



**Welcome
to the
ENERGY ACADEMY**



ENERGY ACADEMY Session Recordings

- Tuesday 24May2022 Session Recording (1hr 4min): <https://youtu.be/N7LdLV5Wxf8>
- Thursday 26May2022 Session Recording (1hr 10min): <https://youtu.be/GWatj2KPRw8>

For any future Energy Academy topic suggestions email: customeradvocacy@energyq.com.au

Enabling Dynamic Connections

Candice Horig

Senior Standards Officer



DY- NA- MIC. DER.



Two-sided markets.

Increased visibility over DER and energy demand increasing capacity for more consumers to be involved in markets



Security.

Visibility and communication with all DER to support network and system management for secure and reliable supply

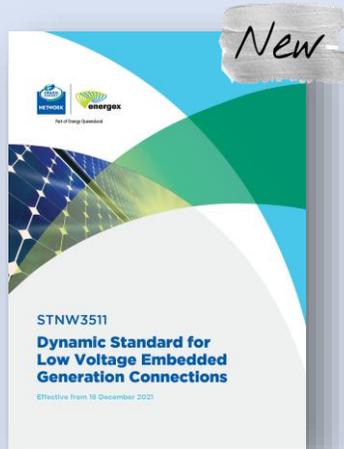
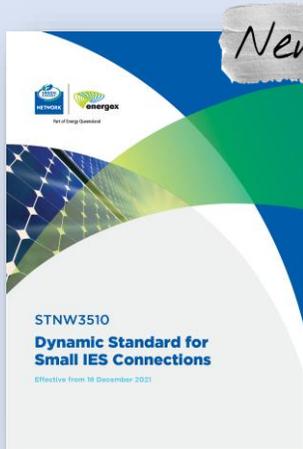


Future Proof.

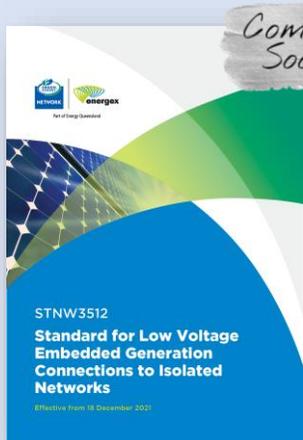
Increase hosting capacities and consumer access to new energy markets through future proof standard connections for Queenslanders

Document changes

Dynamic



Dynamic – Isolated Networks Only



Discussion papers



Enabling Dynamic Customer Connections for DER

Consultation Paper

23 December 2020



Enabling Dynamic Customer Connections for Distributed Energy Resources (DER)

