

Hydrogen certification

Brazilian experience and showcase

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ccee







- Generation data
- Consumption data
- Contract information

CCEE has launched the first hydrogen certification on 7th December 2022 based on RED II and Delegated Acts.



	Product	Production method	Electrical and contractual arrangement	Emissions	Temporal correlation	Certificate delivery
First Version	Hydrogen	Electrolysis	Generators and self-producers connected to the grid or direct connection (off-grid)	Indirect emissions related with electricity consumption	Monthly	PDF report

Self-Producer



Generator



Challenges

Identification of self-producer contracts connected to the grid

Trader intermediating the contract between energy generator and hydrogen producer

Two hydrogen projects certified in 2023

EDP - Energias do Brasil S.A



Hydrogen production plant in Ceara State from a R&D project supplied by a new and exclusive photovoltaic plant.

Technical Data:

PEM Hytron electrolyzer of 1.25 MW and capacity of 22.3kg H₂/hour
3MW photovoltaic solar plant with tracker

Furnas Centrais Elétricas S/A



Hydrogen production plant in Minas Gerais State from a R&D project supplied by a new and exclusive photovoltaic plant and also from an existing hydro power plant.

Technical Data:

1 Hydrogenics Alkaline Electrolyzer capacity 100kg H₂/day
1 WEG 600 kWh battery storage
1 Hydrogenics Fuel Cell
1MWp photovoltaic solar plant and 2,082 MW hydro

Update to REDIII

Specific governance structure and chain of custody to guarantee the independence and traceability


The new European guidelines of Delegated Regulation (EU) 2023/1184 and 1185 have been incorporated.

Methodology for quantifying the carbon intensity

Prepare documentation for recognition by the European Commission


Sistema de Certificação de Hidrogênio e Derivados
Estrutura e processo
CCEE SCH2 000

Gerência/área: GERCI/ GAIM
Autor: João Henrique Paulino de Azevedo
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Sistema de Certificação de Hidrogênio e Derivados
Qualificação da energia e renovabilidade
CCEE SCH2 101

Gerência/área: Gerência de Análise e Informação ao Mercado – GAIM
Autor: João Henrique Paulino de Azevedo
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Sistema de Certificação de Hidrogênio e Derivados
Metodologia de quantificação de GEE
CCEE SCH2 102

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Sistema de Certificação de Hidrogênio e Derivados
Ciclo de vida
CCEE SCH2 103

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Sistema de Certificação de Hidrogênio e Derivados
Diretrizes para Organismos de Certificação e Auditores
CCEE SCH2 201

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Autor: João Henrique Paulino de Azevedo
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Steps for certification

- 1 – More 90% renewable generation in the bidding zone
- 2 – Emission < 18gCO₂eq/MJ in the bidding zone
- 3 – Constrain off
- 4 – PPA with additionality, temporal correlation and geographical correlation

