



BRAZILIAN CHAMBER
OF COMMERCE IN GREAT BRITAIN



Department for
Business & Trade

ALLEN & OVERY

Hydrogen in Brazil

1 March 2024



CCEE Hydrogen Certification

CCEE - Brazilian Energy Market Operator

Vanessa H. Grunwald

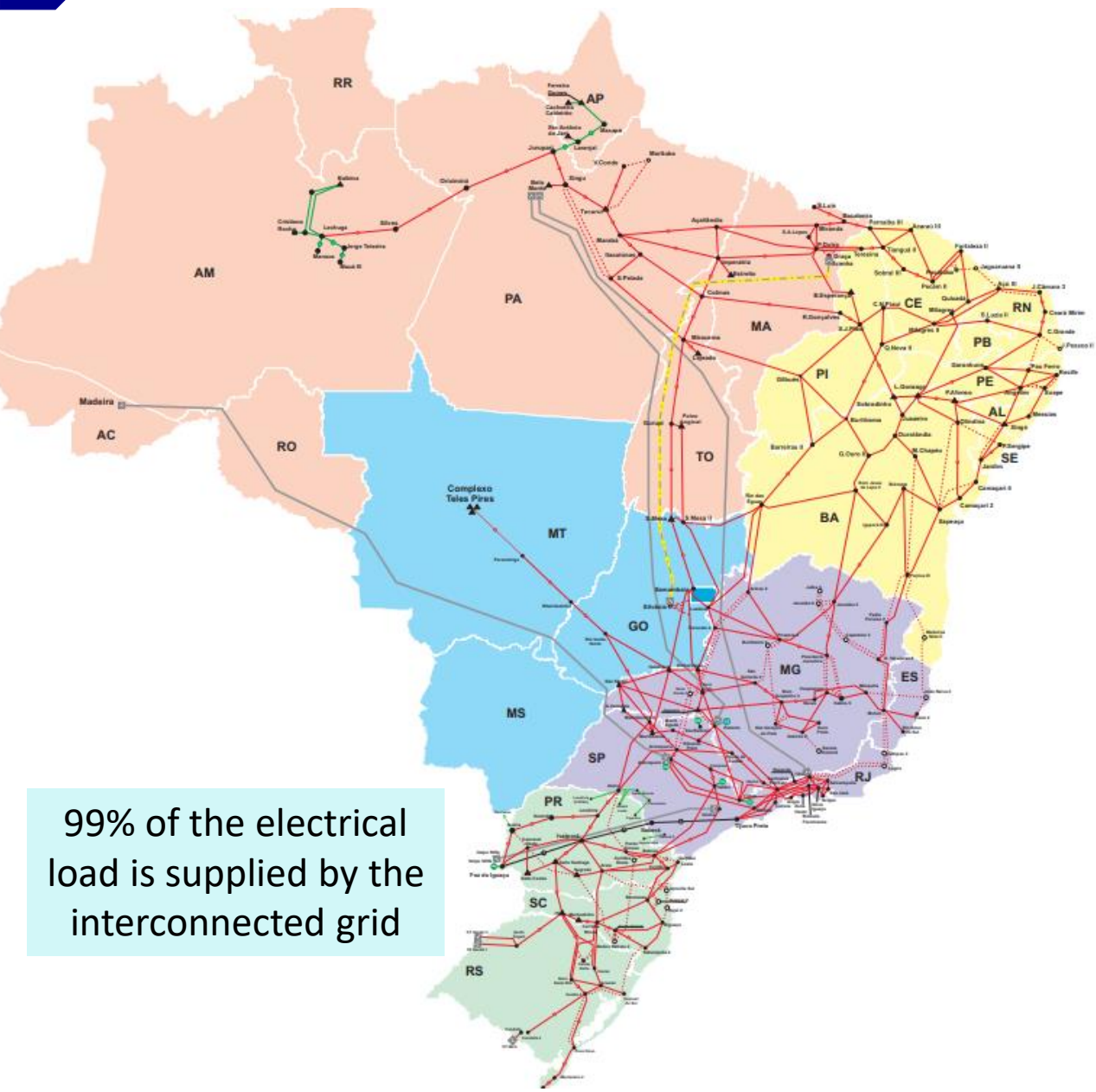
February, 2024

ccee





National interconnected grid

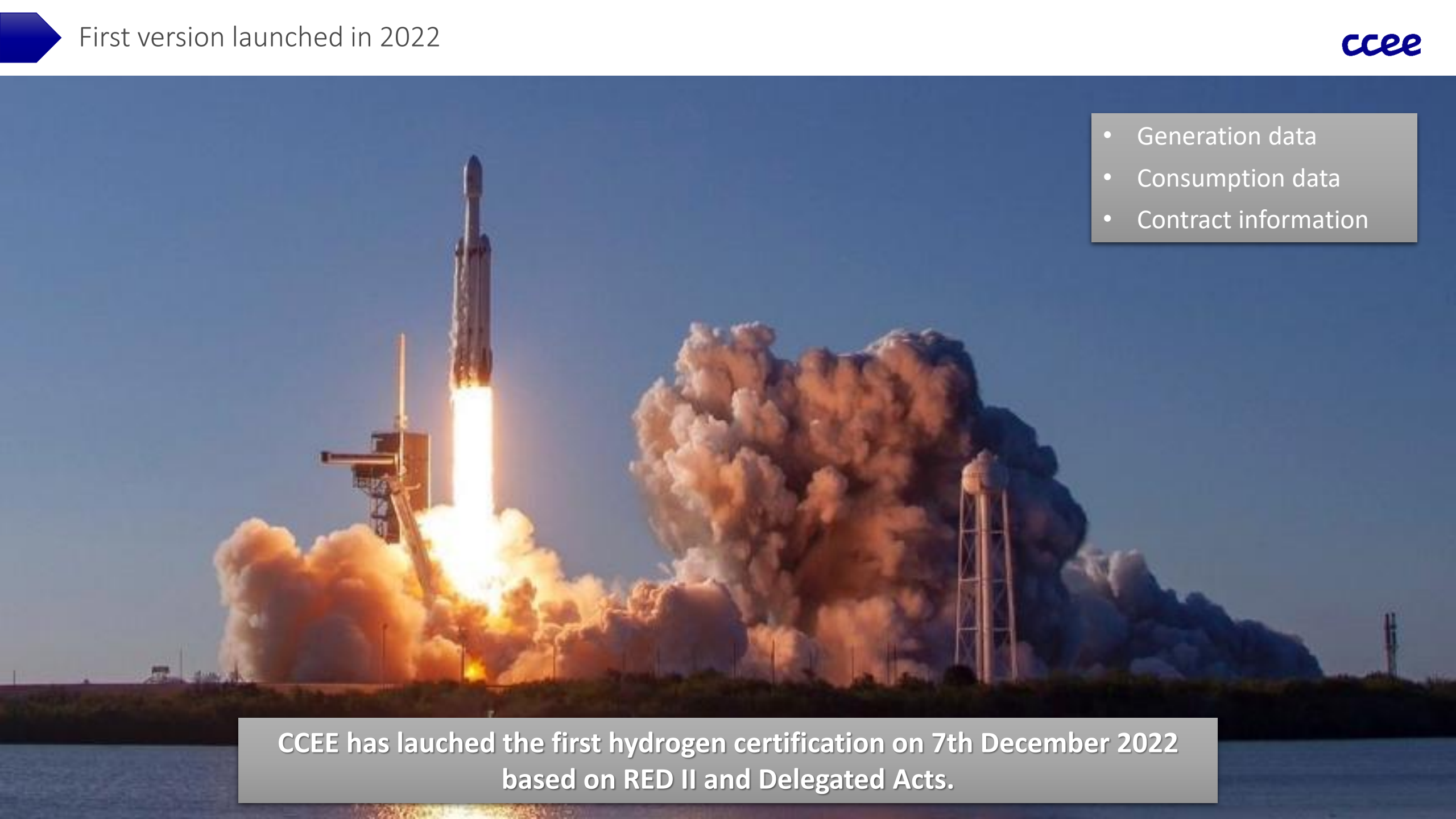


99% of the electrical load is supplied by the interconnected grid

Electrical submarket



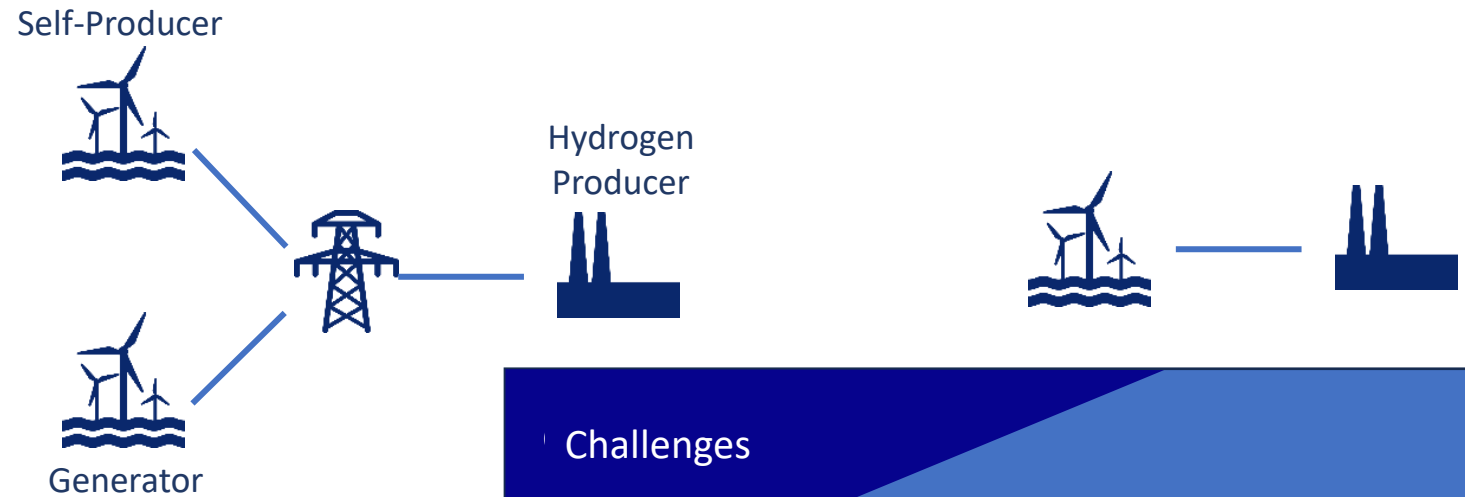
- Generation data
- Consumption data
- Contract information

A photograph of a rocket launch. The rocket is ascending vertically, leaving a bright, intense trail of fire and a massive, billowing plume of white and orange smoke that fills much of the sky. The launch is taking place at a launch complex, with various structures and a tall tower visible in the background. The scene is set against a clear blue sky.

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



Challenges

Identification of self-producer contracts connected to the grid

Trader intermediating the contract between energy generator and hydrogen producer

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
Data: 01/06/2023
Versão: v1.0




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
Data: 01/06/2023
Versão: v1.0




Sistema de Certificação de Hidrogênio e Derivados
Metodologia de quantificação de GEE
CCEE SCH2 102

Gerência/área: Gerência de Análise e Informação ao Mercado – GAIM
Autor: João Henrique Paulino de Azevedo
Data: 01/06/2023
Versão: v1.0




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

Gerência/área: Gerência de Análise e Informação ao Mercado – GAIM
Autor: João Henrique Paulino de Azevedo
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Versão: v1.0



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

Gerência/área: Gerência de Análise e Informação ao Mercado – GAIM
Autor: João Henrique Paulino de Azevedo
Data: 01/06/2023
Versão: v1.0



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?



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. Q&A is key to apply RED III outside Europe



Thank you!

CCEE Hydrogen Certification

Vanessa Grunwald

March 1st, 2024



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