is included in a NABERS rating, data defined in Table 6.2 must be recorded and retained for audit.

For documentation requirements, see Section 11.4.1.

Table 6.2: Data required for non-utility metering systems

Data required	Acceptable record or format	Unacceptable record or format
All meters		
Date and time of reading or interval	Day/month/year (Optional) Time in 24-hour format (HH:MM)	Month/year; day/month; month Hour only
Meter identification	Meter number or label that can be directly cross-referenced to the **single-line diagram**	No identification; label not clearly identifiable on **single-line diagram**
Meter reading from cumulative meters	Cumulative meter reading, either direct from the meter or from the metering interface	No meter reading
Consumption data from non-cumulative meters	Consumption data with clear units and time period. See Section 4.4.4.3 for more information.	No consumption data or consumption data without clear units
Electricity meters		
k-factor (CT multiplier)	Meter k-factor	No k-factor
Calculated electricity reading	Calculated consumption figure in kWh, based on meter readings and k-factor	Any consumption figure that cannot be derived from the meter reading and k-factor; any consumption figure without units
Gas meters		
Meter pressure	Meter pressure, with units	No meter pressure; no units
Meter pressure CF for inclusions	The **utility** pressure CF	No meter pressure CF
Meter pressure CF for exclusions	Pressure CF of “1” **Note:** To ensure accuracy of calculations, it is recommended that a measured meter pressure CF be used where available.	No meter pressure CF

Data required	Acceptable record or format	Unacceptable record or format
Monthly energy density	Energy density or HV of gas (MJ/m³) from **utility** bill (see Section 5.4.2.2.3	No energy density data; no units on energy density data; energy density data not supported by evidence from **utility**
Gas meter reading	Calculated gas consumption figure in MJ	Any figure that cannot be derived from the gas meter reading, pressure CF and monthly energy density; any figure without units
Water meters		
Meter multiplier	Meter multiplier to convert readings to kL or m³	No meter multiplier
Calculated water reading	Calculated water consumption figure in kL or m³	Any figure that cannot be derived from a meter reading or meter multiplier; any figure without units

Note: Where current transformer ratios (CT ratios) are taken into account in the consumption data, it is acceptable to enter a CT ratio of "1" into the **NABERS rating input form**.

Where non-cumulative data is used from a validated non-cumulative meter, the initial meter reading can be set to "0" in the **NABERS rating input form**.

6.3 12 months of acceptable data for each non-utility metering system

6.3.1 General

Consumption data from each **non-utility metering system** must be reviewed by the **Assessor**. The **Assessor** must ensure that **acceptable data** covers one complete and continuous year, allowing for estimated and missing data as specified in Sections 6.3.2 and 6.3.3.

For documentation requirements, see Section 11.4.1.

6.3.2 Check if any data has been estimated

Consumption from estimated **non-utility metering system** data is not considered **acceptable data** and may not be used for NABERS ratings.

Where there is estimated data, see Sections 6.4 and 7.4.

6.3.3 Check data for anomalies

The **Assessor** must review the monthly or periodic data from each **non-utility metering system** over the **rating period** and scan the data for anomalies such as one, or all of the following:

a) Meter rollovers — where the readings return to “0”.

b) Meter changes.

c) Meter faults.

d) **Remote Meter Reading System** faults.

e) Irregular readings.

f) Disproportionate consumption values.

In some cases, consumption may not be an estimate but may still be inaccurate. The **Assessor** must use their experience and judgement to identify any anomalies in the data (accounting for seasonal variation) and investigate any significant anomaly. Any investigation must be documented for audit.

⚠ The **Assessor** must contact the **National Administrator** before proceeding if the anomaly cannot be explained as the rating may not be able to proceed.

For requirements on correcting missing data, see Section 6.4.

For documentation, see Section 11.4.1.

6.3.4 Meter reading dates for cumulative meters

Assessors are required to enter the **meter reading dates** for each **non-utility metering system** into the **NABERS rating input form**.

Assessors must have a record of readings that is both—

a) at least as frequent as the **utility meter** under which the **non-utility meter** lies; and

b) at least quarterly (i.e. four readings spaced evenly throughout the year).

Where a cumulative meter is not connected to an **RMRS** that has been validated in accordance with Section 7.3.3, it must be read on site, and a record of these readings must be kept in case of audit.

Note: Cumulative meter readings can be recorded by personnel other than the **Assessor**.

6.3.5 Consumption data for non-cumulative meters

Assessors are required to enter the **consumption data** for each **non-utility metering system** into the **NABERS rating input form**. This can be entered as a “0” for the first “meter reading” and the total consumption amount for the last “meter reading”.

Data from non-cumulative meters must comply with Section 4.4.4.3.

6.3.6 Entry of electricity exclusion submeters into NABERS Perform

When entering data into NABERS Perform, a submeter used for electricity exclusions will default to the **rating period** instead of the **billing period** of the respective parent meter. If the parent meter is known, it is recommended to align the submeter to the parent meter's **billing period**.

6.3.7 Stand-alone NABERS energy or water ratings where building is targeting single rating

A rating may have multiple **metering system** accounts. Where the **billing periods** for different **metering system** accounts do not align, the **billing period** of the **primary utility account** must align with the **rating period**.

If the **billing period** of the other accounts do not align with the **rating period** then **Assessors** must ensure the **billing period** is as close to the **rating period** as possible, with a maximum of 2 months displacement allowed.

6.3.8 Combined NABERS energy and water ratings where building is targeting both ratings

When a combined NABERS energy and water rating is being conducted, the same **rating period** must apply to both ratings. If it is not possible to gather non-**utility** data for exactly the same period for both ratings, the **rating period** is based on the data gathered for the NABERS energy rating.

The consumption data for each water source must cover a continuous 12-month period that is displaced from the **rating period** by no more than 2 months.

6.3.9 NABERS energy co-assess ratings

When a **co-assess** rating is being undertaken, the same **rating period** must apply to all ratings.

For office ratings, where—

a) a base building rating is conducted, the base building **rating period** is used for all ratings;

b) no base building rating is conducted, the whole building **rating period** is used for all ratings; and

c) only tenancy ratings are conducted, the **rating period** for the tenancy with the largest **primary utility account** is used.

For shopping centre and retail stores, the shopping centre rating period is used for all ratings.

If it is not possible to gather data for exactly the same period of all ratings, then the consumption data for each source in each rating must cover a continuous 12-month period that is displaced from the **rating period** by no more than 2 months.

6.3.10 Ensure all non-utility meters are validated

If **non-utility meters** are used in the assessment, the **Assessor** must check that all necessary **validation** (and correction of data) is complete (see Chapter 7).

Note: If the **non-utility metering system** is part of an **embedded network**, **validation** might be required. See Section 7.2.3.

6.4 Adjusting for gaps in non-utility cumulative metering system data

6.4.1 General

This section only applies to consumption data from cumulative **metering systems**.

The **Assessor** must check that the data from **non-utility metering system** readings does not rely on estimates. If it does, then the method outlined in this section (6.4) must be followed.

For documentation requirements, see Section 11.4.1.

6.4.2 Gaps at start or end of rating period

If the meter data is used for an exclusion and there are gaps at the start and/or end of the **billing period** then the data must be entered without adjustment.

If the meter data is used as for an inclusion, then the data must be adjusted as described below:

a) If cumulative **RMRS** or manual readings, which comply with the data recording requirements of Section 6.3.4 are available, the **Assessor** may use the cumulative meter readings to calculate the consumption.

b) If the meter readings match the frequency of data recording requirements in Section 6.3.4, the readings can be entered into the **NABERS rating input form** on the day they were taken.

c) If the readings were taken less frequently, cumulative reads available before and after must be treated as if they were taken on the first and/or last day (as appropriate) of the **billing period**. This is to prevent unrealistic apportioning of data where regular reads are not available.

6.4.3 Gaps during billing period

6.4.3.1 Energy sources other than natural gas

Where missing consumption can be calculated from meter readings, **Assessors** can include this data and must follow the process listed in Section 5.4.2.2.2.

6.4.3.2 Natural gas

Where missing consumption can be calculated from meter readings, **Assessors** can include this data and must follow the process listed in Section 5.4.2.2.3, except for Item (b) which refers to the CF to be used.

When calculating gas consumption for **non-utility metering systems**, the **Assessor** must use the measured meter pressure CF where it is known.

Note: It is preferable to obtain the pressure CF through measurement as this will result in more accurate gas consumption at the **rated premises**, although the **National Administrator** recognises this may be a costly endeavour.

For new installations, the pressure CF would be provided as part of gas meter commissioning documentation.

If the measured meter pressure CF is not known and cannot be easily obtained, then the **Assessor** can:

a) use the default pressure CF of “1” where data is used for an exclusion; or

b) use the **utility** meter pressure CF in conjunction with a HV where data is used for an inclusion.

Note: A list of default HVs based on State or Territory can be found in Table 5.4.2.2.3

6.5 Adjusting for gaps in non-utility non-cumulative metering system data

Consumption data from non-cumulative **metering systems** must not be adjusted (see Section 4.4.4.3).

7 Non-utility metering system validation

7.1 General

This chapter focuses on Table 3.1, Step 6: Where **non-utility metering systems** have been used to calculate consumption, validate these meters in accordance with these **Rules**.

Note: **Validation** is required for **non-utility metering systems** due to the potential for issues with software and/or hardware configuration which can directly influence the measurement of energy consumption.

Common problems include incorrect wiring of the meter and incorrect meter multipliers (CT ratios). **Remote Meter Reading Systems**, such as Building Management Systems (BMS), can vary significantly in how they interpret the measured consumption of a **non-utility metering system**.

Assessors must comply with the following process to validate **non-utility metering systems** for the rating as defined in **Table 7.1**.

Table 7.1: Process to calculate validation in non-utility metering systems

Step	Task	Reference
1	If data from **non-utility metering systems** is included in a NABERS rating, then the **Assessor** must check if these meters need to be validated.	Section 7.2
2	If the meters need to be validated, then the **Assessor** must ensure that all **metering systems** are properly recorded and validated according to these **Rules.**	Section 7.3
3	If adjustment is required for **non-utility metering systems** as a result of **validation** checks, the **Assessor** must investigate whether the correct values can be calculated (not estimated).	Section 7.4

For documentation requirements, see Section 11.5.

7.2 Metering systems requiring validation

7.2.1 General

Assessors must check that all necessary **validation** (and correction of data where required) is complete.

Non-utility metering systems require **validation** if they include the following:

a) a meter with a Current Transformer (CT) (even where the CT ratios are applied internally to the meter face readings); or

b) a gas meter; or

- a **RMRS**. This includes an interface to a Building Management System (BMS) used to transmit meter data, or the connection between an **OREG system** and a data portal.

Note: While not required for a rating, NABERS recommends **validation** of—

a) direct connect meters with no **RMRS**; and
b) pulse meters with no **RMRS**.

The following meter types do not need to be validated:

1) water meters;

2) data from PV inverters; and

3) manually read direct connect electricity meters.

Note 1: If these systems are connected to an **RMRS**, the **RMRS** will still need to be validated in accordance with Section 7.3.3.

Note 2: Certain electrical meters may be either direct connect meters or CT meters. **Assessors** should ensure that an electrical meter is properly categorised as either direct connect or CT.

It cannot be assumed that newly installed **non-utility metering systems** have been validated. Evidence of **validation** must be obtained by the **Assessor**.

7.2.2 Treatment of non-utility metering systems with CTs

All **non-utility metering systems** (inclusions or exclusions) with CTs require **validation** (and adjustment, if necessary) by a licensed electrician or electrical engineer. This is to ensure that the CT ratio (meter multiplication factor) and wiring are correctly configured and, where applicable, programmed into the meter.

For **validation** requirements relating to **non-utility metering systems** with CTs, see Section 7.3.

7.2.3 Meters in embedded networks

An owner of a premises may install, own and manage the meters in an **embedded network**. Where the owner of the premises is able to provide evidence that they are an authorised electricity retailer, they are deemed to be a **utility** for NABERS purposes. In such cases, meter **validation** is not required.

In some cases, the owner may hold an exemption from the requirement to be a registered network service provider by the Australian Energy Regulator (AER). If the owner holds a current registrable network exemption for the address of the **rated premises** on the AER's public network exemptions register, they are deemed to be a **utility** for NABERS purposes. In such cases, meter **validation** is not required. Retail exemptions, deemed network exemptions, registrable network exemptions with class NR7, and individual network exemptions are not acceptable for this purpose.

⚠ Evidence of the AER network exemption for the premises address must be provided in the **NABERS rating input form** if a **non-utility meter** is not validated for this reason.

Note: AER registrable network exemptions are publicly searchable at https://www.aer.gov.au/industry/registers/network-exemptions.

AER authorised electricity retailers are publicly searchable at https://www.aer.gov.au/industry/registers/authorisations.

