

## WP3 – Summary Results/Indicators of Investment Plans carried out for INRiM Italy's national metrology institute.

- **3 pictures of concerned buildings**



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

The Investment Plan involve 7 public buildings belonging to the Italy's national metrology institute, namely INRiM. The research centre is settled in Torino, in the West-North part of the Piemonte Region. All buildings are used as office and labs. The overall heated surface of the pool of the buildings is nearly 17.804 sqm, with an heated volume of about 91.748 cubic meter and a baseline consumption of 472.217 cubic meter of natural gas. All buildings are supplied with the same heating system. The average shape form ratio is 0.36 and the primary energy consumptions average is about 290 kwh/sqm, but the buildings are quite different each other. The largest is the Buildings B (20.322 cubic meter of heated volume and 163 kwh/sqm primary energy consumption for heating) while the most energy intensive is the Buildings QR (2.734 cubic meter of heated volume and 305 kwh/sqm for heating). For each building a detailed audit has been performed, including, also the indoor electricity consumption and the street lighting. By consequence, 4.302 MWh of electricity have been included in the baseline.

- **Responsible project partner details**

Organisation name	Piemonte Region Environment Park
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● **Summary/Results Indicators**

<b>No. of Municipalities/Public Bodies involved</b>	1 INRiM national metrology institute
<b>No. of buildings (bundled EPC)</b>	8
<b>Heating Degree Days</b>	2.434
<b>Heated volume (m3)</b>	91.755
<b>Usable area (m2)</b>	18.805
<b>Total Investments needed (€)</b>	1.631.712*
<b>Loan by the Public Body? If yes, amount (€)?</b>	No
<b>Available public funding/incentives considered (€)</b>	The National incentive “Conto termico” 231.500
<b>VAT (%)</b>	22%
<b>Energy vector included? If yes, related value (i.e. €/standard cube metre of methane gas and or €/kWhe)</b>	No.
<b>O&amp;M included? If yes, related value (€)</b>	Yes 21.500 €/y
<b>Typology of ECM- Energy Conservation Measures (description)</b>	A set of measures for each building such as: <ul style="list-style-type: none"> <li>● insulation of roofs</li> <li>● insulation of envelopes</li> <li>● change of windows</li> </ul>

	<ul style="list-style-type: none"> <li>● change of indoor light</li> <li>● change of externa light</li> <li>● FV plant</li> </ul> <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>
<b>Energy saving (%)</b>	<p>For each energy carries a minimum energy saving target is fixed:</p> <ul style="list-style-type: none"> <li>● 16.8% for natural gas,</li> <li>● 13,4% for electricity*;</li> </ul>
<b>kWh ANTE and kWh POST implementation ECMs (not standard but resulting from the energy audits)</b>	<p>For each energy carries an energy baseline is fixed:</p> <ul style="list-style-type: none"> <li>● ANTE: 472.217 Sm<sup>3</sup> for natural gas, 4.302.350 kWh for electricity;</li> <li>● POST: 391.188 Sm<sup>3</sup> for natural gas, 3.727.609 kWh for electricity</li> </ul>
<b>Avoided CO2 emissions (kgCO<sub>2</sub>/y)</b>	263.960*

\*the data is the minimum possible.