Stage 2 Consultation Paper

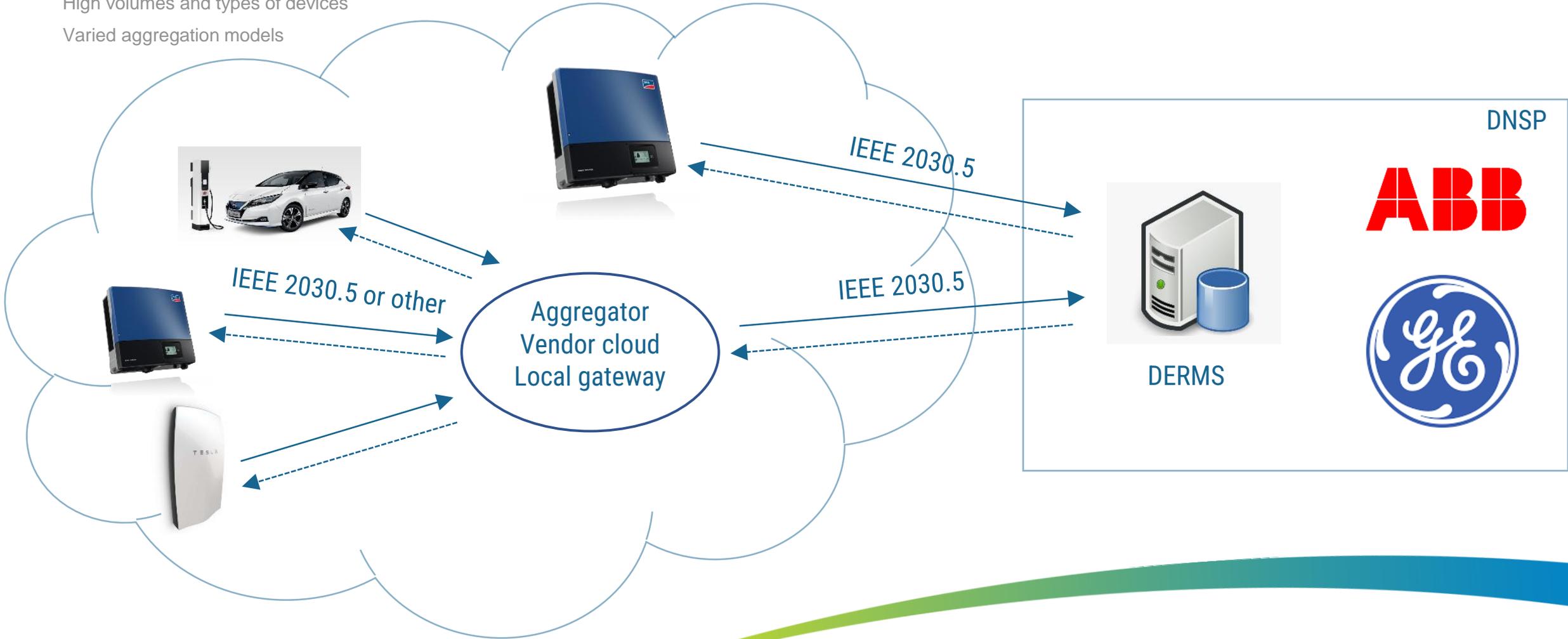
25 November 2021



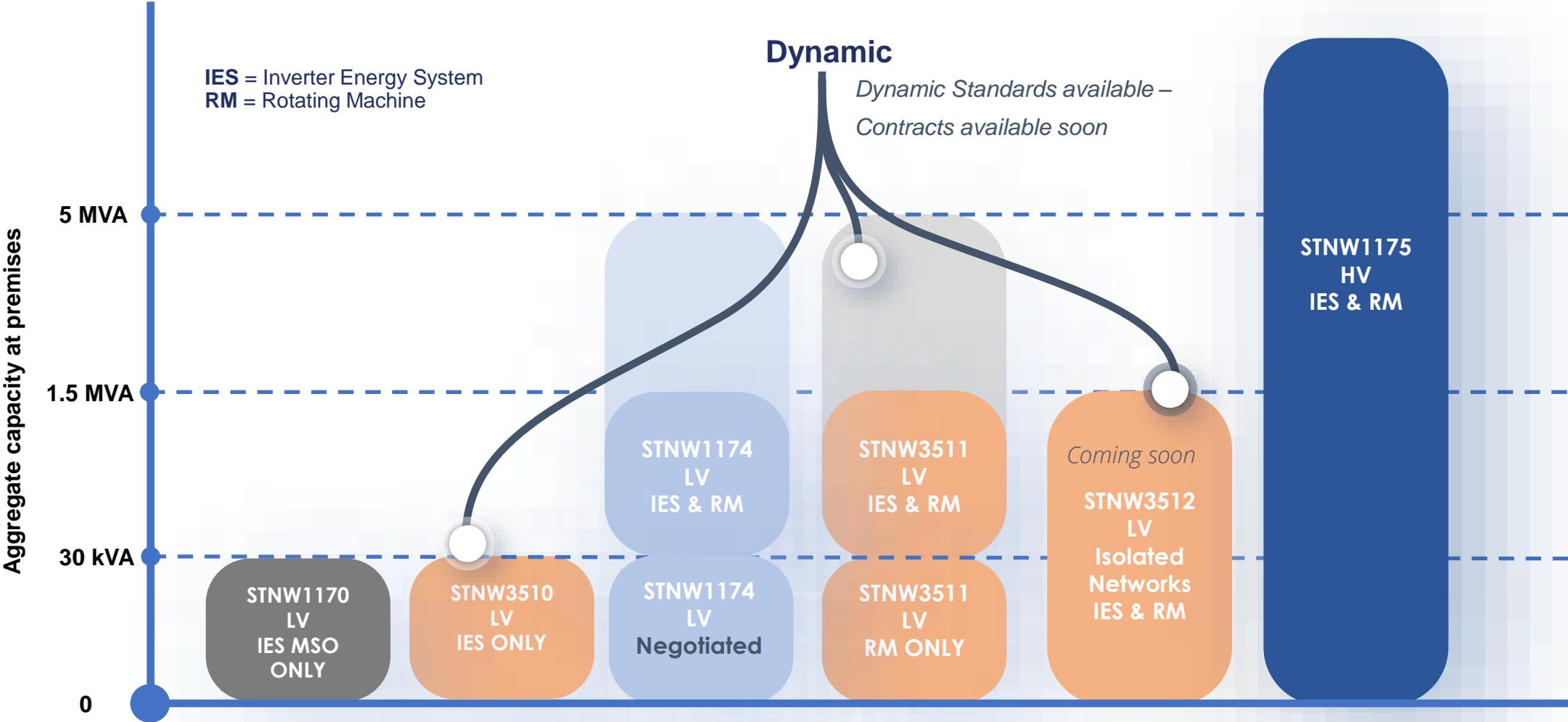
DER Communications: IEEE 2030.5

IEEE 2030.5 makes use of existing HTTP concepts to support:

- Devices communicating securely via the public internet
- High volumes and types of devices
- Varied aggregation models



The EG connection standards



The export constrained
Negotiated with partial- or zero- export offers

The early adopter
Those who want the latest or want to develop their customer offering



Single-phase with capacity constraints
Wanting > 10 kVA capacity

The capacity constrained
Wanting to push above the rating of a dedicated transformer

Isolated Networks
Where unmanaged hosting capacities have been met

Dynamic Scenarios

We see that customers in these scenarios may elect to adopt a dynamic DER solutions in 2022



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Talking Energy



Consultation Papers

- [Stage 1 Consultation Paper](#) – December 2020
- [Stage 2 Consultation Paper](#) – November 2021



Dynamic standards

- Standards [STNW3510](#) and [STNW3511](#) out now.
- STNW3512 for Isolated Networks coming soon.
- We have a [FAQ](#) for industry which we will be updating soon with options for retaining compliance when retrofitting sites.

Dynamic Connections

For information on Dynamic Connections:
www.talkingenergy.com.au/dynamicconnections

For standards feedback:
standardsfeedback@energyq.com.au

AS/NZS 4777.2:2020 – Region Settings

Candice Horig

Senior Standards Officer



AS/NZS 4777.2:2020 Settings

Regions

A

Ausgrid, AusNet Services, Endeavour Energy, Essential Energy, Ergon Energy and Energex, EvoEnergy, Jemena, CitiPower, Powercor, United Energy, Power & Water and SA Power Networks

B

Western Power

C

Horizon Power and TasNetworks

Australia A

New

Power quality response modes

Response commencement time	Setting
Response commencement time	1 s
Response completion time	10 s

Parameter	Default value	Setting
volt-var	V_{V1}	207 V, 44% supplying
	V_{V2}	220 V, 0%
	V_{V3}	240 V, 0%
	V_{V4}	258 V, 60% absorbing
volt-watt	V_{W1}	253 V, 100%
	V_{W2}	260 V, 20%

New

volt-watt ESS charging	V_{W1-ch}	207 V, 20%
	V_{W1-ch}	215 V, 100%

New

Parameter	Protective function limit	Trip delay time	Maximum disconnection time
Undervoltage 2 (V<<)	70 V	1 s	2 s
Undervoltage 1 (V<)	180 V	10 s	11 s
Oversvoltage 1 (V>)	265 V	1 s	2 s
Oversvoltage 2 (V>>)	275 V	-	0.2 s
Under-frequency 1 (F <)	47 Hz	1 s	2 s
Over-frequency 1 (F >)	52 Hz	-	0.2 s



Australia A Settings



Improved inverter performance

With 'Australia A' settings inverters stick around longer on the network if local voltages rise or if there is a system wide event which impacts on voltage or frequency



Ensure compliance

Just one selection to make sure your settings are correct, and your installations are compliant.



Home energy solutions a big player on the grid

Show how home renewable energy and home batteries are a real player in the grid by helping keep the lights on in system wide events.

What if I have more questions?

