# Water Efficiency Self-Assessment Guide from anglianwater

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## Introduction

More than 97% of the water in the world is too salty to drink, 2% is locked in glaciers and the polar ice caps, that leaves less than 1% left for drinking, agriculture, industry and nature.

**Water is a precious and finite resource and we all have a responsibility to use it wisely.**

**Considering the UK population is forecast to grow to 70 million by 2027[1], it is clear that there will be increasing demand for the available resources. Anglian Water has produced this guide to help businesses to understand their water use and identify the benefits of becoming more water efficient.**

## Reduce Costs

In today's challenging economic climate, businesses need to eliminate waste to remain profitable. Utilities can be a significant production cost so it makes good financial sense to examine ways of reducing water and energy use.

It has been estimated that UK companies could save £10 million a day in water charges through water efficiency measures[2], and this doesn't include any savings on wastewater and energy charges. Many of the recommendations in this guide involve making simple and low cost changes to equipment or processes. Implementing these measures across your business will help to give you a competitive edge, just as it does for Anglian Water.

**Example:**

If 1000 litres of hot water is wasted by a hot tap or hose left running, the cost of the water wasted is on average £1.60 (at 2010 prices[3]), but the cost of the energy wasted on heating the water can be much higher.

**Electrical water heating**

A business using electrical energy to heat their water pays on average 6.742p per kWh (at Q1 2010 Industrial energy prices[4]). It takes 11.6 kWh to heat 1000 litres of water by 10 °C, so to heat water from cold (10 degrees) to hot (55 degrees), will cost £3.47, so the total cost of water and energy wasted will be £5.07.

**Gas water heating**

The average cost per kWh for gas is 1.818p per kWh[4] so the cost of heating the water will be £0.95, and the total cost of water and energy wasted will be £2.55.

[1]source: Office of National Statistics

[2]Estimates based on data taken from A Review of Water Use in Industry and Commerce Report March 2008 by Envirowise the government-funded programme to help businesses with the sustainable use of resources, and calculated on an average water charge of £1.06 per m³

[3]source: Water and wastewater charges and services for business customers from Anglian Water, 2010/11

[4]source: Prices of fuels purchased by manufacturing industry in Great Britain (p/kWh), Q1 2010, Department of Energy and Climate Change

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# Minimise Environmental Footprint

As demand for water grows, and climate change is expected to impact water availability, organisations are realising the importance of managing their water footprint (the total amount of water required to deliver a product or service).

In addition, water has an associated carbon footprint. The water we supply has been collected, pumped, treated, delivered to your premises, and removed after use, all of which requires energy. We have calculated the carbon emissions generated by water supply as equivalent to:

- 0.452 kg $CO_2$e per cubic metre or 0.452 grams $CO_2$e per litre of potable water; and
- 0.781 kg $CO_2$e per cubic metre or 0.781 grams $CO_2$e per litre of sewerage[1].

Further energy may be required to use the water once it reaches your site, for example for heating and pumping, so you could see your energy bills shrink in line with reduced water use.

**Example:**

Using the above example of 1000 litres of heated water wasted, the carbon dioxide emissions associated with heating this water would be:

Gas = 9.6 kg $CO_2$

Electricity = 28.3 kg $CO_2$

This would bring the total emissions for supplying, heating and then discharging the water to 10.95 kg $CO_2$ for gas water heating and 29.65 kg $CO_2$ for electrical water heating.

# Grow Revenue

Good environmental management is valued by stakeholders and will help to build the reputation of your business, so a focus on sustainability can be a means of boosting revenue. Companies that consistently manage and measure their Corporate Social Responsibility activities outperformed their FTSE 350 peers on total shareholder return (TSR) in seven out of the last eight years. The TSR of these companies also recovered more quickly in 2009 compared with that of their FTSE350 and FTSE All-Share peers.

# Meet Legal Obligations

Water Regulations place a duty on businesses to use water efficiently, for instance to fix leaks on the premises, minimise the length of pipework, and ensure that fittings such as WCs meet standards for water consumption.

