



11th DiBiCoo Web Seminar: Biogas Plants: Legal Framework Conditions and Policy Considerations ARGENTINA CASE

Agr.Eng. Jorge Antonio Hilbert

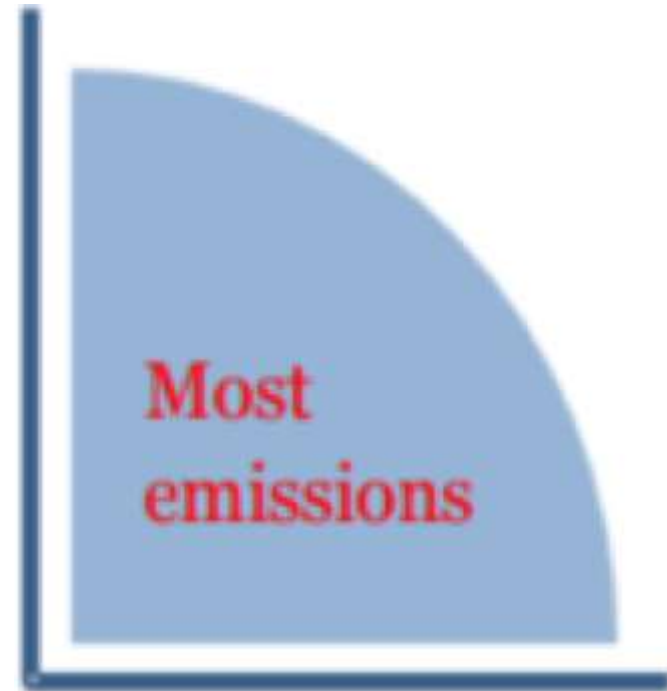
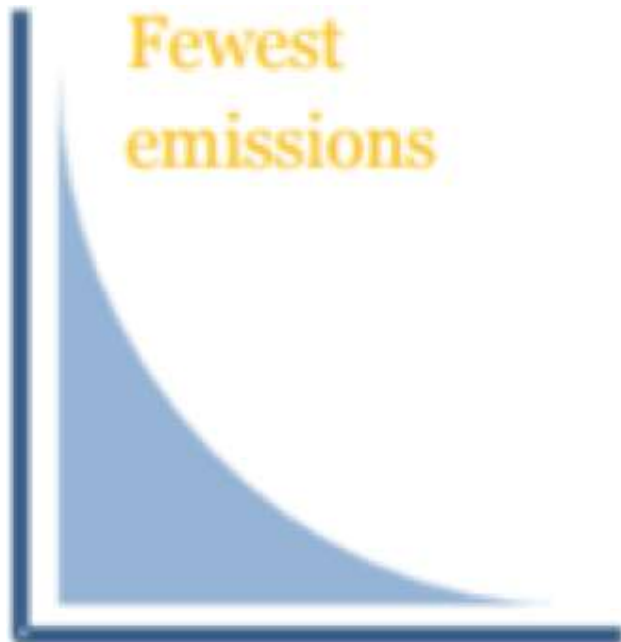


Ministerio de Agricultura,
Ganadería y Pesca
Argentina



STRATEGIC OPORUNITY FOR BIOGAS AND BIOMETHANE

Different decarbonization speeds lead to very big differences in GHG accumulation on the atmosphere although with both strategies we reach net zero emissions at the same time.





