

The main actors in Europe

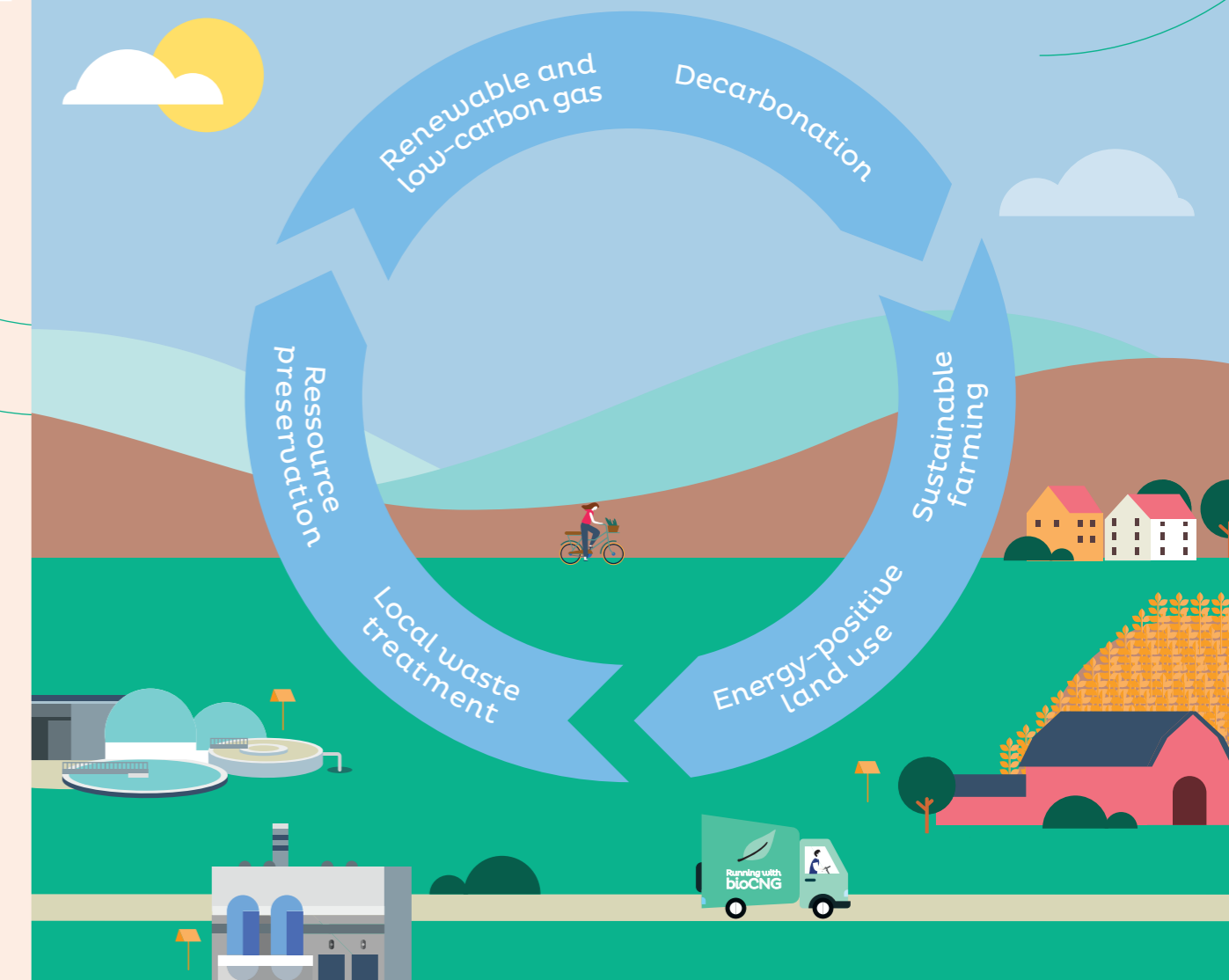
- SCW Systems**
 - Demonstrator (2018): 2 t/h
 - 1st industrial installation in the world (2023): 16 t/h
- Leroux et Lotz Technologies (KIT)**
 - Demonstrator (in development)
- VINCI Environnement (Genifuel)**
 - Pilot (in development)
- Karlsruhe Institute of Technology (KIT)**
 - Pilot (2004): 100 kg/h
- Paul Scherrer Institut (PSI)**
 - Prototype (2014): 1 kg/h
- PSI + TreaTech**
 - Pilot (2020): 110 kg/h
- TreaTech**
 - Prototype (2018): 1 kg/h
 - Pilot (2024): 100 kg/h
- CEA**
 - Prototype (2015): 10 kg/h
- CADE**
 - Pilot (2018): 40 kg/h
 - Pilot (2023): 80 kg/h
- Process of high-temperature**
 - T: 550 to 700°C
 - P: 260 to 350 bar
- Catalytic process**
 - T: 360 to 400°C
 - P: 210 to 280 bar



Design and production: purplepop - 2023

Hydrothermal Gasification

A promising technology that supports the circular economy



Very high carbon conversion > 85 à 99 %.

