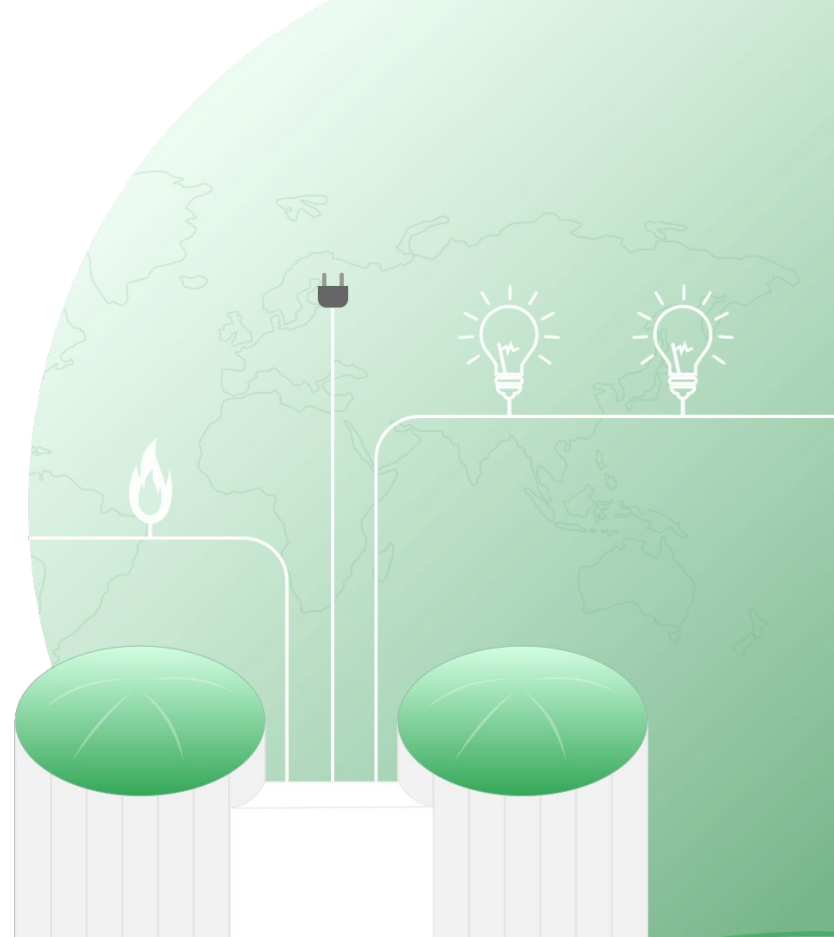


6th Web Seminar

Bio Methane (CNG & LNG) and Waste Treatment

DiBiCoo Web Seminar Series



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 857804. The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the EU.



**Digital global
Biogas
Cooperation**



Welcome!



**Digital global
Biogas
Cooperation**



Agenda

(Time - CEST, PM)

- 1:00 - 1:05: Welcome and Opening, Moderator
- 1:05 - 1:25: Biomethane: CNG and LNG
- 1:25 - 1:40: Q&A
- 1:40 - 2:00: Biomethane Production & Use in Argentina
- 2:00 - 2:10: Q&A
- 2:10 - 2:30: Biowaste to Biogas Technologies
- 2:30 - 2:45: Q&A + Closing



Web Seminar Norms

- Ask questions by typing in the chat box of the screen. Keep your questions clear and concise and follow the chat room as one of our moderators might have addressed your question
- Time is strictly enforced
- All data collected is used for identification purposes only; and will not be used for other purposes by organizers
- Recorded presentations will be made available on our website/youtube



Panelists



Alexey Mozgovoy is staff unit for biomethane since 2017 at the German Biogas Association. He coordinates activities of the GBA related to the usage of biomethane as transportation fuel. He studied gas and energy supply and being working on topics of sustainable energy and fuel supply since over 10 years.



Nicolas Marinelli is responsible of the biogas projects from basic engineer and feasibility, to selection of equipment, detail engineering, dimensioning and start –up of the anaerobic digesters. He has been working in TECNORED ENERGÍA from 2017; Working along with the team on several projects oriented towards social, economic and environmental sustainability though anaerobic digestion.



As a project manager at the Club Biogaz of ATEE, Marion Melix is in charge of agronomic and digestate topics. The Club Biogaz is part of a technical association related to energy and environment (ATEE). The Club has been the inter-professional organization for biogas production, since its creation 1999 by the pioneers of the sector. It brings together the main French actors concerned with biogas and digestate (legal entities, companies, associations).

14.01.2021

Bio methane (CNG & LNG) and Waste Treatment



Fachverband
BIOGAS

German Biogas Association
Association Allemande du Biogaz
Asociación Alemana de Biogás
www.biogas.org

Biomethane: CNG and LNG

Alexey Mozgovoy

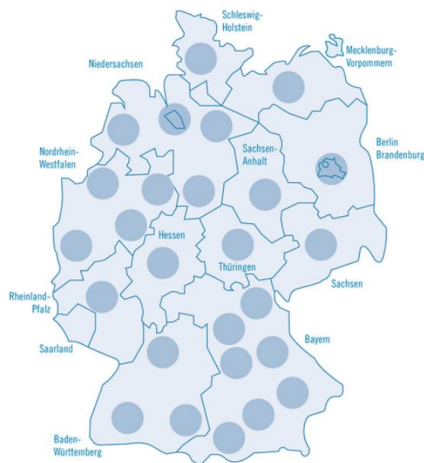
Staff Unit for Biomethane

Biogas
can do it!

The German Biogas Association: our profile



4,700
members throughout
Germany



44 employees dedicated to
the topic

- Operators of biogas plants
- Equipment manufacturers
- Research institutions
- Public authorities
- Feedstock providers
- Interested individuals

Main objective: promotion of the biogas sector

- Definition of legal framework and technical standards
- Exchange of information
- Advocating on regional, national and EU level

Status Quo biomethane production in Germany and Europe



	2016	2017	2018	2019
Biomethane produced, GWh				
Europe	17,264	19,903	22,787	n.a.
Germany		9,257	9,838	10,018 ca. 9,800 (ca. 660 GWh as CNG \approx ca. 6%)
Biomethane plants installed, current status, units				
Europe		approx. 700	<i>(estimation leaned on the numbers of EBA from 2018)</i>	
Germany		approx. 220		

Why biomethane?

- Utilisation of bio waste
- Climate protection,
- Defossilizing the economy,
- Reduction of local emissions,
- Cross-sectoral system service:
 - ✓ Sector coupling (Power-to-Gas, Combined Heat and Power Generation),
 - ✓ Contribution to the biodiversity through the usage of flowering plants for biogas production.

Biomethane: general overview

- Biogas mainly consists of methane and carbon dioxide. It can be upgraded to biomethane, by separation of CO₂ molecules + trace gases.
- Biomethane has similar characteristics as natural gas, furthermore its burning characteristics (heating value, Wobbe index, etc.) can be adapted to local natural gas grids conditions, and therefore it can be injected into the natural gas grid.
- Biomethane has all gas utilization routes as natural gas
 - Electricity
 - Heat
 - Vehicle fuel
 -
- There are several biogas upgrading technologies on the market
- Additional investment needed
- The bigger the volume rate the specifically cheaper the upgrading process
- Economically feasible only for relatively high volume rates (each case must be calculated separately)

Pretreatment of biogas

In order to avoid the damage of the upgrading unit, a pretreatment of biogas must be done.

...includes removal of

- Water (mechanically)
- H₂S (chemically)
- VOC (mechanically)
- Oxygen – if needed (chemically)
- Particle matters (mechanically)

Overview of biogas upgrading technologies

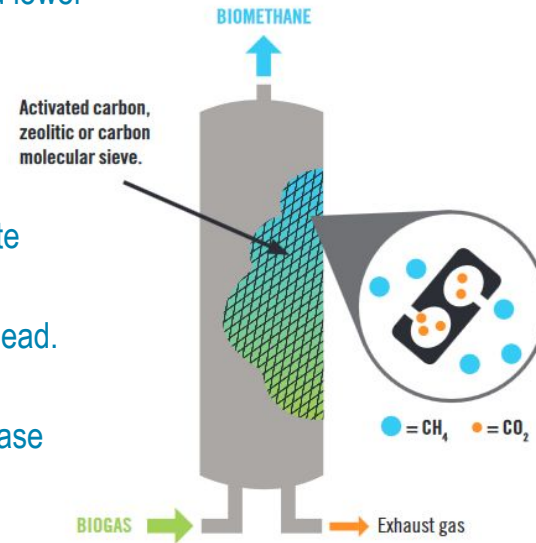


Basic operations	Process	Separation effect
Adsorption	Pressure-swing-adsorption (PSA)	CO ₂ adsorption on a carbon molecular sieve
Absorption	Pressure water scrubbing Amine-scrubbing	Dissolution of CO ₂ in water Chemical reaction of CO ₂ with Methyl-diethanolamine (MEA) or other amine molecules
Membrane gas separation	Polymer membrane gas separation	Membrane permeability of CO ₂ is higher than that of CH ₄

1. Pressure swing adsorption (PSA)



- Based in the principle that different gas components are attracted differently to specific surfaces (adsorbed) or penetrate to varying degrees into the pores of the material.
- In principle, adsorption is higher at higher pressures and lower temperatures
- **Steps**
 - Compression of the pre-purified biogas to 2-7 bar (temperature increases). Gas is then cooled down to 70 °C. Smaller CO₂ molecules accumulate to a much greater degree as those from CH₄.
 - The biomethane is released through the column head.
 - Pressure inside the column is released and CO₂ dissolves from the surfaces, returns to the gas phase and is blown off.
 - The column is filled with biogas again.



2. Scrubbing technologies



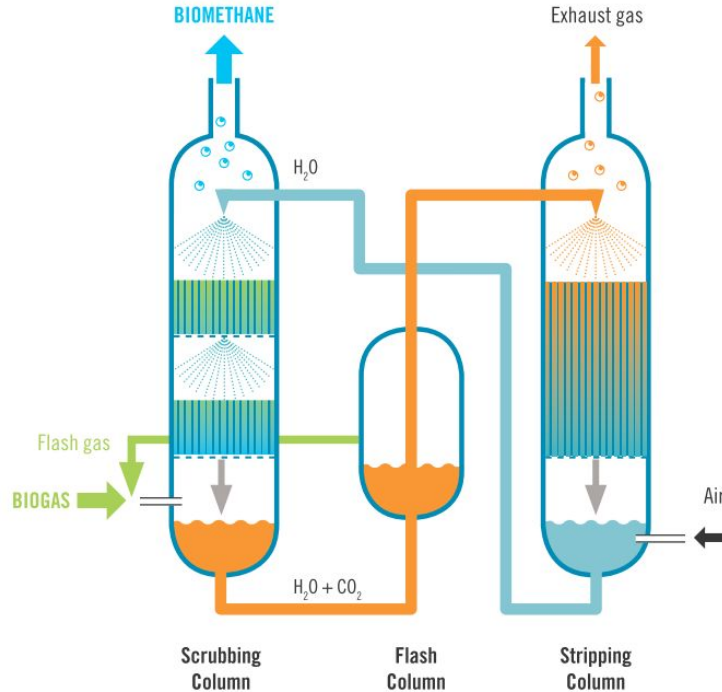
- Also referred to as absorption, is based on the effect whereby gas components are soluble in different fluids to varying degrees. For example, CO_2 dissolves much better in water than CH_4
- The most important influential variables result from:
 - Properties of the solvents used
 - Solubility of the gas components
- Differentiation into physical and chemical washes.
 - **Physical scrubbing** methods rely on the physical solubility of gas components in a wash solution **without chemical reaction.**
 - In **chemical scrubbing**, some gases (CO_2 and H_2S) react reversibly with the washing liquid: mixture of water with additives like MEA, DEA, MDEA among others.



2. Scrubbing technologies

Physical scrubbing:

- Takes place at a pressure of 4 to 10 bar
- Water is sprayed from above and the biogas is directed upwards from the bottom of the scrubbing column.
- CO_2 dissolves in water and CH_4 remains in the gas.
- The purified gas is suctioned off at the top of the scrubbing column.
- The CO_2 containing water is collected at the bottom of the column and is regenerated in a two-stage procedure.

