



Policy assessment: Case study Lithuania

IMPROVING RENEWABLE ENERGY POLICY FRAMEWORK IN LITHUANIAN HEATING SECTOR

RES-H Policy project national dissemination conference

RES-H
POLICY

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- Assessment of the effectiveness and economic efficiency of selected support measures



RES-H POLICY project

Relevance of RES-H policy project – to assist MS governments in implementation of the Directive on Renewables.

The overall aim – to develop sound policy recommendations and policy implementation strategies for instruments to stimulate RES-H/C market penetration.

One of the tasks: to propose RES-H support measures, to perform qualitative assessment, to carry out stakeholders consultation and to perform assessment of the effectiveness and economic efficiency of selected support options.



Directive 2009/28/EB

Article 3, item 1 of Directive 2009/28/EB on the promotion of the use of energy from RES provides that

Each Member State shall ensure that the share of energy from renewable sources, calculated in accordance with Articles 5 to 11, in gross final consumption of energy in 2020 is at least its national overall target for the share of energy from renewable sources in that year, as set out in the third column of the table in part A of Annex I:

Lithuania – 23%



National RES action plan

...to increase the share of RES in heating and cooling from **28% (2008)** in the gross final consumption of this sector to **36% (2020)**,

And to increase the share of district heating produced from RES from **14,9% to 50%**.



Current situation in Lithuania...



Consistent policy package are the key to trigger a RES-H development that is required to meet ambitious targets.

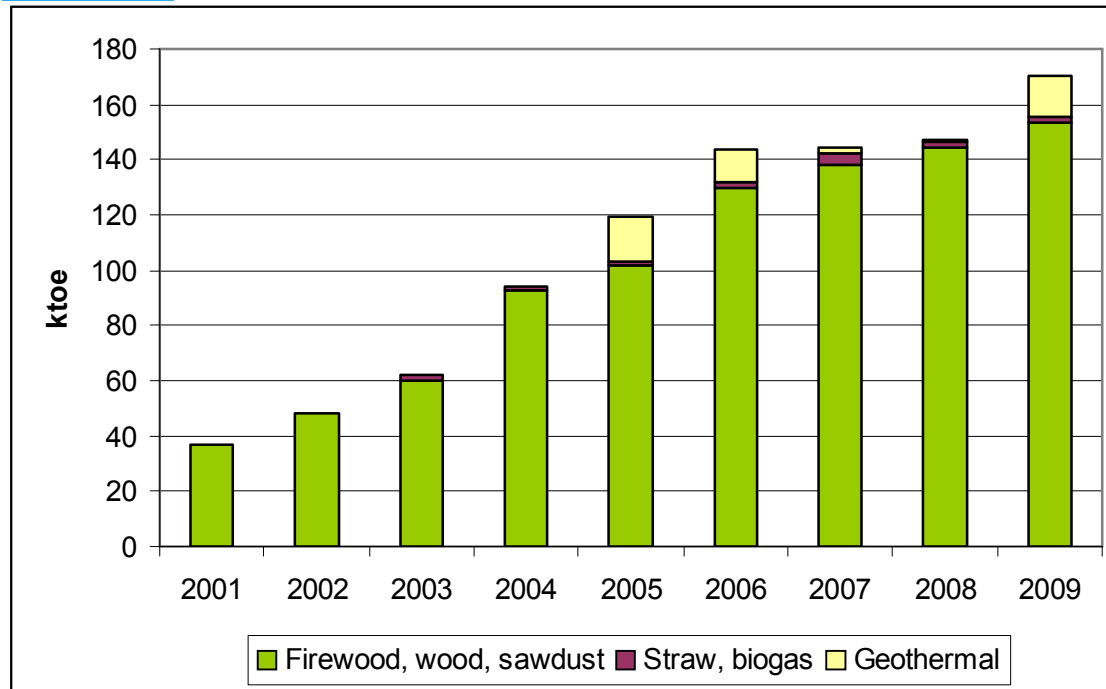
Lithuania is promoting the use of indigenous, renewable and waste energy resources by **financial measures**, but there is no direct support for RES-H.

Financial support:

- Exemption from pollution taxes
- The Lithuanian Environmental Investment Fund
- EU structural funds for 2007-2013
- Lithuanian Rural Development Programme for 2007-2013
- The Fund of the Special Programme for Climate Change

