

BTS Biogas technology for the anaerobic digestion of maize by-products in Argentina

Nürnberg
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Riccardo Gefer Wondrich



BTS[®]

*harvesting
energy!*



Summary

1. BTS biogas introduction
2. Renewable Energy and Biogas policy in Argentina
3. BTS projects «Pergamino» and «Venado Tuerto»



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Our Vision

- ✓ **Renewable energy generation** in a complete **natural** and **sustainable** cycle
- ✓ **High profitability** of our plants (CAPEX & OPEX)
- ✓ **Satisfaction** of our clients at first place from plant planning to after sale
- ✓ **R&D, patented technologies, continuous innovation, highest quality**
- ✓ **Professional, highly trained employees:** people makes the difference
- ✓ **International DNA** operations in 16 Countries (Europe, Asia, Americas)





The Company



Headquarter: Bruneck (Südtirol) – Italy

People: ~100 (biologists, engineers, technicians, R&D, ICT and automation, sales & after sale, administration)

Products: Biogas plants and technologies

References: >220+ (total capacity 165 MW)

Patents: 26 worldwide



ISO 9001:2008	No.09795/0
RT-05	
ISO 14001:2004	No.01617/0
ISO 3834-4	No.00016/0
BS OHSAS 18001:2007	No.00686/0





The Company



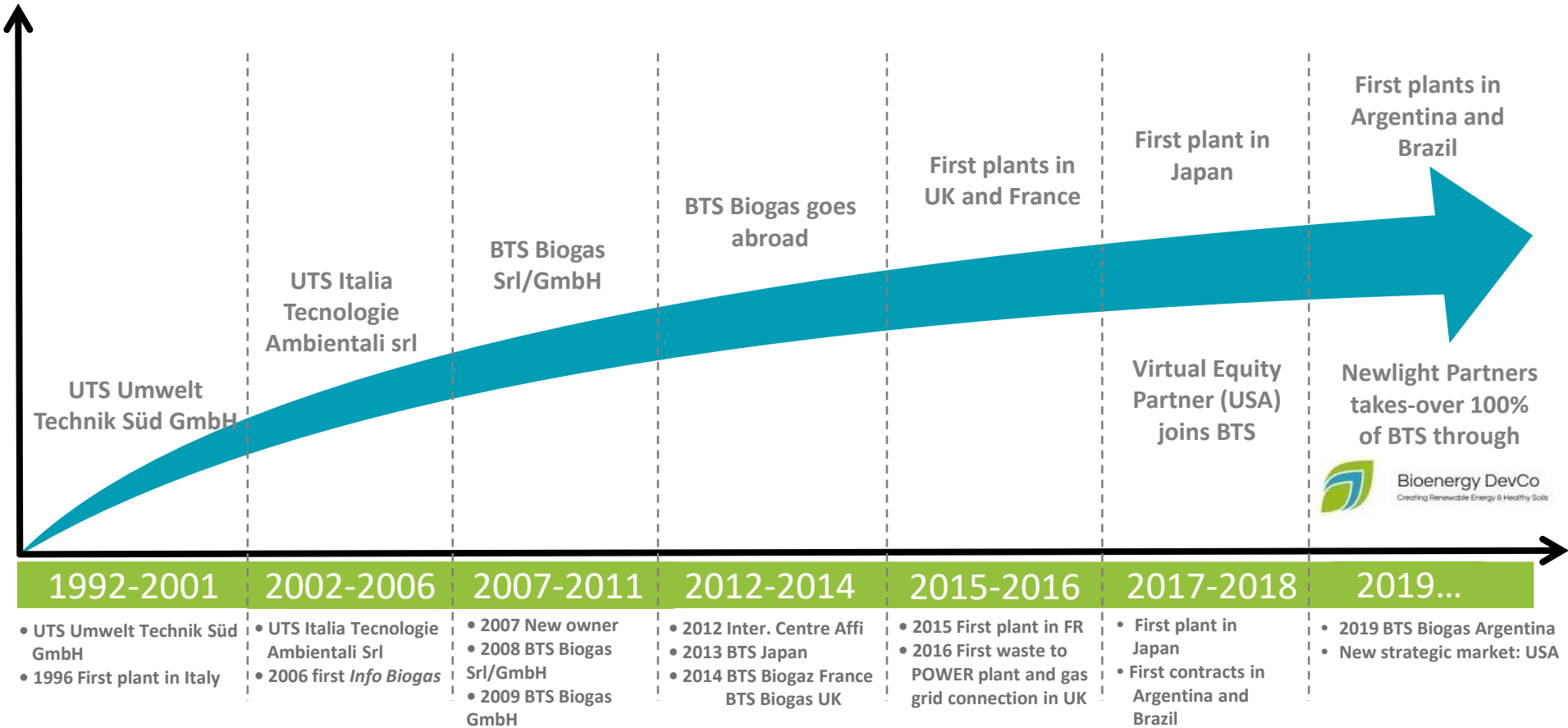
**Logistics
& International Training Centre**
Affi (VR) – Italy
800 m² offices
3,500 m² warehouse
18,500 m² surface