# Manage Risks

Limiting water use minimises the risks associated with supply issues - if your business is reliant on water, you need to carefully manage your demand and know that your water supplier is doing so too. We recognise that customers' depend on us as a key supplier, and so we have implemented measures and procedures that have enabled us to achieve the Business Continuity standard BS25999. We are the first water company to achieve certification, demonstrating our provision of effective emergency supply procedures.

# Learn from the Experts

The Anglian Water region is the driest in the UK, receiving a third less rainfall than the national average. The east of England is experiencing high rates of population growth, so demand for water is increasing.

With one of the lowest leakage rates of any UK water supplier Anglian Water is recognised as one of the most efficient water companies in the UK. We supply 1.2 billion litres of water a day to our customers, the same as in 1989, even though our population we serve has increased by 20 per cent[2]. Our customers help us to achieve this by reducing leakage from pipes on their premises and by using water efficiently. Read on to find out how you can start saving water today.

[1]source: Anglian Water data 2011.

[2]source: Anglian Water data 2007.

# Self-Assessment

Work through the following step-by-step guide to assess your water efficiency. When the answer to a question is No, make a note of any actions required to achieve maximum water efficiency. Then look back through the list and address any issues raised. For further assistance, turn to page 11.

## 1. Know your water use

The first step towards improving water efficiency should be to understand your current usage.

**• Do you check your bills regularly?**

Your bills will reveal any trends in water consumption. An increase may indicate water is being wasted, possibly through a leak.

| **Note your current weekly water consumption here:** | | |
|---|---|---|
| | Recommended Actions | Notes |
| Yes | Note any changes in water use. | |
| No | Check your previous bills to determine consumption trends or contact Business Customer Services for historical meter readings. | |

**• Do you read your meter(s) regularly?**

For advice, see Anglian Water's *A Quick Guide on How to Read your Meter.* Isolating individual production areas by installing sub meters can ascertain where and how water is used on a site and identify priorities for making efficiency improvements.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Note any changes in water use. | |
| No | If you can access your water meter(s), check it/ them regularly. | |

- **Do you check water use in remote buildings?**

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Note any changes in water use. | |
| No | Regularly check remotely located buildings and pipework so that leaks, or fittings or appliances left on, don't go unnoticed. | |

- **Do you log your water consumption?**

Anglian Water can install data loggers on your meters, providing continuous graphical consumption information to enable you to better understand your water use.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Note any changes in water use. | |
| No | For information about how to get an Anglian Water meter logger installed, or advice on how to install your own logger, please contact Business Customer Services. | |

## 2. Benchmark

**• Is your water use similar to other businesses in the same industry?**

Typical use for an office or factory (for non-process water) is about 9,000 litres per person per year, but volumes of less than 6,000 litres are regularly achieved. There are several other benchmarks available for different types of business.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Keep looking for opportunities to reduce your water consumption. | |
| No | Try to understand why your site is using more water. Look through the best practice measures such as Steps 3-15 below. Anglian Water may be able to provide an on-site assessment, see Further Assistance below. | |

**• Is water use similar to your company's other sites?**

If you have multiple sites, compare their water consumption to identify best practice for water use. This can be done on a per employee basis or using another measure such as floor size, turnover or number of products produced. There are a number of organisations offering benchmark figures, see Further Assistance below.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Keep looking for opportunities to reduce your water consumption. | |
| No | Try to understand why a site is using more or less water – is it due to best practice measures such as Steps 3-15 below. Anglian Water may be able to provide an on-site assessment, see Further Assistance below. | |

## 3. Check for leaks

**• Are you sure no water is leaking from your underground pipework or internal plumbing?**

Download *A Quick Guide on How to Detect a Leak* from our website for more information on how to check for leaks.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | If you suspect that you have an underground leak on your pipework contact us on 0845 070 3448 or email leakagefindandfix@anglianwater.co.uk to enquire about our Leakage Find and Fix Service. | |
| No | | |