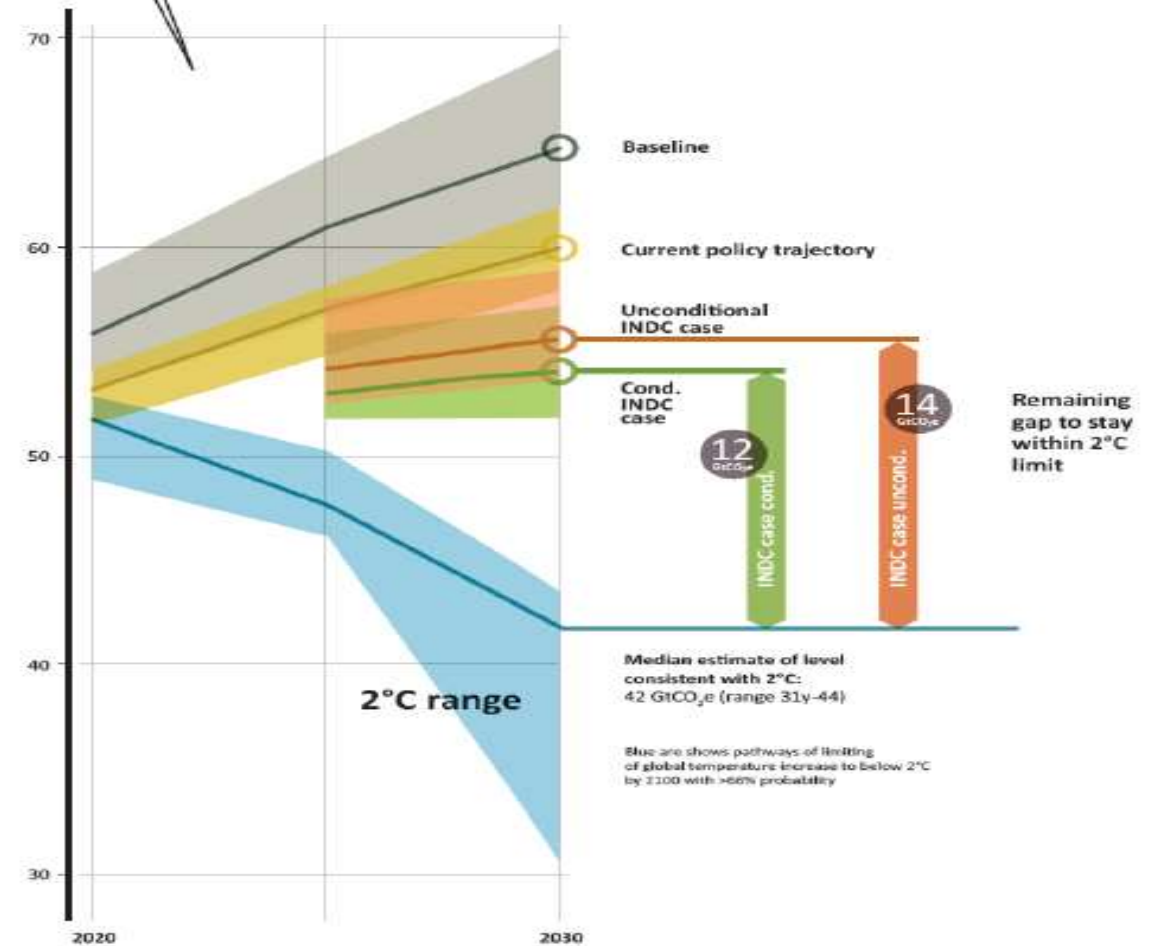
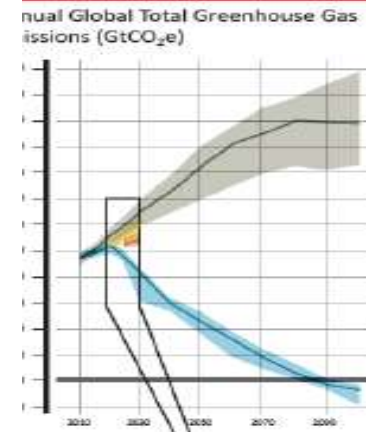
RES
URA



RISKS

[UNEP, 2015]

