Current investment to improve energy efficiency over 2012 levels is estimated at $130 billion. This is equivalent to 13% of fossil fuel investment and compares to $240 billion in renewable energy sources. Energy efficiency currently lacks the attractiveness of investment in clean energy supply, such as renewables, reflecting different policy frameworks and a set of specific barriers, including small transaction sizes and verification and measurement issues. In contrast to traditional energy-supply investment, energy efficiency investments offer expectations of future cost savings rather than an asset generating a specific cash flow.

Annual spending on energy efficiency quadruples to $550 billion towards 2035 with 62% being spent in the transport sector, 29% in buildings and 9% in industry. Improvements in cars dominate investments in transport; insulation and space heating account for the bulk of investment in buildings; non energy-intensive industries carry out the large part of investment in industry.

The European Union, North America and China together account for two-thirds of total investment, reflecting the size of their car markets and the vehicle efficiency standards in place or planned; efforts in the European Union and in North America to improve the efficiency of electrical appliances and the buildings stock; and China’s priority to upgrade the efficiency of its industry. In other emerging economies, the lack of targeted policies and access to finance, as well as the persistence in some countries of fossil-fuel subsidies, pose serious obstacles to investments in energy efficiency.

Over the period to 2035, households need to make about half of total investment, businesses 40% and governments 11%. Mobilising the necessary financing from households is a huge task given the low priority attributed to energy efficiency by consumers and prevailing economic preoccupations in many regions. Two-thirds of households’ energy efficiency spending is dedicated to more efficient cars with the rest being spent on insulating houses and buying more efficient appliances. Businesses invest in improving processes in industrial facilities, refurbishing buildings and buying more efficient vehicles. Energy efficiency investments of businesses were partly reduced during the financial crisis of 2007-2008, with credit conditions today still not back to pre-crisis levels.

Currently, about 60% of efficiency investments rely on self-financing with most of the rest financed through loans. Spending on energy efficiency accounts today only for a small part of disposable income for households and of revenue for businesses but financing mechanisms need to be in place that address the initial capital hurdle. Financing tools that use future fuel savings to cover the initial investment cost would be suitable for this purpose. As the size of efficiency loans is too small for investors, securitisation – bundling different projects of smaller size – can build a bridge between energy efficiency projects and capital markets.

A decarbonisation of the energy sector sees energy efficiency investment increase to $1.1 trillion in 2035, double the amount seen in our main scenario. Spending per household on efficiency increases four times, while household income grows by only 50%. Cumulative investment of $14 trillion in efficiency helps to lower energy consumption by almost 15% in 2035, compared with our main scenario. Dependable policy signals are essential to ensure that these investments offer a sufficiently attractive risk-adjusted return. It is essential that a stable and favourable long-term regulatory framework is in place and that a clear price signal is set by phasing out existing price distortions and through carbon pricing. Clear and easy measurement and a standardisation of the investment process help to mobilise financing from capital markets.