VPP
Valsts pētījumu programma

LESSONS FROM 10 YEARS POLICY DESIGN IN THE ENERGY EFFICIENCY SECTOR

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RTU VASSI

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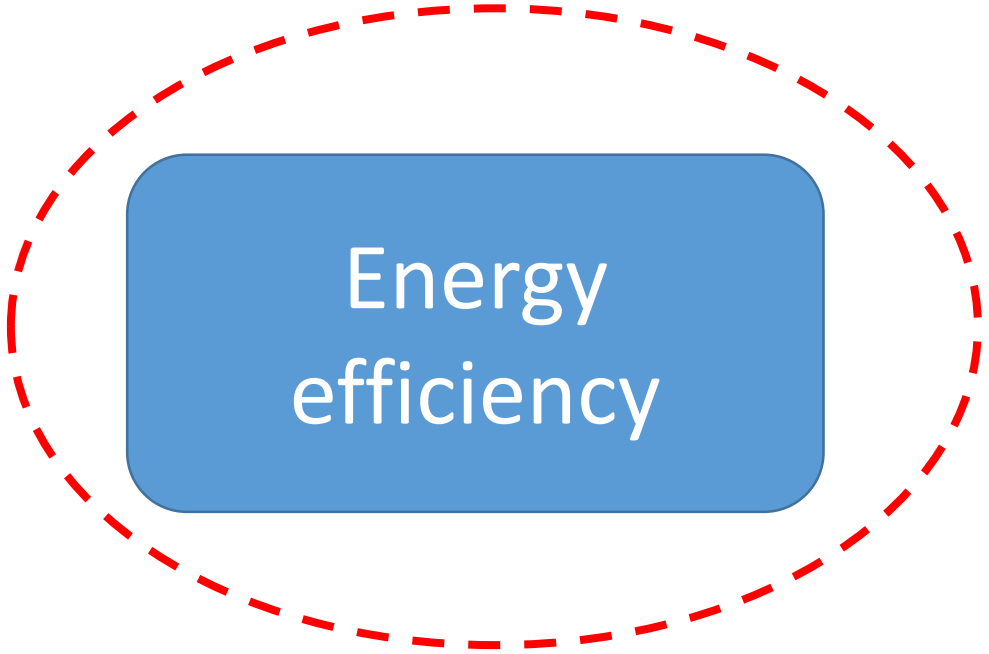
ASSESSMENT AND ANALYSIS OF ENERGY EFFICIENCY POLICY

National Energy and Climate Action Plan



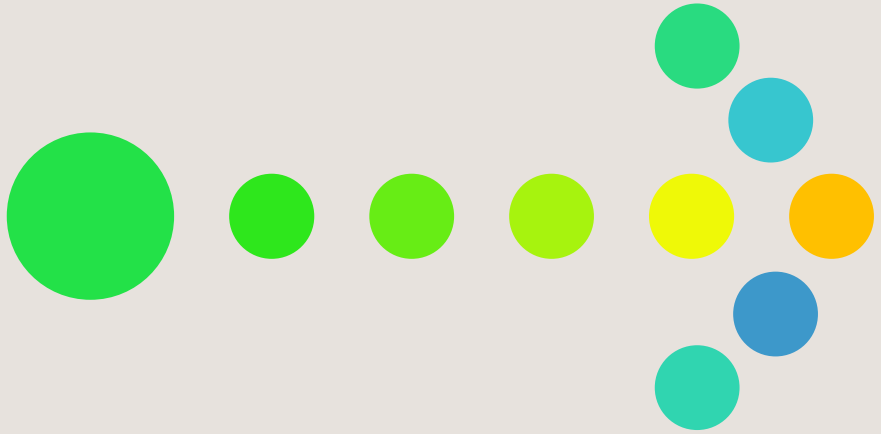
Renewable energy sources

Multi family buildings: Latvia

- 85% of population lives in this building stock
- Most of it is built more than 40 years ago
- High energy consumption
- Apartments owned by inhabitants
- On average 30 apartments per building
- At least 75% of apartment owners have to agree to take loan for renovation and energy efficiency improvements

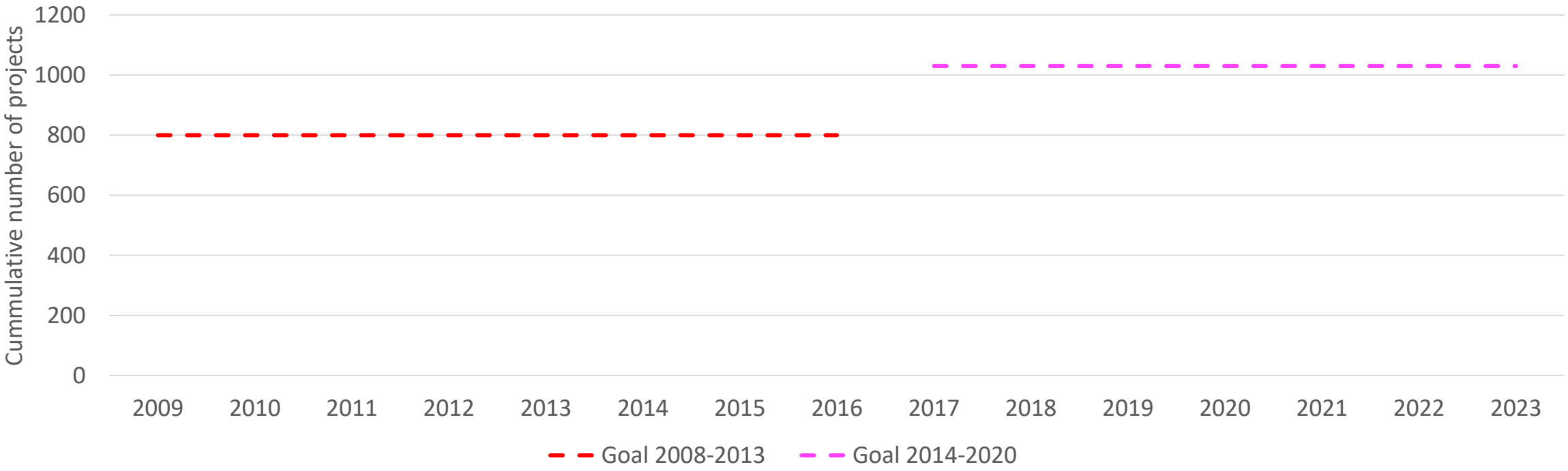
https://businessnetwork.lv/ievads/izaugsme/daudzdzivoklu-maju-energoefektivitates-programma-52383

