

CIGRE Study Committee C5

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

JWG N° C5/C1.36	Name of Convenor: Ricardo Gedra (BR) E-mail address: ricardo.gedra@ccee.org.br
Strategic Directions #2: 1, 3	Sustainable Development Goal #3: 7, 13
The JWG applies to distribution networks: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	
Potential Benefit of WG work #4 : 1, 3	
Title of the Group: Certification of the electricity used to produce hydrogen	
<p>Scope, deliverables and proposed time schedule of the WG:</p> <p>Background:</p> <p>Hydrogen is being considered a promising fuel to be used in the energy transition that the world is going through. This fuel has many applications, but it has a greater potential for application in sectors that are difficult to decarbonize, such as air and maritime transport. To be able to fulfill its mission of decarbonizing, it is necessary that there are no emissions throughout the fuel production chain, which is called green hydrogen, or the emissions should be very reduced. The lowest emission techniques for this fuel consist of the electrolysis process that separates hydrogen from water. This process is electro-intensive and the analysis of emissions is precisely applied to the electricity production</p> <p>In order for the hydrogen buyer to be sure of the carbon content associated with the fuel, a certification can provide the necessary security to know the fuel's emission footprint.</p> <p>This theme is very new and there is no standard on how to certify the electrical energy used in this process. As hydrogen will have domestic and international markets, it is necessary to standardize how to address this issue for different regional conditions, being also internationally recognized.</p> <p>Purpose:</p> <p>The joint working group will recommend attributes that are considered to define hydrogen as green and will also structure the parameters that need to be certified so that it is possible to verify if hydrogen is green or if it has a greenhouse gas emission content.</p> <p>Scope:</p> <p>The joint working group would investigate:</p> <ul style="list-style-type: none"> • Identification international recommendations for green hydrogen • Definition of green hydrogen concept • Establishment a methodology for identifying the carbon content in hydrogen when the electricity used has emissions • Definition the certification standard • Assessment of certification traceability standards <p>Link to JWG C5/C1.35 and SC C1 Working Groups</p> <p>This joint working group will work closely with JWG C5/C1.35 and SC C1 working groups as this is a foundation piece for the regulation of hydrogen.</p>	

Deliverables:

- Technical Brochure and Executive Summary in Electra
- Electra article
- Future Connections newsletter
- CSE
- Tutorial
- Webinar

Time Schedule: **Start:** August 2022 **Final Report:** August 2024

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| • Terms of Reference approval | Q2 2022 |
| • Develop final work plan and recruit members | Q3 2022 |
| • Research of existing international standards | Q4 2022 |
| • Definition of the green hydrogen standard | Q1/Q2 2023 |
| • Definition of the certification standard* | Q2/Q3 2023 |
| • Webinar | Q4 2023 |
| • First draft for TB | Q4 2023 and Q1 2024 |
| • Final TB | Q2 2024 |

Approval by Technical Council Chairman:

Date: September 19th, 2022



Notes: ¹ Working Group (WG) or Joint WG (JWG), ² See attached Table 1, ³ See attached Table 2 and CIGRE reference Paper: Sustainability – at the heart of CIGRE's work. ⁴ See attached Table 3

* Optional inclusion, to be considered, is the certification of electricity sources, generally, not just hydrogen. This is probably automatically included as a necessary part of this work.

Table 1: Strategic directions of the Technical Council

1	The electrical power system of the future reinforcing the End-to-End nature of CIGRE: respond to speed of changes in the industry by preparing and disseminating state-of-the-art technological advances
2	Making the best use of the existing systems
3	Focus on the environment and sustainability (in case the WG shows a direct contribution to at least one SDG)
4	Preparation of material readable for non-technical audience

Table 2: Environmental requirements and sustainable development goals

	CIGRE selected the 7 SDGs that are the most relevant to CIGRE. In case the WG work refers to other SDGs or do not address any specific SDG, it will be quoted 0.
0	Other SDGs or not applied
7	SDG 7: Affordable and clean energy Increase share of renewable energy; e.g. expand infrastructure for supplying sustainable energy services; ensure universal access to affordable, reliable, and modern energy services; energy efficiency; facilitate access to clean energy research and technology
9	SDG 9: Industry, innovation and infrastructure Facilitate sustainable infrastructure development; facilitate technological and technical support
11	SDG 11: Sustainable cities and communities Increase attention on sustainable and resilient buildings utilizing local (raw) materials, power for electric vehicles, strengthening long-line transmission and distribution systems to import necessary power to cities, developing micro-grids to reinforce the sustainable nature of cities; protect and safeguard the world's cultural and natural heritage; reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and waste management
12	SDG 12: Responsible consumption and production E.g. Promote public procurement practices that are sustainable; address reducing use of SF6 and promote alternatives, encourage companies to adopt sustainable practices and to integrate sustainability information into their reporting cycle, address inefficient fossil-fuel subsidies that encourage wasteful consumption
13	SDG 13: Climate action E.g. Increase share of renewable or other CO ₂ -free energy; energy efficiency; expand infrastructure for supplying sustainable energy; strengthen resilience and adaptive capacity to climate-related hazards and natural disasters; integrate climate change measures into national policies, strategies and planning; improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
14	SDG 14: Life below water E.g. Effects of offshore windfarms; effects of submarine cables on sea-life
15	SDG 15: Life on land E.g. Attention for vegetation management; bird collisions; integration of substations and lines into the landscape

Table 3: Potential benefit of work

1	Commercial, business, social and economic benefits for industry or the community can be identified as a direct result of this work
2	Existing or future high interest in the work from a wide range of stakeholders
3	Work is likely to contribute to new or revised industry standards or with other long term interest for the Electric Power Industry
4	State-of-the-art or innovative solutions or new technical directions
5	Guide or survey related to existing techniques; or an update on past work or previous Technical Brochures
6	Work likely to contribute to improved safety.

Comments:
1) CIGRE Official Study Committee Rules: WG Membership

<https://www.cigre.org/GB/about/official-documents>

- a. Only one member per country (by exception of SC Chair)
- b. WG nominees must first be supported by their National Committee (or local SC Member) as an appropriate representative of their country.
- c. Acceptance of the nomination is granted by the SC Chair and advised to the WG Convener

2) Collaboration Space

<https://www.cigre.org/article/GB/collaborative-tools-2>

CIGRE will provision the WG with a dedicated Knowledge Management System Space.

The WG will use the KMS for drafting collaboration, capture and retention of discussion and meeting records.

Official country WG Members will be sent registration instructions by the Convener.

Official country WG Members may request the WG Convener to allow additional access for an extra national subject matter specialist to aid in the work at the national level, including NGN members.