METANlab - Affi (VR) Italy
First dedicated biogas
laboratory in Italy



BTS Biogas path





Plant modules from 100 kW_{eI}

TURNKEY
PLANTS

BY-PRODUCTS &
ORGANIC WASTE

BIOGAS &
BIOMETHANE



MAPLEDURHAM (UK) - 500kW
Bioaccelerator® & Biodry
Cattle slurry and silage

AGRICULTURAL



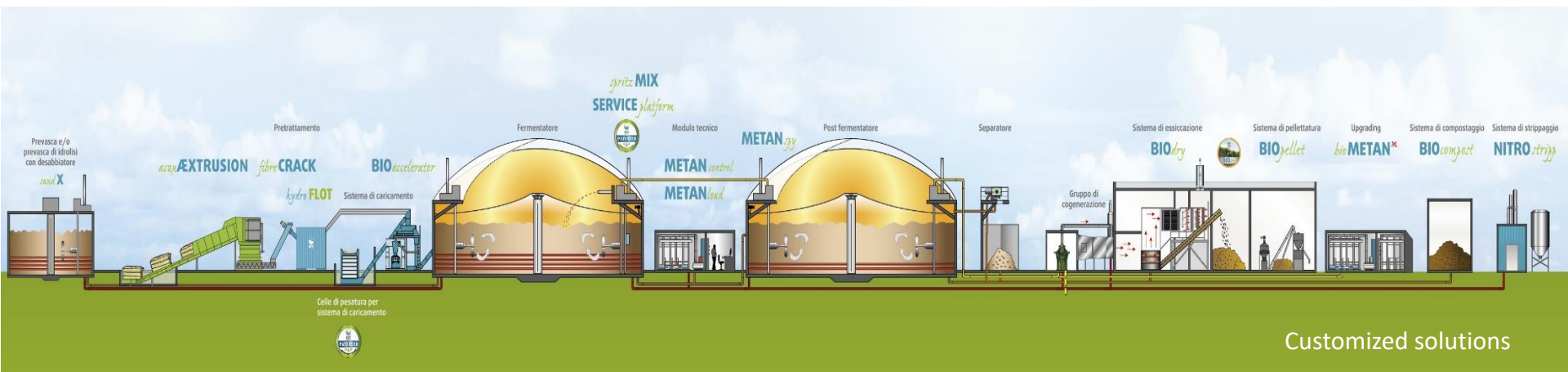
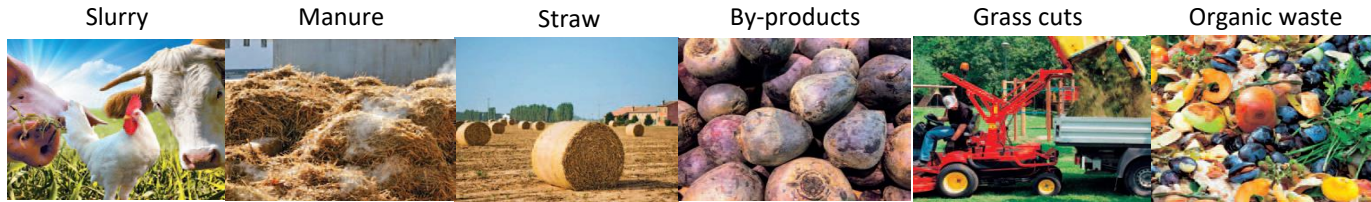
SOUTH MILFORD (UK) - 530 Sm³/h BM and 500kW
Waste pre-treatment and BTS Upgrading System
Organic Waste

