european council for an energy efficient economy

The EED recast in practice: costs and impacts on the heating and cooling sectors – case study from Croatia

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The EU's building stock represents the highest single energy consumer and emitter of Greenhouse Gas Emissions. It is therefore the sector with the highest impact on the achievement of Europe's overall energy and climate targets. Considering that the majority of the buildings' energy demand, and the associated emissions, are linked to space heating and cooling and domestic hot water, the decarbonisation of the heating and cooling systems are a clear priority. The new Energy Efficiency Directive (2023) has introduced clear targets for heating and cooling, including a set of obligations for Member States. This research provides a method to assess the impacts of the EED and similar legislations on the actual emissions reductions, as well as costs and energy savings under different policy scenarios. The approach combines aggregated and spatial assessments of energy demand and a modelling framework for the supply side assessment and is implemented for the Republic of Croatia as a case study. A reference 2023 and 6 alternative scenarios for 2030 have been developed, based on the obligations proposed in the EED and two more ambitious scenarios (33% and 50% increase in targets) as well as alternatives with a higher share of district heating for each of the three 2030 scenarios. Figure 1 presents the total system costs while Figure 2 presents the total primary energy supply of the reference and 6 alternative scenarios.

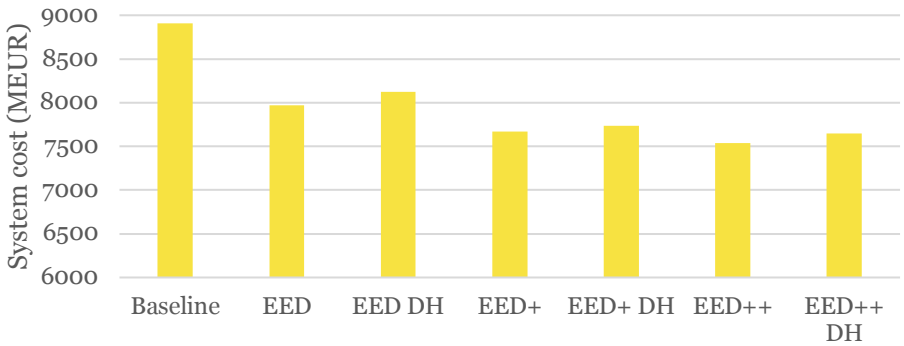

Figure 1. Total system costs.

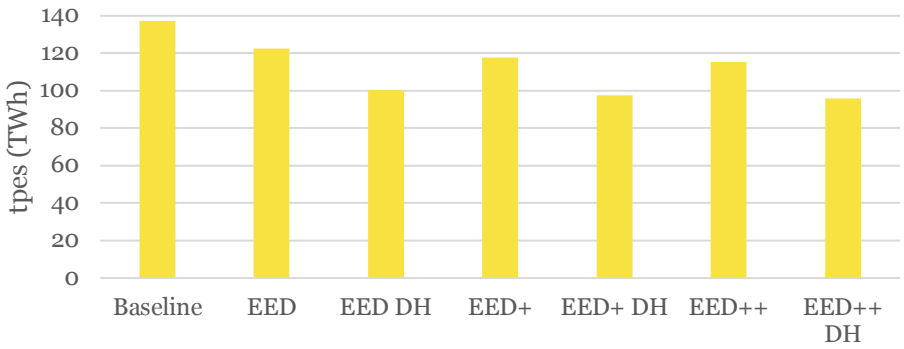

Figure 2. Total primary energy supply.

This abstract concludes that investments in energy efficiency in line with the EED can lead to significant reductions in the primary energy needs and linked to that, a significant reduction of the Greenhouse Gas Emissions. The research additionally shows that these investments can also greatly reduce the total systems costs, even when the high investment costs associated with a mass refurbishment efforts are considered. The research also shows that going beyond the ambitions foreseen in the EED can result in even better outcomes, resulting in even greater savings and costs reduction across the board.

Acknowledgement

The work on this research has been founded from LIFE23-CET-ESCALATE/101167599.