



## Case study factsheet

# Lleida, Spain

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**ULTIMATE** Project ULTIMATE

Lleida , Spain (españa)



## Description

In Lleida, the water smart industrial symbiosis exists since 2009 and interlinks the Mahou San Miguel (MSM) brewery with a multinational utility Aqualia as well as the local municipal utility of Lleida and the Catalan Water Agency.

The brewery has its own wastewater treatment plant. However, up to now, there is no water reclaimed and no energy recovered. Mahou San Miguel desires to reduce its water consumption by 10% by 2025, which shall be facilitated by the Ultimate solution for water reclamation, in which Pentair XFlow participates actively with nanofiltration technology. In addition, energy shall be recovered in the form of biogas and be converted as efficiently as possible to electricity and heat. According to preliminary estimations, the surplus electricity produced by the proposed Ultimate solution might supply a significant fraction of the thermal energy and electricity needs amounting to 3% and 30%, respectively. The carbon footprint shall be also reduced due to Mahou San Miguel's commitment to green energy and self-sufficiency.

## Applied technologies

- [Anaerobic Membrane Bioreactor \(AnMBR\) with degassing unit](#)
- [Early warning system for membrane fouling in anaerobic membrane bioreactors](#)
- [Electrostimulated anaerobic reactor](#)
- [Solid oxide fuel cell using biogas](#)
- [Ultrafiltration & nanofiltration membranes as pre-treatment for reverse osmosis](#)

## Publications and references

- Naves Arnaldos, A., van den Broeke, J., Guleria, T., Bruni, C., Fantone, F., Touloupi, M., Iossifidis, D., Giménez Lorang, A., Sabbah, I., Farah, K., Baransi-Karkaby, K., Pidou, M., Reguer, A., Kleyböcker, A., Jährgig, J., Vredenburg, L., Thisgaard, P., D1.9 Start-up and intermediate results of plant operation from all case studies, Project report, *ULTIMATE*, 2023

## Scale

Operational scale of this case study related to the application of tools and technologies

- Local scale

## Challenges

Challenges that are addressed through the application of tools and/or technologies to the case study

- Water Scarcity
- Need for reuse and recovery schemes for wastewater & sludge
- Other

## Related tags

Ultrafiltration

electrochemical system

Biogas

solid oxide fuel cell

Anaerobic pre-treatment

Fouling

## Contact data

### Contact person

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### Involved organisations

1. FCC Aqualia
2. Pentair