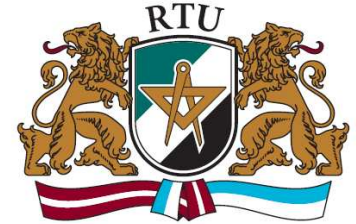




Riga Technical University
Faculty of Power and Electrical Engineering
Institute of Energy Systems and Environment
www.videszinatne.lv



Planning and evaluation tool for energy efficiency policy in housing sector in Latvia

*Professor, Dr.Sc.Ing. Andra Blumberga
Gatis Žogla
Ilze Laicāne*

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Latvia

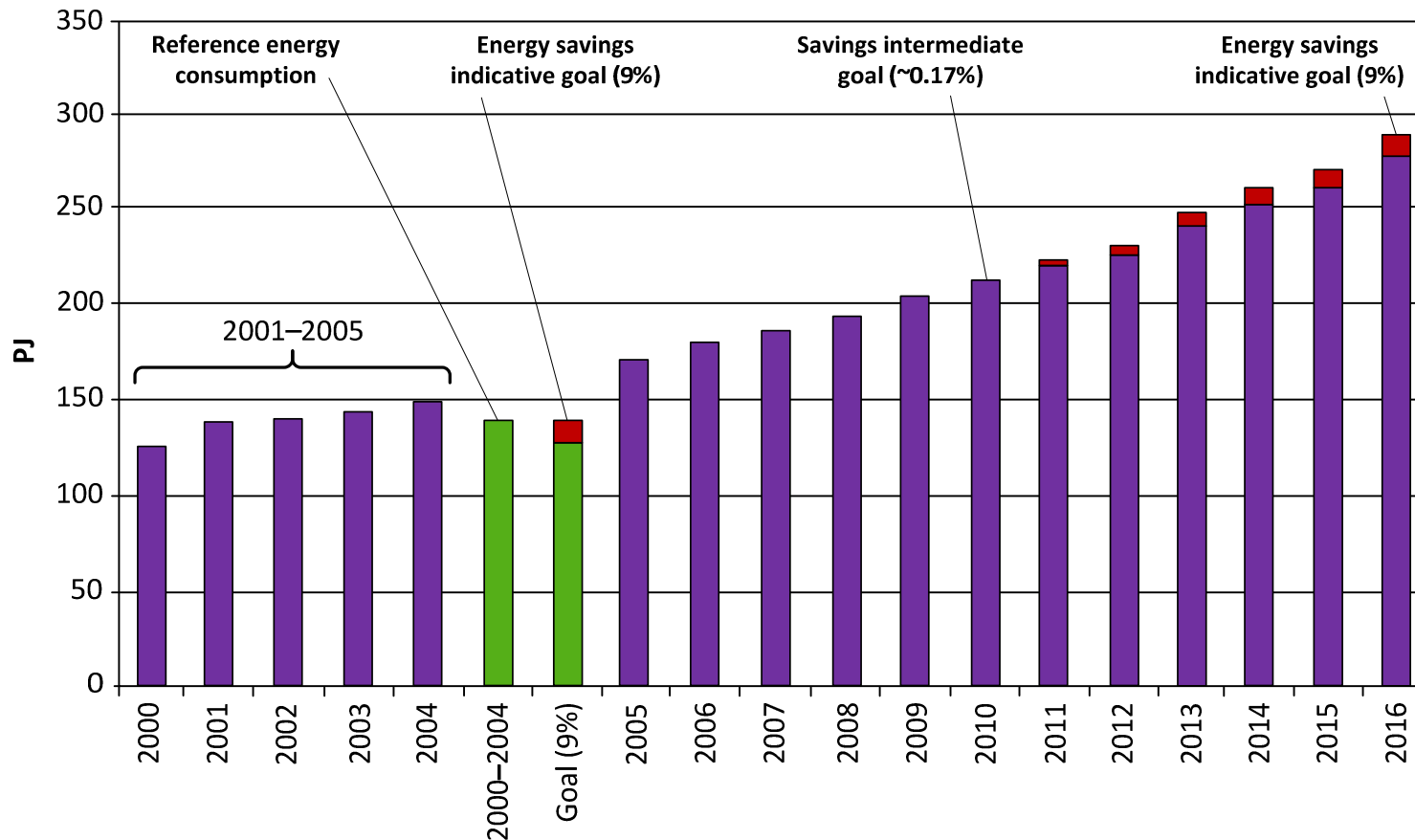
- >4000 heating degree days
- bursting of the real estate and credit market bubbles in 2008
- the GDP falling by 18% in 2009:
 - increased unemployment
 - the bankruptcy of many companies
 - emigration
- population in 2001: 2.38 million
- population in 2011: 2.06 million



