

HYDROCIANORISE

REVOLUTIONIZING WITH GREEN HYDROGEN

BioSolElektro for Energy Starter - EDP

Antonio José Nogueira Pereira |

Patent: BR 10 2025 010366 4 |

Contact: thoninogueira2805@gmail.com | +55
88 99661-3991

— P R E S E N T A T I O N

01

HydroCianoRise: Pioneering green hydrogen with BioSolElektro, scalable to
730,000 t/year, patent INPI.



GLOBAL CHALLENGE

Decarbonizing Energy, Empowering Communities

Global energy systems face rising CO₂ emissions (38 Gt/year) and limited scalable green hydrogen solutions. Rural communities like Carnaubal, CE, need sustainable jobs and clean energy access. Current technologies are costly and complex.

02

Addressing 38 Gt/year CO₂ emissions with scalable, low-cost green hydrogen for Carnaubal.



THE SOLUTION - BIOSOLELEKTRO

Breakthrough in Green Hydrogen

BioSolElektro is a 1.5m x 0.667m x 0.15m system using cyanobacteria, solar energy, and AI to produce 150–200 g H₂/day per module. Scalable to 547,500–730,000 t/year over 10 km². Simulation at 53.25 g/day yields 194,000 t/year. Registered for development at Fab Lab Livre SP, pending vacancy.

03

BioSolElektro: 150–200 g H₂/day with cyanobacteria and AI, scalable to 730,000 t/year, patent INPI.



