

ENERGEX

Inverter Energy Systems

Connecting Your Inverter Energy System to the ENERGEX Network



positive energy



ENERGEX Limited trading as ENERGEX
ABN: 40 078 849 055

<http://www.energex.com.au>

Requests and inquiries concerning this document should be addressed to:

Customer Information and Agreements Officer
ENERGEX
GPO Box 1461
BRISBANE QLD 4001

Table of Contents

GENERAL INFORMATION	1
ROLES OF YOUR ELECTRICITY DISTRIBUTOR, ELECTRICITY RETAILER & IES INSTALLER	1
The role of your Electricity Distributor (ENERGEX)	1
The role of your Electricity Retailer	1
The role of your IES Installer.....	1
NETWORK CONNECTION SCHEMES FOR YOUR IES.....	2
Gross Energy Scheme	2
Net Energy Scheme	2
Net Energy Scheme SBS.....	2
IES CONNECTION PROCESS.....	3
AGREEMENT FOR YOUR IES.....	4
Agreement.....	4
Termination of the Agreement.....	4
CONNECTION OF YOUR IES	5
METERING FOR YOUR IES.....	5
SAFETY AND OPERATIONAL CONSIDERATIONS	5
Safety of your IES installation	5
Disconnection from the network.....	5
FAQ'S ABOUT YOUR IES INSTALLATION.....	6
Can I change the details on my Agreement if they are incorrect?.....	6
How long does it take to connect my meter?	6
How do I find out the progress of my job?	6
Why did ENERGEX not complete the work?.....	7
Do I need to contact my electricity retailer?	7
My installer told me you would turn my IES on, why haven't you touched it?	7
I think my meter is not working properly because the reading isn't the same as the meter located on my IES.	7
I don't think my meter is working because there's a flashing light.....	7
I think my meter is broken because it is turning backwards.....	8
I don't think my meter is working as my account has not changed very much.....	8
Where can I locate additional information?	8
How can I contact ENERGEX?	8
How do I read my meter?	9

General Information

This brochure provides information to householders and business owners who have installed, or are planning to install, an *Inverter Energy System* (IES). An IES may be used in conjunction with a range of energy sources; including solar photovoltaic cells (also known as Solar PV), or a small wind or water turbine; to provide energy at 240 volts. This brochure applies to grid-connected systems, where the energy created by these renewable sources operates in conjunction with the supply from the ENERGEX distribution network.

For all installations, ENERGEX recommends that you engage an accredited installer for the design and installation of your IES. Further information regarding accreditation can be located on the Australian Clean Energy Council website <http://www.cleanenergycouncil.org.au/>.

There are two specific matters that involve ENERGEX with respect to your IES.

Firstly, Queensland electrical legislation requires you to enter into a **Network Connection Agreement for Inverter Energy Systems (IES) Photovoltaic Systems and Microgenerators** (known as 'the Agreement') with ENERGEX. The Agreement sets out the terms and conditions that relate to the connection of the IES to ENERGEX's distribution network.

Secondly, most customers will require the system to be metered so that appropriate credit is paid for exported energy generated by the system so. To enable this, ENERGEX will install appropriate energy metering on receipt of an Electrical Work Request (EWR) from the electrical contractor connecting the IES to electricity the switchboard.

Should you wish to participate in any Government rebate scheme, you will need to confirm your eligibility and determine compliance with the requirements of that program. Website details relating to rebate schemes can be located on Page 8. Please note that ENERGEX is not responsible for ensuring that your IES installation complies with any rebate requirements.

If you are a large energy customer with metering equipment provided by a company other than ENERGEX, please contact us for further information. In this case, a Network Connection Agreement with ENERGEX is still required; however any metering changes will need to be arranged through that metering provider.

Please note that the information contained in this brochure is a guide only. The terms and conditions of the Agreement entered into by you and ENERGEX will prevail to the extent of any inconsistency with the information contained in this brochure.

Roles of your Electricity Distributor, Electricity Retailer & IES Installer

The role of your Electricity Distributor (ENERGEX)

ENERGEX is your electricity distributor and the network owner in South East Queensland. ENERGEX is responsible for the safe and reliable delivery of electricity to your home or business. Our role in the IES process is to manage and arrange the Agreement and where appropriate install and maintain the required energy metering.

