

for industries



switching on the biogas resource

a new source of
renewable energy



support the challenges of industries

Increasingly, industries have to face difficult environmental and social challenges while improving their bottom line.

Companies can meet both objectives with our biogas solutions.





**increase revenues
and reduce costs**

**generate
renewable
energy from waste
and by-products**

**improve your
social and
environmental
performance**

increase revenues and reduce costs

revenue

3,500 kWh

1 ton of COD* generates **3,500 kWh** of biogas energy that can be resold to local businesses and households. For example, in France, a dairy with 1,500 tons/year of COD can make as much as 800,000 €

*Chemical Oxygen Demand: measures the amount of organic compounds in wastewater

waste savings

↘ 50%

Reduction of sludge production by more than half leads to waste management savings

energy savings

↘ 20%

Reduction of your entire plant's energy consumption by more than 20%

generate renewable energy from waste and by-products

meat & dairy

600 kWh

1 ton of animal fat can generate **600 kWh** of usable energy

fruit

500 kWh

1 ton of apple pomace can produce **500 kWh** of usable energy

paper

115 kWh

Waste generated by the production of 1 ton of paper leads to **115 kWh** of usable energy

improve your social and environmental performance

public health

0

Biofuels reject 80% less nitrogen oxide (NOx) than fossil fuels and zero carcinogenic fine particles

carbon footprint

↘ 90%

Using biofuel instead of fossil fuel reduces CO₂ emissions from transport fleet by up to **90%**

community involvement

35 m²

1 m³ of biomethane reinjected in the grid meets the daily heating needs of a **35 m²** apartment in your local community