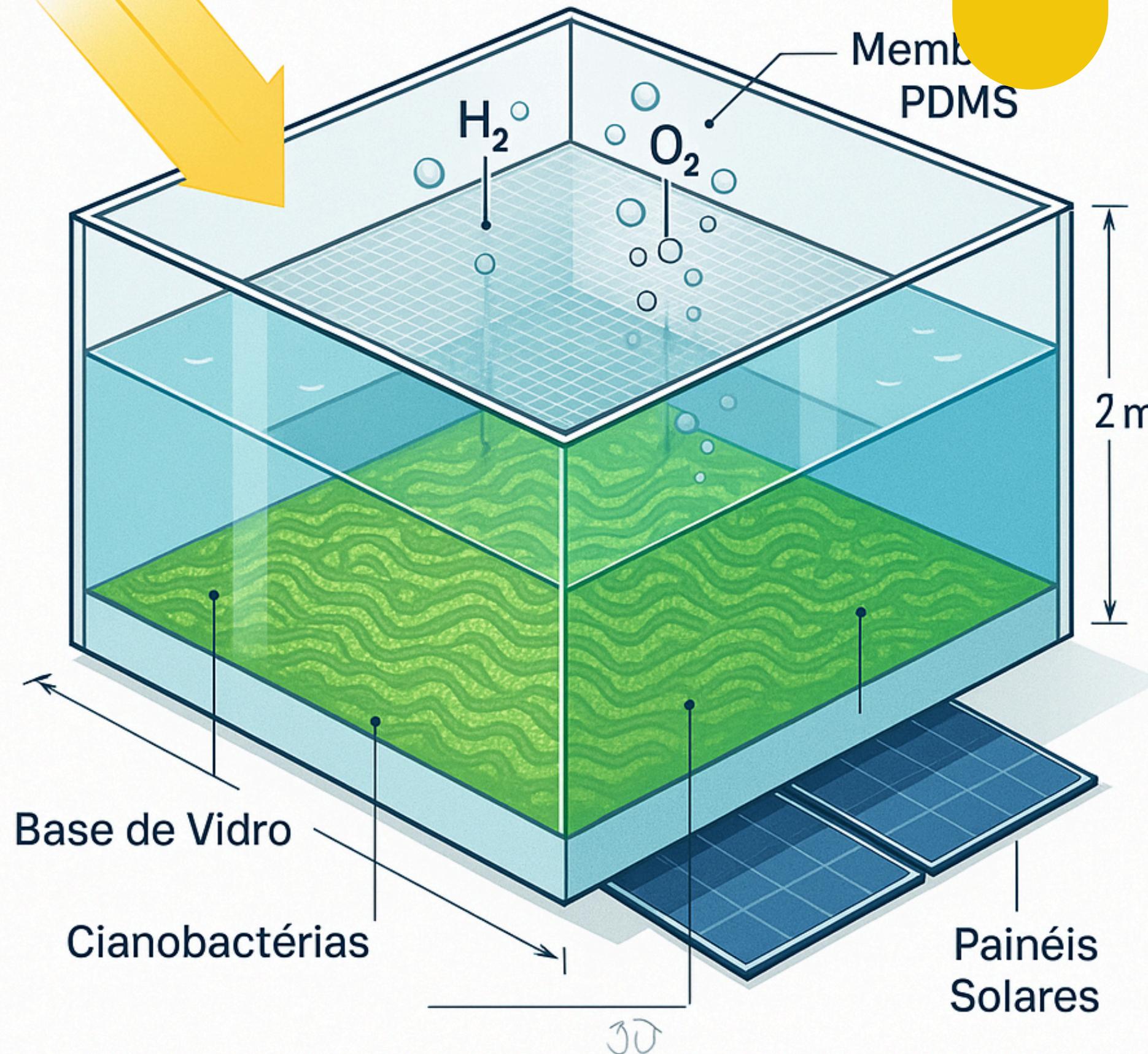
HOW IT WORKS

- Advanced Technology for Efficiency
- Components: Side-mounted CdTe panels (50-60 W), TiO_2 -doped base for photocatalysis, PDMS membrane, 680nm LEDs, Arduino Nano automation. Uses 50 L hydrogel and 200 g cyanobacteria. Optimized for Carnaúbal's climate.

04

Innovative technology with AI automation and cyanobacteria for efficient hydrogen production.

BioSolElektro



ENVIRONMENTAL IMPACT

Leading Decarbonization

BioSolElektro: 150–200 g H₂/day with cyanobacteria and AI, registered for development, scalable to 547,500–730,000 t/year, INPI patent!

At scale, BioSolElektro avoids up to 7.3 million t CO₂/year (based on 200 g/day, 10 km²). Cyanobacteria multiply in hydrogel, die in dry soil, ensuring safety. Well water controls external growth, with secure disposal protocols.

05

Reducing up to 7.3 million t CO₂/year with safe, scalable green hydrogen technology.



