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## The Case For Energy Efficiency Policy

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How do different countries fare on energy efficiency policy?

Imagine an energy resource that would cause none of the environmental impact arising from extracting coal, oil, natural gas or uranium; would arouse no acrimonious planning debates with NIMBY (“Not In My Back Yard”) objectors over the installation of wind turbines or solar panels; and would emit no greenhouse gases. Such a resource is energy efficiency. Whereas the energy conservation movement in the 1970s sought to consume less energy, energy efficiency promises to do more with the same resources, with the added hope of reducing consumption.

According to the International Energy Agency (IEA), energy consumption in developed countries would have been 58 percent higher in 2005 had it not been for energy-efficiency interventions arising from the oil price shocks of 1973. However, since 1990 the rate of energy efficiency improvement has decreased. With energy efficiency a key instrument to reduce greenhouse gas emissions, innovative policies are required to stimulate investment in this area to reduce energy waste.

**A climate change policy instrument**

Energy efficiency is about “energy affordability, reducing energy consumption, reducing emissions to meet carbon budgets”, according to David Kennedy, chief executive of the UK’s Committee on Climate Change. Energy efficiency initiatives in the UK are considered “as part of its energy climate change policy suite”, he adds. Included in this policy package are Energy Company Obligations (ECOs) to improve residential energy efficiency; the Green Deal to finance home and business energy saving improvements; Carbon Reduction Commitment (CRC) measures to reduce energy use, and Climate Change Agreements (CCAs) to incentivize energy-intensive industries to replace outdated equipment or properly maintain existing equipment. Furthermore, the UK engages in compliance policy measures at an international and EU level and via the EU emissions trading scheme.

### **Built environment challenge**

Yet there is a sense that UK energy efficiency policy responses need to be scaled up to address energy waste, particularly in the built environment sector. Stephen Pattenden, the director of Telemetry Associates, a housing consultancy, contends that “buildings almost everywhere in the UK are inefficient in their use of energy and, of the energy people buy, up to 80 percent is wasted”. Each year, he calculates, £32bn is lost as a result of energy waste from buildings. Green Deal financing is unlikely to be sufficient, and its conditions are not attractive enough for the scale of refurbishment required. A more suitable model may be the financial investment program of the German Kreditanstalt für Wiederaufbau (KfW), whose subsidized loans have helped to refurbish over 9 million houses and build 400,000 energy-efficient homes.

A first step to reduce energy waste is for all commercial buildings to have Display Energy Certificates (DECs), which are a means of measuring and creating awareness of the energy consumption of a building. “Energy is not visible,” says David Clark, a partner at the building and design company Cundall. “What is the incentive for poorly rated energy performance buildings to change if most building stock in a city has no transparent rating?” Labeling allows better understanding of the true costs of owning or leasing a property and recognizes the value of investment in energy efficiency. Moreover, once performance is understood, technological solutions can be developed to improve performance. BuildingIQ, a California-based software company, has developed software to increase the artificial intelligence of a building so that bespoke energy-efficient solutions can be delivered for each building.

### **Standards and targets**

The United States shows the value of using standards to improve energy efficiency and ratcheting up the robustness of energy efficiency standards over time. Greg Kats, the president of Capital E, an energy efficiency finance firm, points out that “new buildings are driven by standards—building code standards, appliance standards etc”. The non-profit sector plays an increasing role in developing standards. The American Society of Heating, Refrigerating and Air-Conditioning Engineers has created the ASHRAE 90.1, a benchmark energy standard for buildings. The 2010 version is 25 percent more energy-efficient than the 2004 one.

Another non-profit organization, the American Council for an Energy Efficient Economy (ACEEE), promotes behavioral change with an annual scorecard ranking the energy efficiency

performance of US states. The 2012 review shows that states on the West Coast (California, Washington and Oregon) and the Northeast Coast (Massachusetts and New York) perform highly, whereas those in the Midwest (Nebraska, South and North Dakota) perform very poorly. Within the EU, Energy Efficiency Watch, a project that aims to facilitate the implementation of the Energy Services Directive, is adopting a similar approach by rating energy efficiency policies in the 27 EU member states. Germany, for example, is considered to have a rather high-quality energy efficiency policy.

Asia is replicating the US approach to setting standards and targets for energy efficiency. For instance, South Korea requires its automobile industry to deliver a 20 percent improvement on fuel efficiency based on 1999 standards. Furthermore, most Asian countries are developing voluntary standards with public awareness campaigns on energy efficiency to capture data that will in time be used to develop mandated standards.

China is staking more on energy efficiency, as Beijing sees it as a strategic industry to complement its manufacturing capacity in renewable energy as well as electric vehicles. Energy efficiency is seen as a core component of China's innovative industry strategy and a longer-term contributor to its competitive advantage. Between 2005 and 2010 the number of energy-conservation service companies in China grew tenfold from 80 to 800, and the number of employees in the sector rose from 16,000 to 180,000.

### **Investment policy**

Capital E's Mr Kats believes that there is substantial underinvestment in energy efficiency, adding that the US could save US\$2 trillion through more efficient energy use over the next 15 years. He would like to scale up financing for energy efficiency investment to over US\$100 billion a year, well in excess of today's levels. As Mr Kats points out: "The critical step to close the [investment] gap is to make energy efficiency financing a mainstream financial asset class with a high degree of standardization, predictability and scale." Such investment would also enhance US competitiveness and stimulate a goods and services industry worth several hundred billion dollars annually.

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