The role of your Electricity Retailer

Your electricity retailer is the company from which you buy your electricity. You should contact your retailer for all enquiries relating to connection, disconnection and changes to your bill. Your retailer will process and pass on the credit associated with any energy that will be exported to the network.

The role of your IES Installer

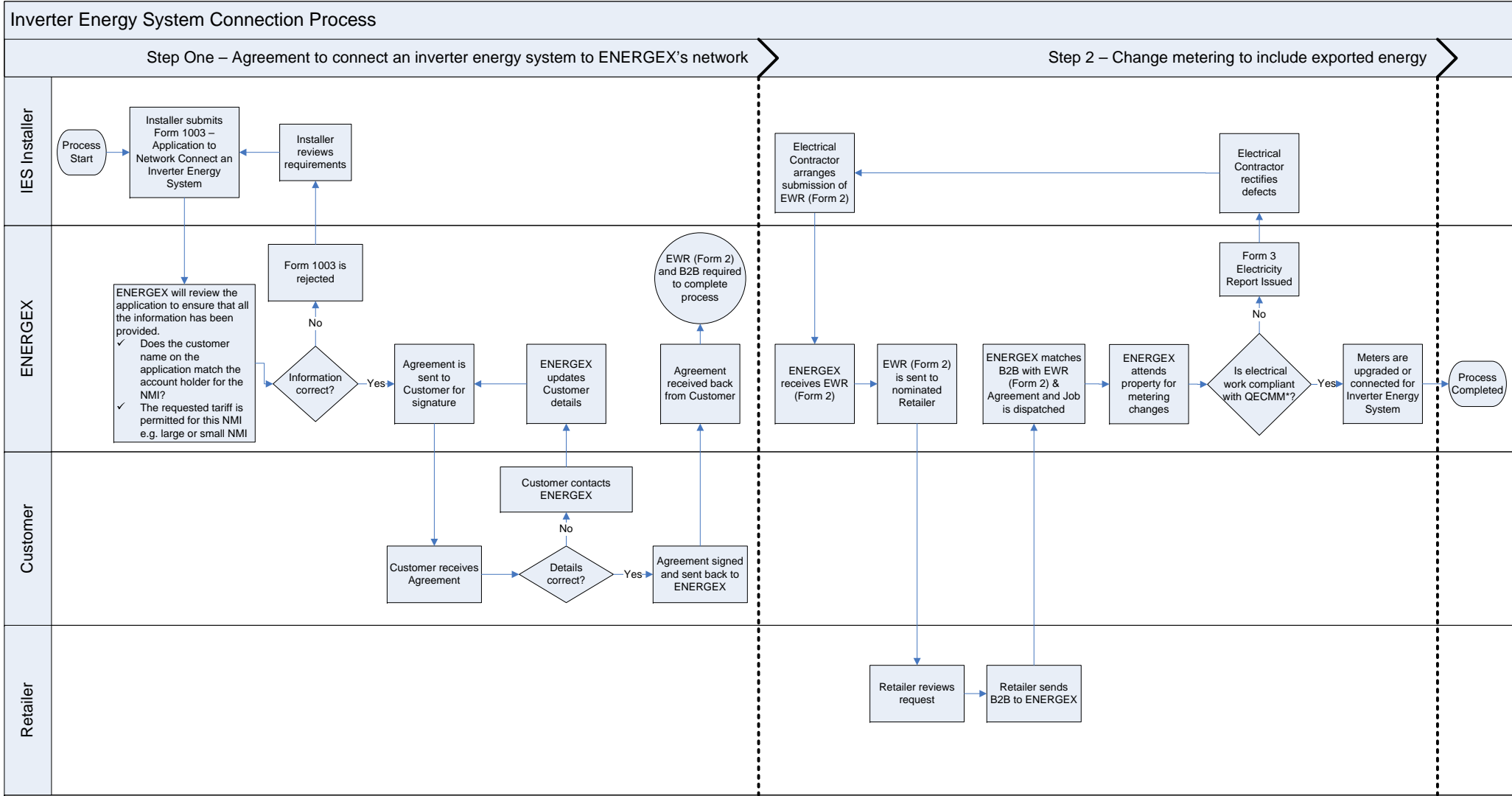
The role of your IES installer is to guide you through the process of having your IES installed and to ensure that the installation meets the requirements of the relevant standards and the Agreement.

