ITAIPU TECHNOLOGY PARK - PTI

Jorge Augusto Callado Afonso
Director Superintendent

SYMPOSIUM & WORKSHOP
Anaerobic Digestion in the Circular Economy

PTI Parque Tecnológico Itaipu | ITAIPU BINACIONAL

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND | IEA Bioenergy

Summary

ITAIPU BINACIONAL

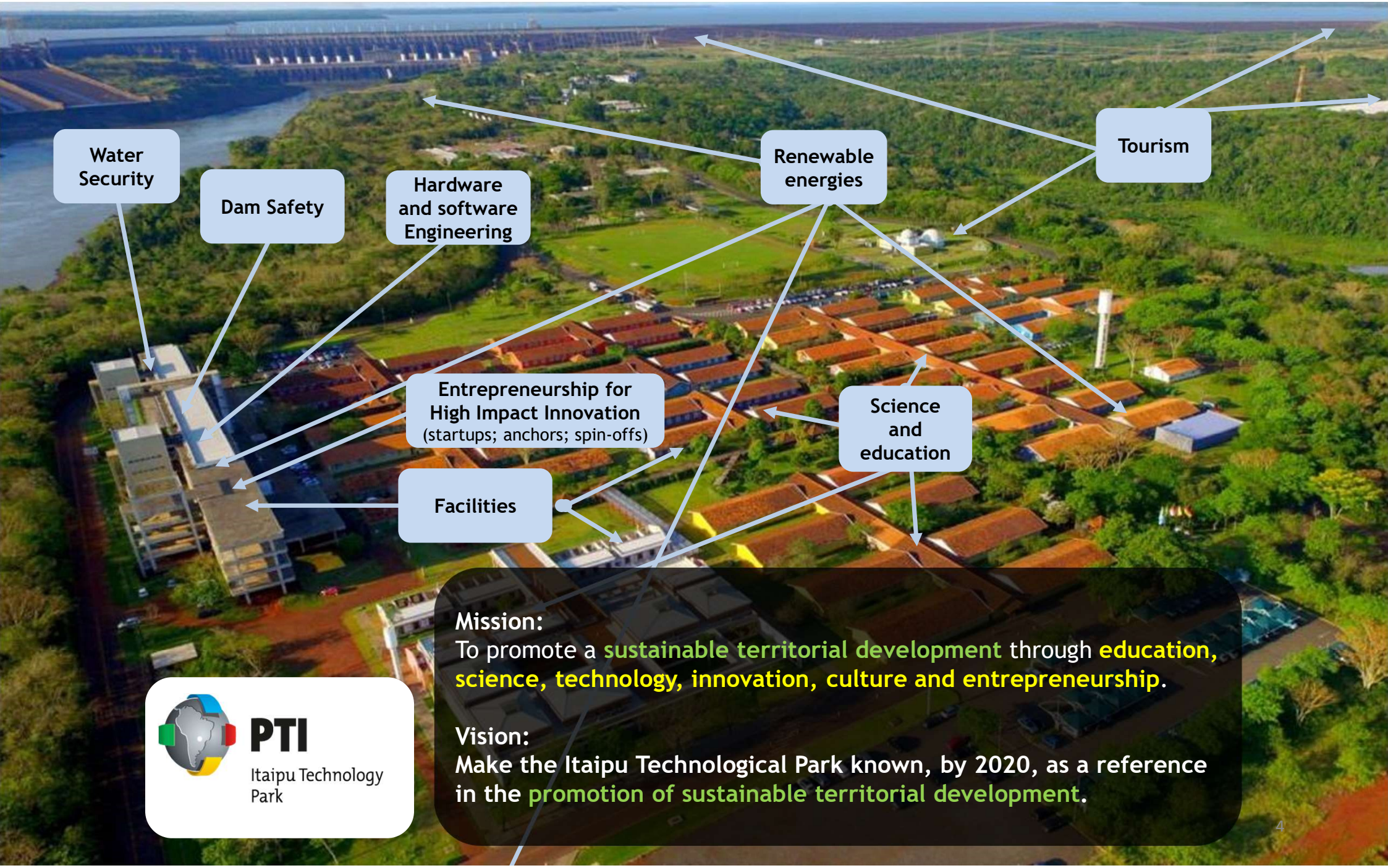
The biggest renewable energy generator in the world combining **micro-grid** power generation concept with **biogas and solar** to foster **sustainable development in the region.**

1. Brief overview of Itaipu and PTI;
2. Western region of Paraná state;
3. Biogas as a solution;
4. Fostering the transition to a Circular Economy in Western Paraná: Turning Waste into Resource.