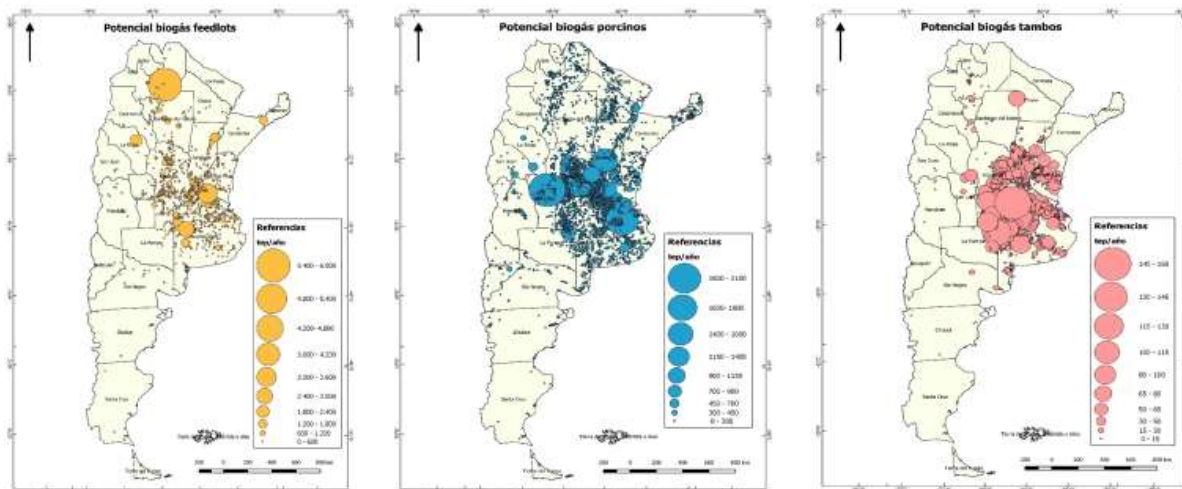
Paris Agreement gap to fill



Biogas feedstocks are available

Mapa nacional de potencial de Biogás-Probiomasa

Potencial nacional de Biogás: 360.000 TEP





PROMOTION OF RENEWABLE ENERGY NATIONAL FRAMEWORK BIOGAS WAS INCREASINGLY GROWING



BOLETÍN OFICIAL
de la República Argentina



<https://www.boletinoficial.gob.ar/#!DetalleNorma/247667/20210804>

MARCO REGULATORIO DE BIOCOMBUSTIBLES

Ley 27640

Aprobación.

El Senado y Cámara de Diputados de la Nación Argentina reunidos en Congreso, etc. sancionan con fuerza de Ley:

MARCO REGULATORIO DE BIOCOMBUSTIBLES

Artículo 1º- Apruébese el Marco Regulatorio de Biocombustibles, el cual comprende todas las actividades de elaboración, almacenaje, comercialización y mezcla de biocombustibles, y tendrá vigencia hasta el 31 de diciembre de 2030, pudiendo el Poder Ejecutivo nacional extenderlo, por única vez, por cinco (5) años más a contar desde la mencionada fecha de vencimiento del mismo.

