

CURRENT THINKING

February 2018

The approved minutes of the 2017 October Technical Committee meeting are now in the members area of the AMPS Website here (fgoo.gl/yefDMh)

~~41~~. The minutes and presentations often do not give a full view of the status of the items discussed and the business undertaken by the workgroups, so here is a review:

Box 1.

Workgroup 1 – Materials Compliance Leader: Stuart Hawkins

At the Technical Committee meeting in January, the name of this workgroup was changed from 'RoHS' to 'Materials Compliance' to reflect its work on WEEE and Battery Directives as well as RoHS.

Proposed revision to the wording of the RoHS Directive:

Application for exemption for lead in bearings (e.g. engine main and big end bearings).

Still no news, we are working with EUROMOT to pursue this.

It is now unlikely that the exemption could be issued before the RoHS 2 Directive is effective.

Two further derogation applications to be aware of:

Phthalates in fuel pipework and components.

One use of Phthalates is as plasticisers, and they are falling out of favour because of environmental and other problems. There are alternatives, but currently these alternatives are not suitable for certain applications.

Lead in solder – NRMM components with high heat/vibration requirements.

Category 11 exemption application for lead in solders used for sensors, actuators, and engine control units (ECUs) in NRMM engines.

Some types of professional use equipment contain engines, such as mobile generators, that may have to comply with both the NRMM Emissions Regulation (Stage V) as well as RoHS. As such, this will require replacing sensors, actuators and engine control units (ECU) with alternative designs that use lead-free solders – even though lead-free solders have different performance characteristics than traditional leaded solders and can be unreliable under severe conditions such as those experienced in NRMM engines (e.g. high temperature and vibration) ...

Procedure 2017/0013/COD

This is to amend the RoHS Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment. The reason for the change is to prevent the unnecessary production of waste and promote a circular economy, thus Article 4, paragraphs 3 and 4 are revised to add – “and to all other EEE that was outside the scope of Directive 2002/95/EC which is ‘placed on the market’ from 22 July 2019.” Previously this was ‘making available’. *

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* The original cast of the RoHS directive would have prohibited any secondary market operations which includes reselling or the second hand market of non-RoHS compliant product after July 22nd 2019, potentially resulting in a large volume of waste.

In simple terms, the difference between 'placing on the market' and making available on the market' is as follows:

'Placing on the market' is the initial action of making a product available for the first time on the Community market, with a view to distribution or use in the Community.

"Make available on the market" means to supply in the course of a commercial activity for distribution, consumption or use on the EU market.

Products excluded from the RoHS Directive, relevant to AMPS Members, include:

Large-scale fixed installations being a large-scale combination of several types of apparatus and, where applicable, other devices, which are—

- (a) assembled and installed by professionals;
- (b) intended to be used permanently in a pre-defined and dedicated location; and
- (c) de-installed by professionals.

But what does 'large' mean? One possible way of introducing a direct size criterion relates to transportation. If the installation exceeds the minimum requirements for one of the following criteria, it could be considered large-scale:

- If, when installing or de-installing the installation, it is too large to be moved in an ISO 20 foot container because the total sum of its parts as transported is larger than 5,71m x 2,35m x 2,39m, it can be considered large-scale.
- The maximum weight of many road trucks is 44 tonnes. Thus if, when installing or de-installing the installation, it is too heavy to be moved by a 44 tonne road truck, because the total sum of its parts as transported weighs more than the truck's load capacity, it can be considered large-scale.
- If heavy-duty cranes are needed for installation or de-installation, the installation can be considered large-scale. Again, there is no definition of what a 'heavy duty crane' is.
- An installation that does not fit within a normal industrial environment, without the environment needing structural modification, can be considered large-scale. Examples for modifications are modified access areas, strengthened foundations etc.
- If an installation has a rated power greater than 375 kW, it can be considered large-scale.

The above is only guidance, there is deliberately no specific definition in the regulations, as each case must be considered on its merits. It is suggested that the generating set etc.

documentation justifies and records the decision. It is the obligation of the 'economic operator' to comply.