Network Connection Schemes for your IES

Your IES can be configured in one of three different schemes, as explained below:

Scheme	Information and requirements
<p>Gross Energy Scheme <i>(Tariff 9700)</i></p>	<p>All of the energy generated by your energy source is exported to ENERGEX's distribution network. Your nominated Electricity Retailer may purchase from you the energy exported to the network.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • You will be required to enter into a Network Connection Agreement for Inverter Energy Systems (IES) Photovoltaic Systems and Microgenerators with ENERGEX; • Your IES needs to be compliant with AS 4777; • You will need to enter into a Power Purchase Agreement with your electricity retailer if you wish to receive credit for the energy generated; and • Any energy renewable source is allowable on this scheme.
<p>Net Energy Scheme <i>(Tariff 9800)</i></p>	<p>Once the energy needs of your premises have been met, any excess energy generated by your energy source will be exported to ENERGEX's distribution network. Your nominated Electricity Retailer may purchase from you the excess energy exported to the network.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • You will be required to enter into a Network Connection Agreement for Inverter Energy Systems (IES) Photovoltaic Systems and Microgeneration with ENERGEX; • Your IES needs to be compliant with AS 4777; • You will need to enter into a Power Purchase Agreement with your electricity retailer if you wish to receive credit for the excess energy exported to the network; and • Any renewable energy source is allowable on this scheme.
<p>Net Energy Scheme SBS <i>(Tariff 9900)</i></p> <p>Queensland Government Solar Bonus Scheme</p>	<p>Once the energy needs of your premises have been met, any excess energy generated by your IES will be exported to ENERGEX's distribution network. You will receive a minimum of \$0.44 per kilowatt hour for any excess energy exported to the network.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • You will be required to enter into a Network Connection Agreement for Inverter Energy Systems (IES) Photovoltaic Systems and Microgenerations with ENERGEX; • Your IES needs to be compliant with AS 4777; • The energy can only be generated from Solar PV cells; • This scheme is only available to customers with electricity consumption of less than 100,000 kWh per year; and • Your IES can only be a maximum of 10 kW for a single phase connection, or 30 kW for a 3 phase premise.

IES Connection Process



*Queensland Electrical Connection and Metering Manual

Agreement for your IES

Agreement

ENERGEX has an obligation to ensure the safe operation of the distribution network. The Agreement ensures any IES connected to the network complies with our safety, quality and technical requirements. It is a legal document that outlines the terms and conditions for the connection of your IES to ENERGEX's distribution network. In order for you to connect the IES to the network the Agreement must be signed by both ENERGEX and yourself, and includes:

1. The Agreement page, which is signed by the account holder(s) of the premises and ENERGEX and nominates the maximum approved capacity of your inverter, the approved inverter type, and the tariff you are connected to;
2. Schedule 1, which provides the General Terms and Conditions of the Agreement, including your responsibility to maintain the IES in safe working order; and
3. Schedule 2, which nominates the Technical Conditions for the connection of the IES. This includes the requirement for your equipment that forms your IES installation to be certified as meeting the necessary technical standards, in particular AS 4777.

Once the Agreement has been signed by both you and ENERGEX, your IES can be connected to the distribution network. However, if you connect your system to the network prior to ENERGEX attending, there are a number of meters that could record the exported energy as consumption. We suggest that you confirm with your installer, prior to connecting to the network, that the current metering installed will be suitable for your IES. The amount of energy being exported to the network cannot exceed the levels set out in the "Maximum allowed generation capacity" section of the Agreement.

It is a requirement that the Agreement is in the name of the person or business entity that holds the electricity account at the premises where the IES is installed.

Termination of the Agreement

The Agreement takes effect on the date on which the Agreement is signed by the last party and ends when the Connection Contract between you and ENERGEX ends or as terminated in accordance with the Agreement.

This Agreement may be terminated:

- At any time at your request, by notifying us that the IES is no longer connected at the Premises; or
- By ENERGEX at any time if you fail to comply with the terms and conditions of the Agreement or if you fail to remedy (after having been given reasonable notice in writing) any situation where the IES represents a hazard or risk to our supply network, other electricity customers, our workers or the general public.

