Frequency Changes during Large Disturbances and their Impact on the Total System – GC0079

Terms of Reference for:

1. Task Group to determine funding
2. Task Group to plan and deliver implementation

**Task Group A - Funding**

# Background

The implementation of GC0079 requires that all embedded generation is modified such that any discrete loss of mains protection (LoM) relays are only of the rate of change of frequency (RoCoF) type and set with a new specific setting. At the same time all vector shift (VS) relays are disabled or removed. Sites with registered capacity >5MW have already been approached to ensure that their RoCoF settings are updated. However it will be necessary to revisit this population to make ensure that VS protection is replaced.

The above work is likely to require every DG site (excepting domestic installations) to be visited to ascertain what protection is installed and then to undertake any remedial action for that site. There are approximately 40 000 sites in the scope of the GC0079 proposals. It is proposed that the programme to undertake these works is substantially completed within three years of it starting.

Currently there are no explicit allowances for funding this work, nor an obvious method of delivery. Compliance is the responsibility of the generation owner. However experience with the making these changes to the >5MW sites has led to the conclusion that completion of the programme for the much larger number of smaller sites, coupled with the diminishing expertise such owners can be expected have, is only likely to be completed via specifically funded and managed programme.

The GC0079 WG has estimated, with all the uncertainties around the numbers and types of protection at the 40 000 sites that the range of costs to complete this work is between £15M and £30M.

Task Group A is resolving how an appropriate funding mechanism can be put in place. Task Group B is determining how the programme should be discharged.

# Task

It is necessary to develop funding options for the work. These need to be worked up in sufficient detail so that through appropriate consultation the preferred route to funding can be chosen.

Once the preferred route has been selected, the task group will need to develop the proposal into the eventual mechanism to provide the funding in the right quantities and timescale for the work to be undertaken. This aspect may require some interaction with Task Group B to understand funding profiles etc.

The funding mechanism might involve changes to charging methodologies, codes or licences etc, or all of these. The task group will progress and preside over all the changes, and fully support any necessary activities by code panels, Ofgem etc.

# Scope

All possible methods of funding this activity are in scope, with the exception of each individual generator funding its own costs.

The funding sources include:

* BSUoS
* TNUoS
* System Operator Incentive Scheme
* DUoS

The above list is not intended to be exhaustive and the task group is free to explore other options.

All appropriate informal and formal liaisons with key stakeholders (including Ofgem) are within the scope of the task group.

# Deliverables

The ultimate deliverable is a clear formal framework that allows funds to flow into the delivery of the programme. It is currently envisaged that there would be interim deliverables along the following lines:

TGAD1 A report for the ENFG outlining all the options considered and the recommended mechanism. This will include a draft plan for completion of the task (will be updated for TGAD3).

TGAD2 A public consultation, if necessary, under appropriate governance, to support TGAD1.

TGAD3 A plan to be agreed by ENFG on the implementation for the recommended mechanism.

TGAD4 Detailed development of implementation requirements – including as necessary code and/or licence drafting and consultations.

TGAD5 Implementation of the mechanism up to the point when the first funds are received.

# Reporting Lines

This task group is formed under the auspices of the ENFG, who will agree the deliverables and who will provide the network licensee resources to work on the task group.

# Timescale

Funding is expected to be needed in 2018, as early as the necessary funding mechanism can be implemented.

Deliverable TGAD1 is required for discussion and agreement [In November 2017 or worst case at the ENFG meeting in December 2017].

TGAD2 needs to be fully complete (ie with stakeholder feedback, conclusions and recommendations) within 3 months of TGAD1 sign off.

TGAD3 to be signed off within 1 month of TGAD2 being signed off.

TGAD4 and TGAD5 dependent on TGAD3 plan.

# Membership

1. N G Member 1
2. N G Member 2
3. D N O Member 1
4. D N O Member 2
5. D N O Member 3

Members of the task group will need to ensure that between them they have a comprehensive understanding of the detail of existing regulated funding mechanisms, market arrangements etc, licence and legal, and other appropriate commercial arrangements. They will need appropriate knowledge of industry change mechanisms.

It might be appropriate for membership of the task group to change, particularly after delivery of TGAD1 – but this will be for the task group to propose.

**Task Group B – Implementation**

# Background

The implementation of GC0079 requires that all embedded generation is modified such that any discrete loss of mains protection (LoM) relays are only of the rate of change of frequency (RoCoF) type and set with a new specific setting. At the same time all vector shift (VS) relays are disabled or removed

The above work is likely to require every DG site (excepting domestic installations) to be visited to ascertain what protection is installed and then to undertake any remedial action for that site. There are approximately 40 000 sites in the scope of the GC0079 proposals. It is proposed that the programme to undertake these works is completed within three years of it starting.

Currently there is no obvious funding route for this work, nor an obvious method of delivery. The GC0079 WG has estimated, with all the uncertainties around the numbers and types of protection at the 40 000 sites that the range of costs to complete this work is between £15M and £30M.

Task Group A is resolving how an appropriate funding mechanism can be put in place. Task Group B is determining how the programme should be discharged.

# Task

The detailed specification for the work necessary at each embedded generator site will be produced by the GC0079 Work Group.

A programme of implementation needs to be created and delivered. The programme will need to consider how the specification referred to above can be implemented, ie what resources will be required – both to undertake the site work and to support and manage the programme.

To the extent that resources might need to be secured from the market, the task group will develop the overall procurement approach, the contracting approach (ie who is/are the contracting party/parties) and include the appropriate incentives for quality and timeliness etc in the contract development.

The task group will design the implementation programme and programme and project management. The task group will discharge the necessary programme management activities. Such design will need to pay careful attention to the customer service aspects of the project. Customers will need substantial guidance throughout all stages of the project, including pre-warning by letter etc. Customers with synchronous generation will need to be directed to the existing and changed risk profile of out-of-synch relcoses.

# Scope

The task group will consider all appropriate network licensee and external resources that can be procured to support the work.

# Deliverables

TGBD1 Outline overall approach to be signed off by ENFG, including broad contractual structure etc. [by November 2018 or worst case ENFG December 2018]

TGBD2 Detailed Implementation plan to be signed off by ENFG. This will include appropriate liaison with Task Group A to agree the profile of funding for the programme. Will also include

* Customer service considerations
* Overall branding – eg per DNO, or national programme etc.
* reporting metrics associated with the GC0079 Work Group specification
* contract incentivization mechanisms
* assurance programme
* key procurement milestones.

Required by [Feb 2018]

TGBD3 Key milestone reports – as determined by plan of TGBD2

TGBD4 Project completion and close down report.

# Reporting Lines

This task group is formed under the auspices of the ENFG, who will agree the deliverables and who will provide the network licensee resources to work on the task group.

# Timescale

Deliverable TGBD1 is required to be signed off at ENFG meeting in December 2017.

Deliverable TGBD2 provisionally to be signed off at ENFG meeting in March 2018.

Subsequent deliverables as required by TGBD2 plan.

# Membership

1. D N O Member 1
2. D N O Member 2
3. D N O Member 3
4. Etc

TBC