Final Dissemination Event

6 July 2023
Brussels, Belgium

RINA CSM was in charge of the project KPIs Monitoring activities

1. Definition of KPIs and validation of methodology for calculation

Following KPIs were defined for the monitoring of project outcomes

- Energy Renewable Production is the total quantity of energy produced. This KPI should provide an indication of the total Energy Consumption per year reduction due to the project. [MWh/year]

- CO2 emission saved from LHP and Gex [tCO2/year]

2. Design, implementation and on-line installation of the Web Monitoring Platform

Methodology for calculation of saved CO2

LHP → The CO2 emission saved from the production of ***thermal energy*** by the LHP is the CO2 generate by the production of the same amount of heat energy by means of fossil (natural gas methane) combustion

To calculate this KPI it is needed the emission factors for fuels related to net calorific value (NCV) from the official gazette of the European union. For the methane is 54.9 (tCO_2/TJ). Beside to calculate the amount of methane needed to produce the same quantity of heat we need also the yield of the hot water boiler with insulation that operate in the similar rage of temperature (70 → 90°C) that is of about 96.5%.

Gex → The CO2 emission saved from the production of ***electrical energy*** by Gex is the CO_2 generated for the production of the same amount of electricity produced by the national distribution network

To calculate this value it is necessary to know the "Greenhouse gas emission intensity of electricity generation". The value of the "GHG intensity" is available on the European Environment Agency website and for the Italy is 233 g CO_2e/kWh