Where the owner does not hold an electricity retailer authorisation or AER registerable network exemption, the owner is not considered a **utility** and NABERS requires the **Assessor** to check these meters against the NABERS meter **validation** requirements.

The **National Administrator** must be contacted if other arrangements are encountered or there is any uncertainty regarding assessment.

Note: The requirements to gain exemptions for **embedded networks** by AER may differ between Australian states and territories. For example, the Northern Territory and Western Australia are not part of the National Energy Market (NEM) and as such work under different regulatory frameworks.

This means that most meters in **embedded networks** in the Northern Territory and Western Australia will need to be validated for NABERS purposes. NABERS also understands that most **embedded networks** in Queensland, South Australia and Tasmania will not be licensed nor hold an exemption and will need to be validated for NABERS purposes.

Where the **Assessor** is unsure, meters should be validated.

For documentation requirements, see Section 11.5.1.

7.3 Requirements for validating meters

7.3.1 Current Transformer (CT) Meters

7.3.1.1 General

CT meters must be validated to ensure that the recorded consumption data accurately matches the adjusted readings taken from the meter.

The **validation** of CT meters aims to confirm the absence of the following common issues:

a) Meter multipliers are incorrectly matched to CT ratios.

b) One or more CTs are not connected and therefore not recording consumption.

c) One or more CTs are connected in reverse, offsetting consumption of other phases.

d) Cross-phase CT connection errors, where CTs are not matched to the correct voltage phase.

e) Faulty or missing potential fuses, which can lead to under-recorded consumption or even meter failure.

Note 1: The CT ratio is expressed as a ratio of the primary current to the secondary current. As the secondary current is normally standardised at 5 amps, the CT ratio is expressed as "[x]:5" where [x] is the maximum current for the circuit that is metered. For example, a ratio of "300:5" means that when 300 amps flows through the CT, then 5 amps flows through the meter.

Where the CT meter does not automatically adjust the meter's reading with the CT ratio, the meter reading requires a meter multiplier to arrive at the actual consumption recorded by the meter.

This meter multiplier (also known as the "meter factor" or "k-factor") is calculated from the CT ratio. Using the example above, where the CT ratio is 300:5, the meter multiplier would be 60.

Note 2: All activities conducted on or with a live electrical system need to be done by a qualified and licenced electrician. As specific requirements vary based on jurisdiction, advice should be sought prior to undertaking any work on or with live electrical systems. **Assessors** are not expected to undertake live electrical work themselves.

Note 3: For more information on these different types of meters, refer to the *Energy Saver Electricity Metering and Monitoring Guide* or the **National Administrator**.

7.3.1.2 Validation requirements

When validating a CT meter, the following steps must be undertaken:

a) Check the metering wiring to ensure correct configuration (see Section 7.3.1.1 for a list of common issues).

b) Record the CT ratio that is applied to meter readings:

   1) Where the CT ratio is unknown or cannot be reviewed, the CT ratio must be verified by a qualified electrician (see Section 7.3.1.3).

   2) Where the CT ratio is known and has been programmed into the meter, the meter programming must be reviewed to ensure that the CT ratio is been applied correctly to the meter readings (see Section 7.3.1.3).

   3) Where the CT ratio is known and not programmed into the meter, the CT ratio must be verified to ensure that it is being applied correctly to meter readings.

c) Record any multipliers that are applied to a meter reading.

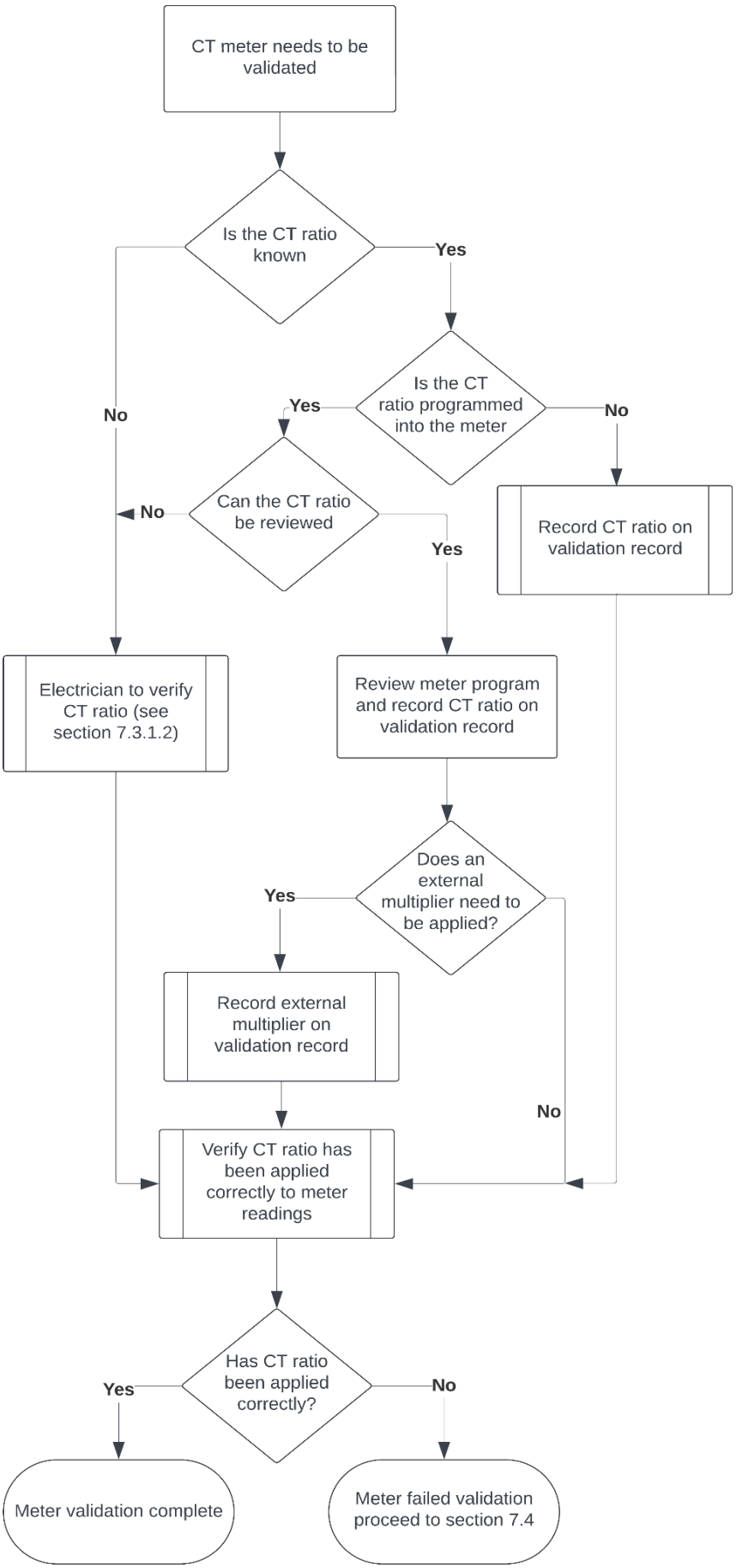
d) Using the recorded CT ratio and any applicable multipliers, verify that the CT meter is correctly converting meter readings to actual consumption.

Where the reading from the meter face does need to be multiplied by the CT ratio to calculate the true consumption, the CT ratio or multiplier that is required to convert the meter reading to kWh should be recorded.

The process for validating an electrical CT meter can be seen in Figure 7.3.1.2.

Assessors must record and retain the results of **validation** checks for the purpose of L2 auditing. An example of a **validation** record for electrical **non-utility metering systems** can be seen in Appendix A. Where the multiplier used within the meter can be reviewed, the figure should be photographed on the meter face and attached to the meter **validation** form as evidence.

Figure 7.3.1.2: Process for validation of an electrical CT meter



7.3.1.3 Reviewing the Current Transformer (CT) ratio

This section describes how testing with a manual power meter or tong-testing can be used to verify a CT meter where either—

a) the CT ratio is unknown; or

b) the meter multiplier cannot be verified directly from the meter.

Where the CT ratio is known, the CT ratio programming must be checked to ensure it is being correctly applied. A qualified and licenced electrician must record the load current on each phase and the corresponding meter current. This can be done utilising a variety of methods, including (but not limited to) taking measurement using a handheld power meter or by tong testing.

If the difference between the readings on respective phases is less than 10 %, the CT ratio programming is considered correct.

If the difference is greater than 10 %, this indicates that the internal ratio has not been programmed correctly and thus must be treated as an installation error.

Where the CT ratio is unknown or cannot be reviewed, a qualified and licenced electrician must verify the CT ratio.

Note: A power meter can be used to confirm the CT ratio and multiplier by measuring the actual current flow through the circuit being metered and the corresponding phase to the meter.

The following calculation can then be used to determine the CT ratio and the multiplier to be applied to the meter face reading:

$$\textit{CT ratio (“value”:5)} = \frac{\textit{measured circuit amps (e.g. 120 amps)}}{\textit{measured meter amps (e.g. 2 amps)}} \textit{ x 5:5}$$

$$= \textit{300:5}$$

$$\Rightarrow \textit{A meter multiplier of 60 is required to convert the meter face reading to actual kWh consumption}$$

7.3.1.4 Validating cloud metering

If the **metering system** does not have self-identifying CTs then the CT ratio and wiring need to be confirmed as per a normal CT meter (see Section 7.3.1).

If the system has self-identifying CTs (i.e. where the CTs have high level communications with the **cloud metering system** rather than a wire) then CT ratio **validation** is not required, and the **Assessor** should enter this into the **NABERS rating input form** as having no CT ratio.

For wireless CTs, a check must be performed to confirm that the CTs—

a) have been correctly identified with the **end use**; and

b) the voltage and current measurement correspond to the **end use**.

It must be confirmed that the system has both voltage and current measurement within the same distribution board as the CTs, separately for each phase.

7.3.1.5 Checking meters in place to avoid shutdown

Where electrical wiring and Current Transformers (CTs) cannot be accessed without partial or complete shutdown of the electrical network, a qualified and licenced electrician must be engaged to perform the **validation** as per Section 7.3.1.2.

The engaged electrician must verify that each **non-utility metering system** has been properly installed, is functioning correctly and is being interpreted correctly. They must also fill out the NABERS **validation** record for electrical **non-utility metering systems** (see Appendix A).

Acceptable methods for verification can include (but are not limited to):

a) use of a portable power meter to record consumption of the metered circuit over a period of time; and

b) use of a clamp-on ammeter or similar device to identify the average current in the circuit being metered.

The CT ratio and meter multiplier programmed in the **non-utility metering system** must also be recorded in the NABERS **validation** record.

Note 1: If a qualified and licenced electrician is unable to undertake this check, guidance should be sought from the **National Administrator**.

Note 2: Where electrical wiring and Current Transformers (CTs) cannot be accessed without partial or complete shutdown of the electrical network, and checking live meters is not possible, then guidance should be sought from the **National Administrator**.

7.3.2 Gas meters

All non-**utility** gas meters require **validation** (and adjustment, if necessary) by a competent person with an understanding of gas meters. This ensures that the pressure CF corrects the measured volume of the **non-utility metering system** to the same pressure conditions used by the **utility metering system**.

Where the pressure factor cannot be physically tested or there is no data available for the meter pressure and the CF cannot be determined, the following values can be used:

a) inclusion meters: **utility metering system** pressure CF; and

b) exclusion meters: “1”.

Record the meter pressure and the CF required to adjust the reading to m³ under standard pressure. This data can be collected from the **non-utility metering system** and compared with the **utility metering system** or obtained from the gas supplier.

Note: **Validation** of the gas meter includes measuring the gas pressure at the meter to calculate the pressure CF. The pressure CF is used to adjust the volume of gas by the amount it has been compressed to accurately calculate the energy content.

$$Pressure\ Correction\ Factor = \frac{Measured\ pressure\ (absolute)}{Atmospheric\ pressure}$$

The meter pressure and pressure CF must be recorded for non-**utility** gas meter inclusions.

All readings and any adjustments must be documented using the meter **validation** template in Appendix A.

7.3.3 Remote Meter Reading Systems

Note: **Remote Meter Reading Systems** are used to read the meters from a remote location. They are used to simplify the reading process, or because of accessibility issues with manually reading a meter. **Remote Meter Reading Systems** are common for both electricity, gas and water metering.

The **RMRS** can record the consumption of the meter by counting a pulse output or through a protocol that directly reads the meter register. The connection to the meter can be through a hard-wired, wireless or radio frequency connection.

Most remote gas and water reading systems use pulse output type meters, either hard-wired or via radio frequency transmitters. Electricity meters use either pulse output or direct reading of metering consumption.

The **RMRS** can be part of an existing Building Management System (BMS) or a dedicated system.

