Electricity metering and monitoring guide: Request for proposal template

Request for proposal

Supply and installation of an electricity metering and monitoring system

{Insert business name}

Prepared by:

{Name}

{Date}

Contact numbers:

Email:

# About this template

This request for proposal template is for businesses who wish to obtain quotes for the supply and installation of an electricity metering and monitoring system.

Every installation will be unique. There are many reasons why businesses install an electricity metering and monitoring system, and many technology and platform offerings available on the market, so you may be offered a range of solutions all claiming to meet your specific needs. By taking the time to define your objectives, selecting the features you need, and developing a meter schedule you can reduce the variability in offerings from prospective suppliers, ensure their proposals meet your requirements, and lower the risk of future surprises.

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For more information see [Electricity metering and monitoring guide](https://energysaver.nsw.gov.au/business/equipment-and-technology-guides/electricity-metering-and-monitoring-guide/emm-guide-pdf).

Instructions for using this template

* **Delete** this page before sending your completed template to a supplier.
* **Read** through each section and add or delete text as required.
* Some sections provide headings only. These are prompts for you to **insert your own organisation-specific information,** if required.
* Obtain specific technical advice where necessary.

Colour key

**[Light blue text]** contains instructions for using the template. **Delete** this text before sending the template to prospective suppliers.

{Red text} indicates you need to add information specific to your circumstances, company or project.

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Introduction

[Modify as appropriate:]

As part of {company name’s} effort to {reasons for requiring an electricity measurement and monitoring system} we are seeking proposals for the installation of an electricity measurement and monitoring system at {site name and address}.

{We have a budget allocated to fund this project. / We invite offers for external funding. We own the site / building / have a lease of {XXX years} and are prepared to modify the electrical infrastructure if required.

The system and its installation must be fully compliant with all relevant regulations and standards.

This document is intended as a brief to assist in the preparation of relevant responses to our needs and will act as a reference guide for us to evaluate proposals.

Please provide a complete response to this request for proposal, enabling us to thoroughly consider product offers and pricing.

# Objectives

[There are many different reasons for installing an electricity metering and monitoring system. For your convenience many have been listed below. Delete/Modify/Add to suit your specific requirements.]

Our objectives are stated below. Due to the variety of solutions that may be offered to us, we request that you explicitly address these requirements.

We also request that you provide documented evidence showing how the solutions offered meet all relevant standards and best practice guidelines.

## Improve energy management practices

We have introduced targets for reducing energy consumption and to internally report on our energy usage. We want to identify opportunities for improving equipment performance and replacing inefficient equipment. We are seeking electricity metering and monitoring to help us achieve better energy management at our site and to understand which equipment items are the main contributors to high energy use.

[If you have introduced an energy management plan in your business and set targets for energy consumption, an electricity metering and monitoring system will help integrate utility meter data into a data visualisation and analysis platform, and include additional subsystem and circuit power meters or soft meters to allow a breakdown of major uses, such as lighting, air conditioning, hot water, process motors, etc.]

## Manage costs and validate bill charges

We want better information about our energy expenditure and tools to help us track and reduce costs. We want to easily compare our energy bills with actual energy consumption, so we can confirm we are paying the correct amount. We would like to explore ways to reduce our network charges, including peak capacity charge.

[Add information about what you are specifically seeking in reducing electricity costs. This will prompt the supplier to focus on proposing a system that includes the features you require to achieve your goals. For example, if you indicate you need to validate and correct billing errors, the supplier will focus on this feature.]

## Charge tenants for their electricity

We wish to bill our tenants for their electricity consumption. We need meters that will allow us to do this, and we want to gather billing information so we can issue bills to our tenants.

Electricity meters used for trade (billing) purposes must be pattern-approved by the Australian Government National Measurement Institute.

[For more information about the regulatory requirements for trade-use meters see [Electricity metering and monitoring guide](https://energysaver.nsw.gov.au/business/equipment-and-technology-guides/electricity-metering-and-monitoring-guide/emm-guide-pdf) Appendix F.]

## Obtain NABERS ratings and track performance

We currently pay a NABERS Assessor to create a NABERS Energy rating for us every year so we can track the energy performance of our building. We want the ability to estimate our NABERS Energy rating at any time using electricity metering data and site information, and we’d like to see a historical trend in our NABERS performance. We need a metering system that conforms to the NABERS metering requirements.