Location

BRAZIL
BOLIVIA
PARAGUAY
ITAIPU
ARGENTINA
URUGUAY
ITAIPU
PARANÁ

BRAZIL
PARAGUAY
Itaipu



PTI
Itaipu Technology Park

Mission:
To promote a sustainable territorial development through education, science, technology, innovation, culture and entrepreneurship.

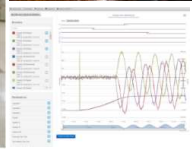
Vision:
Make the Itaipu Technological Park known, by 2020, as a reference in the promotion of sustainable territorial development.

Technological Platforms

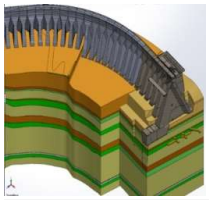
Research & Development

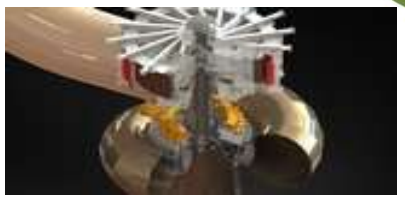
Sustainable Mobility

Energy Storage



Electrical Power Systems

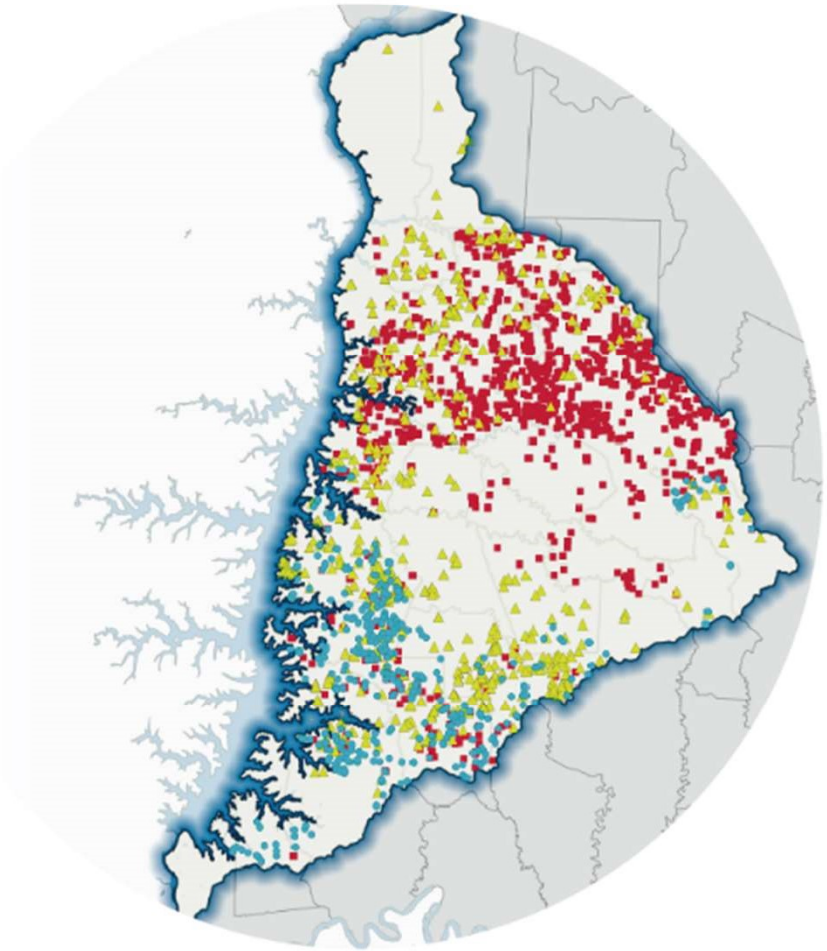




Dam Safety

Solutions for energy use

The western of Paraná State



Poultry, Cattle, Milk Cows and Swine in the region

- Solve environmental problems around Itaipu Reservoir;
- Promote biomass treatment and biogas production to diversify the energy matrix and increase competitiveness for the agribusiness ;
- Develop and implement renewable energy solution.

The western of Paraná State - facts

- Biogas is one of the focus of Itaipu and PTI, trough the International Center for Renewable Energies – Biogas;
- Brazil is the 5th largest producer of animal protein in the world;
- Difficulties to increase number of confined animals (environmental restrictions);
- Brazil must multiply per 3 the amount of confined animals by 2025;
- Low quality energy in the rural areas;
- Dependence on fossil fuels.