All **RMRS** connected to **non-utility metering systems** require **validation** to ensure the final consumption amount is correct. This must be conducted by a competent person with an understanding of the meters and the **RMRS** to ensure the meter data is correctly interpreted. At minimum, the person must:

a) Confirm that consumption on the **RMRS** corresponds to meter readings as measured at the meter.

b) Take a minimum of two readings at different time periods and document the results. For each time period, a reading from both the **non-utility metering system** and the corresponding **RMRS** is to be taken simultaneously.

c) Undertake the following for an **RMRS** used for counting pulses from a meter:

   1) If an on-board counting device is present, the **RMRS** and the on-board counting device must be read during the site inspection. The consumption on the meter face must be shown to correlate to the accumulated pulse counting on the **RMRS** over the same period.

   2) If an on-board counting device is not present, the **RMRS** and the **metering system** must be read during the site inspection. Interval data taken from the **metering system** must be shown to correlate to the pulse counting on the **RMRS**.

Note: For **RMRS** used for counting pulses from a meter without an onboard counting mechanism, it is considered good practice to undertake a **validation** check multiple times over the course of a **rating period** to ensure the system is operating correctly.

All readings and any adjustments must be documented using the meter **validation** templates in Appendix A.

If there is little or no consumption during the testing period, the time for taking the second reading should be extended until reasonable consumption is recorded.

Where the results identify a discrepancy between the **non-utility metering system** and the **RMRS,** the **RMRS** must be adjusted and at least two more readings taken to confirm the consumption measurement is the same.

Note: It is considered good practice to validate a **metering system** at the start of a **rating period** to ensure the data generated in the **rating period** is valid.

7.3.4 Validation frequency for all metering

7.3.4.1 Rating applications submitted online

7.3.4.1.1 NABERS Perform platform

This section applies where a rating is submitted through NABERS Perform as the **NABERS rating input form**.

Note 1: NABERS Perform is the new online platform developed by the **National Administrator** that will consolidate the functions of NABERS Members and NABERS Rate. This new platform also allows **Assessors** to check the previous **validation** status of **non-utility metering systems** within a premises. It is the intent of the **National Administrator's** that future rating applications will be submitted through this new online platform.

Note 2: **Assessors** are responsible for ensuring the veracity of all **validation** information included in the rating application. This includes obtaining and retaining required evidence, including for those which are pre-filled by the NABERS Perform platform. Previous **validation** information pre-filled by the platform should not be relied upon as the sole evidence that **validation** has been undertaken on a meter.

The objective is to have all meters validated and revalidated within 10 years. This may be done incrementally or in batches. New meters must be included from the time of installation, and may require **validation** in their first rating. **Assessor** must ensure that all **non-utility metering systems** are validated in accordance with the following frequencies:

- *Premises' first rating on NABERS Perform*: At least 10 % of each type of meter listed in Section 7.2.1 must have been validated within the last 10 years.
- *Premises' second rating on NABERS Perform*: At least 50 % of each type of meter listed in Section 7.2.1 must have been validated within the last 10 years.
- *Premises' third rating on NABERS Perform and subsequent ratings onwards*: At least 100 % of each type of meter listed in Section 7.2.1 must have been validated within the last 10 years.

Example 1:

A previously unrated premises submits a rating application in June 2024 through NABERS Perform.

As this is the first rating to be submitted on NABERS Perform, at least 10 % of each type of meter listed in Section 7.2.1 needs to have been validated within the last 10 years.

Example 2:

A premises, which was rated once before on NABERS Perform, submits a rating application in March 2024 through NABERS Perform.

As this is the second rating to be submitted on NABERS Perform, at least 50 % of each type of meter listed in Section 7.2.1 needs to have been validated within the last 10 years.

Example 3:

A premises, which has been rated five times on NABER Rate, submits a rating application in June 2024 through NABERS Perform for the first time.

As this is the first rating to be submitted on NABERS Perform, at least 10 % of each type of meter listed in Section 7.2.1 needs to have been validated within the last 10 years.

Example 4:

A premises has the following 18 non-**utility** meters:

a) 10 meters connected to an **RMRS** (either electricity or gas);
b) 6 electricity CT meters; and
c) 2 gas meters.

The number of non-**utility** meters that need to be validated for the second NABERS Perform rating will be:

a) 5 (electricity and/or gas) meters connected to an **RMRS** (at least 50 % of 10 **RMRS**);
b) 3 electricity CT meters (at least 50 % of 6 electricity CT meters); and
c) 1 gas meter (at least 50 % of 2 gas meters).

Where a **non-utility metering system** requires adjustment, see Section 7.4.

7.3.4.1.2 NABERS Rate

This section applies where a rating is submitted through NABERS Rate as the **NABERS rating input form**.

If **validation** of **non-utility metering systems** is required, the **Assessor** must randomly select at least 10 % of each of the following types to be validated each year:

a) Meters with a Current Transformer (CT).
b) Gas meters.
c) Meters connected to a **RMRS**.

Assessors must not select a non-**utility** meter that has previously been validated within the last 10 years if—

a) the **Assessor** has conducted a rating on the premises previously; or
b) information on previous meter **validation** is available.

Where a **non-utility metering system** requires adjustment, see Section 7.4.

For documentation requirements, see Section 11.5.2.

7.3.4.2 Co-assess rating applications

For **co-assess** applications, the requirements in Section 7.3.4.1 and 7.3.4.1.2 apply across the whole application, and not to each individual rating.

7.3.5 Standard for acceptable data

The **Assessor** may only accept evidence of **validation** of a **non-utility metering system** in the form of a certificate of currency or other written evidence that demonstrates the following:

- Confirms that a **metering system** requiring **validation** has been checked in accordance with this chapter, and found to be correctly recording consumption; and

a) Confirms that the check the date of **validation** took place within the last 10 years; and

b) Applies to the present condition and configuration of the **metering system** without any alteration; and

c) Provides details of the **validation** performed.

7.4 Adjustments resulting from validation checks

Where a **non-utility metering system** has been found to require adjustment as a result of **validation** checks, the **Assessor** must investigate the type of fault and the consumption data. This investigation will determine whether it is possible to accurately calculate (not estimate) the correct values for the consumption data from the **non-utility metering system**. If adjustment is found to be needed for any one meter, the following requirements apply:

- All **metering systems** that have never been validated, or have no proof of being validated, must be validated so as to ensure that correct data is collected in the 12-month period before the next NABERS energy or water rating. In this case, the **Assessor** cannot follow the schedule in Section 7.3.4.
- The **Assessor** must determine any correction to be applied to the data collected from the **metering systems** which are found to be incorrect; otherwise, the data from the meter cannot be used and the rating cannot proceed.

a) If the faulty meter was intended to be excluded from the rating, this exclusion cannot be made.

Note: Meters validated within the last 10 years and under previous versions of the **Rules** do not have to be re-validated under this version of the **Rules**.

All adjustments to **metering systems** must be done by appropriately qualified and licensed persons according to the applicable standards and procedures that apply within that jurisdiction for the equipment.

The rating can proceed where the **Assessor** can calculate the correct values for the consumption data. The **Assessor** must retain full documentation of the error found, the incorrect records from the **metering system**, and the calculations used to correct the data for audit.

In the absence of any other evidence, a correction must be based on the **assumption** that the error in the **metering system** is applied to all data collected for the current rating assessment.

Example: If the CT ratio for an electricity meter was out by a factor of +20 %, the overall electricity consumption data for that meter needs to be corrected by -20 %. Similarly, if the CT wiring of an electricity meter was incorrect but the consumption for each phase was recorded by the meter, this can be used to reconstruct the actual consumption and the reconstructed data can be used as **acceptable data**.

However, consumption data cannot be reconstructed if the CT wiring of an electricity meter was incorrect and the meter also did not record the energy consumption for each phase.

Where it is not possible to calculate the correct values from incorrect **metering system data**, then—

- for data relating to exclusions, the rating can proceed if the consumption is not excluded from the rating; or
- for data relating to inclusions, the rating can proceed if the consumption is an **acceptable estimate**, created using the method in Chapter 8.

If neither of these options are possible, the rating cannot proceed, and the premises cannot be rated until a full **rating period** of accurate data has been obtained.

For documentation requirements, see Section 11.5.3.

Items 1) and 2) above do not apply when assessing IT equipment energy consumption for a *NABERS Energy for Data Centres Rules* infrastructure rating. Refer to *NABERS Energy for Data Centres Rules* for further information.

8 Small end use estimation and batch supplies

8.1 General

This chapter focuses on Table 3.1, Step 7: Calculate the consumption from any small **end use** estimations and batch supplies.

For documentation requirements, see Section 11.6.

8.2 Methods for estimating small amounts of data

8.2.1 Inclusion of small unmetered electricity uses

8.2.1.1 General

A small amount of unmetered electricity from equipment can be included in the **acceptable estimates,** and therefore can be added to the **potential error**. This may be necessary where an unmetered item is required for inclusion under the energy coverage requirements.

This method applies to inclusions only. It must not be used for exclusions, or where acceptable metered data is available for the equipment. The sole exception to this is the assessment of IT equipment energy consumption for a *NABERS Energy for Data Centres Rules* infrastructure rating, for which this method of estimation can be used for exclusions. See the *NABERS Energy for Data Centre Rules* for further information.

Large equipment or a high number of small pieces of equipment may not fit within the **potential error**. If this occurs, the rating cannot proceed until appropriate metering is installed and acceptable energy use data is available to cover the **rating period**.

After identifying all unmetered equipment or plant, electricity use is estimated depending on whether the equipment is on demand-based (see Section 8.2.1.2) or non-demand based (see Section 8.2.1.3).

For documentation requirements, see Section 11.6.1.

8.2.1.2 Estimating energy usage of demand-based equipment

To estimate electricity use of demand-based equipment, such as hand dryers, the following procedure must be used:

a) Determine the power consumption in kW at maximum capacity from nameplate data or equipment specifications.

b) Calculate population of premises. This is done by taking the **Net Lettable Area (NLA)** of the premises and assuming 1 person per 10 m^2.

c) Determine the duration the equipment operates per cycle from suitable specifications or records.

d) Determine the number of uses of the equipment per person per day from suitable records.

> **Note:** **Assessor** can use four uses per person per day for hand dryers without providing further justification. **Assessors** may use another an alternative number, however, the methodology for determining the number and justification of any assumptions made must be provided.

e) Calculate the annual business days for the premises. Business days are days where level of building access and operation of the building is considered normal. This generally excludes weekends and public holidays. Where annual business days for cannot be calculated due to insufficient records, **Assessors** must assume annual business days for the premises is 260 days.

f) Estimate the annual energy use as (see Formula 8.2.1.2):

Formula 8.2.1.2

$$Energy\ use\ (kWh) = P_{equipment} \times A \times T \times R \times D$$

where:

$P_{equipment}$ = Nameplate power of equipment in kWh

A = Population of the premises based on 1 person per 10 m² of NLA

T = duration the equipment operates per cycle, in units of hours

R = Number of uses of the equipment per person per day

D = Annual business days for the premises

> **Example:** An **Assessor** is carrying out a base building rating for a building with an **NLA** of 2,000 square meters. On one floor, the common area hand driers are supplied from the tenant distribution board.
>
> The business days for the premises is 260 days and hand driers only operate during this time.
>
> The hand driers have a 2 kW nameplate power and stay on for 30 seconds (0.008 hours) when activated.
>
> Therefore:
>
> $$Energy\ use\ (kWh) = 2 \times \frac{2000}{10} \times 0.008 \times 4 \times 260$$
>
> $$Energy\ use\ (kWh) = 3{,}328\ kWh\ per\ hand\ dryer$$

Therefore, energy use for both hand dryers is 6,656 kWh.

8.2.1.3 Estimating energy usage of non-demand-based equipment

To estimate electricity use of non-demand-based equipment the following procedure must be used:

a) Determine the power consumption in kW at maximum capacity from nameplate data or equipment specifications.

b) Determine the annual hours that applies to the usage of the equipment. When determining annual hours, **Assessors** must provide the methodology and justification of any assumptions made. Where annual hours cannot determined, it is assumed the annual hours are 8,760 (24 hours a day for 365 days).

c) Determine an appropriate duty cycle based on the annual hours as determined in I for the equipment from suitable specifications or records. Where there are no suitable specifications or records, the duty cycle must be assumed to be 100 %.

d) Estimate the annual energy use as (see Formula 8.2.1.3):

Formula 8.2.1.3

$$Energy\ use\ (kWh) = P_{equipment} \times C \times H$$

where:

$P_{equipment}$ = Nameplate power of equipment in kWh

C = Duty cycle in %

H = Annual hours

Example: An **Assessor** is carrying out a base building rating for a building where the common area lighting for one floor is supplied from the tenant distribution board. The functional space on the floor was occupied for 365 days and lighting only operates during rated hours (45 hours per week).

The lighting specifications show each of the four fittings draw 0.08 kW (80 W), including ballast. They are dimmed to 75 %.

The duty cycle is 75 % as the light is dimmed to 75 %.

The annual hours are 45 x 52 = 2,340.