<http://www.latfilma.lv/00mes/index.html>

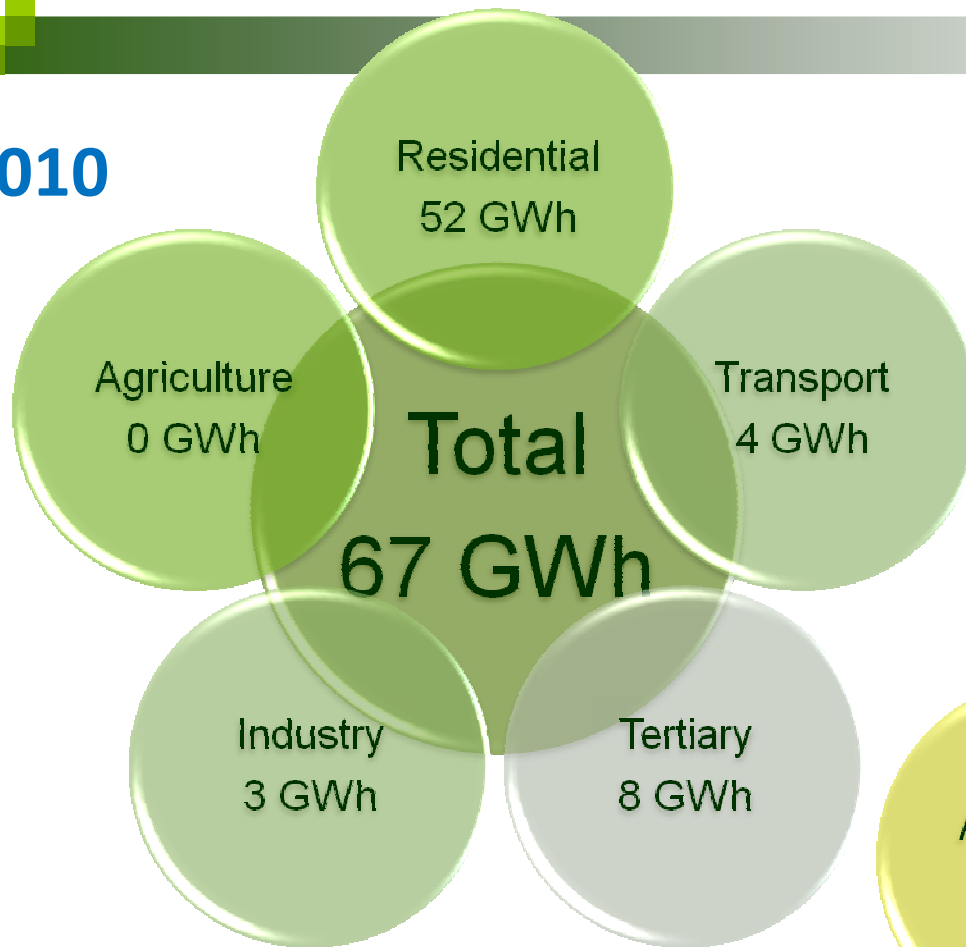


National energy efficiency action plan

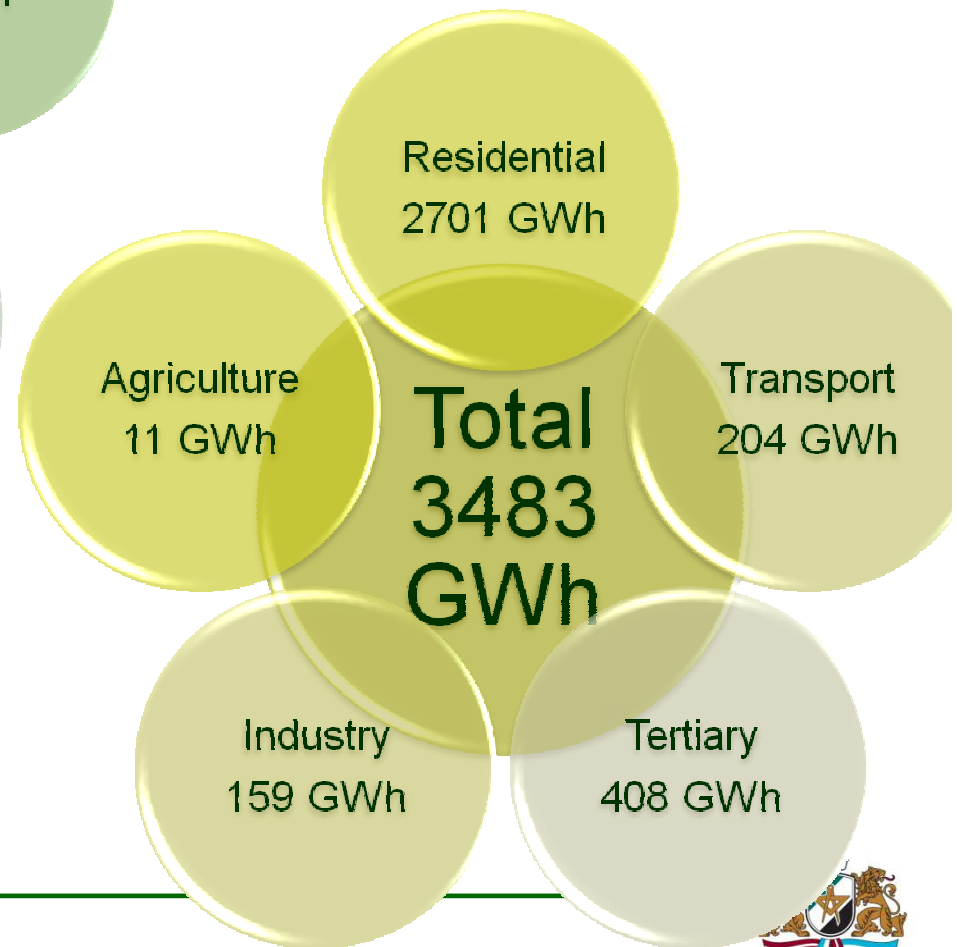


Indicative goals

2010



2016





Energy efficiency modelling tools

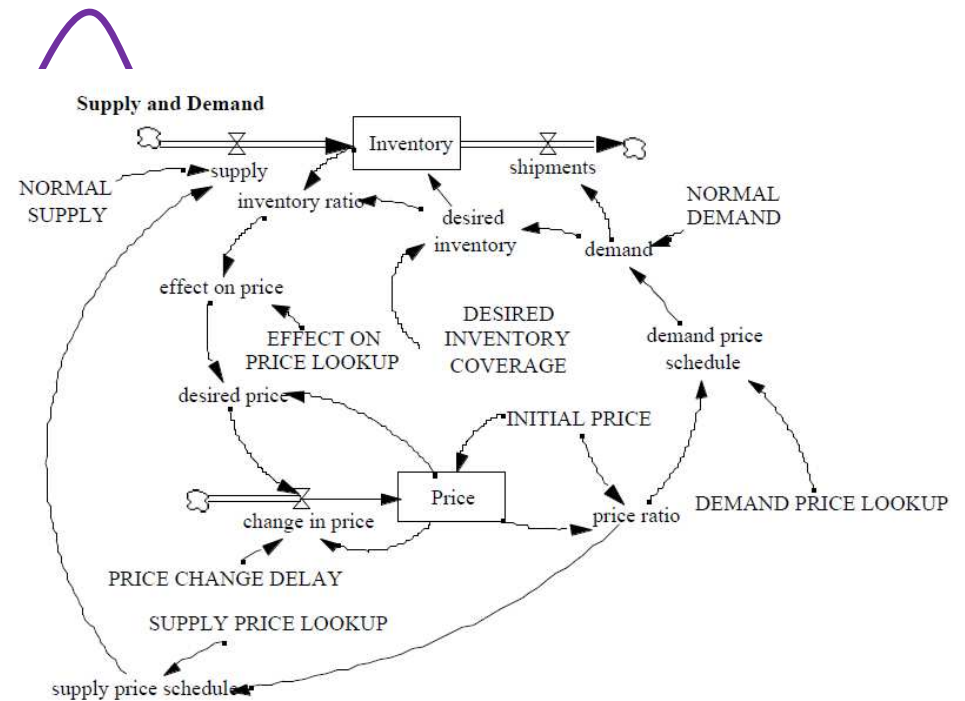
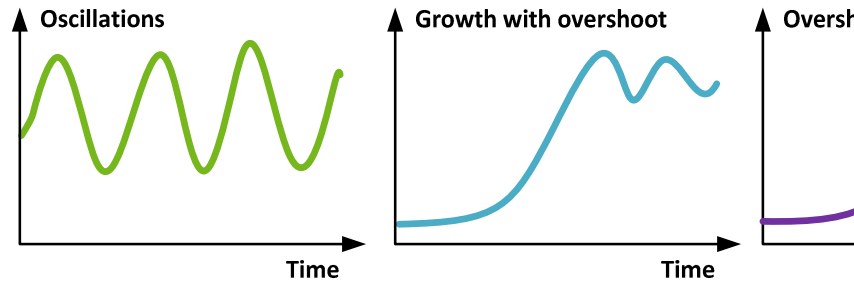
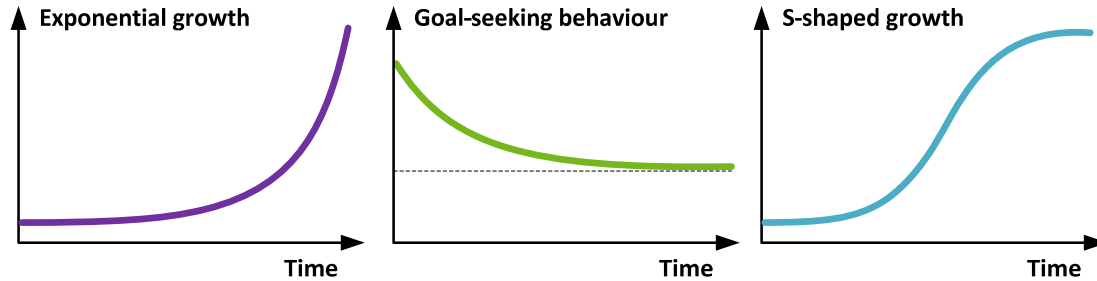
The “black box” models

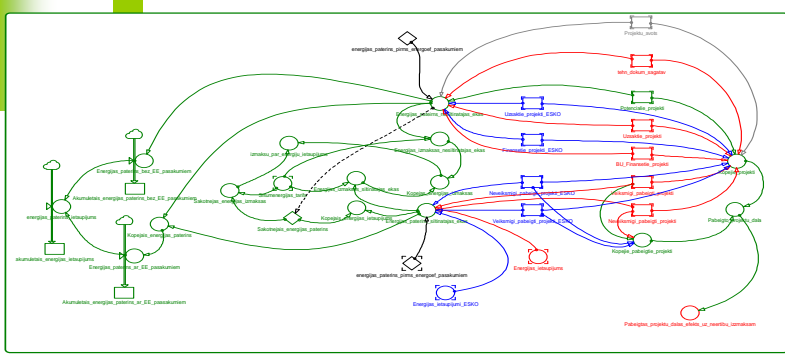
