

# BDR SCALABILITY STUDY: ARGENTINA CASE STUDY

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## New biogas projects round Renovar II

Provincias	Σ Proyectos		Σ Potencias (MW)	
	#	%	#	%
SANTA FE	10	27,8%	24,1	32,2%
BUENOS AIRES	10	27,8%	20,4	27,2%
CORDOBA	10	27,8%	16,6	22,2%
SAN LUIS	3	8,3%	2,8	3,7%
SANTIAGO DEL ESTERO	1	2,8%	6,0	8,0%
TUCUMAN	1	2,8%	3,0	4,0%
LA PAMPA	1	2,8%	2,0	2,7%
<b>Total</b>	<b>36</b>	<b>100,0%</b>	<b>74,94</b>	<b>100,0%</b>

# PROYECTOS ADJUDICADOS – FASE 1

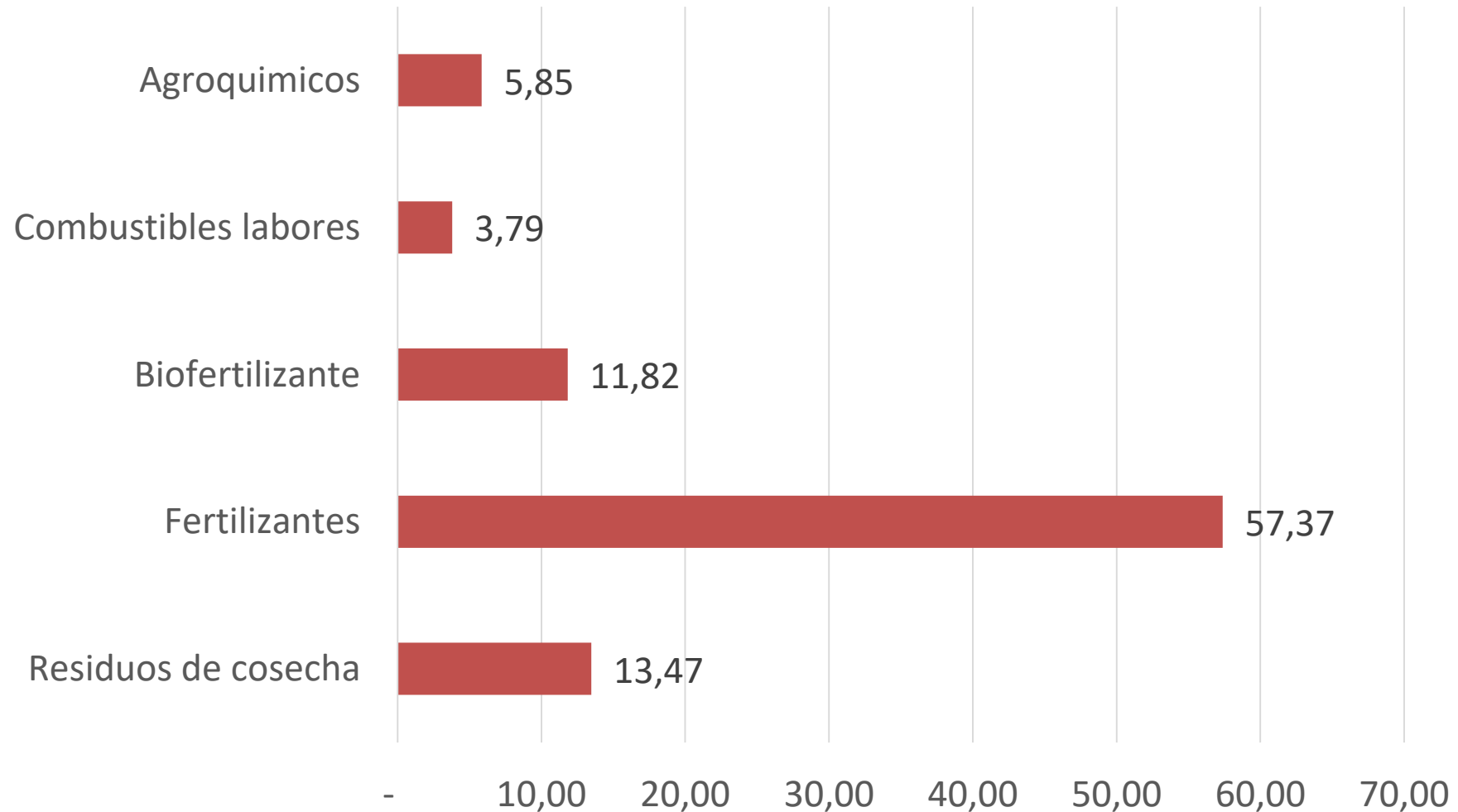


Tecnología	POTENCIA PROYECTOS (MW)			PRECIOS (us\$/MWh)
	OBJETIVO	CALIFICADO	ADJUDICADO	RANGO
<b>BIOGÁS</b>	<b>35</b>	<b>56</b>	<b>35</b>	<b>150 – 160</b>

