Office DEPOT

environmental guide for utilities sector

green today, greener tomorrow

By their very nature – and by the sheer scale of their influence - utilities have a major role to play in the drive towards sustainable activity - and so are coming under increasing pressure, both public and political, to demonstrate they can act in a sustainable manner. For a manager, at whatever level, and in whatever utility, sustainability now has to be seen as integral to your job function – even if it is not formally written in your job description.

This guide helps to steer managers through current legislation and guidelines and whist it cannot be exhaustive it can give a clear indication of where those responsibilities lie and the bodies and institutions that oversee them.

Increasingly, utility[1] companies are facing the challenge of adhering to ever more stringent environmental legislation covering impacts to land, water, air and biodiversity. Regulators are also adopting a rigorous approach to climate change and the environment, requiring utilities to implement measures to mitigate, abate and monitor their emissions. By continuing a 'business as usual' approach, utilities risk bearing the costs associated: with future environmental liabilities, interruptions in supply and the inability to consistently deliver a service to their customers.

More and more companies are realising the benefits in taking a more proactive approach and being one step ahead of their peers in terms of environmental performance.

environmental guide for utilities sector

this outlines: Relevant legislation, Key issues for the sector, Water, Waste Water, Energy, Climate Change.

The direct and indirect environmental issues associated with the utilities sector are wide ranging. This guide will focus on the following key areas: water, wastewater and energy and climate change. The utilities sector has a large amount of influence over each of these areas. A significant proportion of the UK's energy use is required for the treatment and pumping of water for use and disposal.

Moreover, with an energy sector that still relies predominately on fossil fuels, the combined impact of our utilities on climate change is significant.

On the other hand, our utilities rely on the sustainable provision of water and are greatly affected by variable and extreme weather patterns and the fluctuating availability of water resources; both of these are impacts associated with a warming climate.

relevant legislation

REGULATION OF UTILITIES

In the UK, Ofwat regulates the water and sewage industry and Ofgem regulates the energy industry. These regulators exist primarily to promote competition and to ensure that the consumer is receiving a fair price for the services being received. The regulators also have a responsibility to promote the sustainable operation of utilities and the continuous improvement in their environmental performance.

WATER RESOURCE MANAGEMENT PLANS (WRMPS)

Recently many initiatives and pieces of legislation have been introduced promoting environmental good practice in the sector. Ofwat is currently helping to enforce the implementation of Water Resource Management Plans (WRMPs). Each utility company is required by law (introduced under the Water Industry Act 1993) to produce a WRMP, which sets out long-term plans on how the company will address the challenge of maintaining the balance between supply and demand over a 25 year period. The Environment Agency provides specific details on how companies should incorporate climate change in their plans; this is more clearly explained in their 2007 report, Water Resources and Planning Guidelines [2] .

THE WATER FRAMEWORK DIRECTIVE

The Water Framework Directive is the most substantial piece of European water legislation to date, designed to improve and integrate the way water bodies are managed throughout Europe. It was transposed into UK law in 2003. The UK Government and Ofgem are considering whether some form of water efficiency obligation is required, such as the provision of water efficiency devices free of charge or at a subsidised rate to domestic or commercial customers: these may include cistern displacement devices, trigger hose attachments, domestic/commercial water audits and free supply pipe repairs or replacements. In addition, water companies may also soon be obligated to publish water saving information on their websites, bills and literature.

CARBON REDUCTION MECHANISMS

In March 2007, the European Council committed the European Union (EU) to a binding target of reducing greenhouse gas (GHG) emissions by 20%. In order to achieve this target, the Commission has suggested that the UK's contribution to this should be to increase the share of renewables in its energy mix from around 1.5% today to 15% by 2020 [3] . Various policy mechanisms have been introduced to support GHG reduction and promote renewable forms of energy. These include The Renewables Obligation (RO), the Carbon Emissions Reduction Targets (CERTs), the Carbon Reduction Commitment (CRC) and the EU Emissions Trading Scheme (EU ETS). All of these initiatives will directly affect the way that a utility company operates.

THE RENEWABLES OBLIGATION

Is a mechanism designed to incentivise renewable generation in the electricity generation industry. The orders place an 'obligation' on licensed electricity suppliers in England, Wales, Scotland and Northern Ireland to source an increasing proportion of electricity from renewable sources. Suppliers can meet their obligations by presenting sufficient Renewable Obligations Certificates (ROCs). Where suppliers do not have sufficient ROCs, they must pay an equivalent amount into a fund.