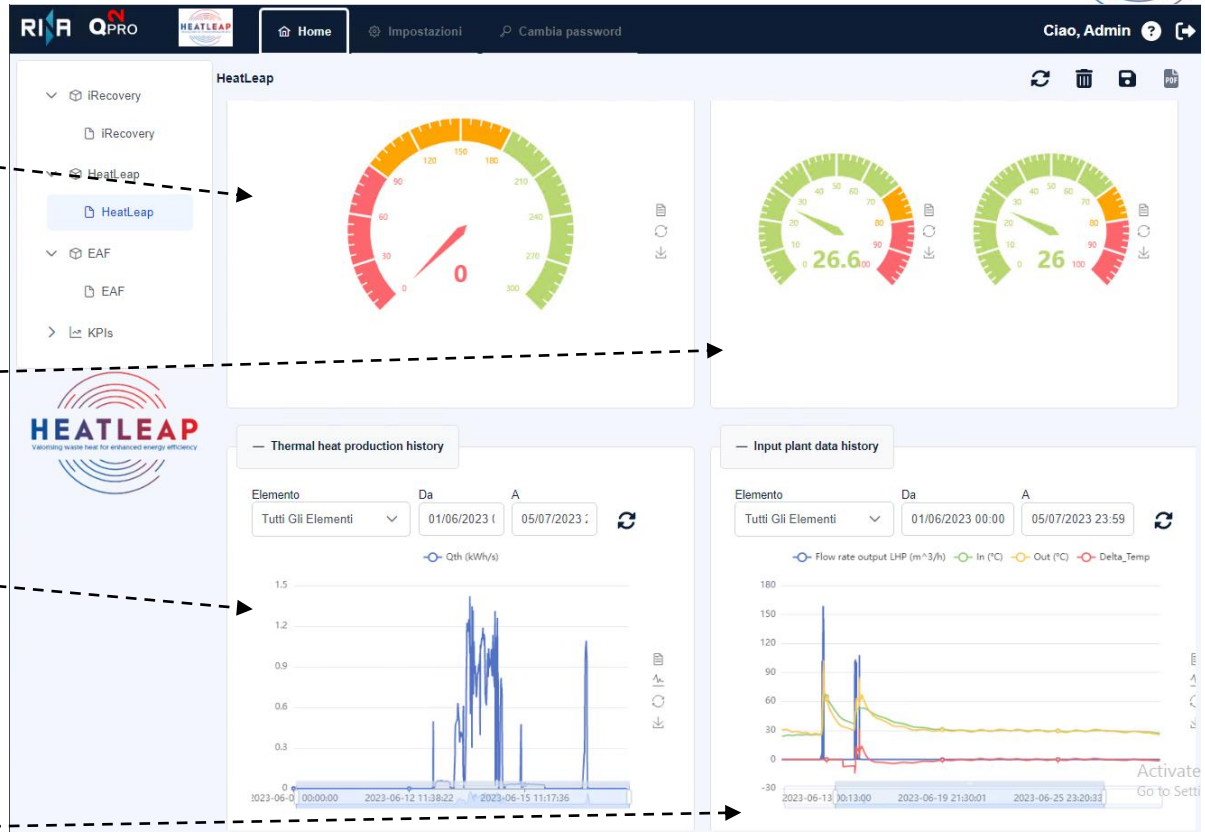
MONITORING WEB APPLICATION

Real Time Heat production [W]

Real Time In / Out Temperatures

History of Heat production

History of plant parameters



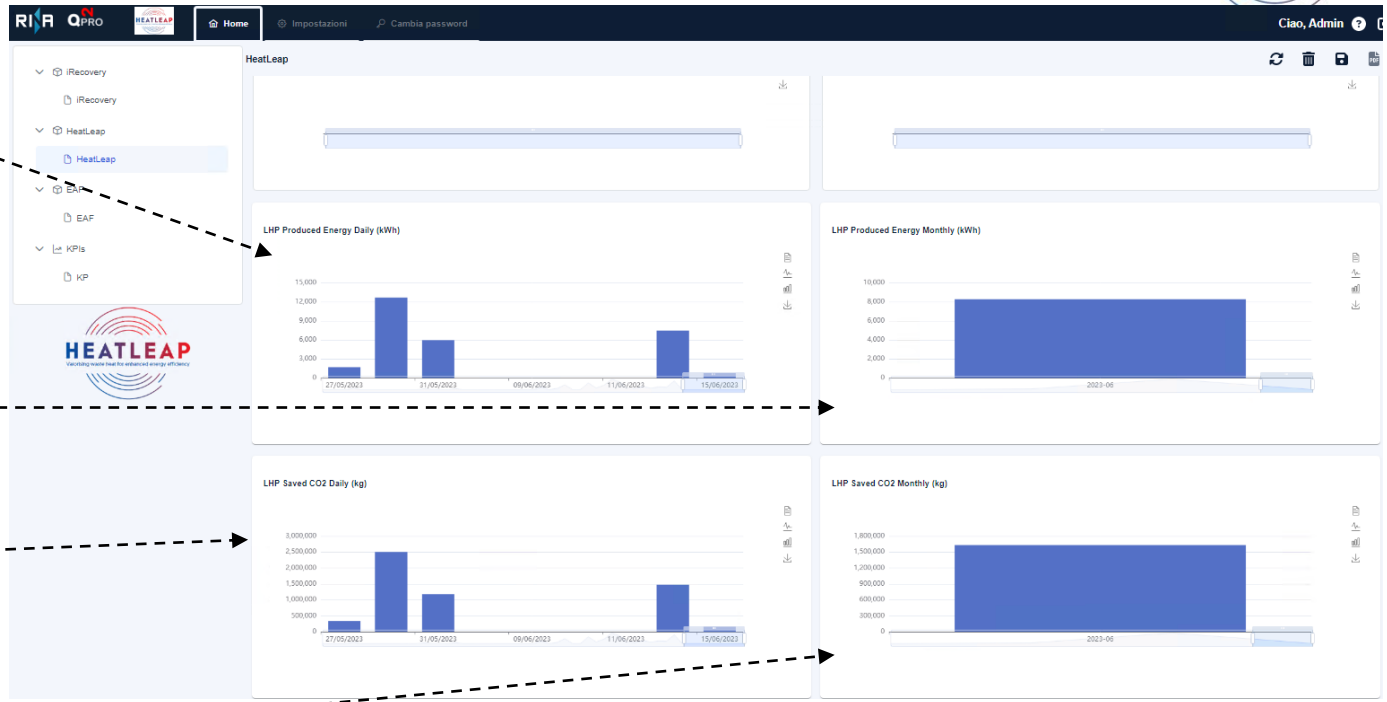
MONITORING WEB APPLICATION

Daily Heat production within the select period [kWh]