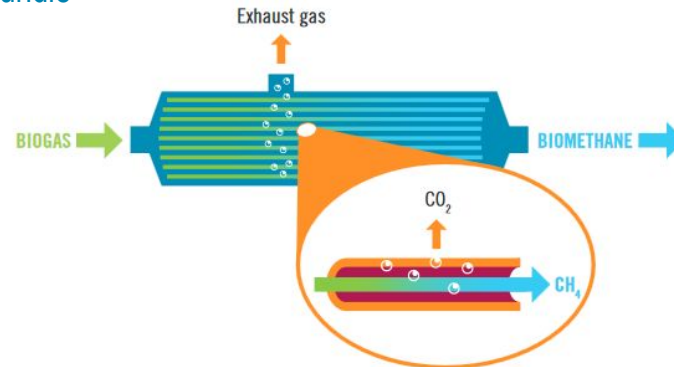


3. Membrane separation



Characteristics

- Based in the principle of different permeability speeds of different gases. For example, CO_2 has a permeability 20 times higher than CH_4 .
- To speed up the separation process, pressure from 7 – 20 bar is applied to the process. Therefore, no additional compression is required in order to inject the gas into the grid.
- Membranes are usually formed into hollow-fibre polymers, which are combined in a tube bundle to provide maximum surface area.
- To achieve high methane purities, the tube bundles are often connected in two-stage or three-stage cascades.



Market share of upgrading technologies in Germany / average plant size

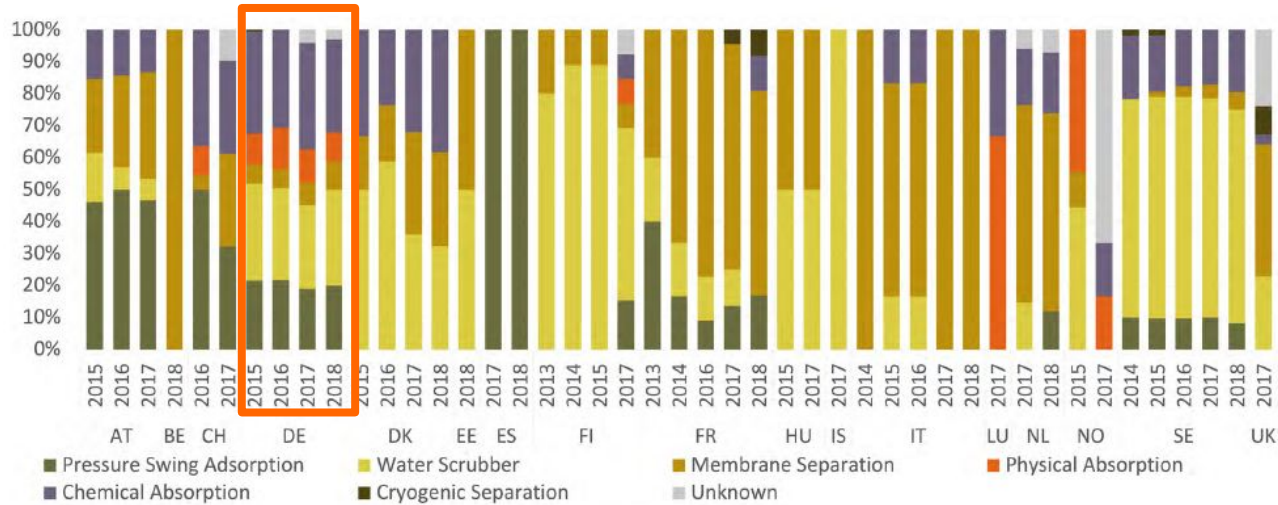
- Physical scrubbing □ **38%** □ 552 m³/h (biomethane)
- Chemical scrubbing □ 34% □ **564 m³/h**
- PSA □ 19% □ 558 m³/h
- Membranes □ 9% □ 553 m³/h



Source: German Biogas Association, 2020

Market share of upgrading technologies in Europe

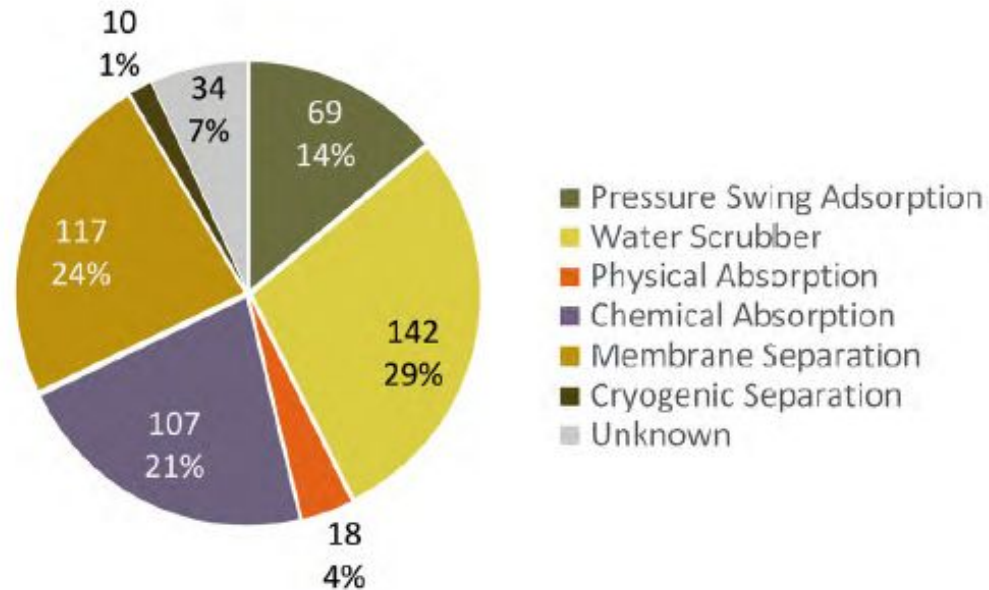
Relative use of different upgrading techniques in European countries



Source: EBA, 2019

Market share of upgrading technologies in Europe

Relative use of different upgrading techniques in Europe, 2018



Source: EBA, 2019

CNG vs. LNG

CNG



- Pressurized methane \approx 200-250 bar
- Ambient temperature
- Relatively low energy density \approx short distance traffic (passenger busses, cars, LDV, agricultural machines)
- Total number of vehicles: 90,000 (Germany) / approx. 1.1 million (Italy)

CNG vs. LNG



Green CNG
Biogastankstelle
Energiehof Weitenau

GEFÖRDEBT DURCH:

Baden-Württemberg
MINISTERIUM FÜR UMWELT, KLIMA UND ENERGIEWIRTSCHAFT



Sources: German Biogas Association, Thies Kruse

CNG vs. LNG

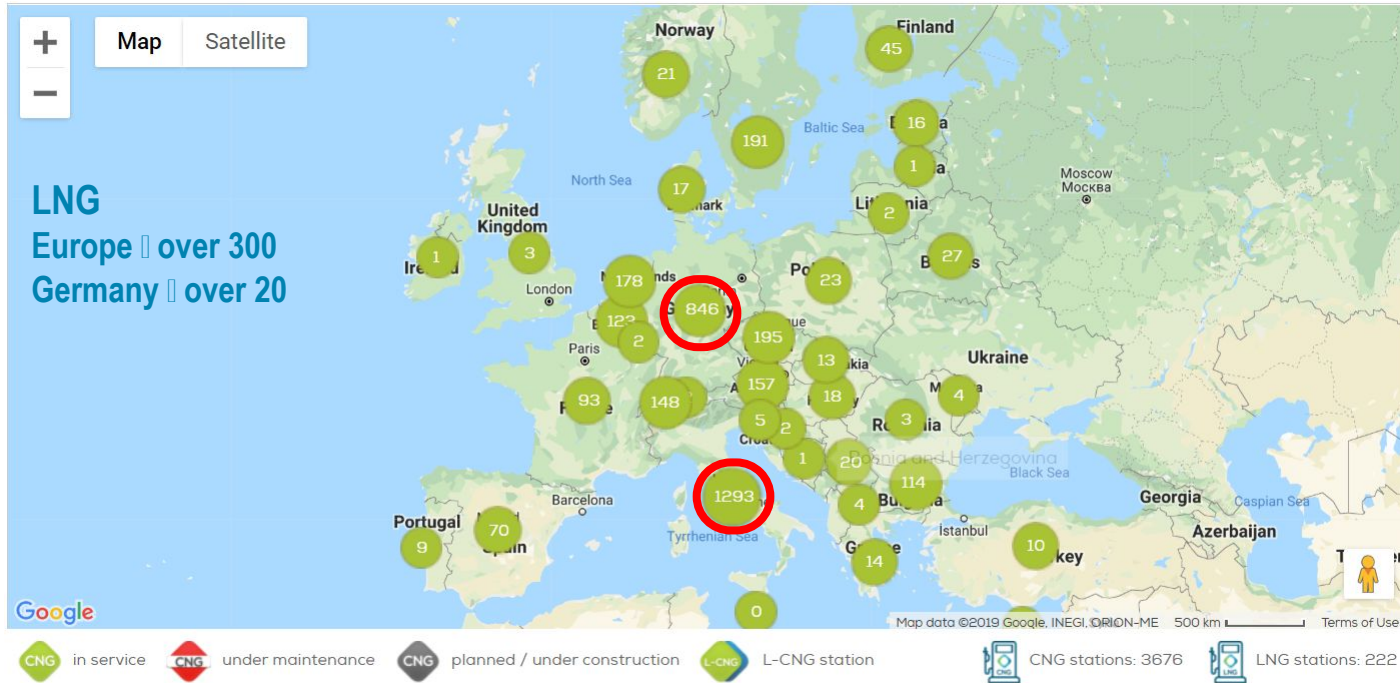
LNG



- Liquefied methane \square minus 162 Grad Celsius
- Approx. ambient pressure (or under 10 bar if stored in the filling station or HDV tank)
- Relatively high energy density \square long distance traffic, heavy weights (lorries, ships)
- Total number of vehicles: ca. 2,500 lorries (Germany)
- Local liquefaction (Scandinavia) vs. central liquefaction (SHELL near Cologne)



CNG and LNG filling stations in Europe



Source: NGVA 2019

Thank you for your attention!
Any questions?

Alexey Mozgovoy
Staff Unit for Biomethane
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+49 (0)30 27 58 179 23



Q&A



Digital global
Biogas
Cooperation



 **Tecnored Energía**

BIOMETHANE IN ARGENTINA



OBJECTIVES



- [About us.](#)
- [Biogas market in Argentina.](#)
- [Argentina`s Energy Matrix . Energy transition: present – future](#)
- [Argentina`s Electrical Matrix](#)
- [Available biomass in Argentina.](#)
- [Natural Gas consumption in Argentina. CNG and LNG uses.](#)
- [Galileo technology to available biomethane.](#)
- [Biomethane participation in replacement of natural gas.](#)
- [Projections.Draft Biomethane law. Draft provincial biofuels law.](#)

