Building Upgrade Finance Cost Savings Methodology
Sub-method P3 – NABERS (predicted)

1. Purpose

This document sets out the sub-method for estimating the predicted utility savings from upgrade works under a building upgrade agreement that aim to improve the NABERS rating of a commercial building.

2. Definitions

Benchmark NABERS rating is the rating that the building would have achieved if the upgrade was not installed using the configuration of the building after the upgrade.

ERF tab is the worksheet in a NABERS Reverse Calculator developed to assist proponents using the NABERS rating to estimate savings from building upgrades using NABERS ratings.

Predicted Rating Year is the year for which the savings estimate is calculated, and is the year of the last date in the Rating Period for the Predicted NABERS rating.

Historical Baseline NABERS rating is a NABERS rating for the Rated Building with a Rating Period completed before the building upgrade is implemented.

NABERS is the National Australian Built Environment Rating System.

NABERS Accredited Assessor is a person authorised to conduct accredited NABERS ratings in accordance with the NABERS Rules.

NABERS rating is an accredited NABERS rating completed by a NABERS Accredited Assessor in accordance with the NABERS Rules.

NABERS Rules is the NABERS Rules for Collecting and Using Data, the quality standard for a NABERS rating. For a rating to be accredited by NABERS, the assessment on which it is based must be performed by a NABERS Accredited Assessor and comply with the NABERS Rules that that set out principles and rules for gathering, interpreting and using data. The NABERS Rules are published on the NABERS website.

NABERS Reverse Calculator is a calculator published on the NABERS website to determine the maximum amounts of energy and water a building can use to achieve a specified NABERS rating.

Predicted NABERS rating means the NABERS rating that the building is predicted to achieve as a result of the upgrade.

Rated Building is the building subject to the upgrade works.

Rating Period is the time over which measurements were taken to establish the Predicted NABERS rating or the Historical Baseline NABERS rating.

3. Applicability of this sub-method

This calculation sub-method may be applied to upgrade works where:

1. The Rated Building is a building in use in South Australia that is eligible for a NABERS Energy or Water rating calculated using one of the following tools:
   - NABERS for Offices
   - NABERS for Hotels
   - NABERS for Shopping Centres
   - NABERS for Data Centres.

2. The Historical Baseline NABERS Rating and Predicted NABERS rating must be based on a similar configuration. In particular, any energy end uses excluded from the Predicted NABERS rating must also be excluded from the Historical Baseline NABERS rating.

3. Energy and water use estimates based on energy audits, energy simulations and water audits should be made by a suitably qualified individual, such as:
   - For energy audits: A Certified Energy Efficiency Specialist (CEES) or Certified Energy Efficiency Leader (CEEL) with the Energy Efficiency Council; a Certified Energy Manager (CEM) or Certified Energy Auditor (CEA) with the Association of Energy Engineers; or an individual with proven experience in delivering energy audits
   - For energy simulations, an individual with proven experience in undertaking energy simulations, particularly for buildings seeking to achieve high NABERS ratings
   - For water audits, an individual with proven experience in delivering water audits.

4. Utility Savings – Energy

Where the utility is electricity and/or gas, the utility savings for this upgrade are calculated as follows:

Step 1 – Calculate Predicted Electricity Consumption and Predicted Gas Consumption for the Predicted Rating Year

Use appropriate engineering methods to estimate the building energy use after the building upgrade taken to calculate total energy consumption for the NABERS Building, such as:
- An energy audit to AS3598.1 (Type 2 or 3)
- An energy simulation consistent with the NABERS Energy Guide to Building Energy Estimation as published by the NABERS National Administrator.

The total energy consumption is calculated as:

Predicted Electricity Consumption (MWh)= NABERS Electricity + On-site Unaccounted Electricity

Predicted Gas Consumption (MWh) = NABERS Gas

Where:
- *NABERS Electricity*, in MWh, is the predicted electricity that will be purchased or imported from the electricity network and accounted for in the Predicted NABERS Rating, including electricity purchased as GreenPower
- *On-site Unaccounted Electricity*, in MWh, is electricity that is predicted to be generated on-site from energy sources which will not been accounted for in the Predicted NABERS Rating, including electricity generated from photovoltaic cells or gas generators fed from on-site biogas sources, but excluding gas generators where the imported gas will be accounted for in the Predicted NABERS Rating
- *NABERS Gas*, in MWh, is the total of the predicted gas that will be accounted for in the Predicted NABERS Rating.