[Electricity metering and monitoring systems can be installed to correctly meter the rated and non-rated areas of your base building, tenancies, and whole building for a NABERS rating. Systems can be specified that facilitate creating real-time or discrete NABERS estimates and recording them for future reference.

Note there are specific requirements for meters for use in NABERS ratings. See [Electricity metering and monitoring guide](https://energysaver.nsw.gov.au/business/equipment-and-technology-guides/electricity-metering-and-monitoring-guide/emm-guide-pdf) Appendix E for more information.]

## Support corporate sustainability reporting

Our business has corporate sustainability reporting requirements for each facility’s energy costs and consumption, greenhouse gas emissions and water usage. We need improved metering and monitoring to support us in tracking consumption and generating these reports.

[Provide more information here about exactly what your reporting requirements are and how your electricity metering and monitoring system needs to support this.]

## Create energy savings certificates

We are planning to undertake a number of equipment upgrades for major plant and wish to generate energy savings certificates (ESCs) for these projects using the Project Impact Assessment Measurement and Verification Methodology or Metered Baseline Method. We wish to install a system that will support the measurement and verification process and assist with the calculation of ESCs.

[To create ESCs for your project you will need to engage an accredited certificate provider, or a consultant familiar with the scheme, to manage the process of creating certificates on your behalf. For more information see the [Energy Savings Scheme](https://www.ess.nsw.gov.au/Home), including a list of [Accredited Certificate Providers](https://www.ess.nsw.gov.au/Accredited_Certificate_Providers/List_of_Accredited_Certificate_Providers).]

## Comply with the Commercial Building Disclosure Program

To comply with the Commercial Building Disclosure (CBD) Program we need NABERS Energy ratings. Our current metering arrangement {does not allow/is not optimised for} NABERS ratings. The proposed metering system shall conform to NABERS metering requirements. Meters should be positioned to provide adequate data to permit the exclusion of electricity consumption from the rating to the extent that the current NABERS rules permit.

[When there is significant misalignment between the NABERS rateable area and the coverage of utility metering, submetering may be required to enable a NABERS rating to be performed.

Submetering can also improve your NABERS rating by measuring and allowing the exclusion of electricity used by areas that are not considered part of the rating footprint. Meters must be installed, validated and be measuring the correct circuits before metering for exclusion is permitted under the NABERS rules.]

## Comply with Section J of the National Construction Code (Volume 1)

We have a {new building design, major refurbishment – alter as required} which has triggered the requirement to obtain a construction certificate. We have been advised that we require metering to conform to the requirements of the National Construction Code. We are seeking a metering system to help us comply.

[Requirements for metering are in section J8 of the National Construction Code (Volume 1), available through the [Australian Building Codes Board](https://www.abcb.gov.au/) (ABCB) website.]

## Meet requirements for Green Star

We have a {new building design, major refurbishment – alter as required} for which we are obtaining Green Star Design and As Built certification and want to secure additional points for metering.

We need a system that will comply with the Green Star metering and monitoring requirements, and we wish to implement a {basic monitoring strategy, advanced monitoring strategy – alter as required} to gain Green Star points.

[See the [Green Building Council of Australia](http://new.gbca.org.au/) website for further information about the Green Star Design and As Built system and the relevance of metering.]

## Optimise our building management and control systems

Our energy usage has increased and we are unable to pinpoint where or why this is happening. Our BMS does not provide information that will help us work out how to reduce energy consumption by fine-tuning controls.

We wish to optimise control strategies, set points, and peak demand set points using proven methods such as comparison to baselines, regression analysis, artificial intelligence, cloud-based algorithms, peak demand control, or similar.

## Improve facility operation and maintenance

We are not gathering enough information on asset operation and performance (e.g. pumps, motors, chillers, fans, cooling towers, heating systems, etc.) We are interested in a system that can help us to better manage energy through improved real-time feedback on asset operation, including on/off operation times, so we can take corrective action at the earliest possible time.

## Provide additional analytics and detect faults

We are interested in a system that will incorporate sensor and meter data from our individual assets and will monitor equipment performance, so we can be alerted when equipment is no longer working correctly or drifts outside its target range. We are seeking analytics capability to identify additional opportunities to optimise equipment operation.

# Metering system

[Modify as appropriate to provide a description of your site, location of electrical infrastructure, and the activities of your business.]

