



**Scottish Water**  
Always serving Scotland

# Sustainability Report 2013



Doing the right thing for Scotland

# Our vital role

**Scottish Water is always serving Scotland, providing vital services which are essential to daily life. We continue to deliver excellent value for our customers.**

We provide clean, safe and high quality drinking water to 2.4 million households and 159,000 business premises across Scotland.

Every day we provide 1.3 billion litres of clear, fresh drinking water and take away 840 million litres of waste water, which we treat before returning to the environment.

We are delivering one of the largest investment programmes in the UK water industry during 2010-15. This is at a time when our average household charge remains the lowest in Great Britain. In 2013/14, the average household charge in Scotland is £54 lower per annum than the average household charge in England and Wales.

The quality of our drinking water is at an all-time high and our investment is delivering the benefits Scotland needs.

Your charges go to maintaining and improving:

**29,910**  
miles of water pipes

**31,064**  
miles of sewer pipes

**1,865**  
waste water treatment works

**252**  
water treatment works

**1.3 billion**  
litres of high quality drinking water every day

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## Icon key

We have developed the 3 icons shown below to represent the environment, society and the economy. We have used the dark blue icons throughout this report to help you quickly identify the areas where our activities are having a positive impact.



# Foreword

“We are placing our customers at the heart of our long term planning so they can influence the future of their water and waste water services.”



**Douglas Millican**  
Chief Executive

Water and waste water services that are resilient to change are vital to a sustainable society. Our challenge is find ways to be increasingly sustainable in how we deliver those services.

Our purpose is to support public health through delivering wholesome drinking water and safely managing society’s waste water. We do this whilst ensuring our services are affordable and support Scotland’s economy. These are integral to a sustainable society.

As we strive to meet our vision of becoming Scotland’s most valued and trusted business, one that we can all be proud of, it is critical we fully understand what society and our customers expect of us, and that we respond to meet their needs.

We have a vast asset base that requires significant investment to maintain and enhance services to improve our resilience and meet customer, societal and environmental needs. Our assets will last for many decades, serving both current and future generations. When we invest, it is important we understand the long term needs of society, the economy and the environment to ensure we adopt the most sustainable approach to deliver a resilient service.

We have invested significant effort over the past 2 years to engage with customers and stakeholders. Their views have directly influenced our strategic projections and our regulatory business plan, to help us to address society’s needs over the next 25 years.

Along with the continued work to deliver services in a more sustainable way, this will help us play our part in supporting a sustainable Scotland.

This, our second Sustainability Report, highlights a number of examples of our progress in delivering more resilient and sustainable services. It covers extensive investment in Glasgow’s waste water infrastructure, excellent progress in supporting the health and wellbeing of our people, volunteering and investing in renewable power.

We continue to reduce carbon emissions (for the 6th consecutive year), despite continued investment to enhance services, and we have beaten our target to reduce leakage from our water network.

We have continued to improve our services while our household customers continue to enjoy the lowest average charge in Great Britain. Our sustainability focus remains on doing the right thing for our customers, the economy and Scotland’s environment.



# Working together for a sustainable society

Our core purpose is to provide clean, safe, high quality drinking water to our customers and safely return treated waste water to the natural environment. These services play an important role in creating a sustainable Scotland, supporting the 3 pillars of sustainable development:

- **Society** – we provide vital public health protection through affordable access to safe, wholesome drinking water and safe sanitation, and we are committed to creating the right environment for our people to succeed.
- **Environment** – we ensure the sustainable use of many of Scotland's water resources and catchments, and safely treat and return society's waste water to the environment.
- **Economy** – we provide efficient, effective services and help Scotland's communities grow and thrive while delivering value for money to our customers, and we support thousands of construction jobs across Scotland.

Our services underpin a sustainable Scotland. It is our responsibility to ensure we deliver them in a sustainable way. This requires us to work with our customers and stakeholders to ensure we always balance demands of society, environment and economy.

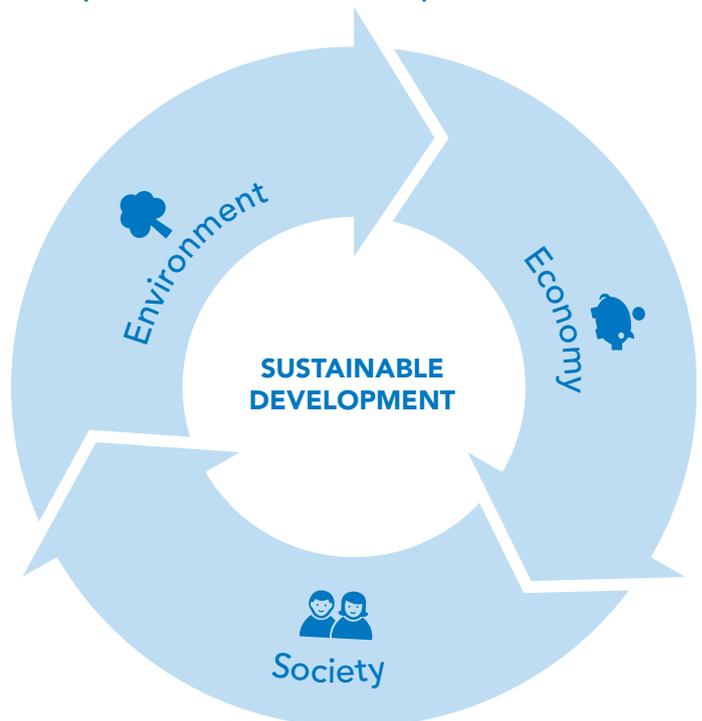
We know how important it is to engage with our employees, customers and stakeholders to protect and enhance Scotland's environment. We have shaped our plans for the future by engaging with our customers to deliver on their priorities.

As we work together to continue to improve efficiency throughout the business, our customers can be reassured that we are delivering more for less as we fulfil our vision of becoming Scotland's most valued and trusted business, one that we can all be proud of.

The average Scottish household pays less than £1 a day for water and waste water services – £54 lower per year than the average bill in England and Wales. We continue to invest, when required, in enhancing our assets to deliver benefits for our customers and to support development in Scotland.

