



For an intelligent use of energy

IoT, Big Data, AI and Machine Learning for
Sustainable cities.
Case Study of Turin.

Isabel Tejero. SCEWC2019

Harnessing the power of AI and IoT

Sustainability



Less CO₂ emission in
the environment

-100 T CO₂

Carbon Emissions
(6.000 sqm retailer)

Comfort



Comfort and good
indoor air quality

> 90 %

Time in comfort
(± 2°C setpoint)

Efficiency

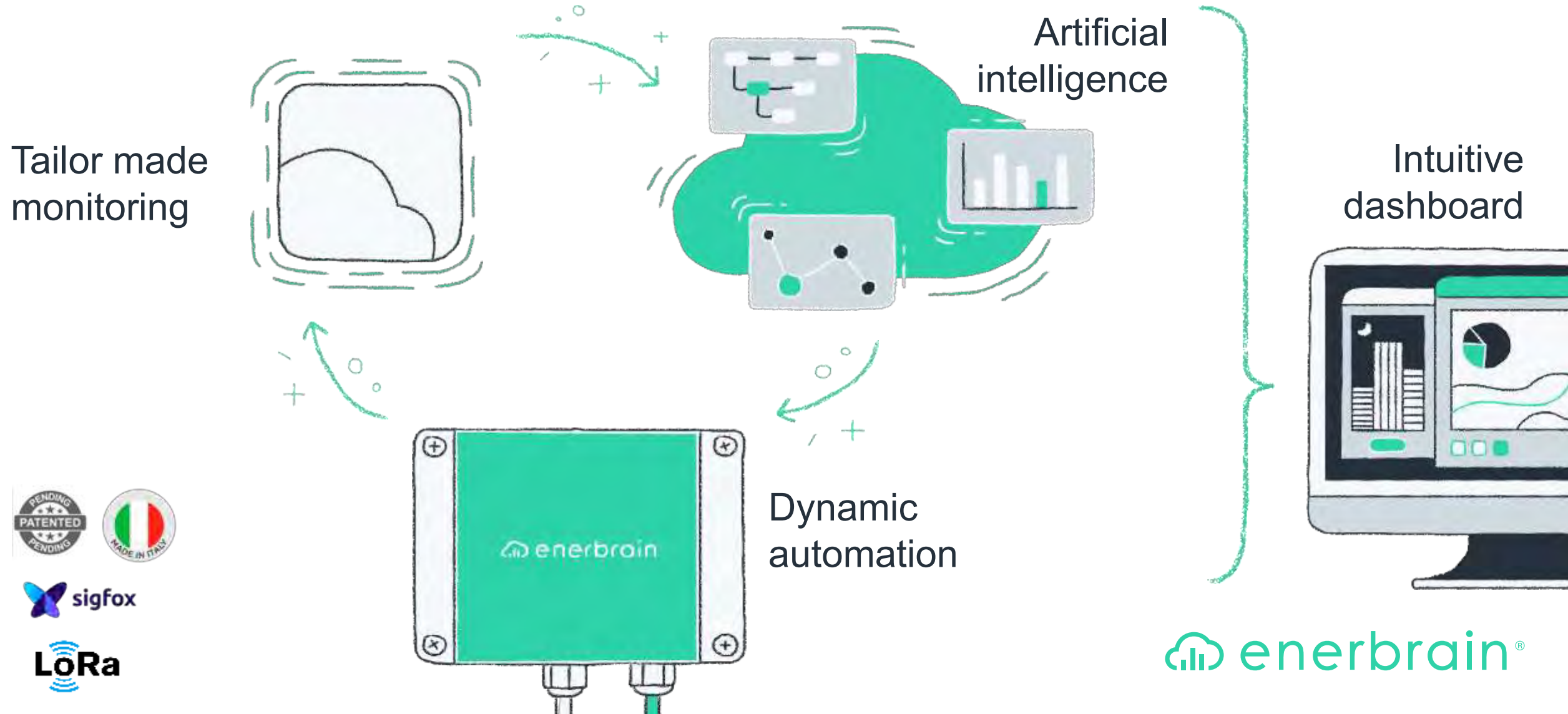


Reduced
operating costs

> 20 %

Energy saved

The “easy to play” solution for energy





Roll-out project for the buildings of the city of Turin

...for a social & environmental impact



.. like **doubling** the trees of the city of Turin.