## Site description

[Provide details about sites where meters will be installed, including location, type of facility, BMS, etc.]

| **Site** | **Address**  | **Type of facility\*** | **Approx. floor area (m2)** | **BMS make and model (if installed)** | **BMS contractor**  |
| --- | --- | --- | --- | --- | --- |
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|  |  |  |  |  |  |
|  |  |  |  |  |  |
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\*Type of facility: e.g. commercial office, industrial, healthcare, shopping centre, etc.

## Site layout

The layout of our site {showing tenancies if relevant} is attached. {Insert plans.}

## Location of electrical switchboards and existing meters

[Delete or modify as appropriate:]

* A single-line diagram is provided for the site. {attach single-line diagram or insert below}.
* The location of the site’s main electrical switchboard is {insert description / site plan / photographs}.
* The location of the mechanical services switchboards are {insert description / site plan / photographs}.
* The location of existing meters is shown here {attach single-line diagram or insert below}.

## Installation considerations

[Provide information the supplier should take into consideration when pricing the supply and installation for your facility, such as isolation procedures required, key access and hours in which works can be conducted, etc.]

## Site visit

We {require/don’t require} a site visit before receiving your response to this proposal.

[In most cases a site visit will be necessary to ensure the supplier can adequately assess your needs. However, for a small number of meter installations and where you have a clear understanding of your new metering requirements, a site visit may not be necessary.]

## Maintenance and validation

We {require/don’t require} an ongoing maintenance contract to ensure meter systems are operating correctly.

[If you require the metering supplier to perform maintenance over the life of the meter, including validation testing to confirm it is operating correctly, you should state this here.]

## Schedule of new meters required

We have prepared a proposed meter schedule below. This provides some of the information about each new meter we require and their features. (STA = supplier to advise)

[Your electricity metering and monitoring system may not require any new meters and may incorporate information from utility accounts, existing meters, non-electricity (soft) meters. If you are seeking only to incorporate existing information, and do not need new meters, skip to the next section. If you need new meters, complete the meter schedule provided below. We have prefilled it with some example meter requirements: delete these and insert the actual information you require. You may need the input of a technical expert. Feel free to leave some of the cells blank. Insert ‘STA’ in the meter schedule where you would like suppliers to complete the information.]

Meter schedule for {site or premises name or company name}

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Meter ID** | **Site** | **Meter location** | **Mounting** | **Voltage** | **Amps (circuit/board)** | **Billing?** | **Wired or wireless** | **Measurement parameters** | **Power analyser capability** | **Ingress protection rated** | **BMS integration?** |
| 1 | *Site name* | *Distribution board A* | *Board rail* | *415V* | *800 Amps* | *No* | *Wired* | *Energy, power, maximum demand, power factor* | *Harmonics* | *Supplier to advise* | *Yes* |
| 2 |  | *Compressor* | *Panel mounted* | *415V* | *90 Amps* | *No* | *Wireless* | *Power, current* | *Yes* | *Required* | *No* |
| 3 |  | *Motor* | *STA* | *230V* | *30 Amps* | *No* | *STA* | *Active power, reactive power, power factor* | *Harmonics, transients* | *IP54* | *Yes* |
| 4 |  |  |  |  |  |  |  |  |  |  |  |
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# Energy monitoring system

We have compiled a list of the features we require for the energy management software or energy intelligence platform.

In general, we are seeking a response aligned with our objectives, and the information provided in this section is to further guide you about the type of system we require. We expect your proposal to establish a solution and provide supporting data that demonstrates the performance of your offer.

Please provide responses to the following additional items:

* all upfront and ongoing costs, including subscription fees
* the security measures your system uses.

## Site, meter and utility accounts to be included

We are seeking the incorporation of our existing utility accounts and meters into the energy monitoring software. This is provided below.

[Specify how many electricity, water, gas utility accounts or existing meters are to be included. Use the table below, or summarise them here, or attach a spreadsheet with details if the number of sites is large.]

| **Site** | **Item to be monitored \*** | **Source of data \*\*** | **Other information** |
| --- | --- | --- | --- |
| *Building 1* | *Incoming supply* | *Meter on main switchboard* |  |
| *Facility* | *Electricity account* | *Retailer* | *HV supply* |
| *Facility* | *Gas account* | *Retailer* |  |
|  |  |  |  |

\*Item to be monitored: electricity, gas, water, other

\*\*Source of data: energy retailer, meter data agent, BMS, meter, emailed CSV file, etc.