BIOFUELS



✓ LAW 26.093
(Implemented)
✓ Man
✓ Defir
✓ Qual
✓ LAW 26.190

* Law 26.093 extends benefits to sugar plants, sugarcane and ethanol producers

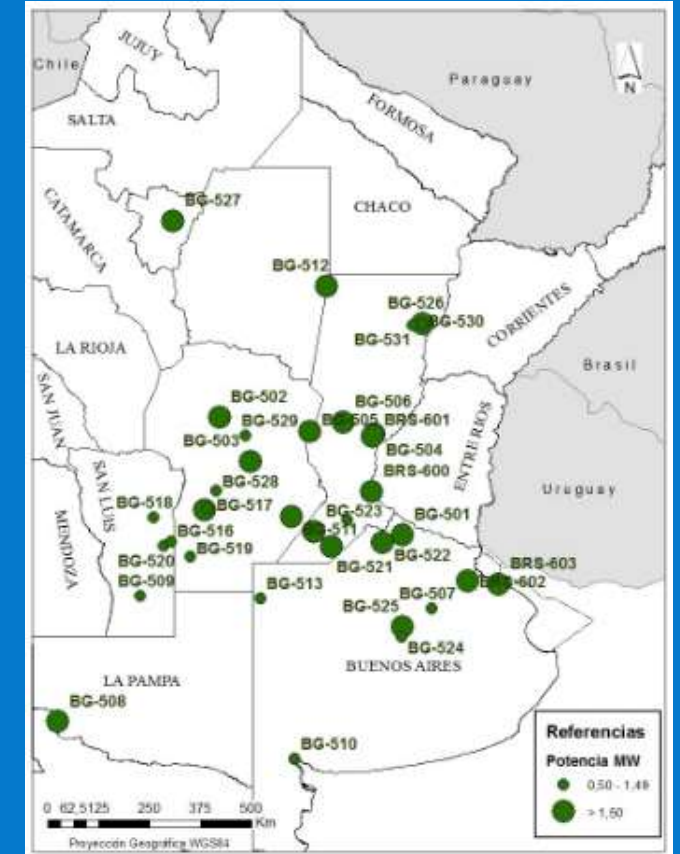
PROJECTS SITUATION IN ARGENTINA PROGRAMA RENOVAR 2016-2019

52 NEW BIOGAS PLANTS

- Round 1: 6 Biogás plants already in operation
- Round 2: 32 Biogás plants, 3 Landfill recovery
- Mini renovar 3: 14 new projects implementation stage

BIOGASLOCAL DEVELOPERS AND PROVIDERS

- ✓ 24 companies in the biogas sector
- ✓ Specific providers for tank biolding
- ✓ Other industry companies providing parts and componentes
- ✓ Now some are looking for overseas markets
- ✓ Posibility of joint ventures



RENOVAR 1 & 2 MAIN PROJECTS



13.500 t corn/year

5000 l ethanol

Other uses

Transport fuel

Minidest modular farm bioethanol plant



Thin stillage

Water (120 m³/day)
Production package
(enzymes, yeasts, Correctors)

150 kWh Electric energy

26 t DGS

CHP

Thermal energy

What is Biogasdoneright™?

Continuous Land Cover
Improved Water Quality, Reduced Erosion

Increased Economic Stability
More Economically Robust Farms, Less Volatile Food & Energy Markets, Reduced Fertilizer Costs

Increased Soil Organic Matter
Reduced Loss of Nutrients, More Fertile Soils, More Drought Resistant

Residue Valorization
Energy from Residues, Avoided Emissions

Food AND Fuel
No Indirect Land Use Change

MICHIGAN STATE UNIVERSITY

Biodigester

FEEDLOT
(3.000 animal)
9.500 heads/year



Latest news at home are contradictory



NOTAS

Senadores de la oposición piden al secretario de Energía que tenga piedad al momento de reglamentar el nuevo marco normativo sobre biocombustibles

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NOTAS

Se aprobó el proyecto kirchnerista de biocombustibles con el apoyo de los senadores jujeños y tucumanos de Juntos por el Cambio

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El biodiésel para autoconsumo comienza a motorizar inversiones en Córdoba



NOTAS

Nueva "mojada de oreja" para el sector de biocombustibles: anulaban la actualización del precio para las ventas realizadas en junio

© 5 JULIO, 2021



NOTAS

Con la actualización del precio de los biocombustibles, el gobierno procedió a recortar el cupo de mezcla de biodiésel con gasoil

© 1 JULIO, 2021

LA EXPERIENCIA MUNDIAL MÁS GRANDE DE USO DE B100

MÁS DE 1000 UNIDADES DE TODAS LAS MARCAS Y EDADES

MÁS DE 46.000.000 MILLONES DE KM RECORRIDOS

Modelo de agricultura empresarial

- Descentralización y libre mercado
- Paradigma: modelo agroexportador
- Mercados internacionales
- Vinculo frecuente con proveedores de insumos
- Se privilegia la tecnología
- Objetivo: buena práctica agropecuaria

Modelo de agricultura familiar

- Centralización, control y subsidio estatal
- Paradigma: soberanía alimentaria
- Mercados locales de cercanía
- Desvinculación de los proveedores de insumos
- Se privilegia la mano de obra
- Objetivo: producción "agroecológica"