ABOUT US



Tecnored Energía

SMART SOLUTIONS



ENGINEERING, CONSTRUCTION AND OPERATION OF SUSTAINABLE BIOENERGY PROJECTS



BIOGAS MARKET IN ARGENTINA



COP21 • CMP11
PARIS 2015
CONFERENCIA DE NACIONES UNIDAS
SOBRE CAMBIO CLIMÁTICO 2015



INTERNATIONAL COMMITMENTS



26.190 / 27.191

REGIME TO PROMOTE THE USE OF RENEWABLE
ENERGY SOURCES FOR THE GENERATION OF ELECTRIC
ENERGY

NATIONAL LAWS



RENOVAR PROGRAM

MATEMATICALIZATION OF THE LAW THROUGH THE BIDDING
INTERNATIONAL REGIME OF RENEWABLE ENERGY SOURCES



BIOGAS Renovar

44 AWARDED PROJECTS

27 ALREADY UNDER CONSTRUCTION AND OPERATION

**84 MW AWARDED
POWER**

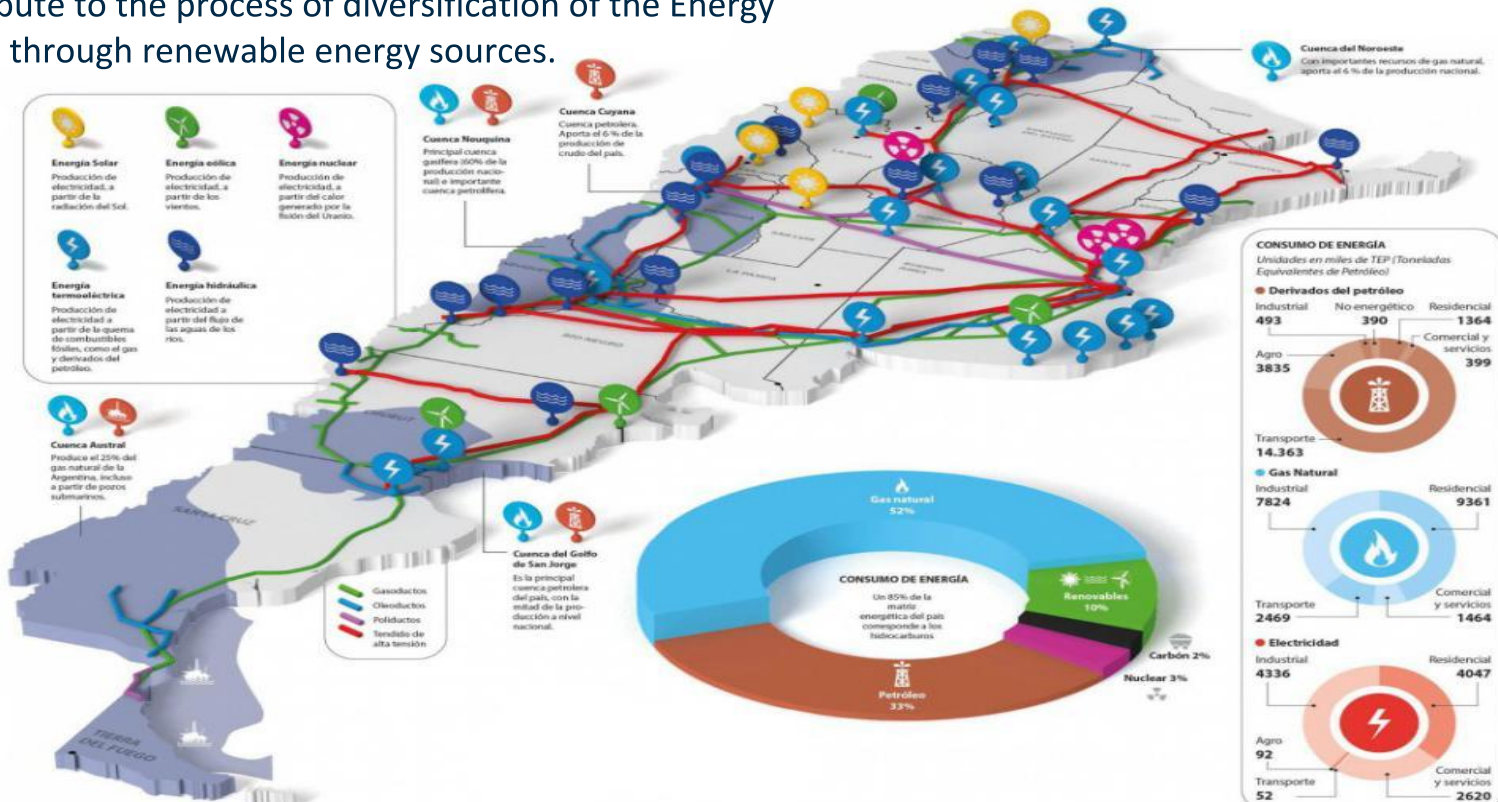
**+320 Million USD
Invested**



ARGENTINA ENERGY MATRIX



Contribute to the process of diversification of the Energy Matrix through renewable energy sources.



85 % GAS AND DIESEL



ELECTRIC GENERATION MATRIX NOV 2020



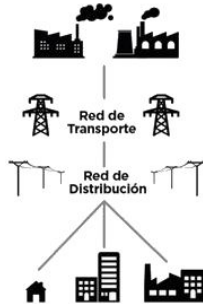
PARTICIPATION OF EACH FUEL IN NOV 2020



ENERGY TRANSITION



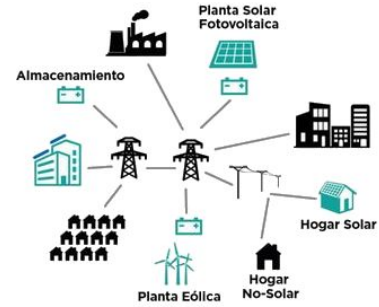
ACTUALIDAD
Generación Concentrada



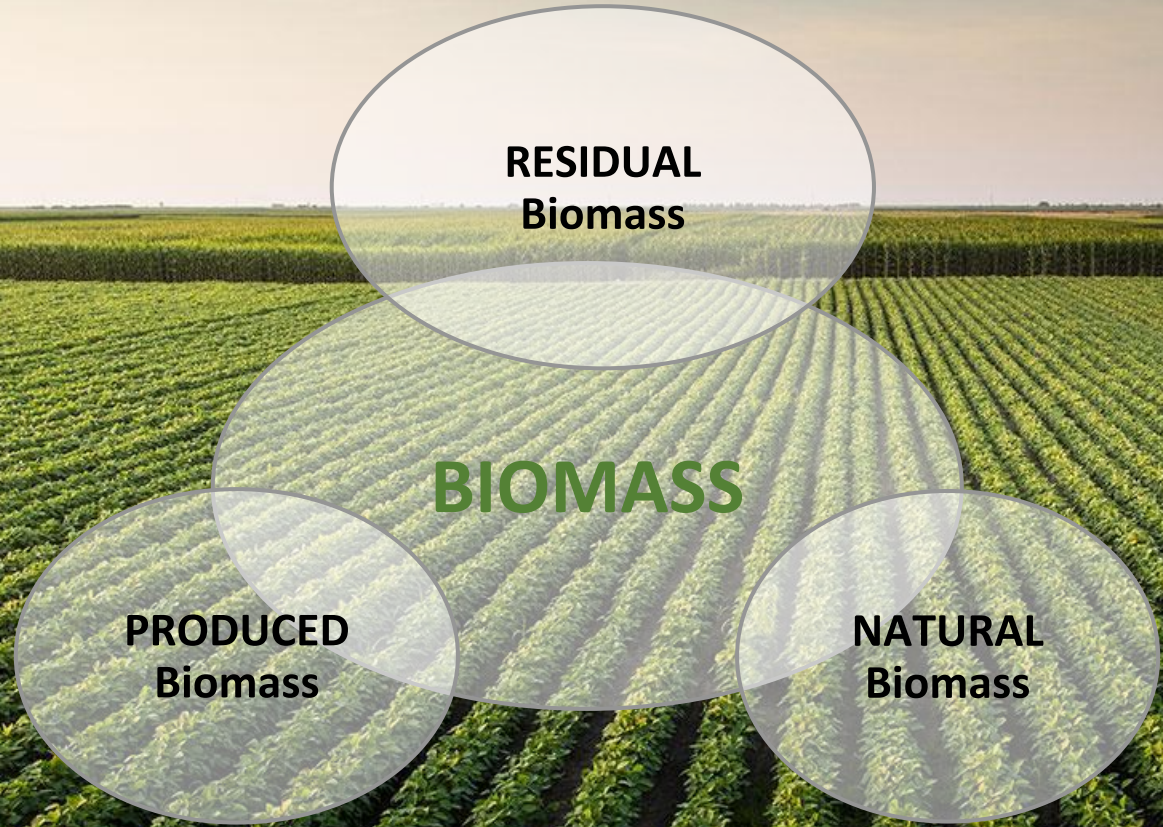
ENERGY TRANSITION



FUTURO
Energía Limpia Distribuida



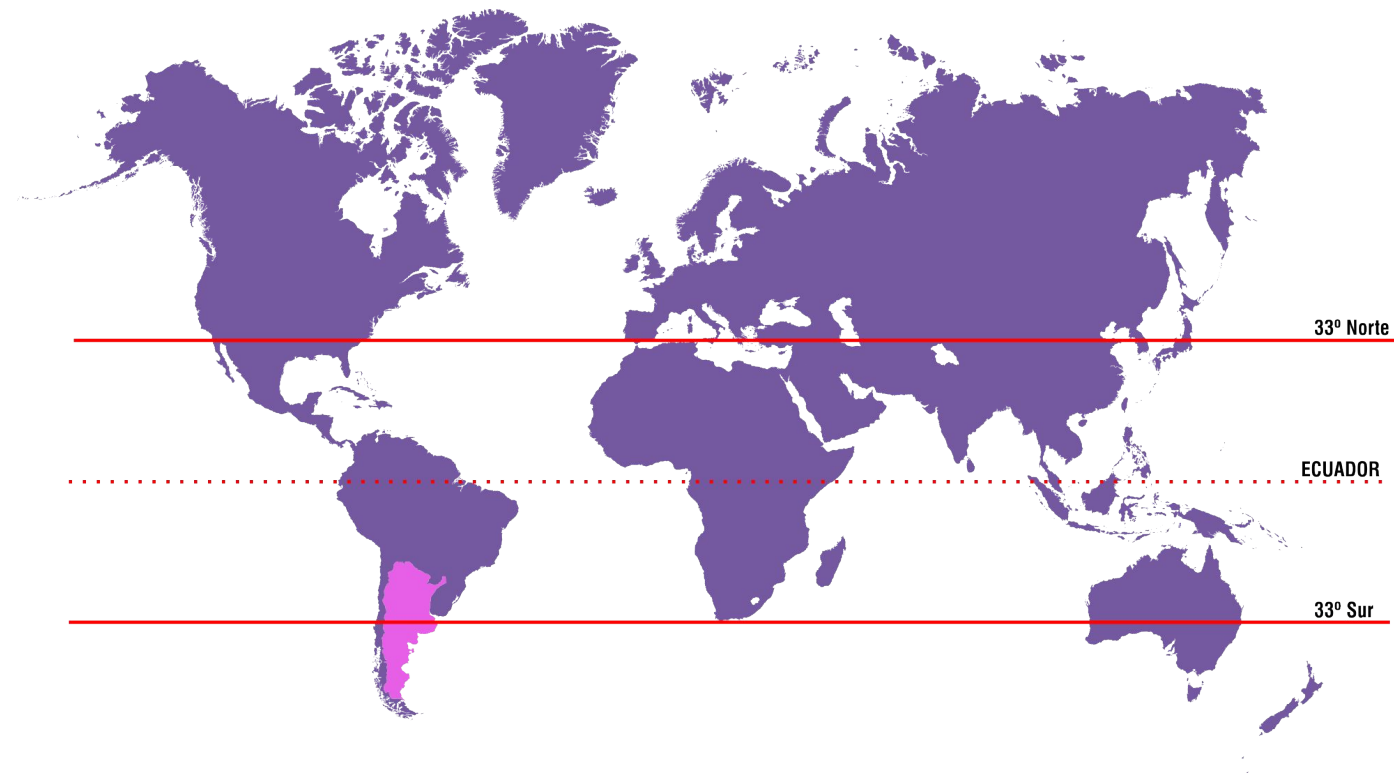
AVAILABLE BIOMASS IN ARGENTINA



AVAILABLE BIOMASS IN ARGENTINA



OPPORTUNITIES BUENOS AIRES AND ARGENTINA

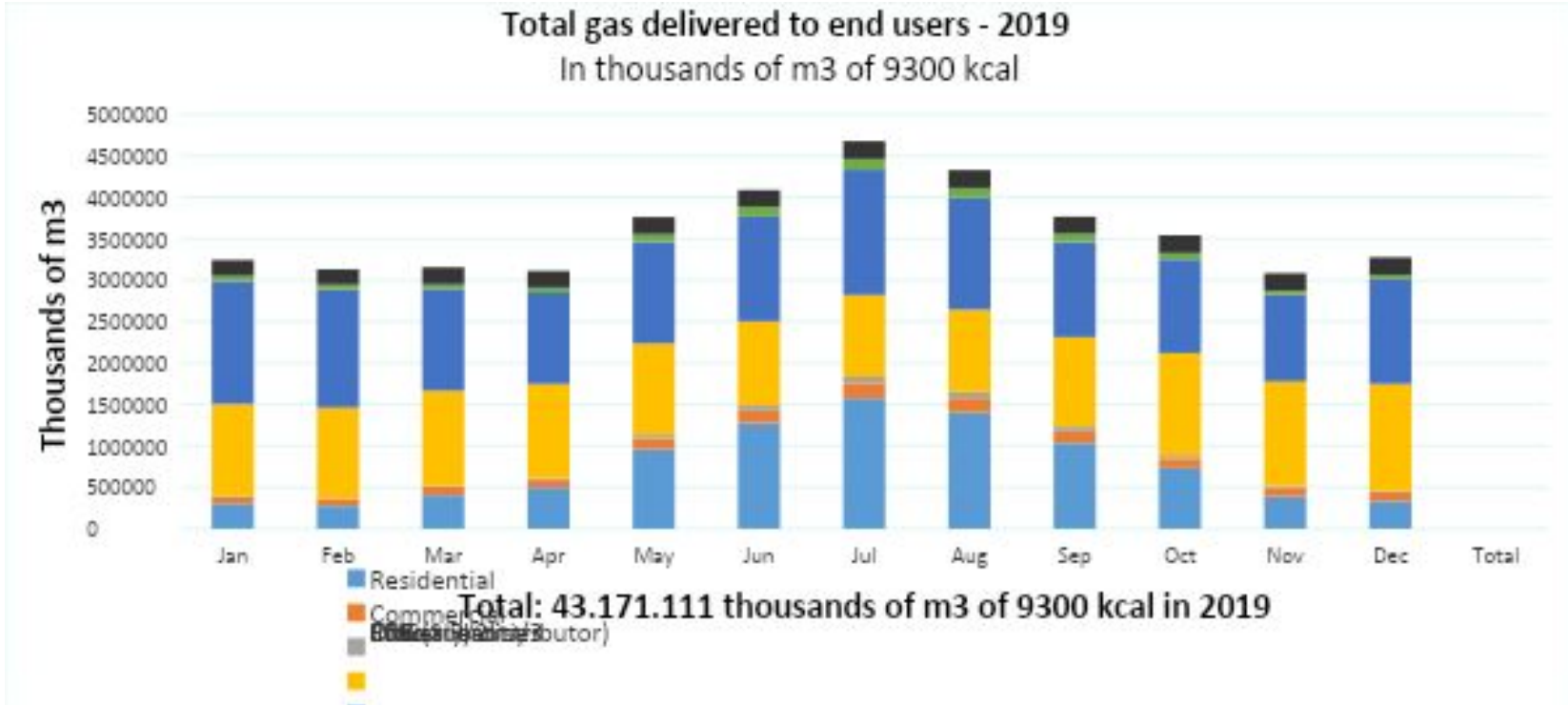


AVAILABLE BIOMASS IN ARGENTINA



LIVESTOCK EFFLUENTS

NATURAL GAS CONSUMPTION IN ARGENTINA



SOURCE: ENARGAS, based on data from the Gas Licensees and Users at the wellhead.