CHALENGE: Food Security x Sustainability;

Brazil will be the biggest animal protein producer by 2025 (UN).

ITAIPU AND PTI - BIOGAS VIEW

Enviromental sanitation

Life quality for Family farming

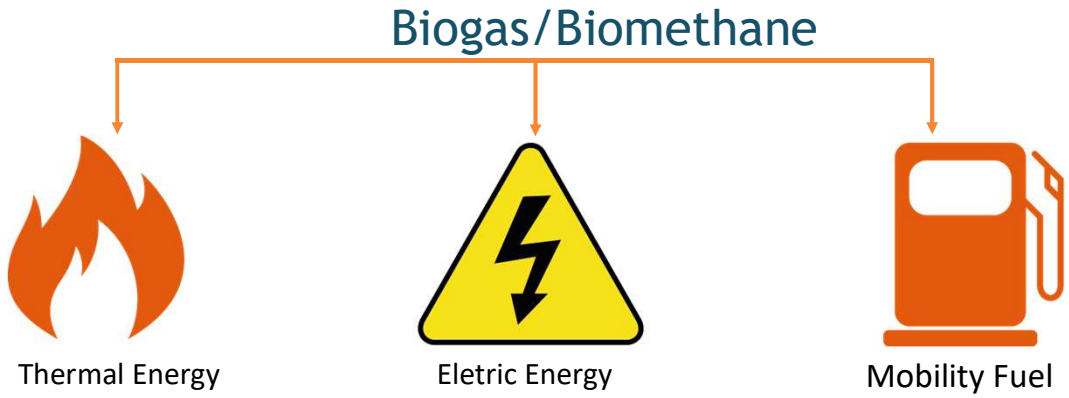
Nexus

Energy production

Income and job generation

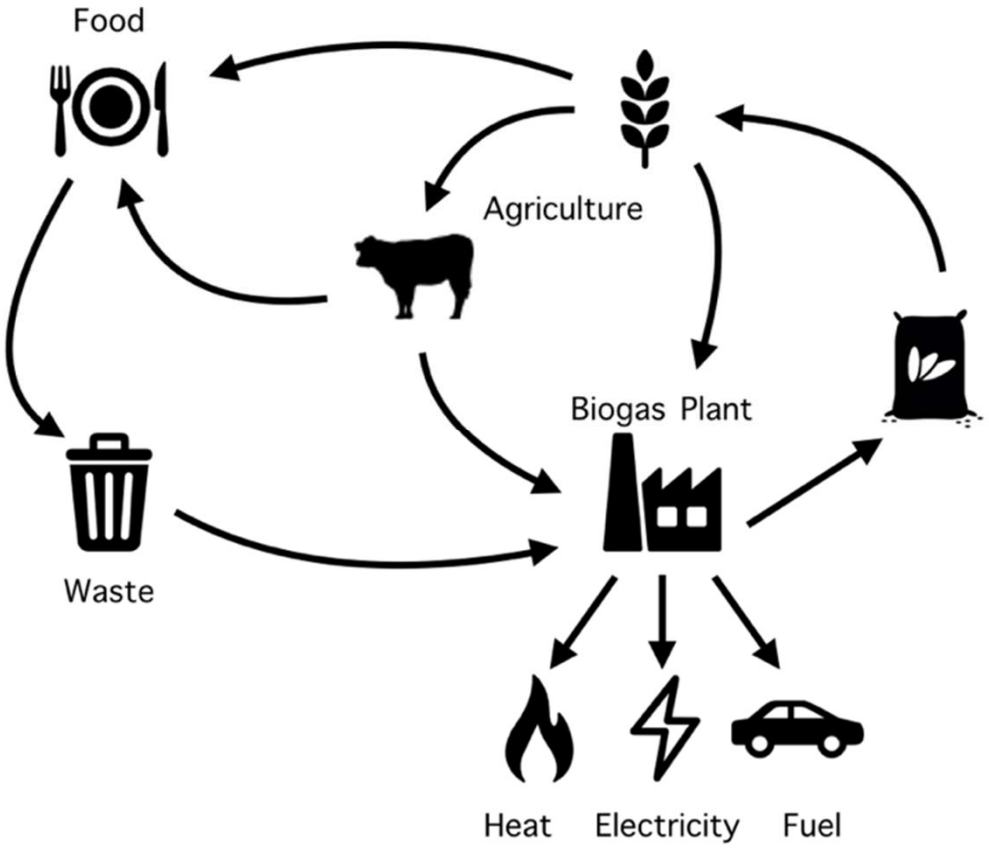
ITAIPU AND PTI - BIOGAS VIEW

- Transform organic waste into biofuels and bio-fertilizers;
- Replace the use of fossil fuels by renewables;
- Incorporate economic, social and environmental benefits;
- Energy Security.