ECONOMIC ADVANTAGE

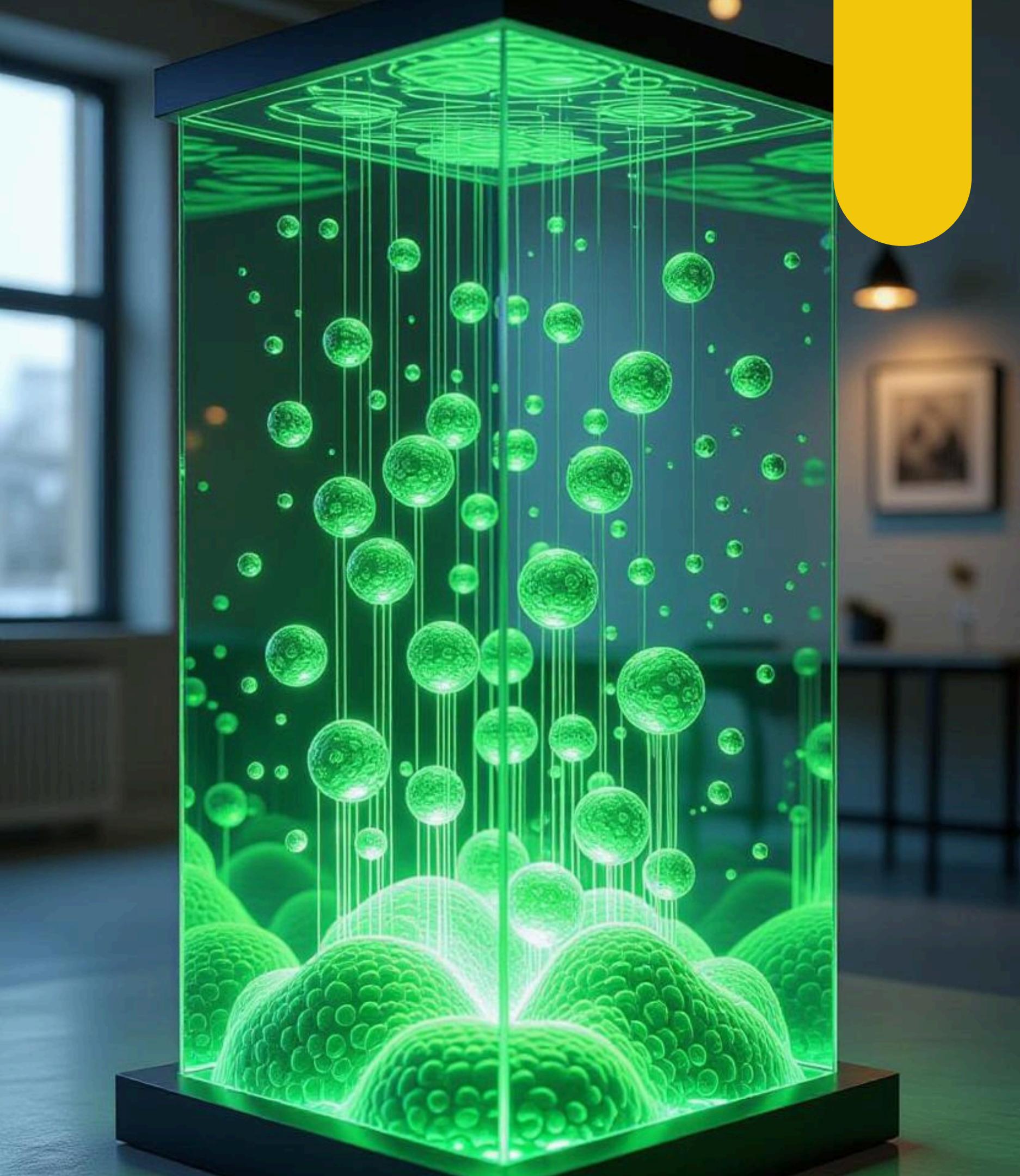
Affordable and Scalable

Initial cost per module: \$10-20 (R\$50-100). Modular design lowers costs through multiplication.

Produces 150–200 g H₂/day, outpacing traditional electrolysis in cost-efficiency. Validated in simulations.

06

Low-cost BioSolElektro at \$10-20/module, outpacing electrolysis for scalable hydrogen.