Therefore:

$$Energy\ use\ (kWh) = 0.08 \times 75\ \% \times 2{,}340$$

$$Energy\ use\ (kWh) = 140.4\ kWh\ per\ light\ fitting$$

Therefore, energy use for all four light fittings is 561.6 kWh.

8.2.2 Offices, shopping centres, retail stores and warehouses, public hospitals, schools and cold stores ratings

8.2.2.1 Water and energy exclusions based on financially reconciled utility costs

8.2.2.1.1 General

The **Assessor** may estimate the consumption for the **end uses** outside the coverage by applying the fixed proportion to the metered consumption if the following applies:

a) A **utility metering system** measures the aggregate consumption for a variety of water or energy **end uses**, some inside the coverage of a rating but others outside it.

b) **Non-utility metering systems** which only measure those **end uses** inside or those outside the scope of coverage are not present.\

c) The **utility** costs associated with the meter are allocated to the various **end uses** according to a fixed proportion of the meter readings, as specified in Section 8.2.2.2.

The estimated consumption may be excluded from the assessment if it is added to the relevant **potential error**. The estimated consumption may be reduced to meet the **potential error** requirements; however, an estimate must not be increased under any circumstances.

8.2.2.1.2 Determining fixed proportion

If Owner/Tenant Agreement (OTA) documentation allocates a proportion of the relevant energy and/or water use, then this proportion must be used in calculating the exclusion. Otherwise, it is acceptable to determine the proportion from documentation, signed by the parties affected by the **end uses** in question. Such documentation must identify the **end use,** the meter to which this it applies, and the proportion of allocation.

If the fixed proportion cannot be determined from acceptable documentation, then no exclusion is allowed, and the entire consumption measured by the meter(s) covering the **end uses** in question must be included in the assessment.

For documentation requirements, see Section 11.6.1.

8.2.2.2 Office ratings: Energy exclusions based on area weighting

The following requirement can only be used for office energy ratings. It cannot be used for office water ratings.

If an energy **end use** within a space could be excluded but is not adequately sub-metered, the **Assessor** may estimate the consumption within that space by undertaking the following:

a) Taking the ratio of the floor area of the space to be excluded to the total floor served by the relevant meter(s):

$$\frac{Floor\ area\ of\ space\ to\ be\ excluded}{Total\ floor\ area\ serviced}$$; and

b) Applying the ratio to the total consumption measured by the meter(s).

Note: When calculating the total floor area, **Assessors** are to ignore spaces not included in office **NLA**. This is to prevent unnecessary measurement for an estimate which is already required to fit within the **potential error**.

The **Assessor** may then exclude the **estimated** consumption, provided that—

1) the **Assessor** clearly explains the calculation method used and **assumptions** made in the submitted documentation; and
2) the **Assessor** adds the estimated consumption to the relevant **potential error**.

If these requirements are not met, then the energy **end use** within the space cannot be excluded.

This method can be used for small retail, educational or medical tenancies. This method does not apply to educational or medical office facilities.

For documentation requirements, see Section 11.6.1.

8.3 Batch-delivered supplies

8.3.1 General

8.3.1.1 Assessment of batch-delivered supplies

⚠ NABERS has identified several issues with the previous *NABERS The Rules — Measuring and Consumption,* v2.2, 2023 concerning diesel consumption.

Under the previous **Rules**, if no diesel deliveries were reported, some ratings assumed that diesel consumption was “0” for the **rating period**. This approach, while rare, failed to account for actual diesel usage by backup generators, as this was not routinely surveyed. Additionally, diesel deliveries made outside the **rating period** were often overlooked, leading to inaccuracies in consecutive ratings. Therefore, to address these issues this section (8.3) has been completely revised.

⚠ **Change to batch-delivered supplies methodology**

In *NABERS The Rules — Metering and Consumption*, v2.2, **Assessors** were to use delivery records (see Section 8.3.1.2) as the first priority method for batch-delivered supplies, and tank-based measurements (see Section 8.3.1.3) as a second priority method. This current version (2.4) requires both of these methods to ensure accurate data.

Transition period

Until 01/04/2025, **Assessors** should continue to enter batch-delivered supplies using Section 8.3.1.2 as a first priority, and Section 8.3.1.3 if delivery data is not available. For all ratings lodged after 01/04/2025, **Assessors** must enter both delivery and tank measurement data in accordance with Formula 8.3.1.1. Contact the **National Administrator** with any concerns.

To account for all energy or water supplied and consumed from all batch-delivered sources during the **rating period**, the **Assessor** must follow the equation:

Formula 8.3.1.1

$$Total\ use\ = Batch\ deliveries\ received\ during\ rating\ period + Tank\ usage\ during\ rating\ priod$$

Section 8.3.1.2 is applied for any deliveries made during the **rating period** and Section 8.3.1.3 is applied for calculating the consumption of energy or water from via tank measurements.

Assessors must apply the correct units for the batch-delivered supplies, in accordance with Section 5.2.3.

8.3.1.2 Batch deliveries received during rating period

The **Assessor** must identify the supervisors or managers responsible for each batch-delivered source and obtain the following, if applicable:

a) A written statement of deliveries received during the **rating period** or, if applicable, a statement that there were no deliveries; or

b) Copies of the bill(s) from suppliers showing the details of the deliveries.

The quantity of the batch-delivered supply during the **rating period** must be entered into the NABERS Perform rating form. If the **Assessor** is unable to obtain Items 8.3.1.2a) and 8.3.1.2b), the total capacity of the tank must be used, instead of Formula 8.3.1.1.

For documentation requirements, see Section 11.6.2.

8.3.1.3 Tank usage during rating period

The **Assessor** must calculate the usage from all tanks (including reserve tanks) servicing the **rated premises** by capturing the tank measurements. For the purposes of a rating, the order of priority is as follows:

a) One reading taken at the beginning of the **rating period** and one reading taken at the end of the **rating period**, covering a continuous 365-day period and displaced by no more than 2 months from the **rating period**. The difference is then calculated and entered as the tank usage.

> **Note:** If there have been deliveries during the **rating period**, the reading taken at the end of the **rating period** may be higher than the reading taken at the beginning of the **rating period**. In this situation, the tank measurement will be a negative number, but the total use will be positive once the batch deliveries received during the rating period (see Section 8.3.1.2) is entered.

b) One reading taken at the end of the **rating period**. The difference is then calculated between the total tank capacity and the reading taken at the end of the **rating period**, and entered as the tank usage.

c) The total capacity of the tanks.

Example 1: The **Assessor** confirms that no deliveries have been made during the **rating period**. The tank capacity is 1000 L. The measurements taken are 900 L at the start of the **rating period** and 500 L at the end of the **rating period**.

In this instance, using Formula 8.3.1.1, the total diesel use is (0 + 900-500), which is 400 L.

Example 2: The **Assessor** confirms that a delivery of 500 L have been made during the **rating period**. The tank capacity is 1000 L. The measurements taken are 500 L at the start of the **rating period** and 900 L at the end of the **rating period**.

In this instance, using Formula 8.3.1.1, the total diesel use is (500 + 500-900), which is 100 L.

8.3.2 Batch-delivered recycled water (NABERS water ratings only)

Where recycled water is delivered to storage tanks, the quantity of water must be measured at the delivery to the tank.

Note: Water measured from the discharge will potentially misallocate top-up water as recycled instead of potable.

8.3.3 Batch-delivered water for direct uses (NABERS water ratings only)

No estimates are allowed where delivered water is used without being stored in a storage tank, e.g. applied directly to landscaping, or used for testing, or direct filling of sprinkler systems, cooling systems etc.

For documentation requirements, see Section 11.6.2.

9 Generated energy and captured water

9.1 General

This chapter focuses on Table 3.1, Step 8*:* Calculate the consumption from any renewable energy and water captured on site.

For documentation requirements, see Section 11.7.

9.2 Cogeneration and trigeneration systems

For cogeneration and trigeneration systems, refer to *NABERS Ruling — Treatment of Cogeneration and Trigeneration Systems*, v1.2, 2022, which is available on the NABERS website, www.nabers.gov.au. For further information, please contact the **National Administrator**.

9.3 On-site renewable energy generation systems

9.3.1 General

This section covers how to treat on-site renewable energy generation systems **(OREG systems)** for a NABERS energy rating.

For NABERS Energy ratings, electricity consumed from an **OREG system** does not count towards the **rated premises** grid electricity consumption.

Renewable electricity generated for use within a building may be one of the following:

a) Connected to a single **end use**, i.e. a **dedicated connection**. See section 9.3.2.

b) Connected to multiple **end uses** through a **shared connection**, e.g. in an **embedded network**. See section 9.3.3.

Note: Accurate accounting of the **OREG system** is necessary to calculate a correct NABERS Energy rating. An energy balance supports this by distinguishing between electricity supplied from the grid and **OREG systems**, where the electricity supplied to the **rated premises** should equal to electricity consumed by the **rated premises** (noting that power losses are not accounted for in this equation). Refer to formulas 9.3.1 to 9.3.3.

Formula 9.3.1 – Conservation of electricity

$$Electricity_{(supplied)} = Electricity_{(consumed)}$$

Formula 9.3.2 – Breakdown of electricity supplied

$$Electricity\ supply\ (grid) + \ (OREG\ generation - \ OREG\ export) = Electricity\ consumption\ of\ the\ rated\ premises\ (grid) + OREG\ consumed\ by\ the\ rated\ premises + \ excluded\ end\ uses\ (grid + OREG)$$

Formula 9.3.3 – Rearranging formula 9.3.2

$$Electricity\ consumption\ of\ the\ rated\ entity\ (grid)\ = Electricity\ supply\ (grid)\ + (OREG\ generation - \ OREG\ export) - excluded\ end\ uses\ (grid\ + OREG) - \ OREG\ consumed\ by\ the\ rated\ entity$$

Renewable electricity from the **OREG system** that is exported directly into the grid cannot be deducted from the **rated premises'** grid electricity consumption, as a benefit for the NABERS energy rating.

Rated premises which export **renewable electricity** to the grid must ensure the consumption data is clearly distinguishable between the grid electricity imported and the **renewable electricity** exported.

The maximum permissible allocation of **renewable electri**city can be no more than the total consumption amount of the **rated premises**.

Renewable electricity that is **on-sold** to other users outside the **rated premises** must not be allocated to the rating.

In circumstances where the **renewable energy** is **on-sold** to a tenant within the building being rated, that energy should be counted towards a NABERS tenancy or NABERS whole building rating, as relevant.

Assessors should enter **renewable energy** inclusions and exclusions into the **NABERS rating input form** as a single line item for each **OREG system**. Where multiple OREG systems are present, **Assessors** should not total the multiple **OREG systems'** inclusions and exclusions into a single line item. Each system should be entered separately.

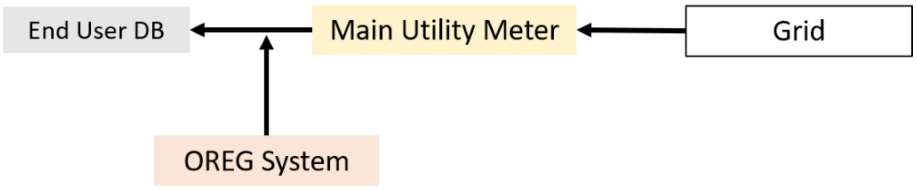
All **renewable electricity** data must align with the **rating period** exactly. The 60 day data alignment allowance (applicable to **non-primary utility accounts**) does not apply to **renewable electricity** data. If a full 12 months of data is not available, partial data within the **rating period** may be used.

Manual readings taken outside of the **rating period** must not be used in a NABERS rating unless prior approval is obtained from the **National Administrator**.

9.3.2 Dedicated connections

A **dedicated connection** refers to an **OREG system** connected to a single **end use**. The **renewable electricity** generated by the **OREG system** directly benefits this **end use** and the grid electricity imported to the **rated premises** is reduced.

Figure 9.3.2: Dedicated connection arrangement



9.3.3 Shared connections

9.3.3.1 General

A **shared connection** refers to an **OREG system** connected into a shared network (e.g. an **embedded network** with multiple users downstream of the site's main **utility** meter): see 9.3.3.3(a)and 9.3.3.3(b).

9.3.3.2 Process overview

The process for determining the **rated premises' renewable electricity** allocation for shared **OREG systems** must be in accordance with Table 9.3.3.2.