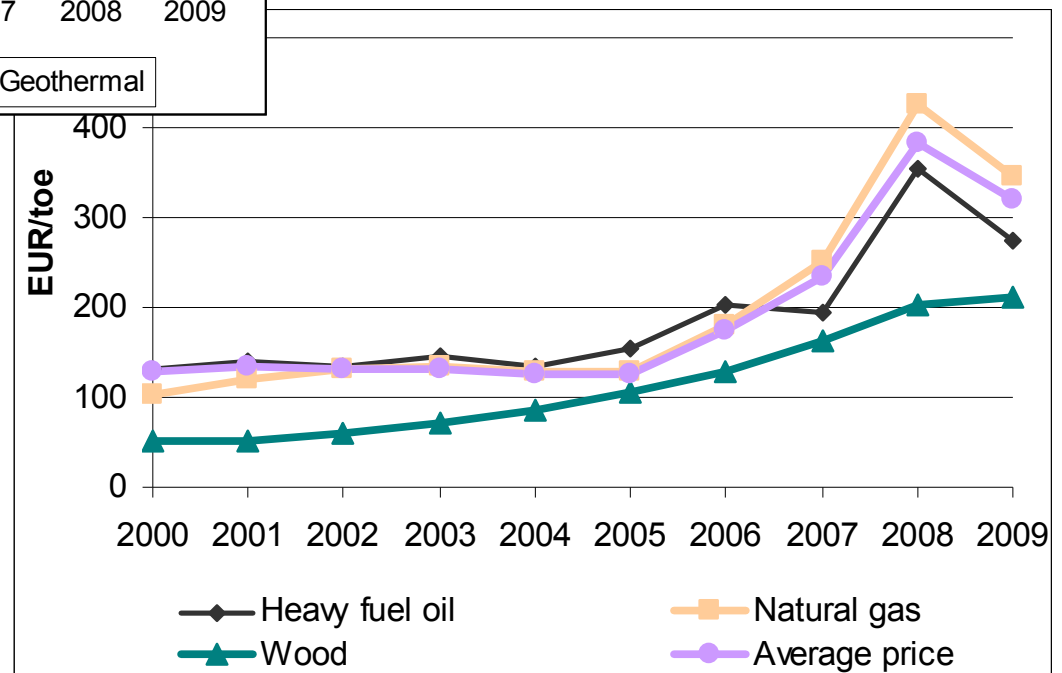


Current situation: RES-H consumption



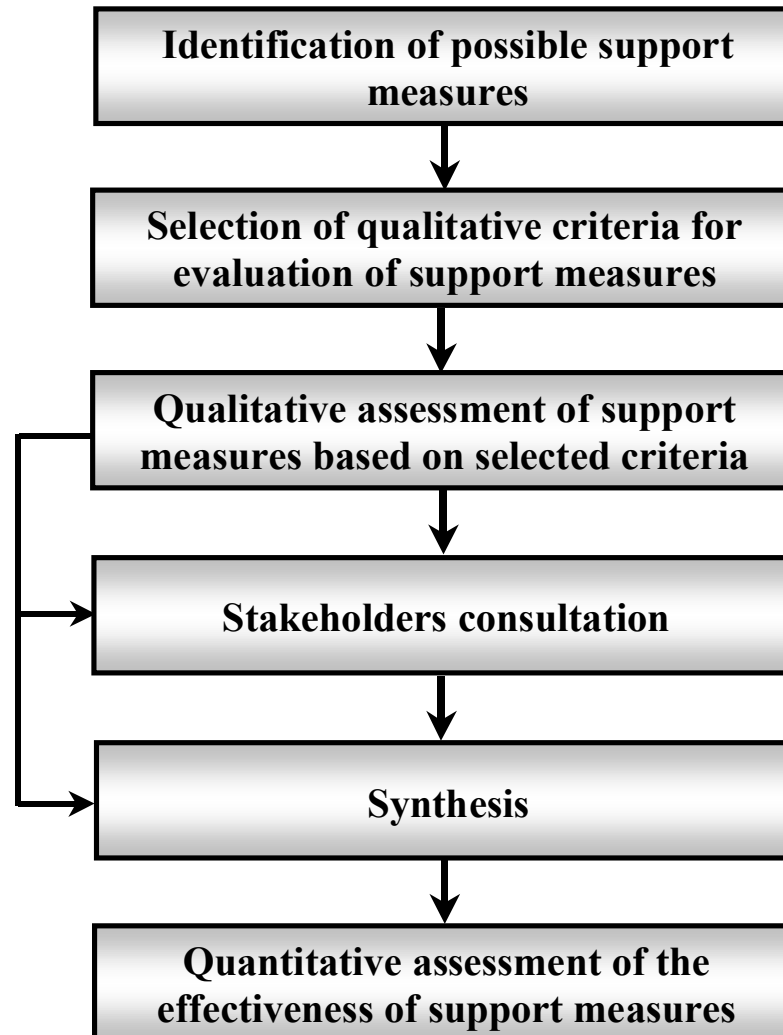
The share of RES-H increased from 4% (2001) to 19.3% (2009). Wood share in total RES-H production amounts about 95%.

Development of RES-H production from biomass was mainly stipulated by the relatively lower wood prices in comparison with conventional fuels.





Methodology of RES-H support measures selection and assessments





Proposed RES-H support measures

- **Tax related instruments:** personal income tax breaks and VAT reduction (accompanying measure – *public awareness raising*);
- **Soft loans** (accompanying measure – *information and promotion strategies*);
- **Support for research, development and demonstration** (accompanying measure – *skills, education and training*);
- **Standardization.**



I measure – tax related instruments

In order to reach a higher penetration of RES-H different measures should be applied for **DH and non-DH sectors**:

➤ ***Non-DH sector***: income tax break, applicable to the equipment purchase price. The list of applicable technologies should be provided (for example, solar panels, boilers fired with wood pellets, etc.).

➤ ***DH sector***: investment subsidies and VAT reduction. Different VAT rates, depending on generation source could be applied (for example, reduced VAT tariff could be used for heat generated from RES).



II measure – Soft loans



Taking into account the current situation in the banking sector soft loans are becoming essential for developing many innovative projects, including RES-H. Nevertheless, soft loans are not a new instrument in Lithuania.

Soft loans could be used by both DH companies and individuals.

Individual consumers could be a better target group than DH companies. Usually for relatively small loans banks apply higher interest rates. Therefore attractive loans could stimulate individual consumers to switch from gas to RES.

In **DH sector** more rapid RES penetration could be expected if available soft loans would be combined with higher taxes for air pollution.



III measure – Support for research, development and demonstration



Seeking to achieve significant results in research it is necessary to have **continuous policy of research**.

Current situation shows that it is necessary to increase financial support for research and development.

The main target group for this instrument is institutions of science and studies and new technologies based industrial enterprises.

Government together with Ministry of Education and Sciences should be responsible for implementation of various support measures for research and development programmes.

Research could be financed from State budget, EU Structural funds and private sector.



Conclusions on qualitative assessment



Performed analysis showed that in general proposed support measures are **suitable for RES-H promotion**:

- The selected measures are **market oriented**. They will not command to market actors, but give incentive. Market actor will have possibility to decide individually to implement RES-H system or not, therefore they should be easily acceptable. They will not distort the competition among different players of the heating market.
- **Stable investment conditions** will be assured if validity of reduced taxes will be defined.
- Lithuania has **good experience** with analogous instruments which were successfully implemented, therefore they will not require any considerable “new” elements.
- Proposed measures meet **transaction costs criteria** due to possibility to use synergies regarding administration tasks.



Stakeholders consultation on proposed RES-H support measures



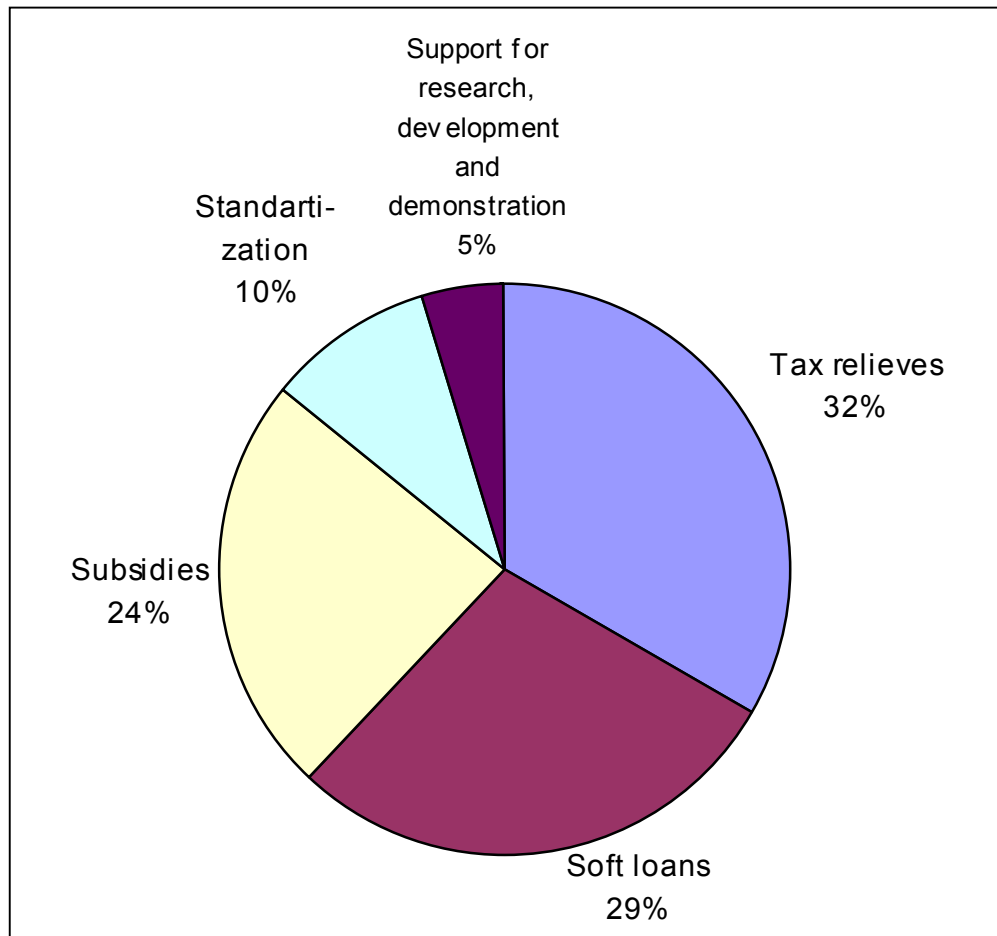
The core objective – to get opinion of experts, who are working in different fields of energy sector on the proposed RES-H support measures.

The method – the questionnaire.

Target group: policy makers, heat supply companies, consulting companies, RES industry and research institutions.