1. Utilities are services that include the supply of gas, electricity, water, and sewerage. The term utilities may also refer to companies that supply such services.
2. Environment Agency, Water Resources Planning Guidelines, April 2007.
3. Renewables Advisory Board, 2020 vision, How the UK can meet its target of 15% renewable energy, June 2008.

relevant legislation

THE CARBON EMISSIONS REDUCTION TARGETS (CERT)

From the Energy Efficiency Commitment (EEC) 2005-2008), requiring gas and electricity suppliers to achieve targets for the reduction in carbon emissions generated by the domestic sector. CERT affects licensed gas and electricity suppliers that have at least 50,000 domestic customers either individually or as part of a group of companies. More information on these obligations and targets can be found on this website: www.yourenvironmentalguide.com/directives.aspx

Guidance is also provided on the Ofgem website on how these obligations and targets may be applied by energy suppliers: www.ofgem.gov.uk/CustomPages/Pages/Results.aspx?k=guidance%20for%20suppliers&start1=11.

THE CARBON REDUCTION COMMITMENT (CRC)

Is another scheme which will effect any utility company whose annual spend on electricity exceeds £1,000,000 or whose half-hourly metered electricity use was above 6,000 megawatt-hours (MWh) in 2008 [4] . There will be a three-year introductory phase from April 2010, with fixed price sales of allowances. The first sale of allowances will be in April 2011, with a fixed price of £12/tCO_2. During following years allowances will be sold by auction, so financial rewards can be received by those companies who have low carbon emissions.

The government will limit (cap) the total number of allowances available each year to ensure that overall emissions fall. More information on this scheme can be found on this website: www.yourenvironmentalguide.com/directives.aspx

The RO, CERT and the CRC work in support of a European-wide trading mechanism known as the EU Emissions Trading Scheme (EU ETS), with no overlapping taking place. The scheme works on a cap and trade basis. The cap sets a regulatory limit on the total emissions from the power sector and other large emitting industries across Europe. The installations are then required to obtain an allowance for each tonne of carbon dioxide (CO_2) that they emit. In the same way as the RO and CRC, installations are required to buy additional allowances if their emissions exceed those for which they have allowances, and can sell allowances they do not need. This trading in allowances, together with an overall cap on emissions, gives CO_2 a market and creates a “carbon price”.

THE ENVIRONMENTAL LIABILITY DIRECTIVE (ELD)

The UK Government is in the process of transposing other European Directives that will also directly affect the utilities sector. The new EU Environmental Liability Directive (the ‘ELD’) has the potential to affect many businesses in the sector operating in the European Union. In the UK, a number of regulations have already been introduced which support the “polluter pays” principle such as: the Environmental Protection Act 1990; the Water Resources Act; the Wildlife and Countryside Act 1981; and the Control of Major Accident Hazards Regulations 1999. In response to the ELD, new regulations will now be introduced that will supplement these, requiring companies to take all necessary action to prevent damage occurring to the environment. It is anticipated that, where damage has occurred, action will need to be taken not only to rectify the damage that has been caused but also to restore the habitat to its ‘baseline’ condition [5] . Details of the consultations that have taken place with respect to the ELD can be found on the Defra website: www.defra.gov.uk/environment/liability/#regs

4. Netregs website: http://www.netregs.gov.uk/netregs/legislation/future/97515.aspx..
5. Netregs website: http://www.environment-agency.gov.uk/netregs/legislation/future/63682.aspx.

key issues

WATER

Due to the effects of climate change and increasing demand, prompted by further industrialisation and a growing population, we are faced with increasingly unreliable water resources. According to statistics provided in the Government's water strategy report: Future Water:

Every year, around 18 billion tonnes of water are taken from reservoirs, rivers and underground aquifers in England. Of this, about 6 billion tonnes are put into the public water supply. Electricity generation uses 9 billion tonnes, industry 2.1 billion, farming 0.2 billion and other uses, such as fish farming, account for the rest [6].

In 2004-06, the UK suffered one of worst cases of drought in the last 100 years in the Southeast of England. As a result, customers had to reduce their demand by 5-15% [7]. Conversely, in 2007 the UK was faced with extreme flooding. The Environment Agency, in its report: Review of 2007 Summer Floods, reflects on the cause of this flooding, stating that:

As climate change makes floods more frequent public bodies, businesses, communities, families and individuals will all need to prepare to do their bit to respond to the threat……..Measures should be put in place to ensure that key utilities and public services take responsibility for climate change proofing critical infrastructure, facilities and services [8].

