



MATRYCS

Addressing challenges at
the district level

Optimization of a District
Heating Network

Modular Big Data Applications
for Holistic Energy Services in
Buildings

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Veolia (Spain)

- Veolia, who we are
- LSP6: Torrelago District Heating Network
- Current status and needs
- Key data: Hubgrade, Veolia's energy management centre
- MATRYCS solutions & expected outcomes

Our 3 businesses

Veolia designs and deploys solutions for **water**, **waste** and **energy** management, participating in the sustainable development of cities and industries.



WATER

Management of the global water cycle, from production and distribution of drinking water to the collection, treatment and recycling of wastewater.



WASTE

Liquid and solid non-hazardous and hazardous waste management. Our expertise covers the entire waste life cycle from collection to recycling, leading to the final recovery of waste as materials or energy.



ENERGY

Energy efficiency, efficient management of heating and cooling networks, green energy production.

Our key figures



WATER

95 million people supplied with drinking water
2,737 wastewater treatment plants managed
3,362 drinking water production plants managed
62 million people connected to WW systems



WASTE

464,948 business clients
47 million metric tons of treated waste
685 waste processing facilities operated
40 million people provided with collection services



ENERGY

45,806 thermal installations managed
611 heating and cooling networks managed
43 million MWh produced
2,137 industrial sites managed

- DH network providing heating and DHW to 1,500 households with 19 distribution substations in Laguna de Duero (Spain)
- Biomass-based DHN
- 2 boiler rooms
 - 3 biomass boilers (3.4 MW)
 - 3 gas boilers (8.7 MW)
- Fuel consumption
 - 80% biomass
 - 20% natural gas
- Advanced management system
- (HEMS, BEMS, DEMS)



- **Why this facility?**

A DHN is a facility where the relevance of the **data at district level** is easily demonstrated.

- **Data available:**

Data is gathered from the **individual households**, the **building substations** and the **boiler rooms** for the baseline period (static data) and during the operational period (real data).

- **Main needs identified:**

- **Optimization** of the generation and distribution operation.
- Match the **demand** to the generation.
- Energy **prediction** taking into account weather conditions or other kind of social.

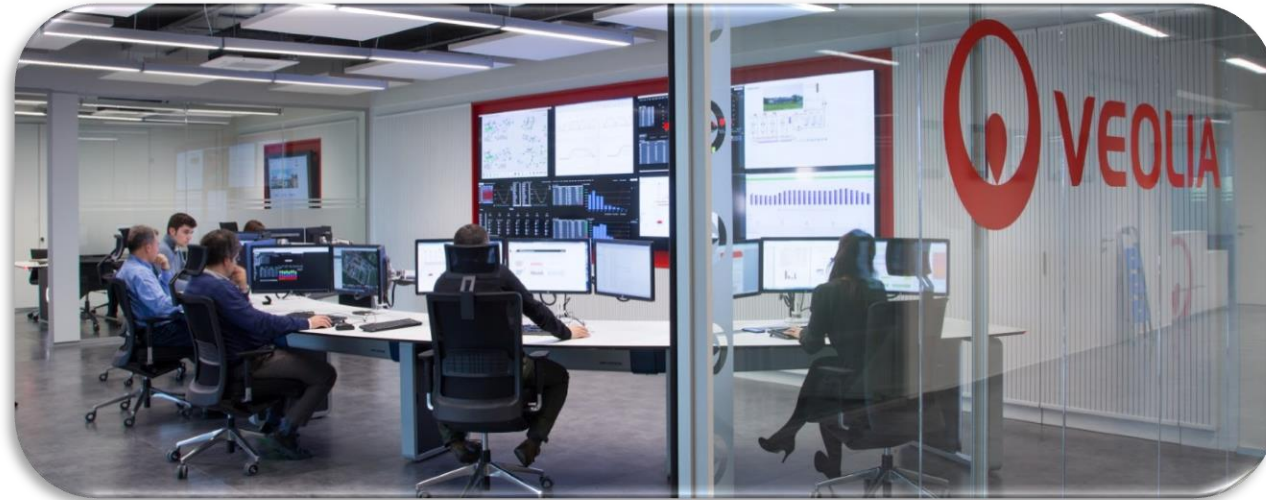
- This pilot will be in charge of applying the MATRYCS framework to **optimize**, in the aforementioned district, the **operation of the DHN**, in order to create **economic and environmental benefits**.

HUBGRADE PIONEERING ENERGY MANAGEMENT CENTRE

Hubgrade has a global vision of each of the connected installations

Veolia energy management centre, which allows installations to be **monitored and operated remotely and in real time**

Through this system, Veolia contributes the knowledge of its experts to **optimizing the energy consumption** of installations and guarantees both **user comfort** and **lower ecological impact**.



