



Engineering Recommendation S38

Issue 2 2016

Reporting of SF₆ banks, emissions and recoveries

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First published, June, 2007

Revised, 2016

Amendments since publication

Issue	Date	Amendment
1	2007	First issue
2	2016	<p>Minor revision of Issue 1 in light of changes to the Fluorinated Greenhouse Gases Regulations 2015 [2] and Ofgem requirements for SF₆ reporting.</p> <p>This issue includes the following principal technical changes.</p> <p>Clause 5. Calculating the SF₆ Bank: Added gas cylinders and storage vessels and GIS to SF₆-filled equipment. Added requirement for appropriate inventories and control of gas cylinders and storage vessels to be in place. Added requirement for master spreadsheet to list individual SF₆ compartments ≥ 6 kg. Additional parameters added to improve transparency of reporting including:</p> <ul style="list-style-type: none">• Compartment/gas system volume.• Gas pressure for service (@ 20 °C).• Mass of SF₆ at service pressure.• Percentage SF₆ content (where gas mixtures are used). <p>Added 'other electrical equipment containing SF₆'. Clarified that the SF₆ bank includes SF₆ held in switchgear, GIS and other electrical equipment containing SF₆ irrespective of whether the equipment is or is not connected to the transmission system / distribution network.</p> <p>Deleted "Where the nameplate mass of SF₆ for a particular type of SF₆-filled equipment is ≥ 6 kg, then".</p>

	<p>Clause 6. Installation emissions: Added requirement for measurement accuracy to be ≤ 0.1 kg where the quantity of SF₆ used to fill the equipment is ≤ 22 kg and measurement accuracy ≤ 0.5 kg where the quantity of SF₆ used to fill the equipment is > 22 kg. Added requirement for the MC to keep a record of the third party staff that carried out the SF₆ recovery and filling operations, in order to conform to new recording requirements in the FGG Regulations.</p> <p>Clause 7. Use emissions: Removed requirement for equipment failure resulting in loss of gas to 'Final use and disposal emissions'.</p> <p>Clause 8. Final use and disposal emissions: Clarified that the SF₆ quantity emitted will be deemed to be the nameplate mass of SF₆ except for transmission equipment, where there is an option for transmission equipment to use actual measured mass of SF₆ used to fill equipment as opposed to the nameplate mass of SF₆ including associated footnote. Changed "The MC will confirm that the third party will not double count this [mass of SF₆ recovered from equipment]" to "The MC will take reasonable steps to communicate this requirement and to ensure that the third party will not double count this [mass of SF₆ recovered from equipment]".</p> <p>Clause 9. Reporting: Changed title from "External reporting". Added recommendation to reporting SF₆ emissions in CO₂ equivalent using product of Global Warming Potential (GWP) for SF₆. Added requirement to keep records of emissions for a minimum of 5 years. Clarified the MC may optionally elect to separately report SF₆ recovered during reporting year. Clarified the 'SF₆ Bank' in addition to the 'SF₆ Emitted' are taken into account.</p> <p>Details of all other technical, general and editorial amendments are included in the associated Document Amendment Summary for this Issue (available on request from the Operations Directorate of ENA).</p>
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Contents

Foreword	7
Introduction.....	8
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions.....	9
4 General	10
5 Calculating the SF ₆ bank	10
6 Installation emissions.....	11
7 Use emissions.....	12
8 Final use and disposal emissions	13
9 Reporting	13
Bibliography.....	16

Figures

Figure 1 — SF ₆ Reporting Flowchart.....	15
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Foreword

This Engineering Recommendation (EREC) is published by the Energy Networks Association (ENA) and comes into effect from the date of publication. It has been prepared under the authority of the ENA Engineering Policy and Standards Manager and has been approved for publication by the ENA Electricity Networks and Futures Group (ENFG). The approved abbreviated title of this engineering document is “EREC S38”, which replaces the previously used abbreviation “ER S38”.

This issue cancels and replaces Issue 1 2007.

