

# Energy efficiency in public buildings potential and costs | challenges and opportunities

*Within “Support for Low-Emission Development in South East Europe (SLED project)”*

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# Why buildings in Albania?

- ▶ **Albania develops rapidly**
  - ▶ Need for secure, affordable and sustainable energy supply
  - ▶ Need to use these limited resources wisely
- ▶ **Energy demand in buildings is a challenge**
  - ▶ 34% of final energy consumption
  - ▶ 73% of electricity available for final energy consumption
- ▶ **Contracting Member of the Energy Community Treaty**
  - ▶ Achieving targets requires very ambitious policy efforts, and
  - ▶ Larger investment into demand-side energy efficiency

# The present and the future

- ▶ **Present patterns of public buildings**
  - ▶ Only a part of the used floor area is heated
  - ▶ This floor area is heated for a few hours a day only
  - ▶ Many public buildings do not have sanitary hot water
  
- ▶ **The future will see an increased comfort and... higher energy consumption**
  - ▶ Larger floor area is heated for longer hours
  - ▶ Space cooling is desired
  - ▶ Hot water is available in all buildings

# Albanian public buildings

- ▶ 6.6 million m<sup>2</sup>
- ▶ 75% educational, 13% offices, 11% hospitals
- ▶ Coast 57%, mountains 17%, moderate zone 25%