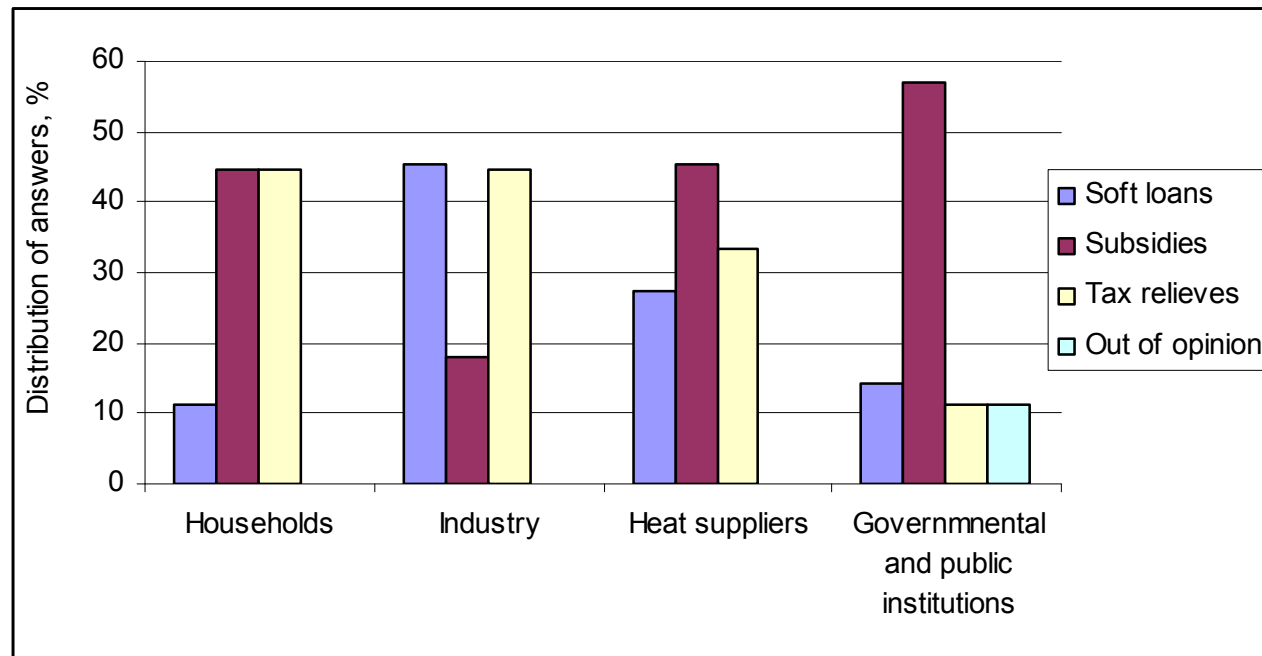
Distribution of responses regarding the support measures



All respondents consider that there is no unique measure. They indicated various combinations of measures.



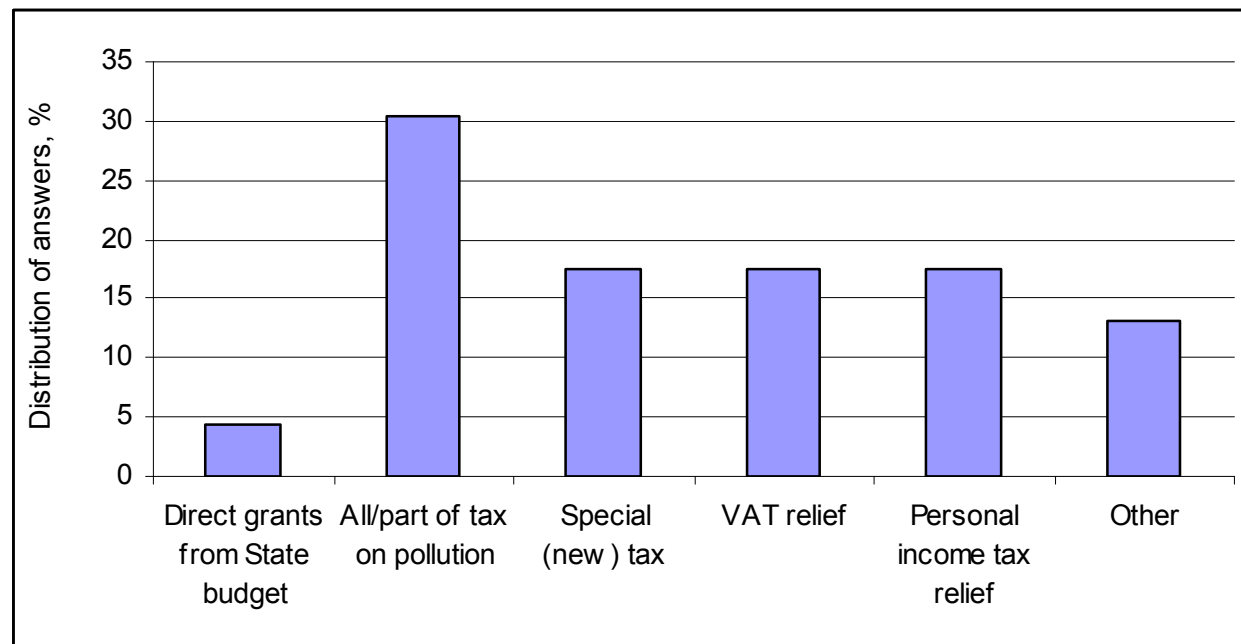
Distribution of responses regarding support measures for the specific economic sector



There is no unique opinion on economic sector specific RES-H support measures...



Distribution of responses regarding financing source of proposed measures



All or part of the tax on pollution should be the main financing source.



Proposed size of the subsidies

Economic sector	Size of the subsidy, %
Households	15-30%, but not more than X Litas
Industry	15-25%
Heat suppliers	20-30%
State institutions	15-30%

- ✓ Subsidy **ceiling** expresses in relative amount should be set.
- ✓ The size of subsidy should be **differentiated** according to the technology.
- ✓ **The size of subsidy** should be endorsed by detailed analysis.



Taking into account the results of the qualitative analysis and stakeholders' opinion it has been decided that it would be powerful to investigate **the effectiveness and economic efficiency** of two policy sets:

- *Policy set 1.a - investment subsidies,*
- *Policy set 1.b - tax breaks,*
- *Policy set 2 - no RES-H support policy.*

The estimation of effectiveness has been based on the two energy price scenarios:

- Low energy price scenario,
- High energy price scenario.



Policy set 1.a



Policy set 1.a is based on the maximum proposed level of investment subsidies for RES-H technologies

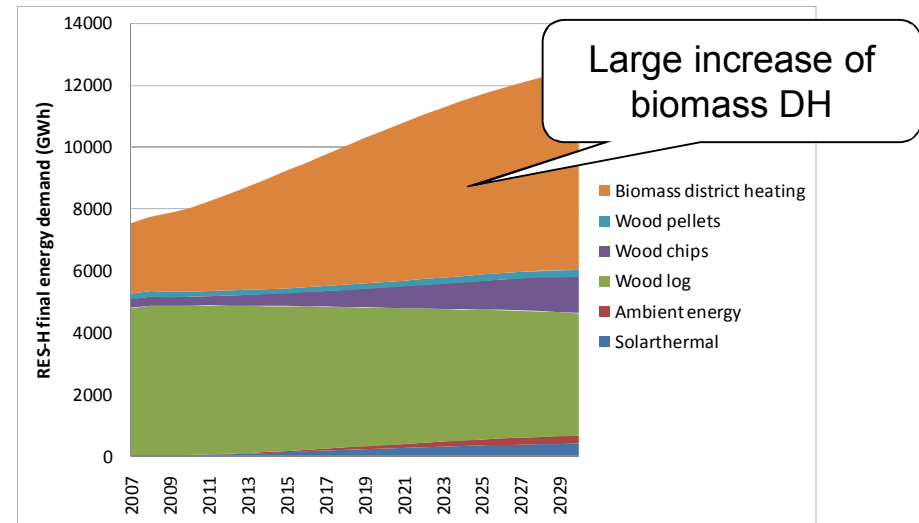
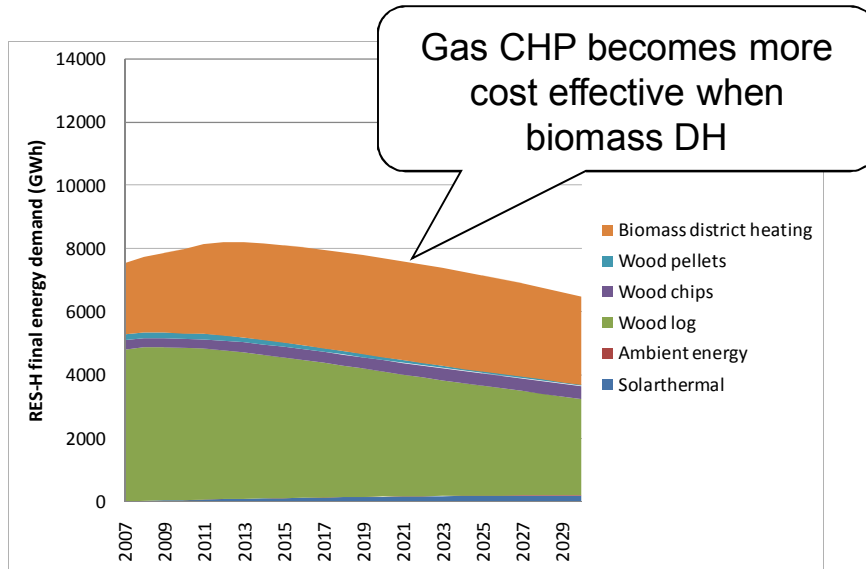
Technology	Investment subsidy
Wood log	20%
Wood chips	30%
Wood pellets	30%
Heat pump air/water	40%
Heat pump brine/water	40%
Biomass district heating	40%
Solar thermal systems	45%