The deal: revamping project with a boost

CITY OF TORINO
Owner of the buildings

Commissions a revamping project to replace old HVAC systems in 89 buildings and to manage them until 2026.

I REN
Utility Company

Wins a bid and makes capex investment to replace the systems. Revenues are performance based.

ENERBRAIN
Energy Efficiency
Solution provider

Signs a deal to implement its technology on top of the revamping project to further optimize performance.
+15% savings equals an extra IRR for Iren.

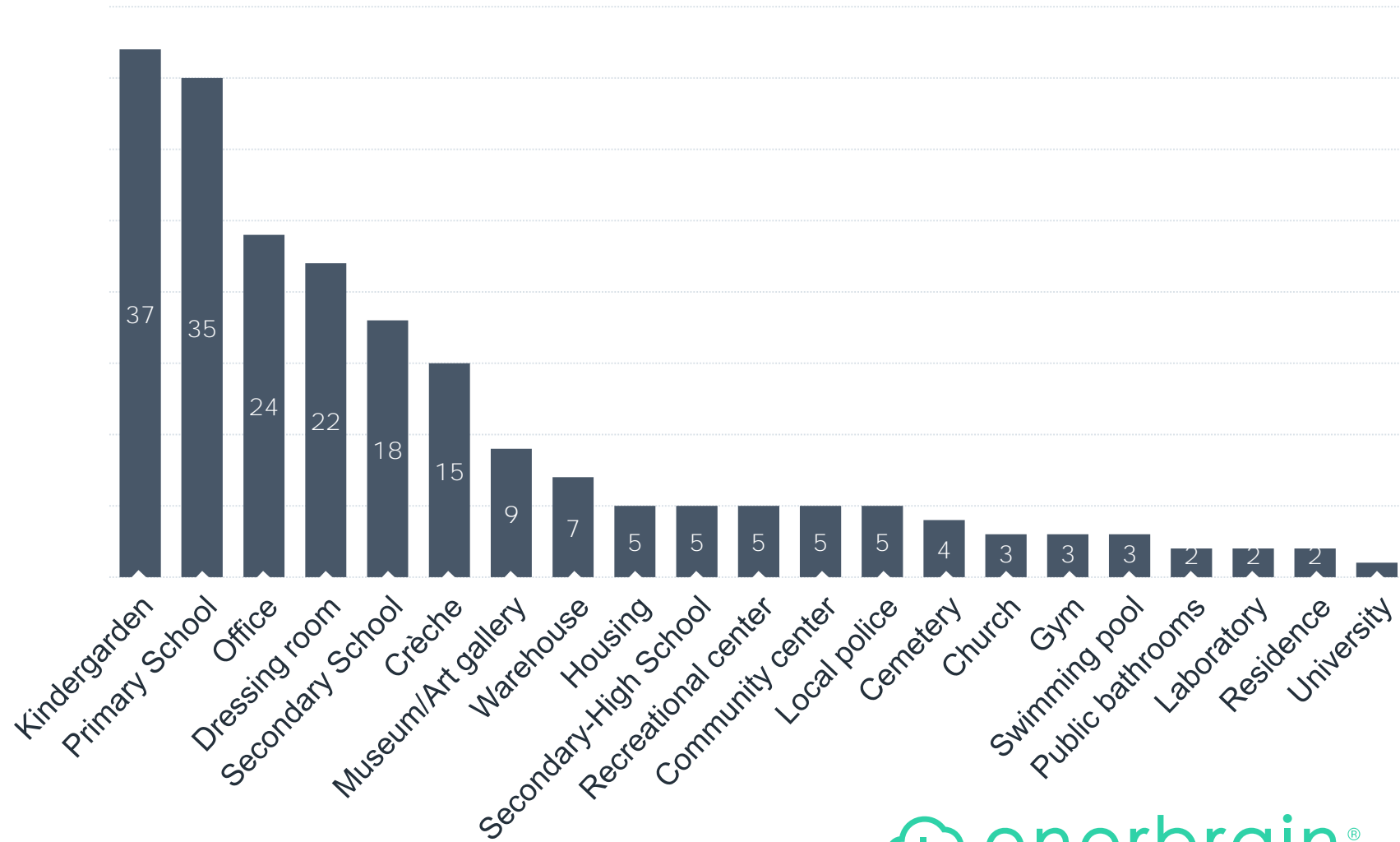
Customer's buildings portfolio

211
buildings

21
functions

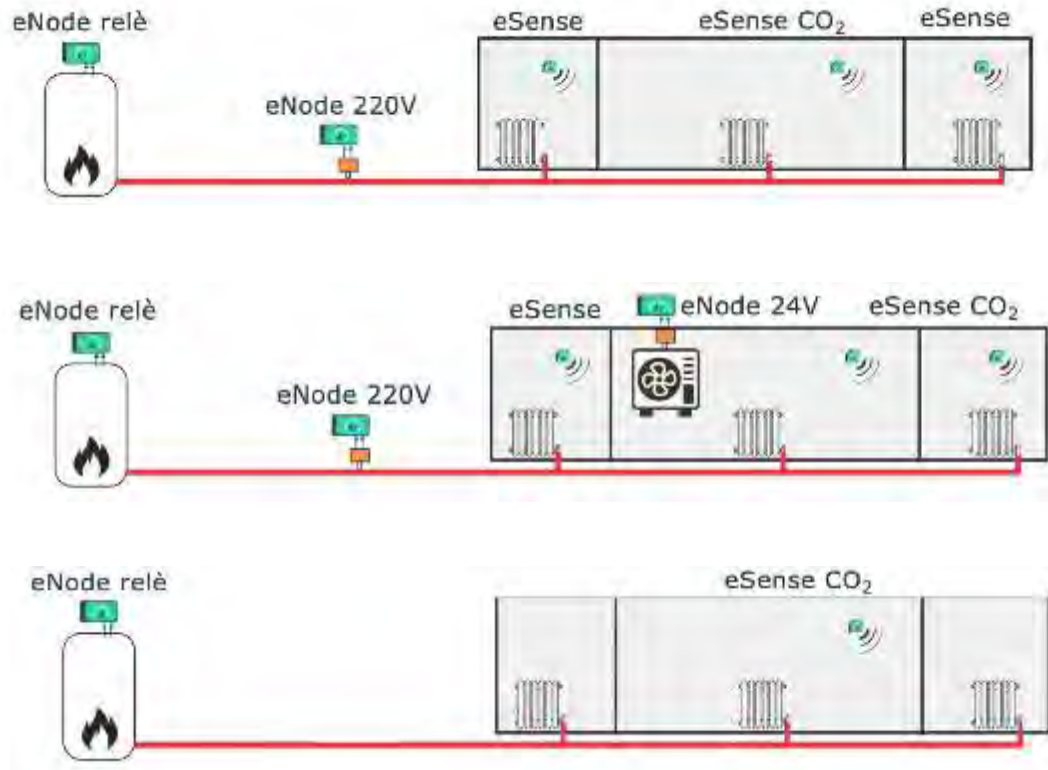
2.750.600 m³
total volume

172 MW
total installed power