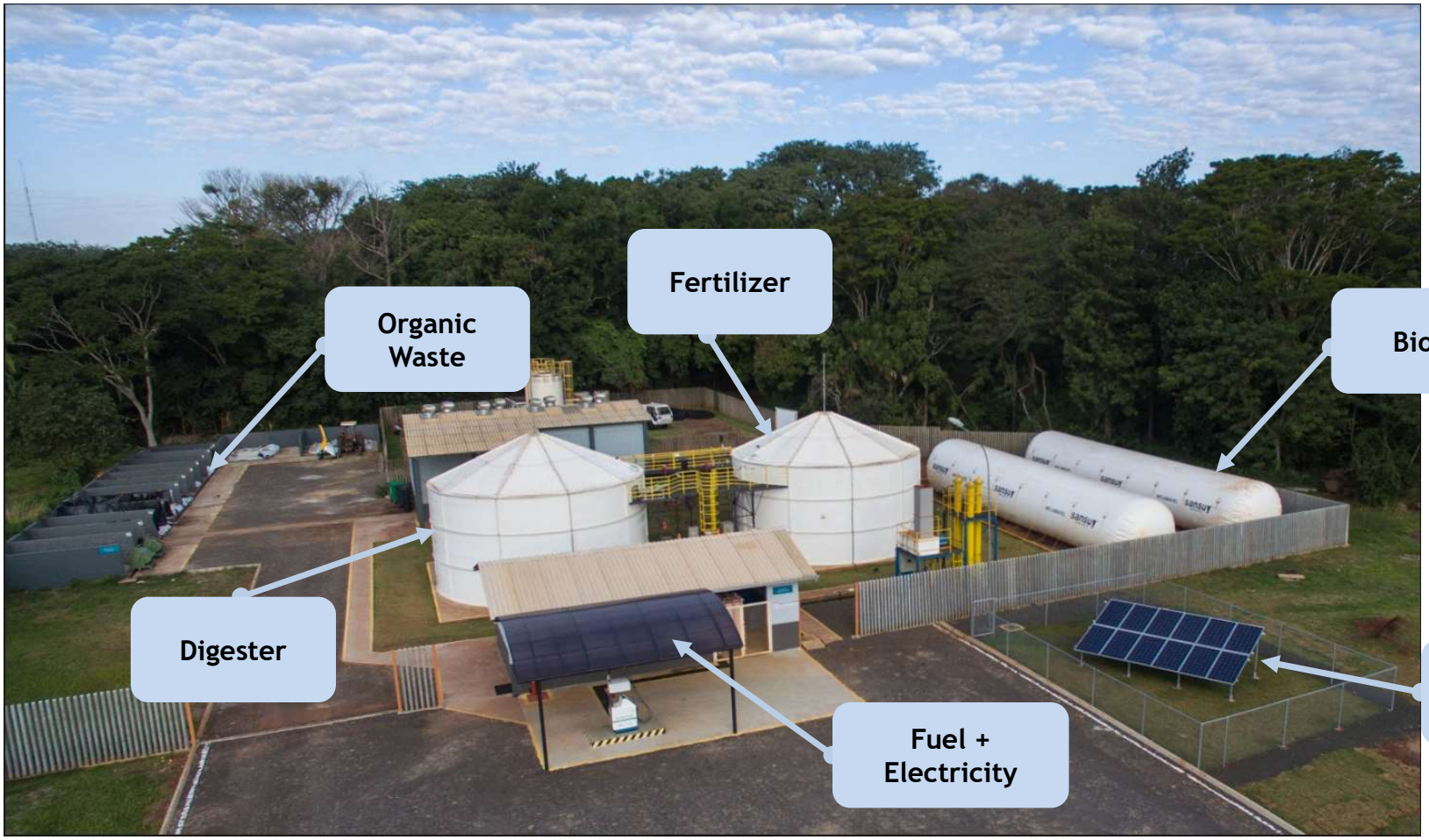
CIRCULAR ECONOMY OF BIOGAS

Closed loop with biogas plant as a link between waste and resources

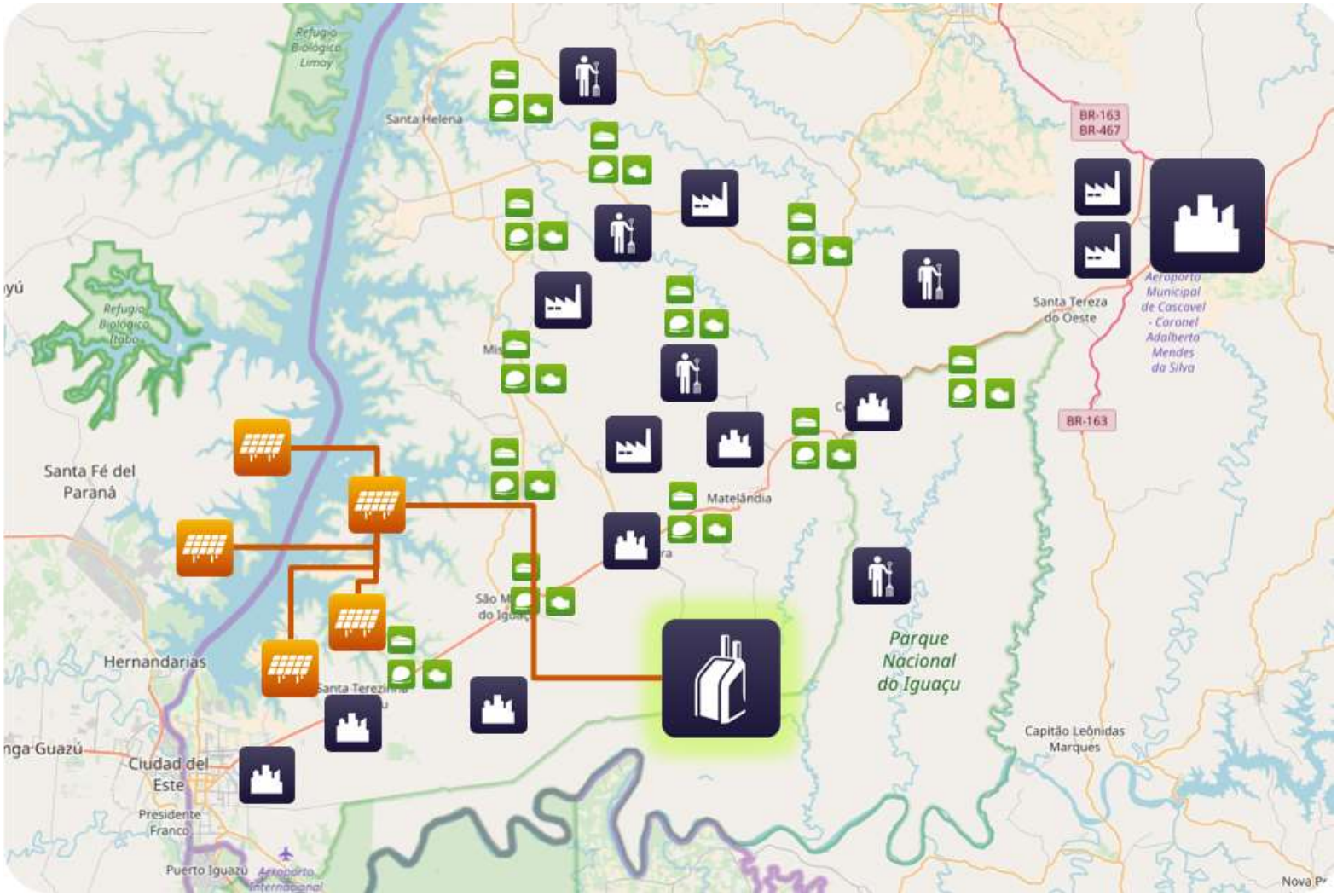


Source: Biogas Action

CONCEPT FOR MICROGRID IN ITAIPU

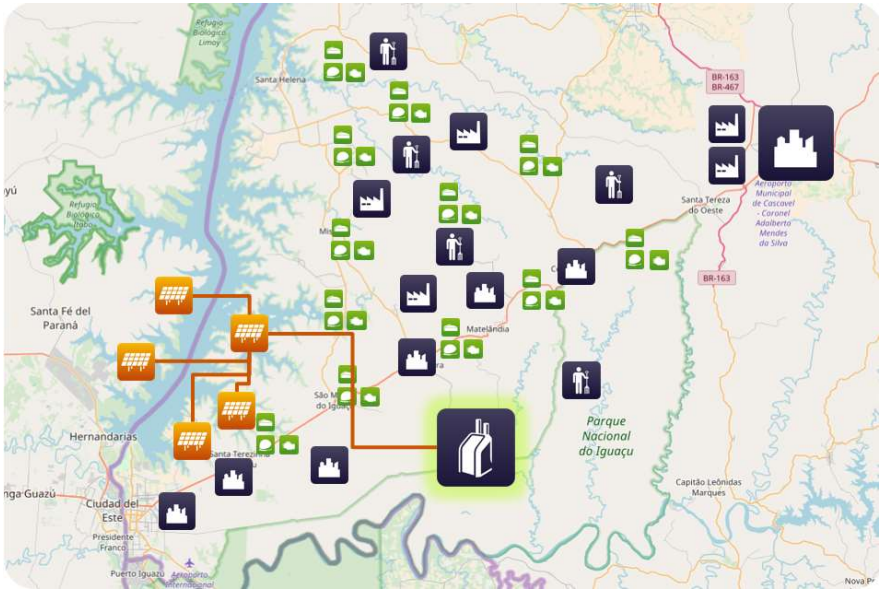


REPLICABILITY FOR THE REGION



ITAIPU AND PTI MICROGRID PROJECTS

- First project to be implemented by 2020;
- Micro grid connecting small farms;
- Micro grid with larger biogas and solar plants;
- Power utilities fully functional selling green energy to the national grid.



PUBLIC POLICIES
Regulatory Agenda

Resolution 687/2015
Mini and micro energy generators in Distributed Generation

Resolution 05/2014
Mini and micro energy trade

Resolution 08/2015 and 685/2017
Biomethane specification and regulation.

Technical Note 03/2014
Stablishment of the economic scenary for biogas for 2014-2023.

RenovaBio program