Should the Agreement be terminated, you must ensure that the IES is no longer capable of exporting energy into the Network. In the event you fail to comply with this obligation within three business days, we shall be entitled to:

- Enter the Premises to isolate or disconnect the IES; and/or
- Disconnect the Premises in accordance with your Connection Contract if we determine there is an Emergency or for reasons of health and safety.

Connection of your IES

For safety reasons, it is important that the IES is installed and maintained to always be compliant with a number of electrical standards. It is a condition of connection that your IES, energy source, wiring and switchboards meet any applicable sections of the following standards:

- AS 4777 – Grid Connection of Energy Systems via Inverters, Parts 1, 2 and 3;
- AS/NZS 3000:2000 – SAA Wiring Rules;
- AS/NZS 3008 – Electrical Installations – Selection of Cables;
- AS/NZS 5033:2005 – Installation of Photovoltaic (PV) Arrays;
- The ENERGEX Technical Conditions for the Connection of Small Scale Photovoltaic Inverter Energy Systems, as set out in Schedule 2; and
- The requirements of the Queensland Electricity Connection and Metering Manual.

If you have any concerns, please contact your IES installer.

Metering for your IES

ENERGEX will make the necessary changes to the metering at your property upon receipt of all the required paperwork. Your premises may need to be temporarily disconnected from the network, while the metering is changed. Under the Agreement, the following details apply to the metering:

- Unless ENERGEX is not the meter provider, the metering related to the IES installation will be operated and maintained by ENERGEX;
- The electrical contractor must ensure that the wiring for the meter/s complies with the Queensland Electricity Connection and Metering Manual, and with the technical requirements set out in Schedule 2 of the Agreement;
- The IES metering will be located in your existing meter location for the premise; and
- ENERGEX or its agents must be able to safely enter your property to access the meter location and main switchboard in order to carry out the meter changes.

Please note ENERGEX requires access to both the meter/s and main switchboard.

Safety and Operational Considerations

This section explains the safety considerations and operating procedures necessary with the IES installation.

Safety of your IES installation

You are required to install and maintain the IES installation and any associated equipment in a safe working order at all times, and in accordance with the requirements of the Agreement and relevant electrical safety codes. In addition, you are required to:

- Display the IES isolation procedure at the main switchboard;
- Keep a copy of the IES operations manual in or near the main switchboard or meter box at all times; and
- Comply with the reasonable directions of ENERGEX in order to secure the safe and stable parallel operation of the ENERGEX distribution Network and the IES.

Disconnection from the network

Your IES should automatically disconnect from the network in the event the electricity to the network is interrupted, be it for; planned maintenance, emergency outages or network faults. In the event the network is unable to accept exported energy from your IES for any reason ENERGEX is unable to consider any compensation.

FAQ's about your IES Installation

Can I change the details on my Agreement if they are incorrect?

You may contact ENERGEX to arrange a new agreement to be sent out with the updated information or alternatively if the incorrect information relates to the spelling of a name, phone number, postal address or inverter you can cross this out, update, initial and send back to ENERGEX.

If the incorrect information relates to a change of name, NMI, Maximum allowed generation capacity or the Initial tariff code please contact your installer to update this information by submitting an updated application. If information is incorrect it will have to be updated and we will be required to send out a new agreement for signature which could cause delays.

How long does it take to connect my meter?

ENERGEX has an obligation to have your metering upgraded or replaced within ten business days from receipt of all the relevant paper work, unless there are any discrepancies with the paperwork or an appointment has been arranged. We require the following paperwork:

- Signed Agreement (your installer sends ENERGEX an Application (Form 1003).
- EWR (Form 2) – must include the required tariff; and
- A request from your electricity retailer known as a Business to Business transaction (B2B)

If ENERGEX identifies you have another meter provider, you will still be required to sign an Agreement. However, if ENERGEX receives an EWR (Form 2) and/or B2B, these will be sent to your retailer to liaise with your meter provider.