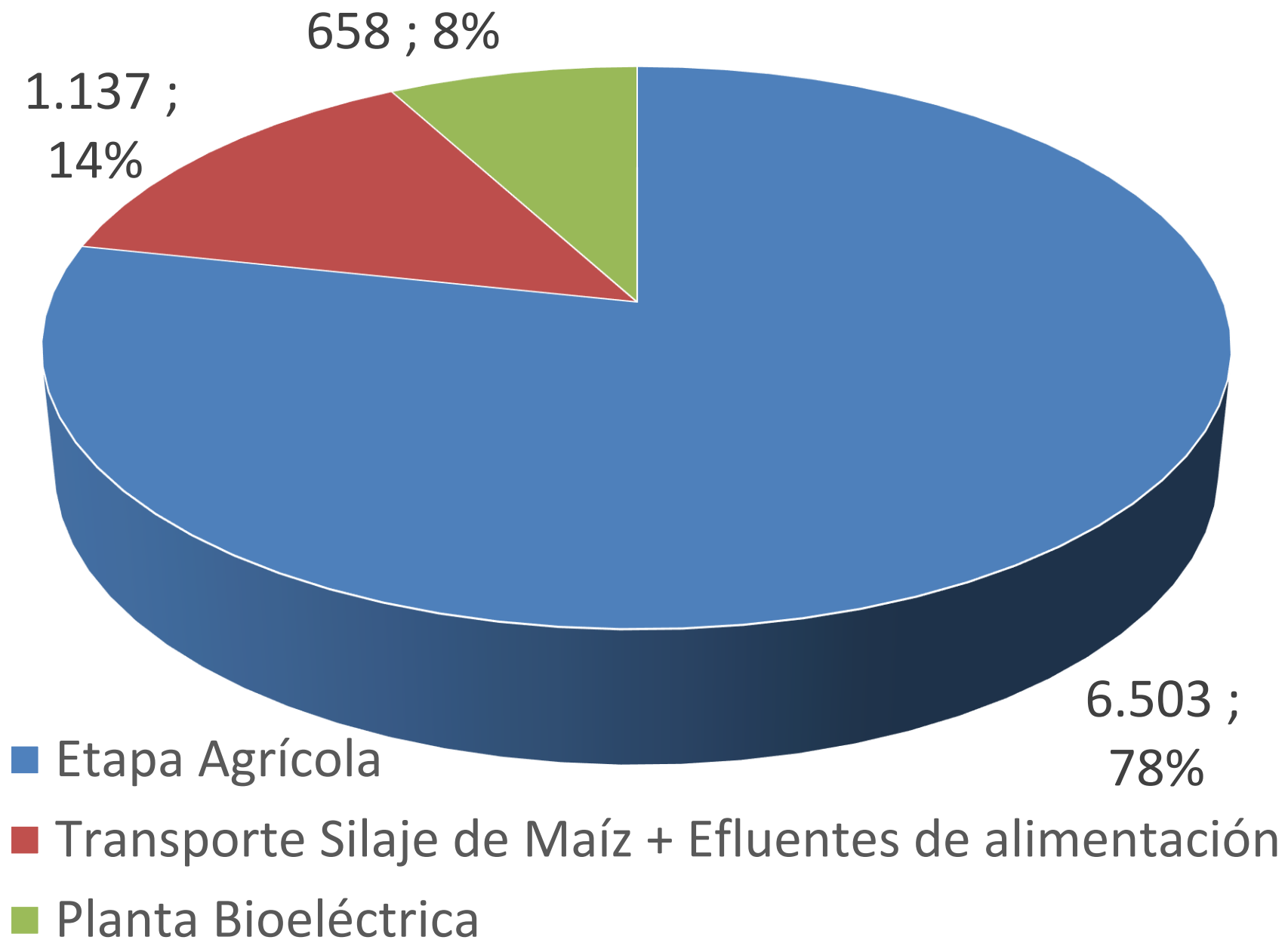
ID Oferta	Región de Asignación	Nombre del Proyecto	Nombre del Socio Estratégico	Provincia	Potencia Ofertada (MW)	Precio Ofertado [u\$s/MWh]	CND [%]
BG-513	BG TODOS	C.T. GENERAL VILLEGAS	MARIA ELENA S.A.	BUENOS AIRES	1.2	\$ 160.00	18.60%
BG-501	BG TODOS	C.T. ARREBEEF ENERGIA	ARREBEEF S.A.	BUENOS AIRES	1.5	\$ 150.00	2.76%
BG-500	BG TODOS	C.T. BOMBAL BIOGAS	TANONI HNOS S.A.	SANTA FE	1.2	\$ 156.00	45.57%
BG-510	BG TODOS	C.T. RESENER I	MARIO GUSTAVO PIERONI	BUENOS AIRES	0.72	\$ 153.00	40.34%
BG-527	BG TODOS	C.T. CITRUSVIL	CITRUSVIL S.A.	TUCUMAN	3	\$ 153.00	1.79%
BG-503	BG TODOS	C.T. JAMES CRAIK	UNIVERSUM INVENIO LIMITED	CÓRDOBA	2.4	\$ 156.00	45.44%
BG-505	BG TODOS	C.T. SAN FRANCISCO	UNIVERSUM INVENIO LIMITED	CÓRDOBA	2.4	\$ 156.00	45.44%
BG-502	BG TODOS	C.T. POLLOS SAN MATEO	POLLOS SAN MATERO S.A.	CÓRDOBA	2.4	\$ 156.00	45.44%
BG-516	BG TODOS	C.T. BIO JUSTO DARACT	BIOMASS CROP S.A.	SAN LUIS	1	\$ 160.00	35.98%
