

Stern review on the economics of climate Change Statement from Anglian Water Services

Anglian Water provides high quality drinking water to 4.2 million customers and wastewater collection and treatment services for 5.6 million customers across a vast area of eastern England (27,500km²). The region is dry, in relation to the rest of the country; the population is predominately rural and widely distributed. This results in the need for a high number of small works, a large distribution network, and a disproportionate level of pumping which results in a high energy requirement and resulting CO₂ emissions.

Our region is also a highly protected one, with over 750 Sites of Special Scientific Interest (SSSIs), 5 Areas of Outstanding National Beauty and of course the Norfolk and Suffolk Boards. We ourselves have 51 assets within SSSIs – everything from our large impounding reservoirs down to our smallest pumping stations. So we understand the value of these sites in the context of the east of England.

Our operations are essential to our customers but also to the well being of the east Anglian landscape and economy. That is why it is essential that we be prepared for the future however it is shaped by climate change, which could be particularly dramatic in the east of England.

By 2080 (using UKCIP's high/high scenario) the climate in the East of England is predicted to be 3 to 5 degrees Celsius warmer, we will have wetter winters and drier summers. There will be an increase in the number of storms and their intensity, and in the number of flooding events. Sea levels will have risen by 22 to 82 cm on the Essex coast.

Obviously this will directly affect our business in a number of ways and we are currently investigating the impacts that this will have on the supply of drinking water and the collection and treatment of waste water in the region. In summary the key implications for Anglian Water are listed below

- Requirement for increased winter raw water storage
- Supply infrastructure improvements - peak demand resilience
- Impact on infrastructure – temporary or permanent asset loss due to flooding, sea level rise and coastal realignment
- Resource competition – environmental or economic pressure to share water resources
- Requirement to adapt design standards e.g. sewer capacity

Anglian Water recognises the serious nature of the challenges that we are facing and we have developed a strategy identifying the implications and required actions both in terms of mitigation and adaptation; many of which are already underway.

Water supply

With potentially more rainfall in the winter period the overall supply seems secure but this may require new infrastructure; new winter filled reservoirs and improvements to the supply network in order to meet greater summer demands. However, we have to be aware of the increasing pressures that are likely to be exerted on the water resource in the summer months, for example nature conservation and in particular protected wetland habitats. Irrespective of the challenges that we face in the future, we already have examples of competing demand between public water supply and important conservation sites. We are working hard with the Environment Agency and English Nature to resolve these to protect the environment whilst maintaining the security of supply.

Looking ahead it is imperative that we work closely with our regulators, stakeholders and of course our customers in order to ensure that these competing demands can be managed effectively. Domestic customers and their expectations will be a key factor in the future. Three of the four growth regions outlined in ODPM's plans will impact on our region. As you may be aware once these properties are

built we are legally obliged to supply water, which may have knock on implications for the protected wetland sites, agriculture and other users of the regions water resource.

Of course water efficiency will be crucial and all new developments will be metered but although standards are being set for water efficiency in these properties there are no incentives or regulation to deliver them. Furthermore, should the development of these areas prompt a review of the current metering policy for existing properties? We already have 56% of our domestic customers on meters but will this suffice in the future?

The impact of quality drivers on climate change e.g. Water Framework Directive

The legal and political drivers that require improved standards in inland, coastal and drinking water qualities all have a direct correlation to energy and resource use and the resultant CO2 emissions. The table below illustrates the increase in our energy use and our attempts to offset the impacts from this by the purchase, self-generation of green supplies and a company wide efficiency programme.

Anglian Water energy consumption

From 1998/99 to 2004/05, by type, renewable and non renewable (megawatt hours '000), and excluding gas oil

Year	Non-renewable electricity	Renewable electricity	Gas (non renewable)	Total MWh	% Renewable
1998/99*	614,854	5,146		620,000	0.83
1999/00*	643,760	6,240		650,000	0.96
2000/01	659,950	10,050	9,500	679,500	1.5
2001/02	698,869	7,131	10,000	716,000	1.01
2002/03	630,629	85,756	13,766	730,151	11.74
2003/04	653,162	84,199	11,521	748,882	11.24
2004/05	638,046	90,458	12,121	740,625	12.21

* Electricity only - all other years are for electricity and gas combined

The ongoing tightening of these quality standards will continue the increase energy consumption. For example, the Water Framework Directive's (WFD) Programmes of Measures (POM's) will include infrastructure and other projects within low-lying areas. Joined-up thinking is required to ensure that POM's under the WFD do not compound the risks/impacts of climate change and in particular energy use and flooding. Therefore, it is important that the timeframes are compatible. Similarly, the links between the WFD, flooding action and climate change must be strong. Low energy / sustainable solutions for WFD measures and flooding measures should be used wherever possible; otherwise they will exacerbate the problems they have been designed to mitigate.

Within the 'preparedness' element of section 2.2 of the WFD, there is reference to informing the population about flood risks, and what to do in the event of flooding. We fully support this, but believe that information should also be provided on the causes of flooding and the role of the population's actions as a contributory factor. This may be a good lever to highlight how peoples choices/lifestyles (such as energy use) may be compounding the flooding problems they are experiencing.

Asset Loss

A specific concern in our region is the impact of rising sea levels, coastal realignment and the increase in frequency and intensity of inland flooding events. We do not currently have a detailed understanding of these impacts and so will be undertaking a number of studies to ascertain the asset base that will potentially be affected by these changes, the timescale and the costs of protection or replacements.

Developing an agreed planning framework

We continue to work within a tight regulatory framework, Ofwat, Drinking Water Inspectorate and the Environment Agency, to deliver our obligations whilst providing best value to our customers and demonstrating value to our investors. Therefore, our strategy to mitigate and adapt to climate change has to take into account the requirements of, and implications for, all of our stakeholders. The regulators, the regulated and the end users must work together to deliver what is required.

Most importantly we need a common planning framework and we need to understand how to plan, build and operate our future asset base in the context of the predicted climate change scenarios. Anglian Water is tackling some of the issues of climate change, particularly in the areas of energy and water resources. Anglian Water is developing a coordinated approach to assess, adapt and mitigate for the issues facing it from climate change.

Anglian Water must continue to provide the best value services to our current and future customers, we must play our part in managing the conflicting demands placed on water in our region but most importantly we must work with our stakeholders to develop a workable, common planning framework for our investment programmes into the future. The regulatory and investment framework within which we work must reflect this in the future to deliver the required mitigation and adaptation measures without further contributing to the impacts of climate change.