Intention

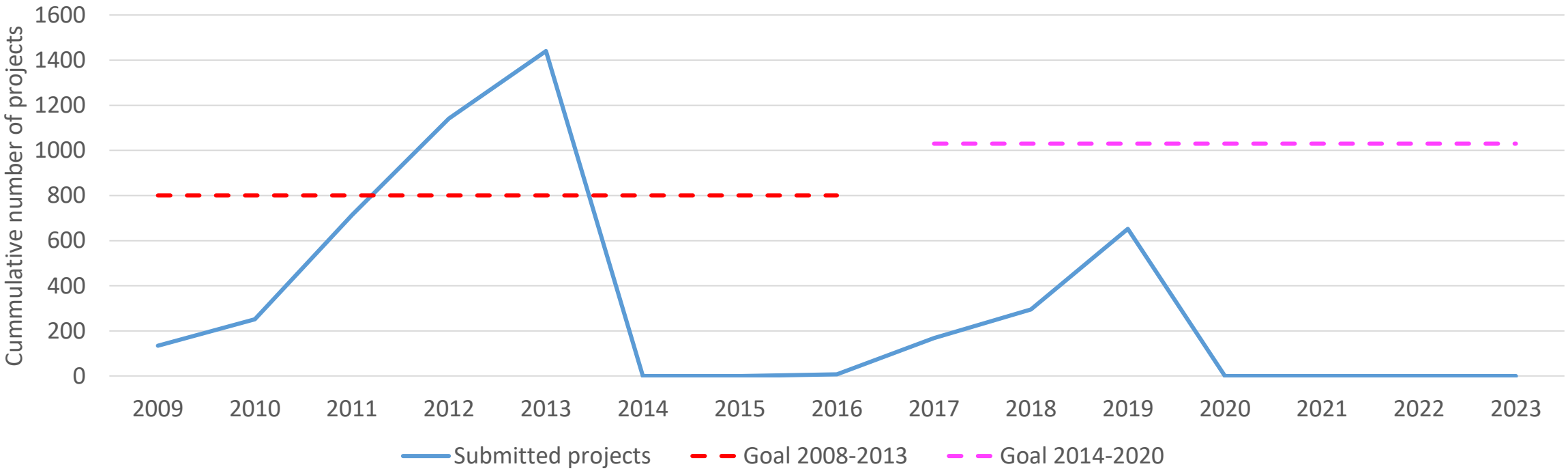


Action

Energy efficiency goals



Goals vs actual situation



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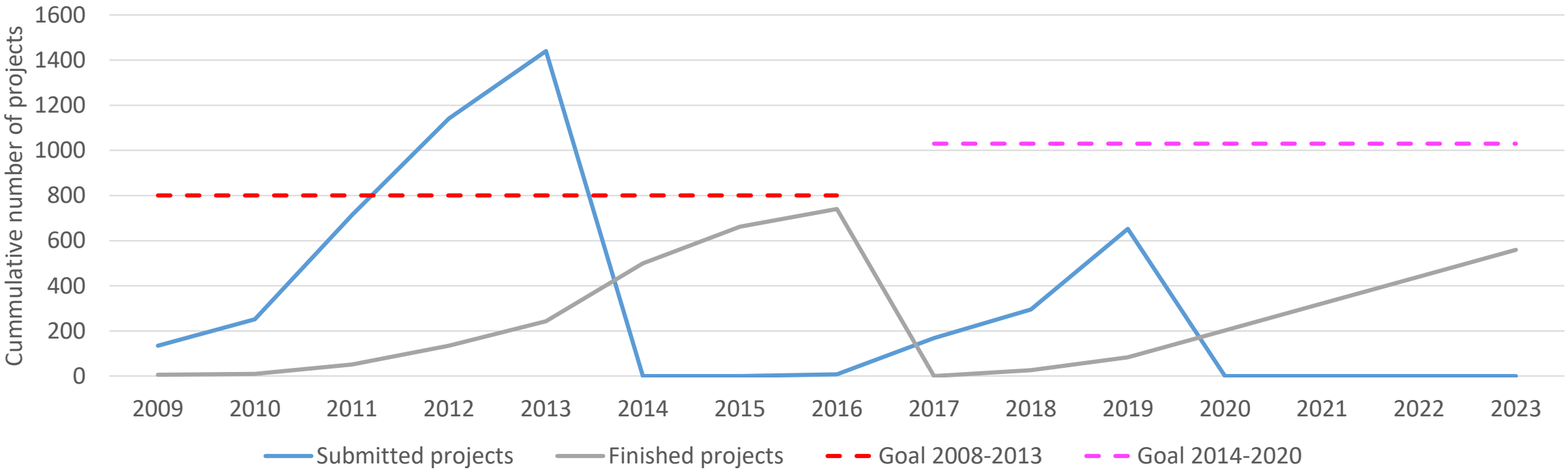


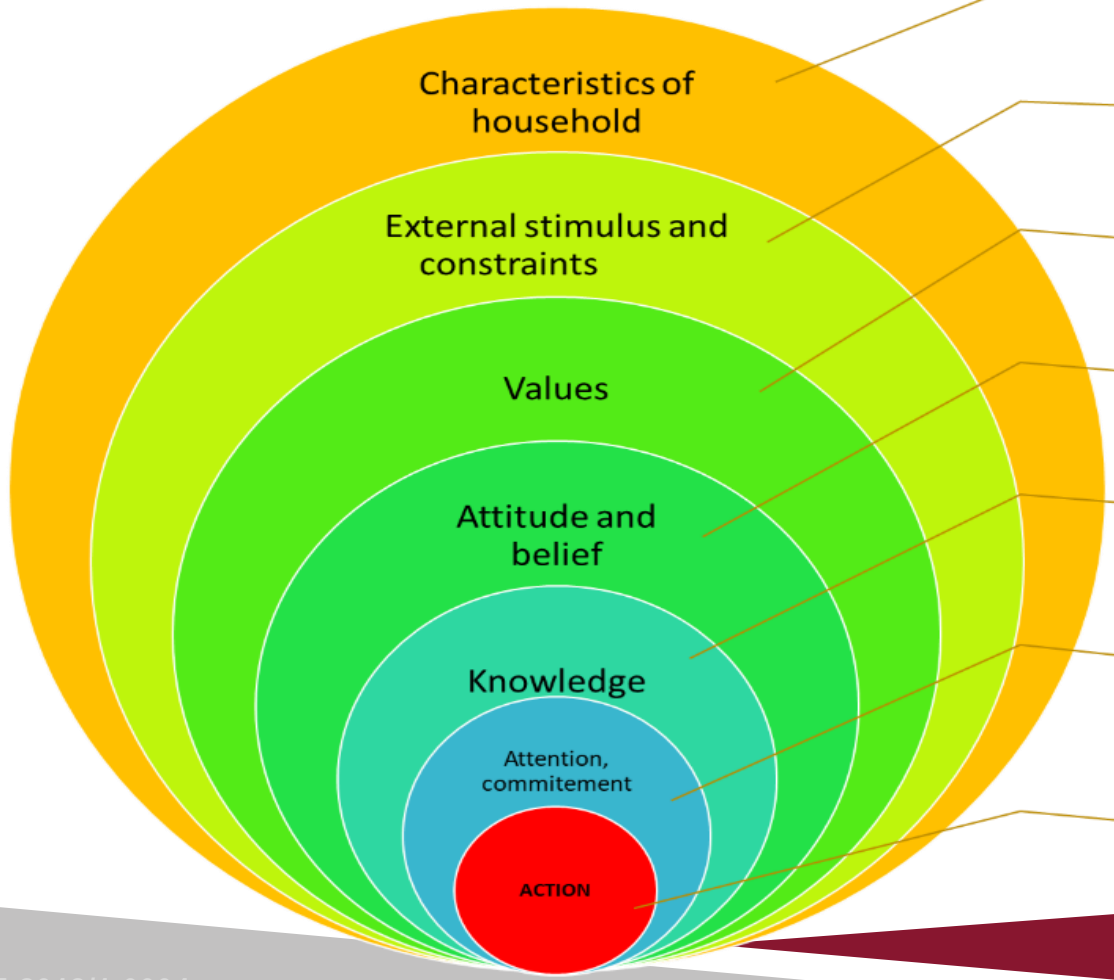
The goal of this study

To take closer look on the behavior of the real system and by means of the system dynamics model carry out analysis of the structure and behavior of the system to understand why energy efficiency goals set by the government were not met.

Previous research and models

- Blumberga A., Zogla G., Moxnes E., Davidsen P., (2011) Residential Energy Efficiency Policy in Latvia: A System Dynamics Approach, 29th International Conference of the System Dynamics Society, p.373-396.
- Blumberga, A., Blumberga, D., Bažbauers, G., Žogla, G., Laicāne, I. (2014) Sustainable Development Modelling for the Energy Sector. Journal of Cleaner Production, Vol.63, 134.-142.

Underlying theory: Attitude -behaviour-context model (Stern and Oskamp)



Income, education, size of household

Energy price, size of housing, statuss of owner/renter, available technologies, costs and compelexity of EE measures