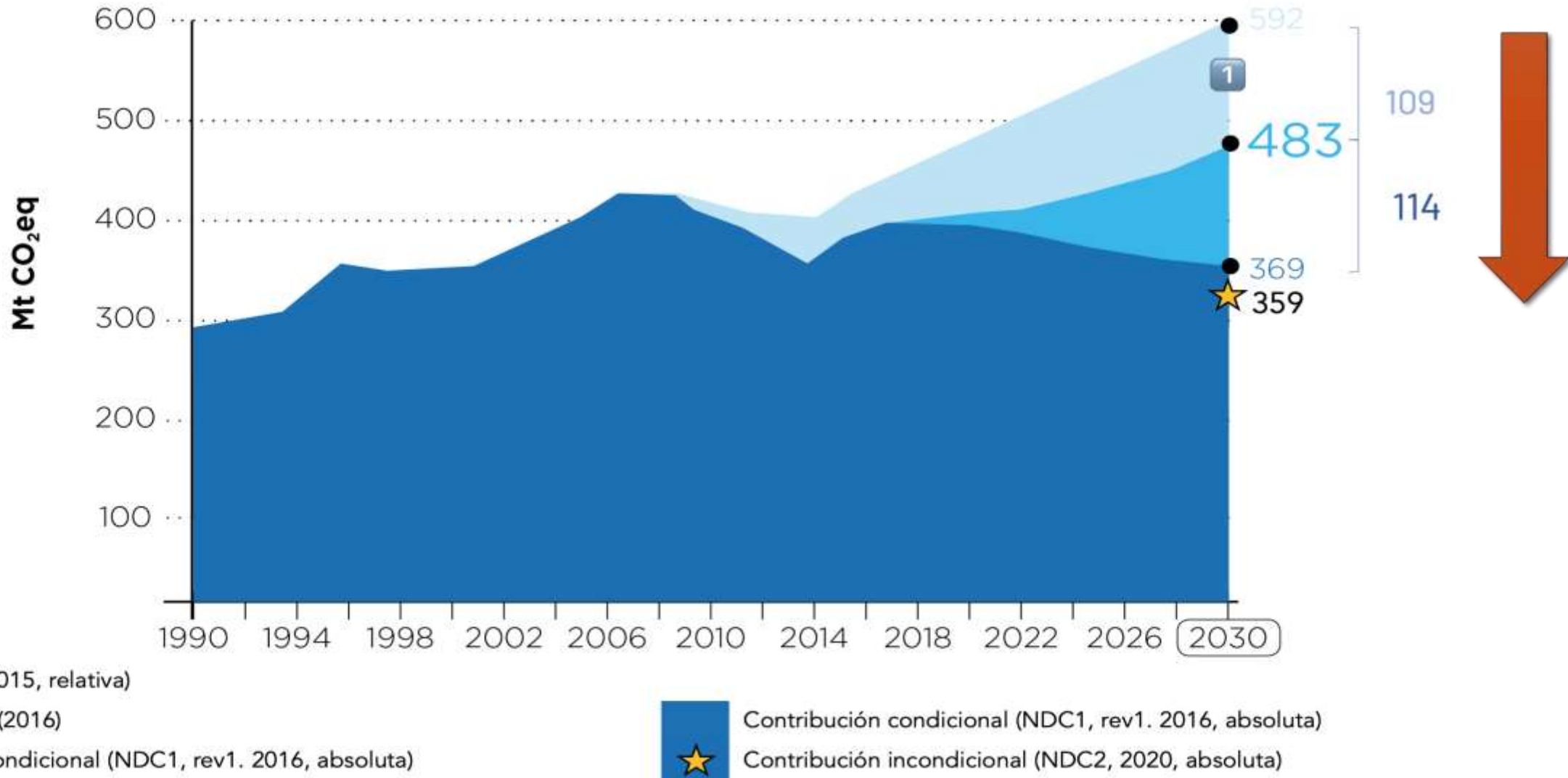


Dos modelos agropecuarios en pugna separados por una grieta



National contributions to climate change

THE NDC OF ARGENTINA



Interactions between bioenergy and SDGs

All bioenergy contributes to:



High likelihood of interaction



Moderate likelihood of interaction



Low likelihood of interaction

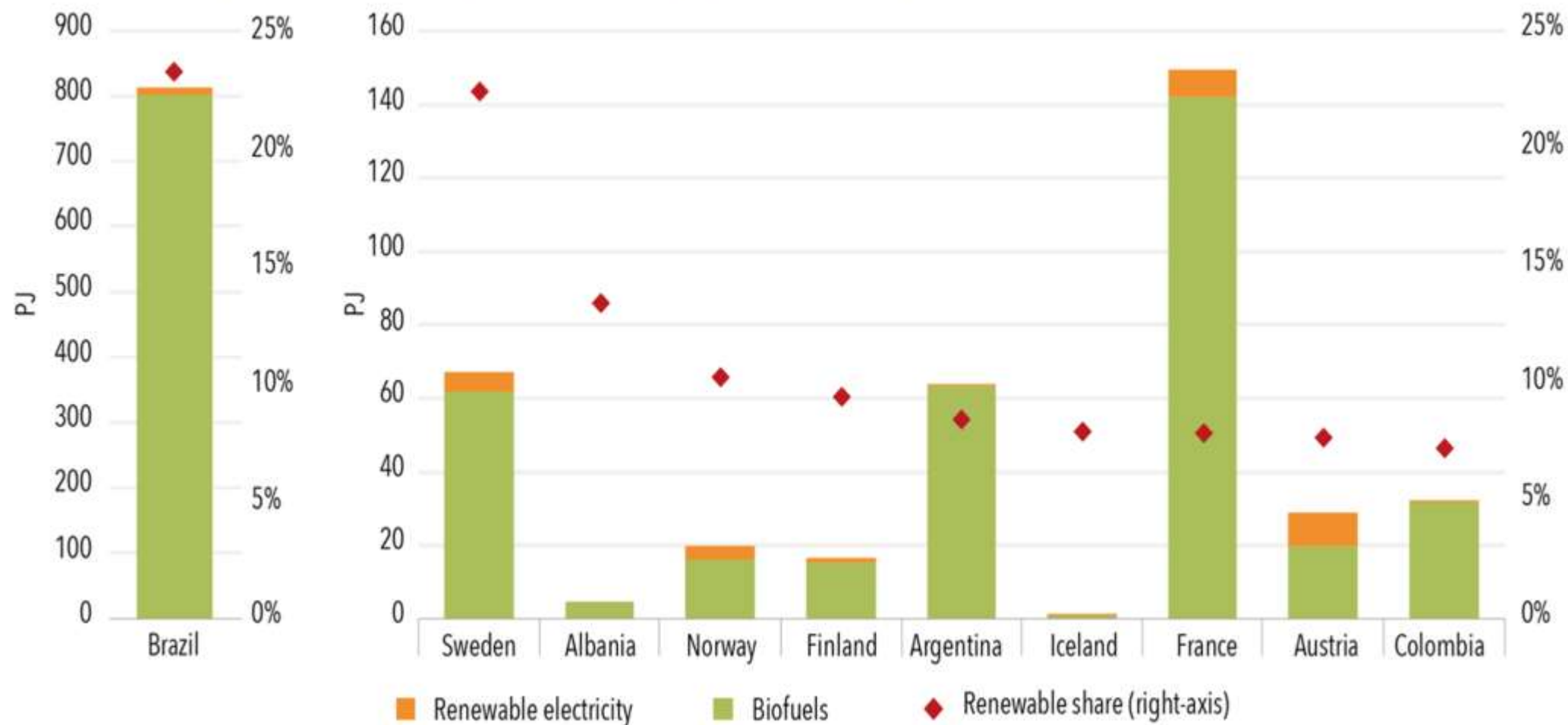


- Recent reports draw links between bioenergy and SDGs in general
- General agreement on SDGs most likely to be linked to biomass production for bioenergy
- Impacts are supply chain and location specific, could be positive or negative

Sustainable Development Goal indicators

ODS 7: Renewables in final consumption in transport

FIGURE 3.17 • Top ten countries by renewable energy share in transport, 2018



Source: IEA 2020b; UNSD 2020.

We need to improve emission factors of all biofuels

Table 2 Emission values including their life cycle used from 10 years of studies on production and processing chains in Argentina.

biofuel	Average emissions gCO ₂ /MJ fuel	
Biodiesel	25,07	~
Corn bioethanol	24,64	~
Sugarcane bioethanol	25.3 ⁵²	~
Bioethanol for cutting 50/50 ⁵⁵	24,97 ⁵	~
Biogas for electricity	18,8 ⁶	~
Biomethane of biogas plants	22,0	~

Table 6 Values of emission factors including their life cycle used for natural gas and LPG in Argentina.

