

WP3 – Summary Results/Indicators of Investment Plans carried out for the Municipalities of Borgomanero and Ghemme in Italy.

- **3 pictures of concerned buildings**



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

The Investment Plan involve 6 public buildings belonging to 2 municipalities, namely Ghemme and Borgomanero. Both Municipalities are settled in the province of Novara, in the East-North part of the Piemonte Region. One building, a large gym, is located in Borgomanero, whereas the resting 5 buildings (2 primary schools, one kindergarden, one gym and one office building) in Ghemme. The overall heated surface of the pool of the buildings is nearly 8.000 sqm, with an heated volume of about 50.000 cubic meter and a baseline consumption of 141.500 cubic meter of natural gas. The three schools in Ghemme are supplied with the same heating system. The average shape form ratio is 0.60 and the average consumptions is about 166 kwh/sqm, but the buildings are quite different each other. The largest and the most energy intensive is the gym in Borgomanero (17.000 cubic meter of heated volume and 225 kwh/sqm). For each building a detailed audit has been performed, including, for the Borgomanero’s gym also the indoor lighting. By consequence, 33 MWh of electricity have been included in the baseline.

- **Responsible project partner details**

Organisation name	Piemonte Region Environment Park
Name of the STEPPING referent	Silvio De Nigris

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- **Summary/Results Indicators**

No. of Municipalities/Public Bodies involved	2 Municipality of Ghemme Municipality of Borgomanero
No. of buildings (bundled EPC)	6
Heating Degree Days	2.227
Heated volume (m3)	49.613
Usable area (m2)	7.913
Total Investments needed (€)	450.000*
Loan by the Public Body? If yes, amount (€)?	No
Available public funding/incentives considered (€)	The National incentive “Conto termico” 140.000
VAT (%)	22%
Energy vector included? If yes, related value (i.e. €/standard cube metre of methane gas and or €/kWhe)	Yes. 0.1731 €/kWh for electricity 0.5756 €/Sm3 for natural gas
O&M included? If yes, related value (€)	Yes

	4.000 €/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 ● change of indoor light ● energy management system <p>The above list is only indicative and details are provided for each building in the audits. In any case it is the ESCO that is asked to 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"> ● for Borgomanero: 56.2% for natural gas, 47.0% for electricity)*; ● for Ghemme: 35.6% for natural gas*.
kWh ANTE and kWh POST implementation ECMs (not standard but resulting from the energy audits)	<p>For each Municipality and energy curries an energy baseline is fixed:</p>

	<ul style="list-style-type: none"> ● for Borgomanero: ANTE: 42.683 Sm³ for natural gas, 32.965 kWh for electricity); POST: 18.695 Sm³ for natural gas, 17.471 kWh for electricity ● for Ghemme: ANTE: 98.877 Sm³ for natural gas. POST: 63.677 Sm³ for natural gas
Avoided CO2 emissions (kgCO2/y)	140.307*

*the data is the minimum possible.