INDUSTRIAL



Modular Systems for Agriculture

INPUT



Customized solutions

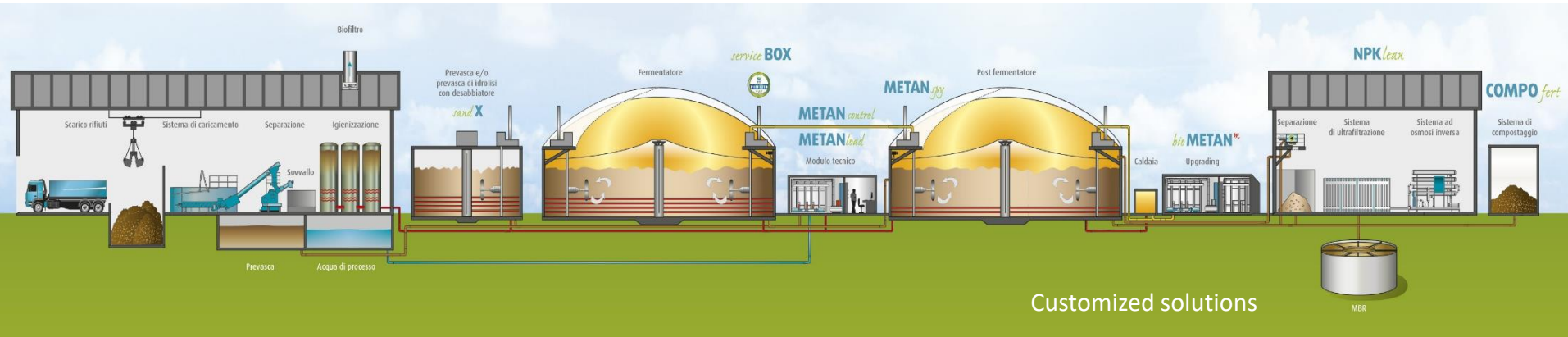


Energy Heat Biomethane Liquid fertilizer CO₂ Compost Pellet Solid digestate

OUTPUT

Modular Systems for Industry

INPUT



OUTPUT



Summary

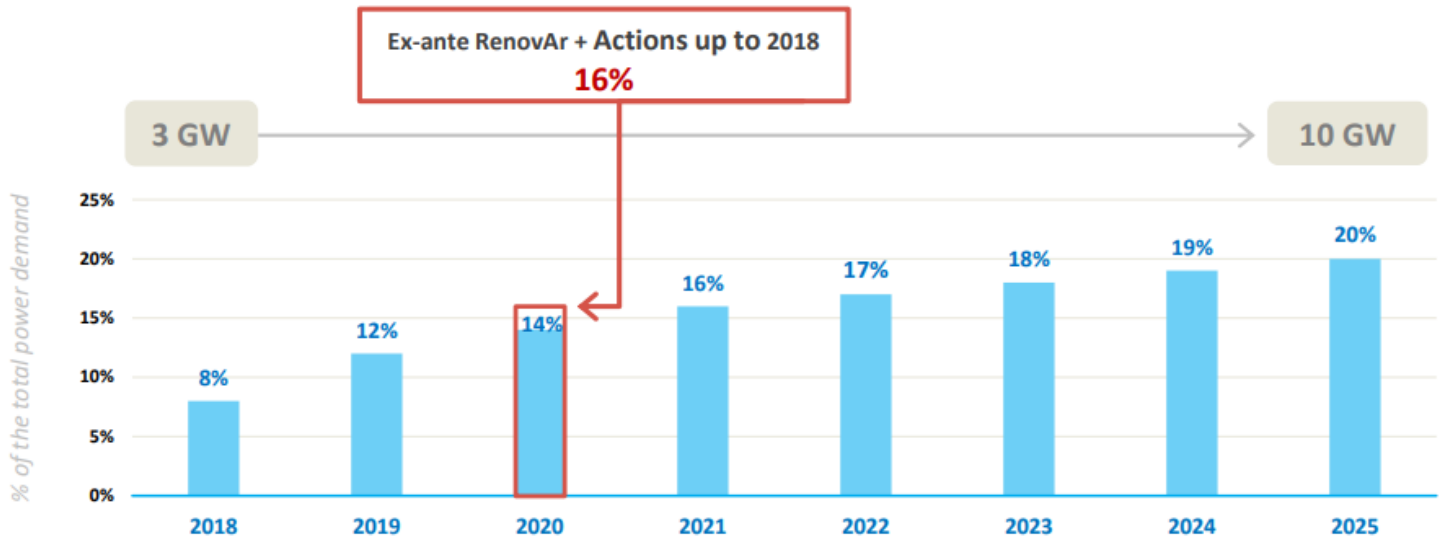
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Renewable Energy framework

- Renewable Energy as a State policy
- Legal framework: law 27.191 (2015). Target:
 - 8% @ 2018
 - 16% @2021
 - 20% @2025
- Diversification (solar, wind, biomass, small hydro, biogas)
- Fiscal incentives
- FODER public trust fund for Guarantees and Financing
- US\$ based – 20-year PPAs



Targets 2018 - 2025



Ex-ante RenovAr

0.8 GW
1.8%

Actions up to 2018

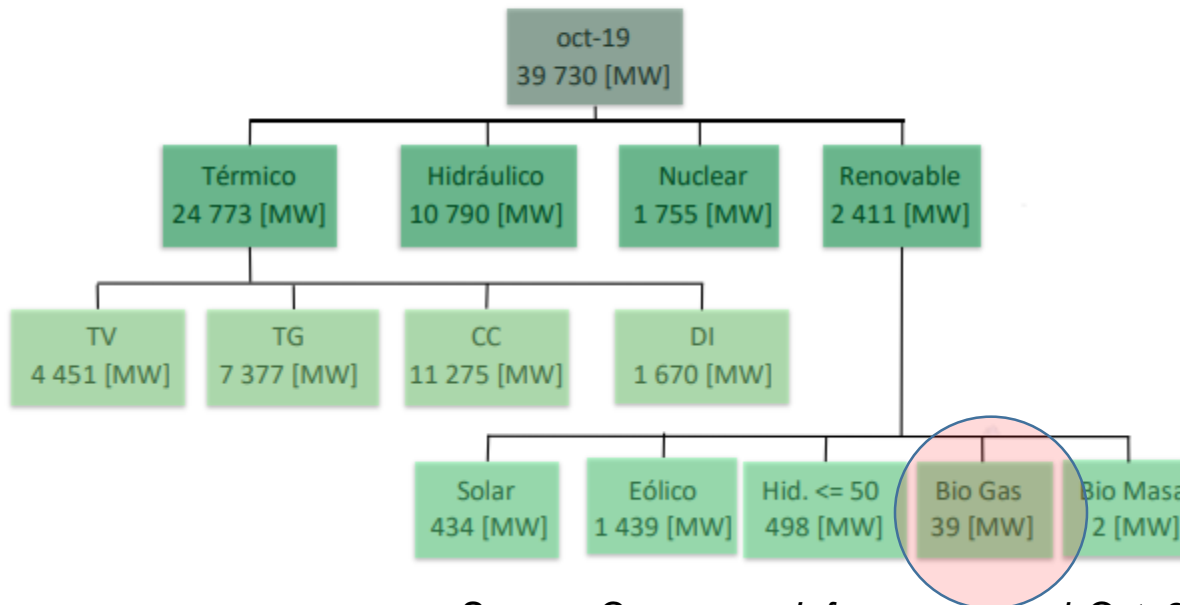
RenovAr Round 1	1.1 GW	2.6%
RenovAr Round 1.5	1.3 GW	2.8%
Legacy Contracts (R202)	0.5 GW	1.5%
RenovAr Round 2	2.0 GW	5.2%
MATER	1.2 GW	2,6%
Total	6.1 GW	14.6%

