

# CLIMATE CHANGE, TIME TO ACT NOW

*Our solutions for climate change adaptation:  
decarbonization, savings and regeneration  
of resources, depollution*

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## What are the challenges?

Pollution, resource scarcity, supply pressures, energy dependency and sobriety... The challenges and pressures have never been so important for the territories and their stakeholders. For them, the ecological transformation is no longer an option. It is time to implement solutions for adaptation and to gather all the forces to build sustainable and decarbonized cities.

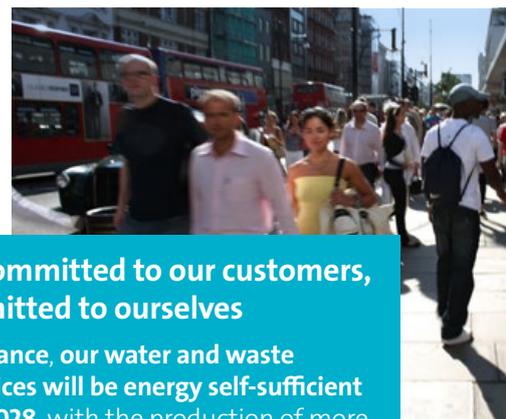
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# VEOLIA

— As the worldwide champion tackling environmental challenges, Veolia provides municipalities, industries and commercial players with solutions in the fields of water, waste and energy. Solutions that help decarbonize, save and regenerate resources, depollute and thus improve the quality of life. Solutions that benefit from a powerful innovation platform specific to Veolia. The ecological transformation can be accelerated. —

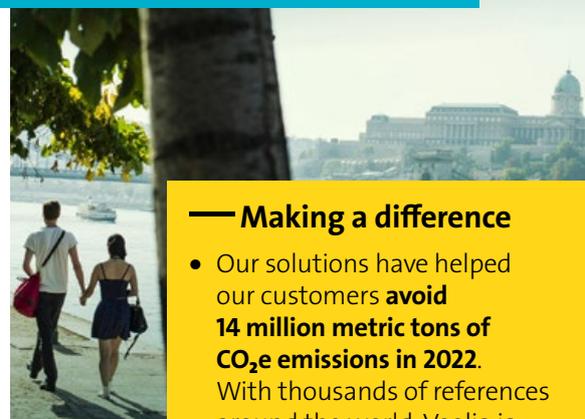
## WITH VEOLIA, MUNICIPALITIES, INDUSTRIES AND COMMERCIAL PLAYERS CAN ADAPT TO CLIMATE CHANGE AND STRENGTHEN THEIR RESILIENCE BY:

- **VALORIZING NON-RECYCLABLE WASTE** into low-carbon energy, heat or electricity, produced locally to supply local residents and industries
- Optimizing the **ENERGY CONSUMPTION OF BUILDINGS** (residential, commercial) and industrial sites: significant reductions of between 15% and 20% in consumption
- Producing **BIOMETHANE FROM WASTEWATER AND LANDFILLS**: a 100% local, decarbonized energy
- Replacing fossil fuels with **SOLID RECOVERED FUELS** from non-recyclable waste after sorting
- Recovering **FATAL HEAT AND COLD**: an important source for reducing fossil fuel consumption
- Encouraging **ELECTRICAL FLEXIBILITY ON INDUSTRIAL AND TERTIARY SITES**, to modulate energy production or consumption and compensate for imbalances
- Treating **WASTEWATER**, with increasingly advanced technologies, to limit the impact of human activities on the environment
- Reusing **TREATED WASTEWATER WITH DIFFERENT QUALITY LEVELS**, depending on the type of use (agriculture, industry, streets, etc.)
- **ANTICIPATING CRISES RELATED TO THE WATER CYCLE**, due to the effects of climate change, by guiding operating and investment choices
- Creating **NEW LOCAL LOOPS OF MATERIALS** in order to reduce the footprint of economic activities: plastics, hazardous waste, strategic metals, electrical batteries...
- **DECONTAMINATING SOILS OR RECONVERTING WASTELANDS** to avoid artificialization and encourage the reintroduction of species into the environment
- Monitoring the **QUALITY OF INDOOR AIR IN BUILDINGS** as an indicator of energy performance and therefore of greenhouse gas emissions control
- Developing **URBAN AGRICULTURE** to facilitate access to sustainable, high-quality, local food