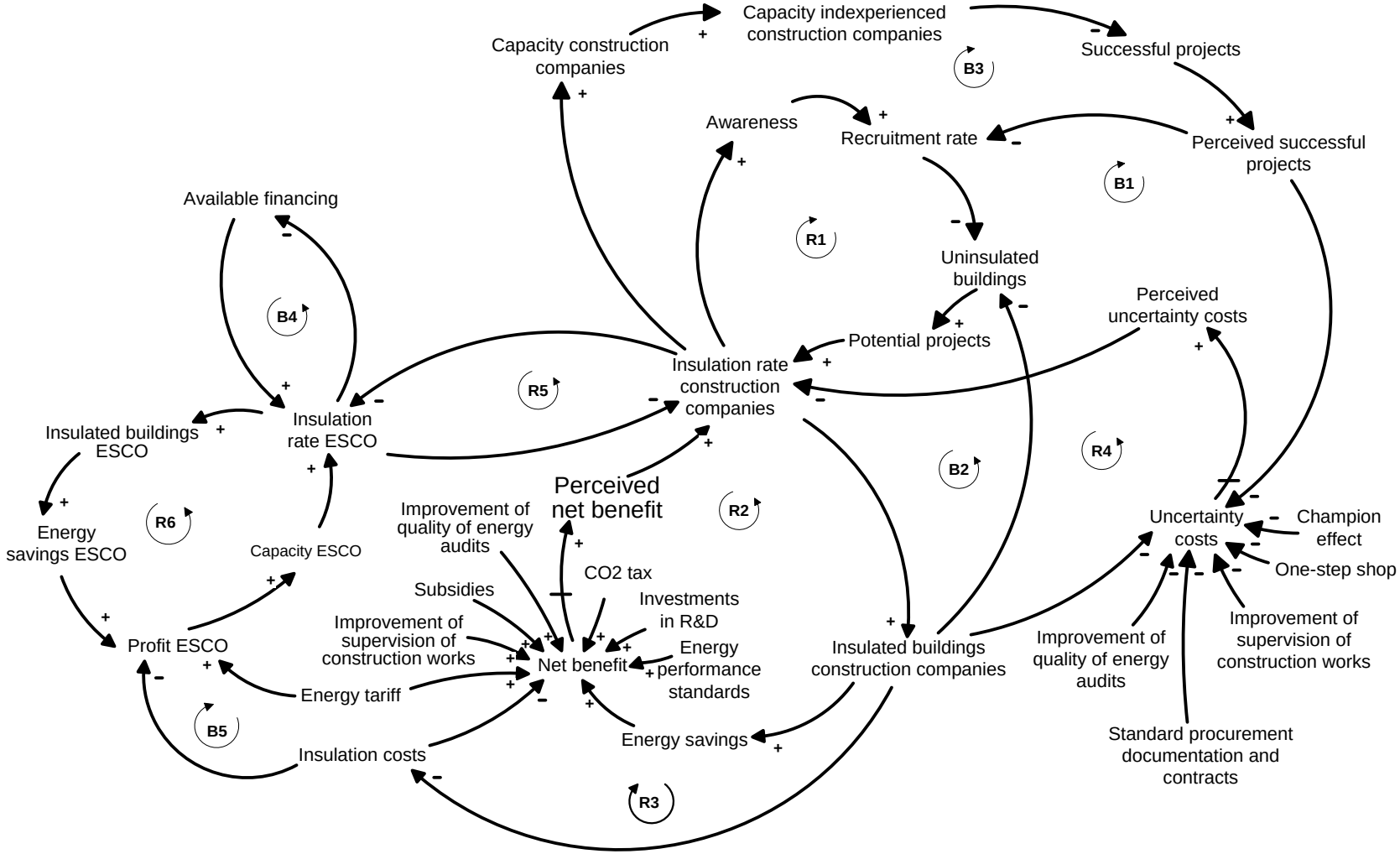
To pollute is bad

Latvia has to be emmissions neutral by 2050; Climate change has irreversible impact on the planet, humans and ecosystems.

To know how to insulate attic, to know that boiler is the major energy consumer.

Remember to switch light off, remember to reduce room temperature when house is not used

Insulation of building, change of bioler, reduced operation of air conditioner

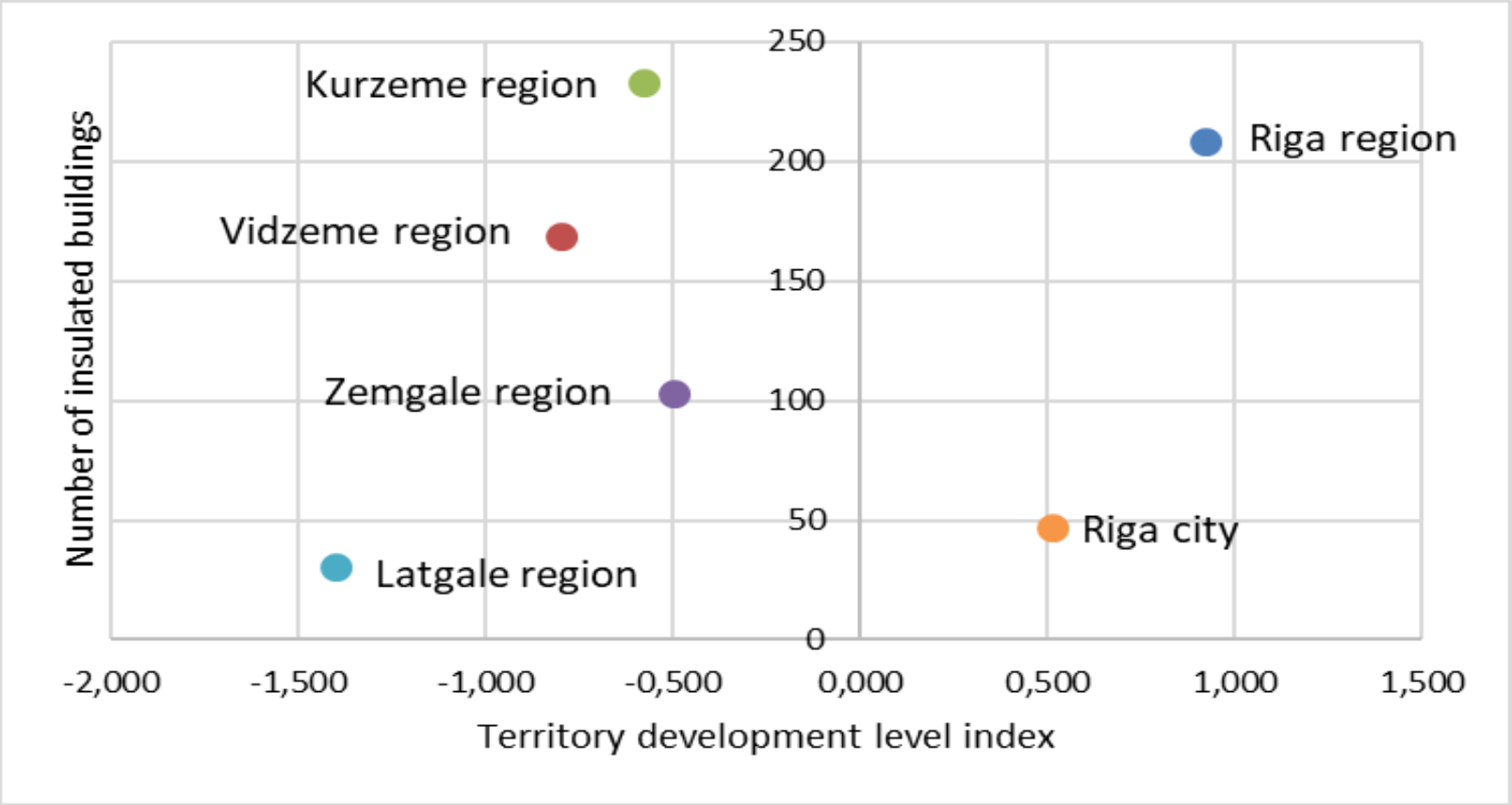

Capacity construction companies
Capacity indexperienced construction companies
Successful projects
B3
Awareness
Recruitment rate
Perceived successful projects
B1
Available financing
R1
Uninsulated buildings
B4
Perceived uncertainty costs
Potential projects
Insulation rate construction companies
R5
Insulated buildings ESCO
Insulation rate ESCO
B2
R4
Perceived net benefit
R2
R6
Energy savings ESCO
Capacity ESCO
Uncertainty costs
Champion effect
One-step shop
Improvement of quality of energy audits
CO2 tax
Subsidies
Investments in R&D
Improvement of supervision of construction works
Energy performance standards
Profit ESCO
Net benefit
Insulated buildings construction companies
Improvement of quality of energy audits
Improvement of supervision of construction works
Energy tariff
B5
Energy savings
Standard procurement documentation and contracts
Insulation costs
R3

Policy tools 2008-2020

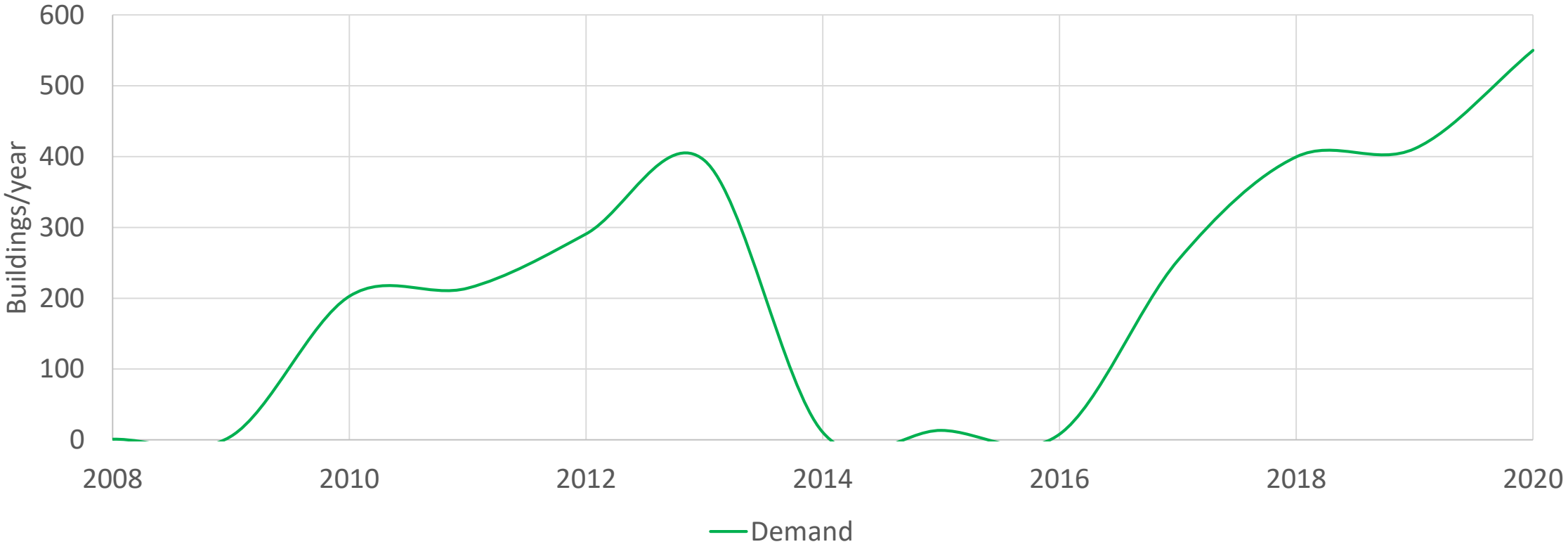
- EU funds for energy efficiency projects as 50% subsidy:
  - 1st round 2008-2013
  - 2nd round 2016-2020
- Information campaign based on locally organised workshops and seminars by team of 2-3 persons