10.9 MMCO₂eq
Avoided with all
awarded projects

Source: Argentina Energy Department

Installed electric power

Potencia Instalada Distribución por Tecnología [MW]



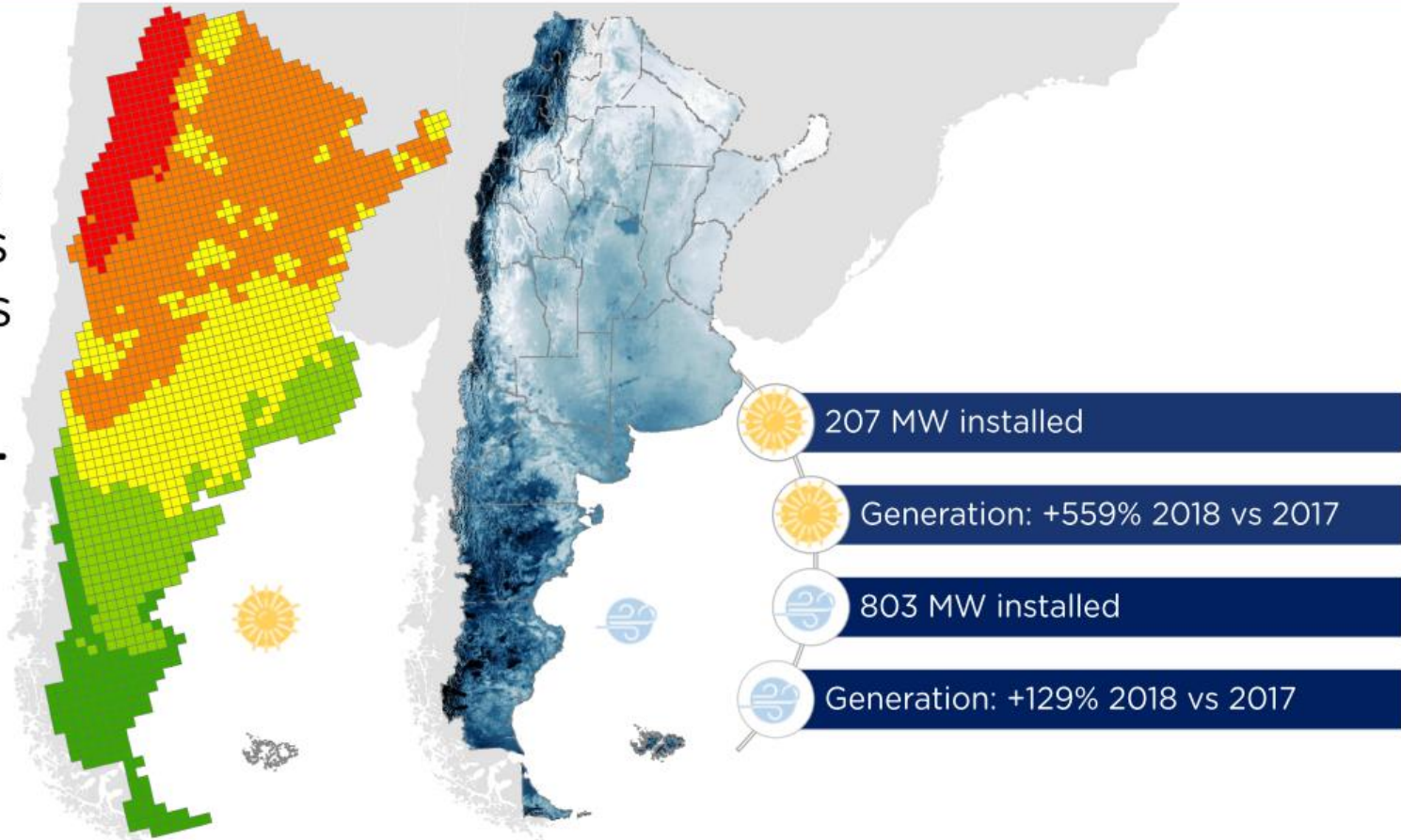
Source: Cammesa, *Informe mensual*, Oct. 2019