There are other items on the list of excluded items, this is only an indicative list.

Also excluded from RoHS is 'Non-road mobile machinery made available exclusively for professional use, being machinery, with an on-board power source, the operation of which requires either mobility or continuous or semi-continuous movement between a succession of fixed working locations while working, and which is made available exclusively for professional use.' This now also includes NRMM with an external power source, but this is not likely to affect AMPS members, we feel.

RoHS 3 is coming!

WEEE Directive – Reminder

See Current Thinking 22/11/17 [here \[2,3,4,5\]](#)
Don't say we didn't warn you!

The register is public, and thus non-registration can be reported by anyone for investigation...

Declarations of Conformity (DoC)

Some examples were attached to the presentation.
The workgroup is considering producing examples of DoC in order to assist members. Again, any thoughts and suggestions from members would be appreciated.

Box 2

Workgroup 2 – Grid Codes – Leader: John Ruddock

This is still a busy area for the TC.
This is due to two drivers, firstly the change to G59 and G83 to standardise on RoCoF (Rate of Change of Frequency) grid failure detection, rather than VS (Vector Shift) protection. Secondly, the introduction of European electrical network grid codes to cover all aspects of grid operation and marketing.

Change to G59 and G83

The change to G59 and G83 is to standardise on RoCoF (Rate of Change of Frequency) grid failure detection, rather than permitting either RoCoF or VS (Vector Shift) protection. The reason for this is that on several occasions, it has been suspected that a transmission system fault that did not result in islanding, resulted in the inadvertent tripping of embedded generation plants by their LOM (Loss of Mains) protection. A definite event was recorded in GB on 22 May 2016 following a single transmission circuit fault. Further investigation of this event showed that a significant number of embedded generation plants had tripped as a result of the operation of VS protection. This event resulted in a loss of infeed power and a frequency excursion that was bigger than that which was anticipated. This was due in simple terms due to the remaining grid generated power being insufficient for the demand. See Current Thinking of 2018 January 16th [here \[6,7,8\]](#).

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As a result of the incident, an investigation took place and committee 'GC0035 The effects of frequency changes during large disturbances and their impact on the total system for generators greater than 5MW.' Was formed by National Grid. The result was a programme of changing to RoCoF protection on all such installations, with a setting of 1 Hz/s with a definite time delay of 500 ms.

Attention then turned to smaller generators and committee 'GC079 - The effects of frequency changes during large disturbances and their impact on the total system for generators Less than 5MW.' was formed. This resulted in the recent issue of EREC G59-3-3 with a removal of VS protection (ie LoM by RoCoF only) and a setting of 1 Hz/s with a definite time delay of 500 ms. This applied to new generators from 1st February 2018, and is not retrospective, but the issue of retrospective changes to existing sets is being reviewed.

European Electrical Network Codes

The Regulation 'Requirements for Generation Regulation' (RfG) establishing a European network code on the requirement for grid connection of generators (RfG) entered into force on 17 May 2016. The provisions of RfG set out detailed rules relating to the connection of, principally, new power generating installations to national electricity networks. This has come from an EU decision to create network codes to govern grid operation and trading rules, which were previously agreed nationally. Quoting from the EU energy website:

"A fully functioning and interconnected internal energy market is crucial for maintaining security of energy supply, increasing competitiveness and ensuring that all consumers can purchase energy at affordable prices. Europe's cross-border electricity networks are operated according to rules that govern the actions of operators and determine how access is given to users. In the past, these grid operation and trading rules were drawn up nationally. With increased interconnections between countries in the internal energy market, EU-wide rules have become increasingly necessary to effectively manage electricity flows. These rules, known as network codes or guidelines, are legally binding European Commission implementing Regulations. They govern all cross-border electricity market transactions and system operations alongside the EU Regulation 714/2009 on conditions for accessing the network for cross-border electricity exchanges."

RfG will be effective on 17th May 2018, when the new codes must be in place, which is entailing a rush of work to complete the new codes and standards necessary. New plant has to comply from 17th May 2019.