RESULTS

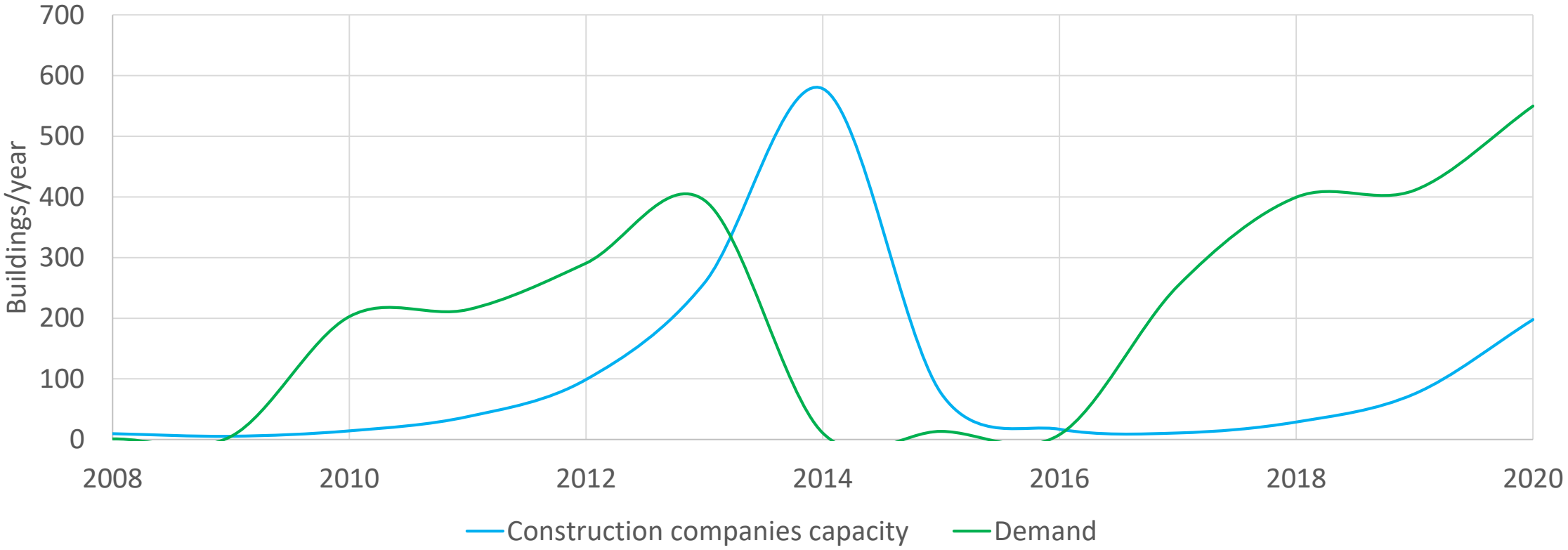
Wealth and energy efficiency



Funding discontinuity



Funding discontinuity



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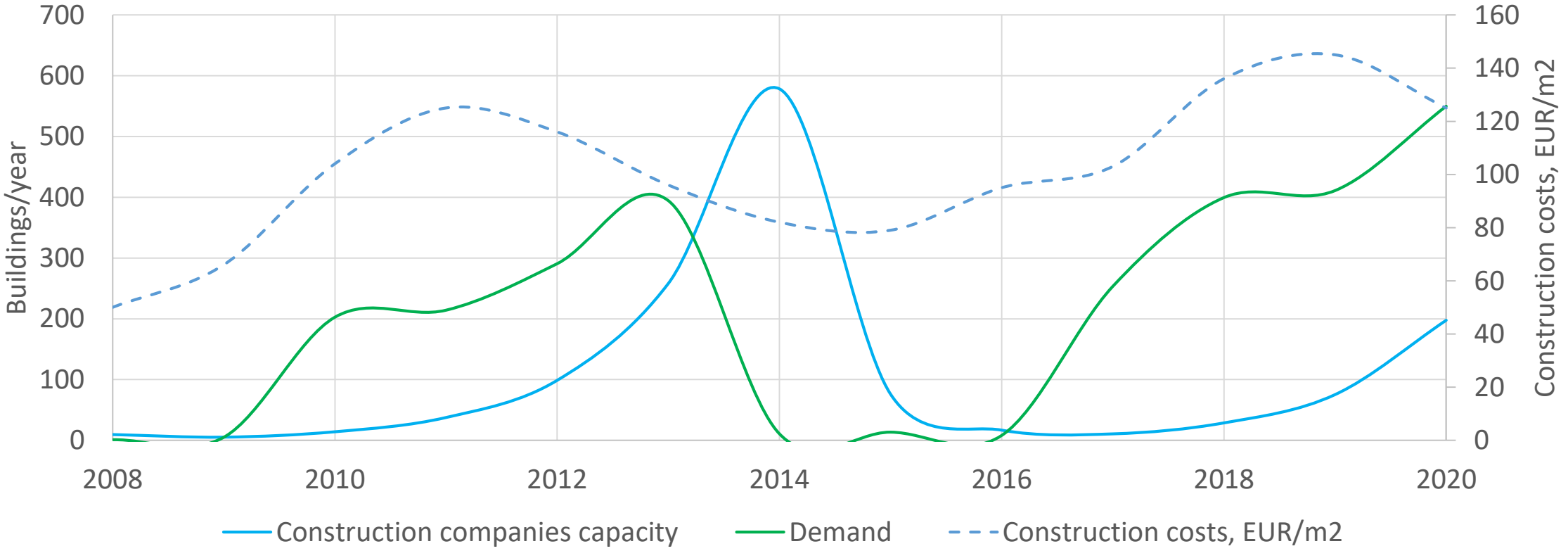
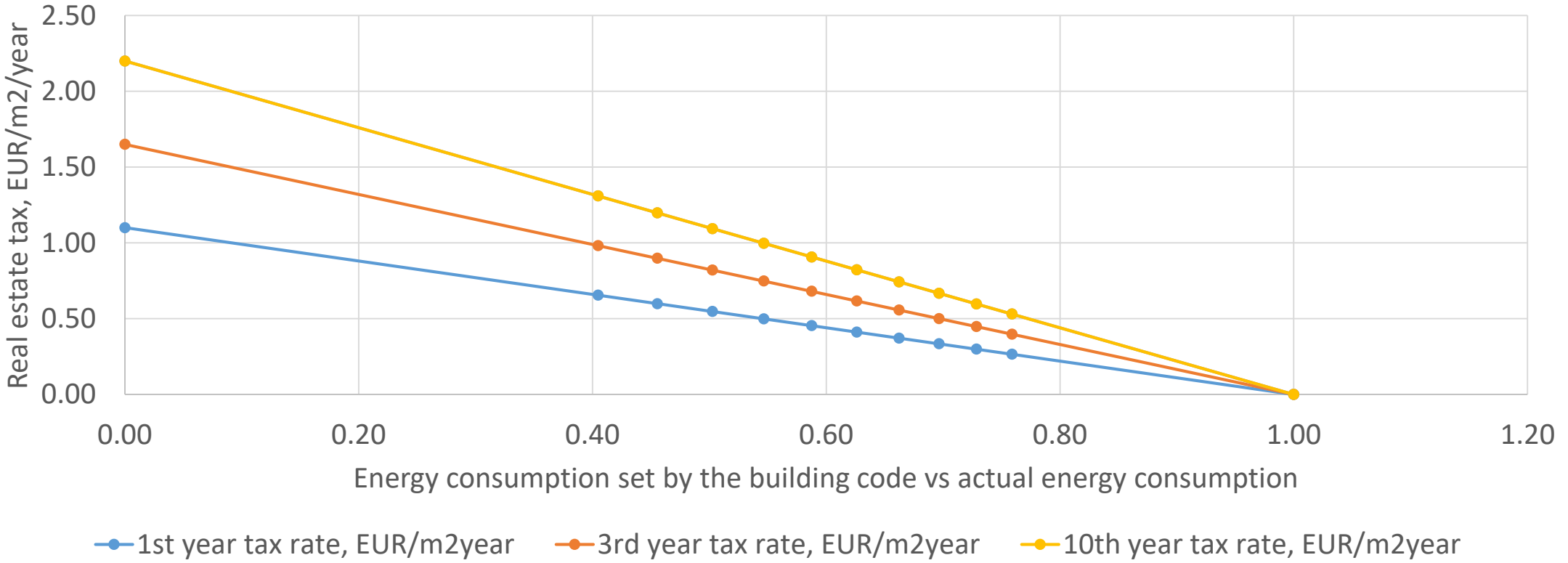
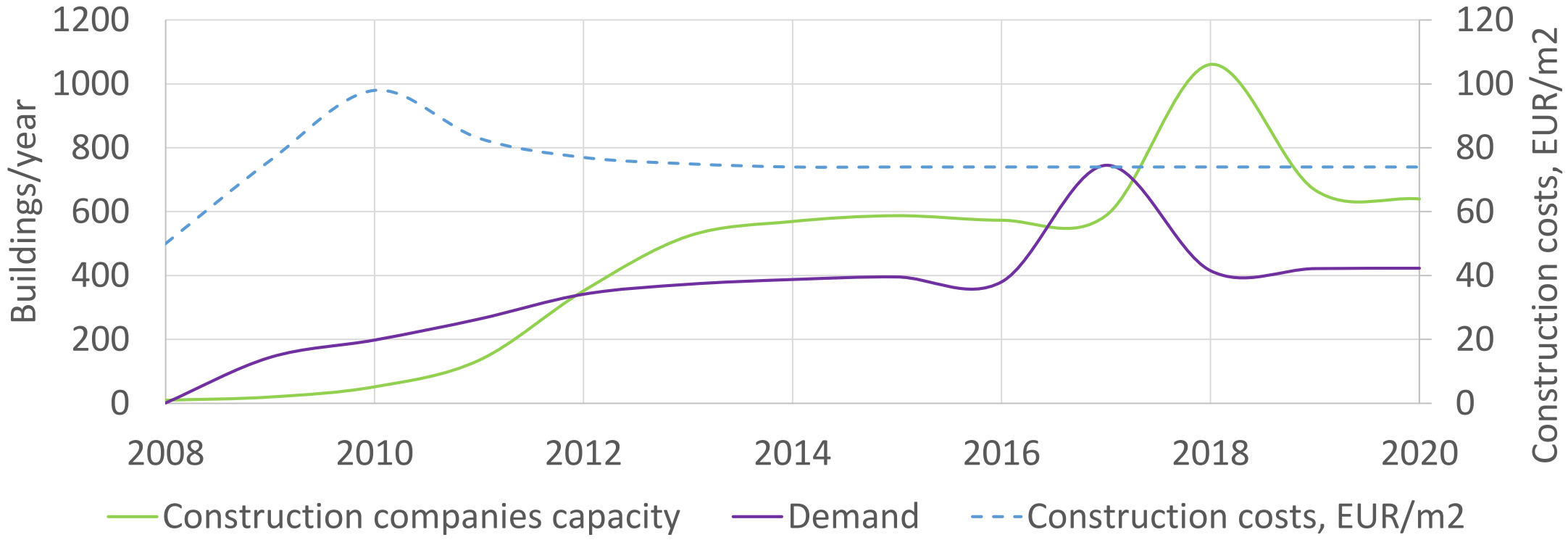