- have to be used with great caution.
- it is important to understand the role of interpretation of results and the context of events.
- the assumed future is based on past data.

The “white box” models

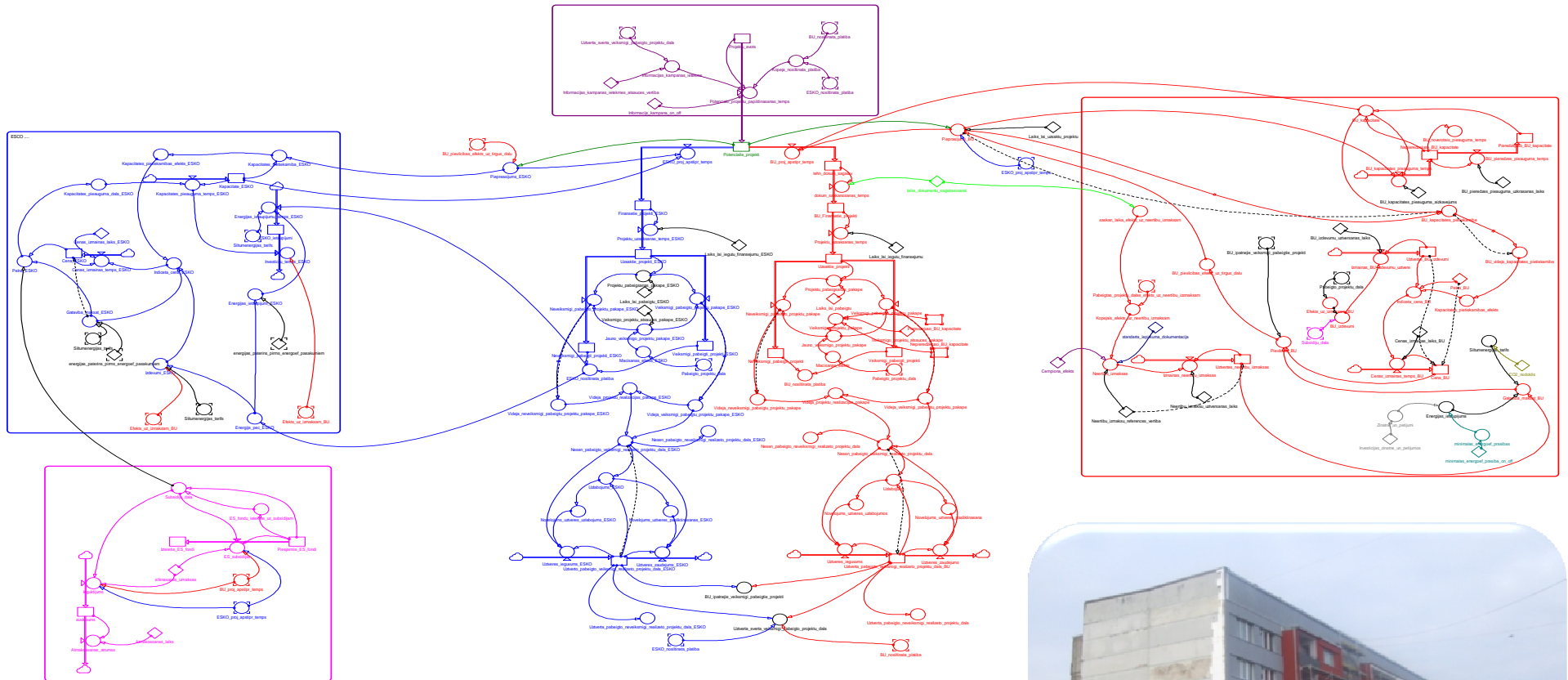
- have a transparent structure that provides information on different variables, including their relations, feedbacks and delays.
- the assumed future is based on the structure that generates the behavior.