Table 9.3.3.2: Determining renewable electricity allocation

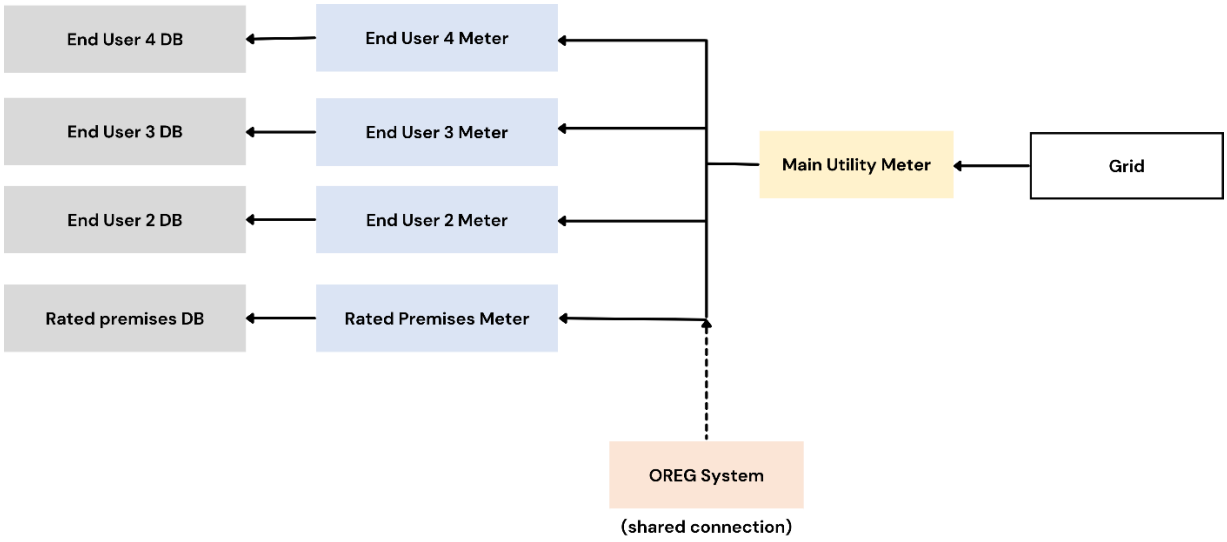
Step	Task	Reference
1	Determine the metering configuration used to capture the **rated premises'** total electricity consumption. E.g., **physically metered** or **virtually metered**.	Section 9.3.3.3 and Section 9.3.3.4.
2	Determine the method for allocating **renewable electricity**. I.e., allocation by claim or allocation by proportion.	Section 9.3.3.5.
3	Enter details from steps 1 and 2 in the NABERS **OREG** allocation calculator (OREG calculator) to determine the maximum allocation of **renewable electricity** to the **rated premises**. **Assessors** must not use their own calculators for this purpose. **Assessors** can access the OREG calculator from the 'Templates Section' within the **NABERS rating input form** home page.	N/a
4	Enter the outputs (data entry instructions) from the OREG calculator into the **NABERS Rating Input form.**	N/a

For documentation requirements, see Section 11.7.2.

9.3.3.3 Meter identification: physically metered rated premises

Figure 9.3.3.3(a) shows a **physical meter** installed to capture the **rated premises' end uses** consumption. In this metering configuration, the total consumption recorded by the **rated premises' physical meter** includes both grid electricity and on-site **renewable electricity.**

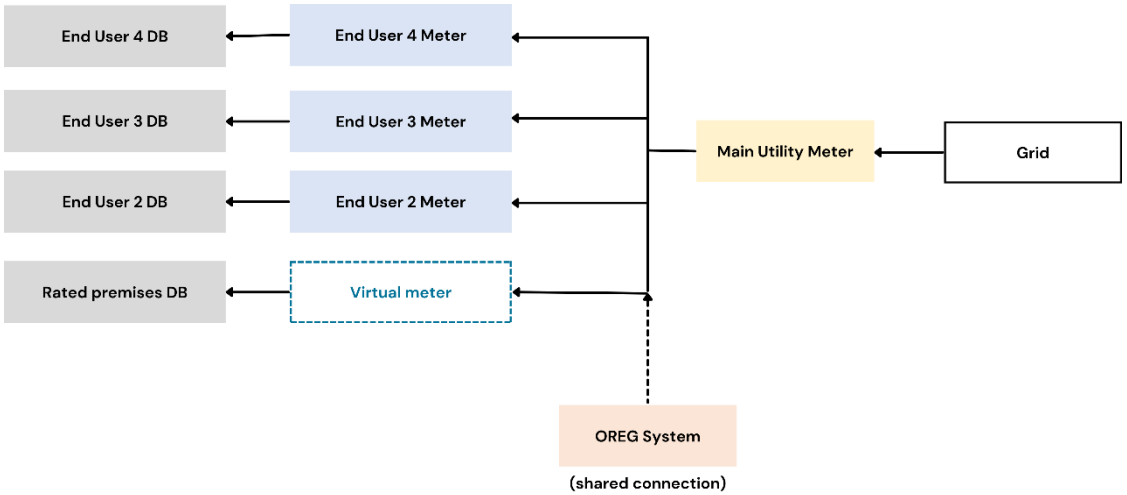
Figure 9.3.3.3(a): OREG system connected to a shared network with a physical meter capturing the rated premises consumption



9.3.3.4 Meter identification: virtually metered rated premises

Figure 9.3.3.3(b) shows the use of a **virtual meter** to calculate the **rated premises'** consumption.

Figure 9.3.3.3(b): OREG system connected to a shared network with a virtual meter capturing the rated premises consumption



9.3.3.5 Methods for allocating renewable electricity

For a **shared connection**, **renewable electricity** must be allocated using either of the following methods:

a) Allocation by claim, see Section 9.3.3.5.1.

b) Allocation by proportional consumption, see Section 9.3.3.5.2.

All **end uses** within the **embedded network** must be adequately metered. Adequate metering and consumption data must be available (including the **OREG system**) to conduct an accurate allocation.

Generation from an **OREG system** for a **rating period** should only be allocated to one NABERS rating. Where multiple NABERS ratings are benefiting from the same **OREG system**, **Assessors** must seek approval from the **National Administrator** for the allocation of **renewable electricity** to multiple NABERS ratings.

9.3.3.5.1 Allocation of renewable energy by claim

Under the claim method for allocating **renewable electricity**, the owner of the **OREG system** may attribute some or all of the **renewable electricity** generated by the system (minus exports) to the **rated premises**.

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

a) All meters meet **validation** requirements.

b) There are no gaps or missing consumption data in the **metering systems** directly concerning the **OREG system**, the grid input and the **end use** for which the allocation is made.

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

1) Written evidence that demonstrates which party owns the **OREG system**.

2) Written evidence using one of the following:

   (i) Any contractual arrangements or evidence of payment which specify any **renewable electricity** on-sold to other **embedded network end uses**.

   (ii) Confirmation from the owner (or owner's representative) of the **OREG system** that there is no **on-selling** of **renewable electricity** to other **end uses**.

> **Note:** The confirmation needs to be written on company letterhead.

The **Assessor** must have clear documentation outlining the consumption of all **end uses**. This should include all calculations and allocations so that the source type and quantity can be easily reviewed if necessary.

> **Note:** Where ownership of the **OREG system** cannot be established, **Assessors** should contact the **National Administrator** for further guidance.

9.3.3.5.2 Allocation of renewable energy by proportional consumption

The **rated premises** must obtain consumption data from all meters within the **embedded network** to allocate **renewable electricity** using the proportional consumption method.

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

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 uses** in the **embedded network**.

d) Allocate the **renewable electricity** generated to the **end uses** by their respective proportion of the total electricity consumed within the **embedded network**.

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

9.3.4 Battery storage

9.3.4.1 General

Where the **Assessor** identifies battery storage as present on-site and suspects further assistance is required for entry into the **NABERS rating input form**, they may contact the **National Administrator** for further guidance.

9.3.4.2 Two-way charging

Where a battery is charged using electricity outside of the boundary of the premises (e.g. an electric vehicle charged at an employee's home) and electricity from that battery is consumed by the building, the electricity consumed must be metered, included in the energy coverage of the rating and considered grid electricity.

9.3.5 On-site renewable energy capacity

Assessors have the option of providing the capacity of **OREG systems**. If provided, this information will be displayed in the rating report.

For documentation requirements, see Section 11.7.4.

9.4 Rainwater capture and recycling

Where water is collected or recycled at a premises (e.g. by rainwater harvesting or by the treatment of waste water), it can be considered a water efficiency measure.

When such capturing/recycling of water is either—

a) connected on the user side of the meter which records the relevant external water supply; or

b) used within the premises independently of **utility**-supplied systems,

a better rating can be expected. No modification of external water source data is required in this situation.

Water exported from the premises cannot be discounted against water used within the premises under any circumstances.

Note: Water pumped onto the premises from an external water source(s) and stored in an on-premises dam or reservoir is not considered a water efficiency measure. In such situations, the water pumped into the premises and associated energy needs to be appropriately metered and the consumption included in a rating.

For documentation requirements, see Section 11.7.5.

10 Renewable Energy Indicator

10.1 General

⚠ The requirements set out in this chapter apply to all NABERS ratings. **Assessors** can enter data relating to the **Renewable Energy Indicator (REI)** into the NABERS Perform platform. If data is not entered into NABERS Perform, the **REI** will only include the relevant **Renewable Energy Target (RET)** and State and Territory targets.

For NABERS ratings that are not created in NABERS Perform, **Assessors** can provide **REI** data using a provided spreadsheet:

a) For apartment buildings, this will be included as part of the existing spreadsheet.
b) For data centres the **REI** spreadsheet will be available in the members' resource library.
c) For office **co-assess** ratings, a renewable energy tab is included in the spreadsheet available to download in the members' resource library.

This chapter focuses on Table 3.1, Step 9: Calculate the Renewable Energy Indicator.

For documentation requirements, see Section 11.8.

10.2 About REI

10.2.1 General

NABERS energy ratings are a measure of the energy efficiency of a building.

In NABERS energy ratings, on-site renewable energy is considered an energy efficiency measure and contributes to the performance of the building. Off-site renewable energy purchases are not included in the NABERS energy rating and therefore have no impact on the performance of the building in the rating.

The **REI** displays the proportion of the building's energy that comes from on-site renewable energy generated and offsite renewable energy procured.

In the **REI**, both on-site renewable energy generated and off-site renewable energy purchases are considered renewable energy sources and will improve the **REI** result of the building.

Table 10.2.1: Comparison of NABERS energy rating and REI

NABERS energy rating	REI
Measure the energy efficiency of a **rated premises**.	Transparently display the proportion of renewable energy either purchased from off-site renewable energy sources or generated from on-site renewable energy systems.
Compare the actual emissions of a **rated premises** to a similar, average performing **premises**. Different energy sources are compared using the National Greenhouse Accounts factors that were current at the time the algorithm was developed. These will be periodically updated and more information is available at https://www.nabers.gov.au/news/supporting-australias-net-zero-transition.	**Formula 10.2.1** $$REI = \frac{Renewable\ energy\ (including\ purchased\ and\ generated\ onsite) \times 100}{Non-renewable\ energy + renewable\ energy\ (including\ purchased\ and\ generated\ onsite)}$$

10.2.2 Renewable energy for REI

The **REI** includes the following as renewable energy:

a) **Renewable electricity** generated and consumed on-site, and where **Large-scale Generation Certificates (LGCs)** have been created and voluntarily surrendered.

b) **Renewable electricity** generated and consumed on-site, and where no **LGCs** have been created.

c) Voluntarily surrendered **LGCs** for **renewable electricity** generated on-site and exported to the grid.

d) **Renewable electricity** from the **RET**.

e) **Renewable electricity** voluntarily surrendered by a State or Territory government on behalf of the premises in the State or Territory.

f) Accredited **GreenPower**.

g) Voluntarily surrendered **LGCs** from electricity generated from renewable off-site generators.

Table 10.2.2: Components of NABERS energy rating and REI

Energy type	Included in NABERS energy rating calculation	Included as renewable energy in REI
Electricity: Grid	Yes	Yes, mandatory renewable power percentage + Yes, **renewable electricity** voluntarily surrendered by a State or Territory government +

Energy type	Included in NABERS energy rating calculation	Included as renewable energy in REI
		Yes, if purchased as **GreenPower** or voluntary retirement of **LGCs**
Electricity: Solar generated and consumed on-site	No **Note:** Use of on-site renewable energy can reduce the amount of grid consumption, leading to an improved NABERS energy rating. This applies even if the **OREG system** isn't metered, or if **LGCs** are created and on-sold.	Yes, as long as supply is metered and **LGCs** aren't created, or if they are created, they are retired for the building.
Electricity - Solar generated on-site, exported to grid	No	Yes, as long as supply is metered and **LGCs** are created, they are retired for the building. Note that exports cannot be included if no **LGCs** are created.
Gas: Natural gas grid, LPG	Yes	No
Diesel: Fossil oil	Yes	No
Biogas, biodiesel, and green hydrogen	No	No

Note 1: Any **renewable electricity** purchased or generated where **LGCs** have been sold to a third-party is considered grid electricity in the **REI**.

Note 2: Where the amount of **renewable electricity** purchased exceeds the total electricity consumption of the building, the source of **renewable electricity** detailed in the NABERS energy rating report will be attributed in the following order of priority:

a) On-site **renewable electricity**.
b) Accredited **GreenPower** purchases.
c) Other off-site renewable energy purchases, e.g. voluntarily surrendered **LGCs**.
d) **RET** and other State/Territory targets.

