

CLC Workshop ‘Performance for non-common vehicles based on advanced cell technology’

Workshop description form

- PART A – Workshop Summary
- PART B – Project Plan

PART A – Workshop SUMMARY

1	WS details	
1.1.	Organization	<input type="checkbox"/> CEN <input checked="" type="checkbox"/> CENELEC <input type="checkbox"/> Joint with <input type="checkbox"/> CEN lead <input type="checkbox"/> CENELEC lead
1.2.	Title	CLC WS “Performance for non-common vehicles based on advanced cell technology”
1.3.	Scope	This workshop aims to establish a solution for the accurate characterisation of non-standard vehicle operating conditions.
1.4.	Does this WS stem from an EU Research project?	<input checked="" type="checkbox"/> YES Name of the project: Safe Efficient Battery System Based On Advanced Cell Technology Grant number: 101103821 End date 31 December 2026 <input type="checkbox"/> NO
1.5.	Financial support	<input checked="" type="checkbox"/> EU Research project <input type="checkbox"/> EC/EFTA Grant reference: Type here <input type="checkbox"/> Other Specify, if needed: Type here
1.6.	WS Proposer/Proposed Chair	Name: Mikel Arrinda Martinez Organization: CIDETEC Postal address: Oianguren, 5, 20170 Donostia - San Sebastián, Gipuzkoa Email: marrinda@cidetec.es Phone: 943309022 Webpage: https://energystorage.cidetec.es/es/ Contact person (name and email): Mikel Arrinda. marrinda@cidetec.es
1.7.	WS Secretariat	Organization: UNE – Spanish association for standardization Postal address: Calle Génova 6, Madrid (Spain),28004 Email: info@une.org Phone: +34 915 294 900 Webpage: www.une.org WS Secretary name: Luis Peñaloza Villamizar Email: lpenaloza@une.org Phone: +34 659 80 97 37
1.8.	CEN and CENELEC Management Centre (CCMC) contact	Organization: CEN and CENELEC Postal address: Rue de la Science 23B - 1040 Brussels, Belgium Webpage: https://www.cencenelec.eu/Pages/default.aspx CCMC Project Manager name: Claire Van Thielen Email: cwa@cencenelec.eu Phone: +3225500831 +32478793545
1.9.	Tentative date and place of the Kick-off Meeting	Date: 03/03/2026 Place: Teams

1.10.	Does the proposed Workshop fall within the scope of existing CEN and/or CENELEC Technical Bodies?¹	<input checked="" type="checkbox"/>	YES Specify: CLC/TC 21X	<input type="checkbox"/>	NO
1.11.	Are there other Technical Bodies or Joint Advisory and Coordination Groups potentially interested in the Workshop? ²	<input checked="" type="checkbox"/>	YES Specify: CEN-CLC/COG 'eMobility'	<input type="checkbox"/>	NO
1.12.	Are the following aspects affected?	Safety matters	YES ³	<input type="checkbox"/>	NO <input checked="" type="checkbox"/>
		Management system aspects	YES ⁴	<input type="checkbox"/>	7 <input checked="" type="checkbox"/>
		Conformity assessment aspects	YES ⁵	<input type="checkbox"/>	NO <input checked="" type="checkbox"/>
		Security matters	YES ⁶	<input type="checkbox"/>	NO <input checked="" type="checkbox"/>
					NO <input type="checkbox"/>
					8 <input type="checkbox"/>
Add information/explanations if Management System aspects and Conformity Assessment aspects are affected: Type here					
2 WS Deliverables					
2.1.	CWA #1				
2.1.1	Title	<input type="checkbox"/>	Same as WS title (1.2)	<input checked="" type="checkbox"/>	Other: Reference driving cycle for off-road electric vehicles
2.1.2	Scope		Non common electric vehicle applications such as off-road electric vehicles suffer from a lack of specific standards adjusted to the unique characteristics of these applications. It is needed to provide standardized driving cycles for the different off-road applications such as the proposed here, the excavators.		
2.1.3	Does the proposed CWA conflict with a published EN	<input type="checkbox"/>	YES Specify: Type here	<input checked="" type="checkbox"/>	NO In case the answer is 'yes', the development of the CWA shall be stopped

¹ Part A and Part B of this form shall be sent by the WS secretary to the secretary of the Technical Bodies identified in this section to inform them about the creation of the WS and register any possible objection within 30 days (45 during the holiday period).

² Part A and Part B of this form should be sent by the WS secretary to the Bodies identified in this section to inform them about the creation of the WS.

³ Work on the proposed CEN and/or CENELEC Workshop shall not be initiated.