Our environmental focus is on improving performance through increased maintenance of our assets. At the same time, we invest in water resources and delivery of sustainable approaches such as sustainable land management. Reducing internal sewer flooding and flood risk are also high priorities for us and our customers; we are carrying out strategic studies and improvements in Glasgow which will be a key element of addressing these.

## Principles of Sustainable Development



Our work to understand the effects of climate change on the services we provide focuses on increased monitoring of the environment and of our water resource and waste water assets. We are cutting our carbon emissions to reduce our contribution to climate change – and becoming more financially sustainable – by investing in energy efficiency and renewable energy generation.

In this report we will highlight a number of key themes that illustrate how we are seeking to provide our services in a way that balances public health, life in the community, environmental protection and cost, including:

- Engaging with our customers to make the right choices for the future;
- Reducing energy consumption and generating renewable energy;
- Significant improvements to Glasgow's waste water network;
- Investing in and collaborating with our employees to create a safer environment;
- Investing in community involvement and volunteering.

The work we do today and the developments we make will continue to protect our environment for years to come. We will continue to work in a more sustainable way to deliver your water and waste water services.



Loch Tummel, Perthshire

#### Highlights of the year



Excellent progress in supporting the health and wellbeing of our people.



Reduction of carbon emissions for the 6th consecutive year.



Improved services whilst household customers continue to enjoy the lowest average charge in Great Britain.

#### Get involved

You too can help Scotland create a more sustainable environment. Throughout this report you will find information on how to get involved.



## Investing in Glasgow's drainage

In February 2013 Scottish Water announced investment worth around £250 million to improve services and protect the natural environment in Glasgow. The investment is based on 10 years of extensive study culminating in the Glasgow waste water strategy, which was approved in early 2013.

### Why are we investing?

Within the Greater Glasgow area there are 30 rivers and burns. Scottish Water works 24 hours a day, 365 days a year to maintain and improve over 3,800 miles of sewer pipes and 5 waste water treatment works that serve around 1.7 million customers every day.

As Glasgow and the surrounding area continue to grow, we need to modernise our waste water network while considering external factors such as:

- Climate change and flooding;
- Environmental responsibilities and capacity;
- Growth and development requirements.

This will ensure that the area's waste water network continues to support the needs of today's customers and future generations, while protecting and improving the area's natural environment of rivers and burns.



Waste water investment project; Riddrie, Glasgow

### Understanding the challenges

To help develop sustainable solutions, a multi-agency taskforce was formed, consisting of Scottish Water, the Scottish Environment Protection Agency, Glasgow City Council, Clyde Gateway, Glasgow and Clyde Valley Strategic Development Planning Authority, South Lanarkshire Council, Scottish Canals and Scottish Enterprise. This became the Metropolitan Glasgow Strategic Drainage Partnership (MGSDP).

Through computer modelling and collaborative working with our MGSDP partners, we have a clear understanding of how rivers, burns, roads, developments and the waste water infrastructure all interact. This has helped us to identify the most effective long term solutions to modernise the waste water network and support urban development requirements while improving water quality and the environment.

### The solutions

Scottish Water has launched the biggest investment in Greater Glasgow's waste water network for over a century. Using extensive strategic studies, the Glasgow waste water strategy was completed to set out how we can improve services and the environment. This will modernise the waste water network, helping support the city and surrounding areas for years to come. Over the next 5 years we will be delivering an investment programme worth around £250 million across the Greater Glasgow area, which will help to:

- Improve the natural environment of the River Clyde and its tributaries;
- Upgrade 200 Combined Sewer Overflows (CSOs) to help modernise the waste water infrastructure and protect the water quality of rivers and burns;
- Tackle the effects of climate change and flooding;
- Help the Greater Glasgow area grow and prosper through potential new development;
- Boost the local economy and growth in communities;
- Create new job opportunities.

This investment is the first stage in Scottish Water's planned programme for investment in Glasgow's waste water network to help ensure that the Greater Glasgow area continues to grow and flourish for generations to come.



River Clyde, Glasgow

#### Get involved

All customers across Scotland can help protect the environment by ensuring they dispose of waste appropriately, not via toilets and drains. Sanitary items and other products such as nappies, cotton buds and all wipes have the potential to clog sewers and pollute the environment. In addition fat, oil and grease from cooking can solidify in drains and sewers leading to blockages. You can help by disposing of such waste responsibly.

For sanitary items, bag it and bin it is the best method. Fat, oil and grease should be left to cool then placed in a suitable container and either recycled in line with local authority guidance or disposed of alongside normal household waste.

For more information visit:  
[www.scottishwater.co.uk/saveyourdrains](http://www.scottishwater.co.uk/saveyourdrains)



## Customer engagement

It is vital we engage with our customers to ensure we understand society's needs and deliver what is right for customers and for Scotland. Over the past 2 years we have undertaken an extensive engagement programme with customers to understand their expectations and help us plan future investment.

Over the next 25 years we may face significant challenges or opportunities, such as climate change, changing demographics, changing political, economic and regulatory environments and advances in science and technology. In order to contribute to a sustainable society, we need to understand which areas customers believe are important for us to invest in. To do this, we worked with both household and business customers in several ways:

### Deliberative groups:

To support our engagement with customers we set up deliberative groups. These groups reviewed detailed information on issues such as sewer flooding, the environment and drinking water. They advised us on communication and avoiding jargon. This helped us shape our survey work to ensure messages were clear and covered the key areas of interest.

### Stated preference survey

We carried out a survey of around 1,000 household customers and 500 businesses to understand how customers want us to prioritise different issues for investment. This involved giving each participant information, graphs and options prior to carrying out a telephone interview.

### Panel activities

We held online focus groups both of households and of future customers. Each panel member agreed to take part in a series of activities over a year. This allowed us to go into more detail, gaining a greater insight into customers' opinions. With future customers we split our research between online panels with over 18s and in-school workshops in secondary schools.