There was assumed that the policies are starting to work in 2010.

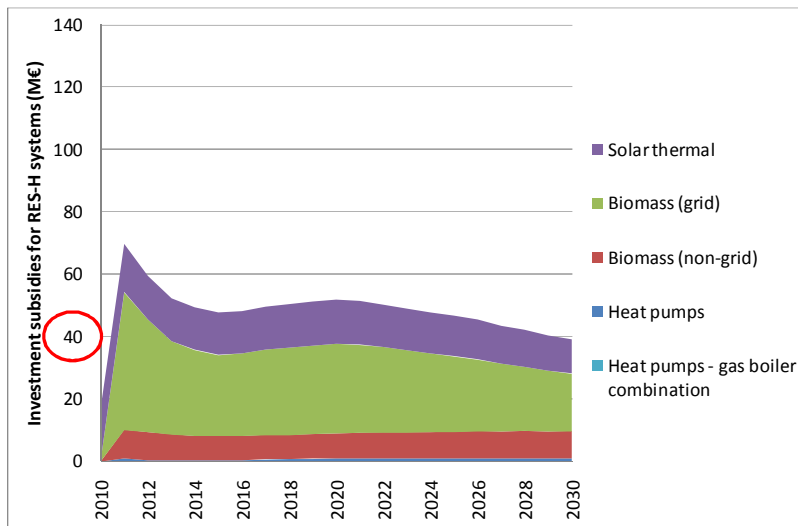


Policy set 1.a

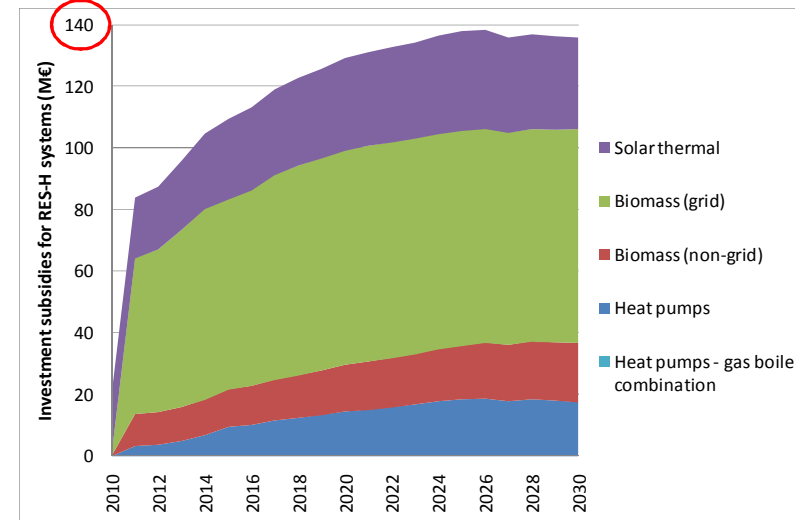
Growth in RES-H capacities / Costs



Low energy prices scenario



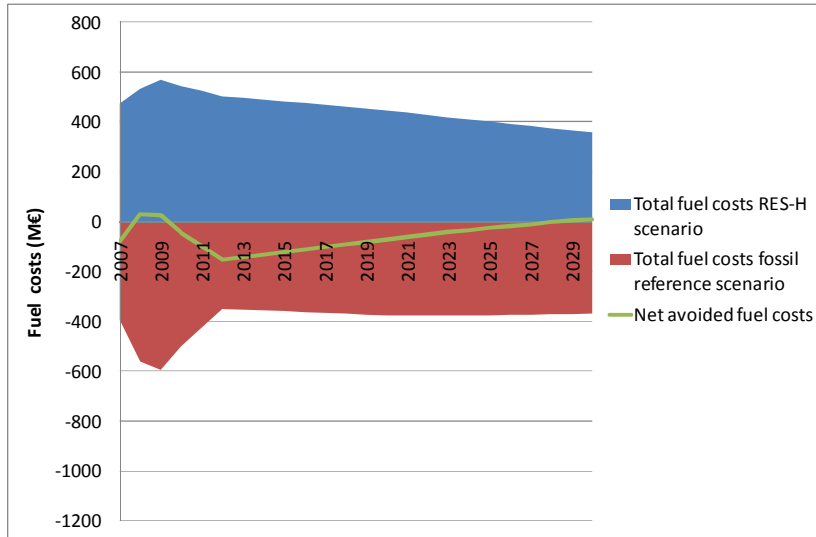
High energy prices scenario



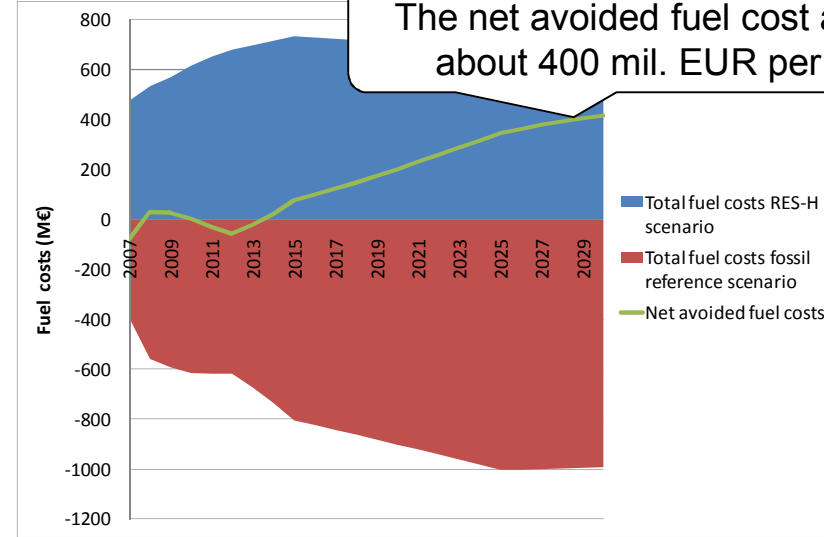
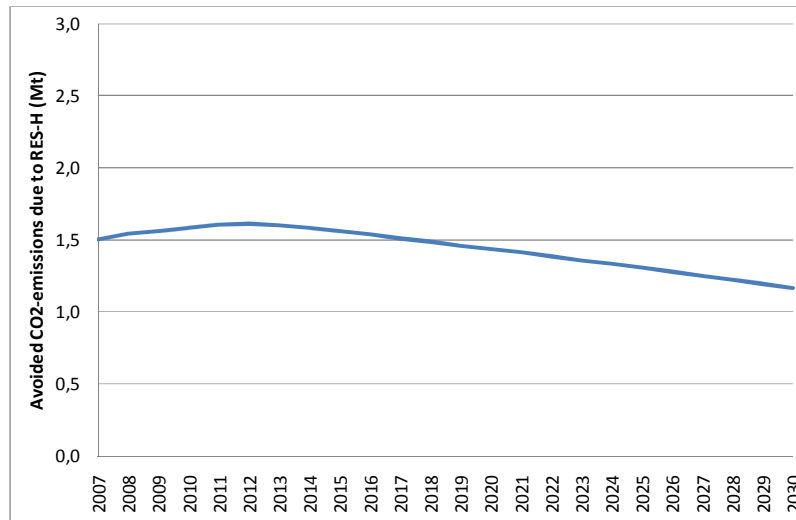