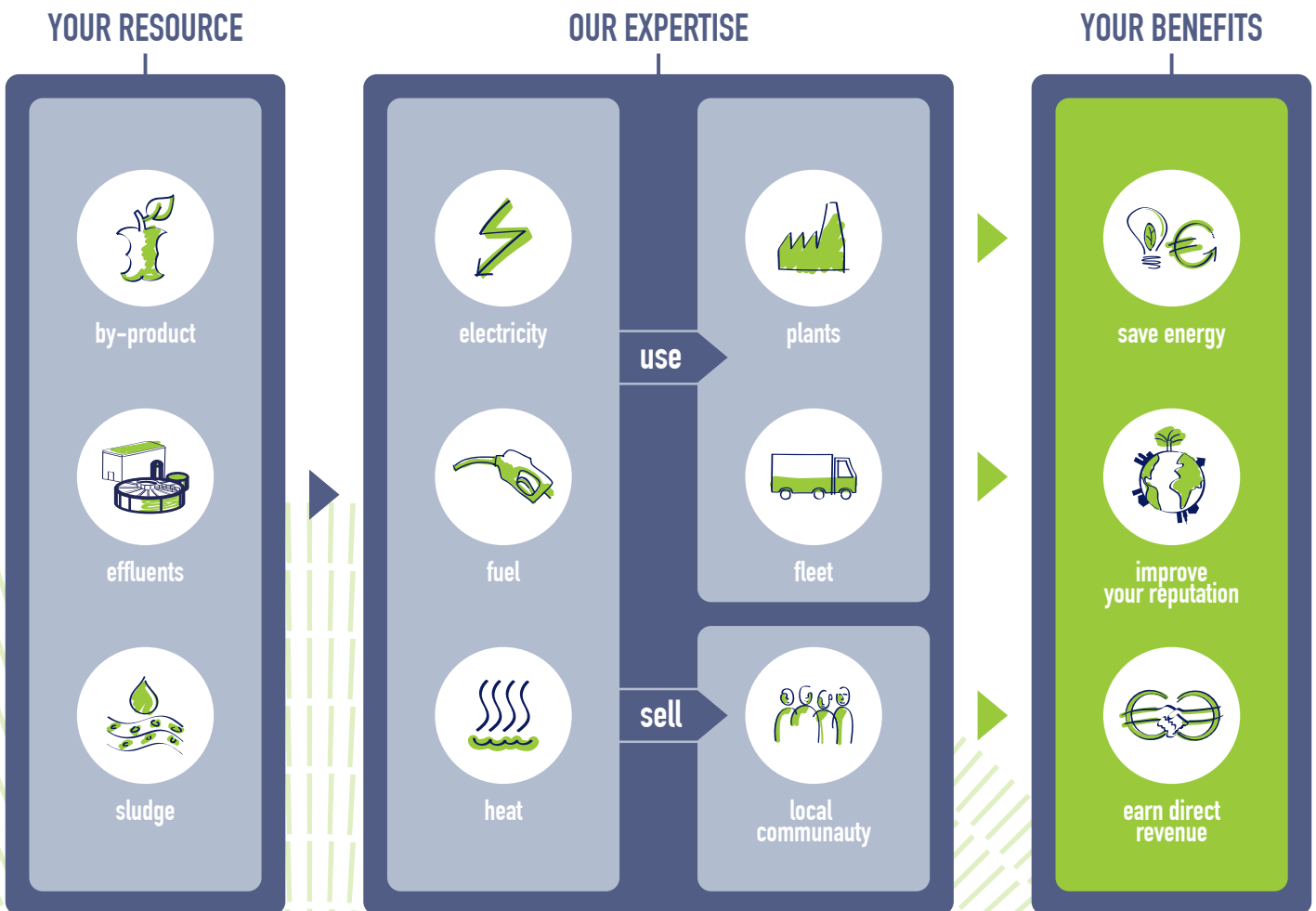
**switching on the
biogas resource**



**unlocking a new
source of renewable
energy**

improve your **bottom line** with biogas

enhance your **social, environmental** and **financial** bottom lines



we let you focus on your **core business**

by managing every
step of your **biogas project**

consulting & project conception

- Optimization of your biogas production
- Identification of the best recycling applications



engineering & construction

- Compliance with health, safety and environmental standards
- Investment cost savings