Visit the website [here](#) to read
AS/NZS 4777.2.2020 FAQ

Reviewing the QECM

Candice Horig
Senior Standards Officer



Connecting for your future

Modern electricity solutions

Smarter buildings and communities

Changing expectations for electricity needs. More complex electrical systems with automated switching and local control



Increased DER

Dynamic connections which includes an increase in flexible loads



Modern safety standards

Improving and securing safer outcomes



Interacting in new energy markets

Using behind the meter DER and technology to access new energy market opportunities and to provide system support services

Discussion paper

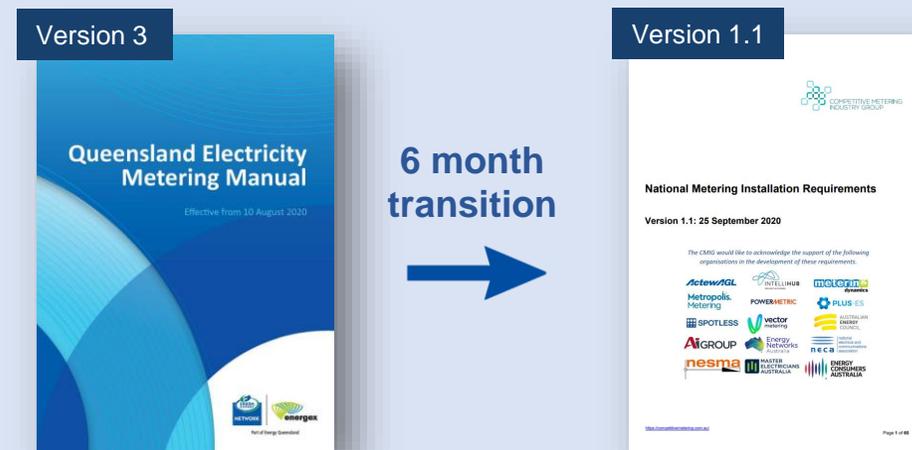


Planned document changes

Connection requirements



Metering requirements



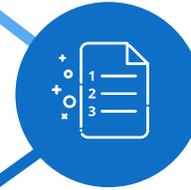


Reviewing the QECM

Assist in clarifying requirements



Increase task-based guidance



Align with modern requirements



Support dynamic connections for DER



Improve process and ease for future updates



Focus areas

Modifying existing installations

Improved clarity on compliance requirements when modifying installations

Switchboard locations

Review and clarify switchboard location requirements



Property poles

Introduce pole listing process and ensure alignment with modern industry safety practices.

Second point of supply

Align with current policy for allocation of second point of supply

Electric vehicle charging

Increasing flexible operation options

National Alignment

The QECM will leverage national and international improvements in connection requirements.

Energex and Ergon Energy Network support greater national alignment of connection requirements.

Improved alignment will better enable connection of new technology and the introduction of new energy markets.

National Metering Installation Requirements (MIR)



National requirements

Requirements developed and consulted by Competitive Metering Industry Group (CMIG). Increase industry opportunity by leveraging national standards

Provision of services

Energex and Ergon Energy Network have limited responsibility for metering services. Metering Providers are best placed to develop and support metering standards



Support ongoing development

The MIR does not currently cover HV metering or card metering. Where there are additional requirements for Queensland they are proposed to be included in the QECM V4



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Consultation Activities

April 2022

- [Stage 1 Consultation Paper](#)

June - August 2022

- Draft QECM V4 with 4 weeks consultation
- Stage 2 Consultation Paper - highlighting key changes
- Release of FAQ to be regularly updated

August 2022

- QECM V4 released
- Industry notifications about release and transition plan

September 2022

- Industry briefing webinars on QECM V4

Consultation feedback

To access the consultation paper:

www.talkingenergy.com.au/qecm2022

Stage 1 Consultation feedback closed: 13 May 2022

For standards email to:

standardsfeedback@energyq.com.au

CHAT RESPONSE TIME?



LV CT METERING DRAWINGS

PROCESS FOR A SUCCESSFUL SUBMISSION OF DRAWINGS



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What are LV CT Metering Drawings?

- The term LV CT Metering stands for Low Voltage Current Transformer Metering. So it is an Electricity Meter arrangement that reads consumers consumption of electricity that is greater than 80Amps, or calculated greater than 100Amps per the Queensland Electricity Connections Manual (QECM) 6.2
- LVCT metering drawings are a set of drawings of a Switchboard that are required to be submitted by an Electrical Contractor, a Switchboard Manufacturer, or an Electrical Consultant to Energy Queensland prior to the Construction and Connection of the Board. The set is to contain a Switchboard Layout and an SLD for the Main Switchboard (and sub-board/s as required) of the proposed Electrical Installation.



When are CT Drawings Required to be submitted?

- A set of CT Switchboard Drawings are required to be submitted as per the QECM clause 6.16 –
 - **Current Transformer Metering Installations**
 - *The distributor* requires **all** LV current transformer metering installation designs to have prior approval for the metering arrangement. Please submit form **LV CT Advice Form** available from the distributor's website, see page 1 of the QECM for details. This form requires the submission of **Switchboard Layout** and **Single Line Diagrams** as early as possible to allow design modifications to be carried out if necessary, prior to switchboards being built.
 - If this information is not provided *the distributor* cannot guarantee supply will be connected if the switchboard does not comply.
 - Early submission of drawings will assist in reducing the time and costs for all parties and avoid late modifications of *current transformer metering* switchboards.

