The study of SEED MICAT at regional and local level

FVG and CMM Showcases Analysys

SEED MICAT
Support Energy Efficiency Deployment with the Multiple Impacts CAlculation Tool

INTRO

To test MICATool at the regional and local levels, the energy policies of two Italian public bodies with different territorial jurisdictions were examined: the regional energy plan of the Friuli Venezia Giulia region and the One Stop Shop of the Metropolitan City of Milan, DeciWatt. The results serve as a basis for key learnings and policy recommendations aimed at simplifying the implementation of the "EE1st" principle in regional and local planning.
FVG: The first scenario involves replacing obsolete gas boilers with heat pumps in public buildings, (includingschools, town halls, and sports facilities). **(action 07.2.)** in the Friuli-Venezia Giulia PER (regional energy plan). The second scenario examines **Action 07.1**, which involves the energy retrofitting of private buildings to improve their overall energy performance and reduce energy consumption.
CMM: Two energy efficiency case studies were developed for the Metropolitan City of Milan, focusing on building retrofitting measures and the replacement of conventional boilers with hydronic heat pumps. The analyses, projected to 2030, estimate significant energy savings and associated economic and environmental benefits for approximately 16,600 dwellings. The case studies were conducted using the **DeciWatt** platform, which integrates building and energy databases, and the **VENICE** tool, developed by ENEA, to evaluate the impacts of energy renovation measures on different building categories.

RESULTS

KEY Findings: FVG

Impact area	Most effective measure	Main evidence
Social impacts	**Measure 07.1**	Significant reduction in energy poverty, lower excess winter mortality, and improved well-being of vulnerable households.
Economic impacts	**Measure 07.1**	Approximately €12.5 million added to regional GDP and 239 FTE-years of employment generated by 2030
Environmental impacts	**Measure 07.2**	Higher energy savings and a larger reduction in natural gas consumption.
Public health	**Measure 07.2**	Greater reduction in mortality, hospital admissions, and absenteeism associated with air pollution.

KEY Findings: CMM

Impact area	Most effective measure	Main evidence
Energy savings	**Measure 2**	Nearly 16 times more energy savings than the heat pump scenario.
Economic impacts	**Measure 2**	Almost €400,000 added to GDP and a substantially higher increase in property value.
Environmental impacts	**Measure 2**	Approximately double the monetized benefits from GHG reductions and larger primary energy savings.
Heating system decarbonisation	**Measure 1**	Directly supports electrification by replacing fossil-fuel boilers with heat pumps.

CONCLUSIONS

The analysis highlights the importance of assessing Multiple Impacts (MIs) when evaluating energy efficiency measures. In both Friuli Venezia Giulia and the Metropolitan City of Milan, building envelope renovation emerged as the most effective measure, delivering the highest energy savings, economic benefits, and reductions in energy poverty and greenhouse gas emissions. Heat pump deployment proved complementary, providing significant environmental and health benefits through reduced fossil fuel consumption. Overall, the results confirm the value of the Energy Efficiency First (EE1st) principle in supporting sustainable regional and local energy planning.

LESSONS LEARNED/ ACHIEVEMENTS

Key Strengths of the MICATool
Multidimensional Evaluation: Beyond tracking kilowatt-hours saved, it quantifies ancillary impacts such as reduced energy poverty, improvements in public health, job creation, and macroeconomic growth.
Speed and Flexibility: Its modular design enables analysts to rapidly test "what-if" scenarios, adjusting parameters to reflect regional or national specificities without requiring exhaustive computation time.
Policy Alignment: By translating complex data into transparent, comparable metrics, it directly supports the Energy Efficiency First (EE1st) principle, ensuring that demand-side resources are properly weighed against traditional supply-side investments.

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