

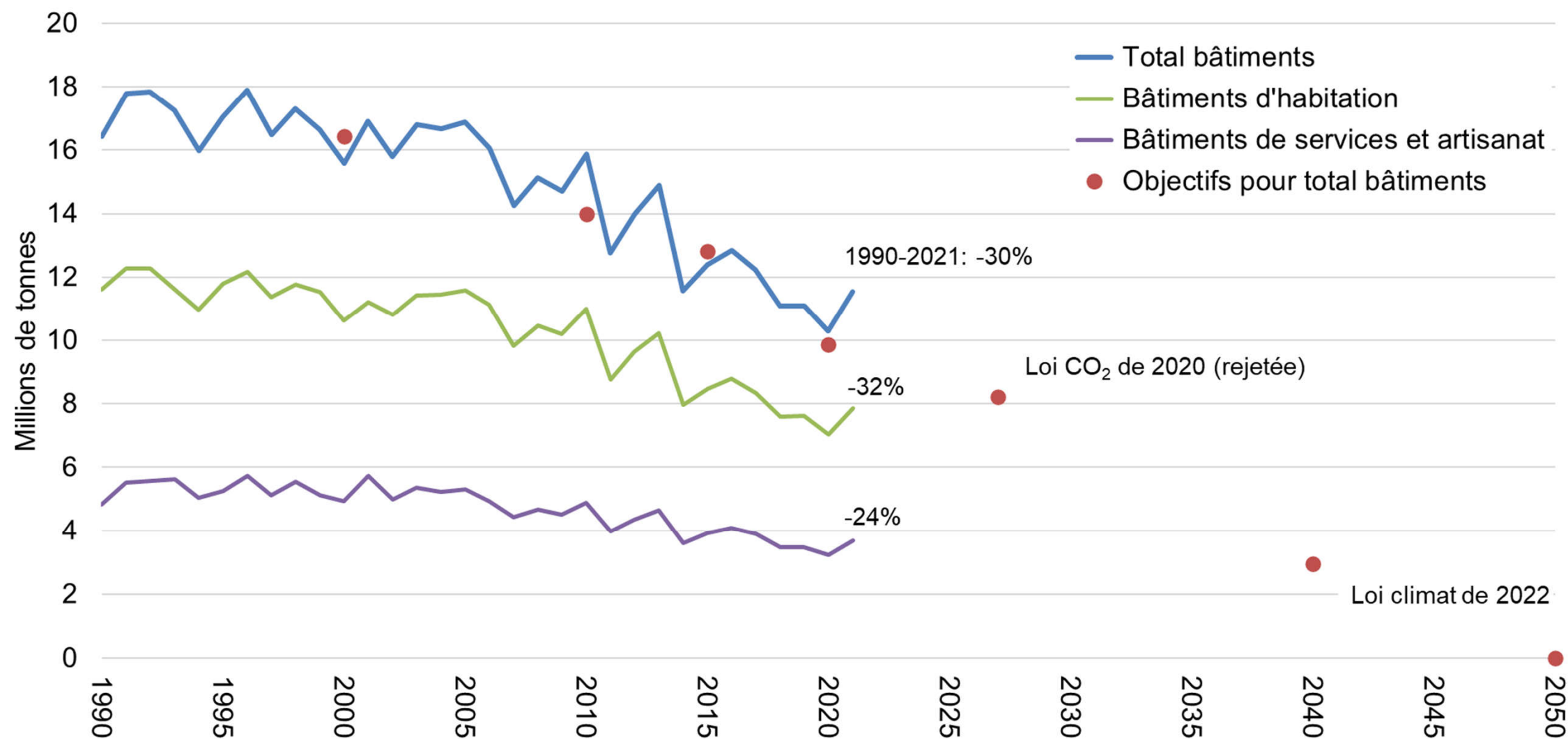
Costs of the energy transition and solution – Housing

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Fireside Event: Social justice and economic impacts of the energy transition
EPFL Lausanne, 7 March 2024

Achievements and expectations for the buildings sector

Emissions de CO₂ des bâtiments sans correction climatique
et objectifs des lois sur le CO₂ et de la loi climat



Half of the reduction in greenhouse gas emissions between 1990 and 2021 was contributed by the buildings sector, particularly housing

The sector is expected to continue to clean up its act until it uses no fossil fuels at **all by 2050**

Overall environmental performance of construction and buildings

- A quarter of greenhouse gas emissions
- Satisfactory reduction in these emissions over the last fifteen years
- No drop in energy consumption since 1990
- By far the largest use of materials (71.3%)
- All this against a backdrop of demographic and economic growth...