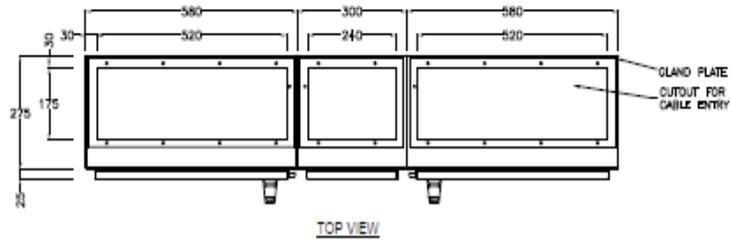
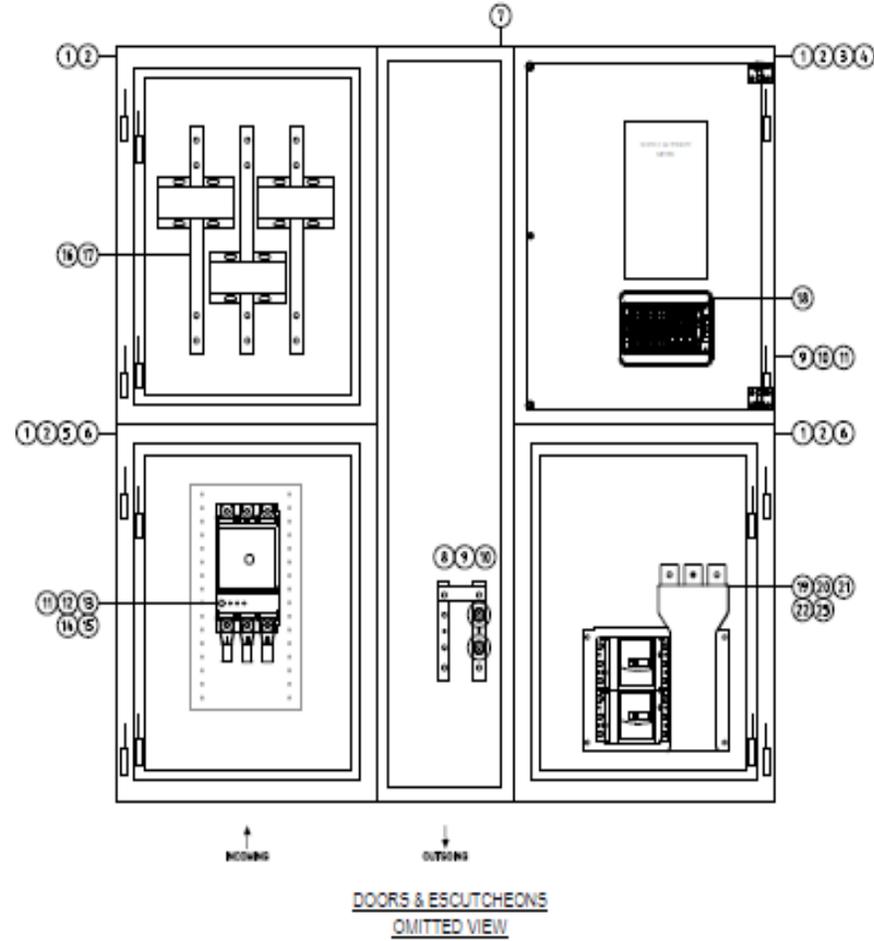
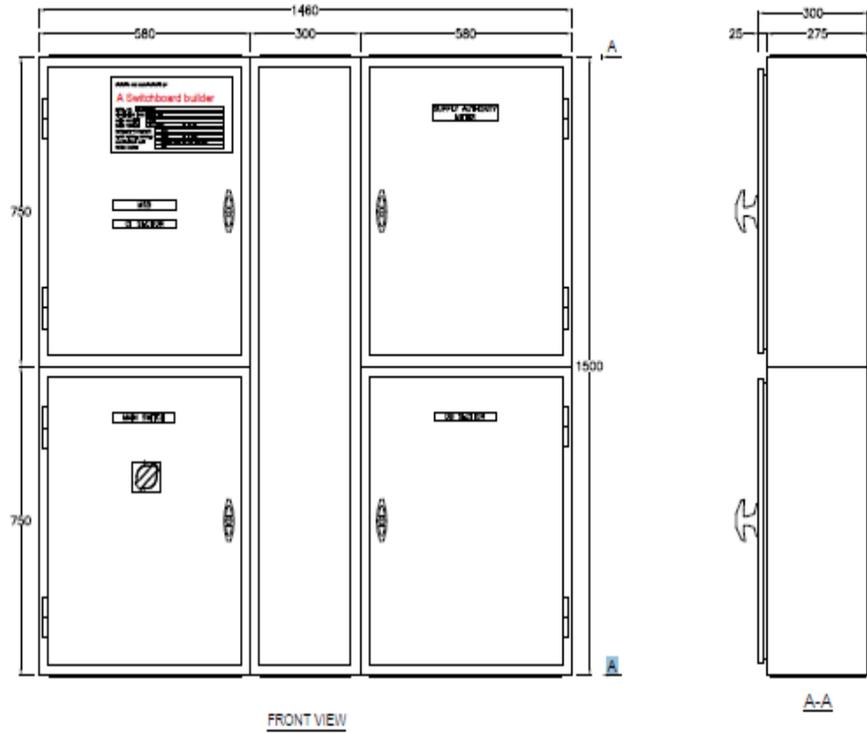
Lets break this clause down a bit further

➤ What should a Switchboard Layout Drawing need to include?

- A Switchboard Layout Drawing should include the following details –
 - Overall shape, design and layout of the entirety of the Switchboard, including sectional view/s
 - Construction and Specifications of the Switchboard (Spec Plate Label) including –
 - Australian Standard that the switchboard has been designed and will be built to
 - Fault Current Rating of the Switchboard
 - Form of Internal Separation Rating i.e.. Form 3b, 4a etc.
 - IP Rating
 - Date of Manufacture
 - Switchboard Manufacturer and Project Number
 - Location of –
 - All Metering and CT's installed in the switchboard (or remote Meter Panel if CT Metered)
 - Main Neutral Connection
 - MEN Connection
 - Incoming Network supply/s connections inclusive of Customer Generation
 - Switches/Isolators, Circuit Breakers, interlocking and FCL (if applicable) for each CCT and section of the board
 - Active Links, Meter Neutral Link/s and Cable Zones
 - NOTE – The use of labelling is required to show where these items are
 - Both internal and external dimensions including but not limited to -
 - Overall external dimensions height, width and depth
 - Dimensions of each tier (if applicable)
 - Internal dimensions of each chamber including the Metering Panel/s size/s and CT Chamber opening size