**Dormitories**



**Hospitals**



**Kindergartens**



**Public offices**

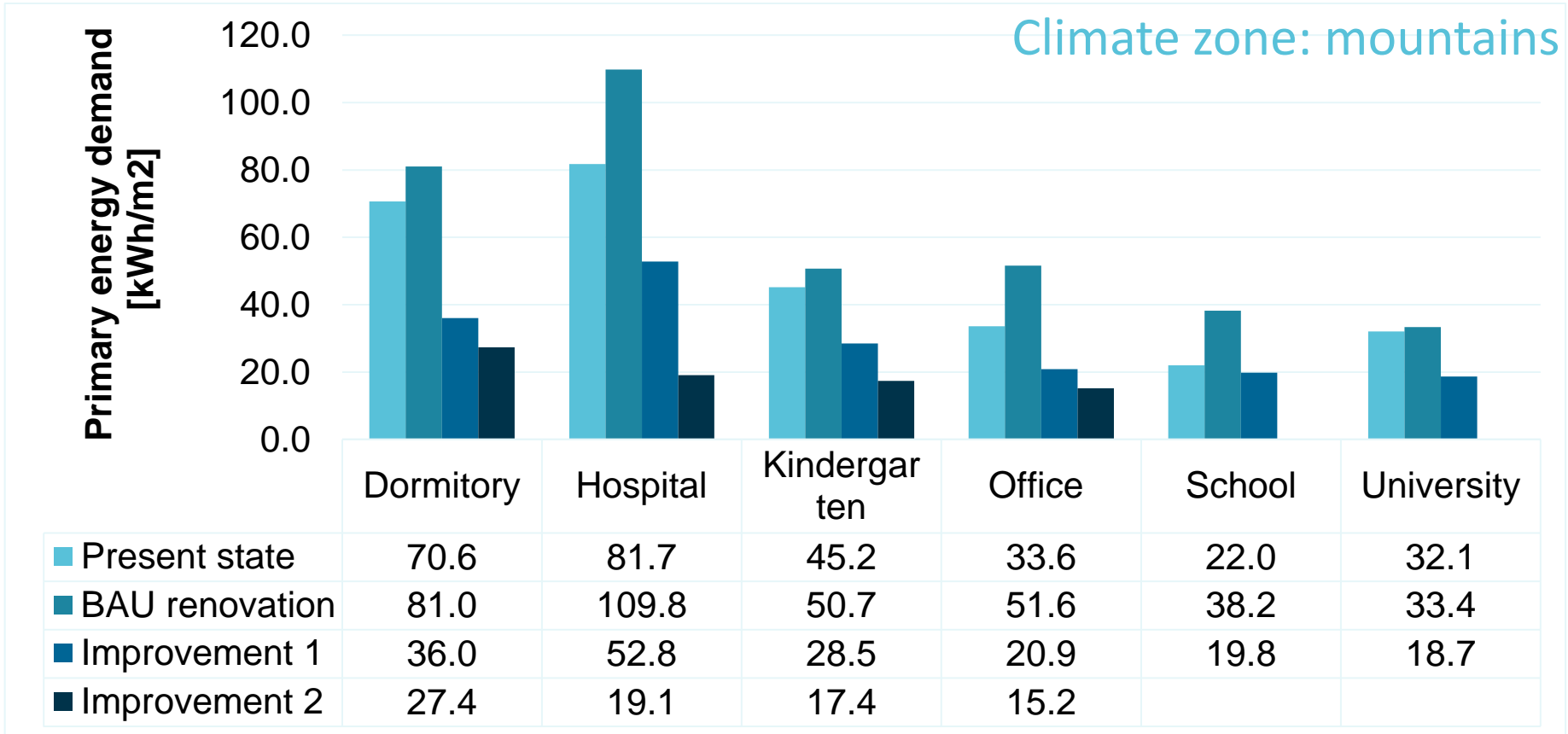


**Schools**

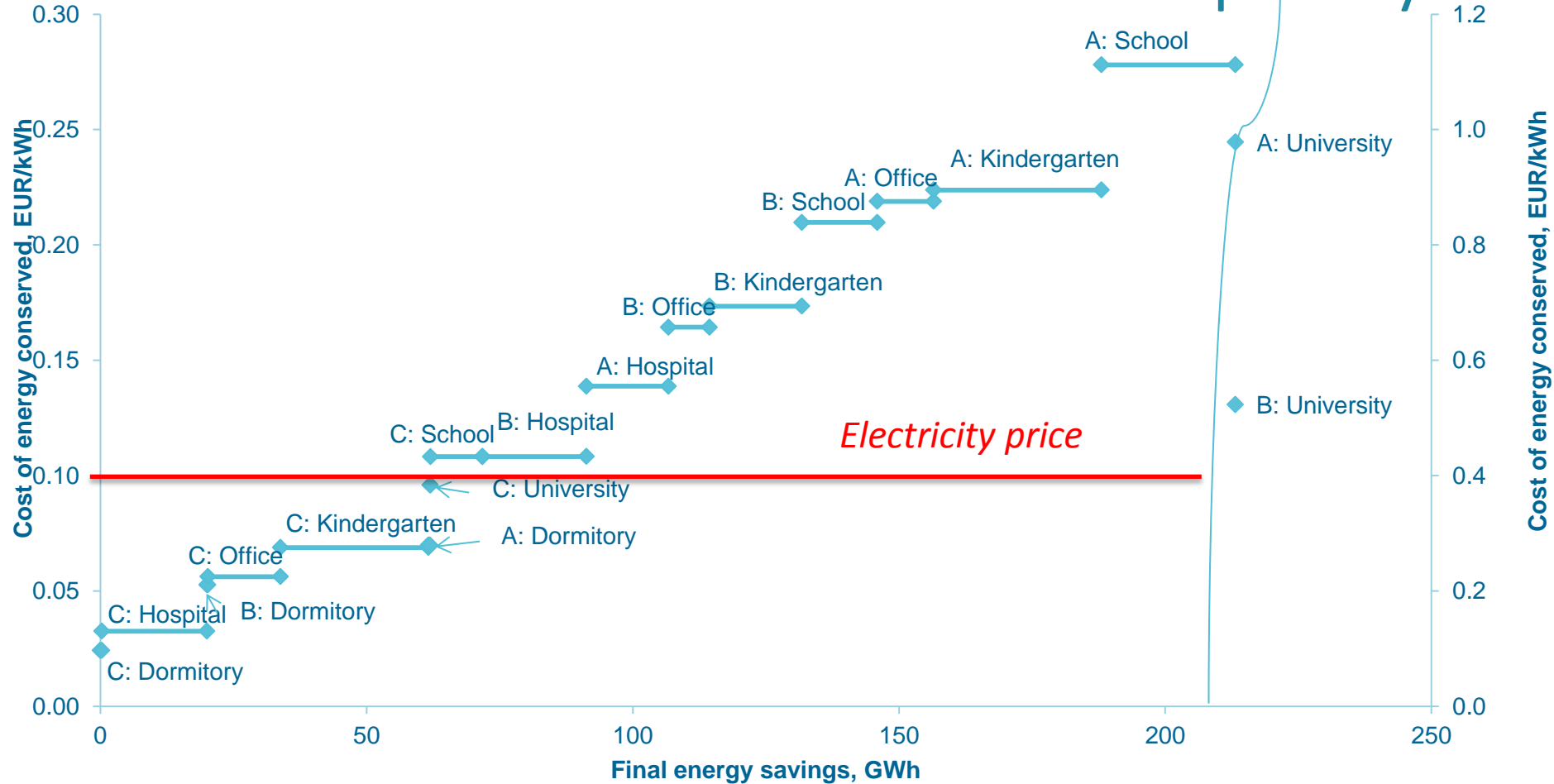


**Universities**

# The only way to hurdle the BAU change is to retrofit



# Retrofits in the cold climate are the priority



# EE pays back especially through other co-benefits

- ▶ **Investment need is EUR 0.5 billion**
- ▶ **Saved energy costs are EUR 0.5 billion over measure lifetime**
- ▶ **Monetized co-benefits are > EUR 0.5 billion i.e. higher than saved energy costs even though only a few were quantified**
  - ▶ GDP increase, labour income, air quality, CO2 avoided, improved comfort
  - ▶ On the top, ca. 75 thousand job places could be created

# Thank you!

- ▶ **Reports are available**

- ▶ <http://sled.rec.org/building.html>

- ▶ **Models are available on request**

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- ▶ **International experts**

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- ▶ **Albania**

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# Results: details

- ▶ **Investment need is EUR 500 million**
  - ▶ The highest investment on the national scale are required by kindergartens and schools followed by offices and hospitals.
  - ▶ If classified by climate zone, the largest investment is required in zone A.
- ▶ **Energy cost savings are EUR 29 million/yr. or EUR 502 million over measure lifetime.**
  - ▶ Almost 45% of it is in the zone A due to its large number of buildings.
  - ▶ Saved energy costs per m<sup>2</sup> in the climate zone C are more than twice higher than those in the zone A and 65% higher than in the zone B.
  - ▶ The highest energy cost savings per m<sup>2</sup> are offered by dormitories and hospitals.