### — Committed to our customers, committed to ourselves

- In France, our water and waste services will be energy self-sufficient by 2028, with the production of more than 2 terawatt-hours (TWh) of local energy to fully cover the equivalent of our current consumption, which is the equivalent of the consumption of 430,000 French homes. 100% decarbonated energy
- In Europe, we are committed to gradually phasing out coal, through a massive €1.5 billion investment plan over 10 years to reduce our carbon emissions by 2.7 million tons of CO<sub>2</sub>e. First concrete achievements in Germany and the Czech Republic.



### — Making a difference

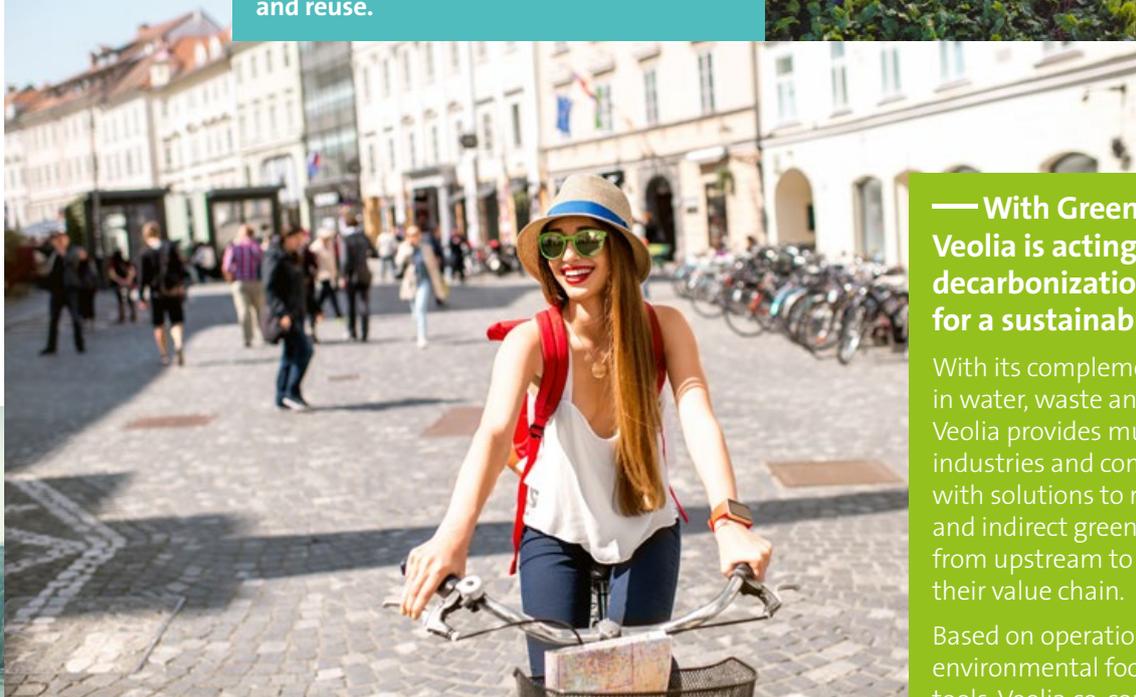
- Our solutions have helped our customers **avoid 14 million metric tons of CO<sub>2</sub>e emissions in 2022**. With thousands of references around the world, Veolia is a unique model in this field.
- By improving water networks around the world, Veolia has made it possible to **save 320 million cubic meters of water in 2022** compared to 2019.

**— The reuse of treated wastewater is THE solution to secure access to water and reduce territories' water footprint**

Once treated, wastewater – as defined by regulations that may vary from one country to another – can be used for irrigation of green spaces or crops, for industrial needs, for fire fighting, for urban development and cooling, and for human consumption.

