

WEBINAIRE N°2 : WASTEWATER REUSE: LINKING USES WITHIN THE WATER MIX TO PROMOTE INTEGRATED WATER RESOURCES MANAGEMENT

November 2026



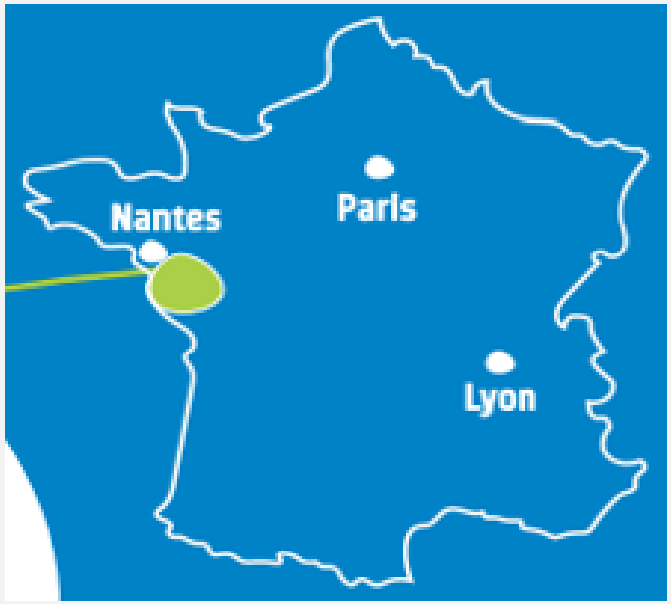
From Demonstrator to Reference : Early Lessons from the Jourdain Indirect Potable Reuse Project, France

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Vendée Department and Vendée Eau

- Vendee : 720 000 inhabitants
- Top 5 destination for tourism in France (5 millions tourists/year)
- Very dynamic and attractive department (agro-industry, demography...)
- Water supply in Vendée depends almost exclusively on surface water dams (94%) on smalls rivers / Groundwater (6%)