BIOMASS CONTRIBUTION



iSOCIAL / ECONOMICAL / AMBIENTAL BENEFITS!

Energía Solar
Producción de electricidad a partir de la radiación del Sol.

Energía eólica
Producción de electricidad a partir de los vientos.

Energía nuclear
Producción de electricidad a partir del calor generado por la fisión del uranio.

Energía termoeléctrica
Producción de electricidad a partir de la quemada de combustibles fósiles, como el gas y derivados del petróleo.

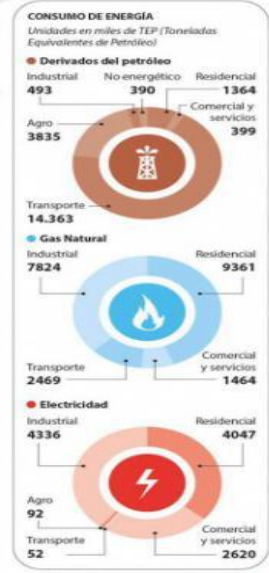
Energía hidráulica
Producción de electricidad a partir del flujo de las aguas de los ríos.

Cuenca Neuquina
Principal cuenca gasífera 60% de la producción nacional e importante cuenca petrolífera.

Cuenca Cuyana
Cuenca petrolífera. Aporta el 6% de la producción de crudo del país.

Cuenca Austral
Produce el 20% del gas natural.

Cuenca del Golfo de San Jorge
Es la principal cuenca petrolífera del país, con la mitad de la producción a nivel nacional.



GENERATION DISTRIBUTED THROUGHOUT THE COUNTRY FROM RENEWAL BIOMASS

CNG AND LNG USES



BIOGA

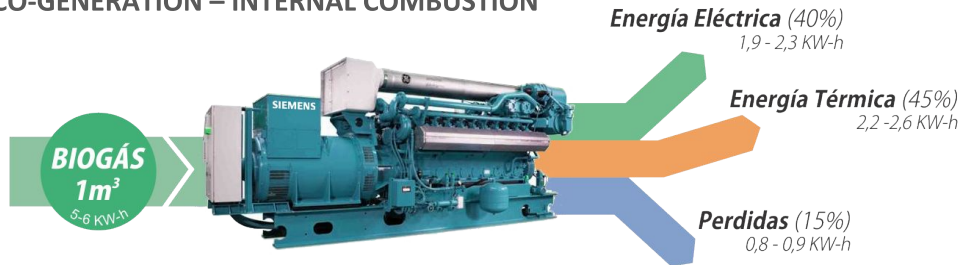
CH₄ + CO₂ + H₂O + H₂S + Others
55 – 65 % METHANE

ELECTRIC OR THERMAL ENERGY

BIO-LNG

BIO-CNG

CO-GENERATION – INTERNAL COMBUSTION



LIQUEFACTION



CH₄ + Others
99% METANO

-160°



COMPRESSION



250 Bar

EXPERIENCES – GNL - GNC



TECHNOLOGY



THE SAME TECHNOLOGY APPLIED TO NATURAL GAS FROM WELLS IS APPLICABLE TO BIOGAS PRODUCED IN A DISTRIBUTED MANNER AND FROM **RENEWABLE SOURCE TO THE USERS**

**BIOGAS PLANTS
DISTRIBUTED**



**PURIFICATION
AND
TRANSPORT**



BIO-CNG



USERS



LINES OF WORK



- ✓ ARGENTINA HAS ACHIEVED A WIDE DIFFUSION OF THE USE OF NATURAL GAS THROUGH THE CONVERSION OF THE VEHICLE FLEET TO CNG
- ✓ INCURSION OF LNG IN HEAVY TRANSPORT
- ✓ EXPECTATIONS IN THE SHORT TERM: ACHIEVEMENT OF A PUBLIC TRANSPORT BUS NETWORK THAT USE CNG



FIRST EXPERIENCE 2019: BUS powered by CNG (produced by AGRALE) Destined to the Sustainable Mobility Project in CABA



Heavy Transport – Galileo Technologies
experience
GNL

PROJECTIONS

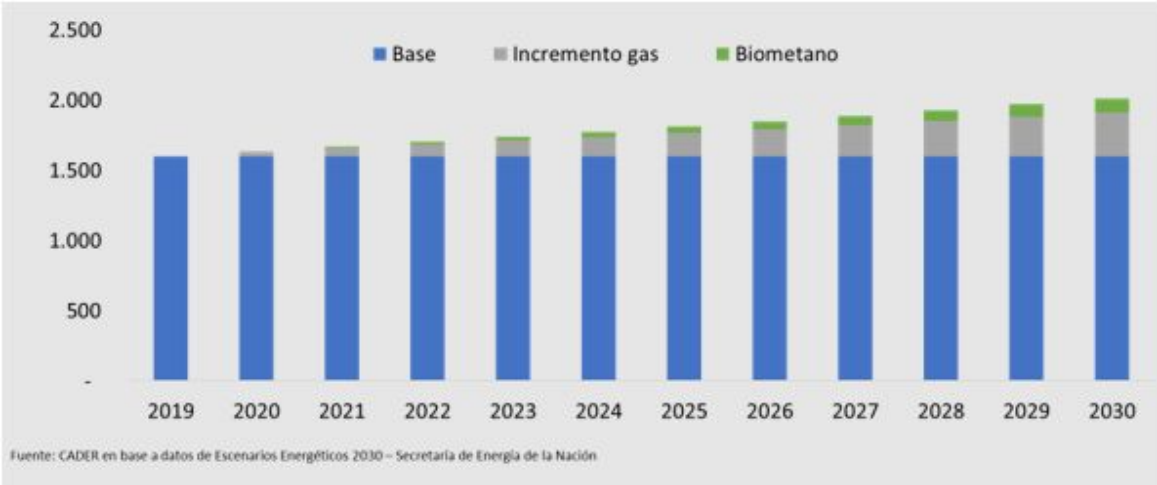


DRAFT BIOMETHANE LAW

WHAT DOES IT PROPOSE?

Complement by 2030, 5% of the natural gas of the Distribution Network with BIO-CNG.

**Gradual Injection of Biomethane to the Gas Pipeline Network
Argentina 2019-2030 . In Billion BTU**



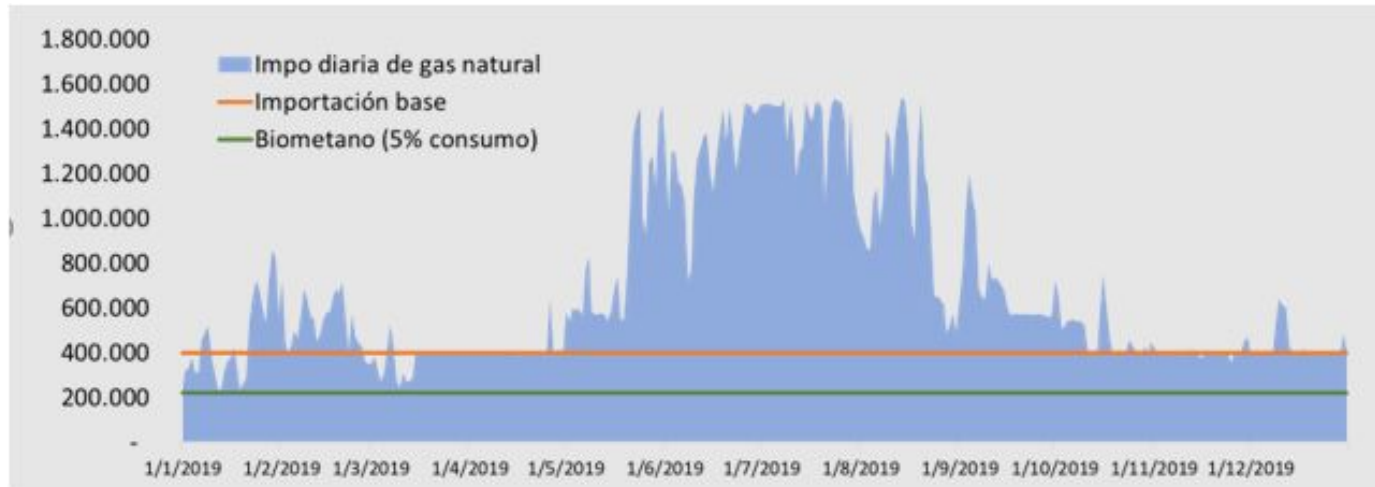
PROJECTIONS



DRAFT BIOMETHANE LAW

WHAT WOULD IT INVOLVE?

Today it would only imply replacing IMPORTS - BOLIVIA GAS AND LNG - WITHOUT AFFECTING NATIONAL NATURAL GAS PRODUCTION



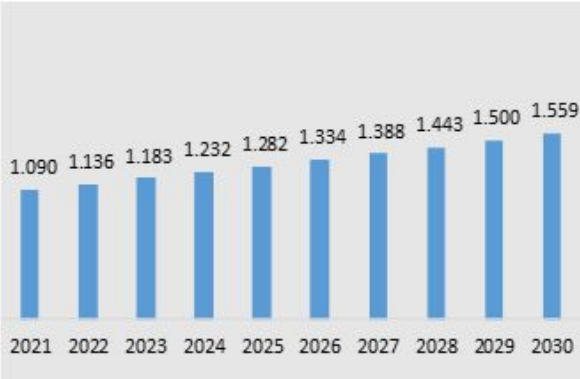
SOURCE: CADER based on data from ENARGAS

PROJECTIONS



IMPACTS

Construction jobs / year
Argentina 2021-2030. In qty. jobs



Generation of more than 1000 annual jobs in construction

Direct and indirect jobs
Argentina 2021-2030. In qty. jobs



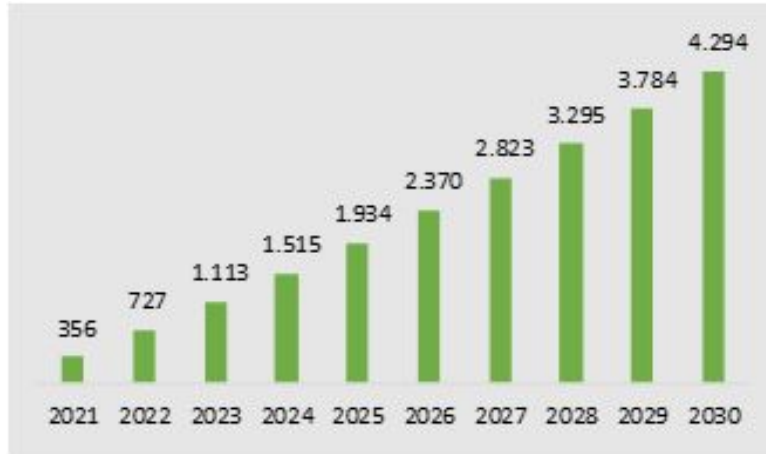
Generation of 6,574 direct jobs and 16,960 indirect jobs in 2030, in O&M