AMPS have been working with the Energy Network Association, who are responsible for mainlining the distribution code website, and whose members are the owners and operators of the electricity distribution networks in the UK. Together with National Grid, who maintain Grid Codes.

There are three relevant workgroups. AMPS have representatives on each group.

GC0100 - EU Connection Codes GB Implementation - Mod 1

This modification (1/4) will set out within the Distribution Code and Grid Code the following compliance obligations in the EU Connection Codes:

1. Scope and applicability of the RfG, DCC and HVDC requirements for GB users
2. Set the x4 Type (A-D) MW banding levels for GB, as required in RfG
3. Set the GB Fast Fault Current Injection parameters, as set out in RfG
4. Set the GB Fault Ride Through requirements, as set out in RfG and HVD

GC0101 - EU Connection Codes GB Implementation - Mod 2

This modification (2/4) will set out within the Distribution Code and Grid Code the following compliance obligations in the EU Connection Codes:

- 1. Set the Voltage & Reactive requirement in GB, as required in RfG and HVDC
- 2. Set the Frequency requirements in GB, as required in RfG and HVDC

GC0102 - EU Connection Codes GB Implementation - Mod 3

This modification (3/4) will set out within the Distribution Code and Grid Code the following compliance obligations in the EU Connection Codes:

- 1. Set the System Management parameters, as set out in RfG and HVDC
- 2. Set the Compliance requirements, as set out in RfG, DCC and HVDC

The banding levels are proposed as:

RfG Type (A-D) MW banding levels for GB				
	Type A	Type B		
Unit Power*	800 W to	1 MW to	10MW	50MW+
	1 MW	10 MW	50 MW	

*Nameplate rating of generator, not site total power.

Northern Ireland is separate, as it is part of the island of Ireland 'synchronous area'.

The reason for banding is that the technical requirements for sets, particularly electrical protection, get increasingly severe as the set kW increases.

Despite this being issued as a Regulation, which has effect equally across the EU, each Member State can vary the banding points and can set different technical requirements. So much for harmonisation!

A new grid connection engineering recommendation has been issued for consultation which will apply to new sets after May 2019. G59 and G83 will continue to apply to existing sets, as this new directive is not retrospective.

The new documents are:

Distribution Code report ([here \[11\]](#))

G98 in place of G83, for new sets (draft [here \[9\]](#))

G99 in place of G59, for new sets (draft [here \[10\]](#))

A 'final' version of G99 is being drafted and will be circulated to members when it is available.

Some amendments may follow. Testing and certification are still being debated, for example.

To complicate matters even further, CENELEC are proposing new European Standards 'prEN 50549 Requirements for generating plants to be connected in parallel with distribution networks'.

These are unlikely to be in place before 2019, and thus will probably replace G98 and G99 at a later date!

GC0095: GB implementation workgroup for Transmission System Operation Guideline (TSOG) European Network Code

The only relevance to AMPS is that control and monitoring of generation is being considered, and it will be retrospective.

Box 3

Workgroup 4 – Noise – Leader: Andrew Greer

This workgroup is becomingly involved in the revision to the Outdoor Noise Directive (OND), currently transposed into UK law as the 'The Noise Emission in the Environment by Equipment for use Outdoors Regulations 2001'. This sets noise limits for generating sets < 400 kW, for generating sets above this limit, the noise level is to be marked.

The Commission is not expected to table any draft OND amendment proposal before 2020. The workgroup is working with the Commission's consultants and with Orgalime, through Europgen.

The workgroup held a conference call on 29th January 2018 to establish an AMPS / Europgen position on a consultation taking place from 23 January 2018 - 18 April 2018. This includes questions specifically for SME's and manufacturers, so the Workgroup may be approaching AMPS members to gather information.

WG4 met twice in Q4 2017 to discuss possible alignment and misalignments with ORGALIME position document.

EUROPGEN has a good alignment with ORGALIME, but not a complete alignment, there is fundamental disagreement with 'self certification' or removing the involvement of Notified Bodies within the product noise level assessment.

AMPS and Europgen will strive to harmonise ISO 8528-10 to the revised OND – providing our industry control of its own product specific standard.

