ENERGIAKLUB
CLIMATE POLICY INSTITUTE
APPLIED COMMUNICATIONS

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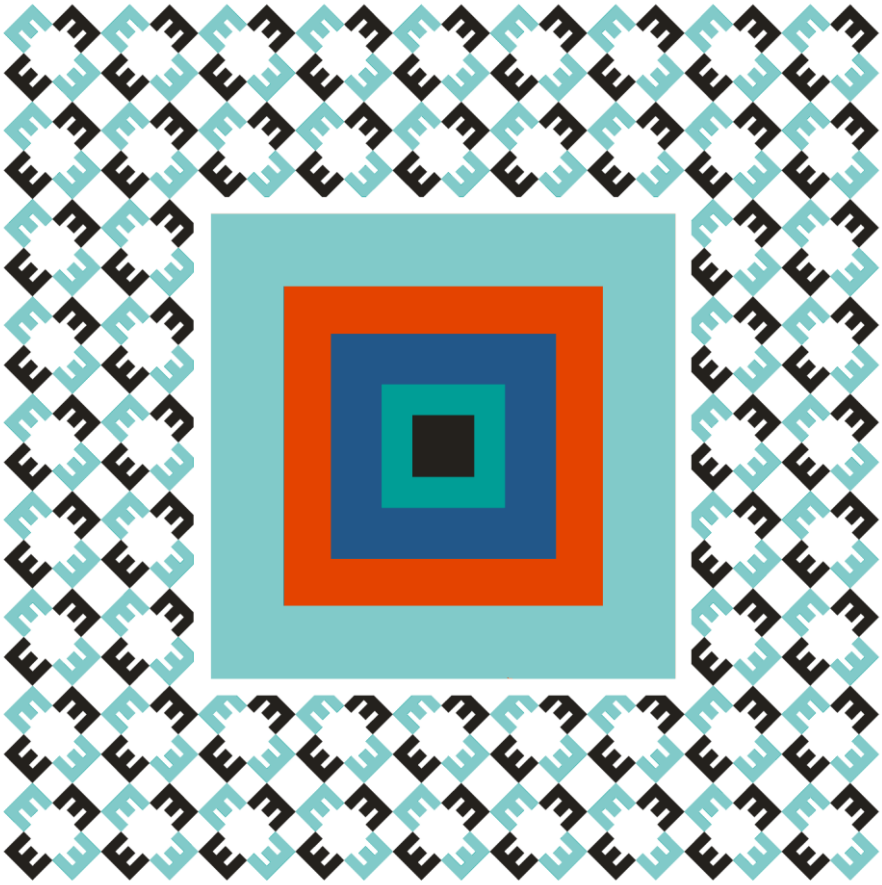
MORE EFFICIENT HOMES – MACRO ECONOMIC IMPACTS

A macro-economic analysis of a significant state support scheme to household energy efficiency investments (revised)

EXECUTIVE SUMMARY



MORE EFFICIENT HOMES – MACRO ECONOMIC IMPACTS (revised)

A macro-economic analysis of a significant state support scheme to household energy efficiency investments

The research project was led by: Ada Ámon

Project-coordinator: Krisztina Severnyák

Analysis, running of models:
Lajos Tamás Szabó (Economist in Quantitative Economic Analysis)
Tamás Révész, PhD *(Corvinus University of Budapest, Senior Research Fellow, Faculty of Economics, Department of Mathematical Economics and Economic Analysis) provided the ÁKM updated for 2010, and verified the correctness of formulas closely working with Lajos Tamás Szabó.*

Experts involved:
Orsolya Fülöp (economist) – economic analysis, savings potential
Péter Nagy (building engineer, energy auditor) – sectoral data, sector specific investment vector
Krisztina Severnyák (dipl. arch., building energy expert) - technical analysis
Dénes Fellegi - visual support

The research was founded by **European Climate Foundation**.

European Climate Foundation

The research and its background can be found and downloaded from the website of Energiaklub Climate Policy Institute and Applied Communications: www.energiaklub.hu

The analysis is greatly based on the results of Negajoule2020 research (Energiaklub 2011). The related data can be found on the website www.negajoule.eu .