Today, wastewater reuse remains an under-exploited solution: 0.6% in France compared to 8% in Italy, 14% in Spain and 90% in Israel. Nevertheless, treatment technologies that combine several steps (clarification, ozonation, microfiltration, ultrafiltration, reverse osmosis, disinfection) are working and are widely deployed.

**With its technology portfolio and several hundred references worldwide, Veolia is the world leader in wastewater treatment and reuse.**



**— Citizens are ready!**

According to the Barometer of Ecological Transformation conducted by Veolia in collaboration with Elabe in late 2022 of 25,000 citizens in 25 countries, 6 out of 10 inhabitants of the planet declare that they are ready to accept 90% of the changes that an ecological solution would involve.

**— With GreenPath Zero Carbon, Veolia is acting on the entire decarbonization value chain, for a sustainable model**

With its complementary expertise in water, waste and energy, Veolia provides municipalities, industries and commercial players with solutions to reduce their direct and indirect greenhouse gas emissions, from upstream to downstream in their value chain.

Based on operational audits and using environmental footprint calculation tools, Veolia co-constructs and implements its customers' roadmap and proposes the most appropriate solutions to reduce the carbon footprint of their activities, optimize their energy efficiency, provide low-carbon sources of supply and optimize the recycling of materials, create local green energy loops, or reuse their wastewater.

**In addition to complying with regulatory obligations, GreenPath Zero Carbon enables our customers to improve their performance and reputation.**

THEY HAVE CHOSEN VEOLIA

AND GREENPATH ZERO CARBON



### In California, USA: 5 grades of wastewater treated at the Edward C. Little plant

In a dry region where nearly 60% of the water consumed is imported, the Edward C. Little treatment plant, operated by Veolia, provides up to 180,000 m<sup>3</sup> of treated wastewater per day, **with 5 different quality levels**, for reuse by 300 municipal or industrial customers, who have different quality needs. The facility also protects groundwater from seawater intrusion by injecting up to 60,000 m<sup>3</sup> of treated water per day. Since 1995, this facility has reduced the supply of imported water by more than one billion cubic meters.



### States of Sao Paulo and Santa Catarina, Brazil: Waste-to-energy plants

Veolia is producing biogas from the decomposition of organic waste at three new waste-to-energy units located on its landfill sites in the States of Sao Paulo and Santa Catarina. With a capacity of 12.4 MW, these units meet the electricity needs of a city of about 42,000 inhabitants in Brazil. Biogas from household or industrial waste is a local, low-carbon source of energy. Its energy recovery reduces emissions from landfills and the renewable electricity produced on site contributes to the effort to decarbonize the country's energy mix.



### In Cheongju, South Korea: Fossil fuel replacement with solid recovered fuel and energy management for a paper manufacturer

KleanNara produces paper and packaging for industrial and domestic use. To supply its plant with steam, KleanNara chose Veolia to take over and operate two boilers fueled by solid recovered fuels (SRF\*), and to manage the preparation of the fuel, which is derived from the plant's production process. The carbon emissions from these SRFs are 35% lower than those from natural gas. This ultra-local circular economy loop significantly reduces the plant's environmental footprint.

\*CSR: non-hazardous waste from economic activities or residual household waste, prepared to become a fuel.



### Paris-Saclay, France: Operation of a 5<sup>th</sup> generation heat and cold exchange network

Since January 2023, Veolia has been operating the 5<sup>th</sup> generation heat and cold exchange network on the Paris-Saclay urban campus. The only one in Europe, the facility makes it possible to develop an ambitious energy mix combining deep geothermal energy, waste heat from the CNRS supercomputer, and heat recovery from the cooling network. With this pioneering project for the production of low-carbon local energy (> 50% renewable energy), Veolia aims to double the network's capacity by 2028, i.e. more than 100 GWh/year of heat and 20 GWh/year of cold sold, which corresponds to the average consumption of 10,000 homes each year.



More information in [www.veolia.com](http://www.veolia.com)

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