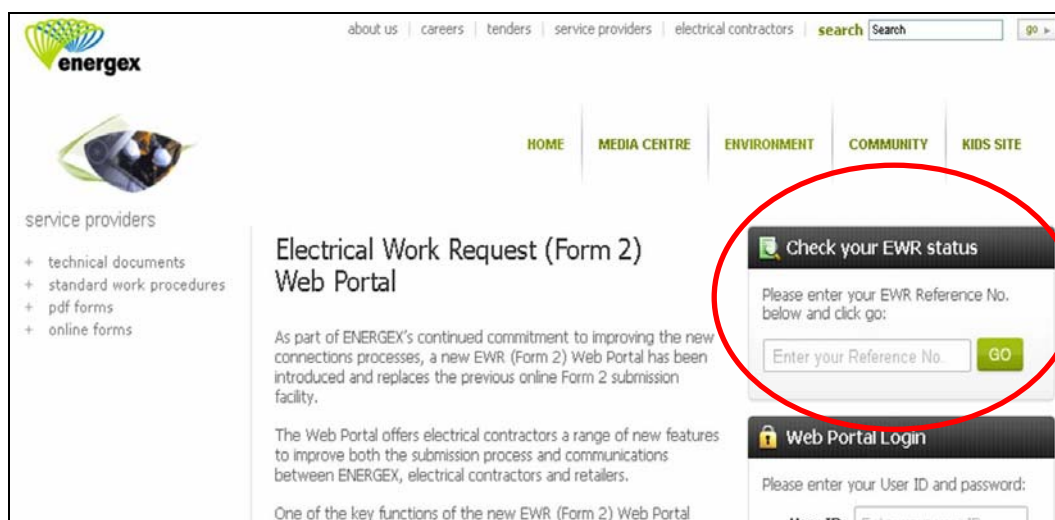
How do I find out the progress of my job?

ENERGEX will send you an Agreement once we receive an Application (Form 1003) from your installer. ENERGEX aims to send out the Agreement within five business days. If you have not received your Agreement within this timeframe, please contact ENERGEX.

When the EWR is submitted by the electrical contractor, a copy of this is forwarded to your nominated retailer. Your retailer should then send ENERGEX a B2B. You may need to contact your retailer if they have not sent this to ENERGEX.

If the EWR is submitted electronically, the electrical contractor is provided with a reference number. They can provide you with this reference number which you can use to track your job when you log into:

<http://ewr.energex.com.au/contractors/>



The screenshot shows the ENERGEX website interface. At the top, there is a navigation bar with links for 'about us', 'careers', 'tenders', 'service providers', 'electrical contractors', and a search bar. Below this is a main navigation menu with 'HOME', 'MEDIA CENTRE', 'ENVIRONMENT', 'COMMUNITY', and 'KIDS SITE'. The main content area features the 'Electrical Work Request (Form 2) Web Portal' section. A red circle highlights a 'Check your EWR status' box, which contains the text 'Please enter your EWR Reference No. below and click go:' and a form with an input field labeled 'Enter your Reference No.' and a green 'GO' button. Below this is a 'Web Portal Login' section with a text input field for 'User ID:' and a password field.

Why did ENERGEX not complete the work?

In most cases when ENERGEX attends a property and does not complete the requested work it is because there are defects in the switchboard or meter box and in these instances a Form 3 will be issued.

We recommend you discuss any concerns regarding your meter panel with your installer prior to the installation of the IES. Additional costs may be incurred by you if ENERGEX determines your meter panel requires upgrading and you have to have an electrical contractor attend.

When a Form 3 has been issued, the electrical contractor will be required to resubmit a new EWR (Form 2), and a new B2B will be required from your retailer.

The other reason that ENERGEX may not have completed the work is that we may not have had access to both the meters and the switchboard. Where we have attended the premises and have been unable to access your meters and/or switchboard, you will need to contact your retailer to request a new B2B.

Do I need to contact my electricity retailer?

ENERGEX's process is to forward a copy of the EWR (Form 2) to your nominated retailer, who in turn will send a B2B to ENERGEX. You should only need to contact your retailer if:

- ENERGEX will be unable to access your property to perform the requested work.
- You wish to enter a Power Purchase Agreement with your retailer.

My installer told me you would turn my IES on, why haven't you touched it?

In most situations there are two switches that control your IES. They are:

- The IES switch located on the IES; and
- The IES isolation switch/circuit breaker located in the main switchboard.

When ENERGEX attends a premises to complete work, for safety reasons we are required to leave any switches in the same position as when we arrived. It is the responsibility of your installer to confirm when you can turn the switch on and we recommend you contact them if you have any questions.