PROJECTIONS



IMPACTS

Accumulated investment
Argentina 2021-2030. In mill. USD



*Investments for USD 4,294 million
until 2030*

Import savings
Argentina 2021-2030. In



*Foreign currency savings of up to USD
613 million annually in imports*

PROJECTIONS



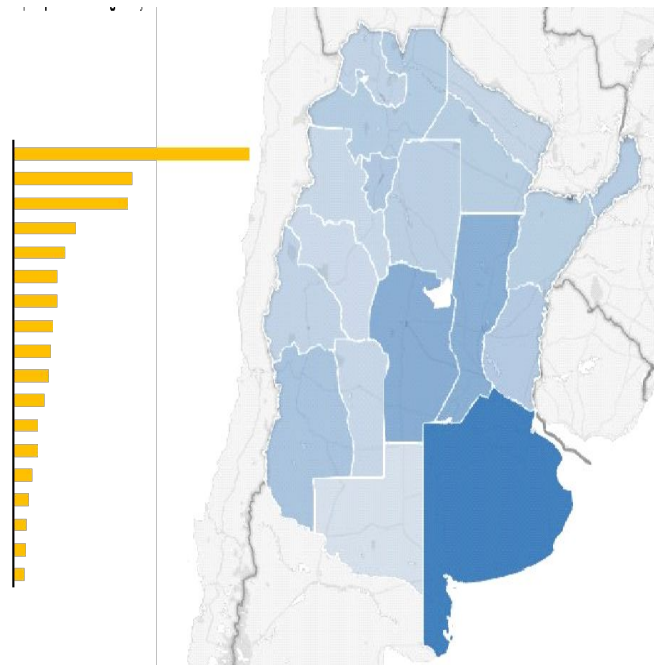
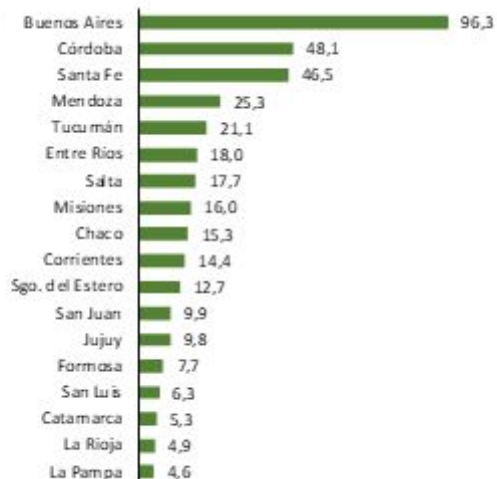
DRAFT BIOMETHANE LAW

FEDERAL DISTRIBUTION OF PROJECTS (Illustrative)

Direct and indirect Jobs
In number of jobs



Gas replacement savings
In millions of usd



PROJECTIONS



SANCTION OF THE BIOFUELS LAW IN CÓRDOBA AND SANTA FE



19/11/2020

La Legislatura provincial sancionó la ley de Biocombustibles de Córdoba

La Legislatura Unicameral de la provincia sancionó este martes de la Ley de Promoción y Desarrollo de la Producción y Consumo de Biocombustibles y Bioenergía de Córdoba, que fuera remitido por el Gobernador Juan Schiaretti. AGROVERDAD

Lo apoyaron la mayoría de los bloques, del oficialismo y de la oposición, con un total de 68 votos. Las bancadas minoritarias de la izquierda y ultraizquierda, solo 2 representantes, votaron en contra. Entre quienes aprobaron en general la ley, algunos representantes no acompañaron o se abstuvieron en artículo en particular.

El proyecto promueve un sistema de incentivos y beneficios fiscales y otro conjunto de iniciativas.

Promoción del consumo local

Biocombustibles

Santa Fe aprobó una ley que incentiva el uso de biocombustibles en el agro, el transporte y la logística

Sancionó una norma que establece beneficios impositivos para quienes utilicen biodiésel y etanol.



La provincia quiere reducir la huella de carbono en el transporte y la producción de alimentos a partir de la bioenergía. Reuters / Marcos Brindici

SUSTAINABLE DEVELOPMENT POLICY

Strengthen self-consumption and the promotion of the use of biofuels in freight transport, in public passenger transport, official fleets and in vehicles used in agribusiness

LINES OF WORK



DRAFT PROVINCIAL BIOFUELS LAW

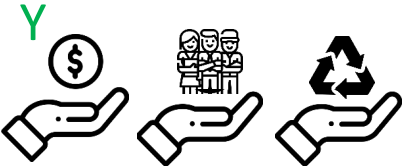
QUANTIFICATION OF PROVINCIAL BENEFITS - USE OF BIOMETHANE



- ✓ JOB
- ✓ CONSUMPTION
- ✓ INVESTMENTS
- ✓ REGIONAL ECONOMIC ACTIVITY
- ✓ TECHNOLOGICAL DEVELOPMENT
- ✓ REDUCTION OF IMPORTS OF FOSSIL FUELS
- ✓ ENVIRONMENTAL BENEFITS
- ✓ MORE!



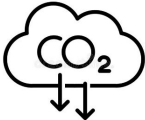
SUSTENTABILIT



PROJECTIONS



CARBON FOOTPRINT OBJECTIVES



GRUPO DE MANEJO FORESTAL
GMF
Latinoamericana S.A.



patagonia



PORTA



BYMA
Bolsas y Mercados
Argentinos

VISTAGE





Thank You!!!

ING. NICOLÁS MARINELLI

n.marinelli@tecnoredenergia.ar

www.tecnoredenergia.com.ar



Q&A



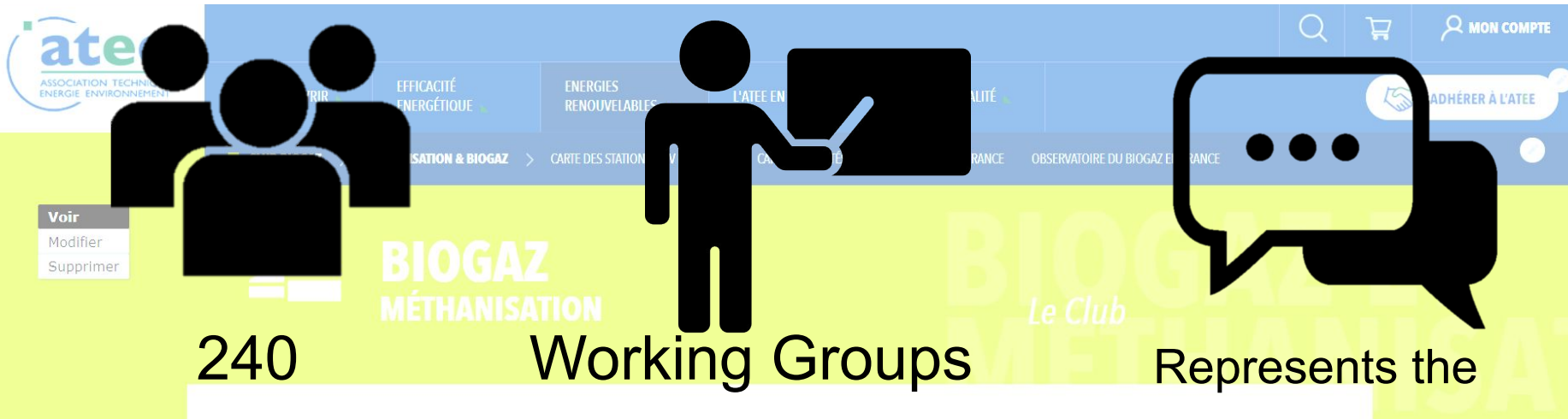
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OVERVIEW OF THE BIOGAS SECTOR FRANCE

Marion MELIX
Club Biogaz of ATEE
Agronomics and digestate



CLUB BIOGAZ :



240

Members

BIOGAZ
MÉTHANISATION

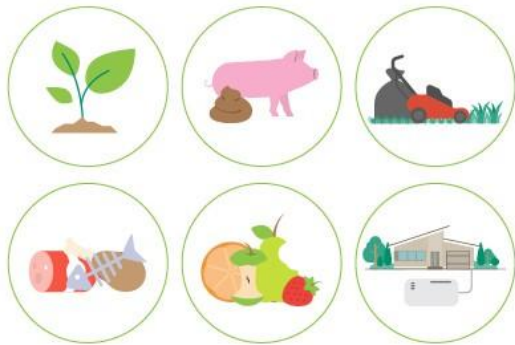
Working Groups

(Digestate, legislation,
biowaste, etc.)



Represents the
sector with the
public authorities

CLUB BIOGAZ :



Represents all types of
intakes and valorization



Technical guides
(CO₂ Valorization)



Network of industrials,
scientists and farmers

CONTENTS

- I. OVERVIEW
- II. TRENDING 2010-2019
- III. EVOLUTION OF FEED-IN TARIFFS
- IV. DIGESTATE AND LEGISLATION
- V. PERSPECTIVES