Policy set 1.a

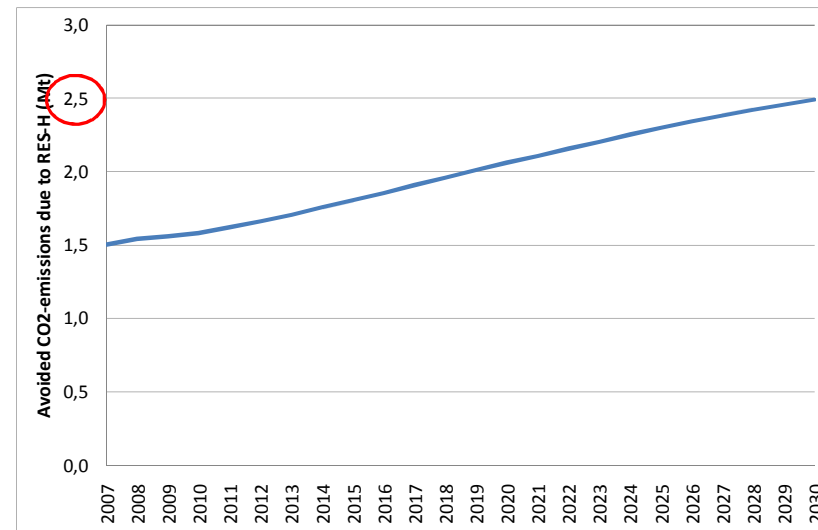
Avoided fuel costs / Reduction of GHG



Low energy prices scenario



High energy prices scenario





Policy set 1.b



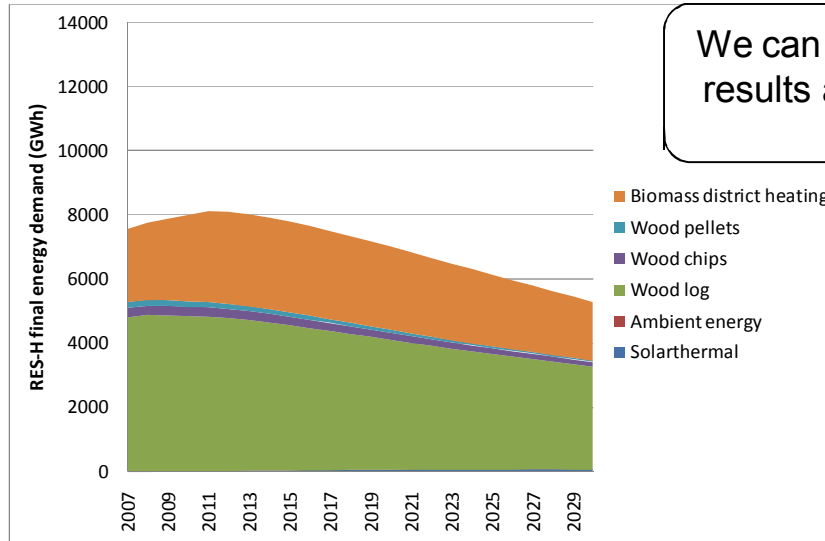
Policy set 1.b is based on tax breaks for the non-DH sector and a lower level of investment subsidies for the DH sector in comparison to Policy set 1.a

Technology	Tax breaks / investment subsidy
Wood log	15%
Wood chips	15%
Wood pellets	15%
Heat pump air/water	15%
Heat pump brine/water	15%
Biomass district heating	21%
Solar thermal systems	15%

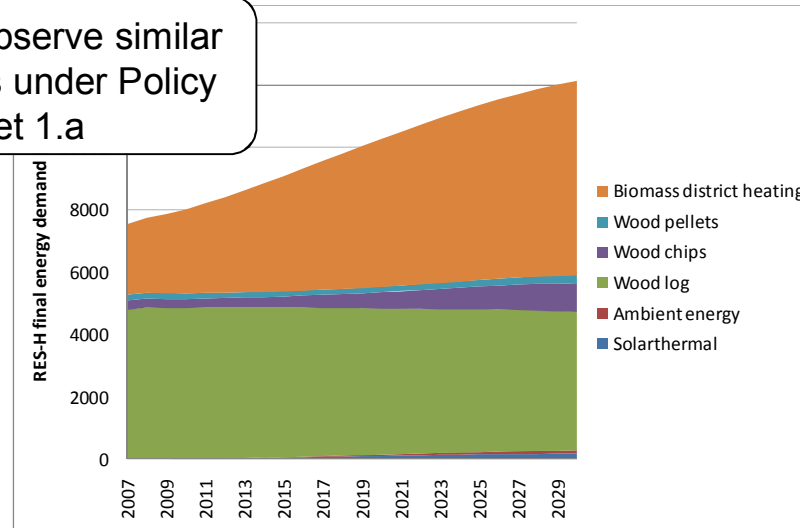


Policy set 1.b

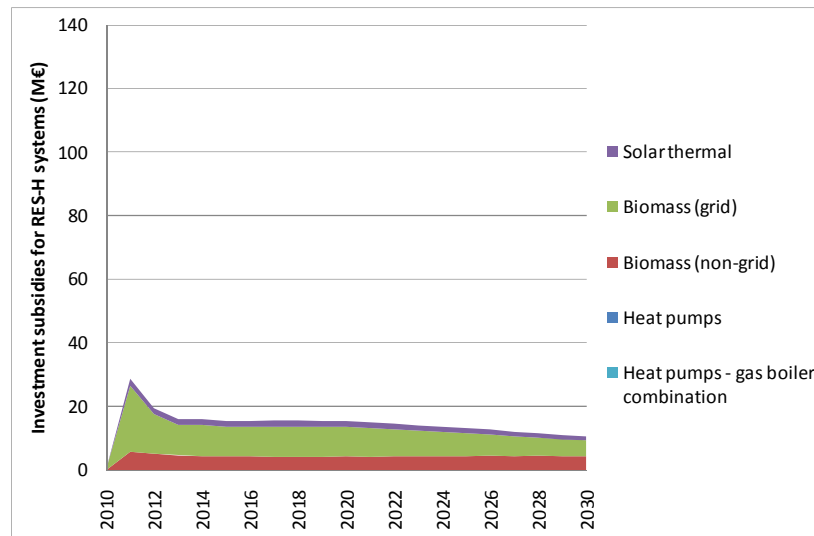
Growth in RES-H capacities / Costs



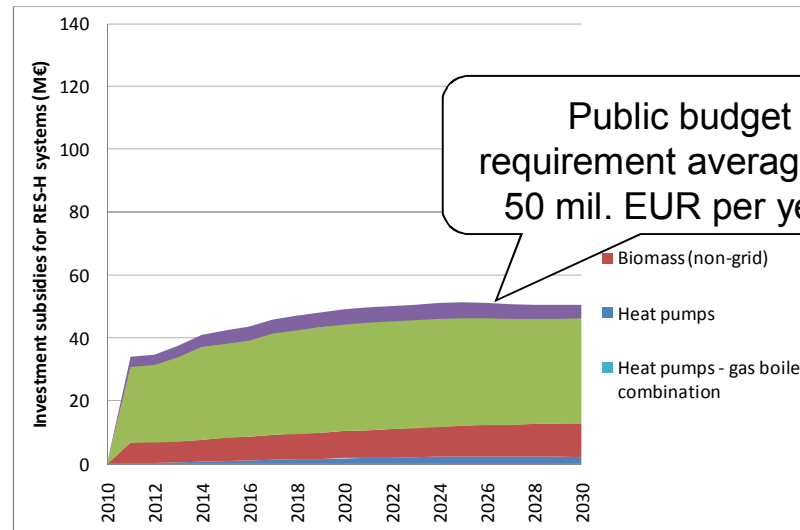
We can observe similar results as under Policy set 1.a