⁴ The CEN and/or CENELEC Workshop proposal shall be submitted to the CEN/CENELEC BT(s) for decision.

⁵ CEN-CENELEC Internal Regulations - Part 3, Clause 33 applies.

⁶ For projects dealing with security matters the security risk analysis provided in Annex I shall be carried out.

⁷ See Note 2 in CEN-CENELEC Guide 29, Clause 3.

⁸ See Note 2 in CEN-CENELEC Guide 29, Clause 3.

PART B – Project Plan

1 Abstract

The CENELEC Workshop is initiated to address the need for a standardised solution to characterize accurately the operating conditions of excavators as off-road vehicles. This includes the electric power profile that represents the common operating conditions of an excavator. The CWA will define the driving cycle for an excavator and comparative assessments with electric vehicle generic driving cycles.

2 Status of the project plan

Draft project plan for public commenting (Version 1.0)

This draft project plan is intended to inform the public of a new Workshop. Any interested party can take part in this Workshop and/or comment on this draft project plan by sending an email to the WS secretary.

All those who have applied for participation or have commented on the project plan by the deadline will be invited to the kick-off meeting of the Workshop on 2026-03-03.

3 Workshop proposer and potential Workshop participants

3.1 Workshop proposer

BATSS

The main objective of the BATSS project is to develop a cell-to-pack modular battery system concept that ensures exceptional safety and electro-thermal performance for off-road e-vehicles and semi-stationary applications. The project will require to test the developments under realistic operating conditions. Thus BATSS is developing driving cycles for an excavator as a non-common off-road electric vehicle.

3.2 Potential participants

This CWA will be developed in a Workshop (temporary body) that is open to any interested party. The participation of the following persons/organizations would be helpful and is desired. It is recommended that:

- Industry and commerce
- Government
- Consumer
- Academic and research
- Standards application
- Non-governmental organization (NGOs)

take part in the development of this CWA.

4 Workshop objectives and scope

This workshop will:

- Provide a reference driving cycle for electric excavators as off-road electric vehicles scalable to a range of sizes. It will allow to match the performance requirements of the excavator with the performance rate of the battery system.

The development of this CWA “Use case validation profile for off-road applications” is proposed by the Horizon Europe project BATSS, to address the lack of specifications in non-common electric vehicles such as an electric excavator inside the off-road electric vehicles.

4.1 Workshop background

This Workshop has been initiated in recognition of the objectives of the Horizon Europe BATSS project, in which a novel battery system concept which exhibits improved high-performance and safety to a broad range of transport applications is being developed. One of the transport application considered in the project is an electric excavator inside the off-road electric vehicles. Consequently, the performance evaluation methods customized for such use case have been analysed, which has lead to develop a reference driving cycle for this kind of specific off-road transport application.

The CWA aims to define a harmonised driving cycle for evaluating the performance requirements specific transport applications such as an electric excavator has. The main differences with reference driving cycles present in standards that set-up requirements to design the battery systems of common road electric vehicles. With the growing number of national regulatory sandboxes on battery system design and the 2025-2026 timeline for several Horizon Europe pilot validations, this CWA is timely. It ensures that the results from BATSS, and other projects can converge into a replicable framework while also informing EU standardization policy discussions. The resulting CWA is expected to benefit battery developers and electric excavator OEMs seeking a representative driving cycle that describes accurately the specific performance requirements of such of electric vehicles. BATSS address this gap by evaluating the results of a PhD thesis result with 2 real life electric excavator’s electric power profiles provided by the OEMs of BATSS’s consortium. This will boost the optimization of battery system development for non-common applications and the electrification of the transport sector. The outcome will provide technology-agnostic, use case specific driving cycle that can support regulatory generalities and ensure appropriate battery system design and performance under non-common transport applications, in this case an electric excavator.

Market environment

Electric off-road vehicles are more common, and enterprises such as FMF are commercializing electric excavators in all the countries where it has a presence, which includes over 160 countries across Europe, Asia, Africa, Oceania, and Latin America, supported by 4,200 sales and service points. Despite these advancements, the market lacks standardized driving cycles for such specific use cases such as the electric excavators. Current solutions come from customized profiles developed by each OEM of electric excavators. The proposed CWA aims to provide a reference driving cycle that could be used by any electric excavator battery system designer, with which the possible battery developers for these kinds of electric transport applications will increase and

will be able to match the specific performance requirements these applications require. By comparing with existing reference driving cycles of common electric transport applications and incorporating insight from the BATSS project, the CWA will highlight the need to adopt specific driving profiles for each specific transport application, ensuring it contributes positively to the transport electrification in any non-common application and the EU's energy transition goals.