I think my meter is not working properly because the reading isn't the same as the meter located on my IES.

Depending on the "Network Connection Scheme for your IES" your metered installation will be either:

1. Gross energy metered; or
2. Net energy metered.

In most cases when the configuration is Gross, the reading on your IES should be the same as the meter.

If the configuration is Net, the reading on your IES will be different to the reading on the meter. This is because the energy generated is used at your premise first and any excess energy is then registered through the meter and exported to the network. The reading on the IES is the total amount of energy generated, and the reading on the meter is any excess energy exported after the premises usage. Please note that all ENERGEX meters are calibrated to meet the requirements of the National Electricity Rules for accuracy.

I don't think my meter is working because there's a flashing light.

Please refer to "How to read the meter" to obtain information about the LED lights on the meter.

I think my meter is broken because it is turning backwards.

When an IES is connected to ENERGEX's network, the metering at your premises may need to be upgraded or replaced in order for your exported energy to be recorded correctly. If the installation of your IES has been completed and switched on or connected to the network prior to ENERGEX attending, there is the potential with some ENERGEX meters to record the exported energy as consumption. In this case you will be charged for the exported energy instead of receiving a credit. Your installer is aware of this and can advise you accordingly.

I don't think my meter is working as my account has not changed very much.

How much credit you receive when your IES is installed and operating with the correct metering, will be largely dependant on your usage within your home and the size of the IES and energy source that has been installed.

Your installer will be able to assist you by reviewing your current consumption and in conjunction with the size of the system being installed provide you with information regarding average import, export and potential credit information.

Please be aware that information provided will be averages as there are many variables that can impact the export of energy. For example:

- Weather;
- Changed consumption patterns within the home;
- New appliances; and
- Appliances that are not working properly.

Where can I locate additional information?

Name	Website
ENERGEX	Information for customers and installers in South East Queensland http://www.energex.com.au/environment/connecting_solar/connecting_solar.html
The Australian Clean Energy Council	Installers and general information http://www.cleanenergycouncil.org.au/
Australian Government	Rebates and grants http://www.environment.gov.au/settlements/renewable/pv/index.html
Australian Government	Australian Government Department of Climate Change http://www.climatechange.gov.au
General Information	General Information http://www.localpower.net.au/index.html

How can I contact ENERGEX?

Contact Method	Details
General Enquiries Monday to Friday 8am to 6:30pm	13 12 53
Postal Address	ENERGEX Limited GPO Box 1461 Brisbane Qld 4001
Email	custserve@energex.com.au
Fax	(07) 3407 6206

How do I read my meter?

Firstly check your electricity account to determine the meter number associated with your export energy tariff. The following information will assist in reading the meter.

EM1000

Meter Type

Screen Display

Meter Number

Scroll Button Used to Scroll between Screens

This meter is a single phase import/export meter.