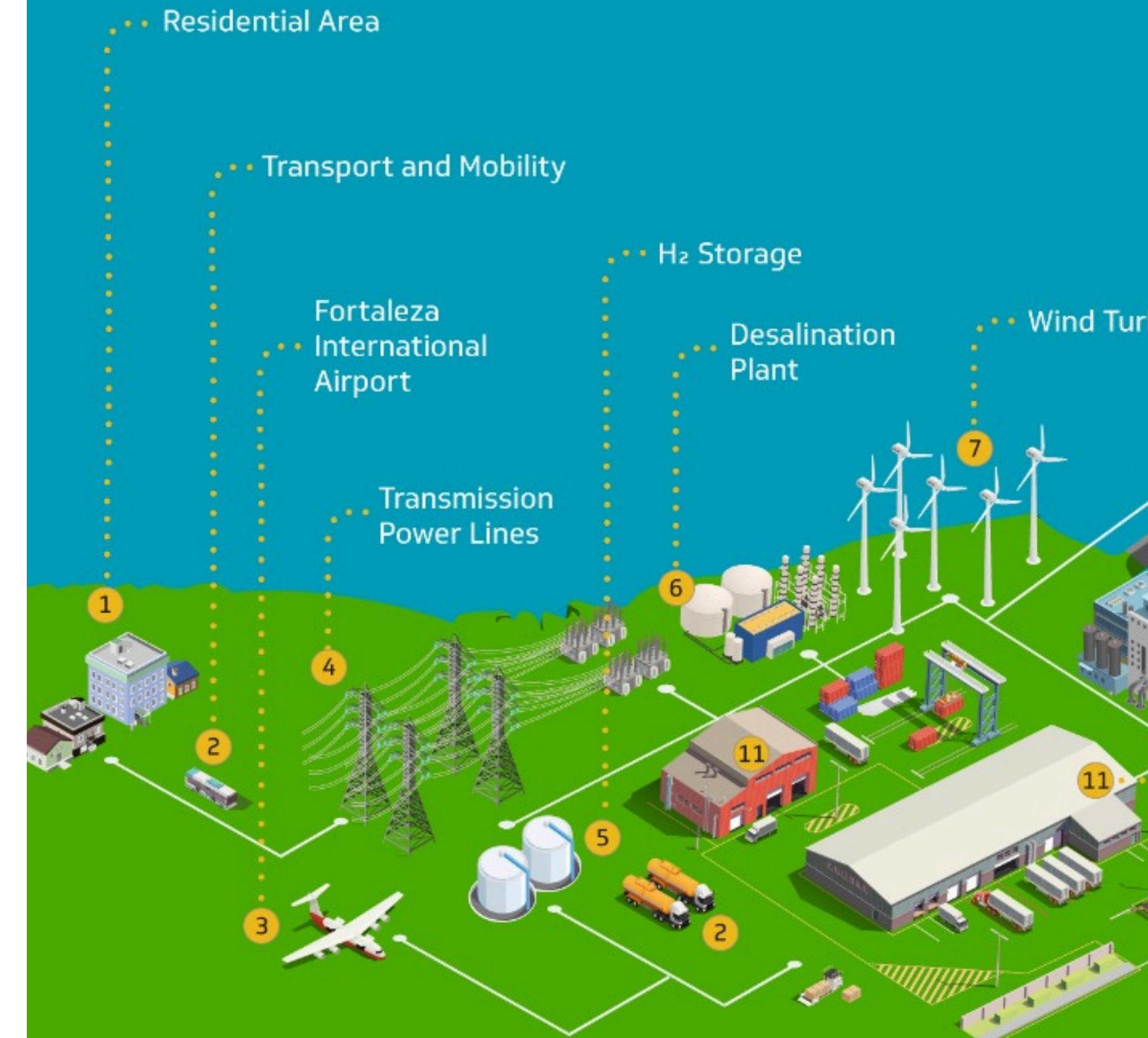
WHY EDP?

Strategic Partnership for Global Impact
BioSolElektro aligns with EDP's Green Hydrogen and Emerging Technologies goals. HydroCianoRise seeks access to EDP's green hydrogen market and Green Hydrogen Hub, leveraging EDP's expertise to scale production and optimize cyanobacteria efficiency through genetic editing partnerships.

07

Accessing EDP's green hydrogen market and expertise to scale BioSolElektro.

