Accelerated Loss of Mains Protection Change Programme

Frequently Asked Questions

Note: this Programme does not apply to domestic and similar generation that has been connected under EREC G83. It only applies to generation connected before 01 February 2018[1] under EREC G59.

Contents:

Engagement

1. Will DNO customer service departments be briefed on this and be available to provide sensible guidance?

Yes – dedicated communications material and briefing is being rolled out by and within each DNO/IDNO.

2. Is this a GB wide exercise?

Yes – it applies to the whole of Great Britain, but it does not apply to Northern Ireland. There is a similar programme in place in Northern Ireland but its detailed requirements and implementation is different recognizing the need for the approach to be harmonized across the island of Ireland.

3. Do you verify contractors on the list published on the ENA's website?

No – it is simply an advertising route for contractors to bring their existence to the attention of generation owners. It is for generation owners to decide how to comply with the new requirements, including contracting for any assistance they might need.

Assessment

4. Can the ENA publish a list of the most common loss of mains (LoM) relay types and what action is required for each relay type? Can this be put into an app?

There are no current plans to do this.

[1] Or prior to 01 July 2018 if the site only has type tested inverters and no separate LoM relays

Protection Change

5. How do generation owners know what protection equipment is fitted to their generation equipment?

It will generally be obvious from any commissioning information and/or protection setting sheets for the generation equipment. It is a legal requirement that the generator owner maintains this information. However to the extent that owners need help in interpreting this information, it might be appropriate to engage an appropriate consultant/contractor to review the information, and make any required changes. This will minimise owners' costs in undertaking the changes where they need expert help to do this. Note also that some generating devices, ie particularly power electronic converters and inverters, will also have protection built in – these protection elements are also in scope – see FAQ 8 below.

6. If the protection is a multifunction relay which cannot be reset and/or where the LoM element cannot be separately disabled, will it be necessary to install new frequency and protection functionality?

Yes, it is essential that the four protection functions of under and over frequency and voltage are retained. If necessary it will be essential to install new relays to ensure this. However it is unlikely that any existing multi-function protection relay cannot be configured appropriately.

7. Is it acceptable to break any seals that might be applied to interface protection settings in order to reset them?

Yes. DNO/IDNOs have different policies on this and the implications and remedies will be picked up bilaterally between the generator owner and the DNO. The generation owner will need to bring each case to the attention of the DNO/IDNO.

8. What is needed to be done where LoM is implemented within the controller of a converter or inverter rather than in a discrete LoM relay?

The LoM resetting exercise applies to any discrete LoM protection element that is separately settable, whether located with the converter or inverter or elsewhere in the generation owner's installation.

Where LoM is implemented in the control algorithms of converter or inverters as rate of change of frequency (RoCoF) and/or vector shift, whether type tested or not, the settings must be changed to those required in the revised G59 – ie 1Hz/s 500ms delay and vector shift disabled. If the inverter does not use RoCoF or vector shift in its algorithms then there are no requirements to make any alterations to such converter or inverters.

In many cases it might be that it is not obvious on site whether the converter or inverter uses RoCoF and/or vector shift. In these cases it will be necessary to seek advice from the manufacturer.

9. Do these changes mean that the generation needs to be compliant with the new ER G99?

No – there is no linkage between the introduction of the EU Network Codes for new generation that came into force on 27 April 2019 and this resetting exercise, which only applies to generation equipment installed before February 2018[2].

10. Many older relays will be set to historic versions of G59 rather than the latest version and the relays might not be compatible with the most recent version. What is required for owners of these older relays?

It is a general principle that D Code (and therefore G59) requirements are not retrospective, unless specifically made so (DGC11.2 in the D Code). It is only the LoM settings, not the other interface (ie voltage and frequency) that have been made retrospective, so the existing under and over voltage settings and under frequency settings should remain as in G59. However there is merit in changing the over-frequency setting to a single stage 52.0 Hz if the existing relay is capable of that setting – but no compulsion to achieve this if that would mean changing the relay.

11. It was mentioned that frequency relays should be reset to 52 Hz if they were originally set at 50.5Hz (for G59/1). Please can you confirm if that requirement is to be mandatory?

It is desirable but not mandatory, depending on the capability of the relay. However generation owners should confirm that the frequency settings are compliant with the version of G59 that was in force when the generation was commissioned.

If a new relay is being fitted then the opportunity should be taken to implement the settings in the current version of G59 (ie single stage overfrequency; two stage underfrequency).

12. Is there any safety risk in disabling LoM?

In general no. The analysis undertaken shows there is actually less risk where VS is replaced by RoCoF. The analysis also shows that for non-synchronous generation (except DFIGs) RoCoF and VS are both ineffectual and the voltage and frequency protection required by G59 will detect island conditions more reliably than either RoCoF or VS.

Owners of synchronous generation do need to consider the risks of out of phase switching – but as above, this is less of a risk anyway when RoCoF at the new setting is used compared to VS protection.

13. Will the setting changes etc be witnessed by the DNO? Will there be a charge for witnessing?

DNOs will notify those owners where witnessing is needed. Generally this will be for a relay change or LoM disablement. There will be no charge for successful witnessing completed in a single visit.

[2] Or prior to 01 July 2018 if the site only has type tested inverters and no separate LoM relays.

14. Where can I find out more information? / Who do I need to speak to if I have more questions?

If you have any questions, please contact your DNO / IDNO contact for the programme:

https://www.ena-eng.org/ALoMCP/assets/other/ALoMCP_Emails.pdf