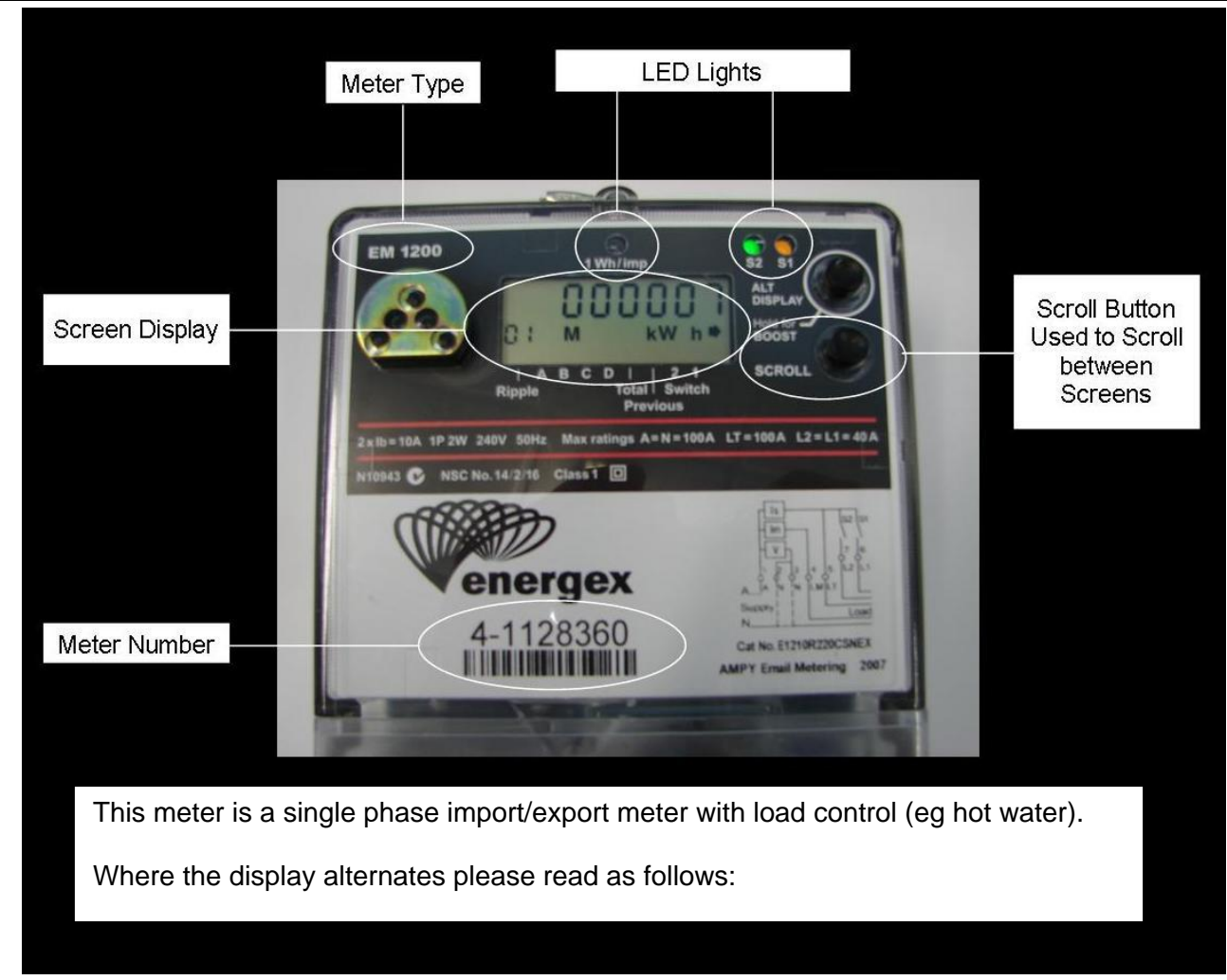
Where the display alternates from positive to negative please read as follows:

	<p>Positive display shows accumulated imported energy to the customer from the network.</p>
	<p>Negative display shows accumulated exported energy from the customer to network.</p>

General Information

The Scroll button can be used to move to the next display or the display will automatically scroll approximately every 5 seconds.

The red LED that is above the 1 Wh/imp is an indication of power consumption. As your premises imports power, the meter outputs a pulse that equals 1Wh of energy consumed. The LED will flash fast or slow, depending on the load being drawn from the network. Every 1000 pulses the meter will increment 1 kWh.



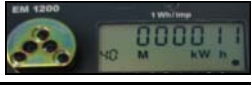
This meter is a single phase import/export meter with load control (eg hot water).
 Where the display alternates please read as follows:



01 display shows accumulated imported energy to the customer from the network.



30 display shows accumulated imported controlled energy to the customer from the network.



40 display shows accumulated exported energy from the customer to network.