Production of a gas rich in methane and hydrogen

Steep reduction of final waste

Quick conversion time (1 to 10 min)

No atmospheric pollutant (NOx, CO, fine particles)

Recovery and preservation of water, minerals and nitrogen (=> fertiliser)

Many advantages

Hydrothermal gasification completes the portfolio of innovative technologies that produce renewable and low-carbon gas. It contributes to the success of the energy transition and recovers waste in a circular economy approach. Its positive externalities sustainably support local employment and regional energy production.

Conversion of fossil organic waste (plastics, chemical wastes)

Compact and modular installation

Multiple economic interests (gas...)

High energy efficiency: from 75 to 85%

Elimination of bacteria, viruses and pathogens

Low odour and noise pollution

Metals and heavy metals recovery

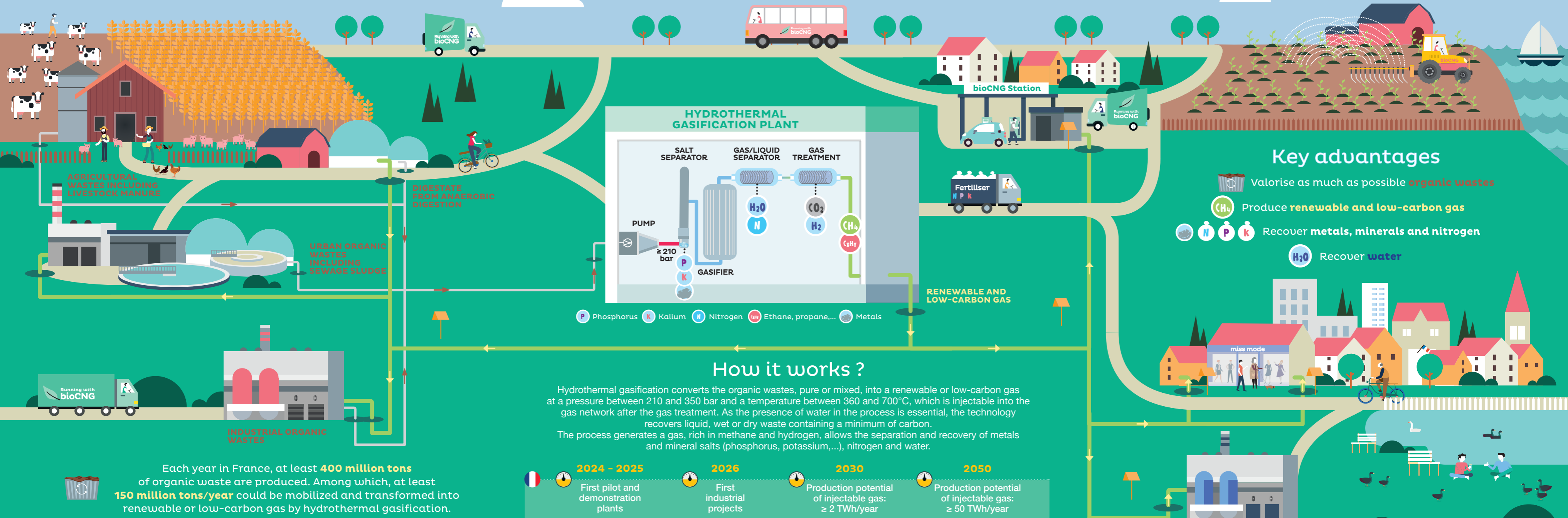
Very favorable LCA/GHG balance (decarbonisation)

A value chain designed towards regional development

1 Feedstock

2 Conversion technology

3 Valorization



Each year in France, at least **400 million tons** of organic waste are produced. Among which, at least **150 million tons/year** could be mobilized and transformed into renewable or low-carbon gas by hydrothermal gasification.

Year	Key Milestones
2024 - 2025	First pilot and demonstration plants
2026	First industrial projects
2030	Production potential of injectable gas: ≥ 2 TWh/year
2050	Production potential of injectable gas: ≥ 50 TWh/year

How it works ?

Hydrothermal gasification converts the organic wastes, pure or mixed, into a renewable or low-carbon gas at a pressure between 210 and 350 bar and a temperature between 360 and 700°C, which is injectable into the gas network after the gas treatment. As the presence of water in the process is essential, the technology recovers liquid, wet or dry waste containing a minimum of carbon. The process generates a gas, rich in methane and hydrogen, allows the separation and recovery of metals and mineral salts (phosphorus, potassium,...), nitrogen and water.

- ### Key advantages
- Valorise as much as possible **organic wastes**
 - Produce **renewable and low-carbon gas**
 - Recover **metals, minerals and nitrogen**
 - Recover **water**