### Including 'seldom heard' customers

To ensure our research was inclusive to our entire customer base, we consulted with groups representing customers with specific needs, including the elderly, the young, those with disabilities, on low incomes or living in rural areas.

Some of the key areas that are important to our customers are as follows:

- Reducing risk of sewer flooding;
- Providing continuous high quality drinking water;
- Reducing visible leakage;
- Reducing long and short term interruptions to water supply;
- Protecting and enhancing the environment by reducing internal and external sewer flooding;
- Supporting Scotland's economy and communities by looking for new technologies to improve efficiency.

Our work with customers has allowed us to shape our future plans, ensuring we are doing the right thing for our customers, the environment and Scotland. Understanding our customers' expectations is an ongoing activity that we will continue with.



Engaging with our customers

### Get involved

You can find out more about our customer engagement programme and read our regular *Involve Scotland* publication on our website: [www.scottishwater.co.uk/customerengagement](http://www.scottishwater.co.uk/customerengagement)

Find out more about how to use water wisely and efficiently on our dedicated webpage: [www.scottishwater.co.uk/savewater](http://www.scottishwater.co.uk/savewater)



## Creating a safer environment

Working safely is of primary importance to the safety and wellbeing of our people, the public and in securing a resilient service to the people of Scotland.

Scottish Water aspires to have zero accidents, aiming to always work safely and maintain a safe, healthy environment. We have demonstrated a consistently excellent health and safety performance and achieved best in class health and safety management: in 2012 and 2013 we won the prestigious RoSPA (Royal Society for the Prevention of Accidents) Occupational Health & Safety Award for the Water Industry Sector, becoming the only water company to have won this award twice.

Managing health and safety involves looking at the risks that arise in the workplace and putting sensible health and safety measures in place to control them. We are committed to ensuring the health and safety of our employees, customers, contractors and members of the public.

We have considerably reduced accidents, incidents and utility strikes (accidental cutting of gas/electric mains) year on year.

The RoSPA award is not just about performance but also about the environment we create in Scottish Water. This achievement demonstrates the considerable focus and collaboration across the organisation to improve our health and safety performance.



Working safely in communities



We have created an environment where every employee places the highest priority on safety. We have achieved this through:

### Health and safety leadership

Creating a strong health and safety culture starts right from the top. We have strong links with health and safety groups within our industry body, Water UK, to ensure we share common issues and foster a good understanding of best practice across the sector. Our executive team were the first to go through behavioural based safety training which looks at the practices that drive unsafe behaviour. Each participant completes a project to address and change an unsafe practice in their area of the business. This has now been rolled out across the business.

### Engaging our employees

We have set up local Health & Safety Forums, where employees at all levels can speak openly and honestly about health and safety issues and concerns. These allow employees to work together to put solutions in place. Our partners and contractors are also involved in these safety groups, ensuring we share best practice and work together to improve safety. These groups have implemented initiatives including:

- minimum work wear;
- new practices regarding safe digging;
- rolling out new safety equipment such as cable detection tools.

We run annual Health & Safety Conferences for our employees and construction and delivery partners to maintain focus.

### Investing in our people

We have developed bespoke training for all frontline employees to increase skills in areas including: avoiding underground utilities, excavation safety, chemical safety and asbestos safety. This empowers our people to understand and successfully manage the risks they face on a daily basis.

### Health & Safety Week

Twice a year we have dedicated Health & Safety Weeks to focus on specific safety issues, such as driver safety, fire safety and slips, trips & falls. In addition, we have included specific health issues such as stress and strokes. Through these weeks we have engaged Chest, Heart and Stroke Scotland and Police road safety specialists to share their knowledge and expertise.

### Wellness and resilience

We are committed to the health of our employees and have increased the awareness on health risks. We have set up a Wellness & Resilience Team, which does work around our physical and emotional wellbeing. This not only benefits our employees but also their families and friends.

Scottish Water has an ongoing commitment to education. Over the last 12 months we have been actively involved in the development of Go Safe Scotland, working with key partners, such as Glasgow City Council, Police Scotland, RoSPA and The Scottish Fire and Rescue Service. Together we are developing a national health and safety resource to promote safety messages on a range of topics, including Home Safety, Water Safety, Outdoor Safety and Fire Safety. Go Safe Scotland will be officially launched and rolled out to schools across Scotland during the 2013/14 academic year, working towards a shared goal to help keep Scotland's young people safe.



Follow the Three Cs rule to protect against bogus callers: card, check, call

### Get involved

Scottish Water is committed to playing a positive role in the lives of our customers and we actively promote a range of safety-related messages throughout the year to raise awareness and provide customer advice to help you protect yourselves and your homes:

- Construction site safety – how to stay safe when work is being carried out in your local area;
- Fire hydrant vandalism – the impact on water supplies, the community and fire-fighting, and how this type of vandalism could endanger lives;
- Bogus callers – find out about the Three Cs rule to protect yourselves and your homes against bogus callers at [www.scottishwater.co.uk/boguscaller](http://www.scottishwater.co.uk/boguscaller); and
- Water safety – how to be safe around water and reservoirs in both summer and winter. We also have some handy tips and advice about safety around water on our website at [www.scottishwater.co.uk/takecare](http://www.scottishwater.co.uk/takecare)



## Volunteering – WaterAid

This year our people contributed 581 volunteering days to various community and charity groups to make a difference in communities across Scotland. Here we highlight our efforts to bring sustainable water and sanitation to other parts of the world.

WaterAid is Scottish Water's charity of choice. It was set up in 1981 by the UK water industry in response to the UN Decade of Drinking Water and Sanitation. WaterAid now works in 27 countries worldwide, transforming over 17 million lives with safe water, sanitation and hygiene projects in some of the world's poorest communities.

Diseases caused by dirty water and poor sanitation kill more children every year than AIDS, malaria and measles combined. Clean water and safe sanitation underpin health, education and livelihoods. WaterAid works with local partners to deliver services, influences decision-makers to make change happen, and generates incredible support across the world.

In 2012/13, WaterAid supplied 1.7 million people with clean water and 2.2 million people with sanitation.