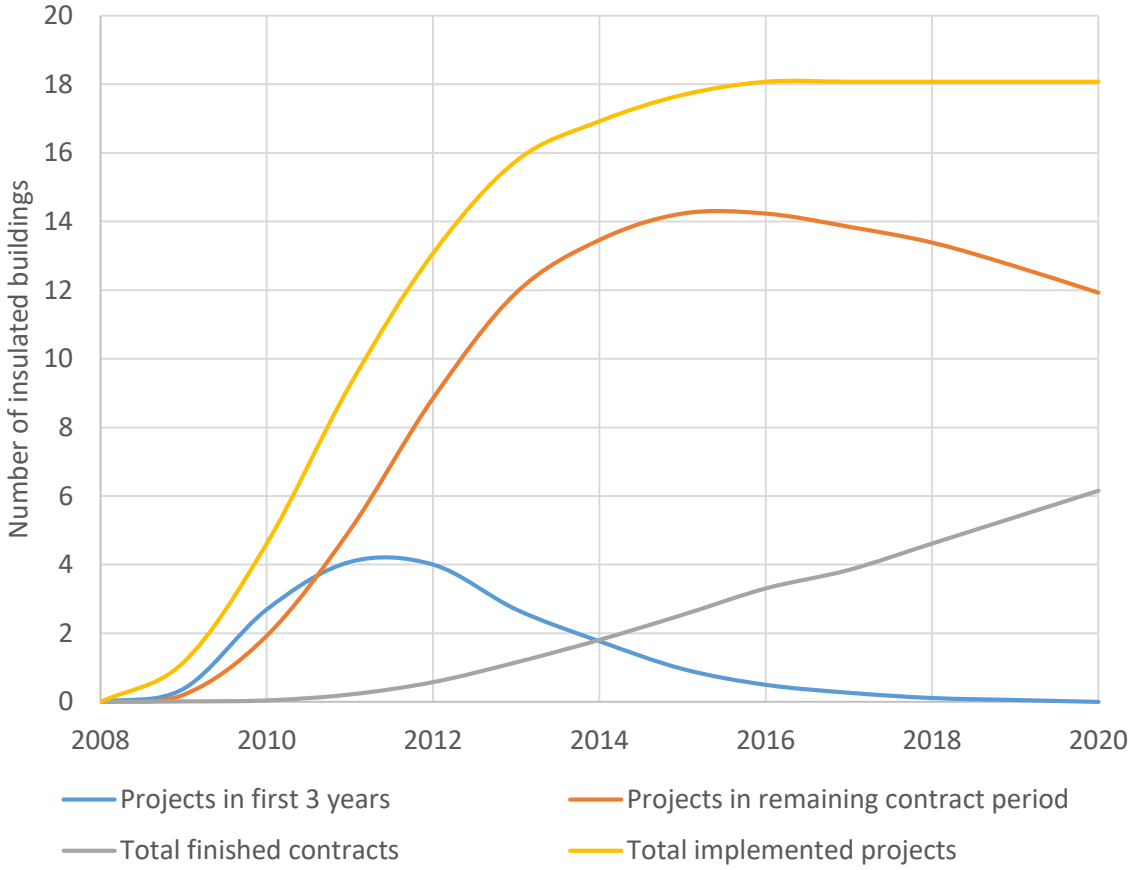
Penalty-reward scheme



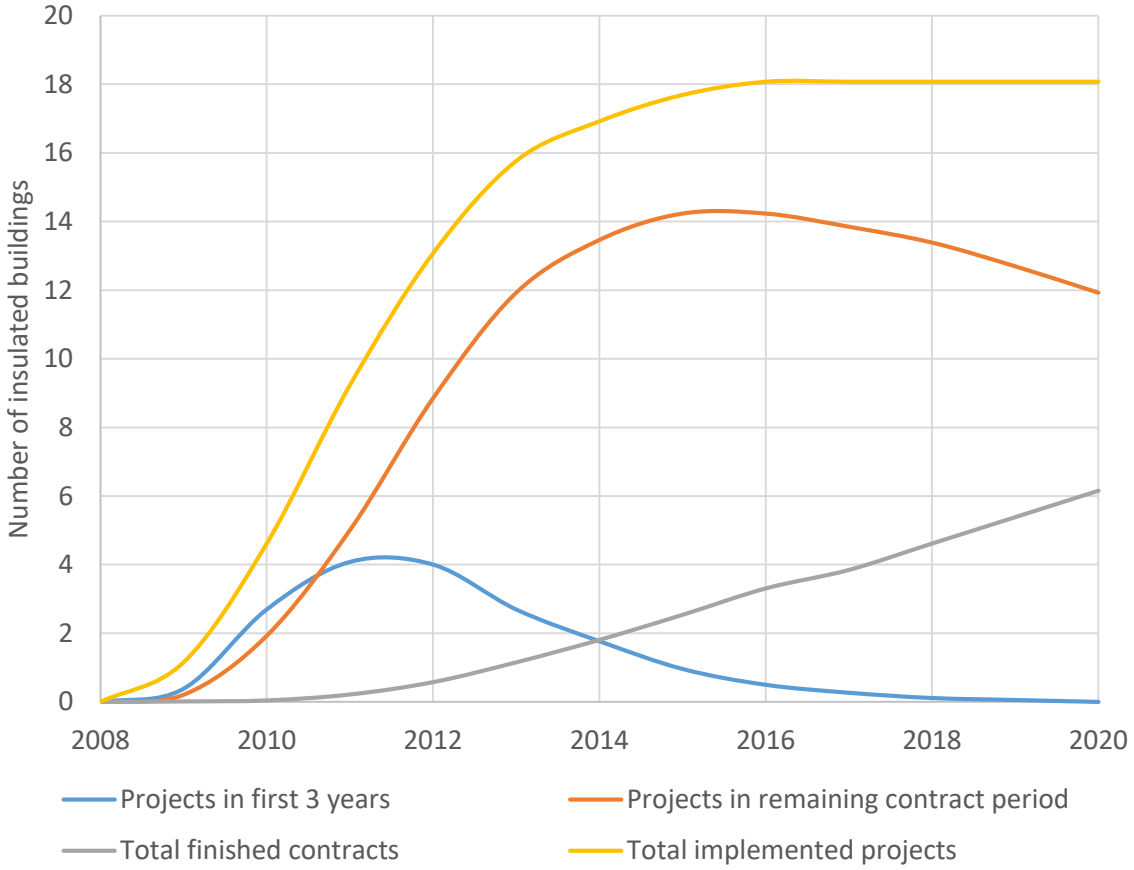
With sustainable funding scheme

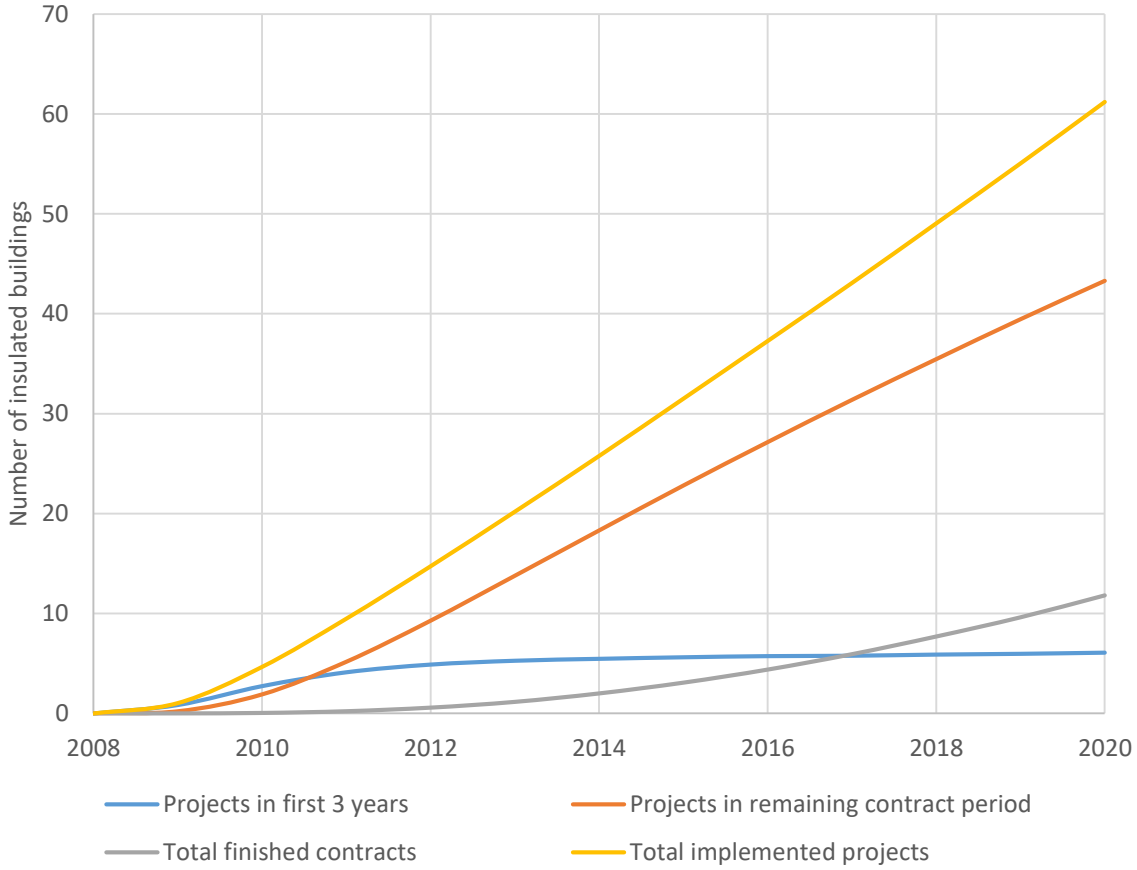