Low energy prices scenario



High energy prices scenario



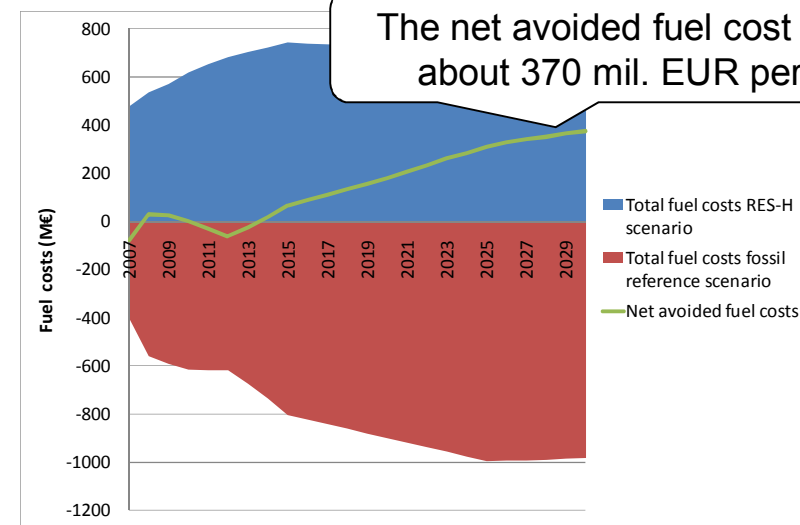
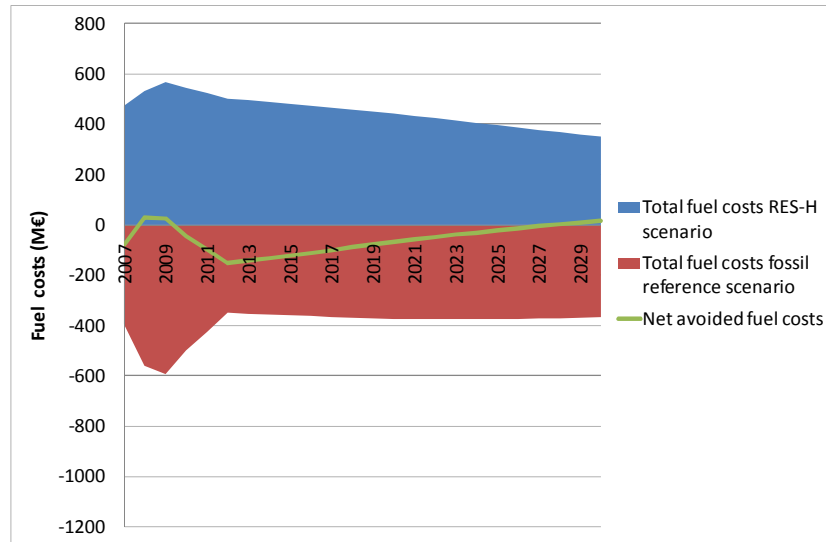
Public budget requirement averages at 50 mil. EUR per year.



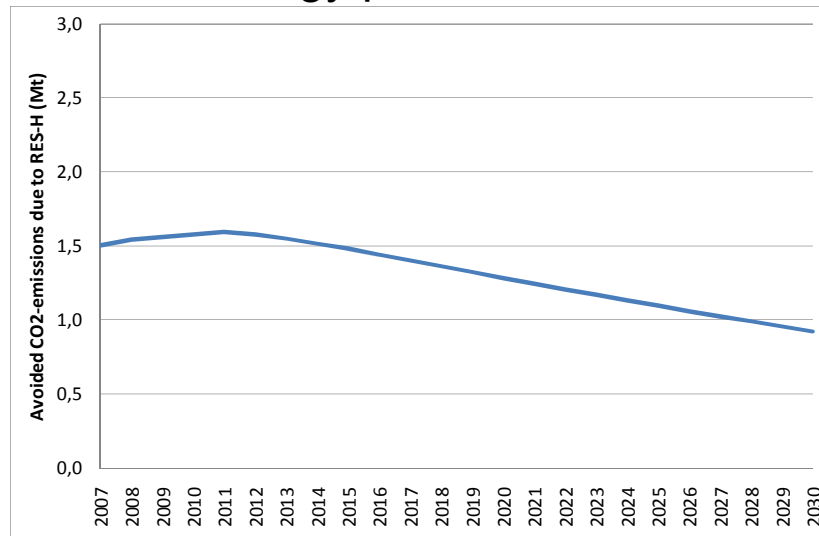
Policy set 1.b



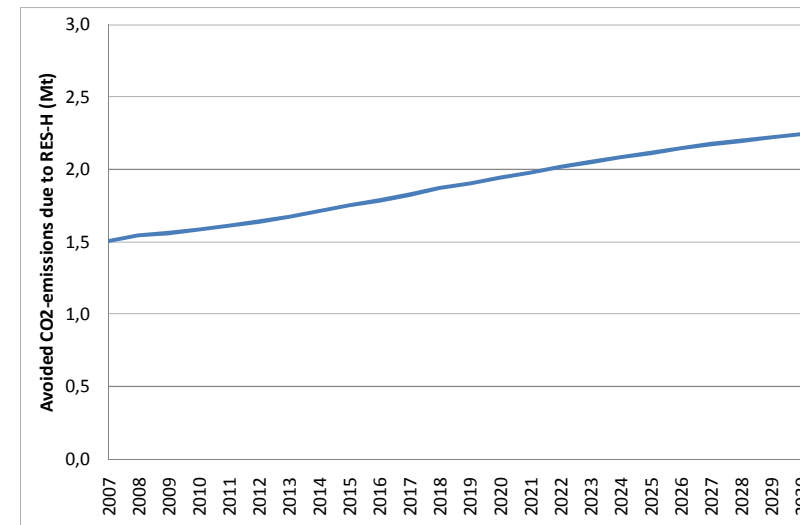
Avoided fuel costs / Reduction of GHG



Low energy prices scenario



High energy prices scenario



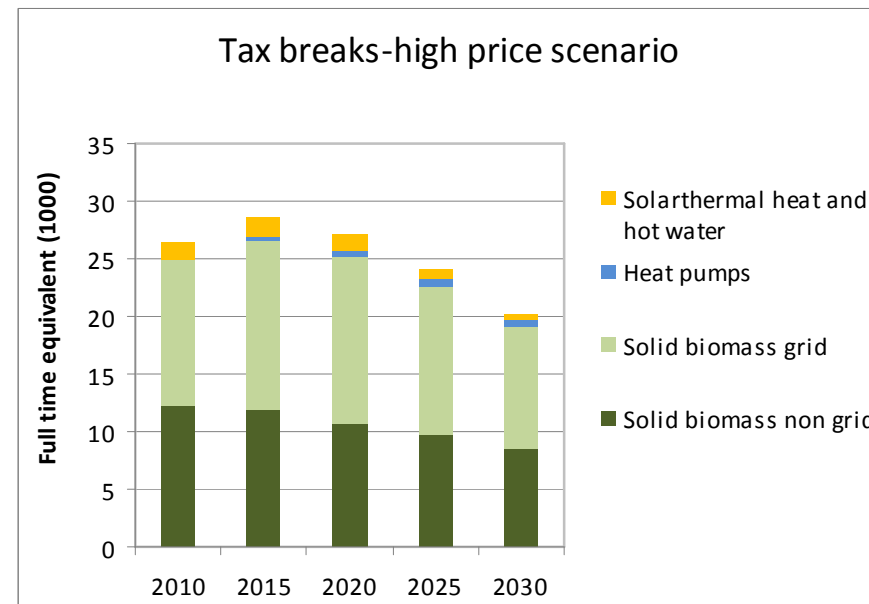
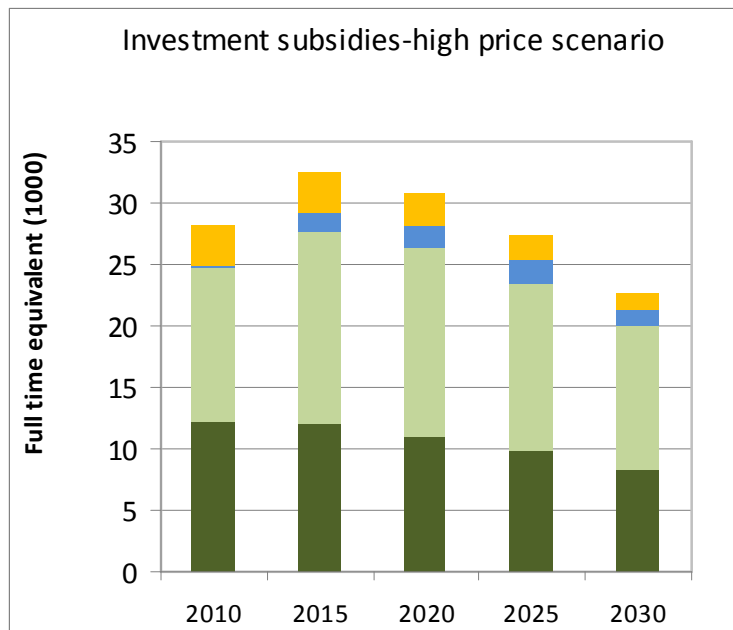