Existing standards and standard related activities and documents:

The following summarizes relevant regulations, standards and specifications that set the framework the framework for the new Workshop:

- UN38.3 Manual of Tests and Criteria Section.
- UN100 Uniform Provisions Concerning the Approval of Vehicles with Regard to Specific Requirements for the Electric Power Train
- EN 62620 Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for use in industrial applications.
- EN IEC 62660 Secondary lithium-ion cells for the propulsion of electric road vehicles.
- ISO 12405 Electrically propelled road vehicles — Test specification for lithium-ion traction battery packs and systems

The following driving cycles are the reference for electric vehicle performance validation:

- WLTP (Worldwide Harmonized Light Vehicles Test Procedure): A global standard that aims to be more representative of real-world driving by combining urban and highway conditions. It is the current standard in Europe and Asia.
- EPA FTP-75 (Federal Test Procedure): An older U.S. standard often referred to as the "city cycle," designed to represent typical urban, stop-and-go driving conditions.
- EPA Highway Cycle: A U.S. cycle that simulates highway driving at more constant speeds, used for estimating long-distance range.
- NEDC (New European Driving Cycle): The previous European standard, now mostly replaced by WLTP, which was less representative of real-world driving.
- UDDS (Urban Dynamometer Driving Schedule): Another U.S. cycle that represents urban driving, similar in principle to the FTP-75.
- JC08: A Japanese driving cycle used for testing vehicles in that country.

By aligning the development of the CWA "Use case validation profile for off-road applications" with these regulations, standards and reference driving cycles, the Workshop will quantify the differences in driving cycles (differences in performance requirements) and provide the ground for optimized battery systems for electric excavators.

5 Workshop programme

5.1 General

The kick-off meeting is planned to take place on 2026/02/27 in an online meeting. A draft for public commenting will be published for 60 days.

A total of 3 Workshop meetings (kick-off meeting and Workshop meetings) and web conferences will be held, during which the content of the CWA(s) will be presented, discussed and approved.

The working language (language of meetings, minutes, etc.) of the WS will be **English**. The CWA will be written in **English**.

5.2 Workshop schedule

Table 1: Workshop schedule (preliminary)

CEN/CENELEC Workshop	Dec 25	Jan 26	Feb 26	Mar 26	Apr 26	May 26	Jun 26	Jul 26	Aug 26	Sep 26
Initiation	█									
1. Workshop description form submission and TC response	█									
2. Open commenting period on draft project plan (mandatory)		█								
Operation				█						
3. Kick-off meeting				█						
4. CWA(s) development				█			█			
5. Open commenting period on draft CWA(s) (optional)							█			
6. CWA(s) finalized and approved by Workshop participants								█		
Publication									█	
7. CWA(s) publication									█	
Dissemination (see 6)		█							█	
Milestones				K		V		V	A	P D



Legend

- K Kick-off
- M Workshop meeting
- V Virtual Workshop meeting
- A Adoption of CWA
- P Publication of CWA
- D Online distribution of CWA

6 Resource planning

All costs related to the participation of interested parties in the Workshop's activities have to be borne by themselves. This principle should be stated in the project plan.

The Workshop secretariat costs will be financed within the framework of the BATSS Horizon Europe project.

7 Workshop structure and rules of cooperation.

7.1 Participation in the Workshop

The Workshop will be constituted during the kick-off meeting. By approving this project plan, the interested parties declare their willingness to participate in the Workshop and will be formally named as Workshop participants, with the associated rights and duties. Participants at the kick-off meeting who do not approve the project plan are not given the status of a Workshop participant and are thus excluded from further decisions made during the kick-off meeting and from any other decisions regarding the Workshop.

As a rule, the request to participate in the Workshop is closed once it is constituted. The current Workshop participants shall decide whether any additional members will be accepted or not.

Any new participant in the Workshop at a later date is decided on by the participants making up the Workshop at that time. It is particularly important to consider these aspects:

- a. expansion would be conducive to shortening the duration of the Workshop or to avoiding or averting an impending delay in the planned duration of the Workshop;
- b. the expansion would not result in the Workshop taking longer to complete;
- c. the new Workshop participant would not address any new or complementary issues beyond the scope defined and approved in the project plan;
- d. the new Workshop participant would bring complementary expertise into the Workshop in order to incorporate the latest scientific findings and state-of-the-art knowledge;
- e. the new Workshop participant would actively participate in the drafting of the manuscript by submitting concrete, not abstract, proposals and contributions;
- f. the new Workshop participant would ensure wider application of the CWA.

