



Multiple Benefits of Investing in Energy Efficient Renovation of Buildings

A Study by Copenhagen Economics

Revealing the economic benefits for society and public finances in the EU



The Main Findings of the Copenhagen Economics Study

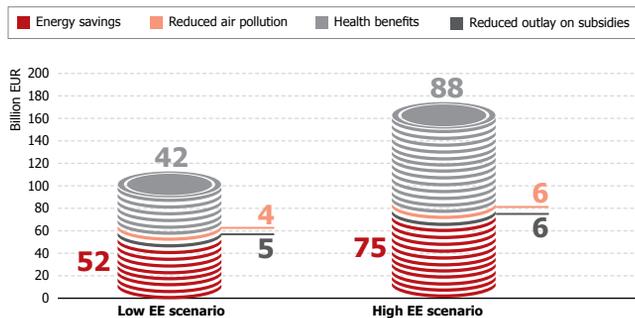
This Study re-affirms that the energy efficient renovation of the EU building stock is one of the most attractive and low cost options available to the EU to save energy, reduce CO₂ emissions and reduce dependence on imported fuels. In addition it finds that the pursuit of ambitious energy efficiency renovation programmes in the EU will bring permanent annual economic benefits to public finances and to society at large.

The Study uses two possible energy efficiency scenarios to estimate the range of benefits that can be grasped. The first is the "Low Energy Efficiency" scenario, which assumes a high level of policy initiative and the use of cost-effective measures in the specification of works to buildings. The second is the "High Energy Efficiency" scenario which, in

addition to a high level of policy initiative assumes that the current best available technologies are used in every renovation project. The use of these two scenarios allows a range of potential benefits to be estimated.

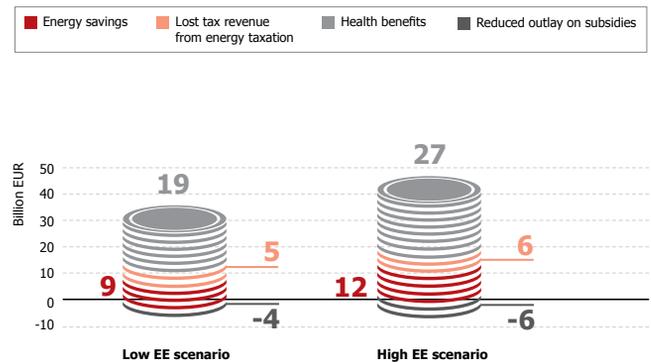
The Study also finds that now is a very good time to initiate ambitious energy efficiency renovation programmes in the EU with a long-term view as we are in a period of economic recession with very low interest rates and high levels of unemployment. Boosting activity in the sectors associated with energy efficient renovations of the existing building stock will significantly increase the speed at which the EU can exit the current crisis and this will bring a temporary, but important, boost to GDP in the period up to 2017 when the economy is expected to return to its structural GDP level.

Annual gross benefits to society from energy efficient renovation of buildings, 2020



Note: These results include a rebound effect of 20%

Annual improvements of public finances, 2020



Note: These estimated gains to public finances are already included in Figure 1, and should not be considered additional to these.

Benefits of Energy Efficiency

The Copenhagen Study has estimated the impact of a series of co-benefits that arise from energy efficient renovation:

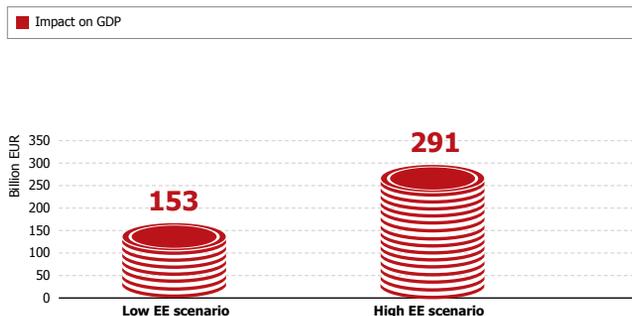
- ➔ **Energy Savings:** These savings accrue from lower energy consumption in renovated buildings and are usually the most significant financial benefit felt by property owners.
- ➔ **Health Benefits:** There are two main areas where health benefits arise following energy efficient renovation of buildings and hospitalisations: reduced air pollution, which leads to lower rates of illness and improved indoor quality, which additionally improves well-being and productivity.
- ➔ **Increased Economic Activity:** Raising the rate of renovation in the EU building stock now will bring new jobs across the sectors associated with energy efficient renovations of the existing building stock, reducing unemployment, inducing many more jobs in other sectors and closing the output gap that is currently dogging the EU.

The Study points out that depending on policy choices, EU governments can directly boost their own finances through changes in certain subsidy schemes that will still permit the achievement of core energy and social policy goals.

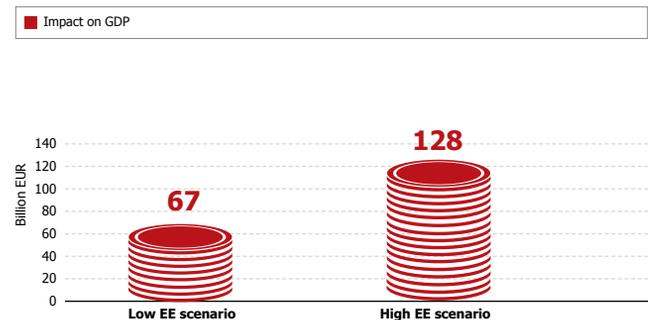
The Study takes account of anticipated reduced tax income on energy sales and the so-called “rebound effect” before it reaches the aggregated estimate for the annual boost that can be anticipated for public finances.