CONTENTS

I. OVERVIEW

II. TRENDING 2010-2019

III. EVOLUTION OF FEED-IN

TARIFFS

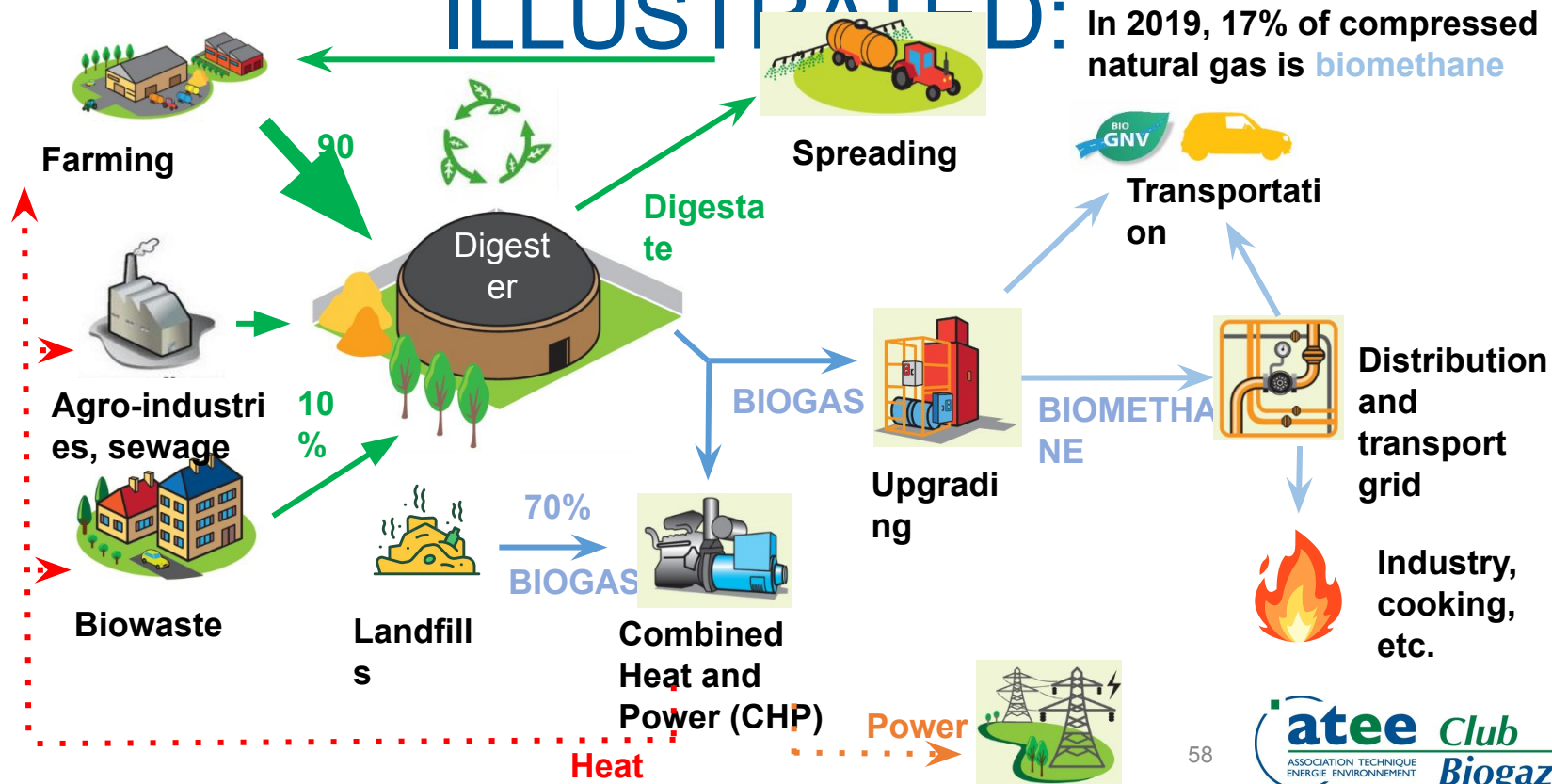
IV. DIGESTATE AND

LEGISLATION

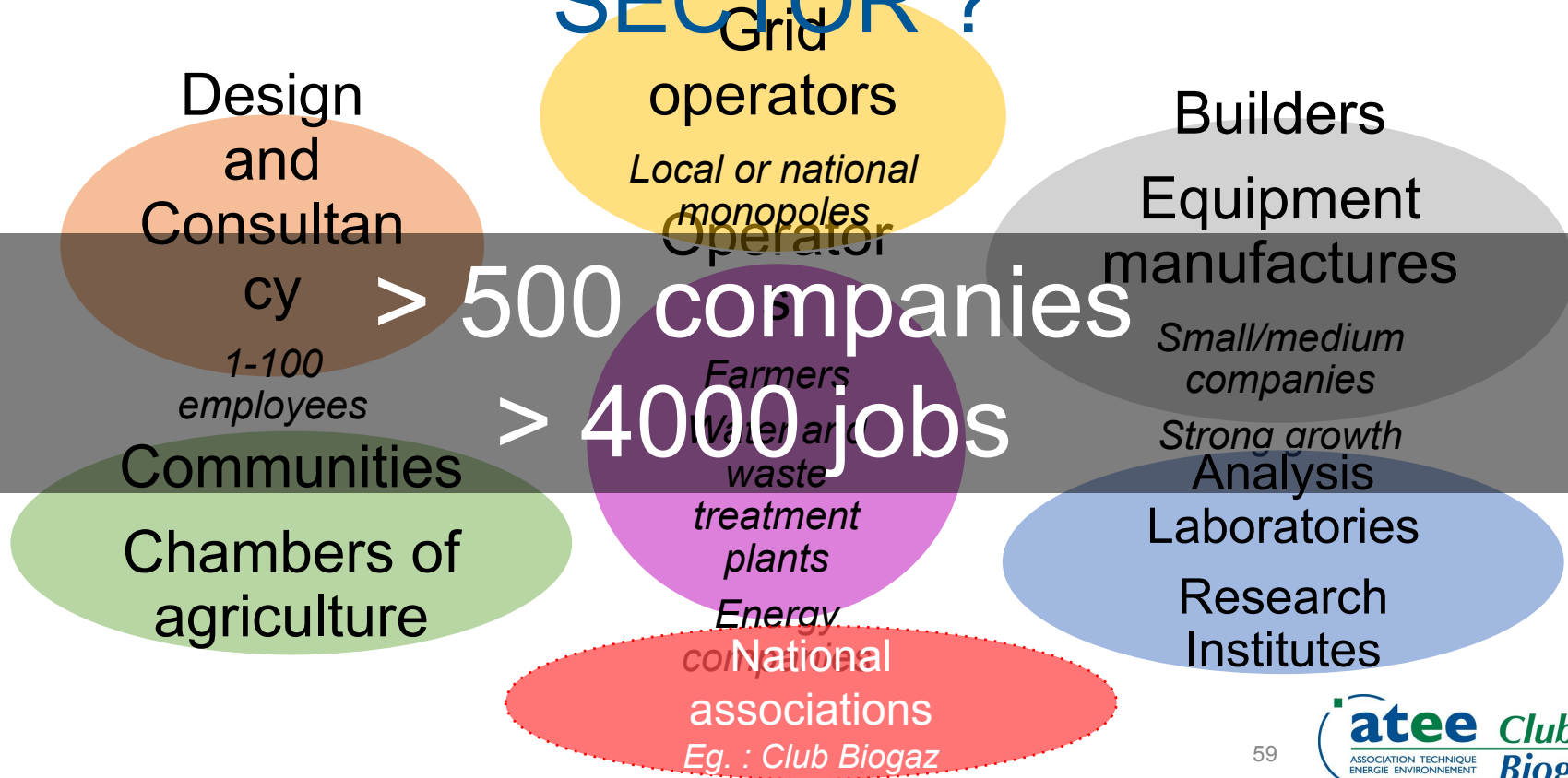
V. PERSPECTIVES

FRENCH BIOGAS SECTOR ILLUSTRATED:

In 2019, 17% of compressed natural gas is biomethane



WHO WORKS IN THE BIOGAS SECTOR ?



■ SPECIFICITIES IN FRANCE ?

TECHNICAL :

- Farming resources mainly
- Codigestion (agricultural residues and biowaste)
- Development of sequential crops
- Energy crops for biogas production **allowed up to 15%**

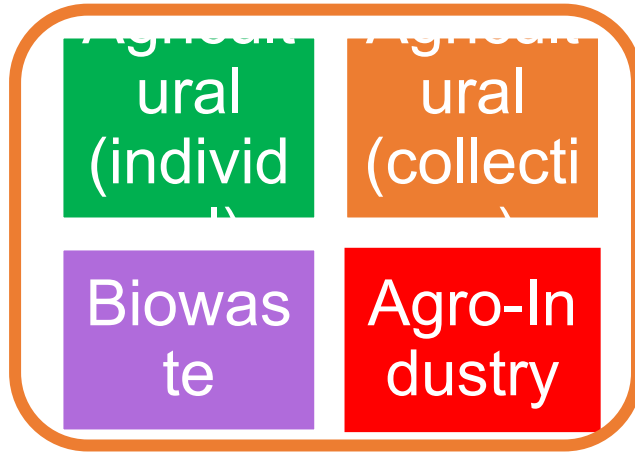
OTHER SPECIFICITIES :

- Interaction of diverse fields of activity (farming, waste, energy)
- Strict environmental and health regulations
- Numerous industrial and agricultural actors with small staff

HOW FAR ALONG ARE WE ?

(Total of plants, 30/09/2020)

816
plants

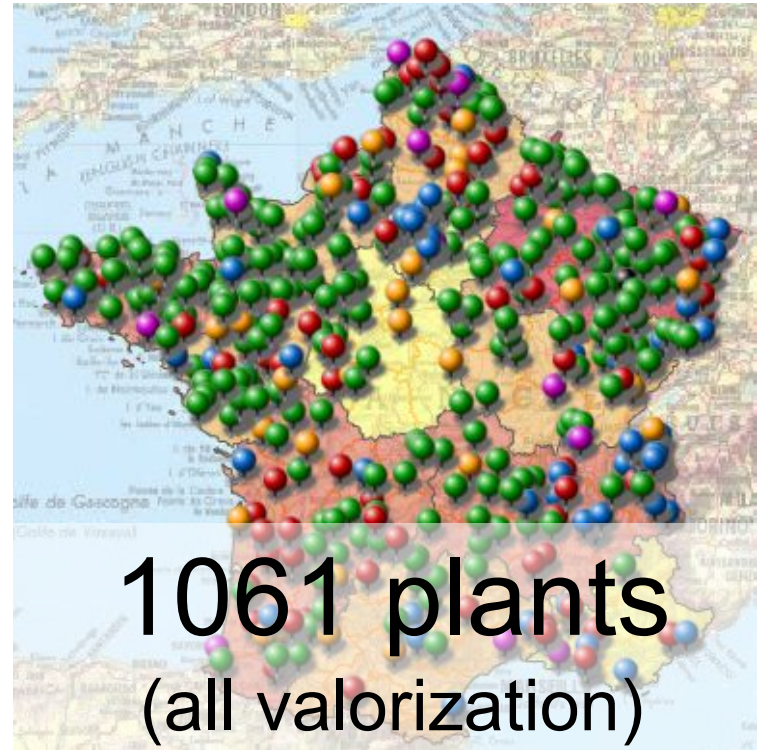


Sewage

81
plants

Landfill

164
plants





WHAT ABOUT BIOMETHANE INJECTION ?

(France 30/11/2020)

153 agricultural plants

103 « individual »
50 « collective »

5 biowaste

11 Agroindustry

11 Landfill

19 Sewage plants



199 plants

Source : Data from grid operators

UPGRADING PROCESSES IN FRANCE:

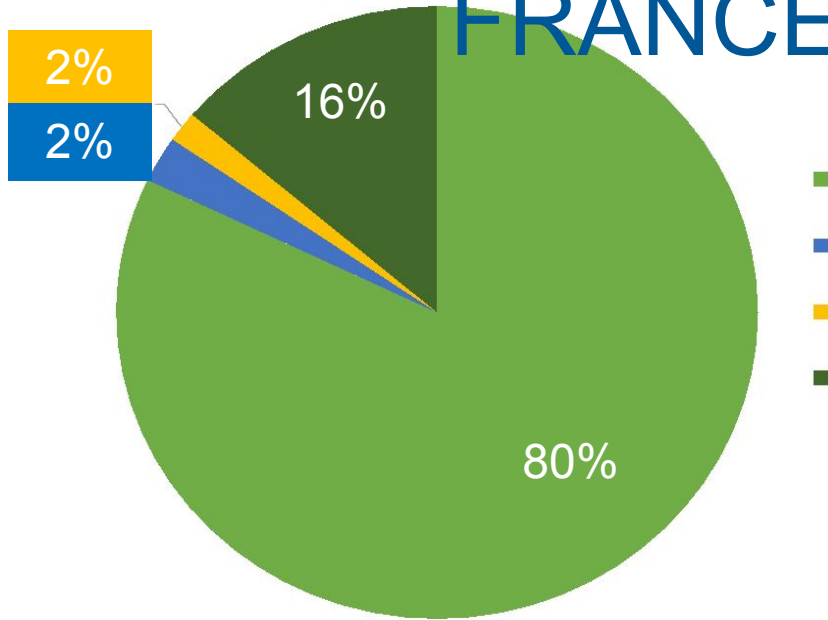


Figure 5: Number of biomethane plants per upgrading technique in 2019

CONTENTS

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II. TRENDING 2010-2019

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REVIEW 2010-2019 / BIOGAS

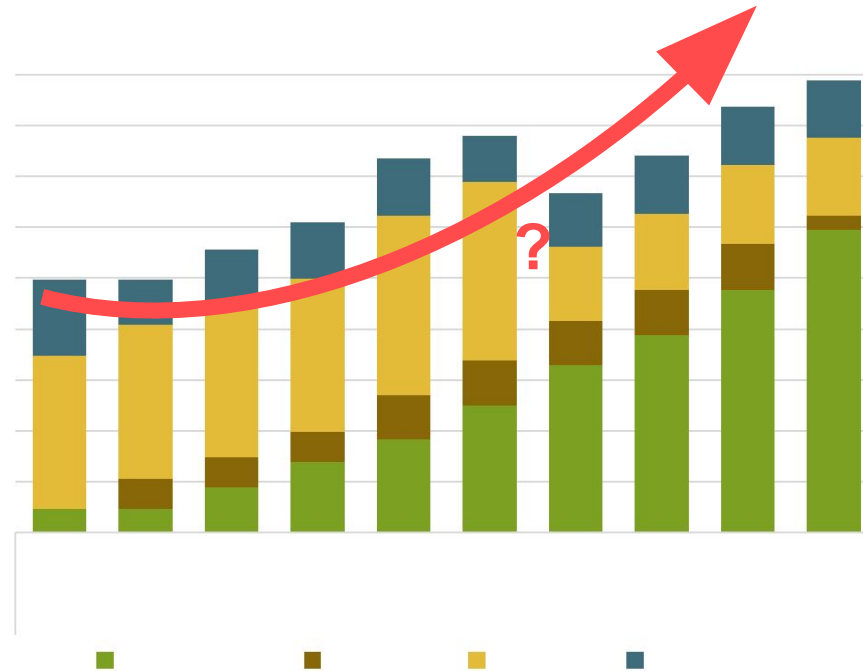


Figure 1 : Development of number of biogas plants between 2010 and 2019

OVERVIEW 2010-2019 / ELECTRICITY

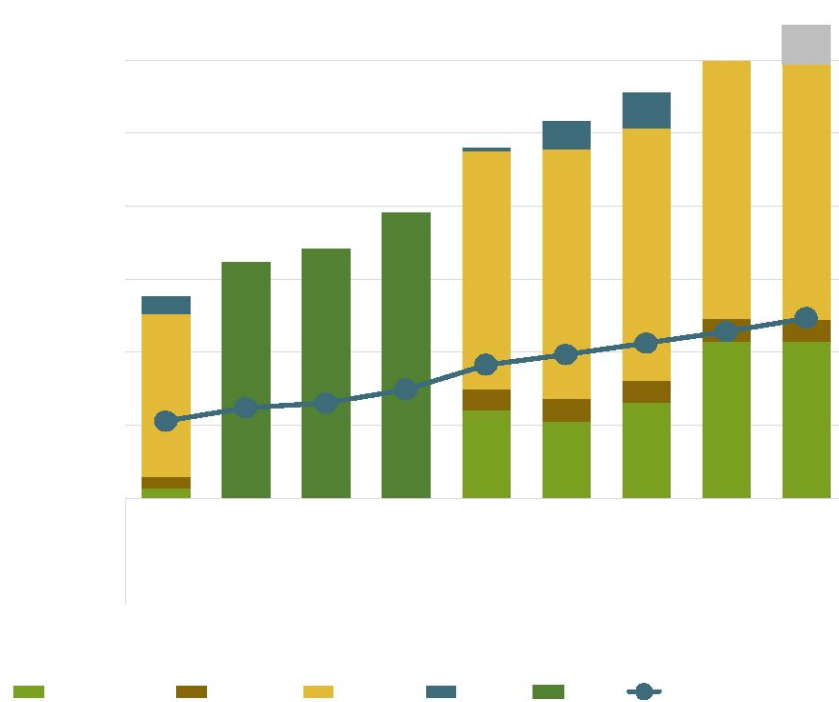


Figure 2 : Biogas production capacity together with Installed Electric Capacity in MW