Monthly Heat production within the select period [kWh]

Daily Heat saved CO2 within the select period [kg]

Monthly Heat saved CO2 within the select period [kg]

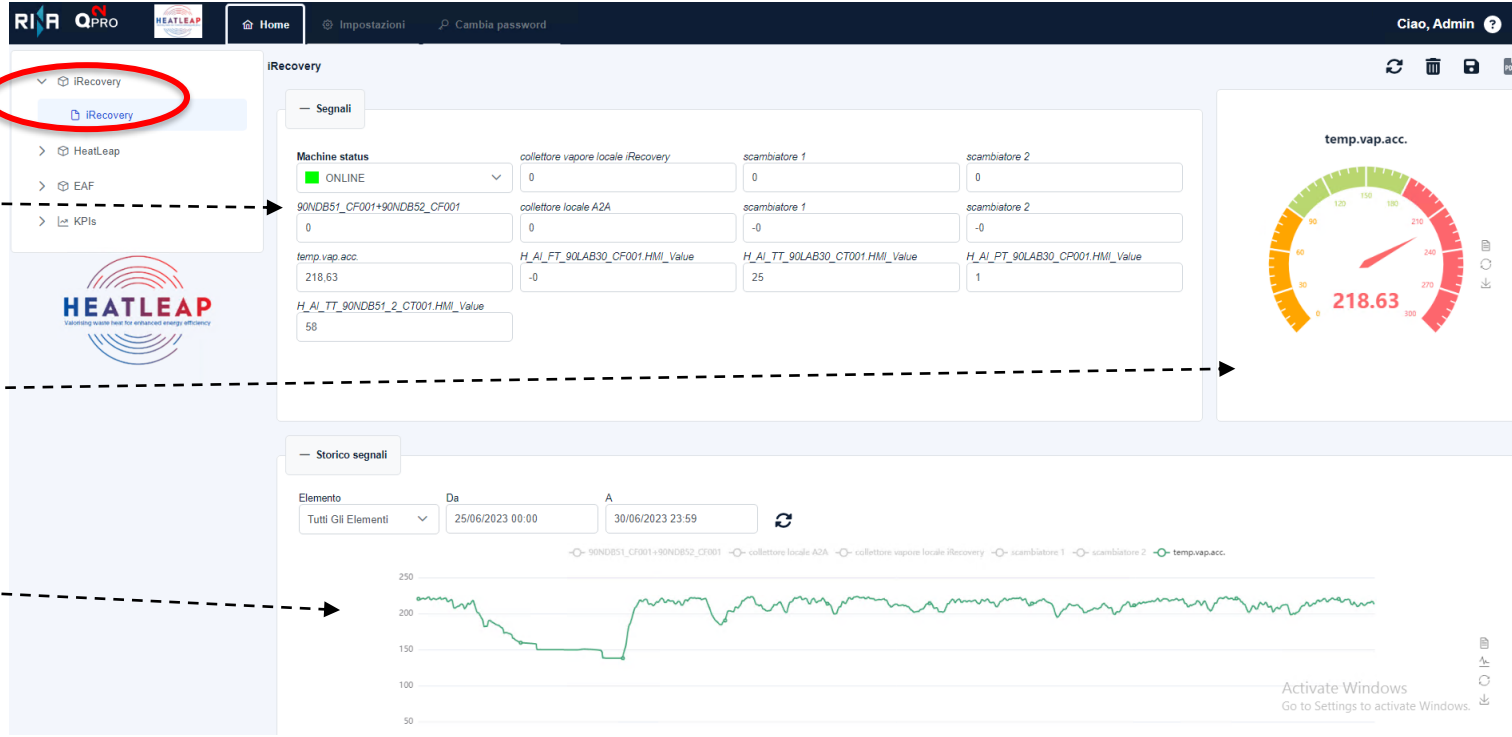