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EXECUTIVE SUMMARY

Having realized that energy efficiency policy requires support and assistance in the form of background studies, the Energiaklub's Climate Policy Institute together with its partners have assessed some of the significant macro-economic effects of the subsidization of energy efficiency. We have investigated the effects of energy efficiency programmes on the employment generation potential, the state budget and the balance of trade. The original model was calculated with the current economic parameters in September 2011, including the VAT rate of 25%. In 2012 the model was adjusted to the new tax legislation, 27% VAT. Because of the increase in VAT, we raised the support to 33%. In this study we present our new results.

Initial Conditions
We have analysed the impacts of a public programme with a model of ours based on the balance of intersectoral relations updated to 2010 (BIR) characterized by the following figures:

- HUF 50 bn / year budgeted total allocation of subsidies;
- non-refundable subsidy of 33%
- a period of 5 years;
- the life expectancy of 20 years for the investments.

If the entire amount of the available subsidy is called in, then an annual investment of HUF 151 bn will be realized in the Hungarian residential building energetics sector for 5 years.

The distribution of funding for renovation and its technical aspects
As a result of the reasons discussed in details in the research summary[1] and by taking the related technical content into consideration, the amount mentioned above (HUF 151 bn) is distributed as follows:

- 80% family houses
- 10-10% apartment houses (made of pre-fabricated blocks / brick)

As far as the own funds – to be paid over and above the state subsidies – are concerned, it is assumed that 70% will be covered from the own private savings of the households, whereas the remaining 30% will come from commercial financial institutions (loan / savings).

The most direct impacts
It is to be noted, however, that impacts of the above mentioned programme will mostly appear at households and the energy efficiency market.

It will affect 97 thousand households annually resulting in savings of HUF 21 bn during the lifetime of the investments. Thus, by the end of the 5-year-long investment period nearly half a million households will be modernized (representing 13% of the housing stock). As a result of the programme and during the life cycle of the investment a total amount of HUF 2 bn will remain at the households.

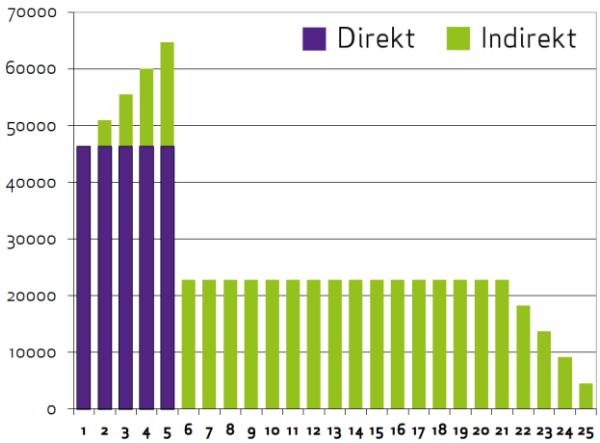
Macro-economic impacts:
The subjects of our investigation were the employment creation potential, the effect on the state budget and that on the balance of trade. We have examined the direct and indirect effects on all three areas of investigation. The savings related impacts are interpreted as indirect ones.

Employment
We have investigated the number of workplaces established or retained in the course of the investments as a direct employment related effect. On the other hand, there are indirect effects as well, deriving from the fact the majority of the energy costs saved (80%) are spent by the households on the consumption of other good that also generate employment.

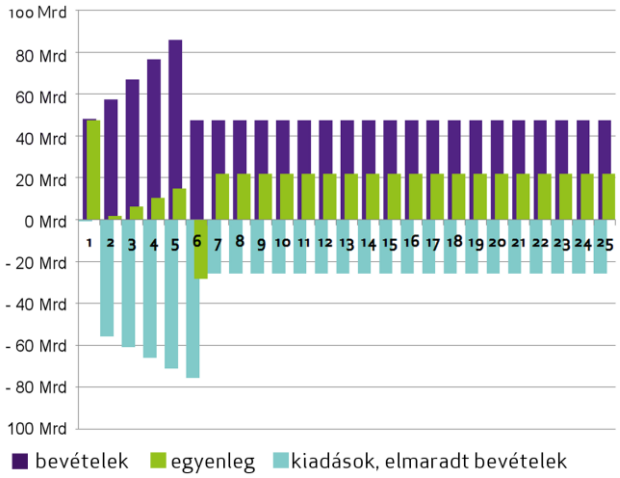
Based on our expectations the state will support energy efficiency related investments with the same amount over the five years. The direct labour market related impact of this can be calculated with a simple multiplication. The surplus profits resulted from the savings on energy costs will exercise their influence on the labour market for 20 years.