In addition to this permanent annual boost to public finances, the Study finds that the stimulus effect of getting going now during an economic recession will give a “one-off” boost to public finance from GDP growth in the period to 2017.

Total impact on GDP up to 2017 from increasing economic activity



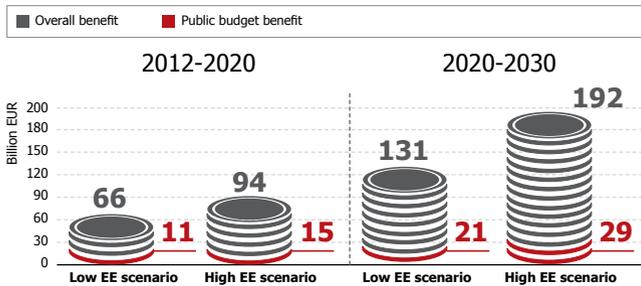
Total impact to 2017 on public revenue from increasing economic activity



Key statistics

The value of energy savings:

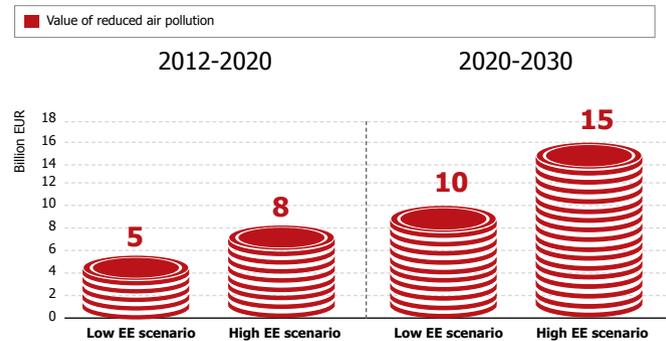
Energy savings from energy efficient renovation of buildings



Note: The energy savings are annual savings which can be achieved in 2020 and 2030 respectively given an investment path that meets the potential for energy efficiency renovation of buildings in 2020 and 2030 respectively.

Source: <http://www.epotential.eu/esd.php> for energy saving potential. Price of energy projections: DG Energy (2010)

The value of reduced air pollution:

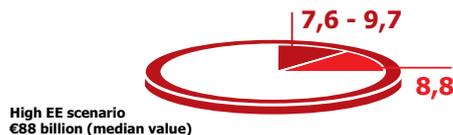


Source: Copenhagen Economics based on GAINS model, DG Transport (2008), DG Energy (2010), Eurostat, and IEA (2012)

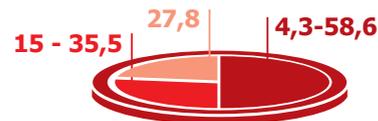
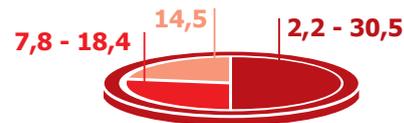
The value of improved indoor quality:



Heating



Insulation



Note: We have aggregated over several studies. These studies differ in the way they calculate the value of health benefits. For example, the New Zealand study uses a statistical value of life of NZD 150,000 (approx. EUR 90,000), while the AWARM study uses a value of GBP 20,000 (approx. €24,000). In order to ensure comparability between the estimates, we apply the lower value to the benefits in the New Zealand study.

Source: Own calculations based on Threlfall (2011), Liddell et al. (2011), Barnard et al. (2011), and UK Department of Health (2010).



Key Findings and Recommendations

Gross annual investments of €41 to €78 billion per year in the EU will bring on-going annual returns of €104 to €175 billion

Making the right policy choices is a no-cost way to boost public finances:

- Modernise rent regulation to allow landlords and tenants to share the gains from energy efficient renovation of buildings
- Reform budget management of publicly owned buildings to allow for a longer term focus in investments and renovation of public buildings
- Remove or reduce favourable tax treatment of heating and electricity use in buildings to render energy efficient renovation of buildings more attractive
- Introduce well-designed risk-sharing programmes to help governments and private building owners to realise cost savings with limited budget costs

The full text of the Copenhagen Economics Study on the Multiple Benefits of Investing in Energy Efficient Renovation of Buildings can be downloaded at:

www.renovate-europe.eu/Multiple-Benefits-Study

About the campaign

- The Renovate Europe Campaign is an EU level Campaign whose headline objective is to reduce the energy demand of the existing EU building stock by 80% by 2050 as compared to 2005 consumption levels. In order to achieve this objective, it will be necessary to increase the renovation rate of buildings in the EU by a factor of 2.5 to reach 3% per year by 2020 and to maintain that rate until 2050.
- The Renovate Europe Campaign which has 23 partner companies and associations, estimates that achieving its goals would boost activity in the EU construction sector by up to €830 billion per year by 2020 (at 2011 prices), securing up to two million direct and indirect jobs in the EU. In addition we would increase our energy security, reduce CO₂ emissions, improve the quality of life for EU citizens and boost public finances.
- To achieve the goals of the Campaign and thus reap the benefits it offers, Member States must put ambitious building renovation roadmaps to 2050 in place with intermediate targets for 2020, 2030 and 2040 that will be used to benchmark progress. In parallel, sources of funding that can be used to stimulate renovation in line with the 2050 Roadmaps must be put in place.



Energy Efficient Renovations Boost Public Finances

€1 invested by government in renovations can return up to €5 for public finances.



Deep renovation of the EU building stock

could create up to two million jobs and kick start the economy.



Improving efficiency through deep renovation

has the potential to save the equivalent of 4 billion barrels of foreign oil per year.



Deep renovation of homes and businesses

reduces energy bills whilst reducing Europe's CO₂ footprint.