Fossil fuels	Average emissions gCO ₂ /MJ fuel	
natural gas	62,72	~
CNG transport	65,53	~
LPG	63,89	~

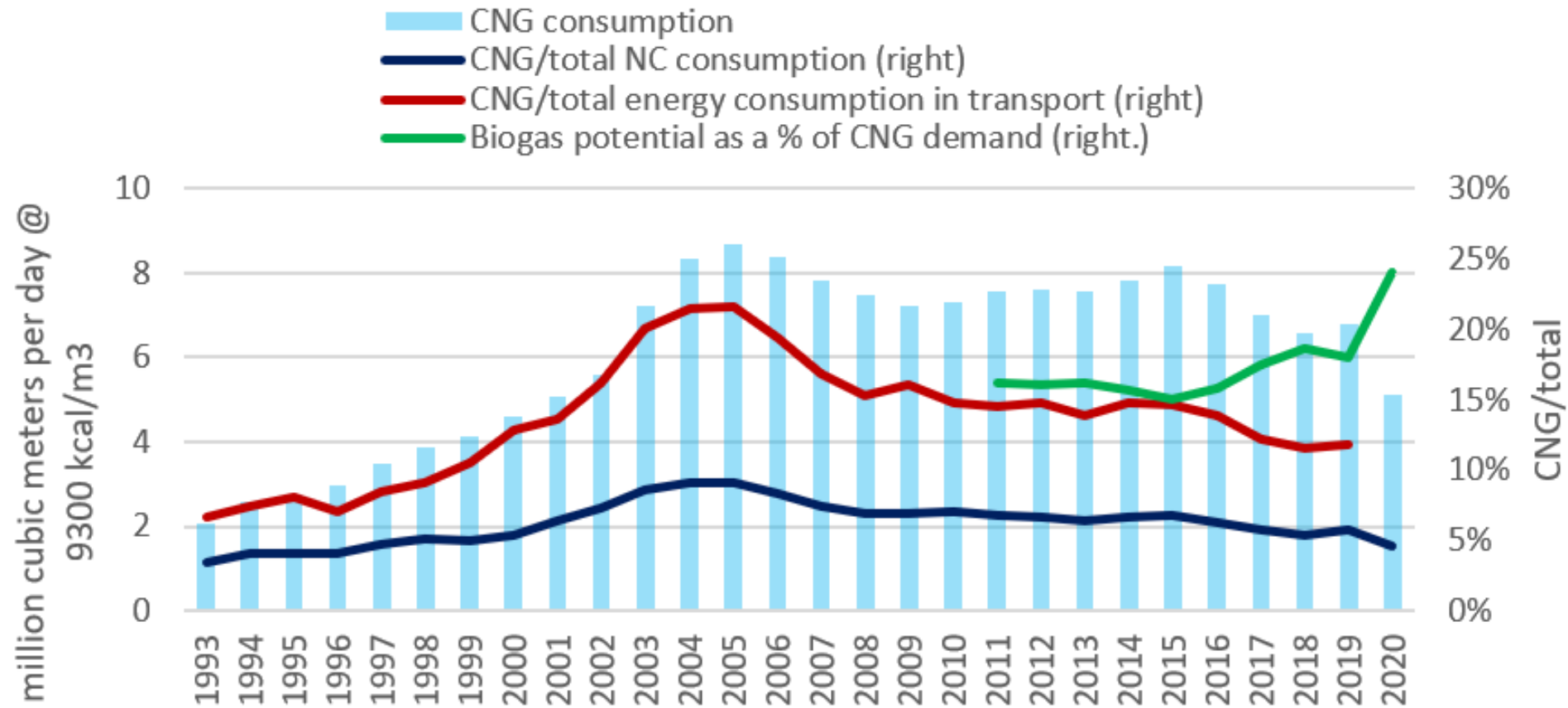


Figure 29 Evolution of vehicular natural gas consumption and potential for replacement by biogas (own elaboration).¶

Table 20 Sensitivity to variations in biogas emission factor, expressed in relation to the factors used. Own elaboration