### Speaker network

Scottish Water co-ordinates WaterAid's Speaker Network in Scotland. We have around 20 regular volunteer speakers across Scotland who visit groups to promote and explain WaterAid's essential work, raising awareness of the importance of clean water, safe sanitation and hygiene education. Many of the groups make donations. We talk to Rotary Clubs, schools, church groups, individual businesses and many other audiences. To request a WaterAid speaker, please e-mail [speakers@wateraid.org](mailto:speakers@wateraid.org)

### Scottish Water WaterAid activities

We have created a site on our intranet as a new information hub for all Scottish Water WaterAid activities. Our employees can find out how to get involved with the charity, learn about their local reps, read the latest news, find out about upcoming events, and read case studies from the countries and projects that are being helped by money raised.

Alex Scott is a WaterAid Rep for our Edinburgh office. Alex says: "I've been involved with WaterAid for about 7 years. I would encourage anyone to get involved in WaterAid – it's such a worthwhile cause, and there are clear links between what we in Scottish Water do and what the charity wants to achieve in other countries."

The aim of our people strategy is for our employees "to have the adaptive capacity, agility and resilience to cope with the pace and scale of change and to deliver sustainable business success". Supporting our employee's contribution to the greater good, such as through WaterAid, helps our people feel engaged and energised in the work they do.



Alex Scott, WaterAid volunteer trip, Madhya Pradesh Region, India, February 2013



Alex Scott, WaterAid volunteer trip, Madhya Pradesh Region, India, February 2013

### Fundraising activities

In 2012/13, Scottish Water employees helped raise £205,436 for WaterAid through a range of activities. With just £15, WaterAid is able to provide a person with access to safe water, sanitation and improved hygiene. The sum we raised in just one year is enough to change the lives of 13,696 people.

World Water Day (22nd March) and World Toilet Day (19th November) are excellent opportunities to raise awareness of WaterAid and to raise funds. Throughout the year we hold special annual events such as the WaterAid Scotland Ball, fly fishing and golf competitions. In 2012, 70 of our people took part in WaterAid 200, a major hill walking event on 200 peaks across the UK. To ensure anyone can join in we also have a number of more low-key activities, such as those in the box opposite.



WaterAid 200 Challenge

### Get involved

There are lots of ways you can help raise funds for WaterAid, from taking part in the big national events, to setting up payroll giving, local office activities or solo sponsored challenges. Here are a few examples to inspire you – all have been a success in Scottish Water:

- Cakes – we have a number of Cake Circles in our offices. We take it in turns to bake a cake; 50p per slice to WaterAid.
- Bookshelves – our offices have a shelf where we can donate books and DVDs. People donate 50p or £1 to WaterAid each time they take an item.
- Quizzes – quizzes don't have to be around a table. A very popular picture quiz was circulated by email last year. Participants donated to enter their answer sheet.
- Sponsored Events – the more active amongst us take part in sponsored activities such as swimming, cycling, running, angling, golf, abseiling, climbing and diving with sharks! They are a great way to get fit, raise money and raise the profile of the work of this essential charity.

For WaterAid organised events and more inspiration, visit:

[www.wateraid.org/uk/get-involved](http://www.wateraid.org/uk/get-involved)



# Whole life carbon appraisal – towards sustainable investment

Each year we invest significantly to meet service, health and environmental needs. Over the last 11 years we have invested more than £6 billion in the assets and infrastructure required to provide high quality drinking water and to protect Scotland’s environment.

When we invest, it leads to emissions of embodied carbon – the carbon associated with the steel, concrete and other items used. It may also lead to increased operational carbon to pump more water or operate more energy intense assets to meet higher water quality or environmental standards.

Collectively, embodied carbon and operational carbon is termed whole life carbon.

It is important that we understand the carbon implications and are able to seek opportunities to reduce the impact. We have worked with other water companies through the collaborative research organisation UK Water Industry Research<sup>1</sup> to develop methodologies and guidance for “Whole Life Carbon Assessment”.

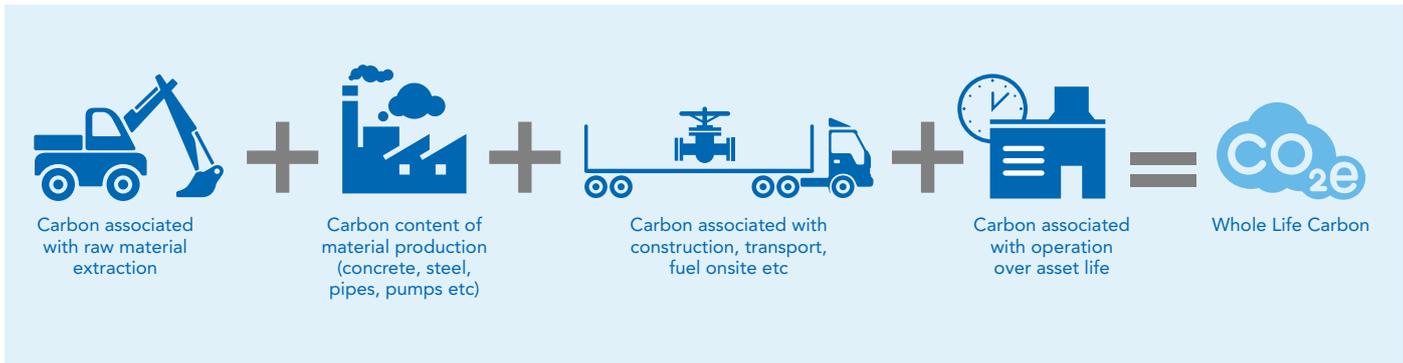


Example of a SUDS retention pond (a depression which holds water even during dry weather conditions)



Example of a SUDS detention basin (a vegetative depression which is normally dry except during and after heavy rainfall)

## Whole Life Carbon Appraisal – Towards Sustainable Investment



<sup>1</sup> www.ukwir.org

This approach, endorsed by the Carbon Trust, identifies the carbon consequences of investment in terms of the construction and operation of new assets. It takes an holistic approach to the whole asset construction and life cycle: carbon associated with extracting and processing materials, manufacture of components, transport, build on site and running of assets. This is illustrated in the diagram on the previous page. Carbon factors were derived from standard databases such as the Bath University Inventory of Carbon and Energy<sup>2</sup> and applied across more than 6,000 capital construction components within our engineering database.