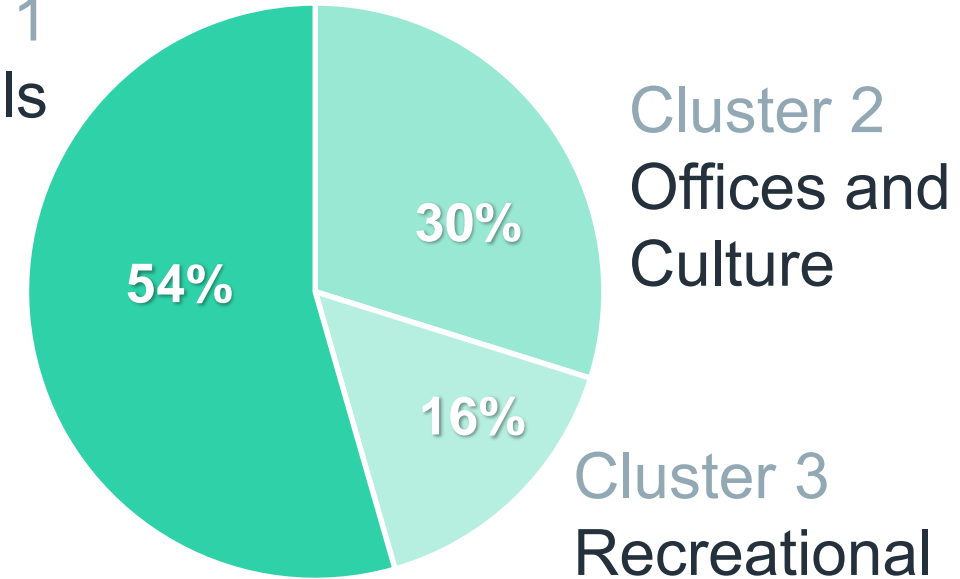


Studying customer's portfolio

- Different **installation kits** defined
- 3 **buildings clusters** identified

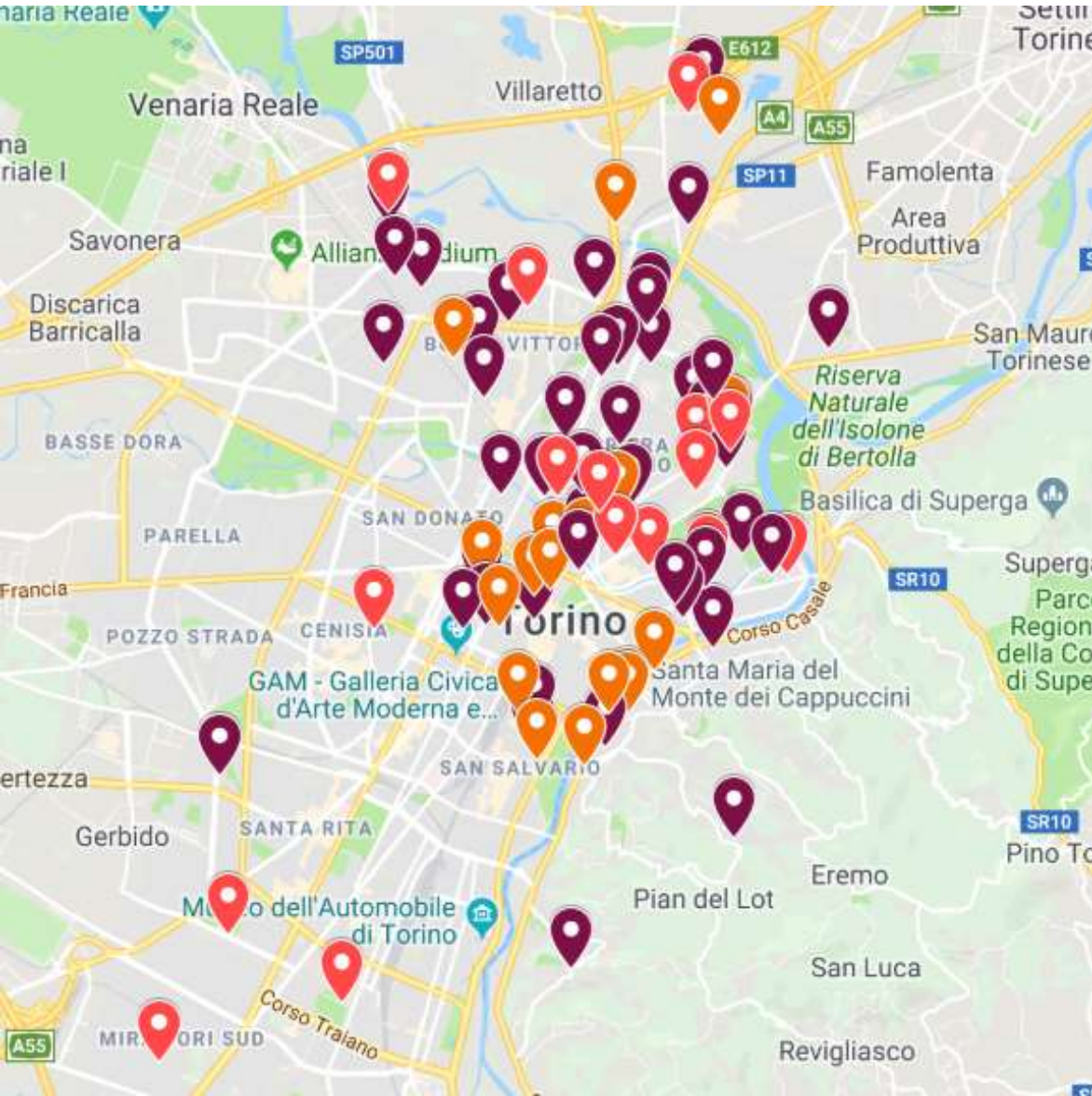


Cluster 1
Schools



NOTE: Not possible to develop tailored feasibility studies for each building, as the buildings object of the roll-out were not defined beforehand.

