PV Industry Alert

February 2016 – Issue 25

The benefits of Reactive Power Control (RPC)

While reactive power has no value in powering electrical devices, it does perform valuable functions to help power move more efficiently. An RPC setting of 0.9 lagging or lower is mandatory on all exporting inverters rated above 2kVA and connected to Ergon Energy's main network (not SWER or isolated networks).

A lagging fixed power factor 'absorbs' reactive power to reduce the amount of voltage rise attributed to the power generated by the PV system. Although it operates whenever the array is generating, it will only impact the generation amount (kW) when the PV system is generating at its maximum. For example, with a 0.9 lagging setting on a 5kVA inverter, the kW capacity is only reduced when it exceeds 4.5kW.

By throttling back the kW capacity at peak PV generation times, the voltage rise to the network attachment point is reduced, thereby reducing the likelihood of the inverter's maximum voltage trip point being reached. This in turn means the inverter will not trip off as often as it may have, which will result in more kWh being generated over a typical day, as illustrated by the green line in Figure 1.

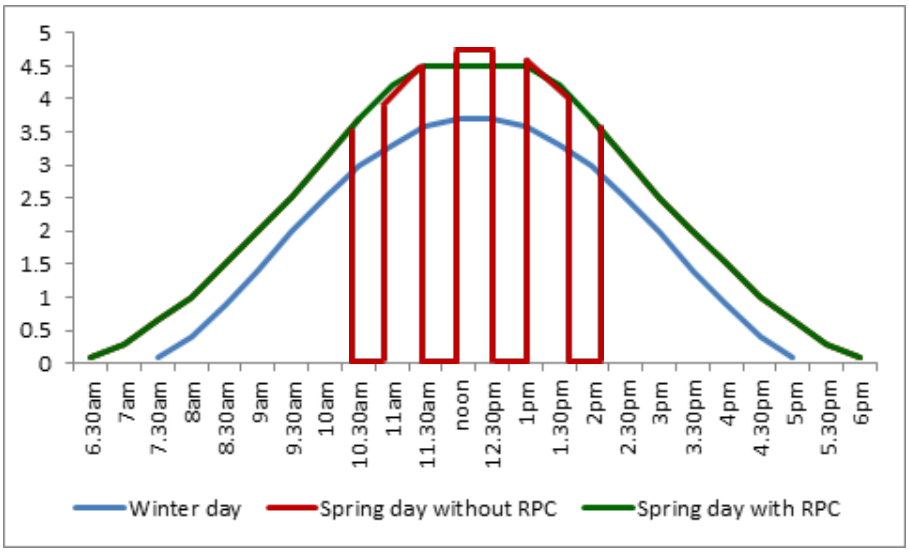

Fig 1 - Typical PV generation profiles (5kVA inverter)

RPC also benefits the local network and neighbouring PV systems, in that the reduced upward pressure on the network voltage will allow other PV systems sharing the transformer to operate without tripping off (other than in necessary circumstances), or at least operate for longer before tripping off. As more of your customers have RPC enabled, more inverters will operate more effectively.

A key benefit of RPC enablement is that PV applications on premises on Ergon Energy's main network which include RPC and undergo assessment are more likely to be approved. Also, the higher proportion of inverters with RPC on a local network, the more applications we'll be able to approve on that network. Installers are encouraged to activate RPC on existing PV systems to help address voltage-trip issues.

In a small proportion of cases, where there is a robust local network and few or no other PV units connected, the total kWh generated by a PV system with RPC may be a few per cent less annually than it would be without RPC. We're confident that RPC provides holistic benefits for PV customers, the network and the PV industry. To minimise any downsides, we have allowed for dynamic RPC settings under the new (draft) Connection Standard that is currently open for feedback.

Ergon and the Clean Energy Council (CEC) work together on best practice

We have an ongoing focus on driving higher standards of work practice and compliance with our requirements. The CEC's support means we can refer repeated or serious non-compliances with distributor requirements by installers for consideration under the CEC's demerit points system. Non-compliances will be rated as Minor, Medium or Major and demerit points allocated as relevant, entirely at the CEC's discretion.