Note 3: The **RET** is applied to a **rated premises**' **REI** by using the Renewable Power Percentage RPP (published annually by the Clean Energy Regulator). The RPP from the year of the **rated premises**' **rating period** is applied to the **REI**. If the **rating period** goes across 2 calendar years, an average RPP is calculated for the **rated premises**.

Example: A building in New South Wales will benefit from approximately 18 % of **renewable electricity** from the grid due to the **RET**. The exact percentage will vary from year to year depending on the renewable power percentage (RPP).

If the building also purchases accredited **GreenPower** for 100 % of its electricity consumption, the NABERS energy rating report will show that 100 % of its electricity is from accredited **GreenPower**.

However, if the building chooses to purchase only the non-RPP portion of its energy as accredited **GreenPower**, the NABERS energy rating report will show that approximately 82 % of its electricity consumption came from **GreenPower** (i.e, 100 % minus the RPP) and 18 % from the **RET**.

10.3 Accounting for OREG system in REI

10.3.1 General

Renewable electricity generated by an **OREG system** and allocated to an end user, as specified in Chapter 9, will only count as renewable energy for the **REI** if the electricity is consumed by the **rated premises** and either—

a) no **LGCs** have been created; or

b) **LGCs** have been created and voluntarily surrendered against the **rated premises**.

For documentation requirements, see Section 11.8.1.

The electricity consumed from an **OREG system** will not count as **renewable electricity** in the **REI**—

1) if **LGCs** have been created and sold; or

2) if the **OREG system** is not metered in accordance with the preceding chapters.

If on-site **renewable electricity** consumption data cannot be obtained, no estimates can be made. This will result in the premises obtaining a lower **REI** result.

For documentation requirements and options for obtaining on-site renewable energy data, see Section 11.8.1.

10.3.2 On-site renewable energy where LGCs are sold

If on-site renewable energy is generated and **LGCs** are created and sold, this electricity is considered as grid-imported electricity for the **REI** calculation as the claim to **renewable electricity** has been sold to another party. This electricity must be entered into the relevant field in the NABERS rating platform.

For the **LGCs** to be created, the electricity generated must be metered and the data provided to the Clean Energy Regulator, so the data is expected to be available.

Note 1: **Renewable electricity** generated by an **OREG system** and allocated to the **rated premises** will benefit the NABERS energy rating as the electricity consumption drawn from the grid will be lower. This includes **renewable electricity** generated by an **OREG system** where **LGCs** have been sold.

Note 2: Small-scale Technology Certificates (STCs) are allocated upfront when a solar system is installed on the basis of a small-scale system's estimated **renewable electricity** generation. Small-scale Technology Certificates are purchased by liable entities as part of their legal obligations under the Small-scale Renewable Energy Scheme (SRES) to create financial incentives to install small-scale renewable energy systems.

These certificates are considered a subsidy and therefore cannot be used to claim a right to the **renewable electricity**. Therefore, electricity generated by a system less than or equal to 100 kW is considered renewable, if created **STCs** have been sold.

⚠ The **Assessor** must contact the **National Administrator** if there are any issues in obtaining this data.

10.3.3 Exported renewable energy

Electricity generated by an **OREG system** that has been exported to the grid does not contribute to the **REI**, including exported electricity from small solar systems. However, if the **rated premises** has created and voluntarily surrendered **LGCs** for the exported electricity, these can count as **renewable electricity** in the **REI**.

Assessors must not assume that all of the **renewable electricity** has been consumed by the building and therefore must check the electricity bills for exported electricity.

Note: In some buildings, electricity created by regenerative lifts or cogeneration systems is exported into the grid. This cannot be counted as **renewable electricity** for the **REI**.

If the exported **renewable electricity** data cannot be obtained, no estimates can be made. This will result in the premises obtaining a lower **REI** result.

10.4 Off-site renewable energy purchasing

10.4.1 General

Renewable energy purchases in the form of **GreenPower** and surrendered **LGCs** count towards the **REI**. They do not contribute to the NABERS energy rating.

Note: Previously, accredited **GreenPower** contributed to an improved NABERS energy with **GreenPower** result. This information no longer appears on the certificate — only NABERS energy without **GreenPower** is shown.

10.4.2 Accounting for GreenPower

10.4.2.1 General

GreenPower may be purchased at the time of consumption and included on the retailer's electricity bill, or retrospectively as a separate purchase from the energy consumed.

Energy to be included in the **REI** under **GreenPower** must be clearly **GreenPower** accredited. It is possible that a **GreenPower** accredited generator may also sell non-**GreenPower** accredited energy, therefore **Assessors** must not assume that all the energy from a **GreenPower** accredited generator is **GreenPower** accredited.

Note: For further information on **GreenPower**, refer to www.greenpower.gov.au.

10.4.2.2 GreenPower included on electricity bills

GreenPower purchased at the time of consumption and included on the electricity should be entered into the **NABERS rating input form** as a percentage of the consumption as detailed in the electricity bill.

10.4.2.3 GreenPower separate de-coupled purchases

Separate purchases of **GreenPower**, also referred to as de-coupled **GreenPower**, are those that are not included within the **utility** bill. The purchase of any **GreenPower** bought separately must have occurred before the date the rating application was submitted. The **Assessor** must verify that the **GreenPower** was used within the premises.

For assessments where a separate **GreenPower** purchase was made, the **Assessor** must obtain written confirmation from the premises that the **GreenPower** purchase was used for the premises in question only, and for the **rating period** only.

For documentation requirements, see Section 11.8.2.

10.4.2.4 GreenPower bulk purchases

Where a bulk **GreenPower** purchase must be divided between a number of properties, the **Assessor** must obtain and store supporting documentation from the premises that verifies the nature and authenticity of the purchase, as well as documenting the exact amount of **GreenPower** (in kWh) allocated to each property for a specific period.

Note: **GreenPower** Corporate Direct is a product that allows large energy users to directly surrender their **LGCs** through **GreenPower**. Buildings using this product will obtain a letter from **GreenPower** to confirm the voluntary surrender amount of the **LGCs** surrendered under **GreenPower** Corporate Direct.

For documentation requirements, see Section 11.8.3.

10.4.3 Accounting for large-scale generation certificates

10.4.3.1 General

Large-scale Generation Certificates can be included in the **REI** and count as **renewable electricity** if they meet the following criteria:

a) **LGCs** have been voluntarily surrendered.

b) **LGCs** are created less than 36 months prior to the end of the **rating period**.

c) Purchase and surrender of the **LGCs** occurred before the date the rating was lodged.

The voluntary surrender of **LGCs** can be done by the building owner or by a third party on behalf of the building owner, e.g. an electricity retailer. **Large-scale Generation Certificates** are surrendered in the Clean Energy Regulator's **Renewable Energy Certificate (REC) Registry**.

Note: Renewable Energy Certificates under the "environmental charges" section of an electricity bill should not be added by the **Assessor** as a voluntary surrender for the premises. These RECs are surrendered by the **utility** as part of their regulatory obligations under the **RET**. The **REI** calculation includes the **RET** renewable power percentage (RPP) automatically.

10.4.3.2 Voluntary surrender of LGCs

10.4.3.2.1 REC Registry for one individual building

If the **LGCs** surrender has been performed in the **REC Registry** for one individual building, the **Assessor** must obtain **REC Registry** confirmation of the voluntary surrender.

For documentation requirements, see Section 11.8.4.

10.4.3.2.2 REC Registry for multiple buildings

If the **LGCs** surrender has been performed in the **REC Registry** for multiple buildings, the **Assessor** must obtain:

a) **REC Registry** evidence of the voluntary **LGCs** surrender.

b) Evidence that an independent third-party audit has been conducted to confirm the allocation of **LGCs** to the different buildings and **rating periods**.

For documentation requirements, see Section 11.8.5.

If the **LGCs** surrender has been conducted on behalf of the building owner (e.g. by a retailer), in addition to the above requirements the **Assessor** must obtain evidence of the contract for the voluntary surrender with the third party and schedule of buildings included in the contract.

⚠ If the above requirements cannot be met, the **Assessor** must contact the **National Administrator** prior to lodging the rating to propose an alternative method. The proposal must explain how the **Assessor** will demonstrate that the **LGCs** have been voluntarily surrendered and correctly allocated to the building for the **rating period**.

Note 1: An independent third-party audit in this section (10.4.3) means an audit carried out by an independent party that doesn't have any conflicts of interest with the **rated premises**. This third party needs to have auditing competencies.

Note 2: In the case where a building owner has multiple buildings, evidence that an independent third-party audit occurs at least once a year is acceptable.

10.4.3.2.3 Appearing on electricity bills

If **LGCs** have been voluntarily surrendered by a retailer and these are appearing on the electricity bill, the **Assessor** must obtain evidence that the claim has been independently third-party audited.

For documentation requirements, see Section 11.8.6.

10.4.3.2.4 On a periodic basis

If the **LGCs** are surrendered on a periodic basis and the end of the **rating period** falls between two surrender periods, there are two options as follows:

a) An additional surrender is conducted for that building so that **LGCs** have been surrendered for the entire **rating period**.

b) The **Assessor** obtains evidence that the **LGCs** will be surrendered within 6 months of the end of the **rating period**.

3) If the voluntary **LGCs** surrender is done by the building owner, the following evidence is required:

i) Statement from the building owner that the **LGCs** will be surrendered within 6 months from end of **rating period**.

ii) Evidence that an independent audit on **LGCs** surrenders and their allocations to buildings and **rating periods** is occurring at least once a year.

2) If the voluntary **LGCs** surrender is done by a retailer or other third party, the following evidence is required:

i) An ongoing contract with the retailer or third party to voluntarily surrender the **LGCs**, including reference to the **LGCs** being surrendered at least on a 6-month basis.

ii) Evidence that an independent audit on **LGCs** surrenders and their allocations to buildings and **rating periods** is occurring at least once a year.

iii) Evidence of a contractual arrangement or a statement from the building owner or the third party conducting the surrender is provided to confirm that any **LGCs** not yet surrendered will be surrendered within a 6-month period.

Additionally, this must be accompanied with evidence that an independent audit on **LGCs** surrenders and their allocations to buildings and **rating periods** is occurring at least once a year.

For documentation requirements, see Section 11.8.7.

The **Assessor** is responsible for notifying the **National Administrator** of any negative outcomes from an independent third-party audit.

This method allowing **LGCs** to be surrendered on a periodic basis will be reviewed after 24 months, to ensure that **LGCs** being claimed in the ratings are being effectively retired.

10.4.3.3 Status of LGCs surrender in REC Registry

When **LGCs** are voluntarily surrendered on the **REC Registry**, the surrender is first marked in a "pending status" before it is confirmed. Only voluntarily surrendered **LGCs** that have been confirmed should be used for the **REI**.

All **LGCs** for the **rating period** must be confirmed prior to lodging the rating assessment. Evidence of this will be required for a Level 2 audit.

For documentation requirements, see Section 11.8.8.

10.4.4 On-selling of renewable energy purchased

10.4.4.1 General

In premises where the **utility** supply is distributed to tenants through **non-utility metering systems**, it is possible to **on-sell** the **renewable electricity** to tenants.

10.4.4.2 Building owners purchasing GreenPower for tenant consumption

If a building owner purchases **GreenPower** as a percentage on their electricity bills and covers the consumption of the tenants, the tenant can claim the **GreenPower** for the **REI**. The percentage of **GreenPower** assigned to the tenant's consumption must be identical to the percentage on the building owner's electricity bills. The **Assessor** must obtain documentation to support this.

For documentation requirements, see Section 11.8.9.

10.4.4.3 Building owners voluntarily surrendering LGCs for tenant consumption

If a building owner is voluntarily surrendering **LGCs** directly or through a third party for a tenant's electricity consumption, the tenants can claim the voluntarily surrendered **LGCs** in the **REI**. The **Assessor** must obtain documentation to support this.

For documentation requirements, see Section 11.8.10.

11 Documentation required for accredited ratings

11.1 General

The **Assessor** must keep all records on which an assessment is based, including any specific guidance or approvals given by the **National Administrator**. Data retained for audit must be in a form which facilitates reviews and makes anomalies easily apparent.

Access to original documents is preferred if they are available. Copies of original documents may be used as evidence as long as the **Assessor** is satisfied that they are, or can be verified to be, true and complete records of the original documents or files.

Information may be contained in many different formats. The purpose of the documentation is to provide an acceptable, credible source of the required information. In some instances, specific document types may be unnecessary for an individual rating. However, under different rating circumstances, the specific document types may carry multiple items of information required for the rating. The qualifying factor is not the type of document but that the documentation contains the required information in an acceptable format.