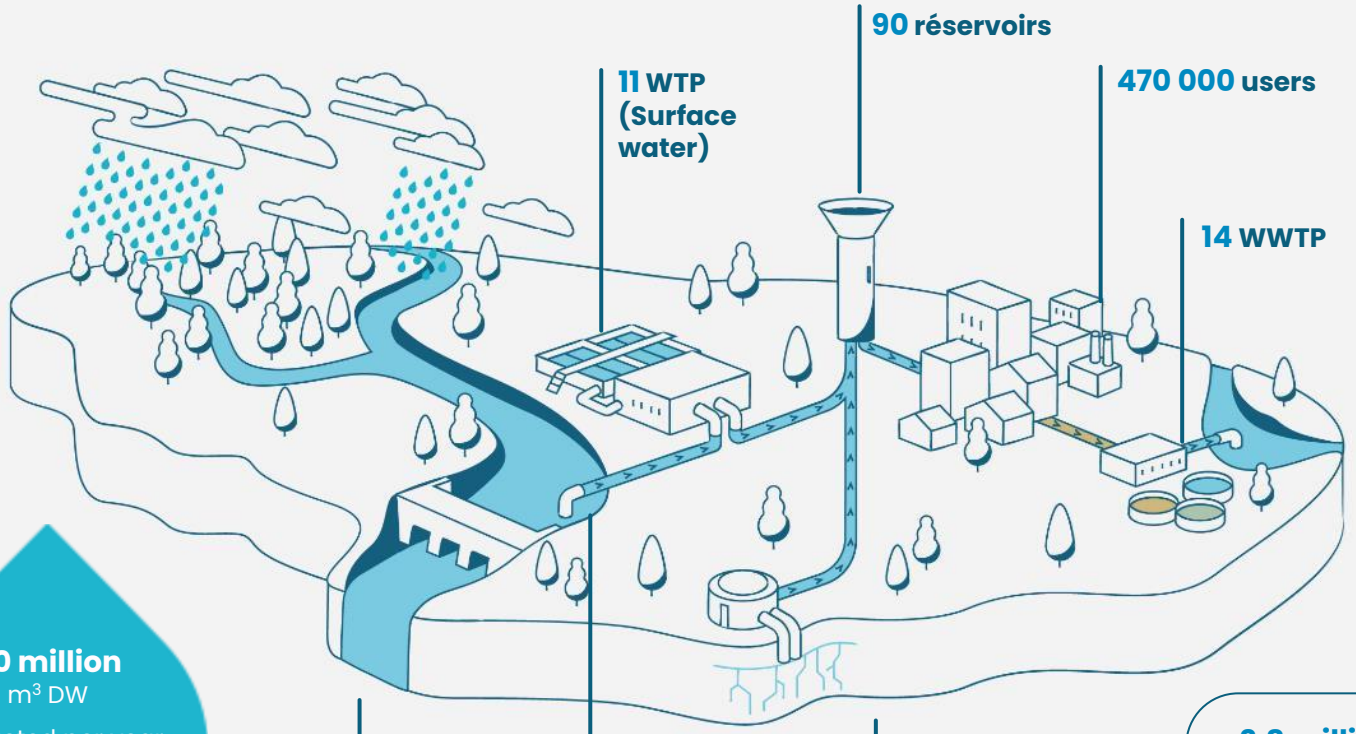






Key figures

Vendée Eau is the public drinking water utility for the whole of the Vendée department (west coast of France)



50 million m³ DW Producted per year

55 million m³ stored per year

3,8 million de m³ imported

2,5 million de m³ exported

Why indirect potable reuse, and why now

THE PRESSURE

- 1.8 billion people face absolute water scarcity in 2025; 4.4 billion lack safe water services.
- By 2050 the world population approaches 10 billion, 55% of it urban.
- More frequent droughts and shifting rainfall erode the reliability of surface resources.

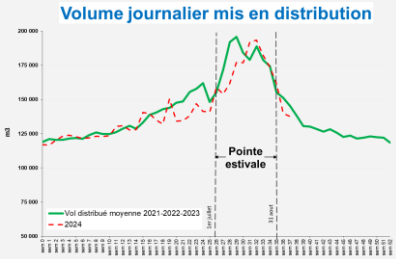
THE FRAMEWORK

- EU Water Reuse Regulation 2020/741, applicable since June 2023: risk-based, multi-barrier permitting.
- French National Water Plan (2023): raise reuse from below 1% to 10% by 2030.
- Direct potable reuse is not authorised in France or the EU — indirect reuse is the available pathway.

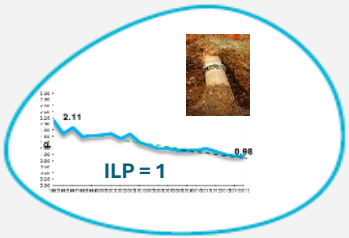
Jourdain, in Vendée, is the first operational indirect potable reuse scheme in France — a full-scale demonstrator, not a laboratory.

Why this indirect potable reuse Scheme in the Vendée Region ?

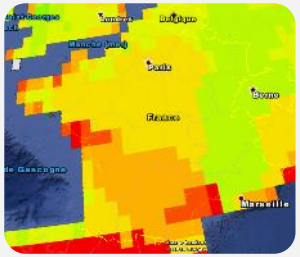
Growing demand with strong seasonal effect



Despite numerous initiatives and the high performance of our facilities



High stress on surface water resources, sensitive to the effects of climate change



➔ **risk of a mid-term water shortage**



➔ **Meanwhile, several million m3/year of treated wastewater are discharged into the open ocean**



The Reuse solution

- Object : DBOM (Design, Build, Operate and Maintain) contract in 2022 for a 150 m^3/h unit (To extend to 600 m3/h in 2030) of a water recycling demonstration plant, with an operational period of three years, extendable to five

- Winner : Consortium Veolia, OTV and RVL

- Treated municipal wastewater from les Sables d'Olonne undergoes a multi-barrier treatment chain : Ultra-Filtration, Low-Pressure Reverse Osmosis, UV, and chlorine disinfection This highly purified water is then released (by 27 km pipe Ø400) into a surface water dam via an engineered wetland

- Cost of the program : €25 million, co-financed by Vendée Eau with support from the Water Agency, the Region, EU and the Department