This Directive sits alongside the EU Environmental Noise Directive (END), which is also in an early stage of review.

Currently responsible for:

Noise Mapping (primarily) – to assess/ control existing environmental noise levels

Revision about to start, aims include:

Broadening of scope to further consider/ control potential adverse health effects of noise and to limit levels of noise producing equipment e.g. Gensets

Box 4

Workgroup 5 – Emissions – Leader: Richard Payne

Again, a very active workgroup. We wrote an article for AMPS Power which is available [here \[12\]](#). The workgroup leader, Richard Payne gave a presentation to the Technical Committee on the 25th of January 2018, to be found [here \[13\]](#). This gives details and timelines not found below.

To summarise the regulations and activity:

Non Road Mobile Machinery (NRMM) Stage V

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This was the subject of a 'current thinking' eshot on the 2nd June 2017, available [here \[14\]](#). The FAQ Document referred to is available [here \[15\]](#) and will be placed on the AMPS website.

The 'In Service' monitoring requirements for generating sets is not issued yet. Monitoring will have to be undertaken on plant that has been 'placed on the market'.

Medium Combustion Plant Directive (MCPD)

This came into force in England and Wales on 30th January 2018, by a Statutory Instrument, 'The Environmental Permitting (England and Wales) (Amendment) Regulations 2018' which amend the 1999 act.

Some Member States have advised that they have transposed MCPD into their legislation, other have not advised.

The permitting process is being formed / drafted and will be advised to members in due course.

UK Specified Generator Legislation

This is part of the above regulations, but is in addition to the MCPD, and is for England and Wales only. This targets generators of any size, not limited to the 1 MW thermal input lower limit of the core MCPD. Quote: 'in the case of a generator used to meet a capacity agreement or an agreement to provide balancing services, less than 50 megawatts (thermal input).

Research Development and Testing

RD&T is excluded from the MCPD but not the 'specified generator rule'. This could affect engine manufacturer's test plant, for example, since many are regenerative and can feed power back into the network.

DEFRA have stated that it was not the intention to include RD&T, but it is too late to change the legislation.

We have requested that clarification be given in the guidance documents.

London Supplementary Planning Guidance (SPG)

Stage IIIA Block exemption likely to be extended until 2020

London Environment Strategy and Air Quality

Amps submitted an input to the consultation on the draft London Environment Strategy. AMPS continue this, together with the general move towards discouraging the use of emergency generators in the balancing market. they are considering the requirement for aftertreatment on emergency generators together with further restrictions on mobile generators. We wrote an article for AMPS Power which is available [here \[13\]](#).

Box 5

Workgroup 7 – Standards - Leader: Jean-Michel Geiller

The main efforts of this workgroup is to monitor and comment on revisions to ISO 8528 through ISO Committee TC/70. These standards then usually become British Standards (e.g. BS ISO 8528-X).

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It is worth mentioning at this point that the Technical Committee has been instrumental in revitalising BSI Committee 'MCE/14 RIC Engines' (You will find the term RIC defined in 'jargon buster' as 'Reciprocating Internal Combustion'). Andrew Greer is the Chairman of the Committee, independent of AMPS, and three other technical committee members sit on the committee. The Technical Secretary is a 'papers only' member, and just receives correspondence. Subcommittee 'MCE/14/-0/08 – Generating sets' met after the Technical Committee meeting in January.

Box 6

Workgroup 9 – Equipment Safety – Leader: Andrew Greer

The main focus of this workgroup is the Machinery (Safety) Directive. This has been transposed into UK Law by the Supply of Machinery (Safety) Regulations 2008 et al.

EUROPGEN is currently completely aligned with ORGALIME positions on the Machinery Directive revision requirements. The main position is to avoid more onerous requirements until the existing requirements can be effectively enforced, i.e. that the current MD remains fit for purpose.

Target for issue of the revised MD will be 2024. The Workgroup will continue to be involved in consultations, workshops and meetings etc.

Please send any queries, comments, requests for further information to TechSec@AMPS.org.uk.

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