Our carbon tool enables us to understand the implications of proposed investment. It operates at 2 levels:

#### Strategic investment planning

Given the scale of investment and long timeframe for development, the tool enables us to identify the potential carbon impact at a programme level before detailed design.

#### Capital investment delivery

Having established the programme, projects are designed for delivery and the tool enables costing engineers to develop detailed assessment and compare costs and carbon tonnages across options.

#### Carbon appraisal in use

##### Leakage management

Leakage represents a waste of water and of the power required to treat and pump it. Keeping leakage down requires constant monitoring, pressure management, and investment to find and repair leaks. To be sustainable the challenge is to ensure investment in leakage control is balanced by the savings from reduced water treatment and pumping – this is known as the Economic Level of Leakage (ELL). Scottish Water has now achieved ELL, a year ahead of target.

It is important that carbon saved through leakage reduction is not exceeded by the carbon 'spent' in leakage management. Using carbon appraisal we have found that, at ELL, the embodied carbon associated with leakage management does not exceed the carbon saved from reduced water treatment and pumping in most areas – there continues to be a carbon benefit.

Our leakage teams will continue to use carbon appraisal in future planning to ensure we continue to gain a benefit.

##### Surface water separation

The leakage equivalent for waste water is infiltration of water into sewer networks. Scotland generally has a combined sewer system – sewers receive both sewage and surface water drainage (rainfall run-off from roofs and roads). If the surface water were to be prevented from entering the system it would offer benefits in terms of reduced pumping and hence power consumption.

In a study we found that, unlike for leakage, the embodied carbon associated with managing surface water can be higher than the carbon saved from reduced pumping. This is because the water needs to go somewhere and investment is needed to create alternative systems such as detention basins and ponds linked via pipework. Retrofitting this to an existing system causes more embodied carbon emissions than if a separate system had been built originally.

This does not mean surface water separation is wrong. Surface water management is a valuable option to alleviate flooding; however retrofitting surface water separation would be unlikely to offer significant carbon benefit.

##### Next steps

We aim to deliver our 2015-2021 regulatory investment plan for less carbon than projected, whilst addressing all the other key sustainability criteria such as cost, service, public health and environmental needs. We will report our progress on this in future sustainability reports.

<sup>2</sup> Hammond, G and Jones, C (2010) Inventory of carbon & energy (ICE) v2.0, University of Bath



# Renewable energy self-generation

Supplying water and waste water services requires a great deal of energy. To collect, treat and pump water and waste water across a network of 61,000 miles of water and waste water pipes results in electricity consumption of around 450 gigawatt hours (GWh) a year.

We have a number of opportunities across our asset base to generate electricity. The majority of our self-generated electricity is from water (hydro power). We currently generate around 21GWh through hydro generation at our reservoirs and water treatment works. We generate a further 5GWh at Deerdykes, our Waste to Energy plant. The diagram below shows opportunities for renewable generation on our water assets.

Here we describe some of the projects we have already implemented and some we are planning.

One of our most recent turbines is at our award-winning Glencorse Water Treatment Works, near Edinburgh. When building the works we incorporated a hydro turbine into one of the raw water inlets to the works. This generated 1.6GWh of electricity in 2012/13 and reduces the amount of grid electricity the works needs. We are planning a second turbine at Glencorse, which is currently being constructed on site and due to be commissioned in late 2014.

Hydro generation is not new to Scottish Water. Our longest running hydro turbines are at Glen Finglas, which was commissioned in 1965, and at Loch Turret, in 1966. In 2012/13 they generated 3.4GWh and 10.6GWh respectively.

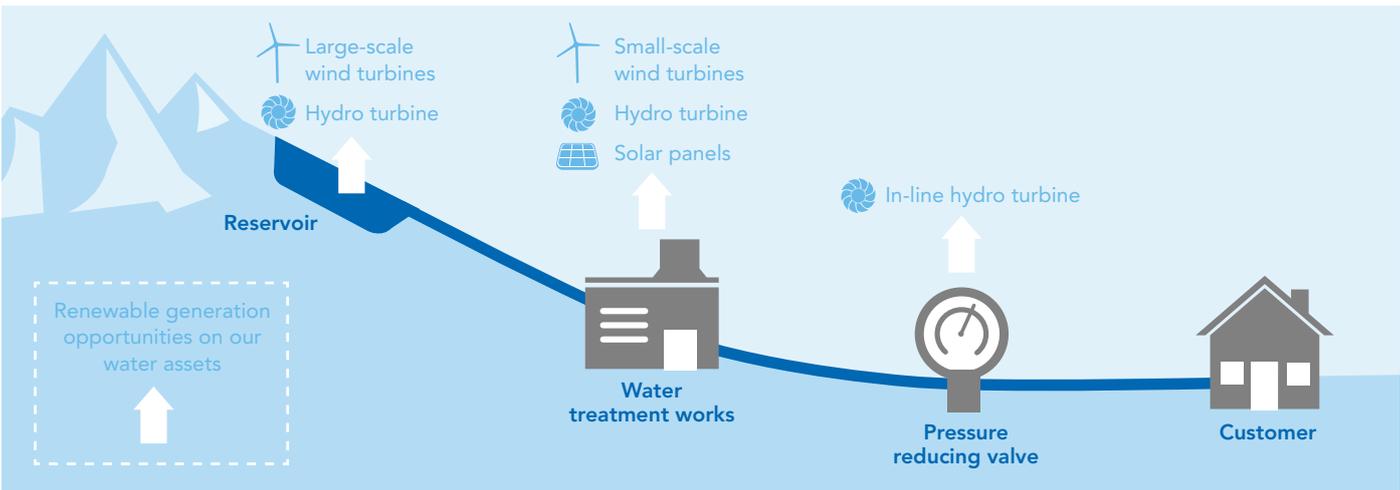


Loch Turret, Perthshire



Hydro turbine at Glencorse WTW

## Renewable generation opportunities at our water assets



In December 2012 we optimised the water management regime at our existing turbine site at Loch Calder allowing us to increase the electricity we generate from 0.6GWh/yr to an expected 2.2GWh/yr.