The challenge of production capacity

Illustrative calculation

The data:

- Total ERA on 1.1.2023: 807,219,000 m² (of which residential: 539,346,000 m²)*
- 340,000 FTEs in the construction industry in 2021 (buildings, infrastructure, finishing works)**

Assumptions:

- 80% of the total ERA still needs to be refurbished to achieve zero CO₂ emissions by 2050
- An average worker can refurbish 100 m² per year (0.06 m²/hour × 1664 hours)***

Calculations:

- 27 years to 2050, starting immediately
- 23,900,000 m² ERA to be refurbished each year (80% total ERA / 27 = 3% ERA)
- 239,000 workers are needed to achieve this
- **70%** of all construction workers

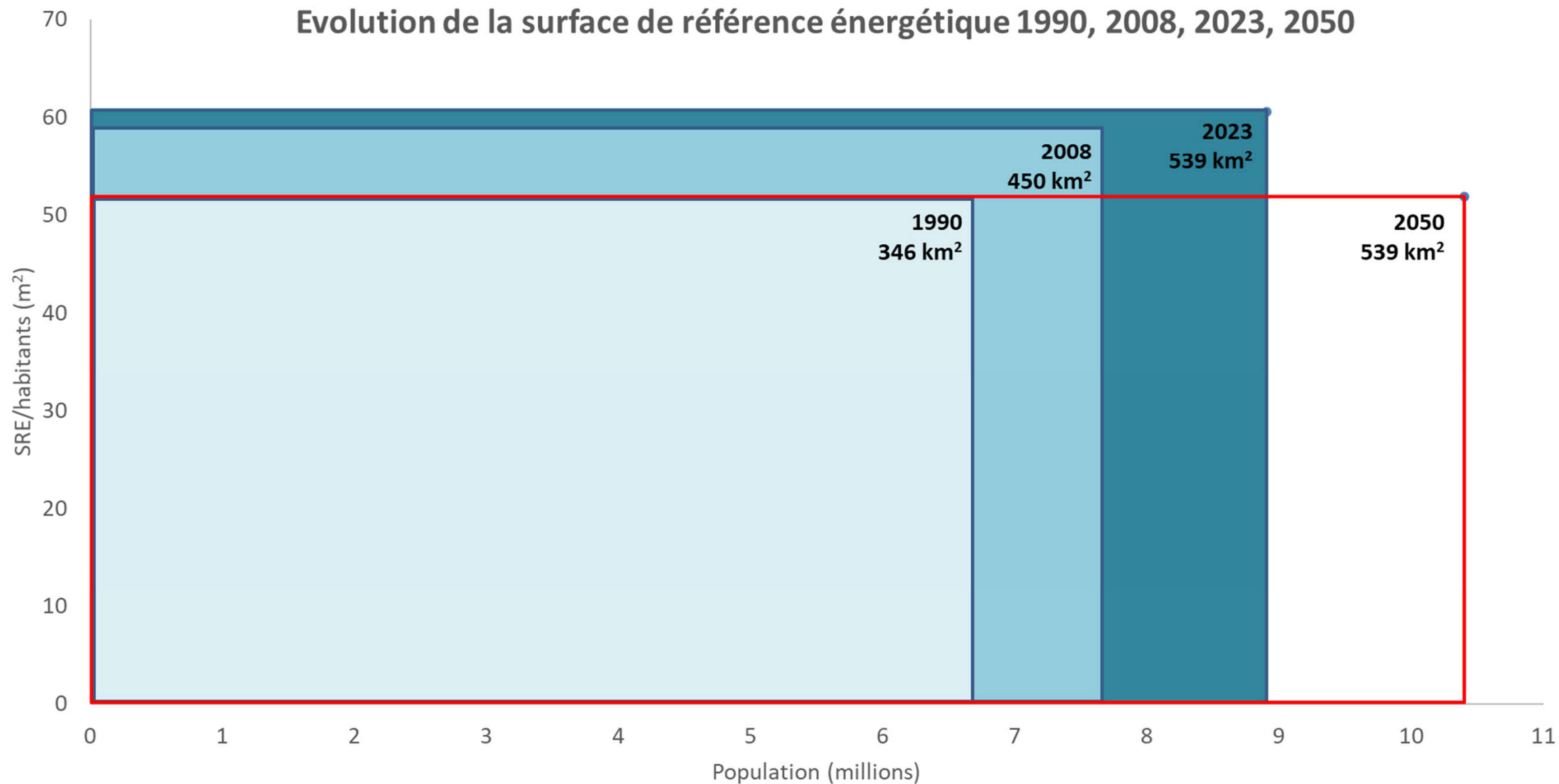
* Forecast according to Wüest Partner for SFOE, 25.11.2022; ** FSO Table 06.02.00.01.01; *** Estimate: average cost of refurbishing 1m² = CHF 1,500, of which 2/3 (CHF 1,000) are labour costs, at CHF 60/hour, this implies 16.67 hours of work per m² or 0.06 m²/hour.

