

Home is where the heat is:  
thermal insulation programs for  
buildings in the Czech Republic and  
its positive effect on job creation

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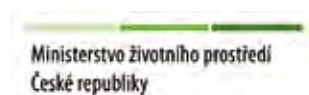
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## Executive summary

This study assesses the impacts of two public financial schemes in the Czech Republic – the ‘Panel’ and ‘Green light to savings’ schemes for thermal insulation in residential buildings – on the overall employment rates in the constituent sectors of the national economy.

The potential for energy efficiency in the building sector is enormous. **In the Czech Republic alone, 175 petajoules per year – or 60 percent of its current consumption – could be saved.** Each tonne of carbon dioxide saved will bring a net profit of EUR 50-100 per tonne, depending on the type of building. In a country where most buildings are heated with natural gas imported from Russia and brown coal from the northern Bohemia basin, energy efficiency measures can help tackle energy dependency and environmental pollution.

The ‘Green light to savings’ program is a green investment scheme funded by the sale of Kyoto Protocol emission allowances. Its objectives are to support investments in energy savings in both renovation and new construction as well as installation of heating sources that utilise renewable energy. The ‘Green light to savings’ program provides a subsidy of approximately 60 to 65 percent of the total cost for thermal insulation in single- and multi-family houses, with 89 percent of that support having been spent on thermal insulation. **The scheme has been so successful that the total amount available under the program, about EUR 780 million, was disbursed more than two years ahead of schedule.**

The ‘Panel’ scheme is a joint project of the Ministry for Regional Development and the State Housing Development Fund for thermally insulating multi-family prefabricated houses. Launched in 2001, the ‘Panel’ scheme provided EUR 490 million in interest subsidies and nearly EUR 286 million in bank securities by 2010, mobilising nearly EUR 1,92 billion in private investment. Of the total 1,2 million flats in prefabricated housing blocks across the Czech Republic, just under a quarter have been insulated under the ‘Panel’ scheme so far, and the process has by no means made use of all technologically-feasible savings due to cost reasons. Thus the potential for further saving continues.

**This study highlights very important benefit of public support for thermal insulation in buildings - it gets the economy moving.** Specifically it can create thousands of jobs in construction and other industries, mostly supporting small, domestic companies working with domestic suppliers across the country. **The ‘Panel’ scheme helped to retain or created an average of 6553 jobs annually in the Czech Republic.** In total in its first nine years, the ‘Panel’ scheme retained or created 58 980 annual job opportunities. Between April 2009 and July 2010 after the launch of the **‘Green light to savings’ program**, the increased support for thermal insulation **generated another 19 059 job opportunities.**

These calculations agree with the estimates from companies working in the sector. With the high multiplication effect of ‘small-scale construction’, support for thermal insulation is one of the most effective public schemes for job creation in the Czech Republic. The high multiplication effect is based on the proportion of labour among the total value generated in the construction sector as well as through its well-established links with domestic suppliers. This results in an above-average effect on economic growth in the long term for every Euro invested.

Another significant benefit of these schemes is that job creation and retention is regionally-dispersed. In contrast to linear structures or large projects executed at a specific site, ‘small-scale construction’ is one of the basic components of local economies.

Hnutí DUHA – Friends of the Earth Czech Republic and CEE Bankwatch Network therefore propose three key steps to boost the economy, create new jobs and overcome the challenges of climate change.

- **EU Structural and Cohesion Funds need to prioritise energy efficiency in buildings and earmark sufficient funds during the next budget period.** A strong boost to energy efficiency investments in buildings will support the EU 2020 climate targets, revive the slumping European economy and cut energy bills for families and public budgets. It will also change for the better the supply chain and practices of the construction sector, creating economies of scale and long-term shifts in consumer preferences.
- **National governments should set the framework through which countries reduce emissions year after year until 2050, in line with proposals like the UK’s Green Economy Act.** Decisions on specific technologies and measures will be left up to the discretion of each future government, but the direction will be in place. In this way, stable conditions are guaranteed for companies and citizens, and this new legislation will pave the way for investments in modern sectors – not only thermal insulation in houses but also renewable sources, public transport, waste recycling and the like.
- **National governments should implement ambitious schemes to provide financing for thermal insulation in its country’s buildings gradually.** It has been demonstrated that households themselves can cover part of the investment required to insulate buildings but do not have sufficient funds to completely finance such upgrades. State subsidies should therefore provide the remaining funds in cases where projects are not eligible for EU funding. It should be available through a specialized Energy Independence Fund, which would be financed by the revenues from the auction of EU emissions trading scheme allowances.



## Introduction



Buildings are responsible for 40 percent of the EU's total energy consumption and 36 percent of EU carbon dioxide emissions. At the same time the potential for energy efficiency in buildings is large - in the Czech Republic alone, 175 petajoules per year or 60 percent of its current consumption could be saved.