System dynamics modelling

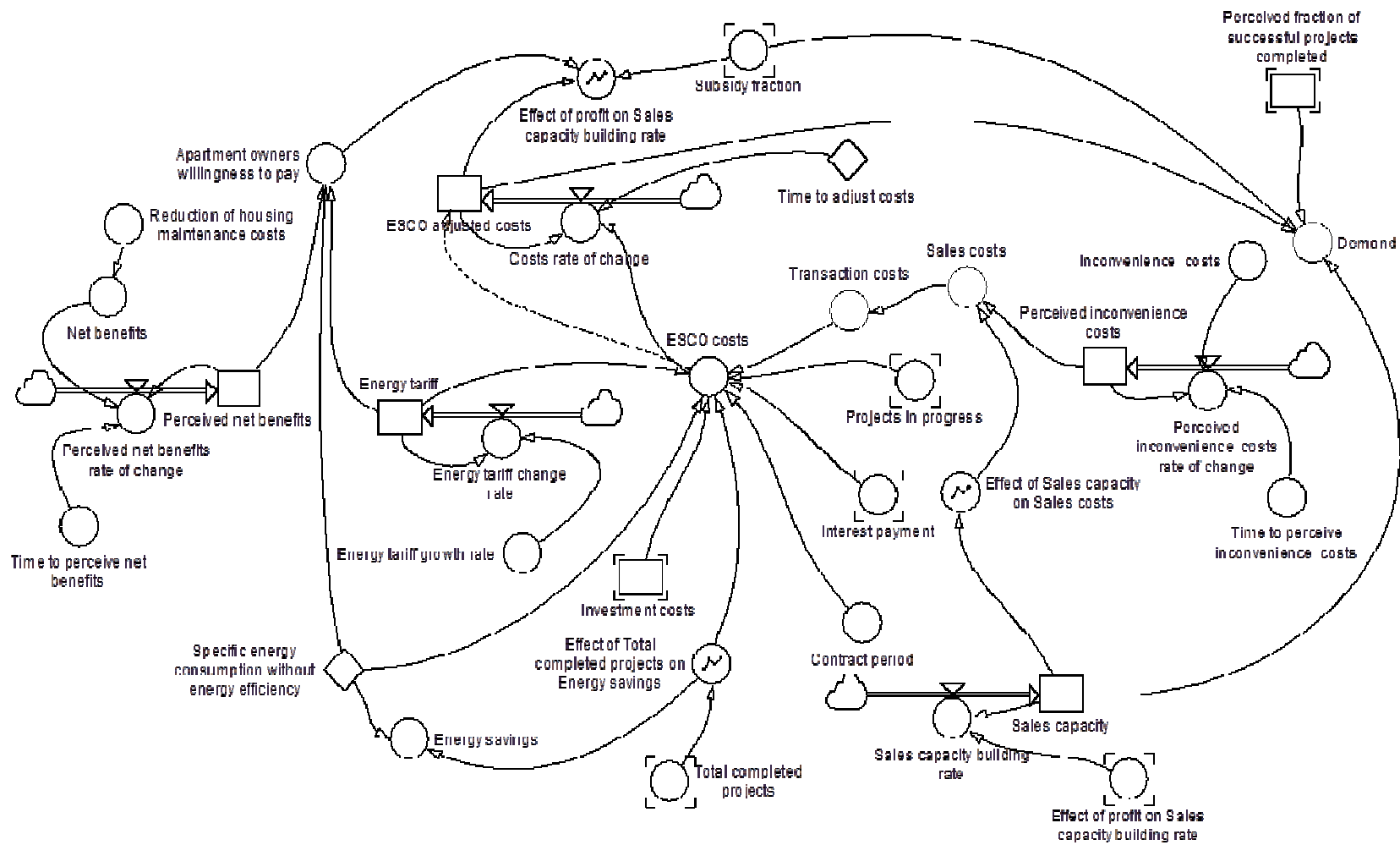




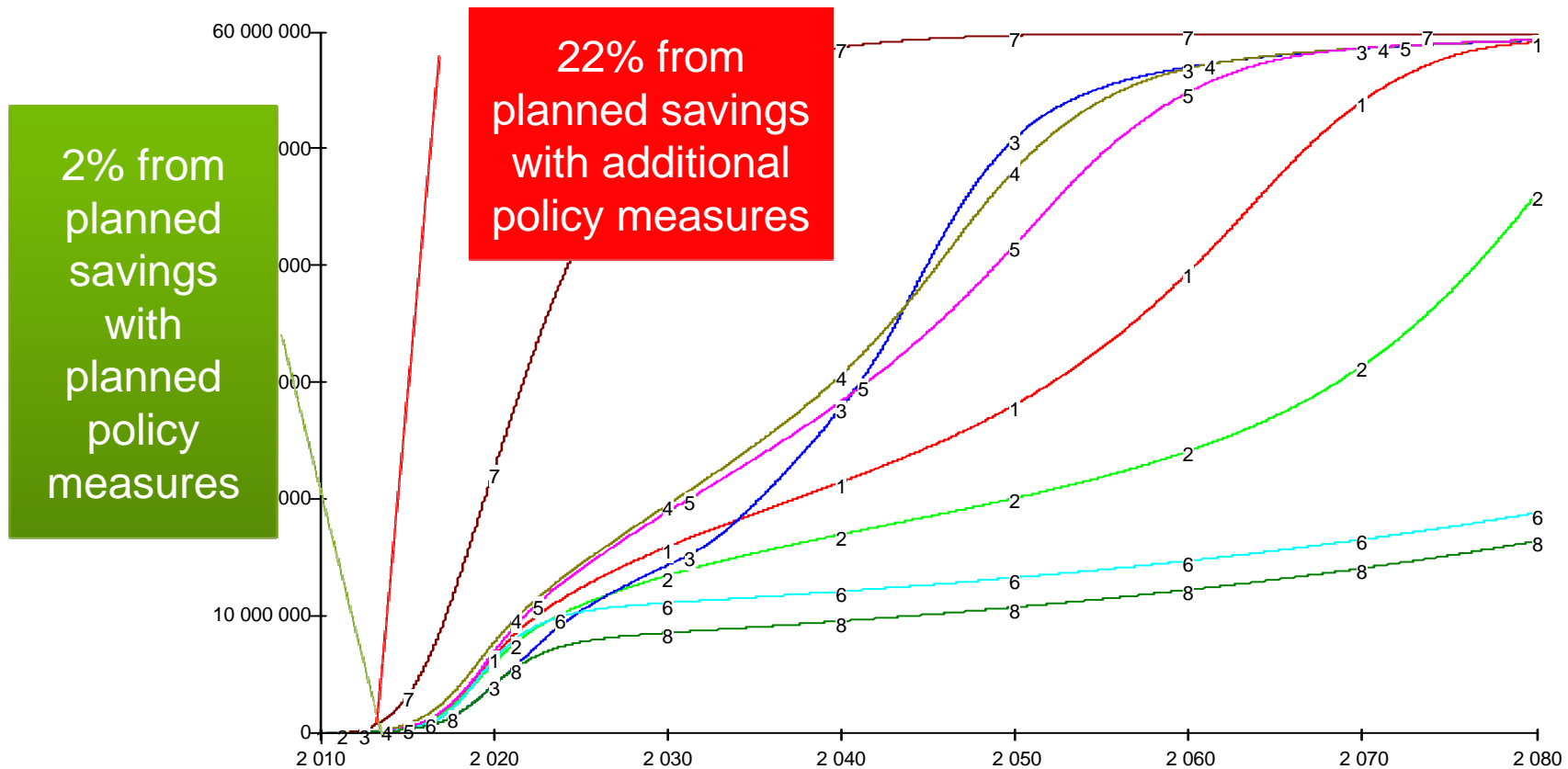
System dynamics model for residential energy efficiency