GREEN HYDROGEN HUB IN THE PECÉM CO



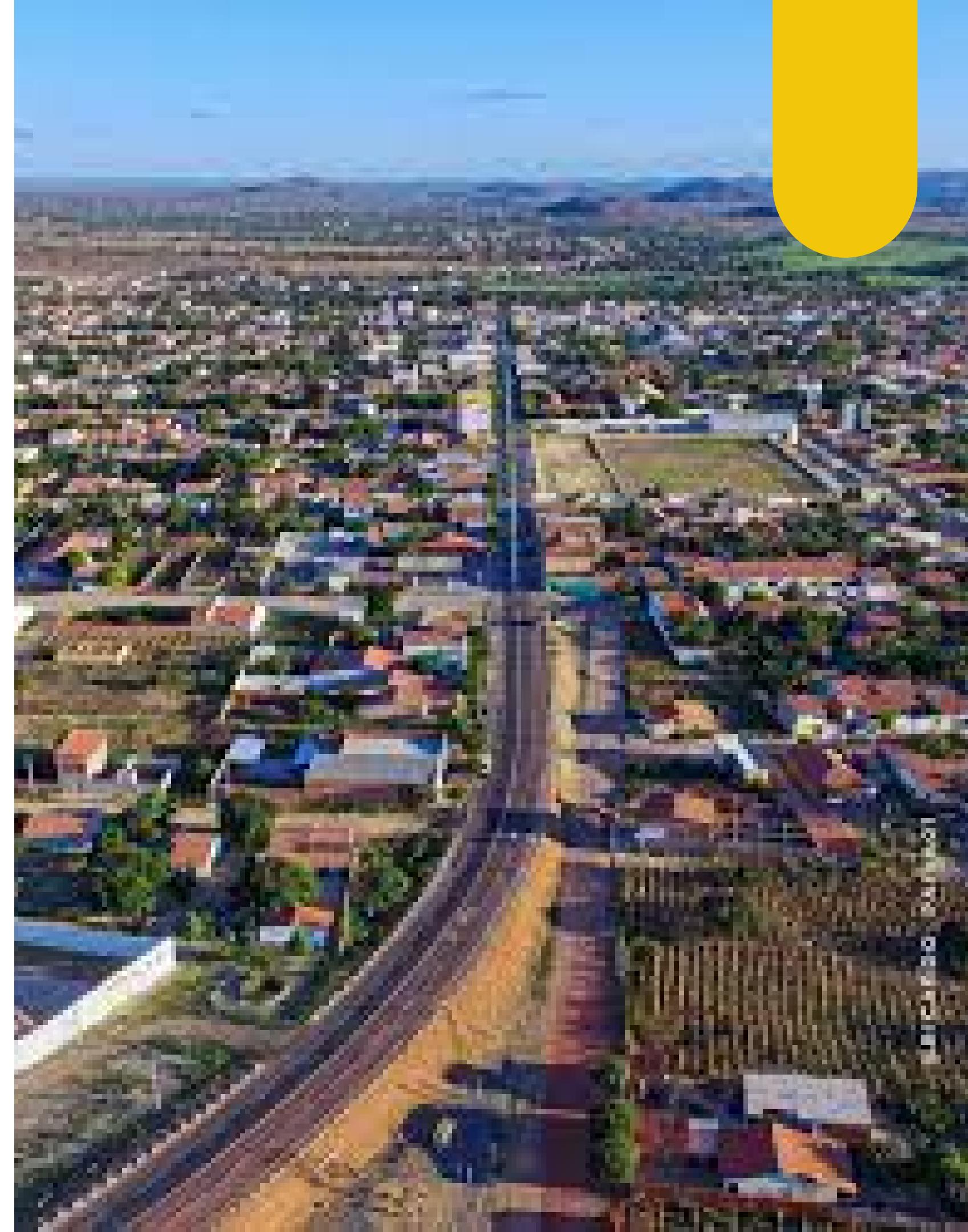
SOCIAL IMPACT

Transforming Lives, Building Futures

HydroCianoRise will create 500 sustainable jobs in Carnaubal, generating R\$50 million/year in income through a low-investment program for low-income residents to share in BioSolElektro's profits. The project will avoid 1.74 million t CO₂/year, scalable to 7.3 million t. Proposal: 1-3% royalties to AFESU for community programs, with EDP's support to drive impact.

08

Creating 500 jobs, R\$50M/year income, and 1.74M t CO₂ avoided in Carnaubal.