Recognize the strategic role of all types of biofuels in the Brazilian energy matrix

PARTNERS

PTI Parque Tecnológico Itaipu | ITAIPU BINACIONAL

GOVERNMENTAL

BRASIL GOVERNO FEDERAL

ITAIPU BINACIONAL

MINISTÉRIO DE MINAS E ENERGIA

MINISTÉRIO DAS RELAÇÕES EXTERIORES

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA, INOVAÇÕES E COMUNICAÇÕES

EXÉRCITO BRASILEIRO

Eletrobras Eletrosul

BNDES

FUNDAÇÃO BANCO DO BRASIL

Embrapa

COPEL Pura Energia

FOZ DO IGUAÇU PARANÁ BRASIL

FozHabita CONSTRUINDO FAMÍLIAS

Município de Pato Bragado

Boa Vista da Aparecida

PARTNERS

PTI Parque Tecnológico Itaipu | ITAIPU BINACIONAL

EDUCATION INSTITUTIONS

UNILA Universidade Federal da Integração Latino-Americana

UAB UNIVERSIDADE ABERTA DO BRASIL

unioeste Universidade Estadual do Oeste do Paraná

UNIVERSIDADE FEDERAL DE SANTA CATARINA

UFPR UNIVERSIDADE FEDERAL DO PARANÁ

UTFPR UNIVERSIDADE TECNOLÓGICA FEDERAL DO PARANÁ

USP Universidade de São Paulo

FGV ENERGIA

UNIVERSITÉ PARIS-EST

HOCHSCHULE RHEIN-WAAL Rhine-Waal University of Applied Sciences

utc Université de Technologie Compiègne

UniLaSalle Terre & Sciences

UNRaf UNIVERSIDAD NACIONAL DE RAFAELA

→nantes ensa école nationale supérieure d'architecture de nantes

PARTNERS

PTI Parque Tecnológico Itaipu | ITAIPU BINACIONAL

INSTITUTIONAL

UNESCO

UNIDO UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

IAU

gef GLOBAL ENVIRONMENT FACILITY INVESTING IN OUR PLANET

IASP

NGIN NETWORK FOR GLOBAL INNOVATION

CEIIA

SEBRAE

FIEP

IEL

anprotec

OESTE EM DESENVOLVIMENTO
PROGRAMA DE DESENVOLVIMENTO ECONÔMICO SUSTENTÁVEL DO TERRITÓRIO OESTE DO PARANÁ

POLOIGUASSU
instituto para desenvolvimento da região trinacional

CIBIOGAS ENERGIAS RENOVÁVEIS

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VERSO QUE FLUYE
EN EL AGUA
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