A study by the Czech consultancy Porsenna [1] finds "The potential for energy savings in residential and public administration buildings represents 46 percent of the total amount of possible savings in the Czech Republic... The key sector on which efforts should focus is residential buildings and tertiary sector buildings; industry and transportation are other important areas."<sup>1</sup>

There is a real opportunity for public finance from sources like the EU Cohesion Funds to deliver a real benefit for people through warm, comfortable and healthy homes. But this is not the only benefit. Thermal insulation in buildings is essential for the EU in its drive to reduce greenhouse gas emissions and at the same time dependency on fuel imports from unstable and undemocratic regions and large-scale, environmentally destructive activities like coal mining.

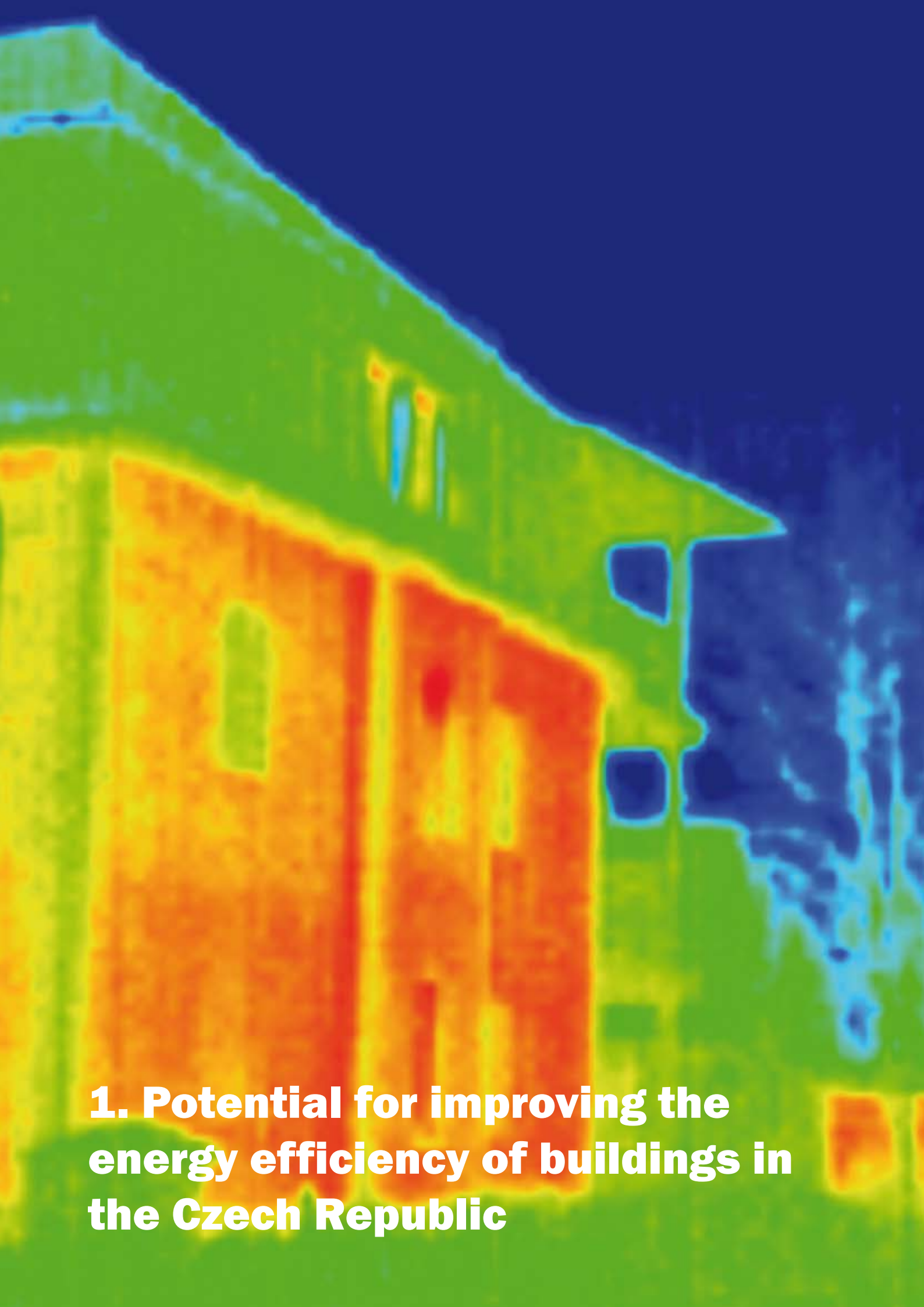
The case of the Czech Republic shows, like many other examples, that thermal insulation in buildings has another important benefit: it gets the economy moving. Specifically, it creates thousands of jobs in construction and other industries, mostly for small, domestic companies working with domestic suppliers distributed across the country.