OVERVIEW 2010-2019 / BIOMETHANE

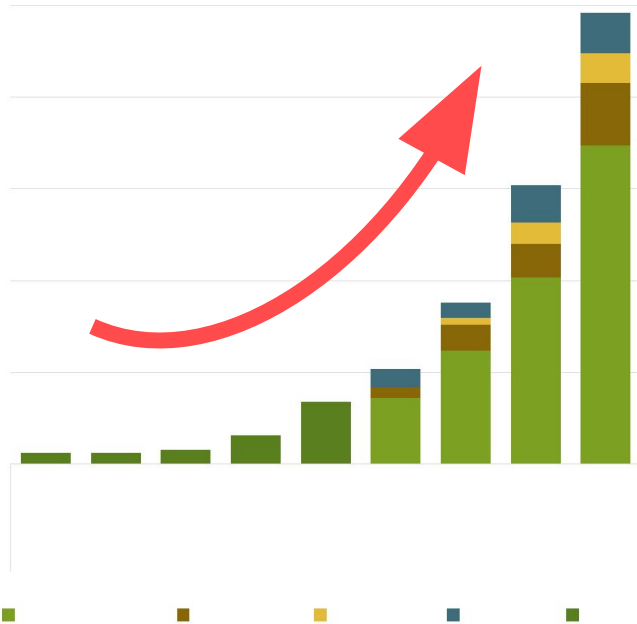


Figure 3: Number of biomethane plants between 2011 and 2019

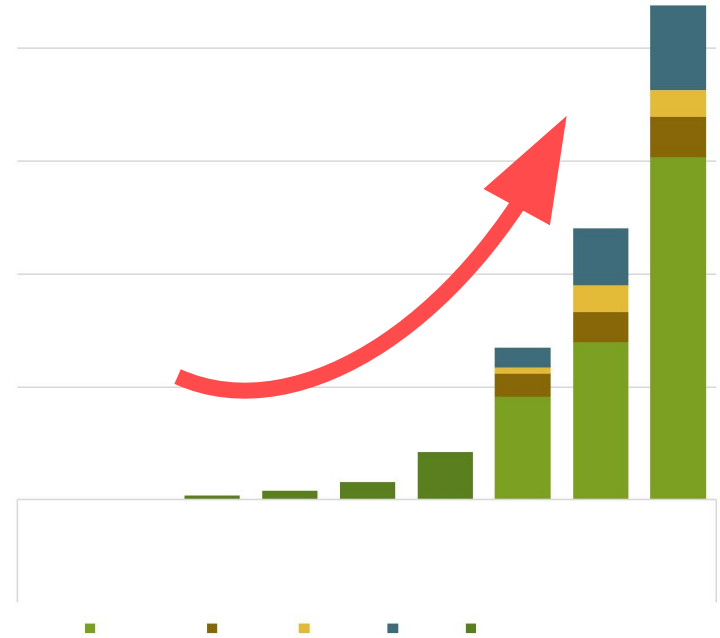


Figure 4: Biomethane production in GWh between 2011 and 2019

2014-2018 / TRANSPORTATION

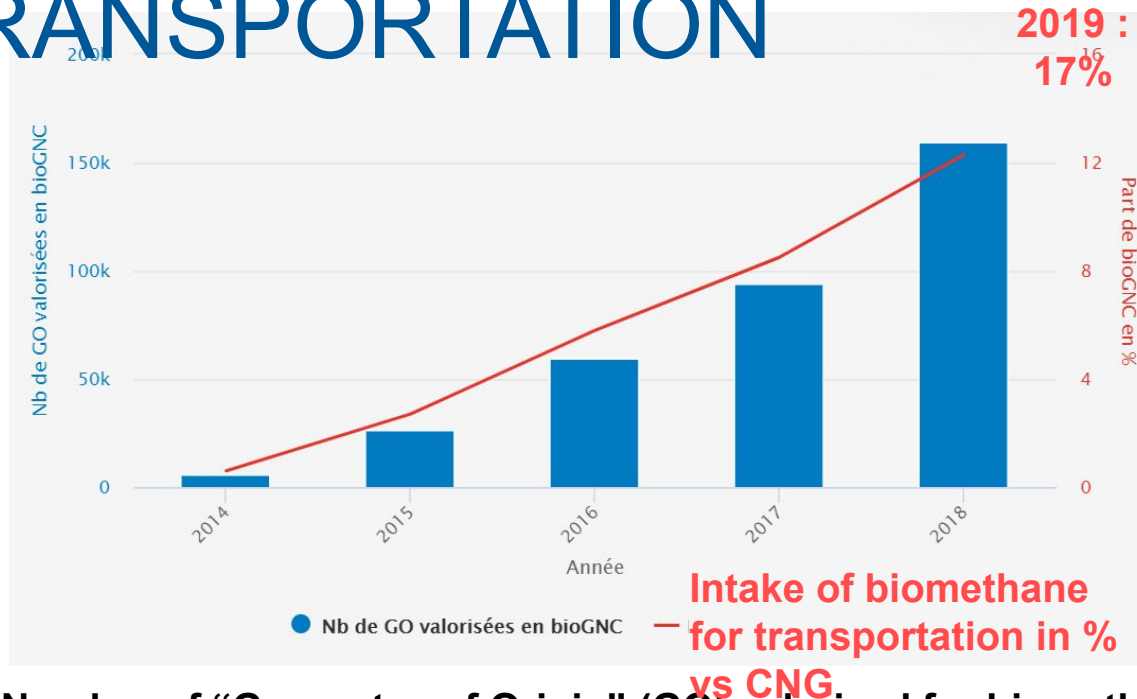


Figure 5: Number of “Guarantee of Origin” (GO) valorized for biomethane in transportation

1 GO = 1 MWh biomethane injected in the grid = 70 kg of “compressed” biomethane for transportation

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FEED-IN TARIFFS FOR ELECTRICITY

2011 and 2016

< 80KWe

80KWe < X < 500KWe

> 500KWe



« Purchase obligation »

20 years

Call for tenders



17,5c
€/kWh

15c€/kWh

FEED-IN TARIFF FOR INJECTED

2020 (temporary feed-in-tariff)
BIOMETHANE

15

years

TARIF = BASE + « INTAKE PREMIUM » + « CONNECTION PREMIUM » + ADEME SUBSIDIES

ALL PROJECTS BUT LANDFILL	<p>BASE TARIFF : 86-122€/MWh Depending on project size</p>	<p>INTAKE PREMIUM : Manure : 0-10 €/MWh Sewage : 0-20 €/MWh</p>	<p>CONNECTION PREMIUM : 1-13€/MWh If connection on a grid of 100 000 consumers / Depending on size</p>	<p>ADEME SUBSIDIES : -5€/MWh</p>
LANDFILL	<p>BASE TARIFF : 55-99€/MWh Depending on project size</p>			

<300 Nm³/h

WHAT CHANGES IN 2021 ?

- Premium for manure and sewage treatment plants
- > 300 Nm³/h □ call for tenders in 2021
- 31/12/20 : End of the feed-in tariff for electricity for landfill plants
- Decrease from 1 to 15% of the feed-in tariff depending on projects

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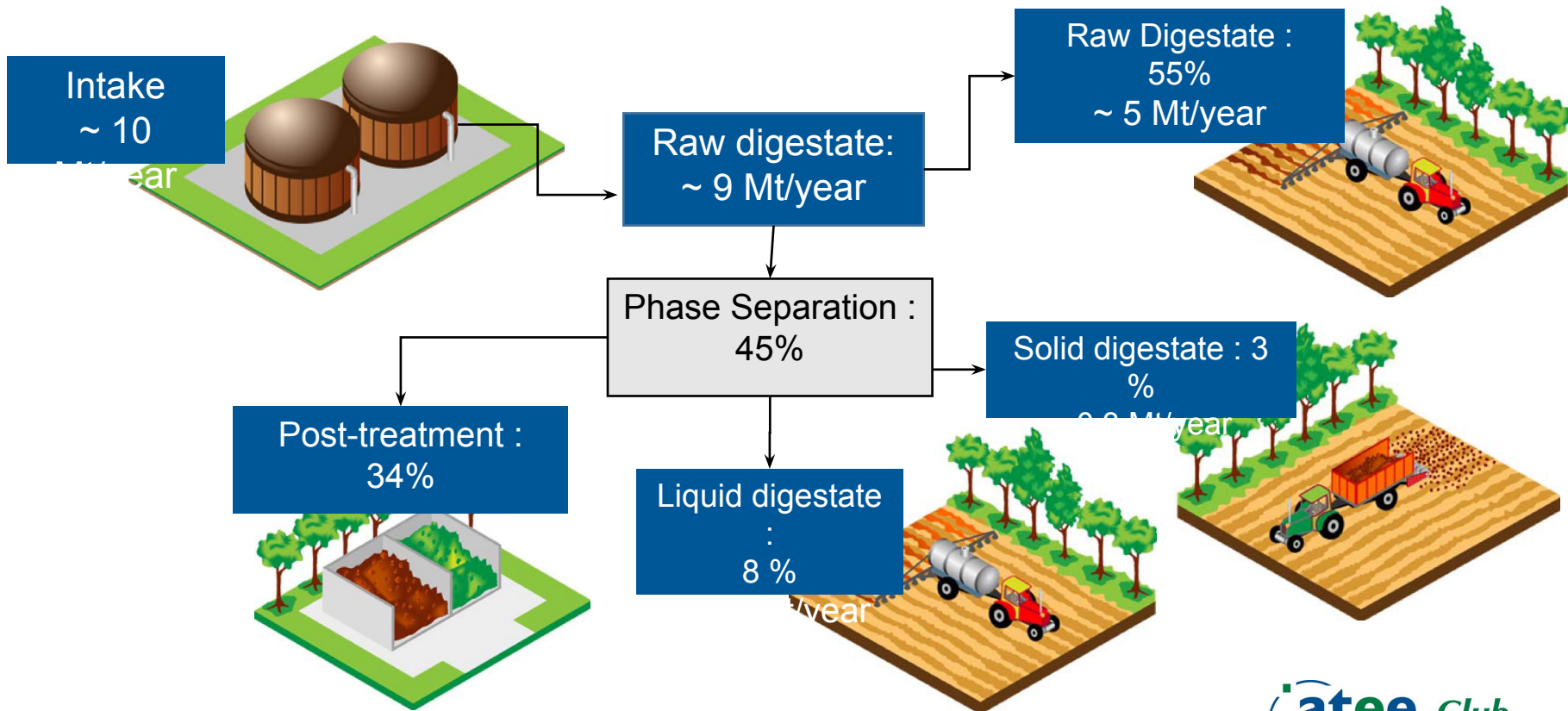
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FRANCE GESTATE PRODUCTION:



Quantity of manure produced in France : 180 Mt /year

CHARACTERISTICS OF DIGESTATE :

To be placed on the market, has to respect regulations of the Rural Code

Soil improver

Modifies the physical, chemical and biological properties of soils

Fertiliser

Brings nutrients to the crops

Plant biostimulant

Stimulates natural processes in plants (absorption, resistance, etc.)