The information in Sections 11.2 to 11.8 is required for a rating. It is organised based on the divisions of previous chapters, see Chapters 4 to 10. All the required information should be obtained from the owner/manager of the premises before a site visit, and then confirmed during the site visit and subsequent assessment. An on-site inspection helps to verify that the information provided is accurate, current and complete.

Individual ratings may require additional information or documentation depending on the individual circumstances of the **rated premises**.

11.2 Chapter 4: Supply points and minimum coverage

Topic	Requirements	Documentation
11.2.1 Conducting site visit	Section 4.2.1	*Required information* The **Assessor** must retain evidence that identifies all energy and/or water sources supplied to the premises, shared services or facilities. Notes and photos must be kept as evidence of their site visit, and all information available relating to **end uses**, sources and meters relevant to the inspection must be collected. *Documentation examples* Documents that can be used as supporting evidence can include: a) **Single line diagrams** and/or **metering schematics**. b) Site photos. c) Video recordings. **Assessor** site notes and other relevant documents.
11.2.2 Unmetered sources	Section 4.2.3	*Required information* The presence of any unmetered energy or water sources must be checked during the site inspection and recorded by the **Assessor** in their site notes. The **Assessor** must explain how any unmetered sources are treated within the rating and how they relate to the minimum energy or water coverage. *Documentation examples* Documents that can be used as supporting evidence can include: a) **Single line diagrams** and/or **metering schematics**. b) Photos. c) Video recordings. **Assessor** site notes and other relevant documents.

Topic	Requirements	Documentation
11.2.3 Minimum energy and water coverage	Section 4.3.1	*Required information* The **Assessor** must retain evidence that— a) confirms the minimum coverage requirements have been met; b) identifies all supply points and confirms how each of the required **end uses** are covered by the supply points; and c) maps the distribution of energy and/or water through the premises, including at the main switchboards and distribution boards throughout the premises. *Documentation examples* Documents that can be used as supporting evidence can include: a) **Single line diagrams** and/or **metering schematics**. b) Photos. c) **Assessor** site notes and other relevant documents. **Note:** Existing diagrams and schematics that have been marked up by hand are acceptable.
11.2.4 Checks of sources and supply points	Section 4.3.2 Section 4.3.2.2	*Required information* The **Assessor** must retain evidence that confirms any source or **end use** to be excluded from the rating and substantiate the grounds for the exclusion. *Documentation examples* Documents that can be used as evidence that confirms sources and supply points include a single document that lists sources/supply points to the building with notes to confirm whether they are included or excluded. This document may be a marked up— 1) **single line diagram**; 2) **metering schematic**; or 3) **reticulation diagram**. Documents that can be used as evidence supporting the grounds for exclusion of supply points can include—

Topic	Requirements	Documentation
		a) site photos; b) **Assessor** site notes; and c) other relevant reticulation documentation. **Note:** It is acknowledged that access to and labelling of distribution boards may not always be sufficient to fully substantiate the grounds for exclusion of a supply point. In these cases, the **Assessor** may need to make educated assumptions regarding coverage of individual distribution boards. The basis of these assumptions should be fully documented. If an **Assessor** is uncertain, they should contact the **National Administrator**.
11.2.5 Confirmation of metering systems	Section 4.4	*Required information* The **Assessor** must retain evidence of the location and type of all **utility** and **non-utility metering systems** used in the rating. **Note 1:** This information is required to satisfy the requirements of the **Rules.** If the **Assessor** is unable to document it based on their site observations then it is expected that a third party would be engaged by the building owner to draft a **single line diagram**, **metering schematic** or **reticulation diagram**. *Documentation examples* Documents that can be used as supporting evidence can include: a) Site photos. b) **Assessor** site notes. c) Reticulation documentation, including **single line diagrams** and **metering schematics**. Information on meter location should be mark-up (by hand or otherwise) of the meter identification used when entering the **metering system** into the **NABERS rating input form**. Information on meter types, as listed in Section 4.4 (e.g. cumulative, non-cumulative, soft, virtual or high voltage), should be recorded in the site notes.

Topic	Requirements	Documentation
		Note 2: It is sufficient for the **Assessor** to confirm "all **non-utility metering systems** used in the rating are cumulative meters" in their site visit notes. **Note 3:** Where no documentation is available for a **metering system**, the **Assessor** needs to document this information (by hand or otherwise), to the best of their knowledge.
11.2.6 High-voltage electricity metering	Section 4.4.5	*Required information* The **Assessor** must retain evidence of any LV meters used in place of **utility** HV meters and justification of replacement. *Documentation examples* Documents that can be used as evidence of the locations where LV meters are used can include: a) **Single line diagrams**. b) **Metering schematics**. c) **Reticulated diagrams**. **Note:** Where these are unavailable, the **Assessor** may use documented professional assessment of the **metering system** configuration based on available documentation and site inspection.
		For justification of the use of LV meters, an energy balance should be performed and documented.

11.3 Chapter 5: Utility metering consumption data

Topic	Requirements	Documentation
11.3.1 Data for each utility metering system	Section 5.2 Section 5.3 Section 5.4	*Required information* Billed quantities provided by the **utility** must be retained by the **Assessor** as well as evidence of estimated bills (where applicable). The **Assessor** must document how these estimates were resolved, if this is not evident in the **NABERS rating input form**. **Assessors** must also retain evidence of estimated bills (where applicable) and document how these estimates were resolved. Documentation of any related investigation and resolution of anomalies or estimations in the data should be retained by the **Assessor** if it is not evident from the data entered into the **NABERS rating input form**. *Documentation examples* Documents that can be used as evidence of billed quantities can include: a) **Utility** bills for a minimum of 12 months showing consumption records for the **billing periods**. b) A spreadsheet or other electronic record from the **utility** showing consumption for the **billing periods**, with a clear indication of the meter identification and reading, and at least one **utility** bill that can be shown to reconcile against the electronic data. Where the **utility** provides an online portal with billing information, actual bills for reconciliation are not required. However, the billing information from the portal must still be retained as documentation.
11.3.2 Accounting for recycled water	Section 5.5	*Required information* For externally supplied recycled water, the following information must be retained as evidence: a) The source of the water. b) The quantities of the water. c) Any non-recycled components of the water.

11.4 Chapter 6: Non-utility metering consumption data

Topic	Requirements	Documentation
11.4.1 Data for non-utility metering systems	Section 6.2 Section 6.3 Section 6.4	*Required information* All relevant data from **non-utility metering systems** as listed in Table 6.2 must be retained for a minimum period of 12 months. **Note:** Documentation of any related investigation and resolution of anomalies or estimations in the data should be retained by the **Assessor** if it is not evident from the data entered into the **NABERS rating input form**.

11.5 Chapter 7: Non-utility metering system validation

Topic	Requirements	Documentation
11.5.1 Metering systems requiring validation	Section 7.2	*Required information* Where **embedded networks** are identified within the **rated premises** and meters within these are to be treated as a **utility metering system**, the **Assessor** must document and retain evidence of licencing of the **embedded network** operator to sell energy. If the **embedded network** has a valid AER network exemption, evidence for this must include the network exemption class and the premises address. *Documentation examples* Documents that can be used as evidence proving that the specific **embedded network** is licensed as an electricity retailer or is exempt from the requirement to be a registered network service provider can include: a) Current copy from the Australian Energy Regulator (or similar body) website listing the licenses that clearly specifies the **embedded network**.

Topic	Requirements	Documentation
		b) Current copy from the Australian Energy Regulator's public network exemptions register, listing a current exemption that clearly specifies the premises address and at least one of the following exemption classes: NR1, NR2, NR3, NR4, NR5, NR6, NRO1, NRO2, NRO3, NRO4, NRO5, NRO6, NRO7. c) Written confirmation from the AER or similar body.
11.5.2 Requirements for validating meters	Section 7.3	*Required information* The **Assessor** must retain evidence of **validation** for each **non-utility metering system** that is required to be validated. The **Assessor** must review the evidence of **validation** provided by the building owner or their contractor and check them for completeness. If the document is completed correctly, and does not contain any obvious errors, then the **Assessor** can accept the evidence and use it in the rating. **Note 1:** **Metering systems** which were validated under v3.2 of the *NABERS The Rules — Energy and Water for Offices* can also be considered validated under these **Rules**. **Note 2:** See Appendix A for examples of **validation** records for **non-utility metering systems**.
11.5.3 Adjustments resulting from validation checks	Section 7.4	*Required information* The **Assessor** must retain evidence of adjustments made to **non-utility metering systems** as a result of **validation** checks. The documentation must outline the following information: a) Type of fault found and the consumption data. b) Full documentation of the error found, the incorrect records from the **metering system**, and the calculations used to correct the data for audit.

Topic	Requirements	Documentation
		A record of the **validation** of any altered **non-utility metering systems.**

11.6 Chapter 8: Small end use estimation and batch supplies

Topic	Requirements	Documentation
11.6.1 Methods for estimating small amounts of data	Section 8.2	*Required information* The documentation the **Assessor** must retain for instances of **end use** estimation includes the following: a) Small **end use** electricity inclusions: 1) The calculations, including a clear explanation of method and all assumptions. 2) Photos/records of name plate capacities. 3) Documentation used to determine duty capacity if it is not 100 %. b) Documentation used to determine annual hours, including full justification for any reduction in hours. Exclusions based on financially reconciled **utility** costs: 1) Documentation of any estimated consumption outside the coverage. 2) Any associated documentation or agreements that outlines mutual agreement signed by the parties affected by the **end uses** that identifies the proportion of allocation. a) Energy exclusions based on area weighting (offices): Marked up **NLA** plans and calculations showing the proportion of **NLA** excluded to arrive at the area weighted excluded energy and metering arrangements associated with the excluded energy.

Topic	Requirements	Documentation
11.6.2 Batch-delivered supplies	Section 8.3	*Required information* The documentation the **Assessor** must retain for batch-delivered supplies includes the following: a) Batch deliveries: • Record of the measurement method or estimation for each source entered into the **NABERS rating input form**. • Supplier invoices or similar documentation which states the quantity data delivered. 1) The written statements of what deliveries occurred during the **rating period**, including contact details for the responsible person who supplied the information. This may include confirmation there were no deliveries made during the **rating period**. • A description of the measurement or estimation method(s) used.. 2) All data used to calculate the measurements or **acceptable estimates** 3) Details of all calculations, including those for alternative estimates. b) Batch-delivered recycled water (NABERS water ratings only): 1) Written confirmation from the supplier that states that the water supplied is recycled or reused, whether potable or not, including the percentage of recycled or reclaimed water within the supply. 2) The source of the water (such as the location of the supplier).

11.7 Chapter 9: Generated energy and captured water

Topic	Requirements	Documentation
11.7.1 Dedicated connections	Section 9.3.2	*Required information* The documentation the **Assessor** must retain evidence to demonstrate the **OREG system(s)** on the **rated premises** meet the requirement of a **dedicated connection**. *Documentation examples* Documentation that can be used as evidence includes— a) **single line diagram** or other evidence showing that the **OREG system** is directly connected to the **rated premises** and not shared with other **end uses**; and 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**.
11.7.2 Shared connections – Allocation by claim	Section 9.3.3	*Required information* The **Assessor** must retain evidence to demonstrate the **OREG system(s)** on the **rated premises** meet the requirement of a **shared connection**. *Documentation examples* Documentation that can be used as evidence includes: a) All electricity proportioning calculations. All shared solar consumption calculations must be done using the NABERS **OREG system** allocation calculator (available on the **NABERS rating input form**). b) Contract or agreement confirming ownership of the **OREG system**. This may include leasing agreements. Where such a document does not exist, the **Assessor** must provide written correspondence with the client/site confirming who has ownership of the **OREG system**.

Topic	Requirements	Documentation
		c) **Single line diagram** or other evidence showing that the **OREG system** is directly connected to the same **shared connection** as the **end use** for which the **renewable electricity** is being allocated. d) 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**. e) Contract or agreement confirming any **on-selling** arrangement(s) within the network. This may include Power Purchase Agreements (PPA) with **end uses** within the network. Where such a document does not exist, the **Assessor** must provide one of the following: 1) Evidence of payment in the form of invoices/bills where the amount of **renewable electricity** is clearly stipulated. 2) Evidence from the **OREG system** owner (on a company letterhead) that they do not **on-sell** the electricity.
11.7.3 Shared connections – Allocation by proportional consumption		*Required information* The **Assessor** must retain evidence to demonstrate the **OREG system(s)** on the **rated premises** meet the requirement of a **shared connection**. *Documentation examples* Documentation that can be used as evidence includes: a) All electricity proportioning calculations. All shared solar consumption calculations must be done using the NABERS **OREG system** allocation calculator (available on the **NABERS rating input form**).

Topic	Requirements	Documentation
		b) **Single line diagram** or other evidence showing that the **OREG system** is directly connected to the same **shared connection** as the **end use** 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**.
11.7.4 On-site renewable energy capacity	Section 9.3.5	*Required information* The **Assessor** must retain evidence that clearly states the capacity of all **OREG systems**. *Documentation examples* Documentation that can be used as evidence includes: a) Installation documentation or equipment specification documentation. b) A contractor's maintenance report. c) Grid connection documentation. If unsure if documentation is sufficient, the **Assessors** should contact the **National Administrator**.