MONITORING WEB APPLICATION

Real time Data monitoring

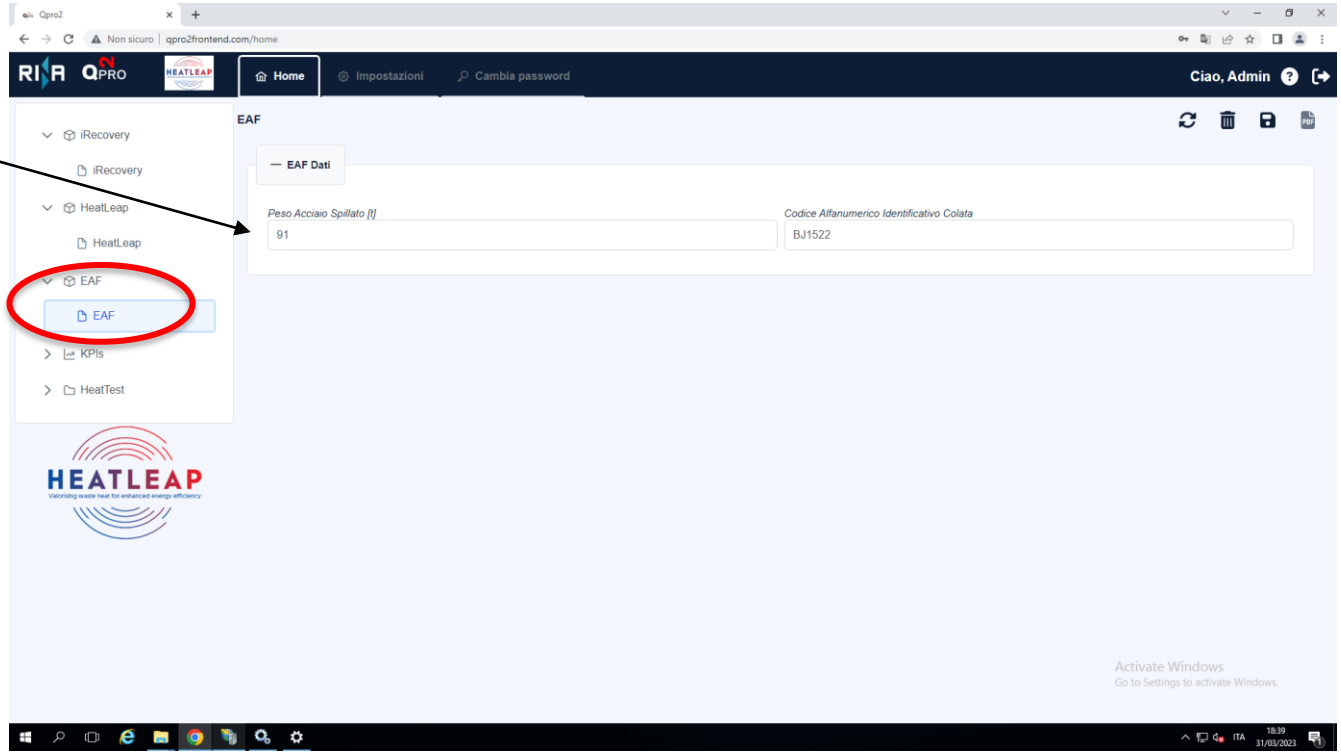
Tempertaure of heat recovered from EAF

Historic Data monitoring (Heat temperature)