Typical Switchboard Layout Drawing

- Add



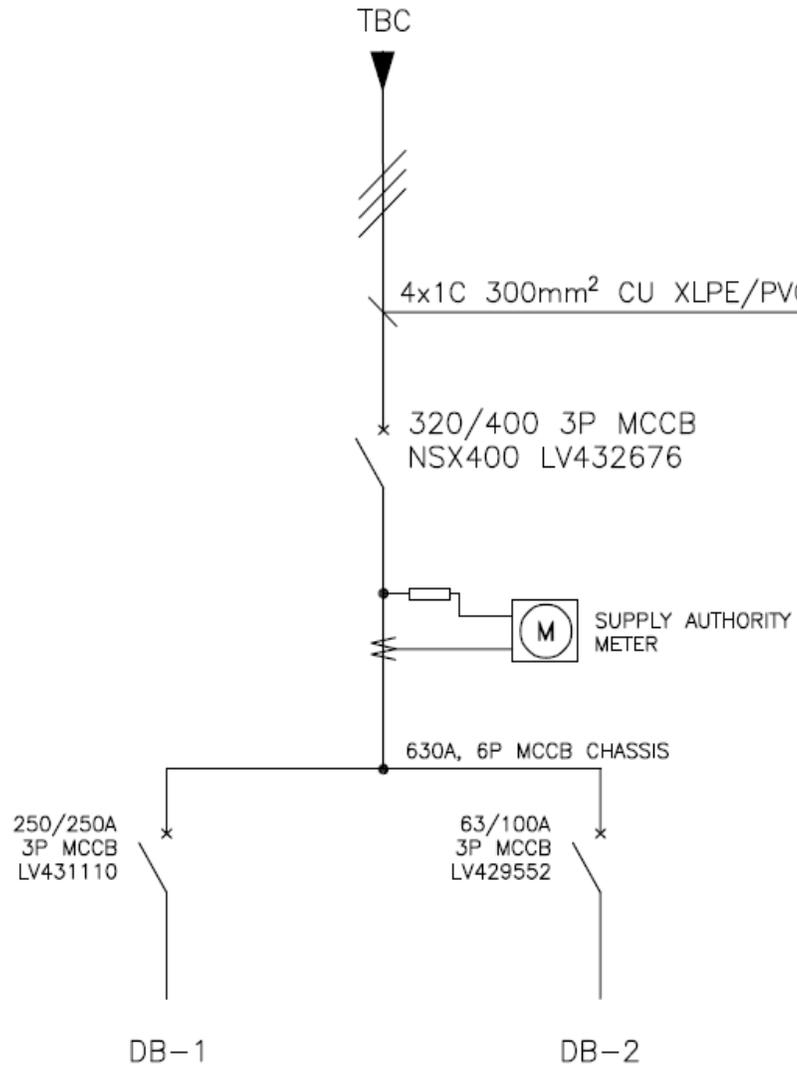


What are the requirements for a Single Line Diagram (SLD)?

➤ An SLD should contain the following items –

- Incoming supplies (including Customer Generation), with direction of flow shown from line to load
- Isolator / CB types, sizes and settings of each switch throughout the entire Switchboard
- CT ratio and positioning compared to isolation switches
- Positioning of Fault Current Limiters (FCL), Transfer switches and Generators, IES Main Switch/s, and Interlocking mechanisms (if any of these are applicable)
- Cable and bus sizing of both internal and external wiring including –
 - Consumers Mains
 - Unmetered Sub-mains (which require VD calcs submitted to appropriate DNSP per QECM 6.9.7.1)
 - Metered Sub-mains
 - Internal bus/wiring size
 - Type of cables/bus used, number of conductors per phase (including Neutral, MEN and Earthing), and rating of insulation for all of the above (PVC, XLPE, Flex/Stranded cables, Al /Cu)
- *Please ensure that your switchboard complies with all the required standards and guidelines as delays can be expected if it is non-standard. If your switchboard is non-standard you are required to apply for a dispensation through tech.enquiries@ergon.com.au or tech.enquiries@energex.com.au before you submit your drawings to us for approval. This dispensation decision notice should be attached to your submission to us.*

Typical SLD



SINGLE LINE DIAGRAM





What is required on an Low Voltage (LV) CT Advice Form

- An LV CT Advice Form should contain the following information–
 - The Electrical Contractors Details including contact details
 - An Electrical Work Request (EWR) or Connection Application (CX) number (NOTE – If supplying a CX number, then the CX **MUST** be at least at the status of “ACCEPTED” or later in the Portal, meaning that there has been an Offer Accepted)
 - A NMI for the CT Meter to be installed (NOTE – only one (1) NMI per Advice Form)
 - If more than one NMI/CT Meter is being installed, then there shall be one Advice Form per CT Meter to be submitted i.e.. 3 CT Meters = 3 Advice Forms
 - Check the box to select if the NMI is a Permanent supply, a Temporary supply, a new or existing installation, or a Bulk Meter Conversion
 - The load required as per the Accepted Offer for that NMI
- Please note – The LV CT Advice Form is **not** a CT Order Form. Please source your CT kits from your local Electrical Wholesalers

LV CT Metering Advice Form

(for use by Contractors and Switchboard manufacturers to advise of LV CT revenue metering installations)



Email completed LV CT Metering Advice Form & Drawings to metering.drawings@energyq.com.au

Switchboard Layout and Single Line Diagram must be supplied

Contractor Details (please print)	
Business Name (please print)	Licence No.
Contact Name (please print)	Telephone No.
Email Address	Letter of Offer/Connect Agreement Ref No.
Signature	Date / /

Connection Details (please print)	
1. Retailer	
2. Customer Name	
3. NMI (National Metering Identifier)	
4. Connection Address	
5. CT's Required for - <input type="checkbox"/> New Installation Is it for a Temporary Builders Supply <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Alterations or Additions to existing Installation <input type="checkbox"/> Conversion to Bulk Metering	
6. Number of CT Sets Installed (3 CTs per set)	
7. Maximum Demand per CT set (e.g. Set 1 – xxxAmps)	

Note: CT's can be ordered as a direct purchase by emailing SaleofMaterial01@energyq.com.au or purchased direct from Electrical Wholesaler. CT's must meet minimum requirements specified in QEEMM (Table 2.2) or as otherwise specified by the Metering Provider.	
I have an existing agreement with a customer and require the CT Kit to be supplied by Energex/Ergon <input type="checkbox"/> Yes <i>*Note that this option will only be available until 31st March 2019*</i>	
I confirm the Meter Panel will be located in an area compliant with QEEMM <input type="checkbox"/> Yes	
Remarks	
Contractor's Signature	Date Drawings supplied <input type="checkbox"/> Yes

Energy Queensland use only			
Drawings approved – <input type="checkbox"/>	Approver's Signature	Date	
Size Recommended –	200/5 CT Kit <input type="checkbox"/>	800/5 CT Kit <input type="checkbox"/>	1500/5 CT Kit <input type="checkbox"/>



Where to source an LV CT Advice Form?