Oct. 2019: Renewables represents 6% of total installed power and supplied 7.8% of national demand

RevovAr Plan

RenovAr¹
2.5 Rounds
147 Projects
21 Provinces

4,466+
MW



1) RenovAR is a Power Purchase Agreement (PPA) program to invest in renewable energy boosted by Federal Government

RenovAr rounds dramatically spurred Argentina's renewable power capacity

Source: Argentina Energy Department

- 2016 – 2019: 185 projects adjudicated for 4,725 MW renewable power (RenovAr rounds 1; 1,5; 2; 3)

Biogas sector (not landfill):

- RenovAr r. 1: **6 projects** (4 in operation) - 8.6 MW
- RenovAr r. 2: **31 projects** (2 in operation - **tbc**) - 56.2 MW
- RenovAr r. 3: **6 projects** - 12.75 MW

Local auctions for biogas (?)



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Seeds Energy Group projects



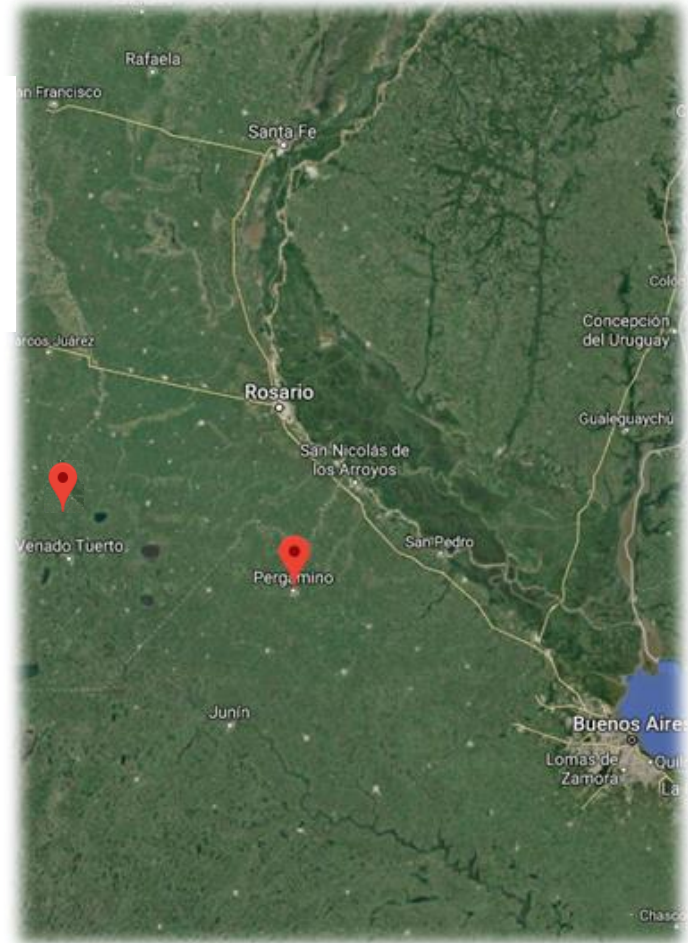
Owner:



Seeds Energy Group
- Energía Natural -

RenovAr
Round 2

2017



Pergamino project – 2.4 MW



Photo Credit: Seeds Energy Group

INPUT

- Corn cobs: 19 t/d
- Corn husks: 29 t/d
- Hens dung: 55 t/d
 - Water 60 t/d
 - Recycle 120 t/d

2 FF 28x8 mt
1 PF 28x8 mt

R.T. ~50 days

2 x 1.2 MW CHP
Chem. Desluphur. System

FiT: 156.85 USD/MWh
20 year PPA -
operation Dec. 2019



Pergamino project – 2.4 MW





Biomass defibrator BioacceletoRZ

Venado Tuerto project – 2.0 MW



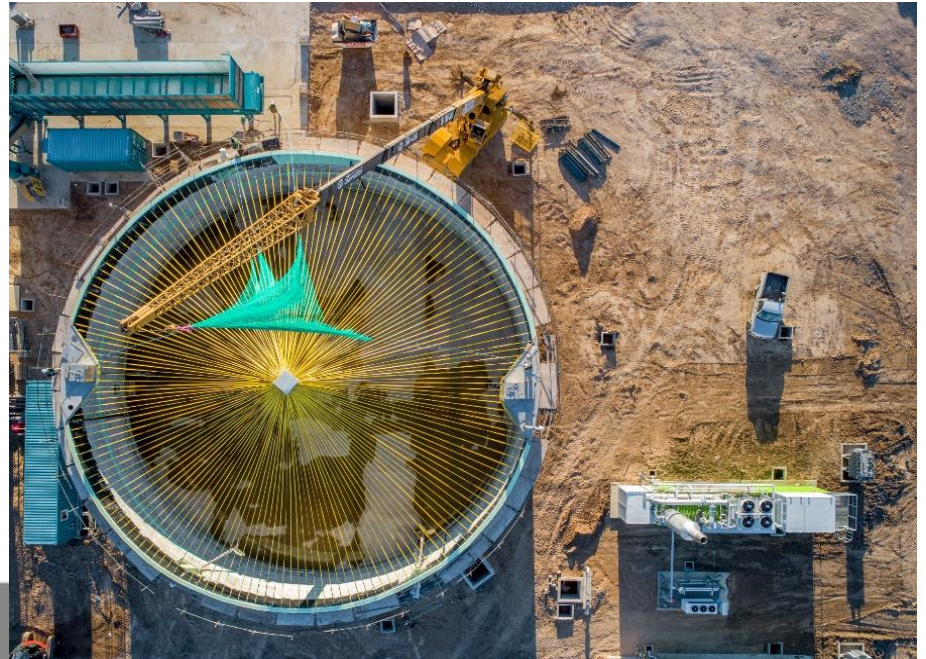
Photo Credit: Seeds Energy Group

INPUT

- | | | |
|----------------------|---------------|---------------------|
| - Corn cobs: 17 t/d | 1 FF 30x8 mt | 2 x 1.0 MW CHP |
| - Corn husks: 30 t/d | 1 PF 30x8 mt | |
| - Glicerol: 2 t/d | | FiT: 156.85 USD/MWh |
| • Water 55 t/d | R.T. ~50 days | 20 year PPA |
| • Recycle 80 t/d | | |



Venado Tuerto project – 2.0 MW





Closing remarks Argentina

STRENGTH

- + Manpower
- + By-products/biomass available
- + Public opinion
- + Hunger for digestate
- + FiT
- + No feed industry competition
- +

WEAKNESS

- Competition with solar/wind energy
- Macroeconomic environment
- Finance/Banking
- Currency cap
- Import procedures
-

***Thank you for the attention and
special thanks to***



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