## 4. Reduce water use for toilet flushing

**• Are the WC cisterns operating efficiently?**

The largest proportion of water used within an office is for flushing the toilet so there are large potential savings to be made by reducing flush volumes. Older cisterns may use up to 13 litres of water for every flush, compared to flush volumes of 6 litres or less for new models.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Where dual-flush cisterns are installed, place a clearly visible notice to explain how to operate both flushes to prevent incorrect operation and wastage.<br><br>New toilets may have overflows or leaks that discharge directly into the pan which may not be noticed or reported. Identify toilets with internal overflows and regularly check for discharge. The easiest way to detect an overflowing cistern is to pour toilet cleaner around the pan and watch to see if it clears from the back of the bowl. | |
| No | Reduce the amount of water used for each toilet flush by inserting displacement devices in the cistern. Download A Quick Guide on How to Fit a Cistern Displacement Device from our website for more information.<br><br>Alternatively, old style single-flush toilets can be replaced with more water-efficient models | |

## 5. Reduce water use for urinal flushing

**• Are your urinals operating efficiently?**

Automatic flushing of urinals when they are not being used is a common waste of water. For an office with a 40-hour working week, urinals with automatic flushing will flush 76 per cent of the time when the building is unoccupied.

**Example:**

Water regulations state urinals should use no more than 10 or 7.5 litres per bowl per hour (for single or multiple bowls), but in practice many urinals use higher rates. A urinal that flushes 9 litres of water, every 15 minutes, 24 hours a day, 365 days of the year, will use 315,000 litres a year. This compares to 66,000 litres a year if it flushes at a rate of 7.5 litres per hour, saving 249,000 litres of water or £615[1] a year in water and wastewater treatment costs.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Urinals can use considerably less water than flushing toilets, so install adequate numbers in all male toilet areas. | |
| No | There are many possible options to reduce water use, such as infrared controls, or simply adjusting the flush frequency. Refer to A Quick Guide on How to Carry Out Urinal Flow Reduction, which you can download from our website. | |



[1]Based on 2010/11 Streamline Green tariff of 110.78p per cubic metre water plus 136.39p per cubic metre sewerage (247.17p combined cost of water and sewerage).

## 6. Reduce water use from taps

**• Are taps always turned off?**

A tap left running can waste over 1000 litres an hour. Even a small 5mm stream from a single tap will waste 60 litres an hour or 526,000 litres a year at a cost of £1,300[1].

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Fit self-closing push taps and hoses to prevent waste. | |
| No | | |

**• Do taps turn off completely?**

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Fix any leaking taps – a tap dripping once a second can waste 10,000 litres a year, costing nearly £25 per year[3], while a replacement tap washer only costs a few pence. | |
| No | | |

**• Is the flow of water from taps appropriate?**

Taps often run at 10-20 litres per minute flow rate, while 6 litres per minute is adequate.

**Example:**

A cold tap used 20 times a day for a period of 15 seconds at a flow rate of 12 litres a minute uses 22,000 litres a year. Fitting a tap aerator to reduce flow to 6 litres a minute, at a cost of a few pounds, would save 11,000 litres or about £27 per year in water and sewerage costs.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Reduce the flow by fitting water-saving aerators or in-line servicing valves with flow restriction, which reduce wastage and make maintenance easier. Spray taps can reduce water use by 60 - 70% compared with conventional taps. In the case of hot water taps, reducing water will also result in energy savings. | |
| No | | |



[1]Based on 2010/11 Streamline Green tariff of 110.78p per cubic metre water plus 136.39p per cubic metre sewerage (247.17p combined cost of water and sewerage).

## 7. Reduce the flow of water from any on-site showers

**Is the flow of water from showers appropriate?**

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Where showers are used frequently, push button controls, proximity sensors or time mechanisms help reduce waste. | |
| No | If the shower fills an 8-litre bucket in less than 40 seconds (i.e. a flow rate of 12 litres per minute or more), you could benefit from replacing the showerhead with a water-efficient model or fitting an in-line aerator. | |

## 8. Make washing more efficient

- **Is your washing done efficiently?**

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Run your clothes washer, dishwasher or glasswasher, only when they are full. If you have to do a wash, match the programme to the size of the load. If your dishwasher is new, cut back on rinsing – newer models clean more thoroughly than older ones. If your dishwasher is old, check it doesn't leak. | |
| No | | |

## 9. Make processes more efficient

- **Are your industrial processes using water efficiently?**

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Consider how water is used throughout your processes. Optimise your cooling systems and water softeners to save both water and chemicals. Our Optimiser team can also conduct a process water efficiency assessment to look at the production and operational processes on site. Visit our website for more information or contact our Business Customer Services team. | |
| No | | |