- Dependant on which DNSP you are working in, the following two locations have the Advice Forms
 - For Energex go to –
 - <https://www.energex.com.au/contractors-And-service-providers/document-library/forms>
 - For Ergon head to –
 - <https://www.ergon.com.au/network/contractors-and-industry/electrical-contractors/forms,-manuals-and-standards>

Where do we send this information?

- As per the LV CT Advice Form, all of the above information is to be sent via email to meteringdrawings@energyq.com.au

(Please note - attaching this information on the Portal when submitting an EWR or CX will not reach the Metering Drawings Assessment Team)

- The above documents are to be submitted with a min of A4 sized PDF format, and be of a quality that is legible if magnification is required
- Hand Drawn Switchboard Layout drawings and SLD's are no longer acceptable, unless specifically asked for by the Assessment Team. Please supply shop drawings from a qualified Switchboard Manufacturer
- Sometimes photos may be required when the submission is of a pre-existing switchboard that is being modified. NOTE - Please do not attach iphone .HEIF format photos as our software cannot open these files
- Please find that a CT Test & Compliance Certificate dated within the last 10 years is required to be kept *with the switchboard on site* for the connection of Metering as per QEMM 4.2 (these are not required by Metering Drawings Assessors)
- Some of our security settings do not allow for the inclusion of Links or Hyperlinks. So if these are included in the email body, the email may not arrive in our inbox, and delays may occur. Please send through the drawings as an attachment.
- We are aspiring to fine tune the submission and approval process. We realise that some applicants require their approvals as soon as possible, therefore we are intending to develop an expedited submission and approval process for those situations



- Thank you for listening to our presentation today. We hope that this has been informative, and somewhat educational. If you require assistance with the QECM or QEMM, please contact the Electrical Contractors Hotline on
- **Energex**
 - 1300 762 397
Option 1
- **Ergon**
 - 1800 237 466
Option 1

CHAT RESPONSE TIME?



Community Safety Awareness



Community Safety Awareness

Our safety commitment is to the people and communities who we live and work with and support every day. This commitment includes the ongoing partnership with Electrical Contractors to deliver a safe and reliable electricity supply to our local communities.

To maintain this high level of community safety, Electrical Contractors are reminded to ensure they are only conducting work within the boundaries of their authorisation, accreditation and licence held.

We are receiving reports of electrical work performed by Electrical Contractors that is outside their authorisation, which includes:

- Point of Attachment Relocations
- Major Upgrades/Alterations
- Overhead Service Alterations and Removals
- Premise Reconnections
- Connections to our Network
- Accessing our Network Infrastructure
- Metering Work

If you have any concerns about the work you are performing and think you might be encroaching in the Distribution Entity area of responsibility, please contact Energex (1300 762 397) or Ergon Energy (1800 237 466) and speak to one of our Technical Enquiry Officers.

Thank You!!



CHAT RESPONSE TIME?