Energy Service Companies



Energy Service Companies





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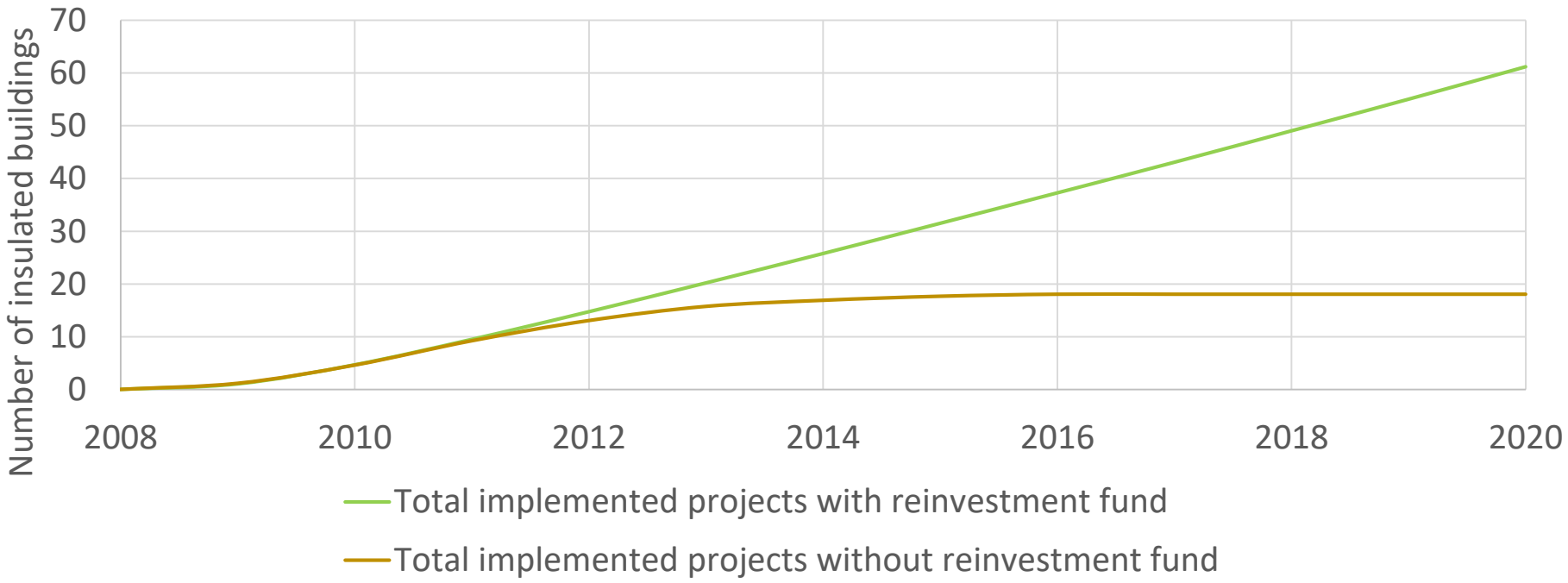
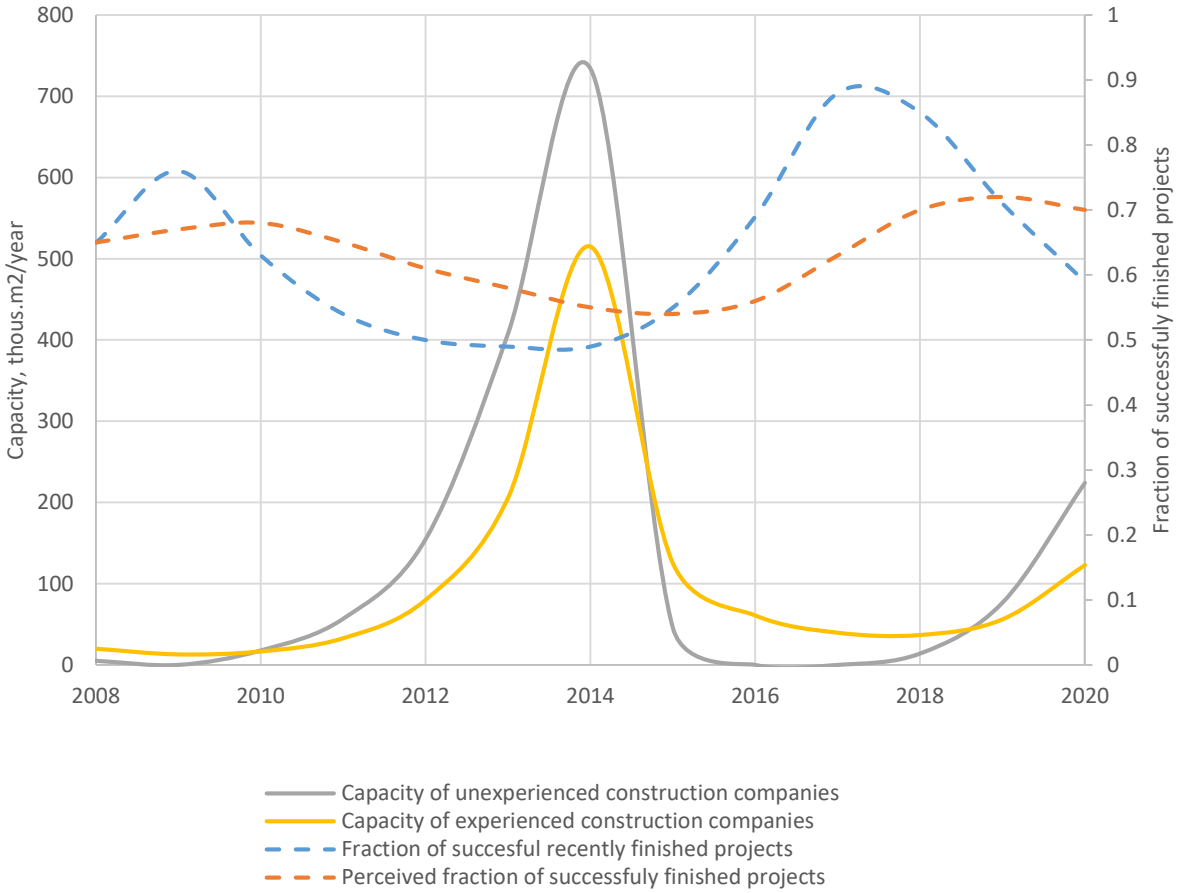