operation & maintenance

- Enhanced lifespan of equipment
- Operational cost savings



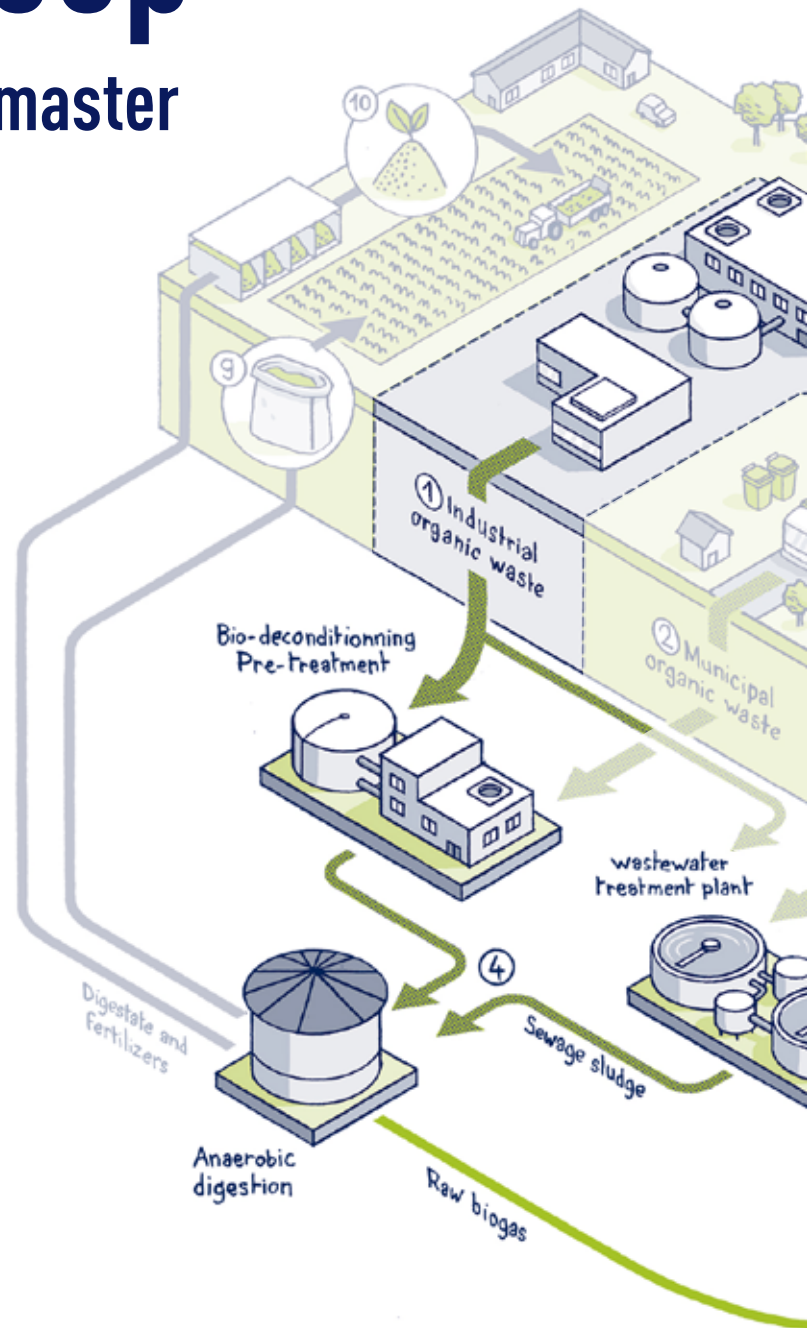
biogas as a resource

- Provide electricity and heat for your plant (boiler and cogeneration)
- Provide fuel for your fleet
- Sell biomethane to your community

understanding the **biogas** loop

SUEZ is the only actor to master
the **entire value chain**

biogas is a powerful source
of renewable energy



1. Anaerobic digestion and biogas production

- Collection of Food & Beverage and Pulp & Paper industries, and agriculture wastes

2. Municipal Organic Waste

- Selective collection of municipal waste (food wastes, kitchen, canteen, green wastes)

3. Municipal Wastewater

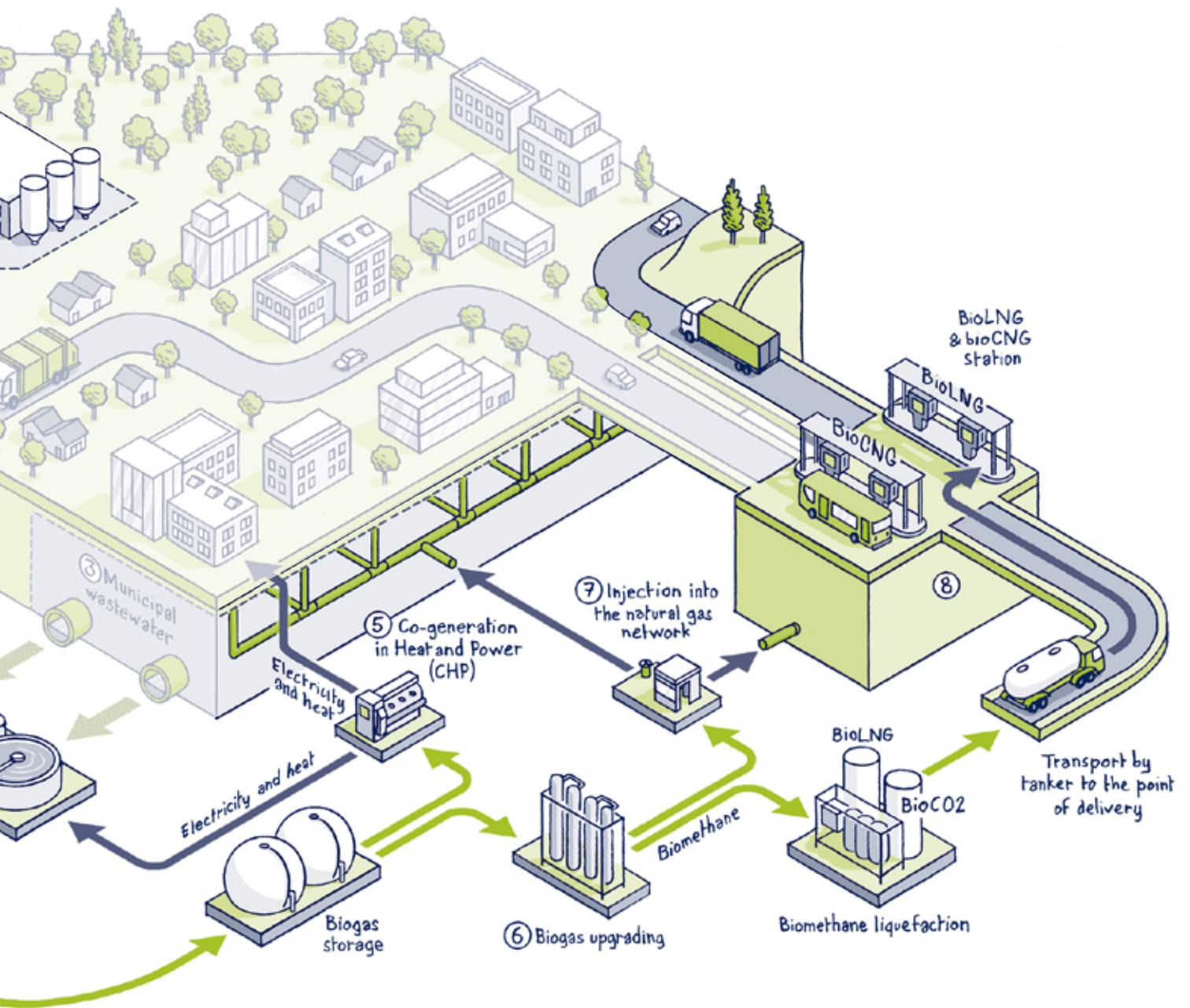
- Treatment of Municipal wastewater and sewage sludge