An example of a Minor non-compliance is replacing an inverter without lodging an application. Failing to set RPC or export limitation as per the contract would be a Medium non-compliance. A Major non-compliance would be failing to set the maximum voltage trip point as required. Referrals to the CEC will be a last resort and will only occur after we have consulted with the installer, reiterated our requirements and given them every chance to comply.

Managing older inverters that are no longer compliant

If an inverter needs replacement under warranty and is no longer compliant with the IEC 62109 standard required from 11 July 2015, it can be replaced with the same brand, series and model of inverter. However, the application for such an inverter replacement cannot be lodged online with Ergon Energy and must be lodged using the PDF application form (by email or fax).

If an inverter rated above 2kVA and connected to Ergon Energy's main network doesn't have RPC capability and needs to be replaced, its replacement must have RPC, even if under warranty.

If an inverter rated above 5kVA is connected to single-phase premises, or one phase of a multi-phase premises, and needs to be replaced, the new inverter capacity must be either limited to a maximum of 5kVA on a single phase or spread as evenly as possible over multiple phases.

Where phase imbalance between multiple inverters exceeds 5kVA, and one or more of the inverters need to be replaced, the new configuration should ideally result in the total inverter capacity being divided evenly between multiple phases, or the imbalance being reduced to no more than 5kVA.

A reminder that when it comes to the 44c Feed-in Tariff (FiT), the capacity of any replacement inverter/s must not exceed the original inverter kVA rating, otherwise 44c FiT eligibility will be lost.

Battery applications are essential

Ergon considers a Battery Energy Storage System (BESS) to be any energy storage device that requires an AS 4777 accredited inverter to feed electricity to a grid-connected electrical circuit, even if the battery is not capable of exporting to the grid.

Under the electricity legislation, all customers must apply to connect a battery and gain our agreement before installation. Adding a battery to an existing PV unit without seeking agreement means the customer is in breach of the electricity legislation, and we may take action that includes disconnecting the battery from the network.

Installers that connect multiple batteries to a grid-connected electrical circuit without an application are likely to be referred to the Clean Energy Council. If you have failed to lodge application when previously installing batteries, please do so by 29 February 2016. Industry members lodging these retrospective applications will not be referred.

Only Uninterruptable Power Supplies or batteries connected to a non-grid-connected electrical circuit are exempt from our application requirements and you can find more details on our connecting batteries to the network webpage.

Clarification of applicant responsibilities

If you are applying for network connection of a PV system or other micro EG unit on behalf of the owner of the premises, it is important that you remind the customer that they will be responsible for paying certain costs associated with the installation as well as an ongoing metering charge via their electricity retailer. Where we replace the meter, the customer will pay a fee.

Merger of Ergon Energy and Energex

The Queensland Government has announced that the corporate services of Ergon Energy and Energex will be merged in 2016. The field services will remain as separate entities under their existing brands. Network differences will still exist in some cases so some differences will continue for installers, however these will be well communicated. More details can be found on the State Government website.

Review of Connection Standard up to 30kVA

The updated draft Standard has now been released for further industry consultation. Thank you to those who have so far made submissions to the Review. You can view the updated draft and email your feedback to ies.tech.enquiries@ergon.com.au until 25 March 2016.

PV System application insights

Total PV systems connected (Ergon)	Applications per month^	Application rate trend	Percentage assessed	Percentage offered desired capacity*	Non exporting applications (percentage of total)^	Online application rate
>115,000	1040	Steady	40 – 50%	84%	18%	>90%
* the remainder have had viable options offered to them						
^based on an average of the last six months						

Helpful links

Ergon Energy 'Solar PV' web page:
https://www.ergon.com.au/network/smarter-energy/solar-power

Ergon Energy 'Battery storage' web page:
https://www.ergon.com.au/network/smarter-energy/battery-storage

Ergon Energy 'Electric vehicles' web page:
https://www.ergon.com.au/network/smarter-energy/electric-vehicles

Joint Ergon Energy/Energex Connection Standard for Small Scale Parallel Inverter Energy Systems up to 30kVA:
https://www.ergon.com.au/network/contractors-and-industry/solar-pv-installers/connection-standard

Standard for Connection of Embedded Generators [>30kVA] in the Ergon Energy Distribution Network
https://www.ergon.com.au/__data/assets/pdf_file/0009/172737/STNW1165 Connection Embedded Generating Systems 5MW.pdf