It is necessary to earmark the vast financial resources of the EU Cohesion Funds during the 2014 to 2020 period for energy efficiency measures in single- and multi-family housing as well as public buildings. It will bring real added value to the EU in many areas by providing economic stimulus throughout the regions, helping to achieve the 2020 climate targets and cutting expensive fuel imports.

This paper demonstrates how two major subsidy schemes in the Czech Republic, the 'Green light to savings' and 'Panel' schemes, have already created over 25 thousand jobs. The 'Green light to savings' program provides a subsidy of approximately 50 percent of the total cost for thermally insulating single- and multi-family houses and installing solar thermal sources. The scheme has been so successful that the total amount – about 780 million euros available through the sale of Kyoto Protocol emission allowances – has been disbursed more than two years ahead of schedule. The 'Panel' scheme has been running since 2001 and provides subsidised interest rates and bank securities for thermal insulation in multi-family prefabricated houses.

This study, jointly commissioned by Hnutí DUHA – Friends of the Earth Czech Republic and Heinrich Böll Stiftung Prague from economists Miroslav Zámečník and Jan Hlaváč, maps the number of jobs that have so far been created by thermal insulation works on residential buildings under the 'Panel' and the 'Green light to savings' schemes. The English translation and adaptation for an international context was done by CEE Bankwatch Network.

1. See for instance a study by Porsenna [1], a renowned consultancy based in Prague, and Final Report of the Governmental Independent Energy Commission [2] led by head of the Czech Academy of Science Václav Pačes.



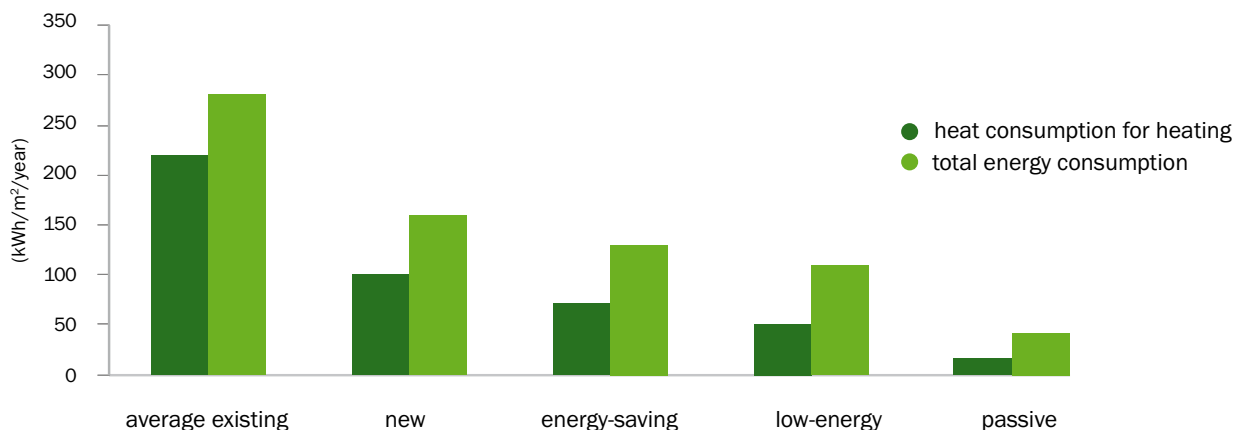
# **1. Potential for improving the energy efficiency of buildings in the Czech Republic**

About 28 percent of the Czech Republic's energy consumption is due to buildings [1], and it costs the country over EUR 6.1 billion [3]. Buildings in the Czech Republic are mostly heated with natural gas imported from Russia and brown coal<sup>2</sup> from the northern Bohemia basin [4]. The choice is thus between expensive bills and import dependency on the one hand and polluted air and health impacts to hundreds of thousands on the other.

Energy efficiency in buildings can be improved enormously. Savings could be achieved of up to five times the energy that would be delivered by the controversial expansion of the northern Bohemian coal mines while protecting the towns and villages that would otherwise be evicted by mining. Additionally, such measures are relatively cheap and advantageous from a macroeconomic perspective. Research [1, 2, 3] shows that the annual energy consumption of buildings in the Czech Republic can be gradually reduced by 173 to 175 petajoules (PJ). Specifically, Porsenna studies [1, 3] attribute 144 PJ to savings on heating, including 124 PJ for residential buildings and 20 PJ for buildings utilised by the tertiary sector (schools, hospitals, public offices, shops, etc.). The remaining 31 PJ can be saved on hot water and by using more efficient electrical appliances.