Stock and flow diagram of ESCO supply and demand submodel

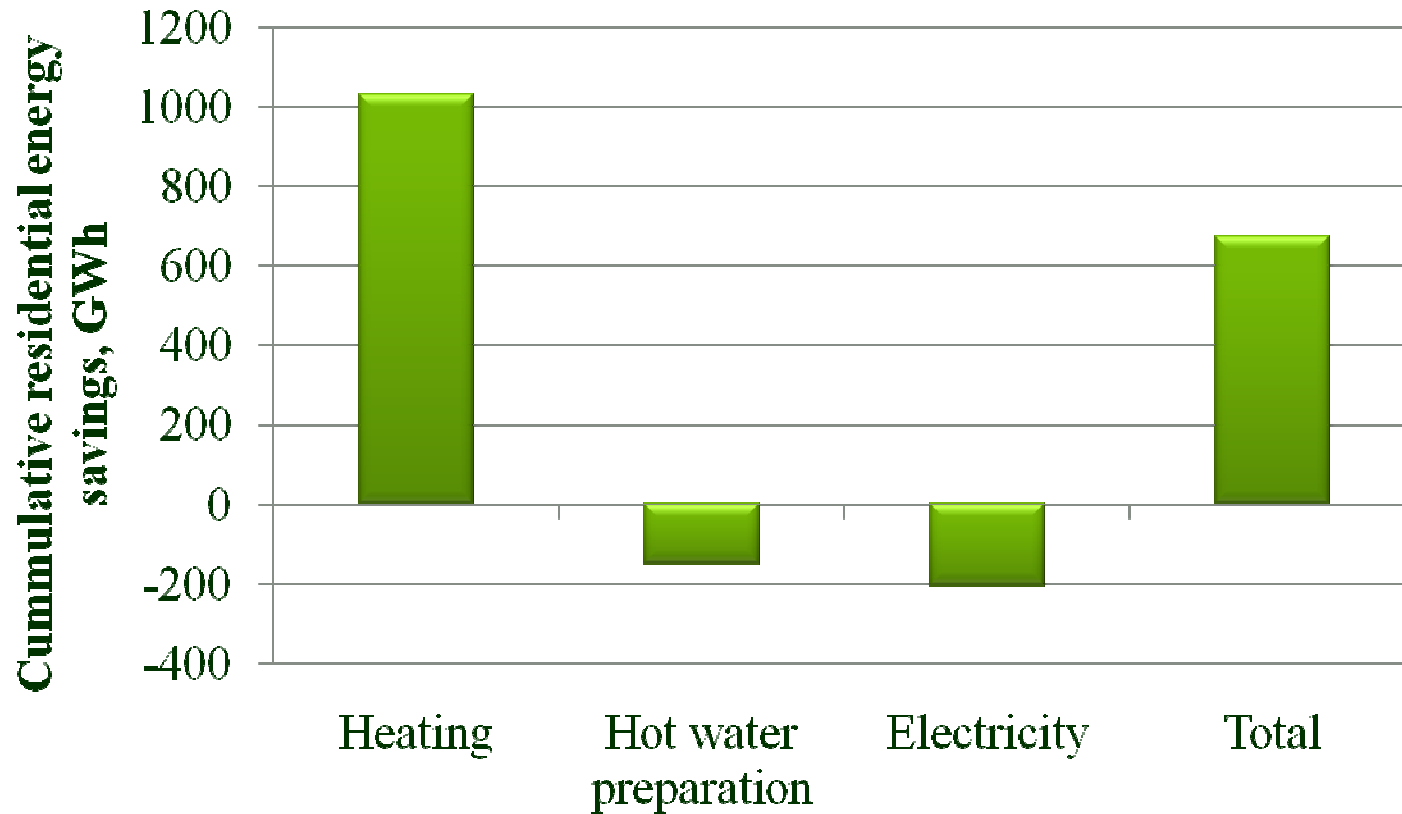


Energy efficiency dynamics as a result of Latvia's EEAP policy tools and additionally suggested energy efficiency policies



1- 'one stop shop', 2 – CO₂ tax, **3 – increased minimum energy efficiency requirements**, 4 - research and development support, 5 - standard procurement documentation and contracts, **6 – information campaign**, 7 – combination of all policy tools, **8 – subsidy scheme**

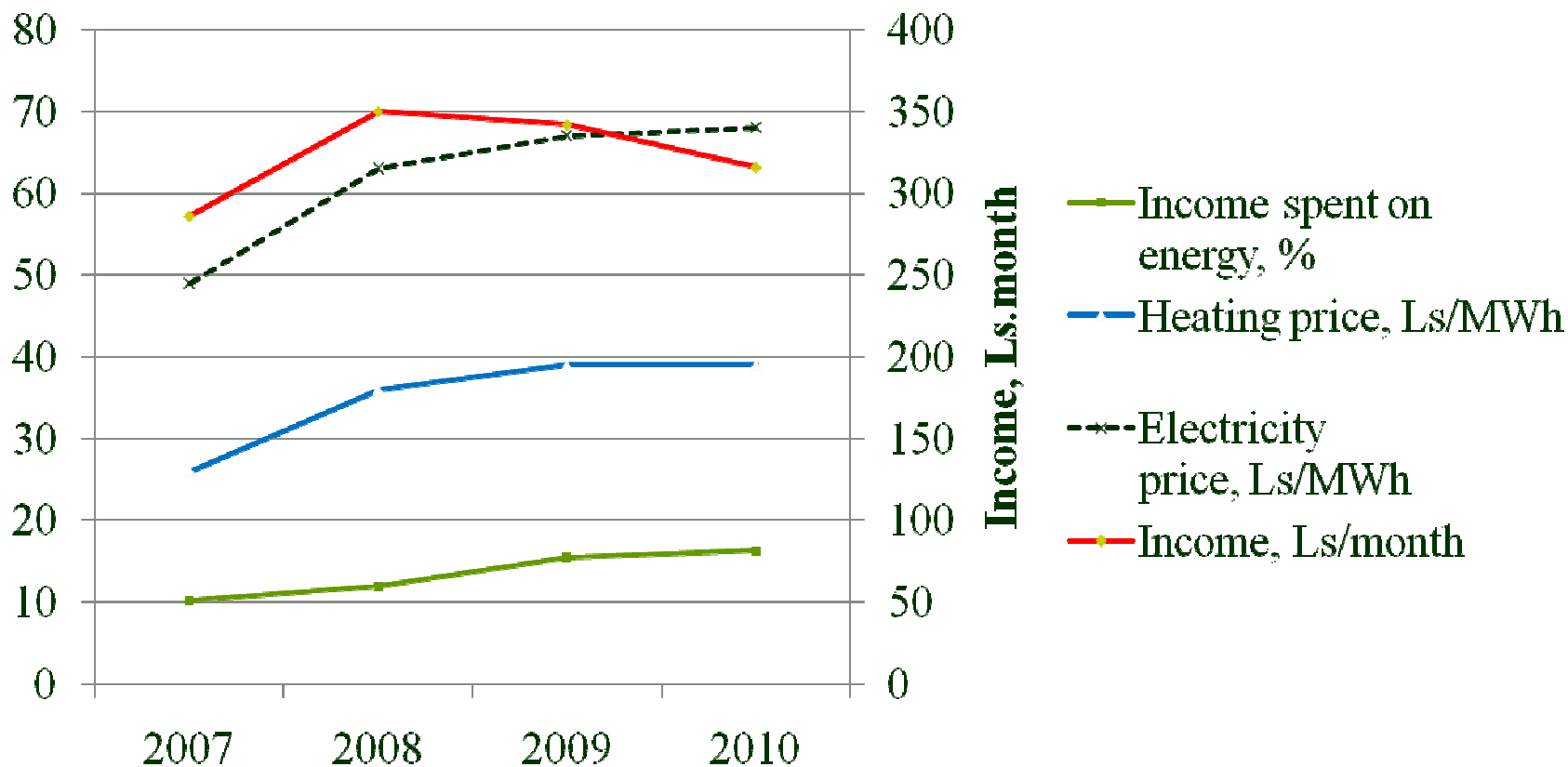
Residential energy savings reported during 2007 and 2009 (the second Latvia's EEAP): top-down method