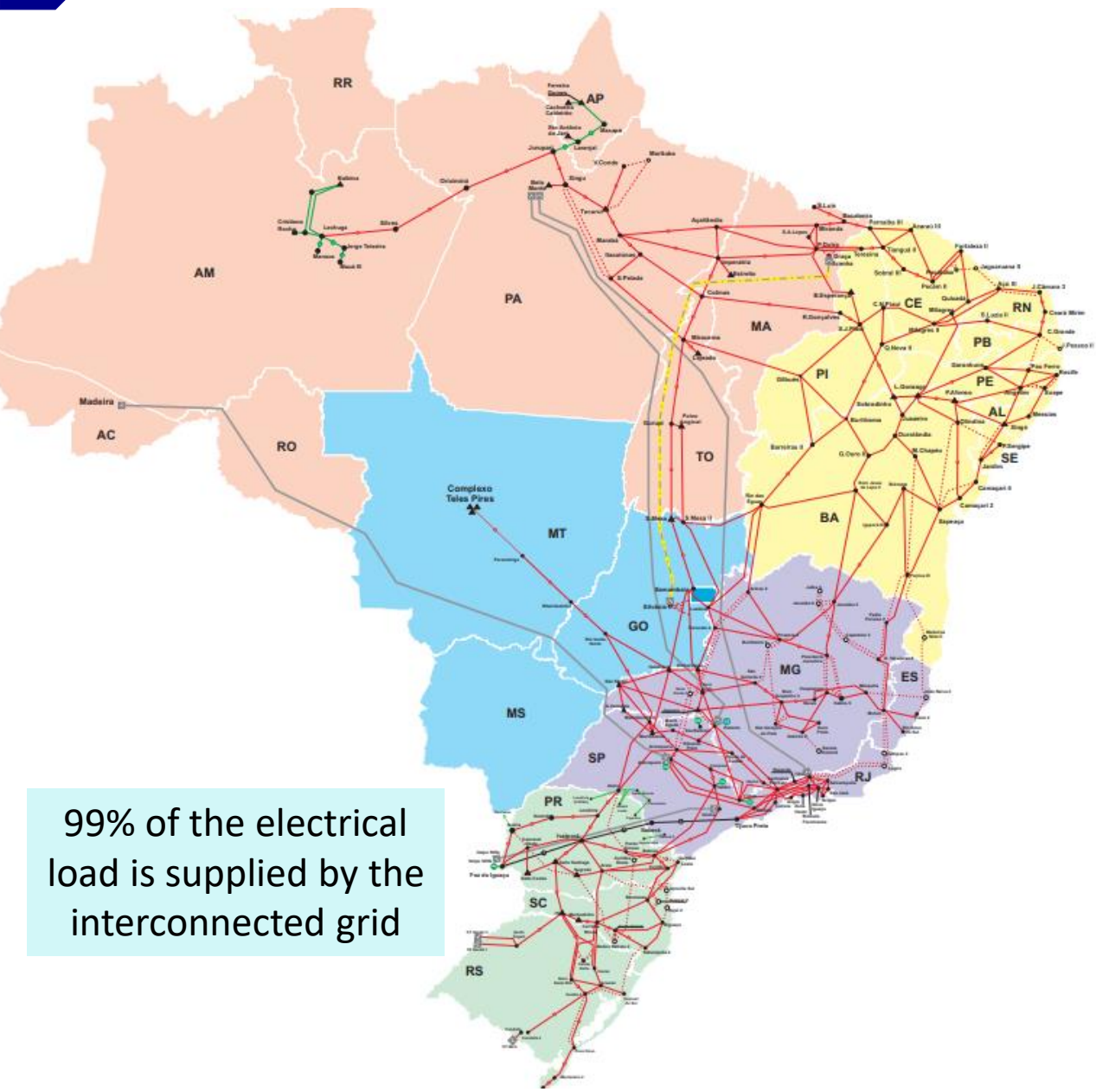
Bidding zone is a key factor.

What is bidding zone outside Europe?



National interconnected grid

Electrical submarket



99% of the electrical load is supplied by the interconnected grid



- NORTH
- NORTH EAST
- SOUTH EAST / CENTRAL WEST
- SOUTH
- NOT CONNECTED

There is no official definition for each country outside Europe. Interpreting the regulation.....

- (3) The rules set out in this Regulation should apply regardless of whether the liquid and gaseous transport fuel of non-biological origin is produced inside or outside the territory of the Union. Where reference is made to bidding zone and imbalance settlement period, concepts that exist in the Union but not in all other countries, it is appropriate to allow fuel producers in third countries to rely on equivalent concepts provided the objective of this Regulation is maintained and the provision is implemented based on the most similar concept existing in the third country concerned. In case of bidding zones such concept could be similar market regulations, the physical characteristics of the electricity grid, notably the level of interconnection or as a last resort the country.

Delegated Act 1184 / 2023

Accordingly, the following approach should be applied:

- Certifiers should assess whether at the location of the electrolyser, market regulations applied are similar to the rules set out for bidding zones in Regulation (EU) 2019/943. In this context “similar” means that there are rules requiring establishing hourly prices for electricity in a geographical area. If such rules are in place, the geographical area for which the prices are established should be considered as a bidding zone for the purpose of the implementation of the methodology.

Final considerations

First version, even simplified, was essential for learning

There are many rules to be interpreted according to the country's framework

Certification needs to consider market practices, such as the traders

Bidding zone is a key factor to apply the certification requirements



Thank you!

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