A study by the consultancy McKinsey [5] calculates that of all the measures aimed at reducing greenhouse gas emissions (and having negative marginal costs), thermal insulation of buildings is the greatest opportunity for the Czech Republic. Each tonne of carbon dioxide saved will bring a net profit of EUR 50-100/tCO<sub>2</sub> depending on the building type. It should also be noted that the McKinsey study only assumes savings benefits on heating generated until 2030. However the life of structural modifications will be substantially longer.

Chart 1: **Energy consumption in various building types: typical Czech buildings**



Building owners are mostly aware of the advantages and benefits of thermal insulation, and technically it is fairly easy to realise these benefits – we know how to renovate buildings to achieve very low energy consumption (30 kWh/m<sup>2</sup> for heating annually). The most important aspects are thoroughly-insulated outer walls, roofs and floors (or foundations) and installing high-quality windows with low heat transmission. In addition insulation materials must be well sealed, mechanical ventilation with efficient recovery added, and heating systems modified. Experience shows that even the most marginally-ambitious Czech thermal insulation projects reduce heat consumption by roughly one-third. Renovating prefabricated blocks, which are very important for the heating industry, can achieve much better results. The suburb of Nový Lískovec in Brno has thermally insulated 384 flats in prefabricated blocks within just a few years and the total heat consumption and thus energy bills have dropped by about 60 percent [7].

2. In the Czech Republic, about 280 thousand single-family houses and about 144 thousands blocks of flats still use a solid fuel source for heating (brown coal, hard coal, briquettes, coke). Source: Ministry of the Environment



**2. Comparison of support and induced investment in thermal insulation with conventional construction projects funded from public budgets**

In this study we assess the benefits of two major subsidy schemes focusing on improving energy efficiency of residential buildings: the 'Panel' and the 'Green light to savings' schemes.

The 'Panel' scheme was launched in 2001 as a joint project of the Ministry for Regional Development and the State Housing Development Fund [8]. In total it provided EUR 490 million in interest subsidies and nearly EUR 286 million in bank securities. More than 80 percent of the support was paid out in the last four years. During its operating period, the scheme managed to mobilize nearly EUR 1,92 billion in private investment.

The 'Green light to savings' program is a green investment scheme run by the Ministry of Environment and administrated by the State Environmental Fund [9]. Its objective is to support investment in energy savings in both renovation and new construction as well as installation of heating sources that utilise renewable energy sources. The funding for the scheme comes from sale of Kyoto Protocol emission allowances. As such it is not a conventional budgetary expenditure funded by taxpayers. From a purely fiscal point of view, it is therefore a scheme with a positive fiscal impact on public finance. Revenues from the income tax of natural and legal persons, levies for social security and health insurance, and above all, value added tax on works done and materials supplied increase the income side of the state budget. The total expected allocation under the scheme is up to EUR 820 million.

The 'Green light to savings' program was launched on 1 April 2009 and was to last until the end of 2012, provided funds are not spent earlier. Soon after the launch, the scheme underwent two modifications, both moderating the requirements on beneficiaries and extending the range of beneficiaries mostly to include prefabricated blocks of flats. The 'Green light to savings' program has become enormously popular – as of October 2010, admitting new applications was suspended in order to address the backlog and so far has not yet been resumed.

The present study assesses the benefits of the 'Green light to savings' program until July 2010 and includes the outcomes of applications processed and accepted by that date, totalling over EUR 470 million. One of the unquestionable advantages of thermal insulation schemes for existing residential buildings and houses is that unlike public infrastructure development, which is fully funded from public budgets in the Czech Republic, clients pay a significant part of total costs. The 'Green light to savings' program was immensely popular because of its subsidy of approximately 60 to 65 percent for thermal insulation. Support was also provided for heating sources based on renewable resources (solar thermal, heat pump or biomass) and new housing construction in passive standard. On the aggregated level, it can be concluded, based on available industry statistics, that the scheme has not had an inflationary effect: the year-on-year trend for 2008-2009 indicates a slight decrease in the construction work price index by about three percent. However the index does not specify the actual work-price trend within the 'Green light to savings' program.

Table 1: 'Panel' scheme: Support granted in 2001-2009. Average exchange rate in 2009: CZK 100 = € 3,78

Year	Interest subsidy			Securities		
	Number	Subsidy (thous. CZK)	Subsidised loan (thous. CZK)	Number of res - tored flats	Number	Bank security (thous. CZK)
2001	18	34 904	119 707	1 600	3	909
2002	40	251 933	778 259	4 537	41	13 864
2003	145	429 155	1 377 663	5 684	96	19 766
2004	163	363 418	1 187 118	8 866	118	24 565
2005	197	221 719	876 797	9 032	257	36 461
2006	1 050	1 599 995	5 591 400	45 073	302	51 203
2007	2 566	4 299 981	12 506 976	100 140	328	52 300
2008	2 024	1 999 974	11 422 881	76 570	200	40 195
2009	2 203	2 653 385	13 064 550	82 403	188	38 864
Total	8 406	11 854 464	46 925 351	333 905	1 533	278 127