+2000 Installations talking

The remote management tools allow us to act directly on the installations via remote control.

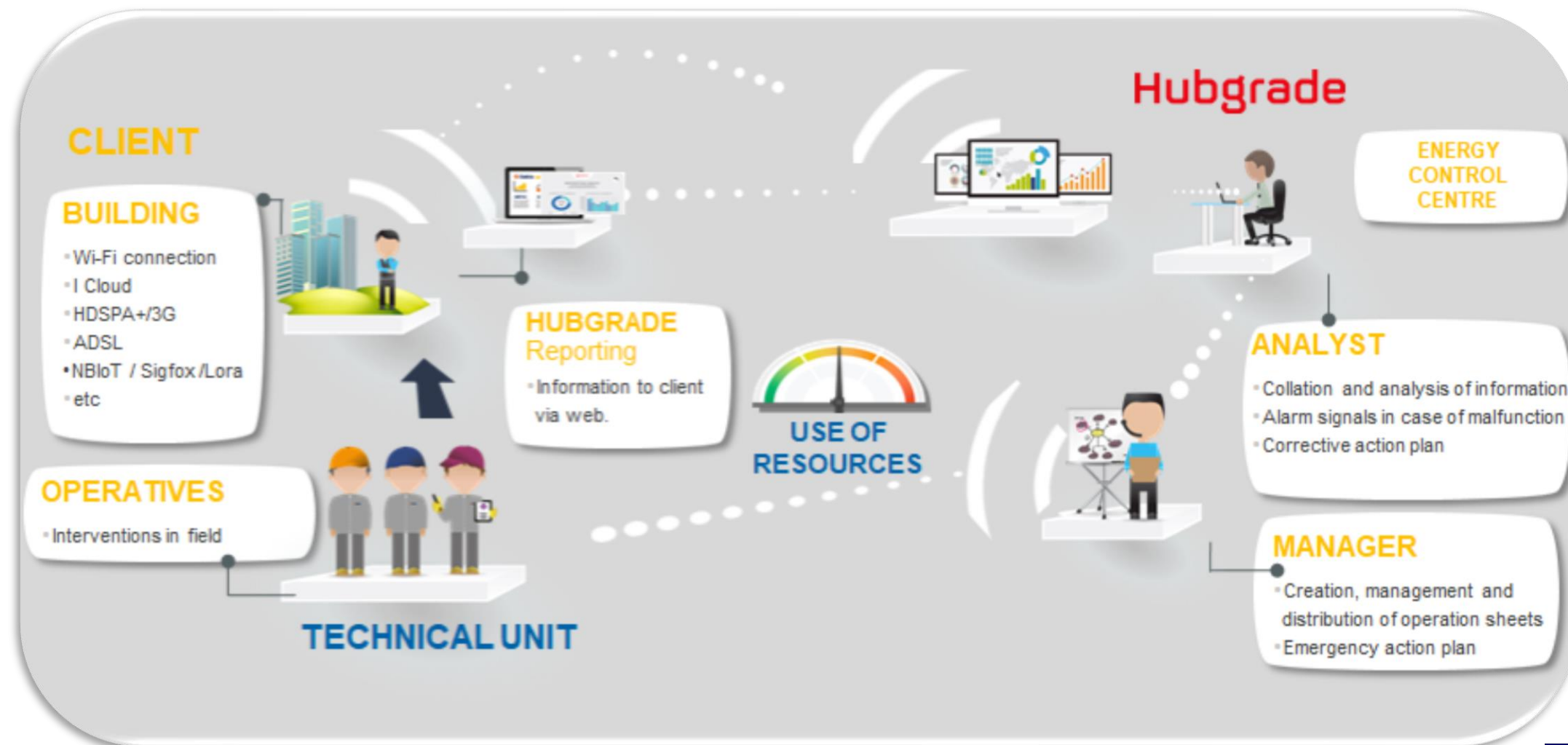
5 Integrated centres

Network of excellence made up of integrated centers which interact constantly.

4.5 M€ Invested

Our energy management software lets us anticipate any incident

HUBGRADE HOW DOES IT WORK?



MATRYCS solutions

1. Digital twin
2. Energy prediction
3. KPIs calculation
4. Optimization for the network operation
5. Energy Savings M&V towards improved Energy Performance Contracts

Expected outcomes

- Optimization of the management of the facility
- Simulation of the network operation
- Performance increase
- Energy & economic savings
- GHG emissions reduction
- Increased confort inside the building
- Accurate estimations of energy demand and consumption



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Thank you!

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