Step 2 – Calculate Benchmark NABERS Rating   Calculate the Benchmark NABERS Rating, by using either:

(a) Calculation Method 1: Look up the Benchmark NABERS Rating in Table A20 of Schedule A of the Energy Savings Scheme Rule (NSW) which corresponds to the relevant Predicted Rating Year, NABERS Rating tool and building category; or
(b) Calculation Method 2: Calculate the Benchmark NABERS Rating based on a Historical Baseline NABERS Rating as follows:

Benchmark NABERS Rating = Historical Baseline NABERS Rating

Where:
- *Historical Baseline NABERS Rating* is a previous NABERS rating for the building, as defined in section 2 of this sub-method, as reported to one decimal place.

Step 3 – Calculate Benchmark Electricity Consumption and Benchmark Gas Consumption

Benchmark Electricity Consumption is the electricity consumption that would be required for the Rated Building to achieve the Benchmark NABERS Rating over the Predicted NABERS Rating Period. It is the electricity component of maximum allowable energy consumption, converted to MWh.

Benchmark Gas Consumption is the Gas consumption that would be required for that same Rated Building to achieve the Benchmark NABERS Rating over the Predicted NABERS Rating Period. It is the Gas component of maximum allowable energy consumption, converted to MWh.

Calculate the Benchmark Electricity Consumption and Benchmark Gas Consumption in MWh by using the "ERF tab" in the NABERS Reverse Calculator for the relevant NABERS method with input parameters set to:
- Rating type matching the Predicted NABERS Rating type
- Star Rating matching the Benchmark NABERS Rating
- Building information (e.g. Rated Area, Rated Hours, number of computers etc) matching the Predicted NABERS Rating building information
- Percentage breakdown of energy consumption (on an energy use basis in MWh) matching the Historical Baseline NABERS Rating (if available), or matching the Predicted NABERS Rating if no Historical Baseline NABERS Rating is available for the building.

If necessary for use with the relevant NABERS Reverse Calculator, round up the Benchmark NABERS Rating to the nearest half or whole star increment.

Step 4 – Calculate Utility Savings

Calculate *Utility Savings* as follows for electricity and gas:

Utility Savings (electricity) = Benchmark Electricity Consumption - Predicted Electricity Consumption

Utility Savings (gas) = Benchmark Gas Consumption – Predicted Gas Consumption

Note that these savings are calculated in MWh.

5. **Utility Savings – water**

Where the measured utility is water, the utility savings for this upgrade works is:

Step 1 – Calculate Predicted Water Consumption

Use appropriate engineering methods to estimate the building water use after the building upgrade taken to calculate total water consumption for the NABERS Building, such as:
- A water audit
- Estimates by a qualified building services engineer.

Predicted Water Consumption (ML) = NABERS Water

Where:
- *NABERS Water*, in ML, is the total of the water predicted to be used by the building after upgrade.

Step 2 – Calculate Benchmark NABERS Rating

Calculate the Benchmark NABERS Rating based on a Historical Baseline NABERS Rating as follows:

Benchmark NABERS Rating = Historical Baseline NABERS Rating

Where:
- *Historical Baseline NABERS Rating* is a previous NABERS rating for the building, as defined in section 2 of this sub-method.

Step 3 – Calculate Benchmark Water Consumption

Benchmark Water Consumption is the water consumption that would be required for that same NABERS Building to achieve the Benchmark NABERS Rating over the Predicted NABERS Rating Period.

Calculate the Benchmark Water Consumption in ML by using the NABERS Reverse Calculator for the relevant NABERS method, setting the target star rating to the Benchmark NABERS Rating, and giving all other input parameters the same value as are expected to be used for an actual NABERS Rating in the Predicted Rating Year, including:
- Rating type; and
- Building information (e.g. Rated Area).

If necessary for use with the relevant NABERS Reverse Calculator, round up the Benchmark NABERS Rating to the nearest half or whole star increment.

Step 4 – Calculate Utility Savings (water)

Calculate *Utility Savings* as follows:

Utility Savings = Benchmark Water Consumption - Predicted Water Consumption

Note that these savings are calculated in ML.

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6. Supporting evidence

For verification purposes, the following records should be retained in relation to the Activity:
- An output report from the NABERS reverse calculator showing the relevant target star rating and input parameters used in the calculation
- Copies of accredited NABERS Rating Certificates for the Rated Building.