## 10. Consider reusing process water

- **Do you recycle water?**

| | Recommended Actions | Notes |
|---|---|---|
| Yes | If you use large amounts of water in a commercial process, our Optimiser service may help you to become more efficient and can advise on water reuse. Visit our website for more information or contact Business Customer Services. | |
| No | | |

## 11. Know where your stop tap is located

- **Do you know what to do in the event of a leak?**

Put a sign up so others can identify where your stop tap is located.
This could save water and prevent damage to your premises in the event of a burst pipe.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Put a sign up so others can identify where your stop tap is located. This could save water and prevent damage to your premises in the event of a burst pipe. | |
| No | Locate your stop tap (this is normally positioned where the service pipe enters the building). Close the stop tap by turning it clockwise. | |

## 12. Reduce watering of gardens and grounds

- **Has water use for garden and grounds been minimised?**

| | Recommended Actions | Notes |
|---|---|---|
| Yes | For landscaped areas choose plants that don't need much watering. Use water saving products such as water retention granules. Learn how to shut off your automatic watering system in case it malfunctions or you get an unexpected rain. | |
| No | | |

## 13. Buy water-efficient equipment

- **Is your equipment using minimal water?**

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Specify low water consumption requirements for any new appliances, fittings or processes. High pressure spray jetters can use less water than conventional hoses as they use pressure instead of a large volume of water to clean. Some vacuum pumps require water for lubrication and flushing, consider installing alternative pumps. | |
| No | | |

## 14. Insulate pipes

- **Are your pipes sufficiently insulated?**

Protect against cold weather-related bursts by insulating pipes. Insulate hot water pipes for more immediate hot water at the tap and for water and energy savings.

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Protect against cold weather-related bursts by insulating pipes. Insulate hot water pipes for more immediate hot water at the tap and for water and energy savings. | |
| No | | |

## 15. Create plans to reduce water use and review once a year

- **Are staff aware of the need to conserve water?**

| | Recommended Actions | Notes |
|---|---|---|
| Yes | Educate all staff on water efficiency initiatives and get support from management. Look at how to incorporate initiatives into your wider operational and environmental policies. | |
| No | | |

| |
|---|
| Note your weekly water consumption after implementing the measures above: |

# Further assistance

Anglian Water may be able to provide a free 'domestic' water efficiency assessment on your site which will include a review of water used by your toilets, taps, and other non-process water use. The assessment will identify any opportunities for saving water and quantify these, where possible, in financial and volumetric terms.

Our Optimiser team can also conduct a process water efficiency assessment to look at the production and operational processes on site. This service is carried out by one of our specialist Industrial Process Engineers.

For more advice on water efficiency measures or to request a water efficiency assessment, contact Business Customer Services.

# Useful contacts

**Anglian Water Business Customer Services**

Visit us online at:
www.anglianwater.co.uk/business

Write to us at:
Anglian Water,
Business Customer Services,
PO Box 855,
Lincoln,
LN5 7WQ
Call us on:
08457 626 784

Email us at: businesscustomerservices@anglianwater.co.uk

**Anglian Water Leakage Find and Fix Service**
Call us on:
0845 070 3448

Email us at:
leakagefindandfix@anglianwater.co.uk

**Approved plumbers**

Should you require assistance to repair or replace internal pipes, fittings or appliances, Anglian Water has its own 'approved' plumber/contractor scheme with over 1000 members operating across the Anglian region. Search our online database for an approved plumber in your area at
**www.anglianwater.co.uk/business/water-supply/approved-plumbers**

**Water efficient products**

Anglian Water Direct supplies water efficiency products for non-process use, such as aerating tap inserts and dual-flush toilets. Visit us online at **www.awdirect.co.uk**

The enhanced capital allowance scheme can help you to choose and fund water efficient devices to upgrade your premises. Look online at **www.eca-water.gov.uk**

**Advice and benchmarking**

Envirowise offers free, independent support to organisations to help them to become more resource efficient and save money. For instance, you can compare your water use with other businesses in the same industry using their benchmark tool. Find them online at **www.envirowise.gov.uk**