Possible strategies and obstacles in the pathway towards energy transition of residential building stocks in Switzerland.

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Geneva Canton: an incredible energy database
3 out of 5 steps towards 2000W society in Geneva
The 2 remaining steps are the most expensive
Deep and partial refurbishment strategies

Number of buildings per class in 2014-2016

- Optimisation and partial refurbishment actions (M and partial R actions)
- Deep refurbishment according to near zero energy standards (deep R and U actions)
Comparison of optimised buildings in 2014 with the whole building stock [kWh/m²a]

- Optimised buildings in 2014
- Whole building stock

- 1994; 222
- 1994; 182
- 2013; 149
- 2013; 143
- 2016; 134
- 2016; 127
51 deeply refurbished buildings

Comparison of refurbished buildings according to high energy standards with the whole building stock of the canton [kWh/m²y]

Objectif of 55 kWh/m²a
51 Minergie and 8 Minergie P renovated buildings between 2007 and 2017 in Geneva
(mean specific heat consumption 100 kWh/m$^2$)

Mean specific heat consumption [kWh/m$^2$]
Performance GAP concerns all energy efficient buildings

Performance gap: gap from the designers intentions or gap from the target of the society?
Possible evolution scenarios until 2050
Conclusions

- The first 3 steps towards 2000W society meet the global objective for energy consumption reduction (-2.6 kWh/m²y).

- The global target is abstained (- 57 kWh/m²y, -30% in 30 years) but there is a clear deceleration during the last decade.

- There are 2 main obstacles to the way towards 2000W society:
  - The low deep refurbishment rate (1% instead of 2%).
  - The performance gap for deep refurbishment. (182% performance gap leads to a 3600 W society).

- A combination of deep and partial refurbishment for the next decade may catch up the low of deep refurbishment rate.