4. Multi feed-stock anaerobic digestion and biogas production

- Bio-deconditioning, homogenization, sanitation
- Reduction of sludge and waste volume by anaerobic digestion
- Production of a green gas

5. Cogeneration

- Energy self-sufficient wastewater treatment plants
- Production of electricity and heat for homes and businesses



6. Biogas upgrading and biomethane

- Production of biomethane which is the first step to generate biofuel and green gas
- 99% of energy recovery

7. Injection into the natural gas network

- Reduced onsite biogas storage
- Energy storage into the network
- Production of green gas

8. BioCNG/BioLNG and CO₂

- Local, green and renewable fuel sources
- Significant savings over fossil fuel
- Recovery in industries (cold chain, agricultural, chemical)

9. Valorization of digestates

- Land spreading
- Composting
- Organic fertilizers
- Waste to energy

10. Nitrogen and phosphorus recovery

- Agriculture reuse
- Substitution to commercial fertilizers

SUEZ is at the **cutting edge** of biogas recovery

- ▶ 1 laboratory
- ▶ 19 dedicated patents
- ▶ 1 TWh produced/ year
- ▶ 170 biogas plants across the world
- ▶ more than 10 M€ invested by SUEZ in R&D

case studies



ZUVAMESA

Zumos Valencianos del Mediterraneo (Zuvamesa) produces juices in Puerto de Sagunto close to Valencia in Spain. Its facility is one of the biggest not-from-concentrate juice plants in Europe.

Client expectations

- 🌱 Increase effluent treatment capacity without expanding current facilities
- 🌱 Reduce the average cost for wastewater treatment
- 🌱 Reduce impact on the environment

Solution

- 🌱 Design, construction, operation and maintenance of an anaerobic digester integrated in the existing infrastructure.
- 🌱 The biogas generated was then used as fuel for boilers and other processes.

Value

- 🌱 40% increase in the total treatment capacity
- 🌱 20% reduction in operating costs
- 🌱 40% reduction in energy consumption
- 🌱 80% reduction in sludge production
- 🌱 50% reduction in chemical consumption

“SUEZ has clearly improved the management and control of the plant. It has succeeded in implementing a solution that no one had thought of before!”

UK Environmental Agency



Heineken

Heineken is the 3rd largest brewer in the world. In the United Kingdom, the company operates the emblematic John Smith's brewery, one of the largest in the country.

Client expectations

- ⚠️ Avoid weekly environmental breaches caused by abnormal ammonia and hydrogen sulfide emissions
- 🌱 Maximize green energy potential to improve sustainability

Solution

- 🌱 Energy efficiency audit
- 🌱 Installation and maintenance of a new bioreactor tailored to the site's needs and a gas scrubber to remove pollutant
- 🌱 On-site laboratory support
- 🌱 The biogas generated is redirected to on-site boilers to produce steam or converted in electricity to power plants

Value

- 🌱 Reduced costs
- 🌱 Full environmental compliance
- 🌱 6 MWh of sustainable energy produced per day

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ready for the resource revolution

