Water				
ZCS VISION	Water is essential for all life on earth and it is a resource we often take for granted. In Shropshire, the company Severn Trent supplies the county's domestic water. Severn Trent Water has met their target of zero carbon by 2030. They have achieved this through investment in more efficient systems such as using anaerobic membrane reactors for water treatment, monitoring pipes for leaks and switching to renewable energy. Households and businesses are very conscious of the importance of conserving water and only using what is really necessary.			
	Sourcing/Production	**Distribution/Retail**	**Consumption**	**Post Consumption**
CURRENT PRACTICE (summary)	Water from Severn Trent in Shropshire is sourced from surface water around Shrewsbury. Domestic water is first pumped from source to pre-treatment plants to ensure the water is clean for drinking. The majority of carbon emissions from domestic water use stems from pumping of water between locations, and treatment processes to make the water safe for drinking or to return back to the environment.	Severn Trent currently supplies the 323,136 people (Office of National Statistics) living in Shropshire.	One of the major contributions to the carbon footprint of water supply across the UK are leaking pipes along the distribution line. This decreases the efficiency of domestic water supply as pumping water between source, treatment plants, homes and back to the environment is energy intensive. In a blog by Shower Stream, it is estimated Severn Trent wastes about 11.61% of its supply due to leaking pipes, equating for 442,520,000 litres - although it should be noted Severn Trent covers more counties than just Shropshire. Unfortunately, the trend has been for water demand rising each year over the past decade. Whilst the pandemic lockdown undoubtedly influenced this in 2020, this is most likely an underlying trend down to population growth and also increasing use of high-consumption outdoor water in things like pools, hot tubs, pressure washers.	Wastewater is then pumped to wastewater treatment plants where it is once again purified and cleaned to be sent back into the natural environment. Recently, Severn Trent is using a new anaerobic membrane bioreactor (an MBR) to treat wastewater. Compared to traditional sewage treatment methods, this has significantly lower operating costs, lower carbon emissions and lower nitrous oxide emissions (a greenhouse gas 300x more potent than CO2).

	Sourcing/Production	Distribution/Retail	Consumption	Post Consumption
BASELINE CARBON-FOOTPRINT (estimate)		It takes 246 kg CO2e per megalitre to abstract, treat and pump clean drinking water per person. That figure also does not include the carbon impacts from people heating and otherwise using water in their homes and businesses. Per litre, this is estimated to be several times higher than the carbon impact of delivering a unit of water – mainly from heating it electrically and with natural gas fired boilers.		Treating and pumping a megalitre of wastewater from your home and returning it to the river involves around 160 kg CO2e. That figure does not include the carbon impacts in the supply chain (for example manufacturing chemicals which are subsequently used to treat water), which do increase this impact.
Key STRATEGIES to achieve ZCS vision		A pilot plant to test the technology is to be built, the aim is to explore how to substantially reduce carbon emissions and transportation costs and increase agricultural markets.	Severn Trent have committed to an ambitious goal to reduce leakage by 15% by 2025, and by 50% by 2045. Some of this reduction will come from fixing leaks in the network of pipes, and the rest from supporting customers to fix leaks on their own properties.	Severn Trent aims to reduce per capita consumption by 3.5% by 2025, saving around 36 million litres of water a day.
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EXAMPLES of good practice or innovation		In February 2020, Severn Trent and CCm Technologies were awarded an innovation grant of around £1 million from the Department for Business, Energy and Industrial Strategy ('BEIS') and the Carbon Trust to convert biosolids from our Anaerobic Digester (AD) plants into a high-quality fertiliser. The process also captures carbon dioxide from combined heat and power ('CHP') plants, together with ammonia from treatment works.	Severn Trent's 'find and fix' mode of working has benefited from the roll-out of 40,000 data loggers, and the UK's first trial of fibre optics in water mains in February 2020, to listen for leaks and alert our teams. The company is also contributing to leakage reduction trials through the World Water Innovation Fund.	Severn Trent has an ambitious water efficiency programme that has saved around 25 million litres per day (Ml/d) of water between 2015 and 2020 through water efficiency advice for customers, free and subsidised water-saving products on request, and targeted home water efficiency checks. The per capita water consumption is about 130 litres per head/ day.

Recommended POLICIES/ACTIONS and associated carbon savings/impacts & other benefits					
		Sourcing/Production	**Distribution/Retail**	**Consumption**	**Post Consumption**
policy/action #1	**Recommended policy/action**	Educating young people through a schools programme, which aims to teach them the value of water, responsible sewer use, and the importance of hydration in health. This is done through delivering assemblies and workshops in schools. - Customer campaigns promoting water efficiency, and a partnership with "Save Water Save Money" providing various free or reduced water saving devices. Home water efficiency audits: helping our customers to make the best use of water efficiency devices in their homes. These audits helped customers to save on average 10% on their daily water use. It also highlighted common causes of leaks on customers' private supply pipes and fixtures. Metering: By increasing the proportion of metered customers to 65%, this provides data to help find and fix leaks and also target water efficiency advice towards customers that need it the most. The goal is for 90% of Severn Trent customers to have a water meter by 2030.			
	CARBON-SAVINGS (CO2e tonnes)	By 2025, the company's aim to reduce PCC by 3.5%, saving around 36 million litres of water a day.			
	Hard-to-quantify impacts on Carbon Footprint				
	Other benefits e.g. health/social benefits				
	Key STAKEHOLDERS to engage				
	Potential sources of funding				
	Obstacles to overcome				
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