[Use the summary below as an alternative to the table above]

Large market electricity – {insert number} accounts

Small market electricity – {insert number} accounts

Gas/LPG – {insert number} accounts

Water – {insert number} accounts

## Energy management and monitoring platform features

[Compile a list of the features you require, based on the table below. You may need the input of a technical expert. Feel free to leave some of the cells blank.]

| **Platform features** | **Description** | **Highly desirable** | **Specific requirements** |
| --- | --- | --- | --- |
| Data capture and collection | Read meters, aggregate data and securely store data for electricity, gas, water, pressure, flow, and other data | [ ]  |  |
| Analytics | Analyse data to provide information that will help us understand the energy performance of the facility and identify opportunities for energy efficiency |[ ]   |
| Visualisation | Real-time and historic representation of electricity consumption |[ ]   |
| Sustainability and compliance reporting | Generate reports on total energy consumption and greenhouse gas emissions to help us comply with schemes such as NABERs, Green Star and corporate sustainability reporting, etc. |[ ]   |
| Performance indicator tracking and benchmarking | Monitor facility consumption relative to past performance, set energy targets and track performance against the targets  |[ ]   |
| Bill validation and correction | Allow us to compare expected monthly energy costs with actual monthly energy bills, and provide information we can use to apply for a correction from the retailer |[ ]   |
| Reports for billing tenants | Generate reports we can use to bill tenants for their energy usage |[ ]   |
| Automated measurement and verification | Directly quantify the savings attributable to energy efficiency actions, e.g. installation of new equipment |[ ]   |
| Optimisation of facility performance | Optimise facility energy use by interfacing directly with the BMS, changing set points, and issuing commands |[ ]   |
| Automated demand response | Automatically reduce demand by load shedding and controlling equipment when there is an incentive to do so |  |  |
| Diagnostics and fault detection | Use thresholds to trigger automated alarms when facility performance moves outside the expected range of energy consumption |[ ]   |
| Interval data export | Allow us to export interval data in standard formats (e.g. CSV, NEM12) |[ ]   |
| [Insert more as required] | [Insert more as required] |[ ]   |

# Other requirements

Your proposed system must satisfy the following requirements:

[Add additional text here for any other requirements. You may wish to ask for reference projects that are similar to your request for proposal.]

## Warranty provisions

Provide the following details:

* warranty length and coverage for new meters
* warranty length and coverage for balance of plant (current transformers, network infrastructure)
* warranty for workmanship.

## Compliance and safety

* All installations must comply with AS/NZS 3000:2018 *Electrical installations* (known as the Australian/New Zealand Wiring Rules) and any other relevant codes, such as the NSW Government *Service and Installation Rules of New South Wales*.
* Any switchboard modifications must comply with AS/NZS 3439.1:2002 and/or AS/NZS 61439.1:2016. Metering hardware and instrument transformers must comply with the relevant Australian and international standards. [See [Electricity metering and monitoring guide](https://energysaver.nsw.gov.au/business/equipment-and-technology-guides/electricity-metering-and-monitoring-guide/emm-guide-pdf) Appendix A.]
* A certificate of compliance for electrical work must be provided upon completion of works, demonstrating compliance with all relevant electrical standards and codes.
* Certificates must be provided demonstrating meter products’ compliance with Australian and/or international standards.
* NMI pattern-approval documentation must be provided for any pattern-approved meters proposed.
* All current transformers installed must have secondary shorting terminals to allow safe discharge of residual current.
* Workplace health and safety for all works must comply with the NSW and Commonwealth Work Health and Safety Act and Regulations.
* A commissioning checklist must be provided and completed for each new meter installation and for the metering system as a whole.

## Documentation and training

As part of the installation, the contractor will be required to provide:

* a data sheet for all meters, including:
* meter model
* product picture
* manufacturer’s name
* country of manufacture
* meter accuracy class
* meter K factor
* CT ratios and type (solid or split core)
* meter location, metered circuit, meter model and serial number, and static IP address if networked.
* ‘as built’ operation and maintenance manuals for the metering and monitoring system
* operation and maintenance training for relevant facility staff
* an updated single-line diagram showing new metering points and any changes to the site electrical infrastructure.

# Terms and conditions

[Outline the legal or other requirements for doing business with your organisation. This could include everything from a legal contract to some simple organisation policy requirements. You should include the following:

* requirements for contractor insurance and licencing
* indemnities
* environment and sustainability policies
* health and safety policies
* other workplace policies
* payment terms.]