

Summary Results/Indicators of Investment Plans carried out for the Municipalities of Borgofranco d'Ivrea, Bra, Chieri, Nichelino, Piosasco e Venaria in Italy

- **Pictures of concerned buildings**



- **General description of the pilot and its location**

The Investment Plan involves **20 public buildings belonging to 6 municipalities**, namely Borgofranco d'Ivrea, Bra, Chieri, Nichelino, Piosasco e Venaria. These Municipalities are settled in the province of Turin and Cuneo, in the middle-south part of the Piemonte Region, all within 60 km far from Turin.

Mainly buildings are schools (15 out of 20) the other are 4 sports buildings and 1 theatre. The buildings are distributed on the Piedmont territory as below:

Borgofranco d'Ivrea: 1 schools

Bra: 4 schools, 1 sports building

Chieri: 2 schools, 1 sports building

Nichelino: 1 school, 1 teatre

Piosasco: 3 schools

Venaria: 4 schools, 2 sports buildings

The overall heated surface of the building portfolio is nearly 36.441 sqm, with an heated volume of about 174.000 cubic metre and a baseline consumption of 317.326 Smc on Natural Gas, 2.579.345 kWh of thermal energy and 523.269 kWh of electricity.

About half of the buildings are supplied by gas (11 out of 20), the remaining 9 are provided with heat exchangers connected with the district heating.

The average shape form ratio is 0.52 and the average consumption is about 16.3 Smc/sqm in case of natural gas and 152 kwh/sqm in case of district heating, but the buildings are quite different from each other. The largest and the most energy intensive are the Di Vittorio and Lessona school in Venaria (30.036 cubic metre of heated volume and 78.148 Smc of natural gas).

For each building a detailed audit has been performed.

- **Responsible project partner details**

Organisation name	Fondazione Compagnia di San Paolo
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- **Summary/Results Indicators**

No. of Municipalities/Public Bodies involved	6 Municipality of Borgofranco d'Ivrea Municipality of Bra Municipality of Chieri Municipality of Nichelino Municipality of Piossasco Municipality of Venaria
No. of buildings (bundled EPC)	20
Total Investments needed (€)	6.006.785
Loan by the Public Body? If yes, amount (€)?	No

Available public funding/incentives considered (€)	The National incentive “Conto termico” 4.238.076 €
VAT (%)	22%
Energy vector included? If yes, related value (i.e. €/standard cube metre of methane gas and or €/kWhe)	No
O&M included? If yes, related value (€)	Yes 39.396 €/y
Typology of ECM- Energy Conservation Measures (description)	<p>A set of measures for each building such as:</p> <ul style="list-style-type: none"> ● change of heating system ● insulation of roofs ● insulation of envelopes ● insulation of ground floor ● Windows replacement ● PV system <p>The above list is only indicative and details are provided for each building in the audits. In any case the ESCO will provide its own solutions during the bid delivery.</p>
Energy saving (%)	<p>For each Municipality and energy curries a minimum energy saving target is fixed:</p> <ul style="list-style-type: none"> ● Borgofranco d’Ivrea 50% for thermal energy, 51,6% for electricity ● Bra 54,6% for thermal energy, 56,2% for electricity ● Chieri 45,9% for thermal energy, 50% for electricity ● Nichelino 53% for thermal energy, 37,2% for electricity ● Piosasco 63,5% for thermal energy, 52,6% for electricity ● Venaria

	<ul style="list-style-type: none"> ● 25,1% for thermal energy, 57,7% for electricity
<p>kWh ANTE and kWh POST implementation ECMs (not standard but resulting from the energy audits)</p>	<p>For each Municipality and energy curries an energy baseline is fixed:</p> <ul style="list-style-type: none"> ● for Borgofranco d'Ivrea: <p>ANTE: 15.026 Sm³ for thermal energy 11.140 kWh for electricity</p> <p>POST: 7.513 Sm³ for thermal energy, 5.392 kWh for electricity</p> ● for Bra: <p>ANTE: 16.518 Sm³ for thermal energy 413.035 kWh for thermal energy 75.247 kWh for electricity;</p> <p>POST: 6.623 Sm³ for thermal energy 196.077 kWh for thermal energy 171.797 kWh for electricity</p> ● for Chieri: <p>ANTE: 1.266.328 kWh for thermal energy 115.424 kWh for electricity</p> <p>POST: 685.083 kWh for thermal energy 57.712 kWh for electricity</p> ● for Nichelino: <p>ANTE: 81.758 Sm³ for thermal energy 84.181 kWh for electricity</p> <p>POST: 38.426 Sm³ for thermal energy 52.866 kWh for electricity</p> ● for Piosasco: <p>ANTE: 899.982 kWh for thermal energy 88.534 kWh for electricity</p> <p>POST:</p>

	<p>328.493 kWh for thermal energy 41.965 kWh for electricity</p> <ul style="list-style-type: none"> • for Venaria: <ul style="list-style-type: none"> ANTE: <ul style="list-style-type: none"> 204.024 Sm³ for thermal energy 148.743 kWh for electricity POST: <ul style="list-style-type: none"> 152.814 Sm³ for thermal energy 62.918 kWh for electricity
Avoided CO2 emissions (kgCO₂/y)	280.700