In 2013 we commissioned the first DifGen turbine in the UK on a large diameter water main. The DifGen turbine recovers the energy that is lost when we need to reduce pressure in the water mains, and uses it to generate electricity. As we don't need electricity at this point in our mains, we export it to the grid. It has the potential to produce 0.6GWh/yr (enough to power up to 150 homes). Much of our water supply network distributes water through the use of gravity and we are exploring further opportunities to install similar 'in-line hydro' schemes.

In addition to hydro, a combination of small-scale wind and solar photovoltaic cells (PV) could potentially provide further generation at our assets. We have installed 9 PV schemes so far and are building several wind sites.

Our first medium-scale wind turbine, at Glenfarg, will be operational in 2014/15. The scheme will deliver around 0.75 GWh/yr. Over thirty other sites are being assessed for potential wind development.

A Combined Heat and Power (CHP) plant is planned at one sludge treatment centre, subject to completion of satisfactory testing for methane quality and quantity. If viable, this scheme will be delivered in 2015/16 and will generate circa 1GWh/yr. We are also planning an Advanced Aerobic Digestion (AAD) plant, which will be operating in 2017/18, generating a further 7.5GWh/yr.

With the hydro generation and other opportunities we are developing, we expect to increase our current generation to over 50GWh by 2015, and to around 64GWh by 2021, equivalent to over 14% of our current electricity consumption.



Small PV installation used to power telemetry

#### Get involved

The greenhouse gas emissions associated with heating water in the home are 15 times those to treat and distribute it<sup>3</sup>. Therefore, the biggest energy savings are in your hands. The less hot water you use, the less water you'll heat; saving you money on your energy bills and reducing your home's carbon emissions. Try these water efficiency tips at home:

- Fit your shower with an aerating shower head;
- Install inserts to convert your taps to spray taps;
- Only run the washing machine or dishwasher when you have a full load to wash.

<sup>3</sup> Based on calculations using figure from Energy Saving Trust 'At Home with Water' report (July 2013) p16 and Scottish Water's Carbon Footprint Report 2012/13 carbon intensity figure for water.

# Energy

## Overview of direct impacts

We have been undertaking a number of energy efficiency initiatives. As waste water treatment uses the largest proportion of our grid electricity, efforts have been focused on these assets.

Data improvements, along with use of a site-specific audit tool at our highest energy consumption sites, have been progressing our understanding of energy use. This allows operators to focus their energy efficiency efforts on the high consumption areas within their sites. We appointed 'Energy Champions' who assist in the roll out of actions in their areas.

## Overview of indirect impacts

2012/13 saw the recruitment of tenants as part of a water and energy efficiency trial in social housing. We engaged with the Energy Saving Trust (EST) to undertake face to face interviews, gather energy usage data and provide advice on energy usage, offering a free telephone helpline number and advising tenants how to best use/save energy and advise on the best tariffs (with a view to helping those in fuel poverty).

In a separate initiative, working with Waterwise and the EST, we developed a best practice guide for builders and those refurbishing their own homes. It gives advice on how to build or refurbish in a water and energy efficient manner.

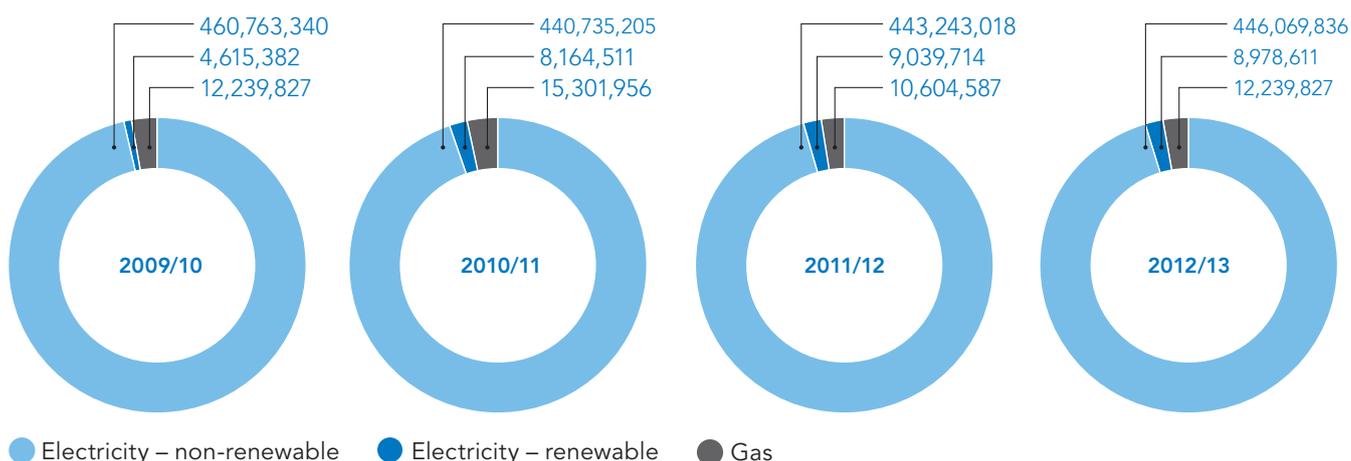
	2009/10	2010/11	2011/12	2012/13
<b>Financial indicators (£k)</b>				
Total energy expenditure	38,702	40,975	37,421	39,617
CRC gross expenditure (2011 onwards)	n/a	n/a	2,684	2,970
Expenditure on official business travel	7,252	7,636	8,812	9,115
<b>Non-financial indicators (kWh)</b>				
Electricity – non-renewable	460,763,340	440,735,205	443,243,018	446,069,836
Electricity – renewable	4,615,382	8,164,511	9,039,714	8,978,611
Gas	12,239,827	15,301,956	10,604,587	12,239,827

The non-financial figures exclude Business Stream and Horizons. Renewable energy figures include hydro electricity and CHP (combined heat and power).