NEXT STEPS WITH ENERGY STARTER

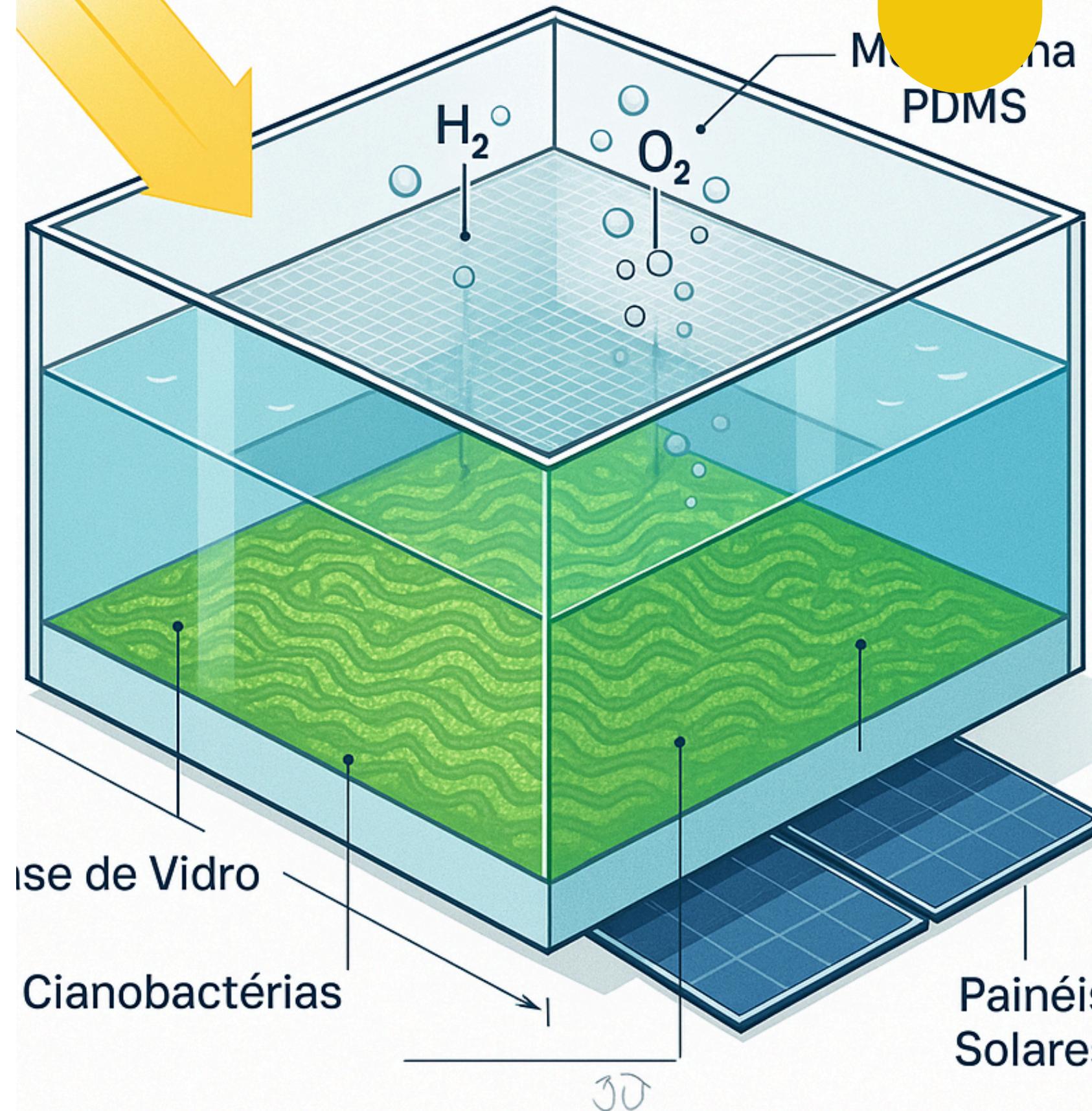
Path to Impact Application: 07/07 - 22/08/2025. Online Pitch: 01-02/10/2025. Bootcamp: 25-27/11/2025.

Goals: Validate enhanced prototype, secure partnerships, and scale production with EDP.

09

Advancing BioSolElektro through EDP's Energy Starter to validate and scale.

BioSolElektro



OUR TEAM



THONI NOGUEIRA

CEO

- Antonio José Nogueira Pereira: Founder of HydroCianoRise, expert in Computer Science and AI, driving social impact in Carnaubal, seeking to lead green hydrogen innovation with EDP.
- Future: Collaboration with EDP and USP experts to scale BioSolElektro.