As far as the direct labour market impacts are concerned one can calculate with an increase of employment or retention in a magnitude of 46 thousand people over the 5 years of the programme. The indirect effect (4500 people) will appear for 20 years as a result of the savings spent. Thus, with the progression and total lifecycle indicated in the figure we can calculate upon an employment expansion of nearly 700 thousand man work years.

[1] Based on the results of the "NegaJoule 2020" study (Energiaklub, 2011) investigating the characteristics of Hungarian residential buildings



The timeliness of the employment related impacts



Tax revenues

Revenue generating items:

- VAT from energy efficiency related investments;
- personal income tax and other contributions of the ones participating in the energy efficiency related investments;
- VAT on the goods and services purchased from the savings;
- personal income tax and other contributions of the ones participating in the employment related to the spending of the savings.

Items decreasing the revenue:

- state subsidies;
- less VAT as a result of the decreasing energy consumption;
- the shortage of savings tax as a result of the savings spent.

The increase of the corporate income tax revenues does not appear in BIR. This would further increase the positive influence exerted on public finances.

The programme comes with a positive result of several billions of HUF for the budget in the first years even after having deducted the expenses of HUF 50 bn, and after the closing of the subsidy programme it continues to generate an additional income of around HUF 21 billion annually.

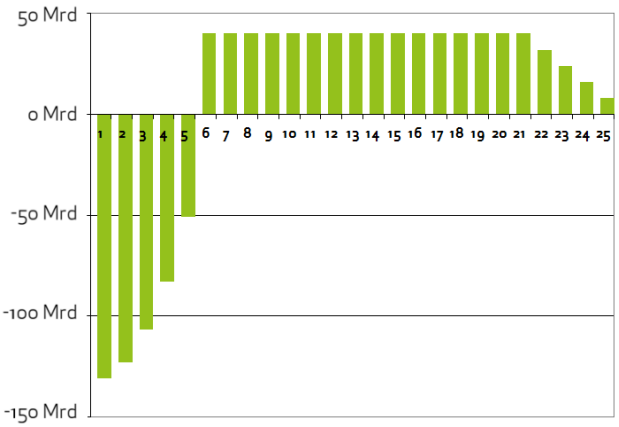
As a result of the utilization of the subsidies invoices are issued upon the purchase of services or materials - this also has a significant 'economy whitening' effect.

Effect on the balance of trade

Effects on the balance of trade arise both in a direct and an indirect way. The direct impacts arise in the import demand of investments - that is rather high, similarly to the majority of programmes focusing on economic development. The decrease of the import demand in the case of energy (especially in that of natural gas) adjusts this drawback in the long run.

Effect on the balance of trade	Bn HUF
Short term effect (1 year)	-130
Mid-term effect (years 1-5, total)	-574
Long term effect (years 6-25, total)	721

Short, mid- and long term effects on the balance of trade



The development of the balance of trade in the course of the programme and the lifetime of the investments.

Incremental impacts

Because of the decreasing demand for natural gas - rooted in the energy efficiency investments - the quantity of the import also decreased gradually. From year 6 of the programme energy savings amount at nearly 7PJ, 60% of which is natural gas.

This, of course, exercises a positive impact on the security of natural gas supply, not only as a result of the decreasing import and storage demands, but also because of the flattening of the peaks and the declining gas system load in wintertime.

Further studies:

- How does the internal industrial structure - with especial regards to the manufacturers interested in energy efficiency related investments - change as a result of a predictable programme? Will such enterprises settle in Hungary as a result of the programme and Hungarian legislation? What other terms and conditions have to be fulfilled for this?
- How do the control of residential energy prices and the change of VAT regulations affect the population's willingness to invest?
- How much does population's willingness to take loans, and the banks' willingness to grant it to them change? How does the willingness to save, the willingness to spare change as a result of the programme?
- In the present study we only calculated for 5 years, but the programme makes capital only out of a small fraction of its potentials within this timeframe. Thus it is advisable to have a look at the macro-economic impacts of a similar programme in the longer term as well.

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