- Goal for 2010: 52 GWh
- Goal for 2016: 2701 GWh

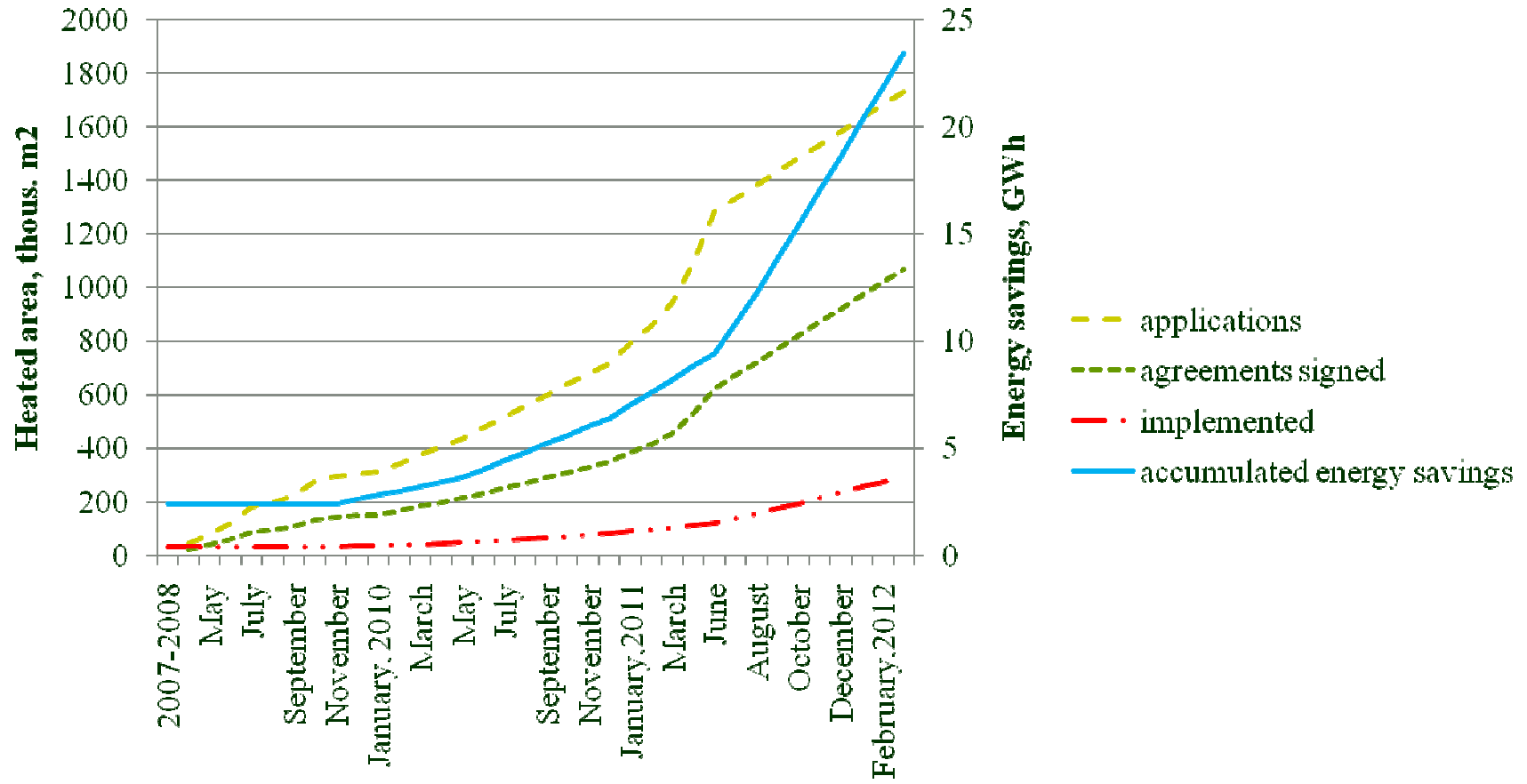
Minimum top-down ODEX indicator : residential energy consumption for heating adjusted by the climate correction coefficient (kgoe/m²)