Gas use is up from the previous year, this is likely to be due to the late spring in 2013. Likewise the lower gas consumption in 2011/12 was due to the particularly mild winter.

This is an example of how our energy use, and therefore our carbon footprint, can be affected by weather.

## Energy consumption (kWh)



# Waste

## Overview of direct impacts

We audit our sites to ensure there are facilities to maximise recycling. To encourage employees to consider the fate of waste they produce and to encourage recycling, 'general waste' is now referred to as 'landfill'.

On our large sites with canteens, food waste is being recycled from kitchen and dining areas. We are piloting small food waste bins throughout our new office at Stepps to encourage employees to recycle food waste from their desks and tea points.

## Overview of indirect impacts

We have improved knowledge of waste as a resource. Working with stakeholders and Zero Waste Scotland, we successfully trialled hydraulically bonded materials (HBMs) in road repairs. The results are published on the WRAP website.

We also trialled structural materials for reinstatement (SMR) in Glasgow city and Dumfries & Galloway, with most waste being re-used on site. This reduced raw material use, lorry movements and carbon emissions.

The targets for our contractors are now 80% re-use of materials and 100% diversion from landfill.

Financial indicators (£k)		2011/12	2012/13
<b>Total disposal cost</b>		<b>9,314</b>	<b>9,462</b>
Hazardous waste	Total		
	Landfill	3,665	2,471
	Reused/recycled	5,164	6,358
Non-hazardous waste	Incinerated/energy from waste	485	632
Non-financial indicators (tonnes)		2011/12	2012/13
<b>Total waste</b>		<b>284,885</b>	<b>130,496</b>
Hazardous waste	Total	24	913
	Landfill	84,009	27,330
	Reused/recycled	200,811	102,228
Non-hazardous waste	Incinerated/energy from waste	41	25

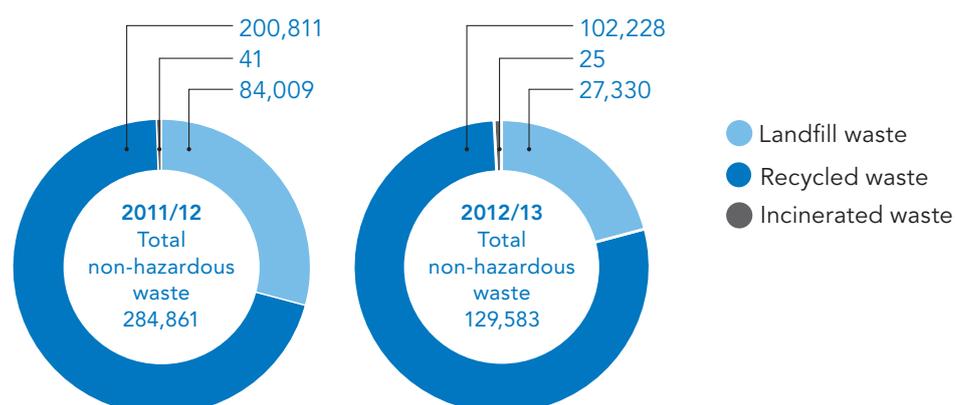
Construction & demolition (C&D) waste is excluded from financial figures as it cannot be separated from construction costs. Hence costs do not reflect the reduction shown in tonnes. Disposal costs of hazardous waste are not recorded separately, so are included in total waste disposal costs.

Office waste data are only available as volumes; factors are used to convert these to a weight. For other wastes, tonnages reported come from contractors' data returns.

The substantial increase in hazardous waste reported is due to changes in data processing, allowing us to identify hazardous waste more easily within the accounting process. It does not represent a genuine increase and we are likely to have produced similar amounts in previous years.

The considerable decreases in wastes recycled and to landfill are due to a decrease in C&D waste. An additional factor in the reduction may be changes to the way C&D waste is reported.

## Non-hazardous waste volumes and disposal routes (tonnes)



# Water

## Overview of direct impacts

A number of water saving features have been included in the design of our newest office 'The Bridge' located in Stepps near Glasgow. These include:

- Linking the water meter to the office's building management system (BMS), which monitors the building's performance. Through this we are able to monitor how much water the building is using;
- Rainwater harvesting;
- Irrigation of landscaping with rainwater/grey water;
- Taps fitted with aerators and flow regulators to reduce water consumption;
- Wash hand basins fitted with infra red sensors and timers;
- Low flush toilets.

These measures will lead to a water consumption of less than 1.5m<sup>3</sup> per person per year.

## Overview of indirect impacts

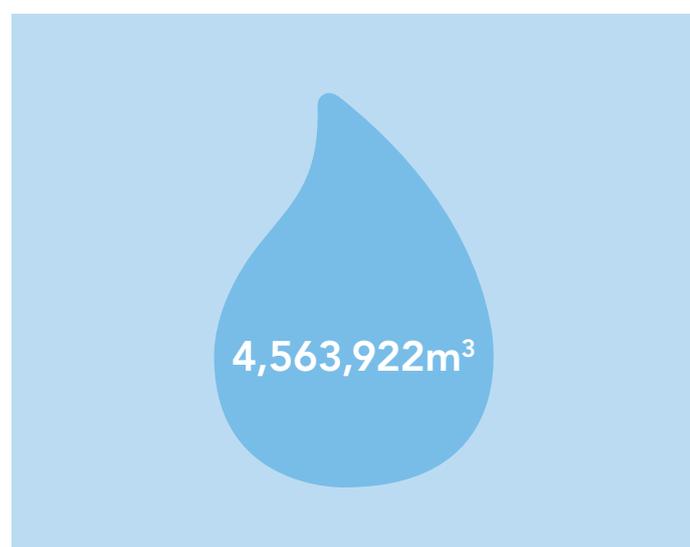
July and August 2012 saw a prolonged dry spell in North West Scotland, particularly in Portree, Stornoway and the west of Lewis. During this time, we ran targeted water efficiency campaign activities in these locations to promote ways to use water wisely in and around homes and businesses. Activities included radio and press advertising, direct mail and a range of local community-based activities in each area including a poster campaign in local Scottish Water offices, Council offices and public buildings, distributing cistern displacement devices (Save-a-Flush) and a presence in local supermarkets.