BG-528	BG TODOS	C.T. JIGENA I	COTAGRO COOPERATIVA AGROPECUARIA	CÓRDOBA	1	\$ 156.00	32.01%
BG-530	BG TODOS	C.T. DEL REY	SILVINA HACEN	SANTA FE	1	\$ 154.00	0.61%
BG-504	BG TODOS	C.T. RECREO	UNIVERSUM INVENIO LIMITED	SANTA FE	2.4	\$ 156.00	45.44%
BG-506	BG TODOS	C.T. BELLA ITALIA	UNIVERSUM INVENIO LIMITED	SANTA FE	2.4	\$ 156.00	45.44%
BG-519	BG TODOS	C.T. EL ALEGRE BIO	ANTIGUAS ESTANCIAS DON ROBERTO S.A.	CÓRDOBA	1	\$ 160.00	0.00%
BG-526	BG TODOS	C.T. AVELLANEDA	INDUSTRIAS JUAN F. SECCO S.A.	SANTA FE	6	\$ 160.00	42.51%
BG-529	BG TODOS	C.T. VILLA DEL ROSARIO	CROPS INVESTMENTS S.A.	CÓRDOBA	1	\$ 159.50	31.83%
BG-515	BG TODOS	AMPLIACION BIOELECTRICA DOS	BIOMASS CROP S.A.	CÓRDOBA	1.2	\$ 160.00	19.55%
BG-531	BG TODOS	C.T. DON NICANOR	SILVINA HACEN	SANTA FE	1	\$ 154.00	0.60%
BG-520	BG TODOS	C.T. DON ROBERTO BIO	ANTIGUAS ESTANCIAS DON ROBERTO S.A.	SAN LUIS	1	\$ 160.00	0.00%
BG-514	BG TODOS	AMPLIACION 2 CENTRAL BIOELECTRICA	BIOMASS CROP S.A.	CÓRDOBA	1.2	\$ 160.00	16.23%
<b>SUMA/PROM</b>					<b>35</b>	<b>\$ 156.85</b>	<b>30,3%</b>