	Substitution	25%	0%	-25%
		MtCO ₂ and avoided		
Power generation	Grid n. gas	0.847	0.765	0.683
Final consumption	Grid n. gas	0.805	0.709	0.613
	CNG	0.854	0.758	0.662
	LPG	0.825	0.729	0.634

¶

Table 21 Sensitivity to variations in the emission factor of fossil fuel to be replaced, expressed in relation to the factors used. Own elaboration

	Substitution	25%	0%	-25%
		MtCO ₂ and avoided		
Power generation	Grid n. gas	0.492	0.765	1.038
Final consumption	Grid n. gas	0.436	0.709	0.982
	CNG	0.473	0.758	1.043
	LPG	0.451	0.729	1.007

¶

Table 22. Sensitivities to the mitigation potential of biogas according to use and energy source to be replaced in scenario of maximum penetration according to estimated gross maximum potentials. Own elaboration ¶

		Avoided MtCO ₂ e													
		(i) + (ii) + (iii) + (iv)													
		(i) + (ii) + (iii)													
		(i) + (ii)													
		(i)													
Substitution		1%	7%	10%	20%	27%	30%	40%	50%	60%	70%	80%	90%	100%	
Power generation	Grid n. gas	0.1	0.8	1.2	2.4	3.2	3.2	3.6	4.8	6.0	7.1	8.3	9.5	10.7	
	Grid n. gas	0.1	0.8	1.1	2.2	3.0	3.0	3.3	4.4	5.5	6.6	7.7	8.8	9.9	
Final consumption	CNG	0.1	0.8	1.2	2.4	3.2	3.2	3.5	4.7	5.9	7.1	8.3	9.4	10.6	
	LPG	0.1	0.8	1.1	2.3	3.1	3.1	3.4	4.5	5.7	6.8	8.0	9.1	10.2	

(i): agro-industrial by-products, (ii): livestock effluents, (iii): agricultural residues, (iv): sequential cover crops. ¶



Table 23 Sensitivities to the mitigation potential of biogas according to use and energy source to be replaced in scenario of maximum penetration according to estimated gross maximum potentials, shown as a percentage of the NDC in 2030.
Own elaboration¶

		% over NDC 2030													
		(i) + (ii) + (iii) + (iv)													
		(i) + (ii) + (iii)													
		(i) + (ii)													
		(i)													
Substitution		1%	7%	10%	20%	27%	30%	40%	50%	60%	70%	80%	90%	100%	
Power generation	Grid n. gas	0.1%	0.4%	0.5%	1.1%	1.4%	1.4%	1.6%	2.1%	2.7%	3.2%	3.7%	4.3%	4.8%	
	Grid n. gas	0.0%	0.3%	0.5%	1.0%	1.3%	1.3%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%	
Final consumption	CNG	0.1%	0.4%	0.5%	1.1%	1.4%	1.4%	1.6%	2.1%	2.6%	3.2%	3.7%	4.2%	4.8%	
	LPG	0.1%	0.4%	0.5%	1.0%	1.4%	1.4%	1.5%	2.0%	2.5%	3.1%	3.6%	4.1%	4.6%	

(i): agro-industrial by-products, (ii): livestock effluents, (iii): agricultural residues, (iv): sequential cover crops.



Complete work available free

https://www.researchgate.net/publication/354077467_The_potential_of_Argentine_biogas_to_contribute_to_the_fulfillment_of_Argentina's_contributions_NDCs_under_the_Paris_Agreement

Experiment Findings



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The potential of Argentine biogas to contribute to the fulfillment of Argentina's contributions NDCs under the Paris Agreement

August 2021

DOI: [10.13140/RG.2.2.35891.14889](https://doi.org/10.13140/RG.2.2.35891.14889)

Lab: [Jorge Antonio Hilbert's Lab](#)

 Jorge Antonio Hilbert ·  Luciano Caratori

Research Interest 

Citations

Recommendations

Reads 

NEED TO INTEGRATE AND WORK TOGETHER



GLOBAL METHANE INITIATIVE

<https://www.globalmethane.org/>



DIBICOO EU 2020 PROJECT

<http://dibicoo.org/>



BIOGAS DONE RIGH BDR

<https://youtu.be/QXsDjY9v060>

¡Muchas Gracias!

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