At a national level, we launched our 3 water efficiency videos on 1 Oct 2012. These videos aim to raise awareness of the simple but effective things we can all do to use water wisely in the 3 areas of the home where the most water is used: the kitchen, bathroom and garden and are available to view on our website: [www.scottishwater.co.uk/savewater](http://www.scottishwater.co.uk/savewater)

		2011/12	2012/13
<b>Financial indicators (£k)</b>			
Water supply costs		3,622	3,653
<b>Non-financial indicators (m<sup>3</sup>)</b>			
Water consumption	Supplied	4,521,487	4,563,922
	Abstracted	–	–

The financial indicator is an indicative estimate of what the costs would be based on the wholesale scheme of charges if Scottish Water sites were to be billed for water usage in the same way as other businesses.

## Water usage 2012/13



# How our industry is run

## The Scottish Parliament

Holds Scottish Water and Ministers to account and regularly calls executives to its committees to give progress updates.

## Scottish Ministers

Set the objectives for Scottish Water and appoint the Chair and Non-executive Members.

## Scottish Water

Responsible for providing water and waste water services to household customers and wholesale Licensed Providers. Delivers the investment priorities of Ministers within the funding allowed by the Water Industry Commission for Scotland.

## Water Industry Commission for Scotland (WICS)

Economic regulator. Sets charges and reports on costs and performance.

## Drinking Water Quality Regulator (DWQR)

Responsible for protecting public health by ensuring compliance with drinking water quality regulations.

## Scottish Environment Protection Agency (SEPA)

Responsible for environmental protection and improvement.

## Scottish Public Services Ombudsman (SPSO)

Responsible for investigating complaints about public services in Scotland, including Scottish Water, once the services' complaints procedure has been completed and sharing lessons from complaints to improve the delivery of public services.

## Consumer Focus Scotland (CFS)

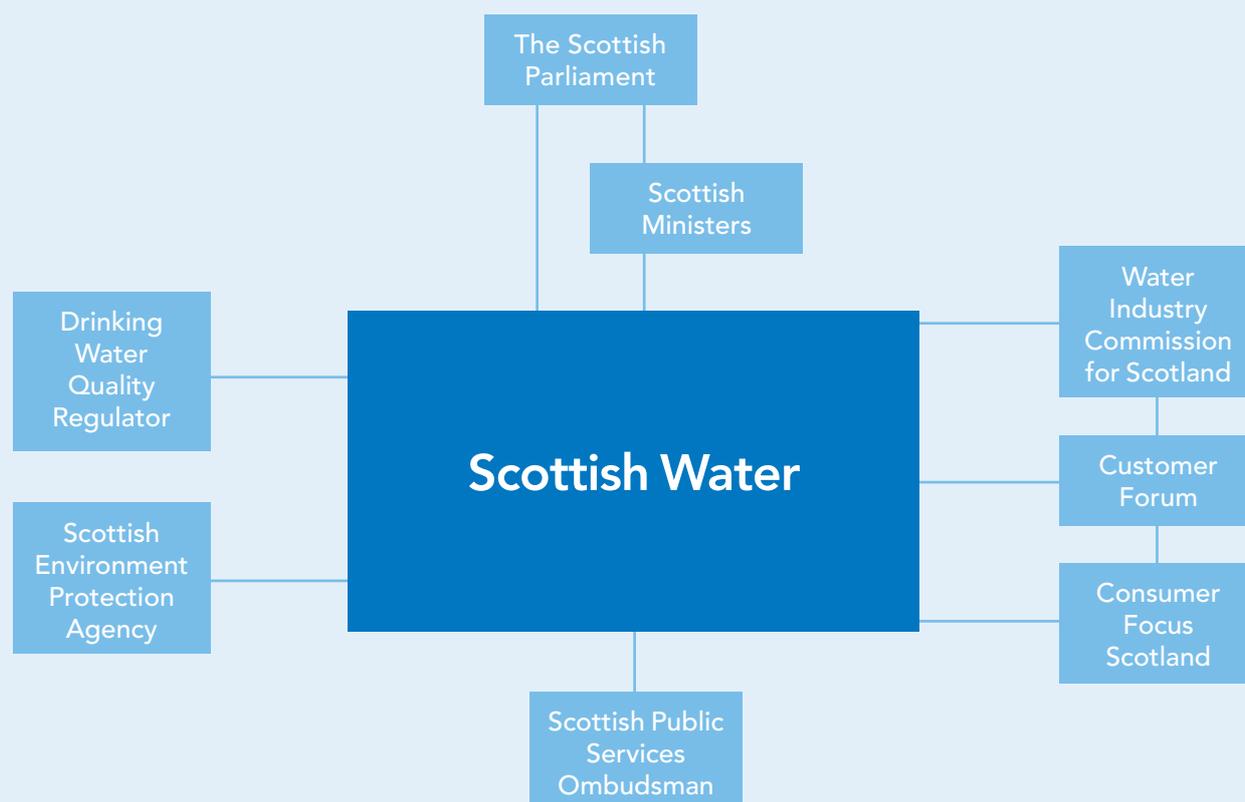
Responsible for representing the views and interests of Scottish Water customers and is a statutory consultee for matters relating to the Scottish water industry. Responsibilities of CFS customer representation function transferred to Consumer Futures in May 2013.

## Customer Forum

Responsible for ensuring that the customer's voice is part of the price setting process and at the heart of key decisions that affect the services Scottish Water customers pay for.

## Other regulators

Like other utilities, Scottish Water is also regulated by the Health and Safety Executive (HSE) and the Scottish Road Works Commissioner.



Scottish Water  
Corporate Communications  
Castle House  
6 Castle Drive  
Carnegie Campus  
Dunfermline  
Fife KY11 8GG

Customer Helpline 0845 601 8855  
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