The Jourdain demonstrator in Vendée

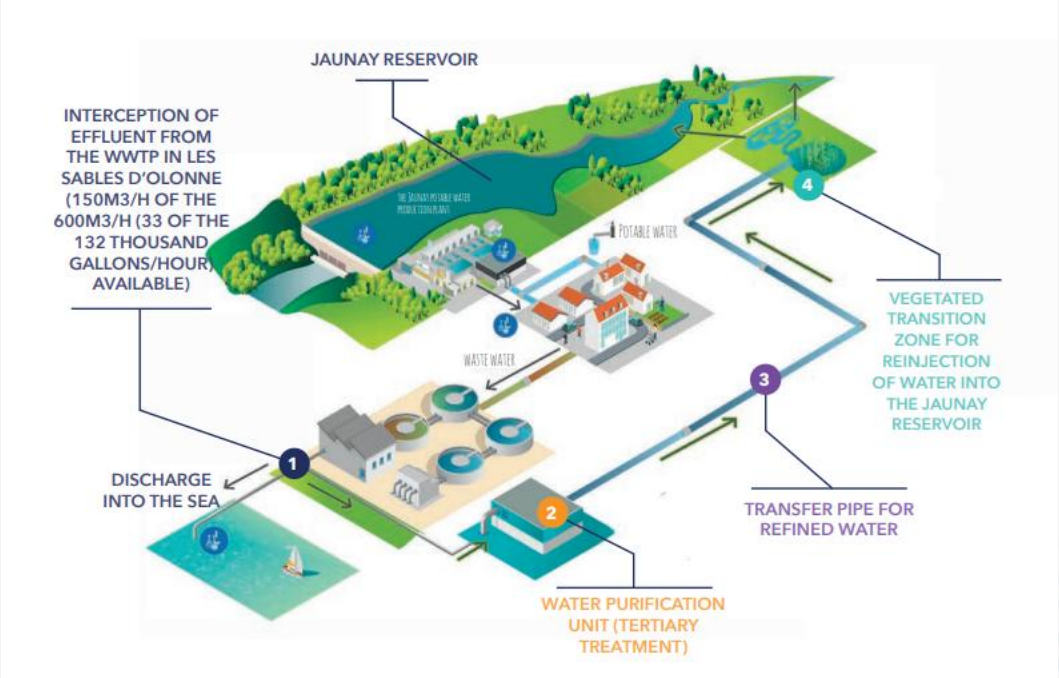
THE SCHEME

- 150 m³/h intercepted from the 600 m³/h leaving the Les Sables d'Olonne WWTP.

- Refining unit, then transfer to a vegetated transition zone feeding the Jaunay reservoir — a drinking-water resource.

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Site scheme: interception at the WWTP outlet, refining, 27 km transfer and reinjection towards the Jaunay reservoir (source: Vendée Eau)

Project timeline

MILESTONES

2018	**2022–23**	**Oct 2023**	**Jan 2024**	**Apr 2025**	**2025–27**	**2027**	**2030**
Demonstrator design	Construction and testing	Commissioning	Full capacity	First volumes to Jaunay	Monitored reinjection	Evaluation and development	Extension to 600 m3/h

Commissioned in October 2023, the first refined volumes reached the Jaunay reservoir in March 2025.
Extension to 600 m3/h (*4) is scheduled in 2030.
Potential analysis of other sites in Vendee

Key challenges and solutions

Regulation

CHALLENGES

- Absence of a reuse regulatory framework in France and Europe
- Cautious position of the French health authorities (ANSES)
- Absence of regulatory framework for impact on aquatic ecosystem of ultrapure water (Jaunay lake)

SOLUTIONS

- Engaging and co-constructing with the French health authorities early and proactively
- Being totally transparent on our results
- High level of treatment for IPR to reassure

Key challenges and solutions

Awareness & acceptability

CHALLENGES

- Reassure the public about risk management
- Yuck effect?
- Distribution of reused water not in the region of wastewater production (from urban to rural area)
- Fear of Impact on the aquatic environment

SOLUTIONS

- Clear and transparent communication strategy about water scarcity and about a solutions plan
- Treating the demonstration plant itself as a communication tool : educational path for example
- Governance with a stakeholders assembly (Environmental associations, Fishermen,…)
- Risk management in Vendee Eau to reassure users

Key challenges and solutions

Economic models and financing

CHALLENGES

- Project expensive for a pionering one
- To find a « business model »in order to balance cost and expenses
- Impact of the pipe cost (Length)
- How to duplicate with a cost effective solution?

SOLUTIONS

- Comparing the cost of action to the cost of inaction : cost of “No Water”
- Comparing the cost to alternative water resources, including seawater desalination
- Subsidies hunting for an exemplary project in France
- To launch research project for cost and treatment optimization

Key challenges and solutions

Innovation adoption in the field

CHALLENGES

- To use state-of-the-art technologies
- Unlock both regulatory evolution and public acceptance
- Prepare full-scale installation

SOLUTIONS

- Adapting and contextualising improved technologies for surface water recharge via an engineered wetland
- R&D program developed by Veolia (Concentrate streams,…)
- R&D developed by Vendee Eau: Oxymore project about nanotechnology usage
- R&D for social acceptance : Organoleptic Laboratory developed by Vendée Eau and CSTB