The challenges of decarbonising buildings

To decarbonise the building stock by 2050...

- we need more renewable electricity
- we will have to find a way of convincing the 950,000 households owning a single-family home, the 500,000 households owning a flat and all the other building owners
- it will have to be financially possible for everyone
- the vast majority of the workforce will have to be mobilised (over 70%?); not to mention the machinery, materials, equipment, etc.
- this means, essentially stopping new construction of housing, while population is expected to grow from 9 M today to 10.4 M in 2050

Unchanged ERA for the population of 2050

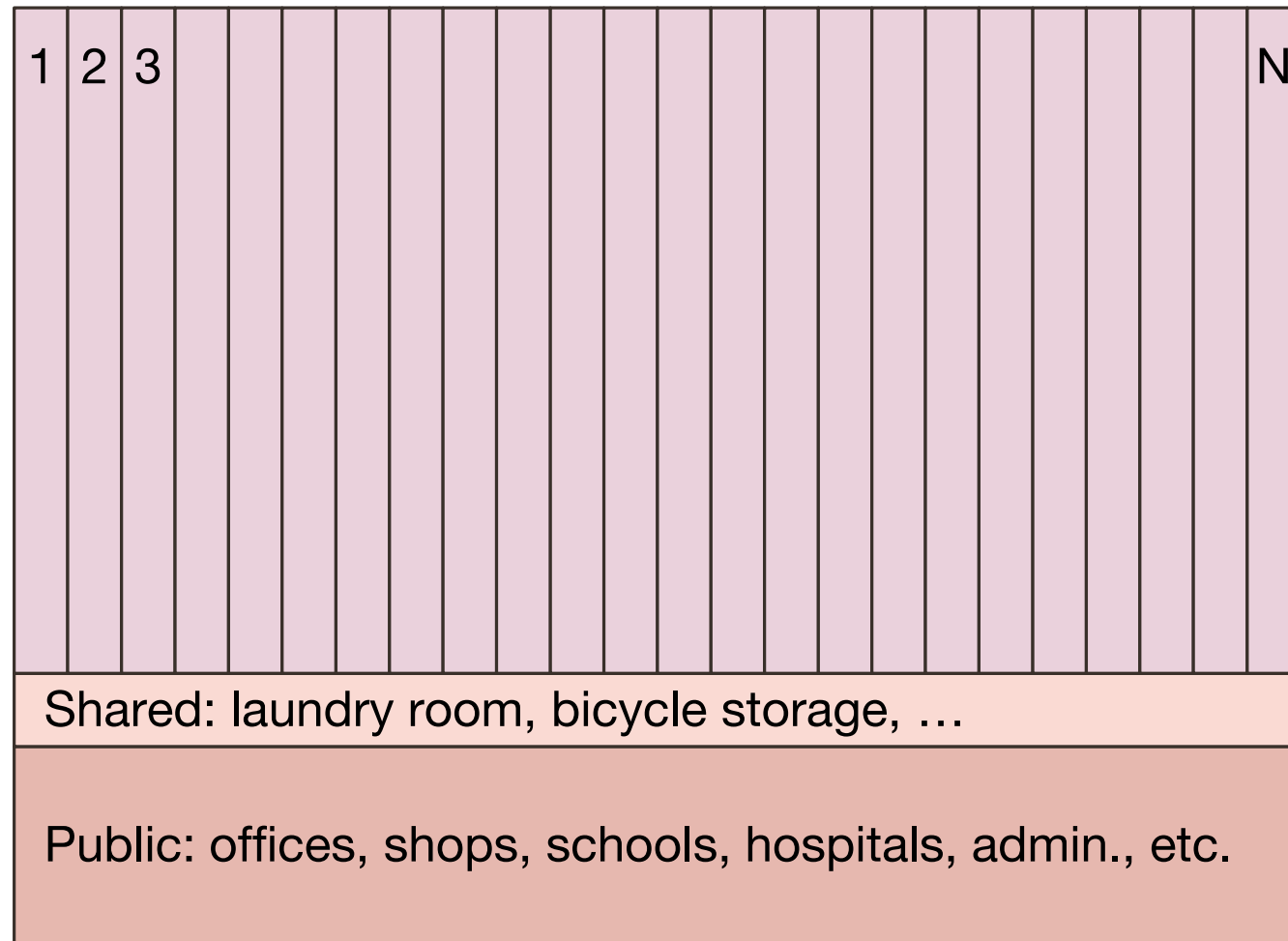


With the ERA per capita of 1990, the total ERA of 2023 can host 10.4 million inhabitants

Own calculations with FSO and SFOE data. SRE = energy reference area (ERA)

More space for all, less space per person

2020 Private+Shared+Public, N people



2050 Private+Shared+Public, N people

