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Flödesbatterier – Vägledning för specifikation, installation och drift

Flow batteries –

Guidance on the specification, installation and operation

(CENELEC Workshop Agreement CWA 50611:2013)

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CENELEC WORKSHOP AGREEMENT

CWA 50611

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English version

Flow batteries - Guidance on the specification, installation and operation

This CENELEC Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Committees of CENELEC but neither the National Committees of CENELEC nor the CEN-CENELEC Management Centre can be held accountable for the technical content of this CENELEC Workshop Agreement or possible conflicts with standards or legislation.

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This CENELEC Workshop Agreement is publicly available as a reference document from the CENELEC Members National Committees.

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Contents	Page
Foreword.....	4
Introduction.....	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	7
4 Technology selection – comparison against batteries and other storage, financial implications	19
4.1 Summary.....	19
4.2 Life Cycle Cost Methodology	19
4.3 Comparison between different types of batteries	22
4.4 System costs.....	22
4.5 Investment criteria.....	23
4.6 Influence of peak power.....	23
4.7 Influence of rated energy	23
4.8 Battery sizing	23
4.9 Maintenance	23
5 Specification, performance, test methods, life cycle.....	24
5.1 Parameters to be specified.....	24
5.2 Test procedures – Flow Battery	26
5.3 Test procedures – Flow Battery Energy Storage System	29
6 User Manual	30
6.1 General.....	30
6.2 Introduction	30
6.3 Overview of battery product or system.....	30
6.4 Important contact information and other basic details	30
6.5 Safety Warning.....	30
6.6 Technical Specifications.....	31
6.7 Product Description	32
6.8 Site Requirements	32
6.9 Operation	33
6.10 Maintenance	34
6.11 Fault finding	34
6.12 Warning Labels	35
6.13 Disposal	36
6.14 Appendices.....	36
7 Installation of Flow Batteries.....	36
7.1 General.....	36
7.2 Existing Standards and Guidelines	36
7.3 Shipping.....	40
7.4 Pre-Commissioning	41
7.5 Commissioning	41
7.6 Operation	41
7.7 Decommissioning.....	42
7.8 Regulations	42
Annex A (informative) Listing of Applicable Regulations, Standards and Guidelines	44
A.1 Piping and Pressure Vessels.....	44
A.2 Process Safety	44
A.3 Rotating Equipment.....	44

A.4	Chemicals Handling	45
A.5	Safety Instrumented Systems (SIS).....	45
A.6	Process Control.....	45
A.7	Electrical Grid	46
A.8	ATEX Regulations	47

Foreword

This CENELEC Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties by correspondence on 2013-03-18, the constitution of which was supported by CENELEC following the public call for participation made on 2011-09-21.

A list of the individuals and organizations which supported the technical consensus represented by the CENELEC Workshop Agreement is available to purchasers from the CEN-CENELEC Management Centre. These organizations are as follows:

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The formal process followed by the Workshop in the development of the CENELEC Workshop Agreement has been endorsed by the National Members of CENELEC but neither the National Members of CENELEC nor the CEN-CENELEC Management Centre can be held accountable for the technical content of the CENELEC Workshop Agreement or possible conflict with standards or legislation. This CENELEC Workshop Agreement can in no way be held as being an official standard developed by CENELEC and its members.

The final review/endorsement round for this CWA was started on 2013-02-13 and was successfully closed on 2013-03-18. The final text of this CWA was submitted to CENELEC for publication on 2013-03-18.

This CENELEC Workshop Agreement is publicly available as a reference document from the National Committees of the following countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Comments or suggestions from the users of the CENELEC Workshop Agreement are welcome and should be addressed to the CEN-CENELEC Management Centre.

Introduction

Flow Battery Hierarchy

This CENELEC Workshop Agreement (CWA) covers a number of separate types of Flow Batteries and Flow Battery Energy Storage Systems

Flow Batteries used for experimental, work, research, development, design or laboratory purposes are outside the scope of this Workshop Agreement. For purposes of this CWA, systems have been grouped into a hierarchy with three broad categories, based on their physical configuration:

Packaged Systems: Self-contained units, packaged, sold and installed as a single unit containing all parts of the Flow Battery, including the power conversion system, all contacts and fittings for connection to the local AC electricity network. Packaged systems may also be supplied as detailed above but configured for use on an off-grid AC or DC system.

Such devices will tend to be at the smaller power and energy levels. The user has restricted access to the Flow Battery Energy Storage System within the packaging. Examples include small Flow Battery devices designed for use as standalone installations for remote telecom systems.

Containerised systems: Units designed and packaged in shipping (ISO) containers, or similar large scale enclosures. The system is factory assembled, the containers are transported to the operating site, and installed in their as-supplied condition, with minimal on-site installation works.

Containerised systems may be supplied with the power conversion system or without a power conversion system and this latter unit would be configured for connection to a power conversion system or other electrical connection.

Large-scale installations: Installations, which may use a generic or specific design for an individual installation. These systems may be assembled from individual components listed in 3.34 or from sub-assemblies such as skid mounted modules complete with associated pipes, pumps, valves and sensors.

Flow Battery types

There are a number of different types of Flow Batteries, using different electrochemistries and layouts. Manufacturers may supply from a standard product range, or supply customised or bespoke Systems. Users of this CWA are advised to consult up-to-date references for details of each type of Flow Battery.

NOTE The definition of a Flow Battery is given in Section 3.34 of this CWA.

1 Scope

This CWA provides guidance on the specification, installation and operation of Flow Batteries. It facilitates the pre-commercial phase, when a potential client needs to compare technical requirements of different types of Flow Batteries, or simply needs to compare between Flow Batteries and conventional electricity storage devices. It gives potential clients confidence that the batteries are sufficiently robust to meet the requirements of the designated application. This CWA also provides guidance for conformity assessment bodies to benchmark the Flow Batteries' conformity with existing directives and other regulations.

2 Normative references

N/A

¹ IEC definitions are shown at <http://www.electropedia.org/iev/iev.nsf/index?openform&part=482>