

# How Governments Should Fund Retrofits

They got it all wrong!

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→ On average, buildings in the US are responsible for 40 percent of the carbon emissions that lead to global warming. In big cities it is even higher. In New York it is 79%, Hong Kong 72%, Toronto 69%, to give some examples. It is clear that if we are to tackle global warming at all we will have to find a way of retrofitting the built space – we need to retrofit entire cities!

President Barack Obama has set a goal of improving the energy efficiency of US federal buildings and has earmarked over \$25 billion of his stimulus package for the retrofitting of buildings. Governments elsewhere are also making retrofitting a priority.

While the awareness and the will are there, it is still a major challenge. The number of buildings is vast, and the cost of retrofitting them all is enormous. Asking government to foot the entire bill through grants and subsidies is equivalent to asking them to print money for years. It is beyond their means, especially at this time. Meanwhile, the reductions of greenhouse gases we could achieve if we took relatively simple steps to make our building more energy efficient is significant, and the urgency of the need to respond to climate change means we cannot ignore this need.

If we analyze the costs of retrofitting and look at the payback – cutting carbon emissions also means cutting energy bills – it quickly becomes apparent that we could make major cuts in emissions in a payback period that is economically attractive. So why aren't we doing it?

There are some obstacles. However, these are such that with a little ingenuity we could easily overcome them, and unlock the enormous potential for improving the energy efficiency of our buildings.

A recent report, *Transforming the Market: Energy Efficiency in Buildings*, by the World Business Council for Sustainable Development, showed that for \$150 billion on average annually for six major markets the carbon footprint of buildings could be reduced by 40 percent with a payback period of five years. (The report covered the US, EU, Japan, China, India and Brazil and assumed energy prices based on oil at \$60 per barrel.)

A 40 percent reduction in energy costs with a payback of five years is an attractive return, yet there is little happening to exploit it. You would think that with a return like this a market would quickly develop, with energy services companies offering to retrofit buildings in return for the first few years of the energy costs savings. Building owners would buy in because they would get the

work done at no cost, and then benefit from 40 plus percent-lower energy bills from five years onwards. Its win-win – but it's not happening at the level we need it to.

One possible reason is that everyone is waiting for a government handout – a grant or subsidy to fund the work. But the task is simply too great for governments to foot the entire bill. There are around 125 million houses alone in the US, plus apartments and commercial buildings. Say it cost \$10,000 on average to retrofit a house (a huge underestimate), that would add up to \$1.25 trillion for housing alone. Not only are there many millions of buildings in every country, but governments' budgets are already under intense strain.

The other reason we are making little progress is that energy services companies (ESCO's) who could do the retrofitting would need to borrow money to fund their work until they received the cash flows from the energy savings. Alternatively, they could securitize the cash flows and sell them to banks. However, securitization would not be popular now, especially given the recent sub-prime mortgage crisis that ensued when banks repackaged cash flows with poor credit.

But here is the clue to how it could be done. If the cash flows from the benefits that ensued when retrofitting (i.e. the reduction in energy costs) were to be credit enhanced – for example, if the government instead of funding retrofits were to spend the money on **insuring the benefits that resulted from the savings in operating costs** - then the benefits could be packaged and sold to the financial markets in a multitude of high quality financial products. In this way we get two major benefits:

- for a fixed level of government funding, say \$100 million, applied to insuring instead of capitalizing retrofitting we could get up to \$10 billion dollars worth of retrofits, based on a 1% default rate in the cash flow payments;
- the financial markets become the vehicle to achieve the levels of funding for the mass, intensive retrofitting that is required to achieve a meaningful and timely impact.

In this way, the \$25 billion dollars that President Obama has dedicated to retrofitting could be leveraged to between \$1 and \$2.5 trillion dollars worth of actual retrofitting. Twenty five billion dollars does not make much of a dent on the retrofitting needs of a major country but \$2.5 trillion sure does! Meanwhile, there are no technological barriers to doing the first level of

retrofitting to get the 40 percent energy efficiency improvements. Most of the techniques, equipment and materials are known, and many of the skills, such as for insulation and ventilation can be quickly taught.

So we have this enormous task of making buildings more energy efficient, which we must tackle if we are serious about reducing global carbon emissions, where the actual work is not difficult and does not require any new inventions or technology, and where there are real paybacks within reasonable timescales. This cannot be beyond our ingenuity to solve. In fact, all it would take is to cast government in a different role – not as the banker of the retrofitting programs, but as the insurer of an established industry in energy services. If government did this, and used its dollars to back the market rather than fund it, it could grow the ESCO industry that would deliver the energy efficiency improvements for a fraction of the outlay.

How it would work is simple. The government insures the energy services companies that conduct the retrofit, guaranteeing their loans or securitized cash flows. This will give banks the confidence to lend to the energy services companies or to buy the resulting financial products..

In a new industry, with many new companies, there are bound to be defaults, which is why there is the need for insurance. But even if the default level is high – say 10 percent – it still means that 90 percent of the retrofitting is done on a commercial basis without government subsidy.

A government insurance scheme would prime the pump and unleash an energy services industry to start tackling the millions of buildings that require retrofitting. It would sweep aside the capital stumbling block that is preventing building owners, whether they be commercial, residential landlord or private, from retrofitting. Although many energy efficiency measures are relatively inexpensive, they are still beyond the immediate means of many building and home owners. A government-insured energy services industry would provide the capital, do the work and leave the owner to reap the long-term benefits.

We are in the perfect storm – declining automobile manufacturing jobs, a manufacturing slowdown, and a general need to create meaningful jobs. The good news is that we are leaders in information technology. We are great at green architecture and design. We have a solid construction industry. So retrofitting our cities makes great sense. We make a dent on global warming, with a further positive spin-off – mass job creation, just at the time when we desperately need it. A number of retrofitting skills, such as home insulation and

draught-proofing, can be quickly taught. With the building sector in recession, many of its workers could be easily repurposed to retrofitting buildings.

Since this needs to be done worldwide, it could be an industry to export.

“Energy efficiency is fast becoming one of the defining issues of our times, and buildings are that issue’s ‘elephant in the room’. Buildings use more energy than any other sector and as such are a major contributor to climate change,” says Björn Stigson, president of the World Business Council for Sustainable Development.

We can overcome one of the major obstacles to improving building energy efficiency if we recast government as the insurer of a new retrofitting industry rather than asking it to foot the bill.

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