Gross employment effect

High energy price scenario



The effect on employment is an essential part of quantitative analysis.



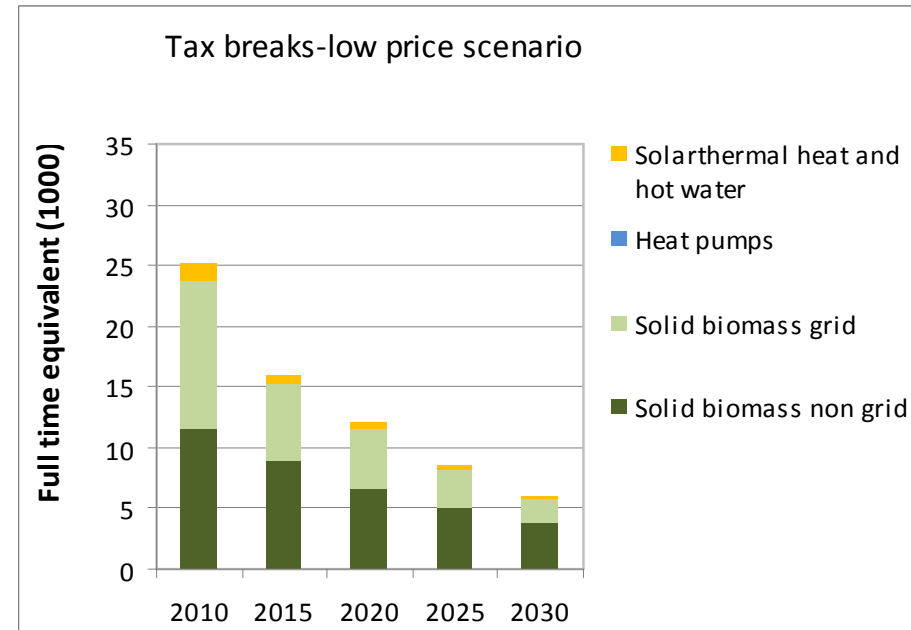
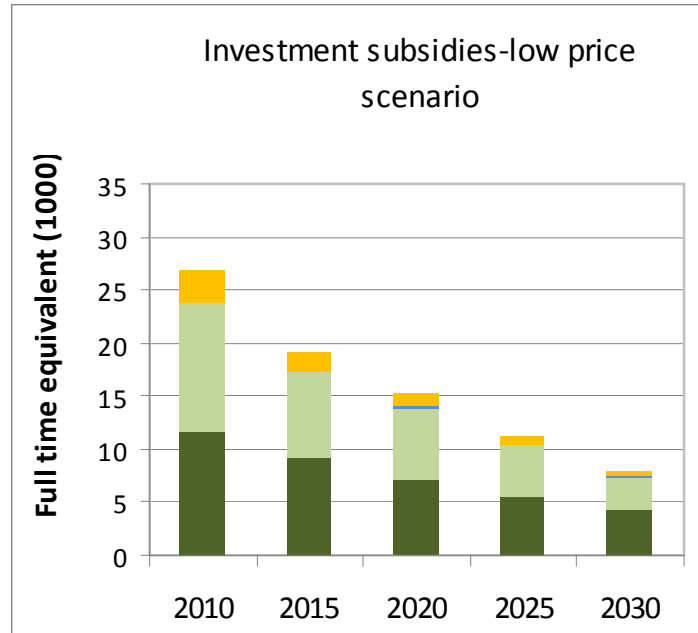
The employment is increasing by 2.9% a year at investment subsidy and 1.6% at tax break scenarios during 2010-2015.

Later on, independently on the type of support, the employment will decrease by 2.3% a year. The reason for this decrease is increasing productivity and total expenditure for fuel, O&M, investment.



Gross employment effect

Low energy price scenario

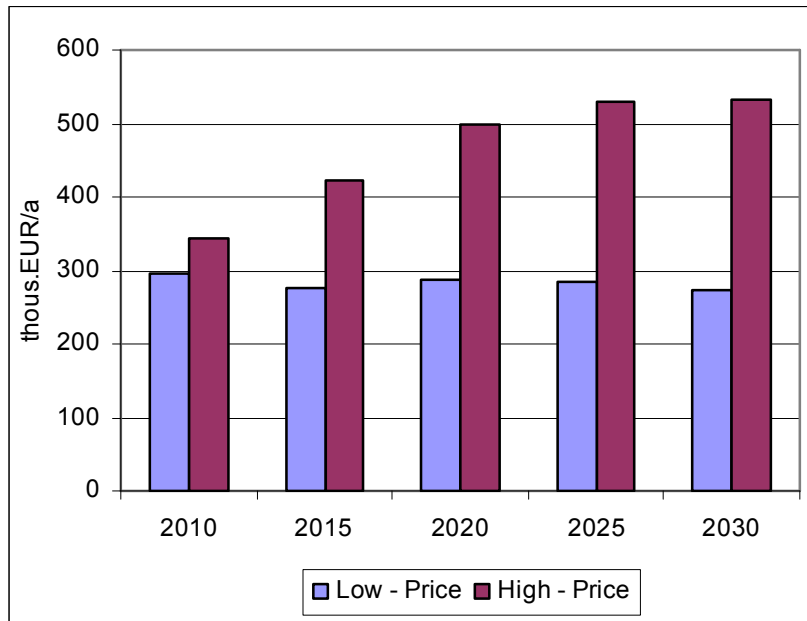


In the case of low energy price scenario, RES-H employment is gradually decreasing.

Employment in solid biomass non grid is dominating in case of low energy price scenario.



Public administration cost



Policy set 1.a

The average public administration costs – about **280 thous. EUR per year** (low);
– about **470 thous. EUR per year** (high).

The number of required staff for implementation – about **20-34**.



