

# White Paper

## Energy Efficiency

### Legislation and Regulation : An overview

The amount of legislation in force and on the horizon regarding energy issues can be bewildering at the best of times - but it can also provide many opportunities for business, so staying informed is essential.

The following is a list of the most major policies, regulations and incentives, which should hopefully provide a good introduction. In depth information on all of the schemes and legislation discussed can be found on either the webpage of the Department of Energy and Climate Change, or the European Commission's energy efficiency portal on their website.

**The Climate Change Act 2008** mandates an 80% cut (from 1990 levels) in the production of 6 major greenhouse gases by 2050, with a target of 34% reduction by 2020. Arguably the most important energy bill currently in force, it is unique in that it is currently the only long-term legally binding framework for tackling climate change and for preparing the country to adapt to it in the world. It has created the Committee on Climate Change, an expert advisory body, and carbon budgets, set over five year periods, intended to keep the country on track to meet the 2050 target.

**The Energy Act 2011** sets out the main aspects of the current coalition government's energy strategy, and introduced the "Annual Energy Statement", in which the progress made since the previous year's statement and any new relevant policies are described. The

act also introduced the **Green Deal**, a measure for providing finance for the purpose of reducing energy usage. Paid for through energy savings, it ensures - the "Golden Rule" of the deal - that energy bills will remain the same or less, and no personal debt shall result.

One of the most talked about policies recently has been that regarding **Feed-in Tariffs** for Photo-Voltaics, which originally offered a great return on investment in panels. Unfortunately, the incentive was more enticing than the government originally anticipated, and so it quickly scrambled to change them to slightly less enticing levels to limit the damage to the treasury. However, the reduced feed in tariffs can still prove a worthwhile incentive, offering above-inflation payback when combined with reduced electricity consumption - the return on investment is intended to stay at between 5-8%, though a large part of this may depend on the price of systems continuing to fall.

The level of tariff available depends on the size of the system, with smaller systems up to 4kW receiving the highest level, and dropping to under half that once a system reaches over 250kW. Lower levels can apply, however, if the building to which the system is installed fails to meet certain targets - it must at least be above a "D" rating on the building's Energy Performance Certificate. (See the **Energy Performance of Buildings Directive (EPBD)** below for a further explanation of these certificates).



**Smart Meters** - A government initiative to allow consumers and suppliers to more easily monitor, and so manage, their energy consumption and put an end to estimated billing. A widespread roll-out of smart meters also opens up the possibility of centralised power management for the whole grid - offering consumers specialised tariffs that would save them large sums of money, in exchange for permitting the suppliers to control their consumption remotely, which would result in great efficiency gains, and also possibly allowing power rationing if required. The task of installation falls to energy suppliers, who are to be responsible for replacing over 53 million existing meters with new smart units - a not insignificant task, starting from 2014 and intended to be completed by 2019. However, with the final specification still not confirmed, it is questionable whether this task can be completed in time, as it would require the installation of tens of thousands of meters per day. As even approaching this figure is perhaps beyond the capability of even the largest suppliers, significant potential exists for contractors to pick up the shortfall - a great commercial opportunity.

The **Renewable Heat Incentive** is similar to the feed in tariff scheme for photovoltaics, intended to provide long term support and increase the installation of systems such as biomass boilers, ground source heat pumps and solar thermal. Requiring the installation of fairly complex metering equipment, the incentive consists of two tariffs, currently only available for commercial installations, although support for domestic installations is anticipated in the near future, possibly by summer 2013. The first tariff is paid according to the capacity of the system, depending on type and up to a certain level,

and the second tariff is intended to subsidise the cost of the fuel used in the system, if any. At present, possibly due to the complexity of both the equipment required and the tariff system, uptake has been extremely low, and in response a simplification and education program is underway, the end target being a seven fold increase in the use of such systems over the coming decades.

**The EU Energy Efficiency Directive (EED)** is perhaps the most wide ranging piece of legislation in the list, as it affects everything and everyone - suppliers, producers and consumers, covering the transformation of energy and its distribution through to final consumption. The target set by the EED is a 20% reduction in energy usage by 2020, to be achieved through increases in efficiency. At the current rate of progress, this target appears unlikely to be achieved. In order to correct this, the EU commission will impose mandatory national energy efficiency targets on all member states if significant progress has not been made by 2014.

Of particular interest (or perhaps concern) to public bodies is the requirement for them to refurbish at least 3% of their buildings every year, and the instruction for them to reduce their consumption through the purchase of energy efficient products, services and buildings.

Originally a scheme whereby large energy consumers could purchase allowances to cover their carbon output, the **Carbon Reduction Commitment for Energy Efficiency Scheme (CRCEES**, but more commonly known as the CRC) has since evolved into a



mandatory cap and trade, estimated to reduce the UK's carbon output by over a million tonnes a year by 2020. The CRC applies to all businesses consuming over 6,000 MWh a year of electricity, but it also covers direct energy use, such as oil and gas. This is obviously a significant concern to the businesses affected, as it makes reducing energy usage a much more pressing financial matter due to the additional cost. A consultation is currently underway to simplify the scheme - "to create a new leaner, simplified and refocused CRC... (meeting the) objectives whilst making compliance easier and less burdensome for participants" according to DECC.

Another important EU scheme is the **Energy Performance of Buildings Directive (EPBD)**, which is intended to improve the energy efficiency of buildings throughout the EU, and do so in a cost effective manner. In the UK it has been incorporated into the Housing Act of 2004.

The directive is to be achieved through four main actions; calculation of consumption, setting minimum standards, issuance of certificates and inspections. Calculation of energy consumption is done through the "Standard Assessment Procedure" (SAP) for domestic buildings, and the "Simplified Building Energy Model" (SBEM) for commercial. The minimum standards set minimum energy performance requirements for all new buildings and also apply to the refurbishment of large existing building. The minimum standards are regularly raised so as to ensure constant improvement. Certification is applied through the use of the **Energy Performance Certificate (EPC)**, which, since 2008, must be available whenever a building is built, sold, or let. The rating that the certificate carries,

which is of particular interest to those seeking to install PV systems (See **Feed-in Tariffs for Photo-Voltaics**, above), is calculated by comparison of the building's performance with that of a notional equivalent building of similar size and usage. For public buildings over 1,000m<sup>2</sup> in size, a **Display Energy Certificate (DEC)** must be produced every year. Unlike the EPC, this is calculated on the actual energy use of the building.

Finally, boilers and air-conditioning systems, being heavy energy consumers and prone to large drops performance if not regularly maintained, must be inspected at certain intervals.

Air-conditioning systems with a rated output of more than 12 kW must be regularly inspected, both for efficiency of operation and for size in comparison to the requirements of the building. Boilers with an output of over 20kW must also be regularly inspected. In both cases, advice is to be provided to the operators with regards to efficiency and good operation.

The above are simply a brief selection of some of the most important pieces of current legislation, and they are all in a near constant state of change, sometimes being updated several times a year. The need for consumers and business to be aware of such legislation is greater now than ever - not only to save money and avoid penalties, but also to seize the substantial business opportunities on offer, reap the benefits of incentive schemes and in doing so maintain or gain the competitive edge.