Construction quality



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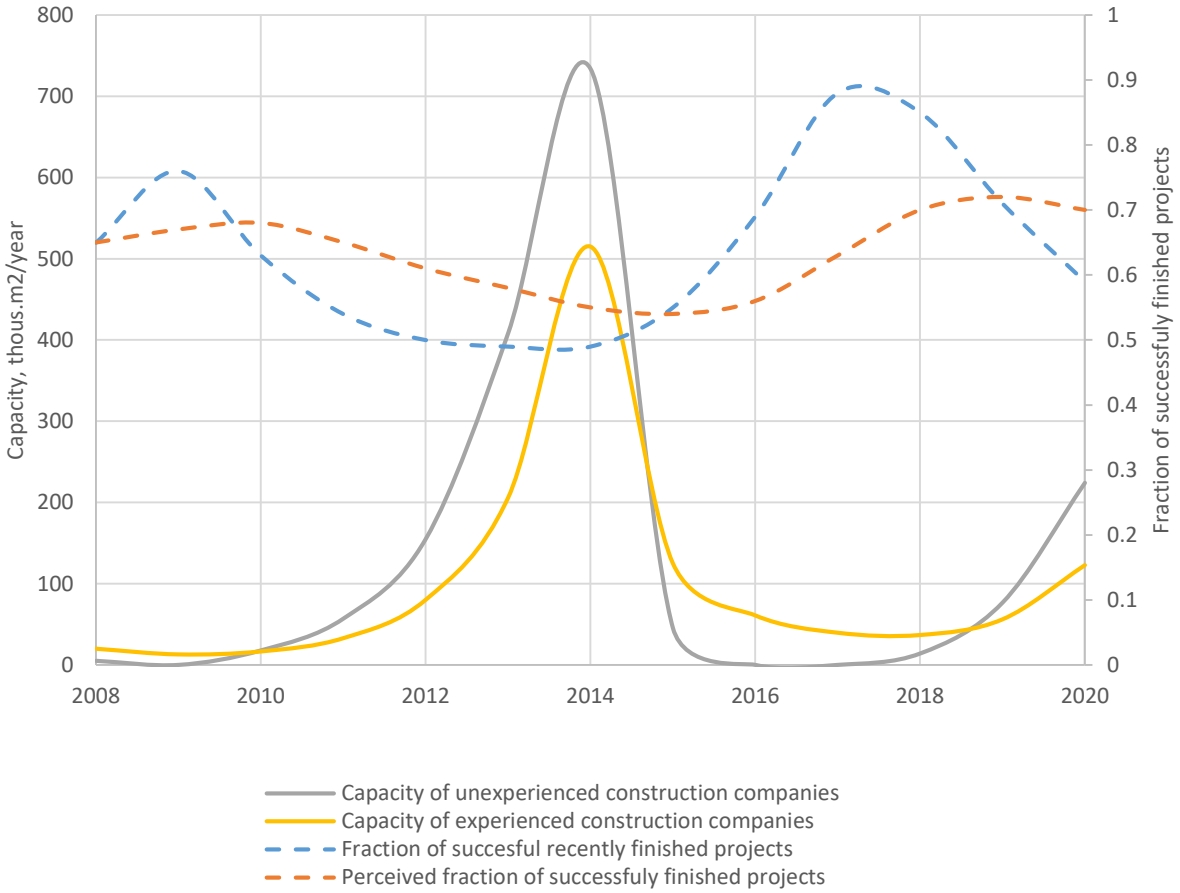