Policy set 1.b

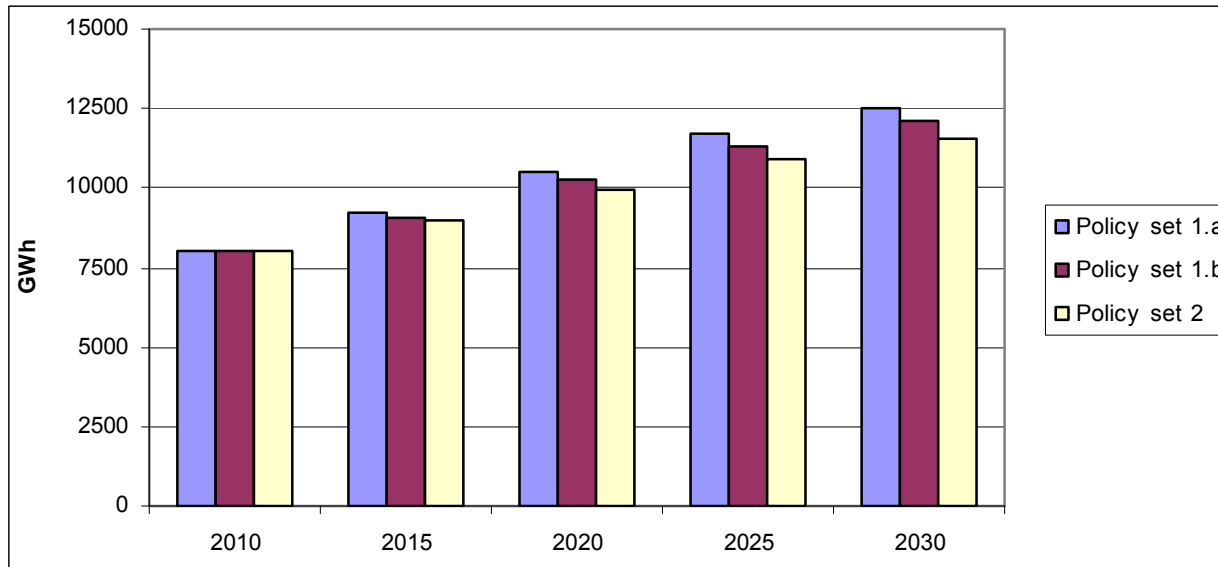
The average public administration costs – about **120 thous. EUR per year** (low);
– about **220 thous. EUR per year** (high).

The number of required staff for implementation – about **9-15**.



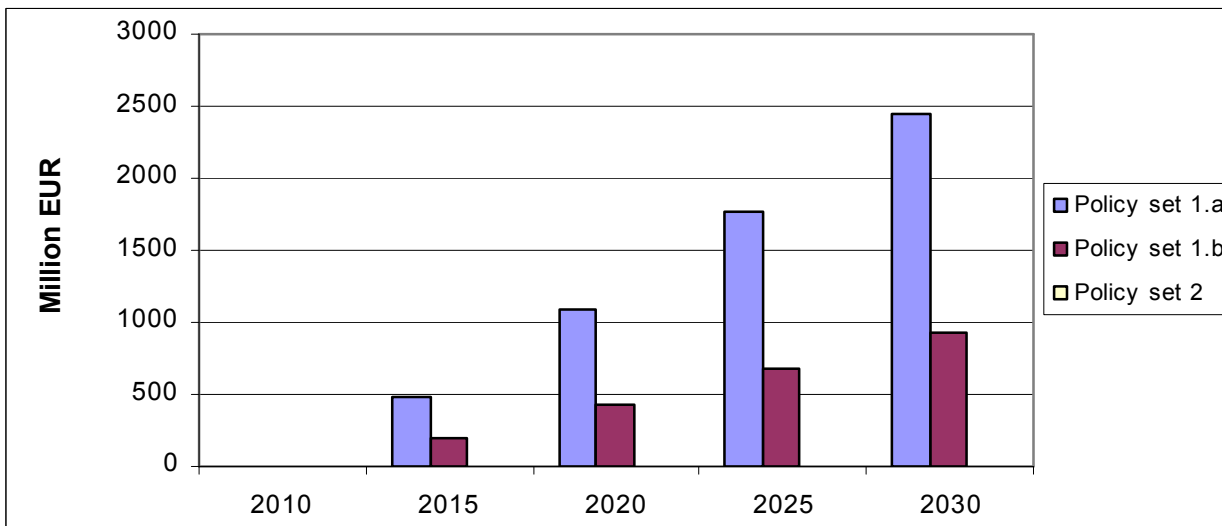
Comparison and synthesis (1)

High energy price scenario



Low effectiveness can be explained by currently cost effective RES-H solutions which could come in the market even without financial support.

Currently biomass is already economically attractive alternative. Also, use of biomass is already supported indirectly through the EU ETS.

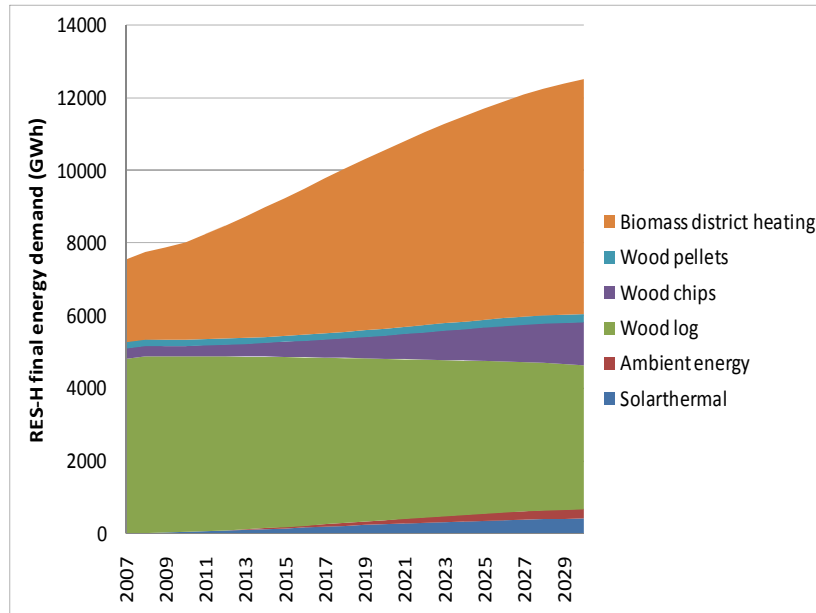


In annual public budget requirements: 40-120 million EUR.

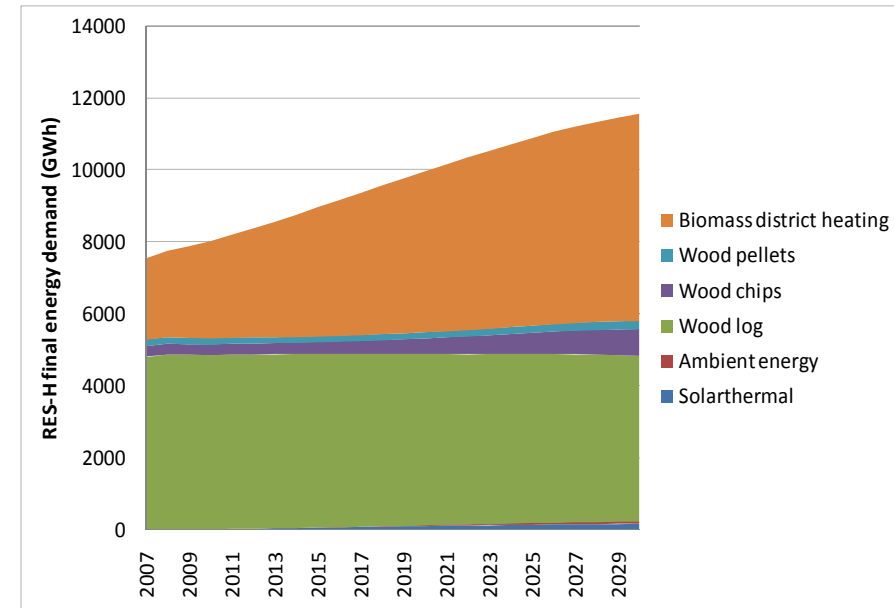


Comparison and synthesis (2)

High energy price scenario



Policy set 1.a



Policy set 2

Modelling results showed that only in the case of high investment subsidies wood chips (30%), solar thermal systems (45%) and heat pumps (40%) are becoming economically attractive. Therefore only selected RES-H technologies, which currently are too expensive, could benefit from financial support. In such case public fund requirements will drop tenfold and support will be much more efficient.



Thanks for your attention!

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