Many sources predict that rainfall patterns will continue to change, leading to more extreme seasonal variations. This will have an impact on the availability of water in our rivers, reservoirs and underground aquifers. Additionally, warmer temperatures brought about by climate change could increase the demand for water. For example, the watering of gardens will be expected to rise in a hotter climate, while wetter winters may put additional pressures on drainage.

Water utilities are expected to adapt their operations to avoid future interruptions in the supply of water. The companies in England and Wales manage water distribution networks with a total length of about 335,000 km. In addition there are almost 24 million connections to properties [9] all of which have the capacity to leak. In fact, the emissions associated with water lost through leakage are equivalent to around 10% of the water industry's total GHG emissions. A company's Water Resource Management Plan should take into account the viability of reducing leakage, in terms of the balance between the environmental benefits of fixing the leak and its associated costs. Water companies are also encouraged to promote more efficient usage of water in order to ensure the sustainability of this resource. In August 2007, Ofwat set voluntary targets for water companies to reduce the amount of water delivered, and the Government is working with Ofwat to make these targets mandatory. Metering is often an effective method of achieving reductions as it provides a financial incentive for people to save water.

Currently only 30% of households in England have a water meter. However, from October 2007, following the agreement of a proposal developed by the Water Saving Group, water companies whose areas have been identified as 'seriously water stressed' have been given extended powers to increase compulsory metering.

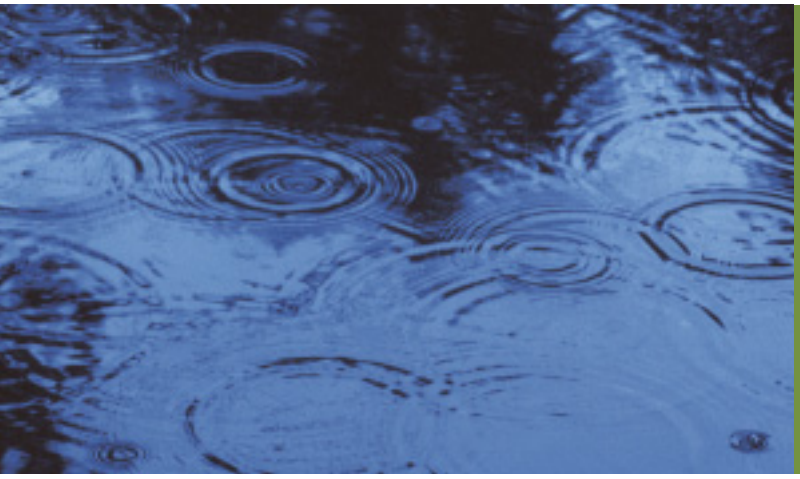
It is in the interests of water companies to adapt and mitigate against future water shortages. Having to respond to emergency interruption in supply can be costly and, under Condition Q of their licences, water companies may be required to make payments (or give credits) to customers where essential household water supplies are interrupted or cut off under the authority of an emergency drought order [10].

6. DEFRA, Future Water: The Government's Water Strategy for England, 2008.
7. Defra website: http://www.defra.gov.uk/environment/water/resources/drought/index.htm#consultation.
8. The Environment Agency, Review of 2007 Floods, December 2007.
9. Defra Website: http://www.defra.gov.uk/environment/statistics/inlwater/iwsupplyuse.htm.
10. OfWat website: http://www.ofwat.gov.uk/sustainability/waterresources/legal/prs_faq_compdrought.

key issues

WASTE WATER

As described above, evidence suggests that climate change contributes to our changing weather patterns. Whilst some regions of the world are suffering from extreme drought, others are affected by flooding and an overabundance of water. Flooding in particular can present a large challenge for sewerage companies, driving new approaches to designing sewage systems. Ofwat advise that sewage companies should assess the benefits of future-proofing new assets rather than replacing or amending assets early.



Companies should also play their part in delivering proposed surface water management plans, these will be conducted by local authorities, and include drainage solutions and the identification of flood routes [11].

ENERGY AND CLIMATE CHANGE

Climate change and energy security are high on political agendas worldwide. The UK Government has set an ambitious target for the reduction of GHGs: demanding a reduction in CO_2 emissions (the main contributor) of 60% by 2050 relative to 1990 levels [12]. Everyone has a responsibility for contributing to achieving this target.