There are almost two hundred thousand prefabricated blocks housing 1.2 million flats in the Czech Republic, representing nearly 55 percent of the country's flats in residential buildings and 30 percent of the total number of homes. Just under a quarter of the flats in prefabricated developments have been thermally insulated under the 'Panel' scheme so far, and the process has by no means made use of all technologically-feasible potential savings due to cost reasons. A significant portion of flats in prefabricated buildings have yet to undergo comprehensive renovations. The overall energy efficiency of buildings that have not been thermally insulated can increase with more interventions than just the usual replacement of windows through a complete retrofitting envelope, including central ventilation with heat recovery. It should also be noted that the 'Green light to savings' program, for instance, was drawn up in a way that does not close the door on these additional measures.

In terms of socio-economic development in the Czech Republic, investments for comprehensive increases in energy efficiency of prefabricated blocks of flats will not be for naught. Prefabricated blocks are and will continue as an important

portion of the total number of homes, meaning that the prospective return on investment is very good. The abandonment of such settlements as was the experience in the former Eastern Germany cannot be expected. Prefabricated blocks in the Czech Republic continue to be among the important challenges for the mobilisation of investment and deployment of technological innovation.

The question is how to make the best use of public investment into buildings and housing. Measures with high social and environmental benefits, the development of social housing, support for disadvantaged regions and improving air quality should be clearly prioritised. At the same time some level of fiscal support to housing in general should be maintained. In any case it makes sense to thermally insulate existing prefabricated flats as a less investment-intensive form of social housing than greenfield construction of new flats.

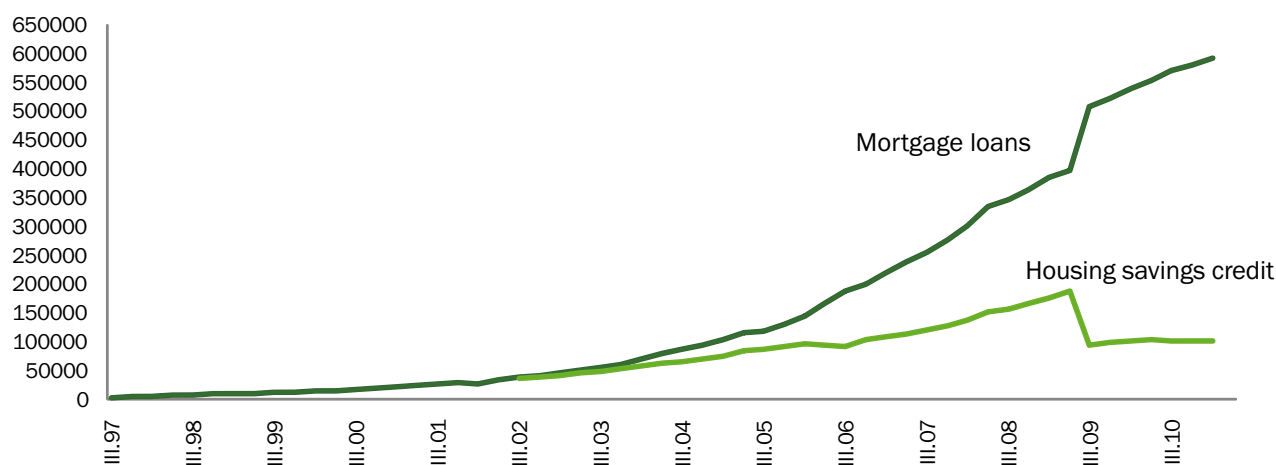
In times of fiscal savings, it makes sense to perform a highly-detailed socio-economic analysis of the effectiveness of existing support for mortgage loans (i.e. tax-deductible items in the form of interest expenditures), interest subsidies to mortgage loans and fiscal costs in support of housing savings, which most savers only see as an advantageous savings scheme.

Provided there is consensus on the fact that fiscal support to housing should target the socially-vulnerable and/or focus on support for socially and environmentally beneficial measures like increasing energy efficiency of buildings or switching from fossil fuels to renewables, it can be determined fairly easily what fiscal measures in support of “green housing” should look like:

- Massive support to energy savings in existing social housing and disadvantaged regions. Buildings with flats of a social nature should be in focus, using categorisation and zoning. Regions and municipalities with high air-dust pollution from local brown coal heat sources, economically disadvantaged regions and regions with high unemployment rates should benefit from support in form of subsidies.
- Fiscally-sustainable support to renovation for more energy-efficient solutions in existing housing, regardless of its social nature. In light of expected long-term increases in energy prices, the scope of these measures should go beyond the current practice and should achieve at least the ‘low-energy’ standard. The return on investment should come faster in a stable interest rate environment provided that energy prices increase faster than the prices of building improvements.
- New housing with innovative, highly energy-efficient solutions.