Income and energy prices in Latvia 2007-2010

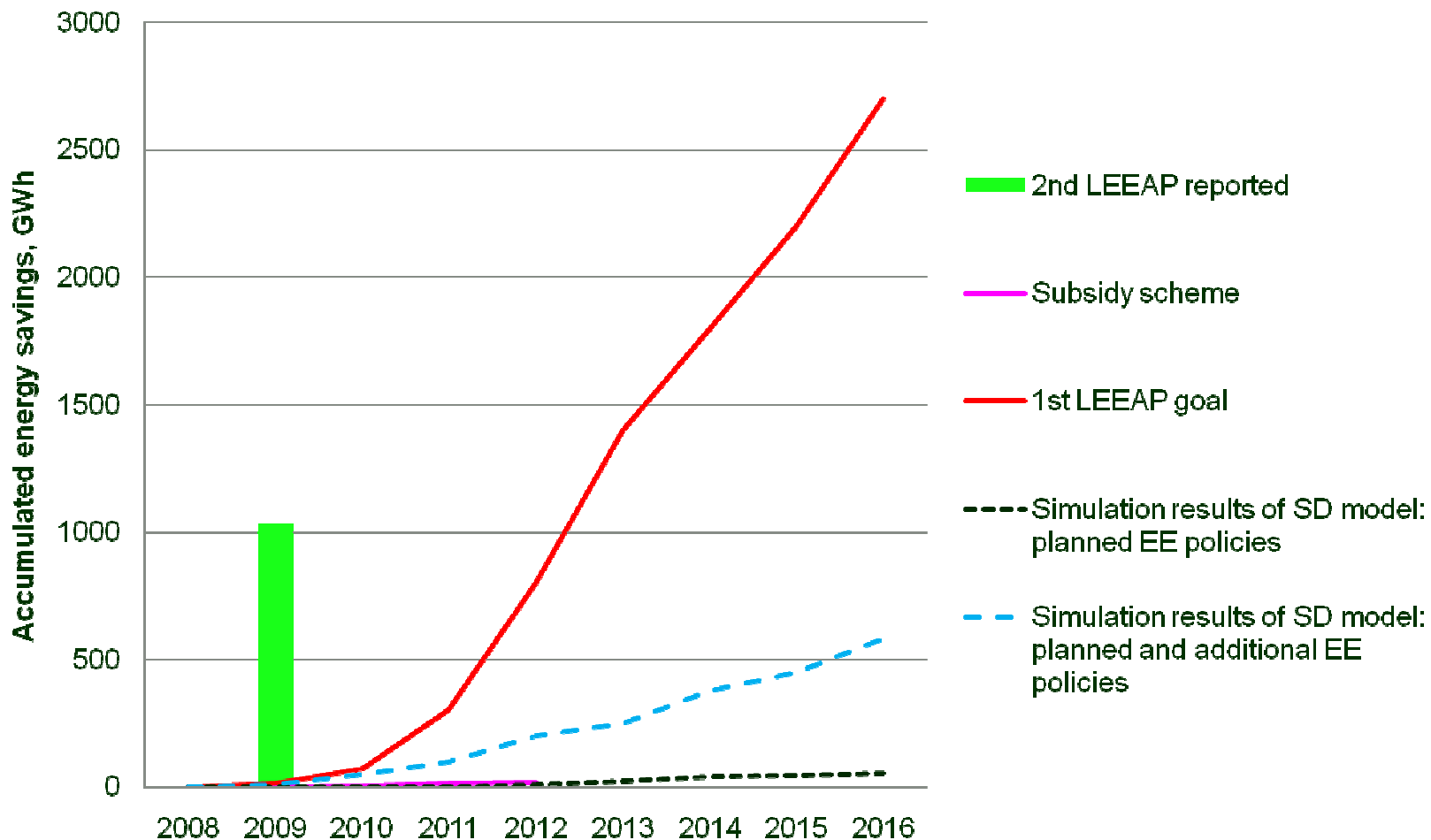


1Ls =0.7EUR

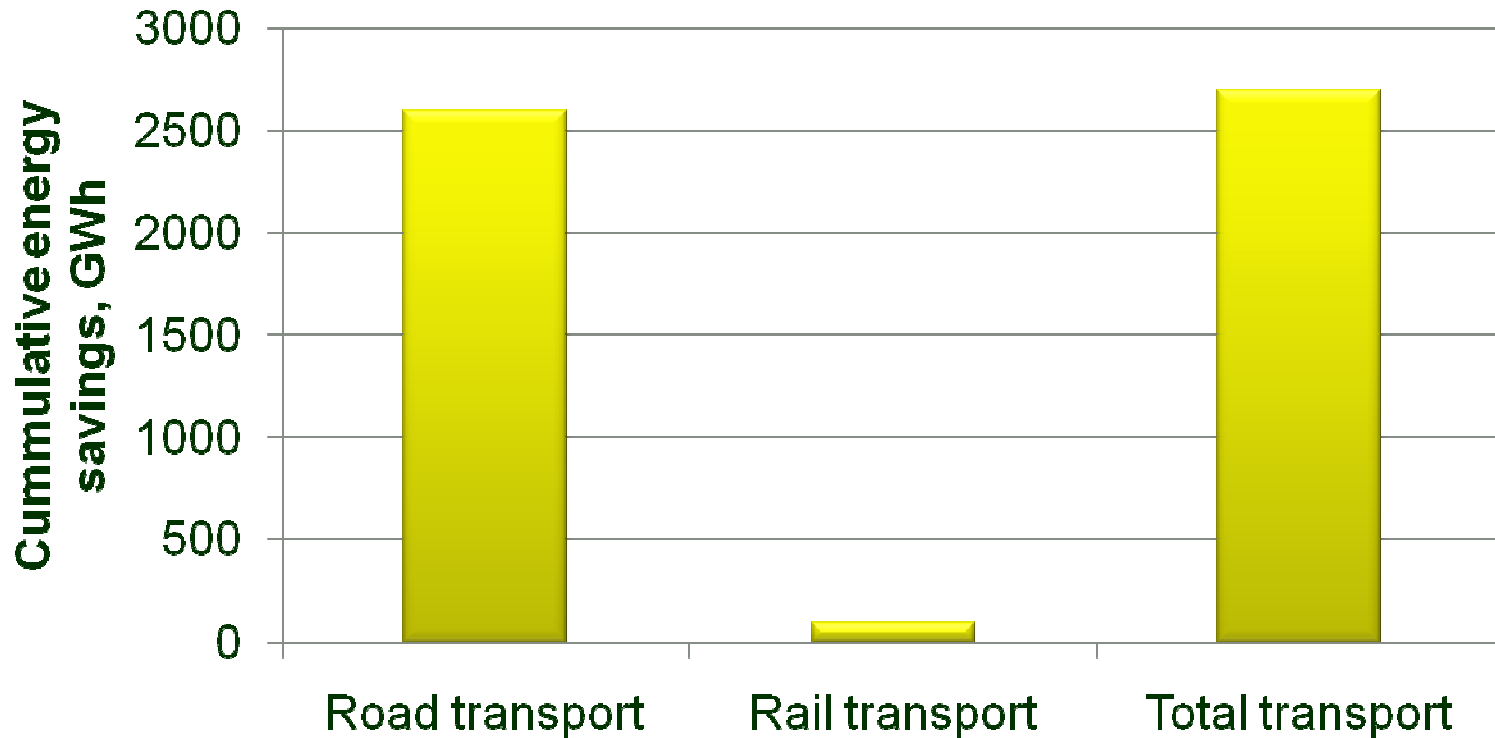
Application, implementation and energy savings dynamics from the beginning of 2007 till February, 2012



Planned, simulated and actual accumulated energy savings between 2008 and 2016 in residential sector in Latvia



Transport sector energy savings reported during 2007 and 2009 (the second LEEAP)



- Goal for 2010: 4 GWh
- Goal for 2016: 204 GWh

Minimum top-down ODEX indicator :
energy consumption in road transport per
one specific road transport equivalent unit



Conclusions

1. Methodology:

- The use of the “black box” top-down approach for evaluating energy-efficiency policies is limited due to very lack of detailed data.
- There is a danger in relying too much on top-down indicators without employing proper interpretation techniques or other modeling methods.
- The factors and effects underlying top-down indicators need careful explanation, e.g. about energy user responses to changing conditions.
- If results are not interpreted, one can draw a misleading conclusion that energy consumption reduction is due to technological and behavioral improvements in energy efficiency instead of decreased comfort.



Conclusions

2. Implications:

- As a result, the government might face rapid energy consumption increase during economic recovery.

3. Further research:

- Paper submitted to journal on detailed analysis of ESCO market in residential energy efficiency market.
- Further research will focus on tests of the system dynamics model on actual data on project implementation and energy consumption monitoring as soon as they become available from the implementing agency.



There is no elevator to success.
You have to take the stairs.

(Author unknown)