STRATEGIC PLAN AND OPPORTUNITY



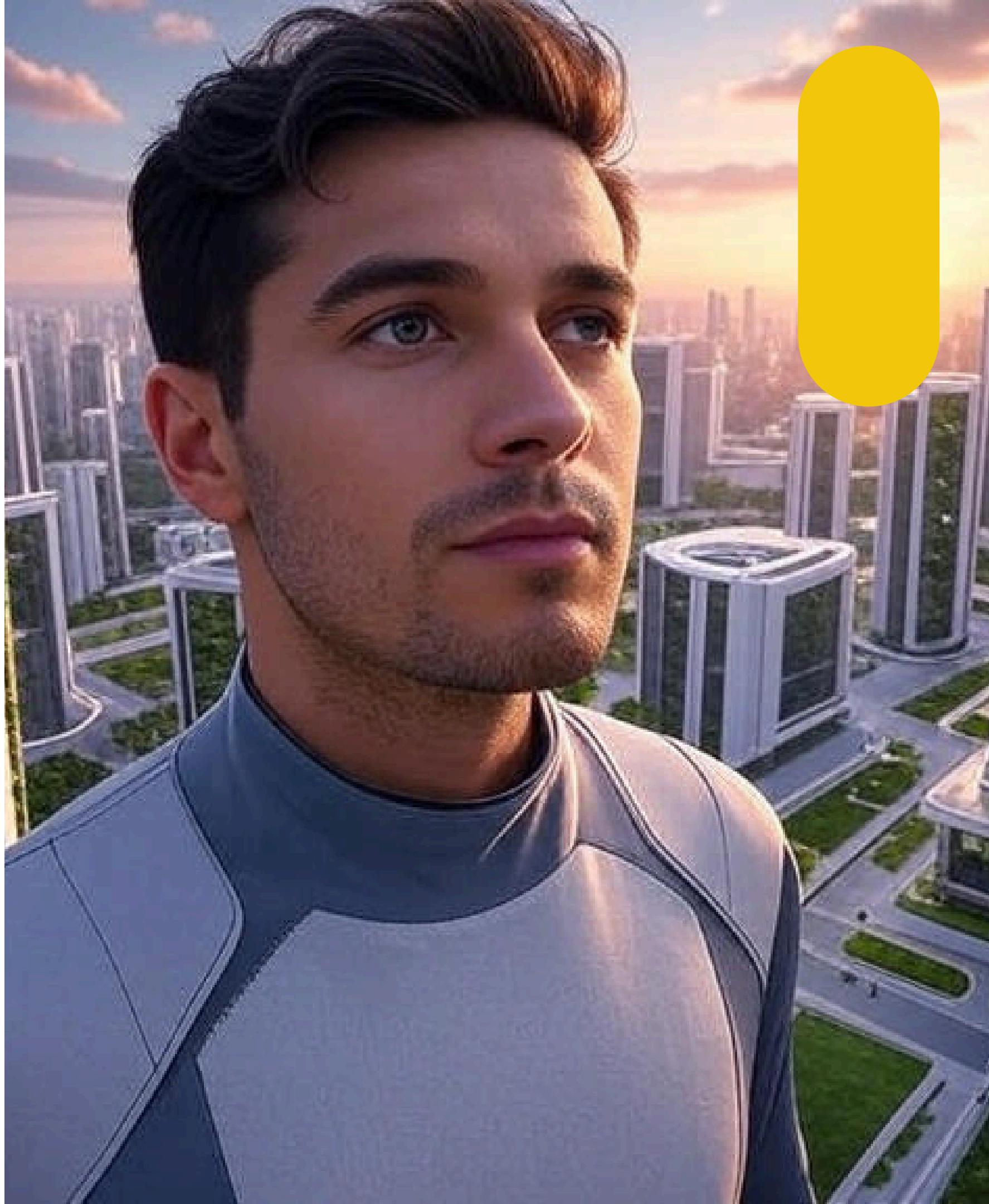
Energy Starter Application: Submission to the "Renewable Energy & Green Hydrogen" module (2025), deadline August/September.

Prototyping with EDP: Registered for collaboration to validate 53.25 g H₂/day at Fab Lab Livre SP, leveraging EDP's 29 GW capacity. Scalability: 10 km² in Carnaubal, 194,662 kg H₂/year. INPI Patent: Registered, protecting innovation. Funding: US\$200,000 (EDP Ventures), R\$50,000 (prototyping).

OUR MISSION

Advancing a Sustainable Future

HydroCianoRise is committed to revolutionizing green hydrogen with BioSolElektro, delivering scalable, low-cost clean energy to decarbonize industries and empower Carnaubal's communities. By creating 500 jobs, generating R\$50 million/year in income, and avoiding up to 7.3 million t CO₂/year, we aim to drive global sustainability with EDP's partnership.



JOIN US

Shape the Future of Energy HydroCianoRise invites EDP to accelerate BioSolElektro, revolutionizing green hydrogen and empowering communities.

Contact: thoninogueira2805@gmail.com | +55 (88) 99809-5818.

Let's decarbonize together!

12

Join HydroCianoRise to decarbonize energy and empower communities with BioSolElektro.





THANK YOU!