Selection of the buildings for the roll-out



89
buildings

-  Schools (52)
-  Offices & Culture (19)
-  Recreational (18)



Contractual target
15% savings

The Enerbrain roll-out



89 buildings

4 weeks installation period



Installation strategy

→ Zones of intervention

Buildings grouped by area and by complexity

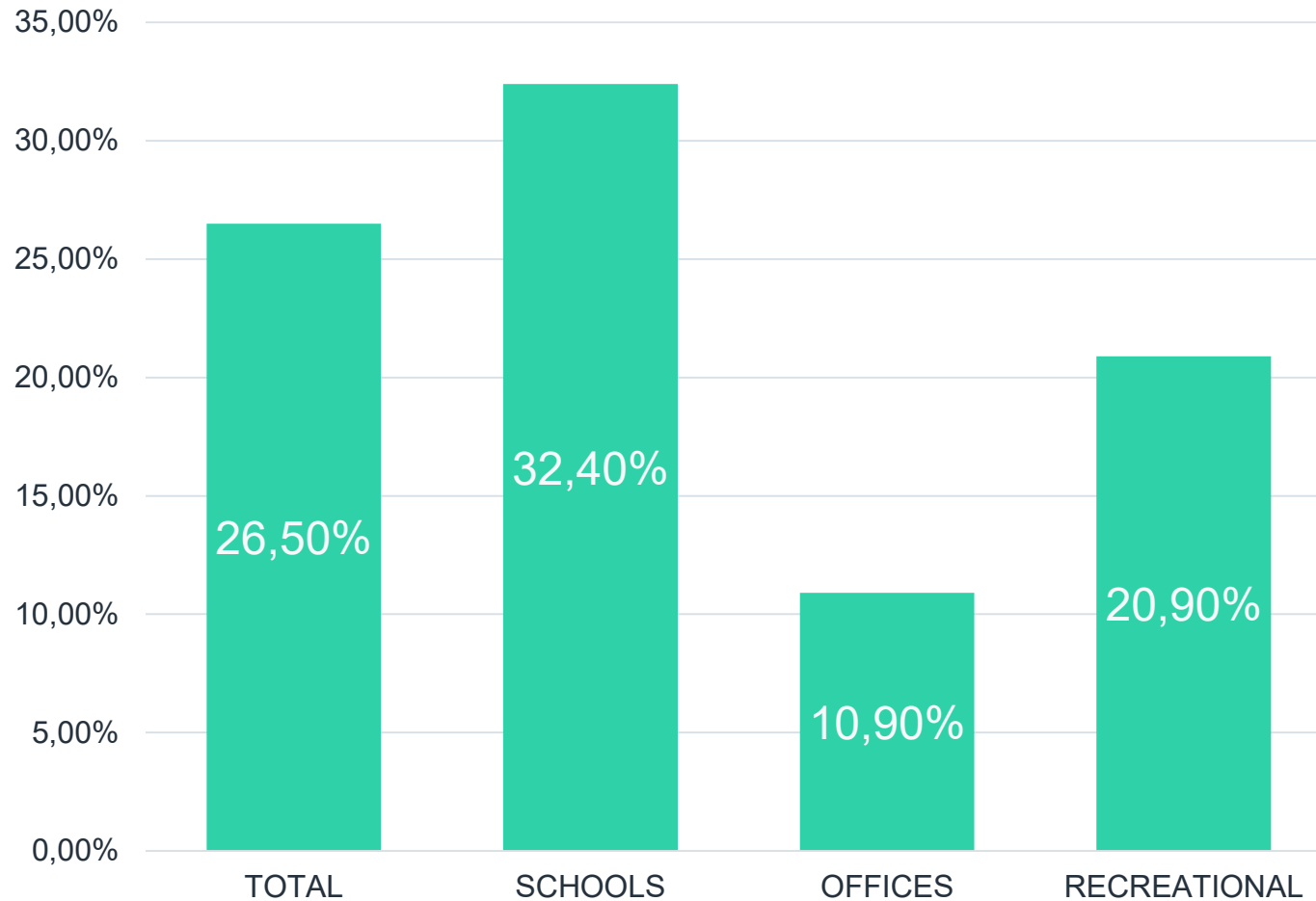


→ Installation teams

→ Buildings per day

Timeline shared with the Customer

Achieved savings (March-April 2019)