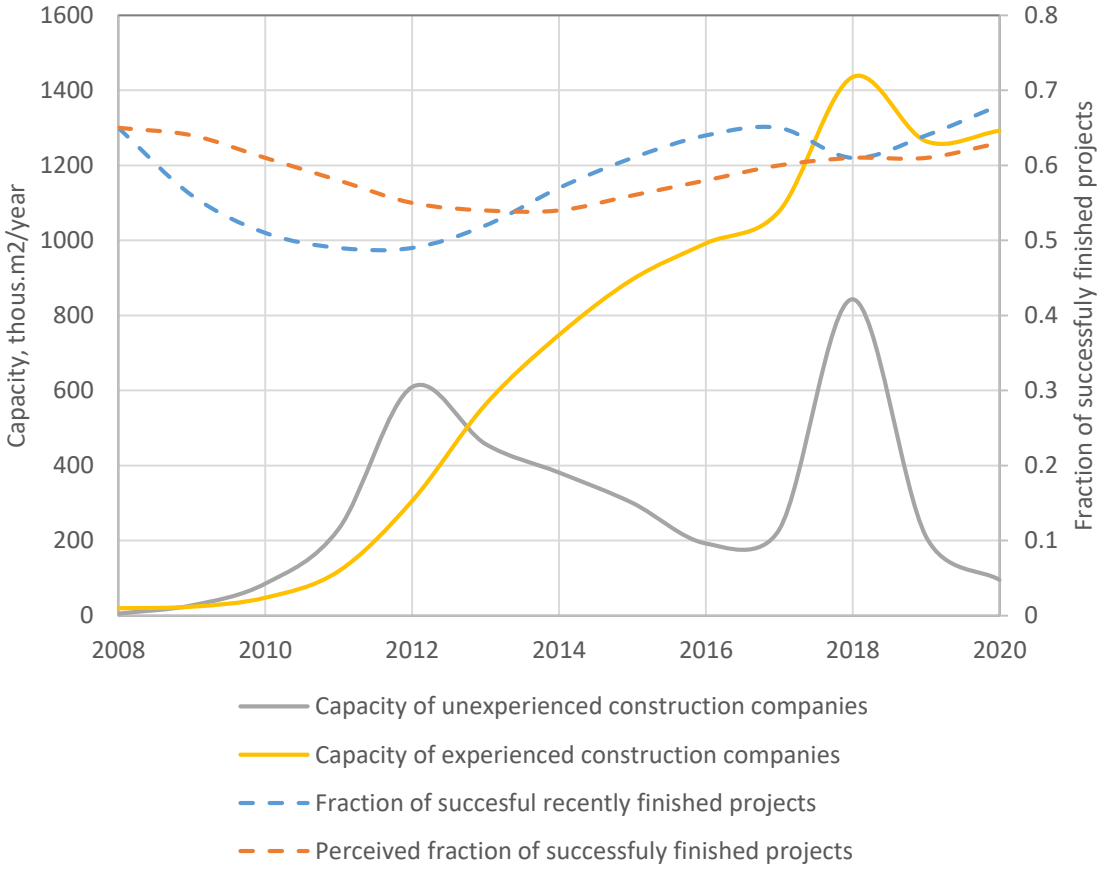

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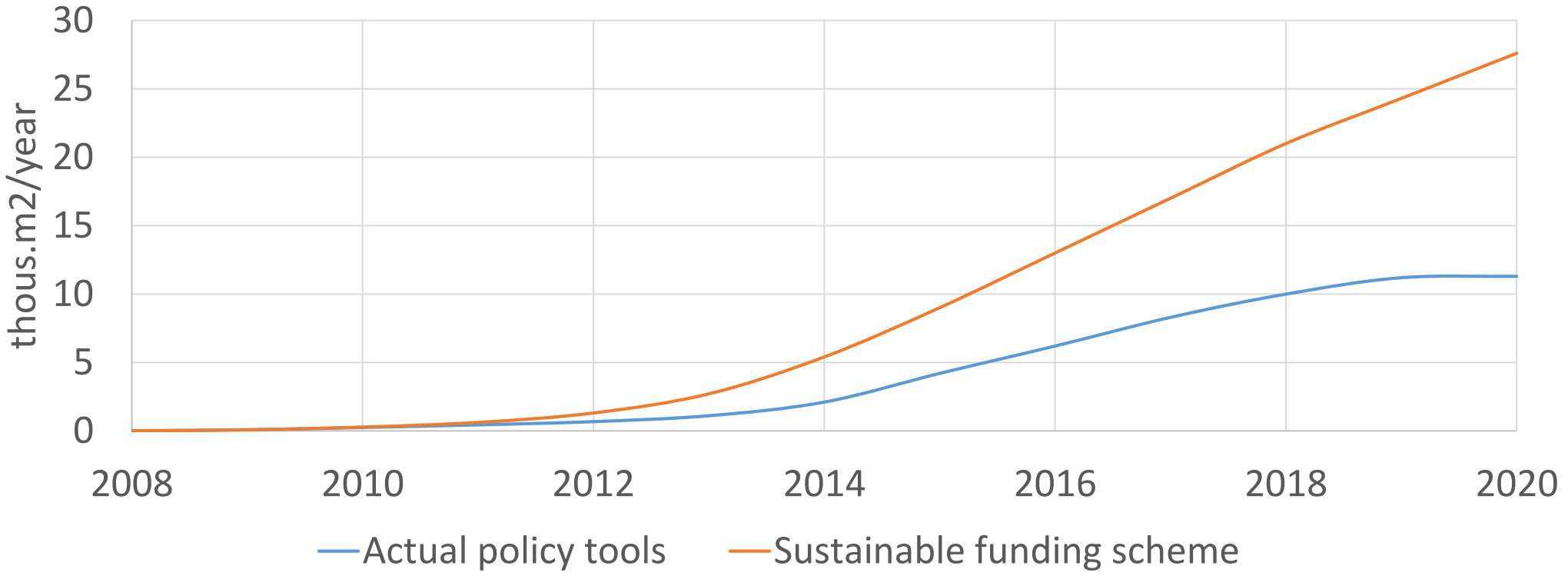
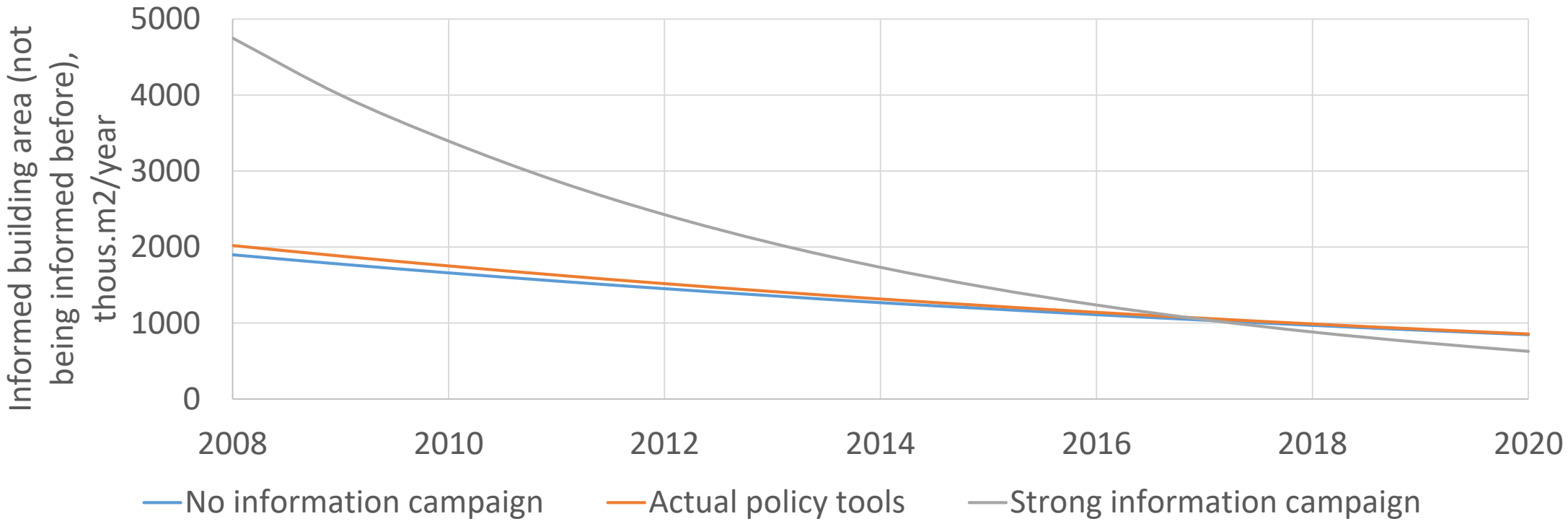
Word of mouth effect



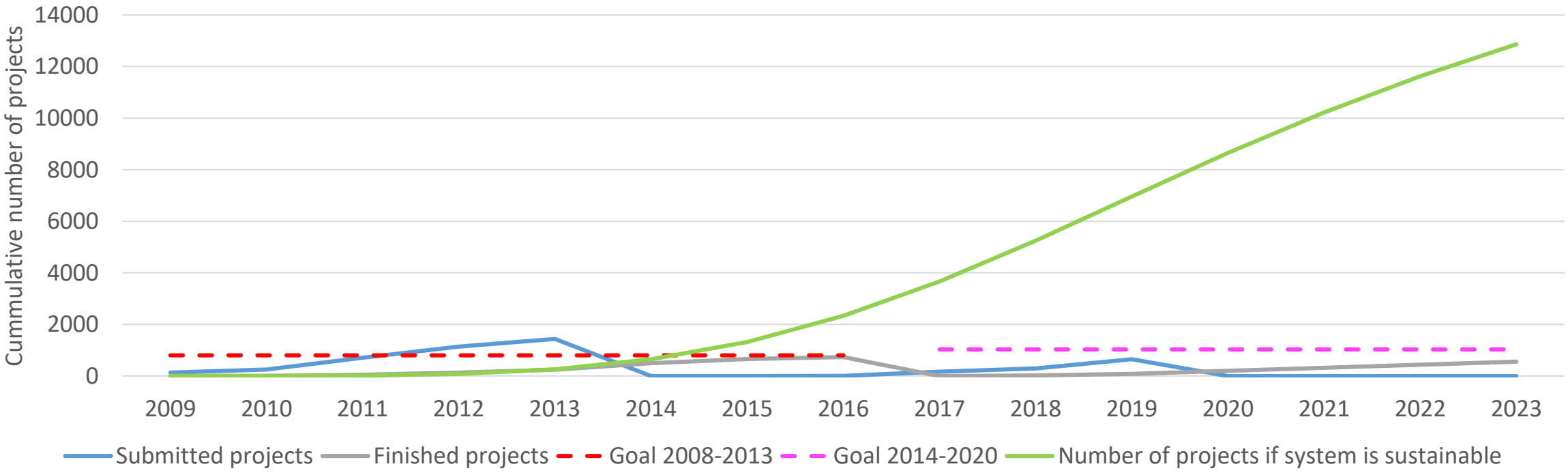
Information dissemination



Trust and insider

Municipality + Housing maintenance company + Insider (trustful apartment owner living in the building)

Goals, actual and desired behaviour



CONCLUSIONS

Lessons from 10 years policy design in the residential energy efficiency sector show that today's problems arise from yesterdays solutions:

- Policy tools based on rational choice models are oversimplified since decision making is much more complex
- Lack of long term policy planning documents has led to discontinuing financial support that has caused a chain of negative side effects, such as
  - misbalance between supply and demand of construction services causing oscillation of price, pay-back time, net benefits, quality of construction works,
  - addiction to financial support which is based on EU funding,
  - word-of-mouth effect.
- This has led to the situation that government was not able to reach goals set by itself.
- System Dynamics model developed 10 years ago based on experts opinions has proved to be great tool to forecast and explain causes of behavior of the system and different policy interventions.

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