Topic	Requirements	Documentation
11.7.5 Rainwater capture and recycling	Section 9.4	*Required information* The documentation required for any water collected and/or recycled at a **rated premises** must include a statement by the **Assessor** affirming that recycled water has not been deducted from the consumption data.

11.8 Chapter 10: Renewable Energy Indicator

Topic	Requirements	Documentation
11.8.1 Accounting for OREG system in REI	Section 10.3.1	*Required information* The **Assessor** must retain evidence for **OREG systems** larger than 99 kW if the electricity consumed and exported is counted as **renewable electricity**— 1) if **LGCs** have been created; documentation confirming that these have been voluntarily surrendered. **Assessors** remain responsible for the accuracy of their ratings and must collect and retain all documentation in accordance with the **Rules**; 2) if no **LGCs** have been created; written evidence from the **OREG system** owner that no **LGCs** have been created for the entirety of the **rating period**. **Note:** There are several options for obtaining on-site renewable energy data, including: a) Using a meter connected to an inverter. b) Downloading data from an inverter. c) Obtaining data from a data portal. All of these methods are acceptable but will not be suited for all circumstances. The most appropriate method needs to therefore be determined on a case-by-case basis. If unsure, please contact the **National Administrator** for guidance.

Topic	Requirements	Documentation
		All meter or data portal needs to be read and validated in accordance with Chapter 7.
11.8.2 GreenPower separate de-coupled purchases	Section 10.4.2.3	*Required information* For assessments where a **GreenPower** purchase has been made but is not recorded on the **utility** bill, the **Assessor** must obtain and store supporting documentation that confirms all energy claimed as **GreenPower** is **GreenPower** accredited. This documentation must include: a) Proof of the **GreenPower** purchase. b) Invoice(s) that clearly document **GreenPower** accredited energy, or other documentation from the **GreenPower** Provider, confirming that any energy included under **GreenPower** in the rating is accredited through the **GreenPower** program. c) Written confirmation from the premises that the **GreenPower** purchase was used for the premises in question only, and for the **rating period** only.
11.8.3 GreenPower bulk purchases	Section 10.4.2.4	*Required information* Where a bulk **GreenPower** purchase must be divided between several properties, the **Assessor** must obtain and store supporting documentation that confirms all energy claimed as **GreenPower** is **GreenPower** accredited. This documentation must include: a) Proof of the **GreenPower** purchase with each rating application. b) A spreadsheet indicating the exact amount of **GreenPower** (in kWh) allocated to each property for a specific period. c) Invoices that clearly document **GreenPower** accredited energy, or other documentation from the **GreenPower** Provider, confirming that any energy included under **GreenPower** in the rating is accredited through the **GreenPower** program.

Topic	Requirements	Documentation
		For each rating, the actual percentage or amount of **GreenPower** energy supplied must be explicitly assessed from the electricity bills or as advised in writing by the **GreenPower** provider. This information must also be replicated for each rating to allow for cross-checking.
11.8.4 Voluntary surrender of LGCs for one individual building	Section 10.4.3.2.1	*Required information* If the **LGCs** surrender has been performed in the **REC Registry** for one individual building, the **Assessor** must obtain **REC Registry** confirmation of the voluntary surrender, containing the following: a) Date of purchase. b) Volume of **LGCs** surrendered, e.g. 1 LGC = 1 MWh = 1,000 kWh. c) Date of **LGC** creation. d) **LGC** certificate numbers (or range). e) Address of the building. f) Period of electricity consumption for which the **LGCs** have been surrendered. **Note:** The address of the building and period of electricity consumption can be entered in the “surrender note” field of the **REC Registry**. NABERS recommends, as best practice, entering the information into the surrender note using the following naming convention: “ADDRESS/SCOPE/RATING PERIOD”: “100 Smith Street Sydney/Base building/01-01-2023 to 31-12-2023”

Topic	Requirements	Documentation
11.8.5 Voluntary surrender of LGCs for multiple buildings	Section 10.4.3.2.2	*Required information* If the **LGCs** surrender has been performed in the **REC Registry** for multiple buildings, the **Assessor** must obtain the following: a) **REC Registry** evidence of the voluntary **LGCs** surrender containing the following: 1) Date of purchase. 2) Volume of **LGCs** surrendered. 3) Date of **LGC** creation. 4) **LGC** certificate numbers. 5) Name of the entity for which the **LGCs** have been surrendered. b) Evidence that an independent third-party audit has been conducted to confirm the allocation of **LGCs** to the different buildings and **rating periods**. The evidence must be a statement from the auditing party outlining that the **LGCs** allocated to the **rated premises** have not been allocated to any other buildings or for any other periods. A spreadsheet from a retailer or building owner tracking the allocation of **LGCs** is not sufficient evidence and will not be accepted as the **National Administrator** is not able to reconcile and track allocation of **LGCs** across different ratings. In the case where a building owner has multiple buildings, evidence that an independent third-party audit occurs at least once a year is acceptable. The **Assessor** will need to obtain evidence that the independent third-party audit is occurring at least once a year, the schedule of buildings included in the auditing and the outcome letter from the latest audit. If the **LGC** surrender has been conducted on behalf of the building owner (e.g. by a retailer), in addition to the above requirements the **Assessor** must obtain evidence of the contract for the voluntary surrender with the third party and schedule of buildings included in the contract.

Topic	Requirements	Documentation
11.8.6 Voluntary surrender of LGCs appearing on electricity bills	Section 10.4.3.2.3	*Required information* If **LGCs** have been voluntarily surrendered by a retailer and these are appearing on the electricity bill, the **Assessor** must obtain evidence that the claim has been independently third-party audited. The third-party audit must ensure that the **LGCs** have effectively been surrendered and that they are allocated to this building for the billed period only. The **Assessor** must only accept **LGCs** on electricity bills as voluntarily surrendered if the term “voluntary surrender” is clearly marked.
11.8.7 Voluntary surrender of LGCs on a periodic basis	Section 10.4.3.2.4	*Required information* In cases where the **Assessor** obtains evidence that **LGCs** will be surrendered within 6 months of the end of the **rating period**— a) if the voluntary **LGC** surrender is done by the building owner, the following evidence is required: 1) Statement from the building owner that the **LGCs** will be surrendered within 6 months from end of **rating period**. 2) Evidence that an independent audit on **LGC** surrenders and their allocations to buildings and **rating periods** is occurring at least once a year. b) if the voluntary **LGC** surrender is done by a retailer or other third party, the following evidence is required: 1) An ongoing contract with the retailer or third party to voluntarily surrender the **LGCs**, including reference to the **LGCs** being surrendered at least on a 6-month basis. 2) Evidence that an independent audit on **LGC** surrenders and their allocations to buildings and **rating periods** is occurring at least once a year. 3) Evidence of a contractual arrangement or a statement from the building owner or the third party conducting the surrender is provided to confirm

Topic	Requirements	Documentation
		that any **LGCs** not yet surrendered will be surrendered within a 6-month period. Additionally, this must be accompanied by evidence that an independent audit on **LGC** surrenders and their allocations to buildings and **rating periods** is occurring at least once a year.
11.8.8 Status of LGCs surrender in REC Registry	Section 10.4.3.3	*Required information* It is the **Assessor's** responsibility to obtain (and store) evidence from the building owner that the **LGCs** surrender has been confirmed.
11.8.9 Building owners purchasing GreenPower for tenant consumption	Section 10.4.4.2	*Required information* The **Assessor** must obtain: a) Evidence that the building owner is purchasing accredited **GreenPower**. b) An energy balance for the building to show how much of the tenant's consumption is covered by purchased **GreenPower**.
11.8.10 Building owners voluntarily surrendering LGCs for tenant consumption	Section 10.4.4.3	*Required information* The **Assessor** must obtain: a) Evidence of the **LGC** voluntary surrender. b) The contractual arrangement between the building owner and tenant for the **on-selling** of **renewable electricity**. c) A spreadsheet tracking the building's electricity consumption, including the consumption of the different **end uses**, and the allocation of the **LGCs** to each **end use** consumption and **rating period**. This must also provide evidence that the **LGCs** allocated to the tenant for this **rating period** have not been allocated to other **end uses**.

Appendix A Non-utility metering system validation records

The following templates are examples of **validation** records for electrical, gas and **RMRS non-utility metering systems**.

A.1 Example of a validation record for electrical non-utility metering systems

Validation record for electrical non-utility metering systems										
See Section 7.3.1 on requirements for validating electrical non-utility metering systems										
Name of premises:				**Name of person undertaking validation:**						
Address of premises:				**Qualification and/or certified licence number:**						
				Date of validation:						
ID (meter no. or tenancy/unit no.)	Description (meter brand and type)	Wiring check*	CT Ratio^ (of the installed CTs)	Where multipliers are applied to a meter reading after output:		Where multipliers are applied to a meter reading prior to output:				
				Does the meter face reading need to be multiplied to calculate the true consumption?	If so, confirm the multiplication factor to be applied to account for the CT Ratio:	Can the meter multiplier be interrogated on the meter face?	If so, record the meter multiplier and attach photographic evidence	If not, use tong-testing or a hand-held meter to compare measured current and meter face current per phase		
								Sub-meter current per phase		Comparison meter current per phase
				Yes/No		Yes/No		/ /		/ /
				Yes/No		Yes/No		/ /		/ /
				Yes/No		Yes/No		/ /		/ /

* Wiring check including reverse CT connection errors, cross-phase CT connection errors, phase sequence connection errors and faulty or missing potential fuses.

^ The CT ratio is considered to be programmed correctly when the difference between the measured current and the current shown on the meter is no more than 10 %.

Signed to record that the above non-utility metering systems are correctly configured and have been validated:

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A.2 Example of a validation record for gas non-utility metering systems

Validation record for gas non-utility metering systems			
See Section 7.3.2 on requirements for validating gas non-utility metering systems			
Name of premises:		**Name of person undertaking validation:**	
Address of premises:		**Qualification and/or certified licence number:**	
		Date of validation:	
Non-utility meter ID (meter no. or tenancy/unit no.)	**Non-utility meter description** (meter brand and type)	**Meter pressure (kPa)**	**Correction factor**

Signed to record that the above non-utility metering systems are correctly configured and have been validated:

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A.3 Example of a validation record for RMRS

Validation record for Remote Meter Reading Systems (RMRS)			
See Section 7.3.3 on requirements for validating Remote Meter Reading Systems (RMRS)			
Name of premises:		**Name of person undertaking validation:**	
Address of premises:		**Qualification and/or certified licence number:**	
		Date of validation:	

ID of meter connected to RMRS (Meter no. or tenancy/unit no.)	
Description of meter connected to RMRS (Meter brand and type)	

Remote Meter Reading System readings

Confirmation of the accurate interpretation of system reading the non-utility meter at the same two time periods (where applicable)

Time A		Time B	
Remote Metering Reading System readings	Corresponding manual non-utility meter readings from meter face	Remote Metering Reading System readings	Corresponding manual non-utility meter readings from meter face
Time A:		Time B:	
Time A:		Time B:	

Time A:		Time B:	
Time A:		Time B:	

Signed to record that the above non-utility metering systems are correctly configured and have been validated:

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Appendix B List of changes

The following table lists the changes to the content of *NABERS Rules — Metering and Consumption*, v2.4 in order to produce this version 2.5.

Overview		
Version 2.4 (superseded)	**Version 2.5 (current)**	**Content changes**
Document location		
Chapter 2		
2 Terms and definitions	2 Terms and definitions	**dedicated connection** has been updated. **NABERS rating input from** has been updated. **physically metered** has been added. **virtually metered** has been added
Chapter 4		
4 Supply points and minimum coverage	4.2.1	Reference added to *NABERS Ruling for Shared Services and Facilities.*
Chapter 5		
5 Utility metering consumption data	N/a	Section 5.5.0 from the superseded version was deemed outdated and has been removed.
Chapter 9		
9 Generated energy and captured water	9.3.1	Section restructured to improve readability and clarity, based on feedback received. Formula under note has been expanded. Rules applicable to both dedicated connections and shared connections have moved to this section.

		Notes that were more appropriate as rules have been converted into rule paragraphs.
	9.3.2	Rules applicable to both dedicated connections and shared connections have moved to Section 9.3.1.
	9.3.3	Section restructured to maintain consistency with how the rules are applied in the OREG calculator.
	9.3.3.2	Process overview section introduced.
	9.3.3.3	Section added.
	9.3.3.4	Section added.
	9.3.3.5	Clarified that Assessors must contact the National administrator for approval when allocating renewable electricity from the same OREG system towards multiple NABERS ratings.
	9.3.3.5.1	Clarified that under allocation by claim method, less than 100% allocation is permitted.