General Information

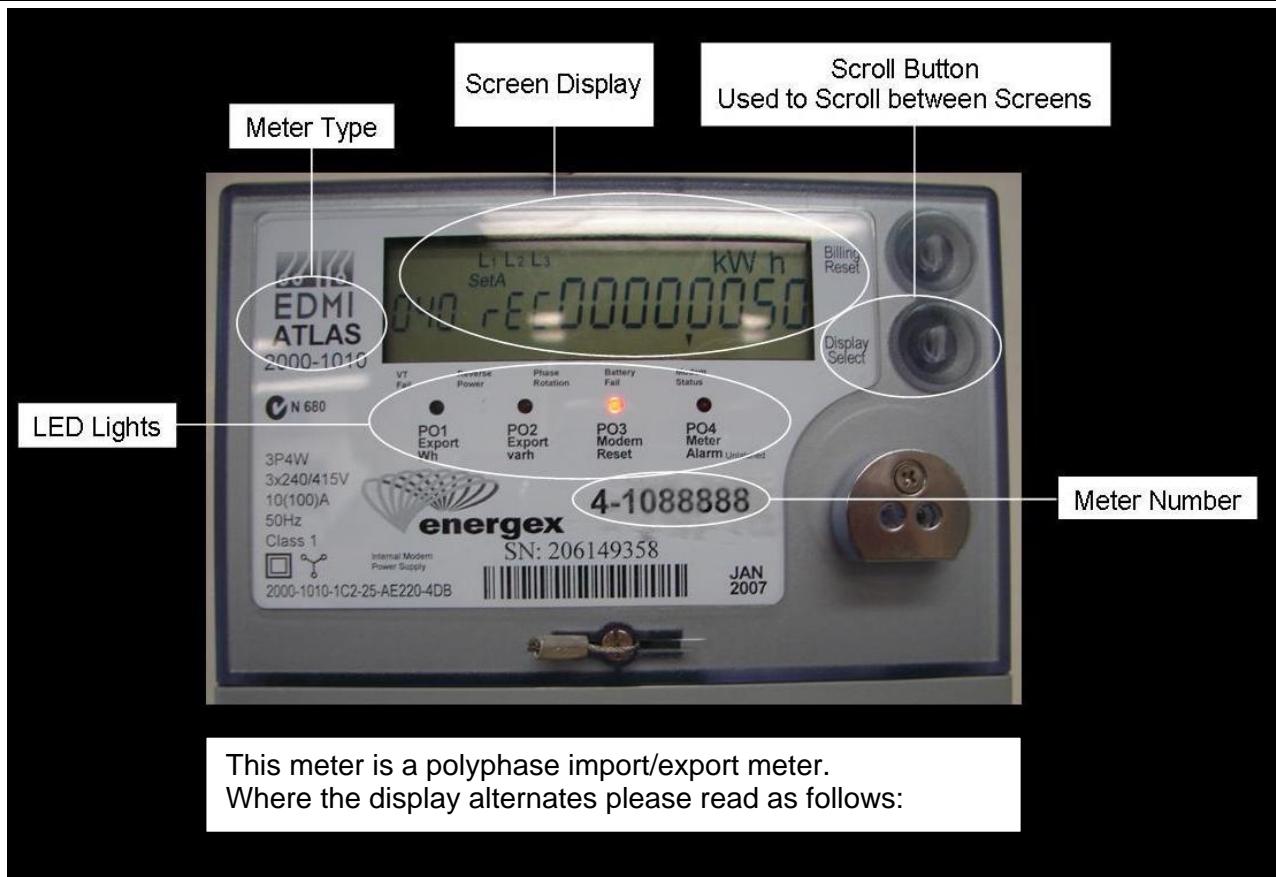
The Scroll button can be used to move to the next display or the display will automatically scroll approximately every 5 seconds.

The LED's are indicators for certain applications of the meter:

The red LED that is above the 1 Wh/imp is an indication of power consumption. As your premises imports power, the meter outputs a pulse that equals 1 Wh of energy consumed. The LED will flash fast or slow depending on the load being drawn from the network. Every 1000 pulses the meter will increment 1 kWh.

The LED's in the top corner, (orange and green) are indicators that illuminate when the controlled tariff load relay is on. There are two relays in the meter, but as a rule, only one is used for control of the hot water system etc. When the controlled load is turned on with the ripple control signal or the fixed time window if no ripple is available, the LED will illuminate. This usually happens late at night. After a power interruption, the relay will automatically turn on no matter what time, to heat the hot water system.

EDMI ATLAS



001 display shows total (screens 005 + 010 + 020) accumulated imported energy to the customer from the network.



005 display shows accumulated imported energy to the customer from the network between 7 am - 9 pm Monday to Friday.



010 display shows accumulated imported energy to the customer from the network between 9 pm - 11 pm Monday to Friday.



020 display shows accumulated imported energy to the customer from the network at all other times.



040 display shows exported energy from the customer to the network.

General Information

The Display Select button can be used to move to the next display or the display will automatically scroll approximately every 5 seconds.

The light below the battery fail is associated with the PO3 modem reset and may flash from time to time. This is not a fault but correct operation.