Total expenditures on subsidies in support of housing not related to energy savings are many times more than the total costs of improving energy efficiency under the aforementioned schemes. The statistics are clear – the total expected support of over EUR 250 million by the end of July 2010 under the ‘Green light to savings’ program equals less than one half of the total annual expenditures of state support to housing savings schemes (EUR 530 million). Subsidies for bathroom refurbishments under the housing savings schemes are no doubt popular but difficult to justify. Support to increasing energy efficiency definitely makes more sense. This is all the more true in a country that will face numerous energy and environmental risks in the future, including increasing dependency on natural gas imports from politically unstable regions and the destruction the environment and the deterioration of people’s health in northern Bohemia from brown coal mining.

Chart 2: **Amounts of housing credit in 1997–2010 in CZK and foreign currency**



Source: Czech National Bank, 2010; CZK millions

Another attractive measure is the support given to interest on mortgage loans of up to EUR 12 250 annually as a tax-deductible item. This is not risk-free however, and its benefit to the Czech economy is almost impossible to calculate. The actual tax expenditure on tax-deductible items for mortgage loans is not published officially. Nevertheless one significant fact

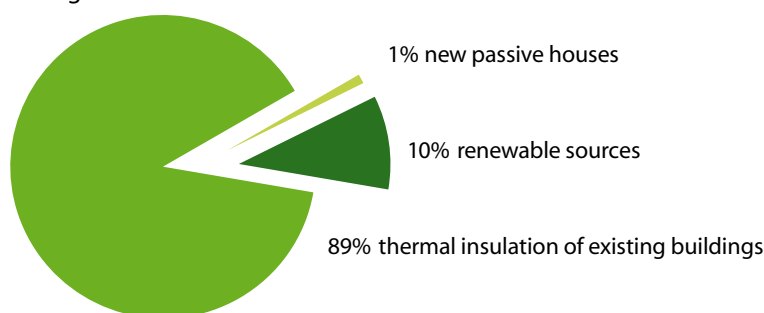
is the total amount of mortgage loans that exceeded EUR 27 billion in September 2010 according to the Czech National Bank. Even without precise official data, it can therefore be concluded that the tax expenditures on tax-deductible items for mortgage loans must be well over EUR 400 million annually, which is a multiple of the average annual expenditures on improving energy efficiency in Czech homes.

High support for mortgage loans coupled with low interest rates have historically contributed to the formation of bubbles in the real estate market, and every bubble tends to burst, as evident in the most recent financial crisis and its roots in the US housing market.

Ireland is another warning sign of real estate bubbles, where real estate prices more than quadrupled between 1995 and 2007, loading households and developers with high credit burdens. At the same time the country's banks became very heavily involved in real estate, and the subsequent collapse of the real estate market pushed down prices and increased the proportion of bad credit in the banking sector, relative to the high proportion of construction credit. What followed was a drop in employment in the construction and all related sectors. The rehabilitation of the banks – that is writing off their bad real estate credit – cost more than one third of Ireland's gross domestic product in 2009.

Support for thermal insulation in residential buildings slows the effect that a decline in new construction has on total employment in the construction sector. However, it also requires changes in the skills of the workforce to undertake the retrofitting works. Given the amount of buildings that have yet to be retrofitted and the visible, negative external costs of new residential construction – especially in diluted suburban development, with high infrastructure costs, occupation of open land, and a higher energy intensity of the settlement type – it is much more effective to support improvements to energy efficiency in existing housing. In other words it makes sense for the Czech Republic to reduce fiscal support for economically and environmentally-demanding suburban development and instead invest in improving energy efficiency in housing, especially in existing flats.

Chart 3: Investment support under the 'Green light to savings' scheme is mostly targeted at existing buildings



Source: SEF

Table 2 shows other criteria for socio-economic effectiveness – focusing support on socially-appropriate targets.

Table 2: The 'Green light to savings' scheme and overview of support for residential buildings (as of 25 July 2010)

Thousands CZK	Approved application			Applications to be approved			
	Type of building supported	Number of applications	Investment support	Support for project documentation	Number of applications	Investment support	Support for project documentation
	Houses of flats, prefabricated	1 242	1 220 045	51 650	1 210	4 222 292	94 940
	Houses of flats, non-prefabricated	838	3 028 830	69 258	2 431	2 348 098	99 466
	Family houses	16 809	3 288 454	314 036	18 728	3 760 052	351 132
	<b>Total</b>	<b>18 889</b>	<b>7 537 329</b>	<b>434 944</b>	<b>22 369</b>	<b>10 330 442</b>	<b>545 538</b>

Source: SEF, authors' estimates. Average exchange rate in 2010: CZK 100 = € 3,95

Most of the support in the 'Green light to savings' scheme that was granted or is expecting approval aims at thermal insulation in existing buildings. 60 percent of this support was for flats. Although the scheme was not explicitly targeted at socially-disadvantaged and middle class families, after the extension of the programme to prefabricated housing the program received support from this segment of the population as well. The other housing support schemes were oriented towards above-average income classes, both in the case of mortgage support and a significant portion of housing credits.