DIGESTATE STATUS:

Type of procedure	Composition	Timeframe	Cost	Responsability	Reglementary status
SPREADING PLAN	All digestates	Redaction of the plan and public inquiry	Depending on surface	To the soil	WASTE
MARKETING AUTHORIZATION	All digestates	1 year documentation + 1,5 years for decision	35-60k€	Until cession / sale	PRODUCT
STANDARD NF U-44051	Composted digestate (soil improver) no sewage sludge	Declaration	Analysis, conformity assessment,	Until cession / sale	PRODUCT
STANDARD NF U44-095	Composted digestate (soil improver) containing sewage sludge	Declaration	Analysis, conformity assessment,	To the soil	WASTE
AGRICULTURAL SPECIFICATIONS	Digestates conforming with the specs (no sewage sludge)	Declaration	Analysis, conformity assessment,	Until cession / sale	PRODUCT
USE FERTILIZER	Digestate CMC4 or CMC5	Depending on	Analysis,	Until cession /	PRODUCT

Source : Voxgaia, modified

LEGISLATION AND DIGESTATE



NEW DECREE

« Safety
Common
grounds for all
fertilizers »

JUNE
2021

- Submitted project is very restrictive !
- Still waiting for ANSES (equivalent of EFSA) decision
- Agronomic values do not reflect the reality of digestate
- Many digestates would have to be **eliminated**



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SOCIAL ISSUES AND PROJECTS

SCALE	GOALS	MEANS
Local	Reduce the opposition from the populations	Work on public awareness and concertation tools (ongoing)
	Facilitate plant integration	Organize visits for neighbors, schools, etc.
National	Improve the sector visibility	Work on a national « all audience » website (ongoing)
	Communicate efficiently on all the aspects of the biogas sector from a scientific point of view	Creation of a national scientific website : InfoMétha.org
	Make recruiting easier	Production of a « job guide » for the biogas sector, develop new vocational trainings

GOAL 1 : MORE BIOMETHANE IN THE GRID

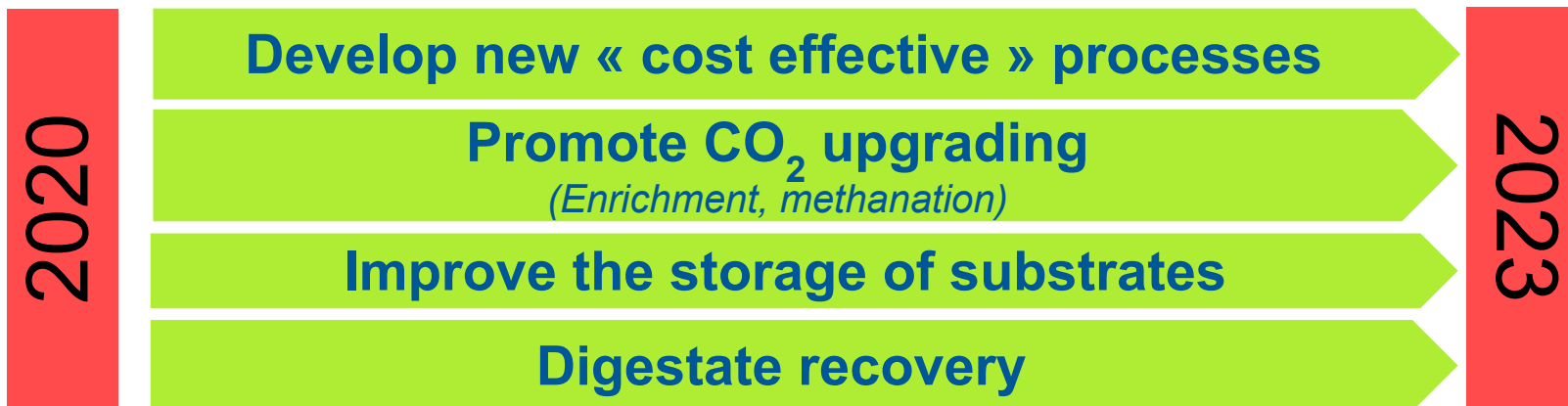
BUT HOW MUCH ?

- 2015 : French Act on Energy Transition for “Green Growth” :
 - **10%** of injected gas is biomethane in 2030 (vs 1% today)
- 2019): Pluriannual Energy Programme (PPE) :
 - **7 %** of biomethane injected in 2030.



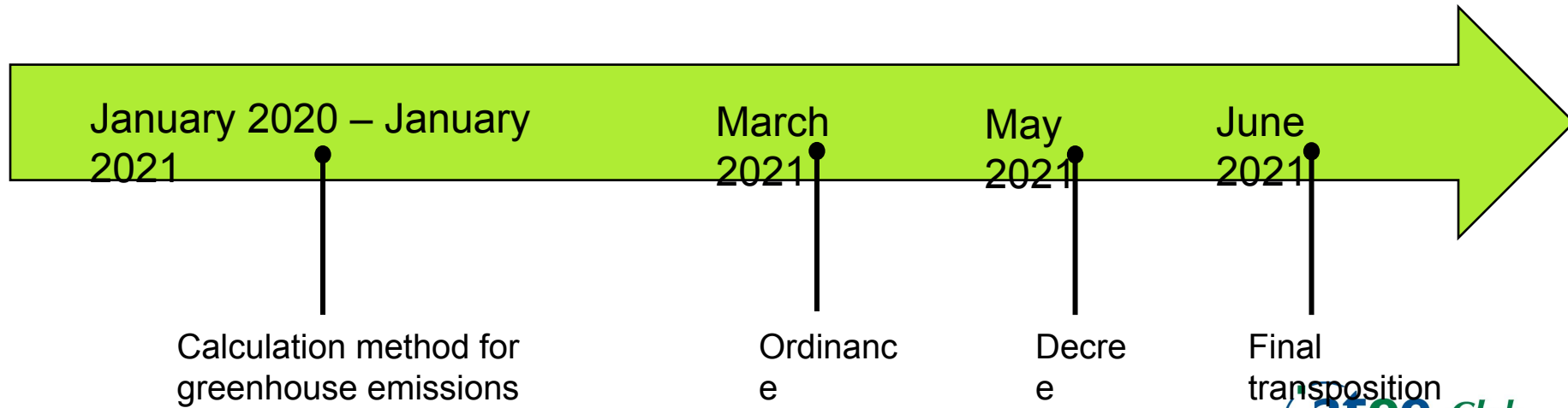
■ ■ GOAL 2: REDUCE THE COSTS !

- 2019 : Pluriannual Energy Programme (PPE) □ decrease in public support : >100€/MWh □ target 75 €/MWh in 2023.
- Creation of a “Sector Strategic Committee on Competitiveness and Innovation” to work on cost effectiveness.



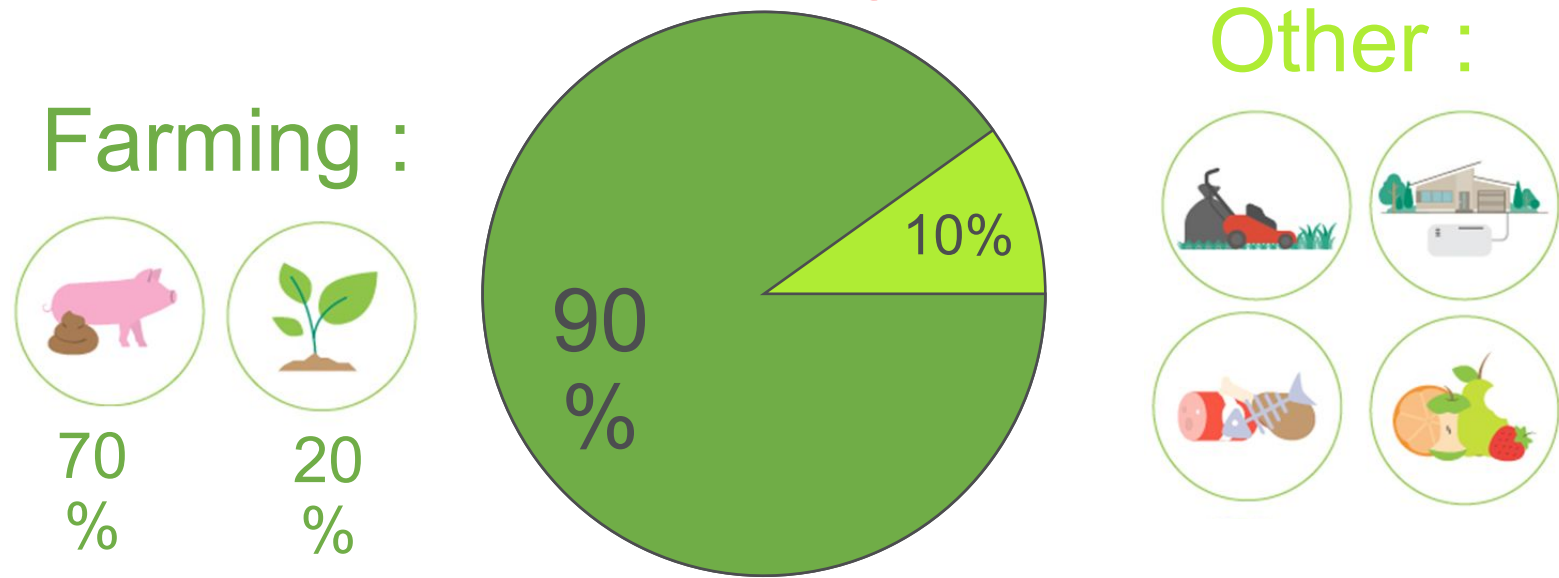
RD II TRANSPOSITION IN FRANCE

Strong sustainability obligations for plants
> 2 MW or 17.5 GWh/year



THE WAY FORWARD:

The biogas sector has to work hand in hand with
farming !



Allocation of resources (biogas production)

THE WAY FORWARD:

The biogas sector has to remain sustainable!



Manages
animal
dejections



Produces
renewable
energy



Recycles
organic
matter



Develops
agriculture with
less fossil fuels



Protects the
environment

Defining issues :

- Integrate biogas production in agroecosystems
- Reduce economic and environmental costs
- Demonstrate the profitability of the sector (“positive externalities”)
- Establish new territorial dynamics in favor of a circular economy integrating biogas plants.

Thank you for your attention.



Q&A



Digital global
Biogas
Cooperation

If you are interested to partner with DiBiCoo or have any inquiries, please contact us or follow us online!



www.dibicoo.org



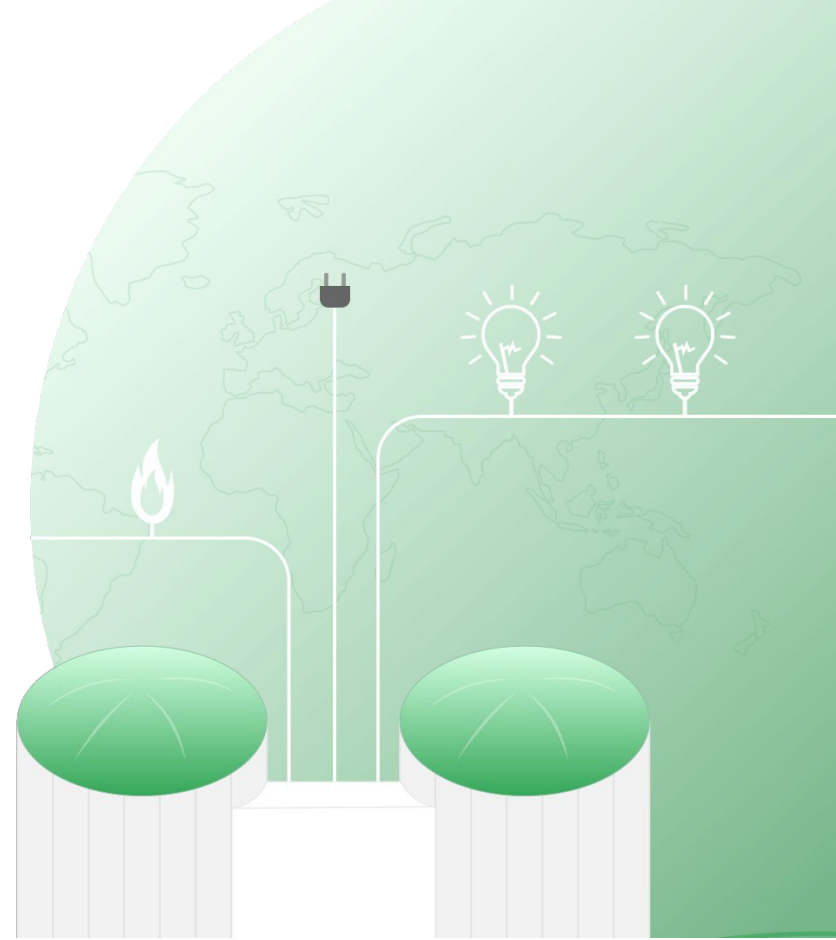
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