All Workshop participants who approved the publication of the CWA or its draft will be named as authors in the European Foreword, including the organizations which they represent. All Workshop participants who did not approve the publication of the CWA will not be named in the European Foreword.

7.2 Workshop responsibilities

The Workshop Chair is responsible for content management and consensus building. The Workshop Chair is supported by the Workshop Vice-Chair (if any) and the responsible Workshop secretariat, whereby the Workshop secretariat will always remain neutral regarding the content of the CWA(s). Furthermore, the Workshop secretariat shall ensure that CEN-CENELEC's rules of procedure, rules of presentation, and the principles governing the publication of CWA(s) have been observed. Should a Workshop Chair no longer be able to carry out her/his duties, the Workshop secretariat shall initiate the election of a new Workshop Chair. The list below covers the main tasks of the Workshop Chair. It is not intended to be exhaustive.

- Content related contact point for the Workshop
- Presides at Workshop meetings
- Ensures that the development of the CWA respects the principles and content of the adopted project plan
- Manages the consensus building process, assesses when the Workshop participants have reached agreement on the final CWA, on the basis of the comments received
- Ensures due information exchange with the Workshop secretariat
- Represents the Workshop and its results to exterior

The Workshop secretariat, provided by a CEN and/or CENELEC Member, is responsible for organizing and leading the kick-off meeting, in consultation with the Workshop proposer. Further Workshop meetings and/or web conferences shall be organized by the Workshop secretariat in consultation with the Workshop Chair. The list below covers the main tasks of the Workshop secretariat. It is not intended to be exhaustive.

- Administrative and organizational contact point for the Workshop
- Ensures that the development of the CWA respects the principles and content of the adopted project plan and of the requirements of the CEN-CENELEC Guide 29
- Formally registers Workshop participants and maintains record of participating organizations and individuals
- Offers infrastructure and manages documents and their distribution through an electronic platform
- Prepares agenda and distributes information on meetings and meeting minutes as well as follow-up actions of the Workshop
- Initiates and manages CWA approval process upon decision by the Workshop Chair
- Interfaces with CEN-CENELEC Management Centre (CCMC) and Workshop Chair regarding strategic directions, problems arising, and external relationships
- Advises on CEN-CENELEC rules and brings any major problems encountered (if any) in the development of the CWA to the attention of CEN-CENELEC Management Centre (CCMC)
- Administrates the connection with relevant CEN or CENELEC/TCs

7.3 Decision making process

The CEN and/or CENELEC Workshop Chair is responsible for ensuring that the development of the CWA follows the principles and content of the project plan described in this document and the requirements of CEN-CENELEC Guide 29. The CEN and/or CENELEC Workshop Chair may take decisions on the conduct of the CEN and/or CENELEC Workshop on the basis of the comments expressed by the participants and of CEN-CENELEC Guide 29.

Decisions shall be taken based on consensus of the WS participants.

8 Dissemination and participation strategy

Potential participants identified in section 2.2 and potential interested stakeholders identified in Part A should be informed of the open commenting phase, if any, and of the publication of the CWA.

To ensure broad visibility and participation, the outcomes of the CLC Workshop, including the final CWA, will be disseminated through a **coordinated, multi-channel campaign** leveraging both BATSS communication channels and external sector-focused platforms.

BATSS communication channels will include:

- **BATSS website:** Publication of a dedicated news article highlighting the workshop objectives, progress, and the final CWA, accompanied by downloadable materials and links to relevant resources.
- **BATSS social media:** Targeted posts on LinkedIn and X to promote workshop registration, share live updates, and announce the publication of the CWA. Posts will be amplified through partner organisations' networks to maximise reach among industry, research, and policymaking communities.
- **BATSS newsletter:** Featuring the workshop results and the release of the CWA in an upcoming issue, circulated to subscribed stakeholders and followers across Europe.

External dissemination channels:

- **Sector-specific newsletters and associations:** The workshop and its outcomes may also be promoted through networks such as EARPA, BEPA, EGVIFor2Zero, and other relevant clusters or industry groups.
- **EU news platforms:** Submission of a short article to the European Commission's Newsroom and potential inclusion in thematic newsletters on energy, mobility, or standardisation.
- **ResearchGate:** Publication of the CWA announcement, key findings, and related scientific content to reach the research community will be considered.
- **Partner amplification:** All consortium members will be encouraged to share the materials via their institutional newsletters, social media channels, and event calendars, enhancing national and regional visibility.

This multi-layered dissemination approach will ensure that the workshop outputs, including the final CWA, reach a wide audience including technical experts, researchers, industry stakeholders, standardisation bodies, and EU policy actors.