### **3. Employment benefits of energy efficiency schemes**



Both schemes examined here significantly stimulate investments for increased energy efficiency in buildings and contribute to employment retention and growth in a sector with the highest multiplication effect, one that most contributes to employment in the Czech Republic.

The Czech Statistical Office (CSO) found that the multiplication effect in the construction sector cleared of import effects is 2.47. On the other hand, a study on the number of jobs created when manufacturing biomass boilers found a factor of 1.19 [1]. In other words, encouraging demand in 'small-scale construction' is one effective way to promote the domestic economy and retain employment without the risk of additional expenditures spilling over to import demand.

The 'Panel' scheme retained a total of 58 980 one-year employment opportunities. In its first nine years, it secured employment for 6553 workers on average per year. In addition the 'Green light to savings' scheme has created more than 18 000 annual job opportunities in spite of its relatively shorter existence as a result of the greater amounts of money that it has spent. The methodology used by the authors makes it possible to say only very roughly in which sectors the jobs were created. Since the induced investment is in both cases directed towards the construction sector, the following observation will apply to the 'Green light to savings' program as well as the 'Panel' schemes. Approximately one half of the job opportunities created are in the construction sector. Entrepreneurial services, wholesale and public administration contributed about one quarter. This assumes that the job breakdown of the input-output models used by the Czech Statistical Office correspond to reality.

There are limitations however to the relatively high level of aggregation in the model. It can be assumed for instance that the 'Green light to savings' scheme has in fact created many more job opportunities in the financial sector than the standardised CSO tables would indicate. This is due to the considerable outsourcing of subsidy applications, processing and credit allocations to banks. The approach of the present study does not permit an accurate reflection of all the particularities of the scheme, yet we believe that the overall estimate of the job opportunities at the aggregated level is correct and the deviations are insignificant in relation to the overall result.

Job opportunities created in this way are reflected in consumer demand, but it depends on what the employees in the respective sectors do with the money earned, how much they spend and how much they save. According to the CSO, the tendency to spend prevails – savings are not more than 5 percent – which has a direct impact on employment in the sphere of consumer goods production. According to official CSO statistics, the proportion of domestic workers in construction amounts to 88 percent, so it can be assumed that the amount of funds spent in the Czech Republic will exceed 80 percent, reflecting a higher share of remittance of foreign workers' earnings.





# Recommendations

Reducing the energy intensity of buildings is an enormous opportunity for the Czech Republic. It will reduce household heating bills and the country's dependence on foreign gas imports and dirty coal mining, at the same time securing employment for many people. Countries in central and eastern Europe face similar problems and would greatly benefit from similar public support schemes.

Hnutí DUHA and CEE Bankwatch Network therefore propose three key steps to boost the market, help create new jobs, and revive the economy.

## 1. EU Structural and Cohesion Funds for energy efficiency

Energy dependency, climate change and recovery from the economic crisis are key issues for the European Union in the years to come. In response to these challenges, EU public finance needs to contribute to increasing energy efficiency in buildings. Just as in the case of the 'Green light to savings' scheme, efficiency measures financed from EU Cohesion and Structural Funds will have high multiplication effects and bring direct employment benefits to the region.

Financial support earmarked for energy efficiency and small-scale renewables must be significantly increased in the new Cohesion policy period beyond that of the current period.<sup>3</sup> The priorities in energy efficiency are clear – support must be increased for public buildings like schools and hospitals, as their efficiency potential remains untapped. Sufficient subsidies for social housing and housing of the energy poor are imperative as well. Support is needed for renovation of multi-apartment buildings too. In disadvantaged regions EU funds should be available even for efficiency in family houses. In order to overcome absorption barriers, subsidies should be made available for most of these measures with up-front financing options and application processes should be fast and simple.

A strong boost to energy efficiency investments in buildings will support the EU 2020 climate targets, revive the slumping European economy and cut energy bills for families and public budgets. Real estate market standards and public demand will shift in favour of efficient buildings, changing the supply chain and construction practices. In this way economies of scale for energy efficiency measures will be created, cutting the cost of future efficiency actions, including the ones needed for compliance with the recast Energy Performance of Buildings Directive.