# Energy and emissions

Participación en las emisiones del silo de maíz



# Energy consumption



# Energy return

Energia electrica vendida a la red (Gj)	28.067
Energia termica vendida a BioIV (Gj)	21.333
<b>Total energia "vendida" (Gj)</b>	<b>49.400</b>
<b>Tasa de retorno energético (EROEI)</b>	<b>5,95</b>

# Reducción de emisiones calculado

Prom Red 2015	Promrefd2014	EMCexpost	Ahorros de emisiones respecto a la red
83%	82%	88%	Energía total
29%	27%	49%	Energía térmica entregada
46%	44%	61%	Energía eléctrica producida
69%	68%	78%	Energía total aprovechada T + E

# BDR SCALABILITY in Argentina – Approach & Choices

Total Area	(ha)	278,400,000
Inhabitants	(Millions)	43,8
Agricultural Area - AA	(ha)	
Utilised Agricultural Area (Cultivated Area - UAA)	(ha)	39,200,000
<b>Arable Land - ArL</b>	<b>(ha)</b>	<b>31.500.000</b>
Permanent Crops	(ha)	1,000,000
Permanent Pastures	(ha)	160,000,000
	(haArL/inhab.)	0.72
<b>Agricultural irrigated area</b>	(ha)	2,100,000
	<b>(% ArL)</b>	<b>13.8%</b>

## Utilised Agricultural Area considered

- Maize silage, maize grain
- Soybean
- Sunflower, cotton, rice

**UAA: 30,2 millions ha**

**SEQUENTIAL CROP** commercial crops: **4,7 milion ha**

**POTENTIAL AREA FOR DOUBLE CROPPING 9,22 million ha**

## Some Country characteristics

- Great climate variability
- Frequent policy changes
- High tech profesional farmers
- High rate of innovation
- High development of agroindustry

## MAJOR CONCERNS

- Yield variability
- Climate change increasing natural phenomena effects
- Nutrients balance



# BDR SCALABILITY in ARGENTINA – RENEWABLE GAS Potential

	Bio-CH4	
	(Billion m3)	(%)
Sequential crops	10,53	44,6
Agricultural residues	2,84	44,4
Livestock effluents	0,89	9,7
Agro-industrial by-products	0,14	1,3
Total	14,40	100
	Renewable gas (Billion m3)	Total gas imports
Bio-CH4 from BIOGASDONERIGHT BIOMASSES	14,40	11,03
Bio-CH4 from WASTE	0,39	
OVERALL BIOGENIC BIOMETHANE	14,79	
- CO2 available	12,10	
SYSNTETIC METHANE FROM WIND/ SOLAR	9,68	
- CO2 recovery rate	80%	
BIOMETHANE FROM SOLID BIOMASS GASSIFICATION	0,00	
RENEWABLE GAS OVERALL POTENTIAL	24,47	
ARGENTINA NATURAL GAS CONSUMPTION	45,94	
PERCENTAGE OF POSIBLE REPLACEMENT	53,26	

# ¡MUCHAS GRACIAS!

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