■ Savings by Enerbrain system

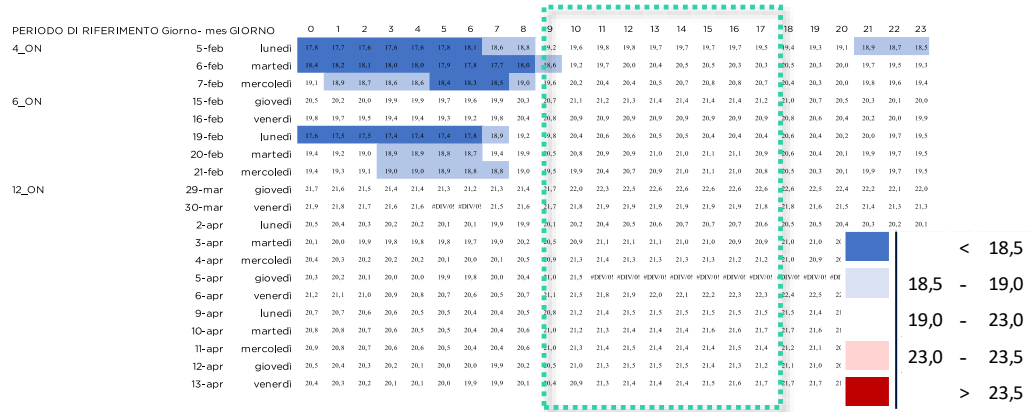


Savings by Enerbrain

Contractual savings: 15%

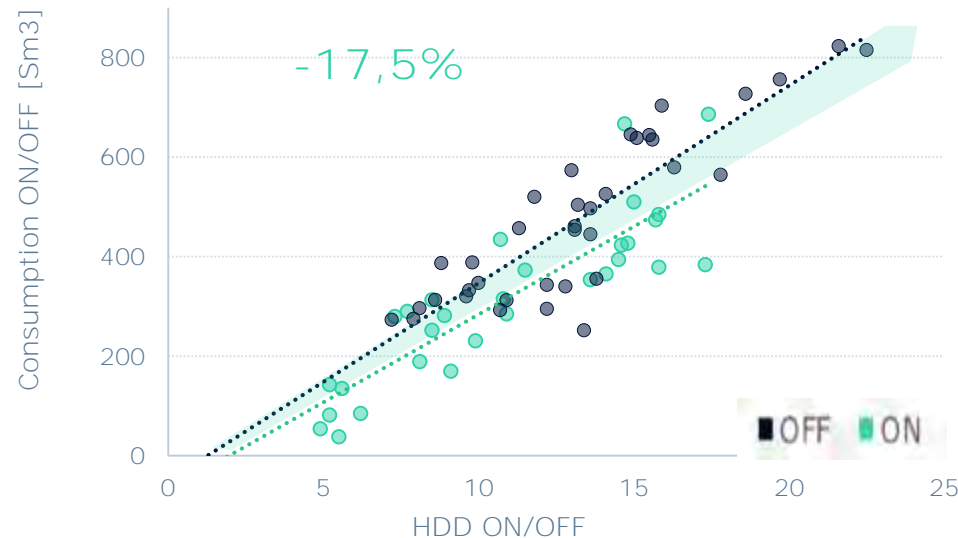
Actual savings: 26.5%

Utility Results validation



Temperature in the comfort range during occupation time

(White = comfort range)



Energy consumption reduction according with outside temperatures (Heating Degree Days)

This is an example of a project done with a large utility company

Achieved savings in figures (March-April 2019)



Average saving per building with Enerbrain	1.603 Scm
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Total energy use without Enerbrain	514.339 Scm
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Total energy use with Enerbrain	378.044 Scm
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	136.295 Scm
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Total savings with Enerbrain	1.491.673 kWh
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	313 tonCO ₂
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Next steps with the customer



- Validate the results in the heating season 2019-20
- New roll-out plans (end 2019)



For an intelligent use of energy



Best European Scaleup
European Institute of
technology



Gartner Cool Vendor
2017



Part of the Microsoft
AI for Earth green
program



Awarded by the European
Commission with a Seal
of Excellence