The electricity sector has a significant role to play in the way it delivers its service and the sources of energy it uses. The UK primarily relies on fossils fuels as an energy source. However, as mentioned above, the Government is increasingly encouraging the use of renewable forms of energy (wind, hydro, tidal, solar). Not only are financial incentives being introduced through new mechanisms such as the Renewables Obligation, measures are also underway to improve the infrastructure required to support new renewable sources of energy and their transmission into the national grid. Ongoing efforts are being made to reduce the barriers for participation into energy markets, thus including more of the smaller generators.

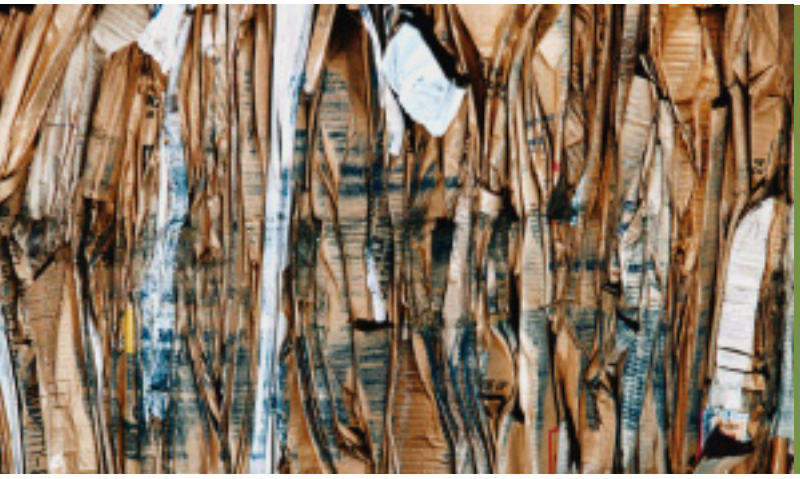
Climate change and energy security are high on political agendas worldwide.

More efficient methods of producing electricity are also being encouraged, such as the use of Combined Heat and Power (CHP) plants. CHP avoids the occurrence of distribution and transmission heat losses compared to electricity-only generation plants. The carbon emission savings from CHP in 2007 compared to the average UK fossil fuel carbon intensity was 14.3 Million Tonnes of CO_2 ($MtCO_2$). This equates to 2.6 $MtCO_2$ per 1000 MWe installed capacity [13].

11. OfWat website: http://www.ofwat.gov.uk/pricereview/pr09phase2/ltr_pr0913_sewdesclimchge.
12. DTI, Meeting the Energy Challenge, A White Paper on Energy, 2007.
13. Office of Gas and Electricity Markets 16th Sustainable Development Report, December 2008.

conclusion

The utilities sector is faced with a significant challenge: providing customers with the services they require at the right price and in a sustainable way. Increasing pressure is being applied to utility companies to address their emissions to land, water and air and to mitigate against these emissions in the future. In a regulated sector, utility companies need to find the balance between keeping their costs low and improving their environmental performance. In order to make significant carbon savings, measures to reduce wastage and improve infrastructure should be implemented. These will often incur high costs in the short-term but will enhance the efficiency of operations and satisfy future legislation, leading to long-term cost savings.



The utilities sector is faced with a significant challenge: providing customers with the services they require at the right price and in a sustainable way.

USEFUL LINKS

Defra (Water Saving Group)
www.defra.gov.uk/environment/water/conserve/wsg/

Department for Business Enterprise and Regulatory Reform (BERR)
www.berr.gov.uk/whatwedo/energy/

Department of Energy and Climate Change (DECC)
www.decc.gov.uk/

The Environment Agency (Water Resource Planning Guidelines)
www.environment-agency.gov.uk/business/sectors/

Future Water: The Government's Water Strategy for England
www.defra.gov.uk/environment/water/strategy/pdf/future-water.pdf

NetRegs
www.netregs.gov.uk/

NetRegs (EU ETS)
www.netregs.gov.uk/netregs/62975.aspx

NetRegs (Carbon Reduction Commitment)
www.environment agency.gov.uk/netregs/legislation/future/97515.aspx

NetRegs (Environmental Liability Directive)
www.netregs.gov.uk/netregs/legislation/future/63682.aspx

IOfgem (UK Regulator for Office of Gas and Electric Markets)
www.ofgem.gov.uk

Ofwat (Water Services Regulation Authority)
www.ofwat.gov.uk/

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