



ccee

Câmara de Comercialização
de Energia Elétrica

Hydrogen Certification

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Summary

1. Introduction.....	2
2. Normative References.....	3
3. Verification of criteria for qualification of renewable energy source	4
3.1. Origin of Electricity	4
3.2. Principle of Additionality	4
3.3. Temporal Correlation	4
3.4. Geographical Correlation	4
3.5. Electricity supply configurations	4
3.5.1. Direct Connection (off-grid)	4
3.5.2. Connected to the grid without PPA.....	4
3.5.3. Connected to the network with PPA.....	5
4. Support for GHG emissions accounting	6

1. Introduction

The Chamber of Electric Energy Commercialization (CCEE) is the official electricity market operator in Brazil, responsible for all energy commercialization in the country. Therefore, we have the registration of all Power Purchase Agreements (PPAs), performs the power generation and consumption data measurement throughout the national interconnected electric system, and periodically liquidates these operations.

CCEE has already developed a hydrogen certification that aims to track the origin and environmental attributes of this product. The initial version of the certification, launched in December 2022¹, was developed based on the latest definitions of the European standard set out in the Renewable Energy Directive (RED II).

Therefore, CCEE supports companies that intend to participate in the H2Global bidding process for the production and export of hydrogen derivatives (ammonia, methanol and Sustainable Aviation Fuel e-SAF) and will take use the knowledge acquired in the certification already implemented to certify Brazilian companies that wins the tender, according to the requirements established by H2Global.

It is noteworthy that, CCEE's activities are guided by the Compliance Program², with independent external and internal audits. As the hydrogen certificate scheme owner, we use all consumption and generation measurement data that are registered in our system with meters approved by The National Institute of Metrology, Standardization and Industrial Quality (INMETRO), which is the only official accreditation body recognized by Brazilian government³.

¹ www.ccee.org.br/web/guest/certificacao_de_energia

² Compliance and Audit - <https://www.ccee.org.br/relatoriodeadministracao/20-governanca-40.html>

³ INMETRO - <https://www.gov.br/inmetro/pt-br/assuntos/acreditacao/cgcre/acreditacao>

2. Normative References

The initial version of the hydrogen certification developed by CCEE in 2022 refers to the standards established by the European Union in Directive 2018/2001/EU (also referred to as Renewable Energy Directive II or acronym RED II), with their respective official reviews and will serve as the basis for the certification that will be carried out if any company in Brazil become winner of the tender.

The H2Global documents released in December/2022, set out criteria for qualifying the electricity used for hydrogen production as renewable. These criteria, specifically related to the document "HPA -Annex 6.1. b - Additional Product Specification", were prepared according to the "Delegated Act Draft ref. Ares(2022)3836651 – Article 27(3)" published on 20/05/2022 by the European Commission.

We present below the knowledge and set of information that CCEE owns and are used for certification, according to the criteria established in this documentation.

3. Verification of criteria for qualification of renewable energy source

3.1. Origin of Electricity

The electricity used in the hydrogen production process must come from renewable sources. CCEE already has the registration of all plants in operation in Brazil and will validate the type of generation source according to the record in the internal system. In addition, institutions that govern the Electricity Sector in Brazil, such as the certifiers, consult this information from CCEE.

3.2. Principle of Additionality

As operator of the energy market in Brazil, CCEE has in its system the registration of the start date of entry into operation of all plants that sell energy, as well as all consumer units. Thus, CCEE has the capacity to provide evidence with official data to meet the additionality criterion, regardless of the period established in any year of verification.

3.3. Temporal Correlation

CCEE already has access to electricity generation and consumption data of all generators and consumers in the country at intervals of five minutes and integrated in one-hour intervals.

Therefore, regardless of the temporal correlation that the EU require for the qualification of renewable energy used for hydrogen production, whether hourly, daily, monthly, quarterly, or annually, CCEE has the capacity to carry out this verification.

3.4. Geographical Correlation

CCEE currently has the official generation and consumption units location record for the entire Brazilian electric system and is the entity responsible for calculating the spot price for the financial accounting of the short-term market. Thus, CCEE has the capacity to provide the necessary evidence to meet this criterion.

3.5. Electricity supply configurations

3.5.1. Direct Connection (off-grid)

Brazil has a large interconnected electrical system that connects almost the entire country. However, there are some regions further away from urban centers that have isolated electricity systems. CCEE is responsible not only for the commercialization of energy in the interconnected region, but also in regions with isolated systems.

For this reason, if there is in Brazil any combination of power plant and hydrogen plant isolated from the Brazilian electric system, CCEE will have control of the energy data of these plants, necessary to carry out the certification.

Therefore, CCEE is able to verify and provide the official evidence necessary to comply with the rules for counting electricity sourced from directly connected installations as fully renewable.

3.5.2. Connected to the grid without PPA

Since CCEE has the generation data record of all plants in the Brazilian electric system, it has the capacity to calculate the proportion of renewable energy used from the network at any time within the national

territory and is also the supplier of this data for the official reports of the Brazilian government that present the generation balance.

Therefore, CCEE is able to verify and provide the official evidence necessary to comply with the rules for counting electricity taken from the grid without a PPA as fully renewable.

3.5.3. Connected to the network with PPA

CCEE is responsible for enabling the commercialization of electricity in Brazil, managing all power purchase and sale agreements in the Brazilian electricity market. Therefore, if the hydrogen production unit connected to the grid, accomplishes one or more renewable energy purchase agreements (PPAs), CCEE will have the registration and will perform the accounting of these contracts. Therefore, the CCEE is able to verify and provide the official evidence necessary to comply with the rules for counting electricity taken from the grid under PPA as fully renewable.

4. Support for GHG emissions accounting

CCEE has the register of meters and registration in its system of all electricity generated and consumed in the Brazilian electrical system and types of fuels consumed by thermoelectric plants. From the launch of the hydrogen certification, CCEE will have the registration in its system of the meters used to account for the hydrogen production of the production plants established in Brazil. Therefore, CCEE is able to provide the necessary data for the greenhouse gas (GHG) emissions calculation related to the consumption of electricity used for hydrogen production.