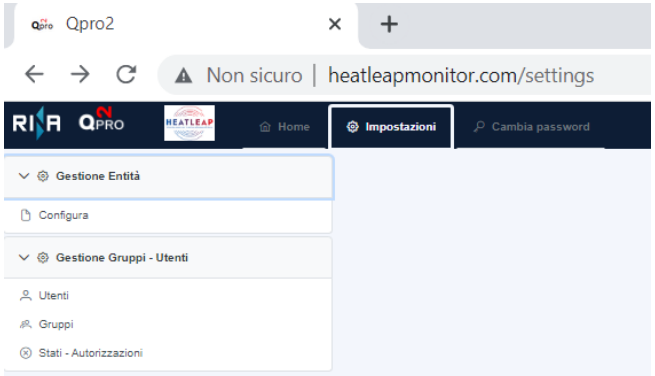


MONITORING WEB APPLICATION

EAF Last Heat Data monitoring

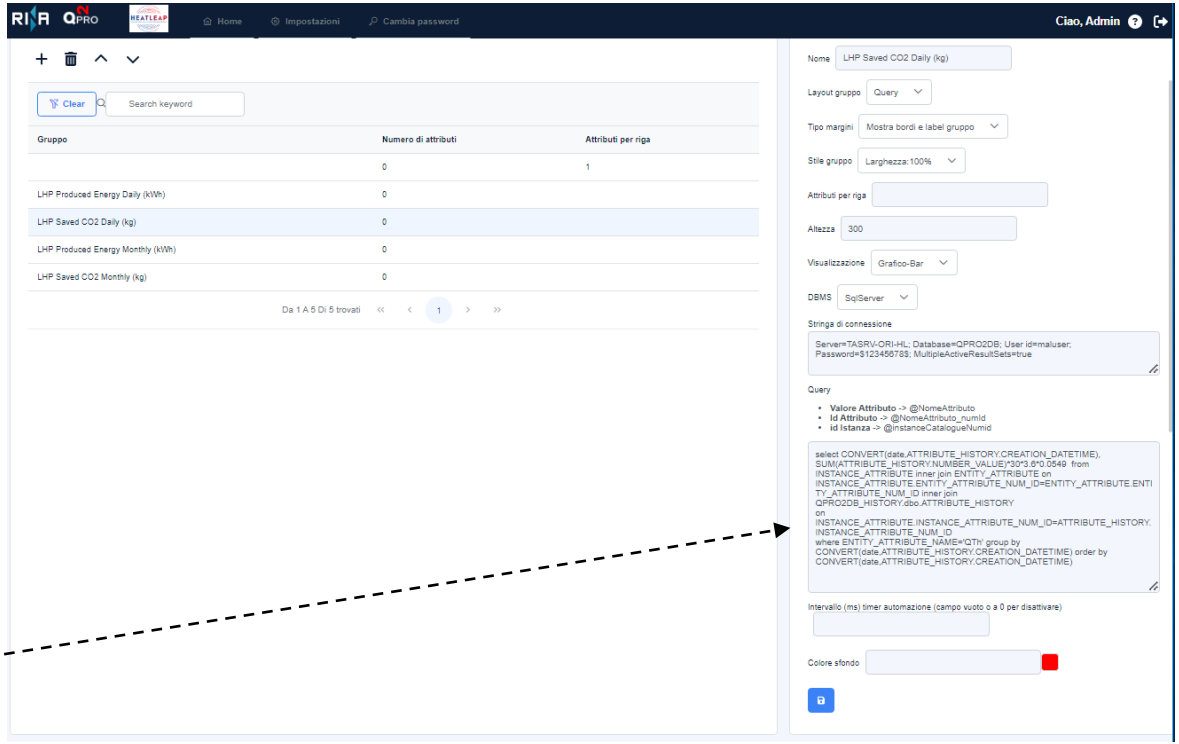


MONITORING WEB APPLICATION – Configuration



Configuration of application users and entities (Administrator)

KPI definition (Administrator)



Conclusions

The HeatLeap project has given RINA-CSM the opportunity to develop a flexible and configurable platform for monitoring environmental performance.

The platform allows to define KPIs directly from the user interface, view them in real time and log them in a database. This allows both the visualization of historical data and their subsequent processing, for example using data analysis algorithms (data mining)

It can be installed **on-premises** on the plant or in **cloud**, allowing it to be used “as-a-service” mode

Address One, Address Two, City, 12345 • info@heatleap.com

www.heatleap.com