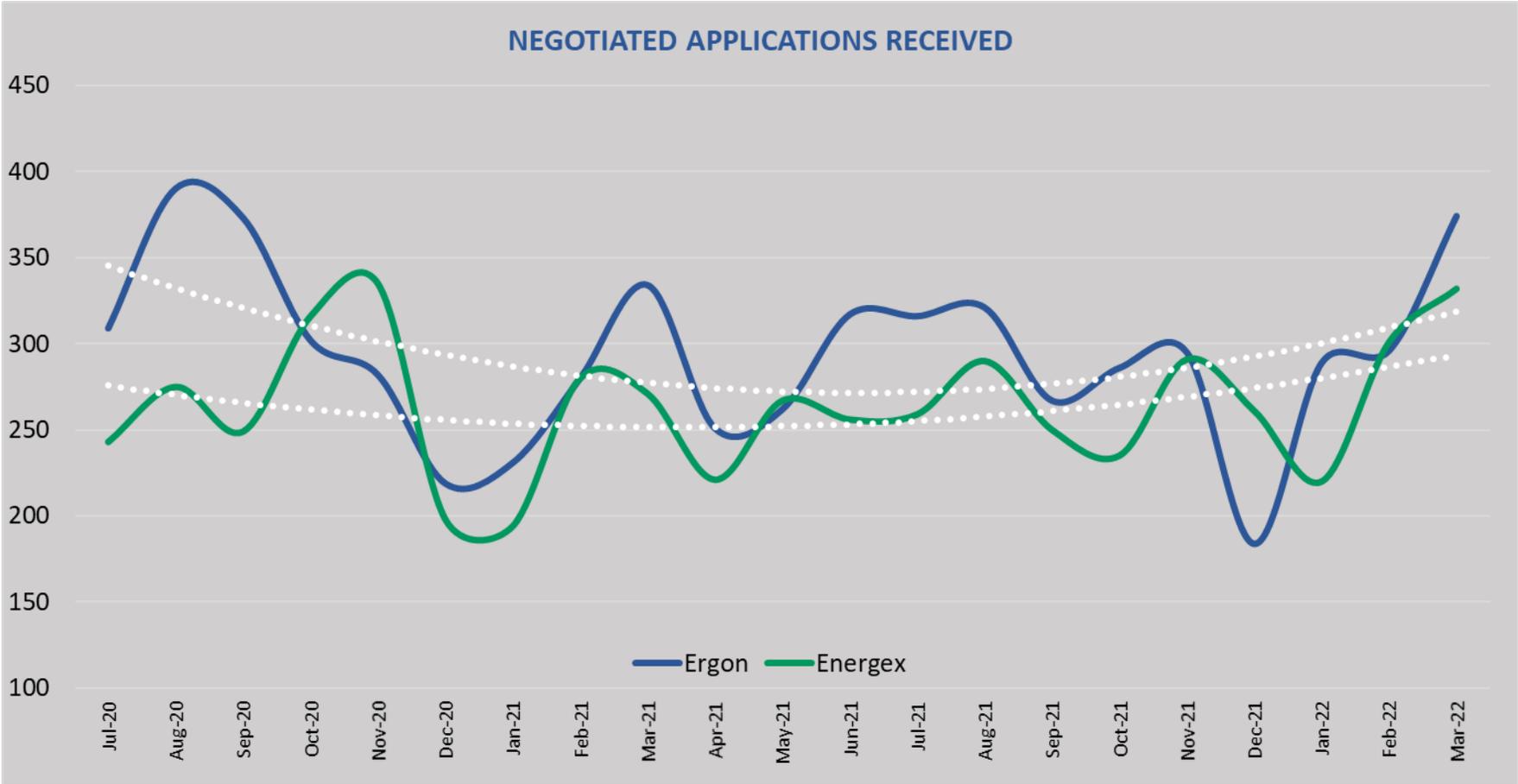
Connections – Handy Hints



Our Timeframes

- Since July 2020, Energex and Ergon have received record number of Customer connection load applications, totalling over 250,000 applications, with over 22,000 being applications which require assessments to be completed to enable offers to customers.
 - Connections have been heavily influenced by Government stimulus, a competitive labour, contract and supply market, southern state migration to Queensland, and low interest rates.
 - These influences coupled with Covid impacts on our workforce, storm events, and the recent SEQ floods have resulted in delays to connection timeframes.
- 

Connections Workload Trends



How Do I Get My Job Started?

Job Type	Paperwork Required	Where to Start
New Connection	<ul style="list-style-type: none">• Connect Application• EWR• Service Order (B2B)	Submit Connect Application to Energex/Ergon Energy
Supply Upgrade	<ul style="list-style-type: none">• Connect Application• EWR• Service Order (B2B)	Submit Connect Application to Energex/Ergon Energy
Meter Exchange (no change in supply)	<ul style="list-style-type: none">• EWR	Submit EWR to Energex/Ergon Energy
Service & Meter Removal	<ul style="list-style-type: none">• Service Order (B2B)	Contact Electricity Retailer for Supply Abolishment
Asset Relocation or Removal of Assets (Abolishment)	<ul style="list-style-type: none">• Enquiry	Submit Enquiry to Energex/Ergon Energy

Do I need an Enquiry or an Application?

	Application or Enquiry?
I'm unsure if there is LV Network / 3 phase / supply in the street	Supply Availability Enquiry
I need a 2 nd Point of Supply / Flying Fox Connection	<u>Energex Network</u> Supply Availability Enquiry <i>(attach dispensation if available)</i>
	<u>Ergon Energy Network</u> Connect Application <i>(attach dispensation provided)</i>
I need a feasibility study to assist in organising my Council Decision Notice (DA Conditions)	Supply Availability Enquiry <i>(note that a feasibility study required)</i>
I know there isn't supply available, but I don't have a large load (e.g. 3ph 40amps)	Connect Application <i>(select "No" to Supply Available question)</i>
I know supply is available, but I don't have a large load (e.g. 3ph 40amps)	Connect Application <i>(select "Yes" to Supply Available question)</i>
I am unsure if there is supply available, but I have a large load (e.g. 3ph 120amps)	Connect Application

Will my Application be Basic or Negotiated?

		Ergon Energy Network			Energex	
		<i>Supply Available Box Marked</i>	<i>Urban</i>	<i>Short Rural</i>	<i>Long Rural</i>	<i>All Feeders</i>
0 ≤ 80amps	Any Phases	Yes	Basic	Basic	Basic	Basic
		No	Negotiated	Negotiated	Negotiated	Negotiated
80 ≤ 100amps	<ul style="list-style-type: none"> Any Phases CT Metering 	Yes	Basic	Negotiated	Negotiated	Basic
		No	Negotiated	Negotiated	Negotiated	Negotiated
> 100amps	Multi-Phase	Yes	Negotiated	Negotiated	Negotiated	Negotiated
		No	Negotiated	Negotiated	Negotiated	Negotiated

		SWER
0 ≤ 40amps	Any Phases	Basic
> 40amps	Any Phases	Negotiated

Application Examples

If supply available is ticked "yes" and when DNSP crews attend supply is not available, the required negotiated connect application and project will not be expedited.

1ph 96amps & Supply Available = 'No'

Connection Details

AS3000 Maximum Demand amps per phase. A detailed load breakdown may be requested at a later date.

Phases Required 1 2 3

Is electricity supply available to your property from the existing Energex network? Yes No



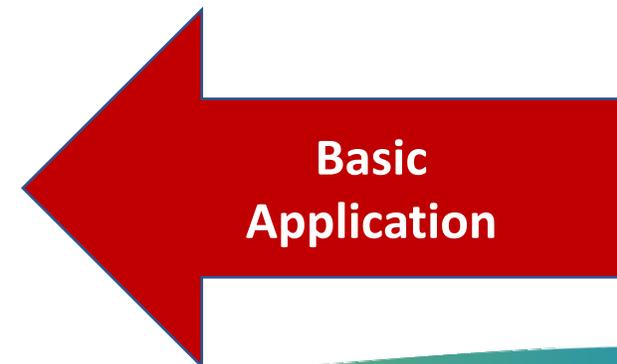
1ph 63amps & Supply Available = 'Yes'

Connection Details

AS3000 Maximum Demand amps per phase. A detailed load breakdown may be requested at a later date.

Phases Required 1 2 3

Is electricity supply available to your property from the existing Energex network? Yes No



What Documents/Information Should I Include for a Negotiated Application?

Energex Network

All Application Types

Council Decision Notice (DA Conditions)

Site Plan

Any information related to Generation on site

AS3000 Maximum Demand Calculations (>80amp 3ph)

Asset Relocations

Conflict Information (TMR/LGA)

Asset ID

Ergon Energy Network

All Application Types

Site Plan

Any information related to Generation on site

Asset Relocations

Conflict Information (TMR/LGA)

Asset ID

Commercial and Industrial Developments

Council Decision Notice (DA Conditions)

Subdivisions (Multi-Tenancy incl. Units)

Survey Plan (DXF or DWG file)

Council Decision Notice (DA Conditions)