## 2. Climate Change Act for modernising the economy

National governments should take inspiration from the UK's Green Economy Act and set a framework through which countries are to reduce greenhouse gas emissions. Such an act should be concise and simple – it should mandate that a country reduces its greenhouse gas emissions by a certain percent annually, year after year, step by step, until 2050. It will thus leave decisions on specific technologies and measures like acts of law, tax reforms and additional schemes up to the discretion of each future government.

In the UK the act was passed in 2008 and proposed by the government with support from opposition parties, trade unions and the Confederation of British Industry. The country has managed to reach an elementary consensus on how to start investment in new sectors.

By guaranteeing entrepreneurial conditions, the new legislation will open a path for investment in modern sectors, not only thermal insulation in houses but also renewable sources, public transport, waste recycling and so on. Energy and industry companies often decide on investments and business strategies several decades in advance and thus need to have a clear idea of the conditions that will exist twenty or thirty years from now. This act will also help industrial enterprises plan emission reductions, which will need to happen anyway, and they will thus know what to expect with such a commitment. Analogous legislative acts are being discussed in Finland, Belgium, and Ireland.<sup>4</sup>

**“Enterprises urgently need a credible framework that will allow them to make their way to a low-carbon economy... [a] Climate Change Act can do that,” the Confederation of British Industry argued.**“

## 3. Energy Independence Fund

National governments should start an ambitious scheme that will help provide most of the financing to thermally insulate the country's buildings gradually over several decades. It has been shown that households themselves can cover part of the investment required to insulate the buildings but do not have sufficient funds to completely cover total costs. State subsidies should therefore provide the remaining funds. The success of the 'Green light to savings' scheme in the Czech Republic shows that such a solution produces results.

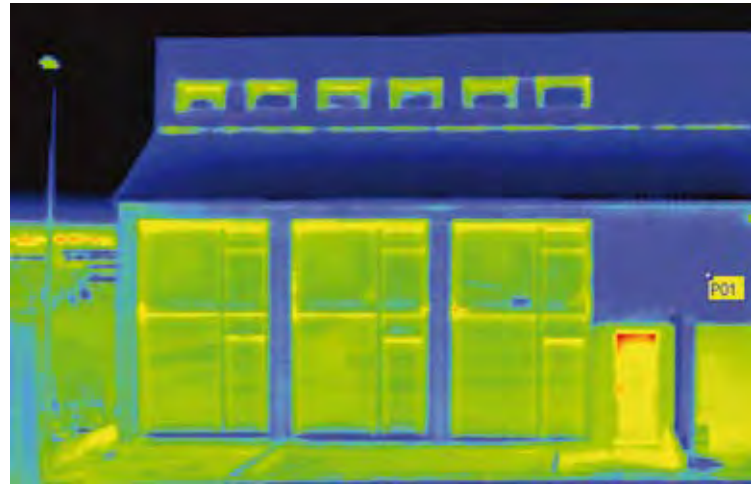
However the money allocated through the 'Green light to savings' scheme was sufficient for only a small proportion of households. The government should therefore set up a specialized Energy Independence Fund, where the state would save revenues from the auctions of emissions trading scheme allowances. The Fund would subsidise households

in financing projects to insulate buildings, replace existing heating with modern, clean biomass boilers or install solar panels for hot water. Such conditions for financing can be based off the 'Green light to savings' scheme. Additionally support from the Energy Independence Fund should be made available for regions and measures that will not be financed via EU Structural and Cohesion Funds.



3. In 2007 – 2013, only EUR 4.2 bn, or 2.4 percent, of total EU Cohesion and Structural funds were initially dedicated to energy efficiency and renewable resources in the ten new Member States, according to calculations by CEE Bankwatch Network [10].

4. See [www.thebigask.eu](http://www.thebigask.eu) for more information.





**Annexes**

## 1. Calculation methodology

The quantification of jobs used the input-output tables compiled by the Czech Statistical Office for 2007 to identify the interconnections between sectors and the derived sector multipliers e.g. determining how an increase in one sector will impact other sectors of the national economy. The multiplication effect of each class of the sectoral classification of economic activities (SCEA) is cleared of the effects of import and multiplied by the amount of production in the class to obtain the additional turnover “caused” by the examined thermal insulation schemes. This additional turnover is then divided by the average market production per worker in the SCEA class, resulting in the additional effect of the production on employment across the economy.

The data on employment in the sectors are based on the SCEA classification according to the CSO. The input-output tables are categorised in more detail according to the standard production classification (SPC), employment is converted from SCEA to SPC by weighting using added value in the SPC classes. The calculations are based on the assumption that the structure of the Czech Republic’s economy and the interconnections among its sectors have not changed substantially since 2007. For 2009 we extract from the substitution effects, whereby production in one sector may substitute for production in another sector given the sufficient capacity in the national economy and the absence of other demand stimuli.

The study, in the Czech language, including the tables used for job calculations, is available for download at <http://velkavyzva.cz/?zateplovani>.

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