This EREC sets out a common reporting methodology for ENA Member Companies (MCs) to report banks, emissions and recoveries of SF₆. Specific recommendations associated with handling SF₆ gas are contained in ENA Engineering Recommendation G69 [N1].

This EREC has been revised, with direction from the ENA Switchgear Assessment Panel (SAP) and the ENA Safety, Health & Environment (SHE) Managers Group, to ensure the recommendations contained within conform to current statutory and regulatory requirements for reporting SF₆ banks and emissions.

Since ER S38 was first published, the Fluorinated Greenhouse Gases Regulations (F-Gas Regulations) [2] have been enacted and subsequently amended. In addition, Ofgem requirements for reporting SF₆ have been introduced, including the requirement for transmission system and distribution network license holders to issue an annual Environmental Report containing details of SF₆ emissions. Although the common reporting methodology specified in ER S38 Issue 1 remains valid, additional recommendations for improving the accuracy and transparency of reporting SF₆ banks and emissions have been introduced.

Where the term “shall” is used in this document it means the requirement is mandatory. Where the term “should” is used in this document it means the provision is a recommendation. The term “may” is used to express permission.

NOTE: Commentary, explanation and general informative material is presented in smaller type, and does not constitute a requirement.

Introduction

The UK Government has an obligation to report emissions of SF₆, and other fluorinated greenhouse gases, as a result of the Kyoto Protocol and pursuant to EU Regulations on fluorinated greenhouse gases¹ [1]. Manufacturers, owners and operators of SF₆-filled equipment, including MCs, and service companies² have a duty under the Fluorinated Greenhouse Gases Regulations [2] to prevent emissions of SF₆ and to keep records of SF₆ added to and recovered from SF₆-filled equipment. This is to facilitate reporting of SF₆ emissions. In addition, Ofgem requires MCs to report annually on their holdings (“banks”) and emissions of SF₆.

Consequently, MCs have in place systems to identify their holdings of SF₆ and to record quantities of SF₆ gas used or recovered from electrical equipment during service activities and at end of life.

The Intergovernmental Panel on Climate Change (IPCC), set up by the World Meteorological Organisation and the United Nations Environmental Programme, has established a number of reporting methodologies relating to SF₆ [3]. MCs have agreed a common framework for reporting banks, emissions and recoveries of SF₆, which is based on the IPCC “Tier 3 – Hybrid Life Cycle” reporting methodology, considered to be the most accurate.

1 Scope

This EREC specifies a common reporting methodology on banks, emissions and recoveries of SF₆ to be followed by MCs.

The scope of this EREC applies to the life cycle use of SF₆ whilst under the ownership and control of MCs.

The scope of this EREC applies to SF₆ contained within assets either installed on the transmission system /distribution network or held in inventory.

2 Normative references

The following referenced documents, in whole or part, are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Standards publications

Not applicable

¹ The Fluorinated Greenhouses Gases Regulations 2015 [2] are the UK implementation of various EU Regulations on fluorinated greenhouse gases.

² Service companies are those companies that install, maintain, service, repair and decommission SF₆-filled equipment on behalf of owners and operators.

Other publications

[N1] ENA EREC G69, *Guidance on working with sulphur hexafluoride*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

ENA

Energy Networks Association

3.2

EREC

Engineering Recommendation

3.3

GIB

gas insulated busbar

3.4

GIL

gas insulated line

3.5

GIS

gas insulated switchgear

3.6

Global Warming Potential (GWP)

global warming impact of a greenhouse gas compared with the impact for the same mass of CO₂

3.7

Member Company (MC)

Member Company of the Energy Networks Association

3.8

SF₆

sulphur hexafluoride including mixtures containing sulphur hexafluoride

3.9

SF₆-filled equipment

equipment for use on transmission systems and/or distribution networks, which contains SF₆

NOTE: SF₆-filled equipment includes but is not limited to: SF₆-filled switchgear, GIS, GIB, GIL, SF₆-filled transformers, SF₆-filled reactors and SF₆-filled instrument transformers.