

**Cost analysis of the renewable solutions for zero energy renovation**  Name: Xavier Langlois xavier.langlois@student.ulg.ac.be Advisors: Prof. Dr. Shady Attia

Groups: SBD lab



# ABSTRACT

Governement have taken several comitment and measures to switch from fossil fuel to reneable energy (-80% in 2050, subventions). To prevent multiple intervention in the three next decades on existing building we need to evaluate the cost of todays "definitive" intervention. This goal'study is to evaluate the cost of such an energy switch today in the average home in Wallonie for the owner and make estimation of the evolution of the cost in the future.

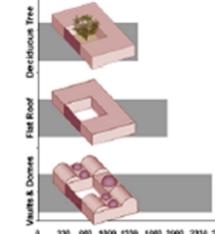
With this data we could be able to start making prediction on the energy switch to answer several questions: how much is it gonna cost, when is it going to happen, will there be social repercution, is a change of consumption needed ?

## **METHODOLOGY**

- 1. Typology study / Situation in 2050
- 2. Model /Calibration
- 3. Simulation
- 4. Cost study / predictions
- 5. Discusion







330 000 1000 1550 1000 2000 2330 2000 5330 300 Cooling Energy per Apartment (kWh)

Informed design, decision-making, net zero energy buildings, building performance simulation, Wallonie.

## PROBLEM

**KEYWORDS** 

- Belgium commited to reduce the use of FF in 2050 (-80%/95%).
- Buildings need to do a energy switch from FF to renewable
- Many intervention could cost more then one.
- Zero energy in renovation is considered "not profitable" but in fact few study realy evaluate its cost.
- Out of control energy switch could be very expensive for the governement and for some populations.

# **OBJECTIVE/HYPOTHESIS**

We want to model the average home in Wallonie wich is needing today a renovation and try to make it fit for 2050's situation.

## AUDIENCE

House Owners and governement.

## **RESEARCH QUESTION**

What is the cost today to renovate in Walonie fiting the 2050 situation ?

## ORIGINALITY

This study is taking to acount three differents acting possibility in one renovation project : reduce consumption, changing the energy vector, increase the energy production.

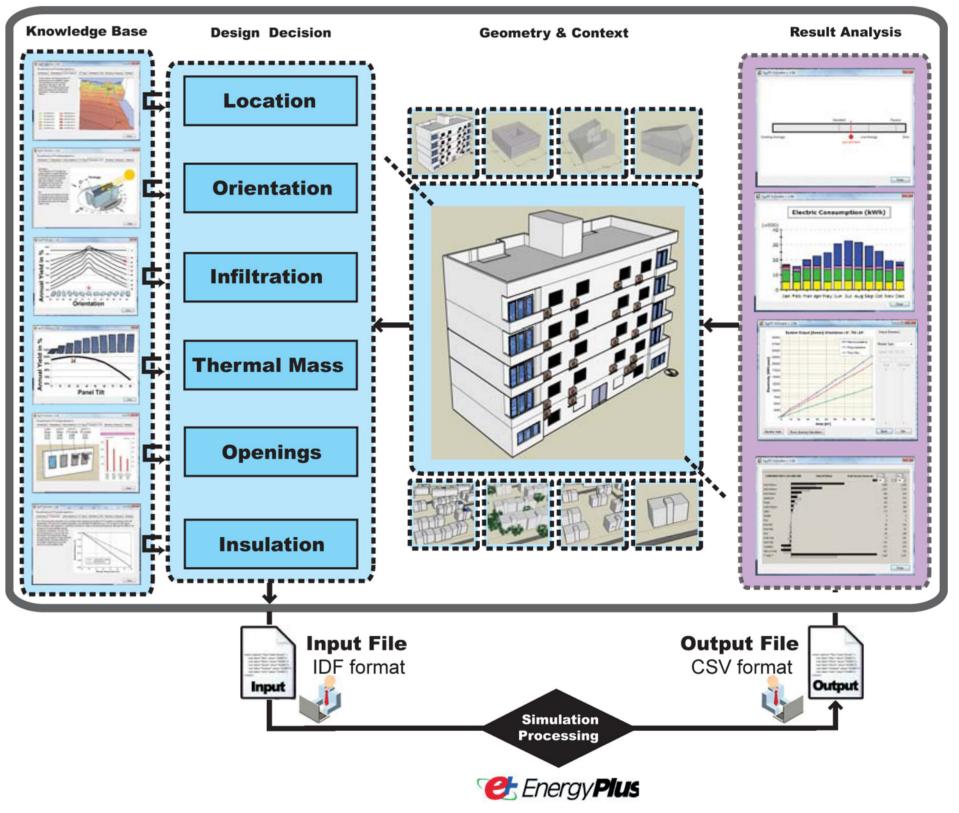


Fig.1, The flowchart of ZEBO (Attia et al. 2012)

# CONCLUSION

This study is not based on the most profitable choice in today's renovation but try to evaluate the cost to fit 2050 objectives with todays technology.

This study can give data's on today's cost in the renovation that could help further study to predict the energy switch with more precision.

### Resources

Resources

#### Sustainable Building Design