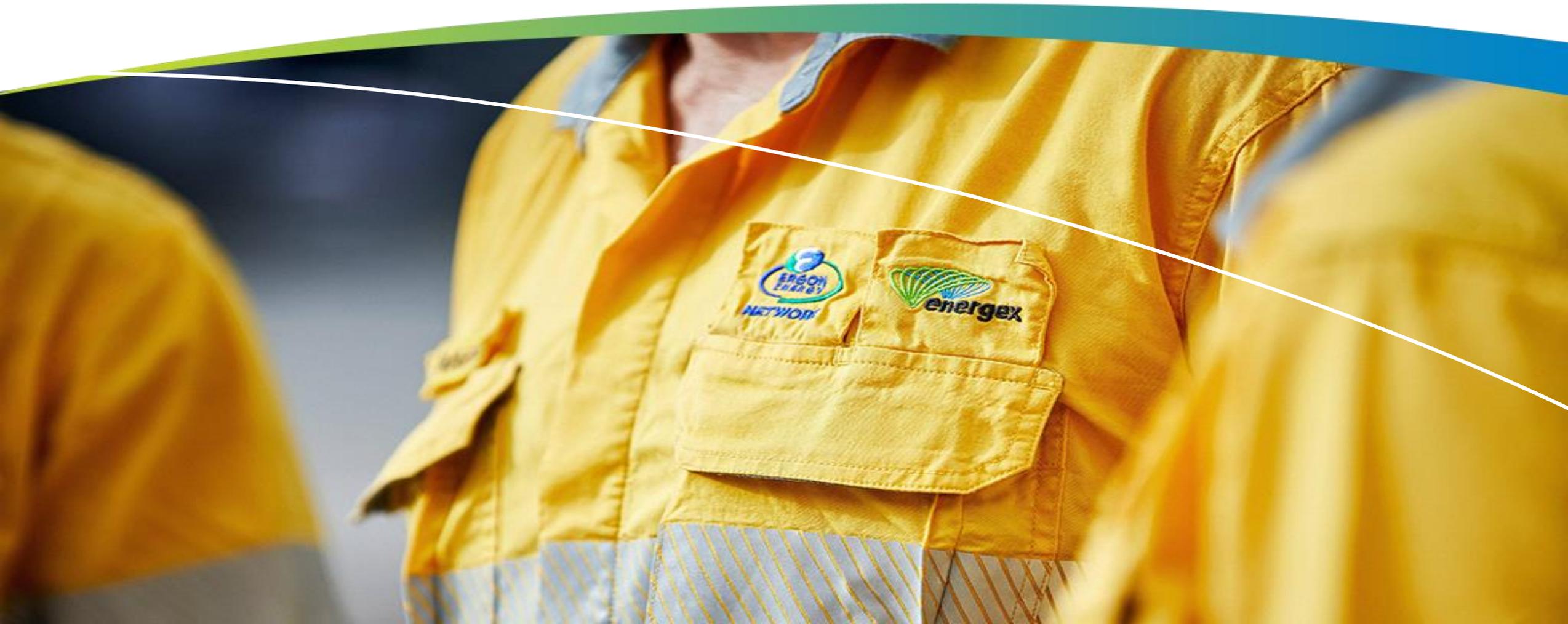
What Happens if Information is Missing?

- If required information is missing from an Application it will be returned to you via the Portal asking for the information
- Applicants will have 30 Business Days to provide the requested information, otherwise the Application will be cancelled and a new Application required to proceed
- Your Application with additional information **must be resubmitted via the Portal** in order for us to continue to assess the request

Additional information on Connect Application requests for information and resubmission can be found in the “Connect Application User Guide” (search on our website to find)



CHAT RESPONSE TIME?



Portal – Handy Hints



Top Tips

- Which **Browser** are you using? Be sure to use Google Chrome to optimise your experience.
 - Take the **Mobile Version** of the portal for a spin! Log in through your mobile device to submit anywhere!
 - Make sure you do a **Full Log Off** to end your session and to ensure a cleaner Log In next time.
 - Personalise Your Portal – **Update your settings** to ensure you receive notifications on what you want, when you want it!
 - Who has your Manager Admin Rights? Add a second person with Manager Admin Rights as a back up!
 - Put as much information on your EWR as possible, including photos if required!
- 

Friendly Reminders

- We cannot remove completed EWRs from your Portal
 - If you need to submit an EWR for Rectification after Defect for Ergon Energy, please ensure the correct Category is selected.
 - Reconnection of a Network Connection for Existing Connections
 - Connection/ Supply then Permanent Supply for New Connections
 - When submitting your EWR for a New Permanent Connection or Upgrade to an Existing Connection, please ensure the amps and phases listed on the EWR match the Connect.
 - If you require an Appointment please make a selection under this section – if no appointment reason is selected, we will not make contact with you.
- 

How To Guides

User guides and training materials can be found online on both the Ergon Energy Network and Energex Websites under Portal Help.

Document name		Published
 Connect Application User Guide	3.2 mb 	23 Mar 2022
 Connect and EWR Portal Statuses	225.9 kb 	1 Mar 2020
 Connect and EWR Service Selections	484.5 kb 	1 Mar 2020
 Enquiry User Guide	1.2 mb 	21 Apr 2021
 First time subscription Group Manager or Member	2.6 mb 	8 Mar 2021
 How to Register	1.5 mb 	8 Mar 2021
 MyEWR	2.5 mb 	21 Apr 2021
 MyHome	1.9 mb 	21 Apr 2021
 MyProfile	2.5 mb 	21 Apr 2021
 Unmetered Supply and Public Lighting Connect Applications	3.4 mb 	21 Apr 2021

Documents	Published
 How to Register User Guide (PDF File, 832.0 kb)	27 Apr 2021
 Updating MyProfile User Guide (PDF File, 1.3 mb)	27 Apr 2021
 Electrical Work Request (EWR) User Guide (PDF File, 1.0 mb)	6 Jul 2021
 Connect Application User Guide (PDF File, 3.6 mb)	27 Apr 2021
 Liability Claims User Guide (PDF File, 1.2 mb)	27 Apr 2021
 Claims User Guide - Contractor Fees (PDF File, 474.4 kb)	27 Apr 2021
 EWR and Connect statuses (PDF File, 163.2 kb)	1 Mar 2020
 Which EWR needs a Connect Application (PDF File, 145.3 kb)	12 Feb 2021
 EWR Secondary Services (PDF File, 193.7 kb)	8 Mar 2021

Portal 'how to' videos

The first video in our 'how to' series provides an overview of the portal forms for Enquiries, Connects (CXs) and Electrical Work Requests (EWR) and when to use them.

Our videos can be found on either the Ergon or Energex You Tube Channels or websites under Portal Help.



CHAT RESPONSE TIME?

