

National Energy Action (NEA) response to Defra's consultation on reducing personal water use



Action for Warm Homes

About National Energy Action (NEA)

NEA¹ works across England, Wales and Northern Ireland to ensure that everyone in the UK² can afford to live in a warm, dry home. To achieve this, we aim to improve access to energy and debt advice, provide training, support energy efficiency policies, local projects and co-ordinate other related services which can help change lives.

Background to this response

Historically, improved energy efficiency has strengthened UK energy security, reduced energy supply infrastructure costs, and saved the typical dual fuel household over £500 per year³. It is also well understood that energy efficiency is crucial to meeting our challenging carbon targets and ending fuel poverty. The Government has recognised this through the statutory commitments within the Fuel Poverty Strategy for England⁴ which requires the Government to ensure all fuel poor households reach an energy performance rating of Band C by 2030. This legal duty was also restated within the Clean Growth Strategy⁵ and Conservative Manifesto⁶. The importance of meeting these goals (and making wider progress on energy efficiency) is also recognised by independent bodies such as the National Infrastructure Commission in their National Infrastructure Assessment (NIA)⁷ and by the Committee on Climate Change, most recently in their 2019 Progress Report to Parliament⁸ and advice to Government on reaching net zero emissions⁹.

To provide greater access to efficiency improvements and wider solutions for households living in fuel poverty, NEA seeks to work in partnership with a range of utilities; GDNs, DNOs, energy suppliers and the water industry. This helps NEA improve support for vulnerable households by joining up services from different partners.

NEA is proud to be working with Northumbrian Water Group (NWG) on an innovative programme which aims to eradicate water poverty by 2030. The programme aims to establish an industry acknowledged measurement of water poverty, and, understanding the links between water and fuel poverty, explore regional and national partnerships and projects to deliver positive outcomes for customers struggling with their utility bills.

There are compelling arguments for the alignment of action to tackle energy and water efficiency at the same time:

- NEA estimate that over 70% of total domestic energy consumption involves heating water for space heating, washing, cooking¹⁰;
- There is a strong correlation between households in fuel debt and those in water debt;
- Both energy and water sectors have focused, but different, schemes for consumer engagement, special assistance or Priority Services Registers, debt and welfare advice, financial assistance, special tariffs and efficiency campaigns or measures that deliver support to households as energy and water consumers.

NEA has championed the need for the breadth of the energy industry to help fund and facilitate energy efficiency improvements. In particular, we believe obligated energy suppliers must uphold their ECO obligations and when delivering this vital assistance (either themselves or via their contractors), treat their customers fairly and respond to the enhanced needs of those in vulnerable situations¹¹. NEA has also highlighted¹² how network companies can take several steps to fully realise their role in helping to fund and facilitate energy efficiency improvements. With a new focus on water poverty and aligning the policy and practical actions between energy and water, we therefore believe that we are well placed to comment on the options explored for reducing personal water use in this Defra consultation.

Summary of our response

Building regulations for water consumption:

- NEA believe the current building regulations approach of a mandatory minimum standard and higher optional standard for areas of water stress is ineffective, nor do we feel the targets are stretching enough. At a minimum, we recommend the current optional standard of 110 litres should become the mandatory standard for all areas of the UK, and, if possible, this is stretched further to align with existing campaigns.
- NEA recommend the introduction of a scheme, similar to EPC, to provide information on how water efficient a home is, along with advice to reduce water consumption and save money. This will allow customers to make informed choices and can result in significant environmental and financial benefits. This should be supported by a wider awareness-raising campaign and which shows how water and low-cost energy saving measures can complement each other.
- NEA recommend a retrofit scheme to address efficiency in existing homes, focused on the 'whole house approach' and designed to meet specific criteria which we believe should be aligned to the fuel poverty principles. NEA believe that recovering costs through increasing bills is regressive, and the fairest way to cover the costs of a scheme such as this would be through Treasury spend. We also stress the importance of ensuring the most vulnerable are served first (the 'worst first' principle).

Water efficiency labelling:

- NEA agree with the introduction of a water efficiency label, directly linked to building standards and minimum standards; though we acknowledge that this can't change the behaviour of everyone, it aids customers in making informed decisions about their purchases.
- NEA believe that consumers should not have to pay a premium in order to purchase water efficient products; households on lower-incomes who could significantly benefit from the cost savings associated with more efficient products could be effectively restricted from entering this market if the product costs are too high. Housing associations and social housing providers should choose to install efficient products in their properties, and NEA recommend the

introduction of a 'scrappage scheme' to help low-income homeowners replace inefficient appliances.

Metering:

- NEA agree with the caution from Tony Smith, Consumer Council for Water – "we support metering as long as it's handled sensitively". Additional provision must be made for water companies if they are expected to increase the roll-out of water metering and smart-metering to avoid the impact being felt by customers, both directly and indirectly.
- NEA are encouraging water companies to consider developing new tariffs or support mechanisms for those households in vulnerable circumstances to safeguard them financially when using the water they vitally require for management of their respective health conditions.

Smart Metering:

- NEA believe that smart metering has the potential to provide real benefits for vulnerable and low-income householders, but only if these individuals are effectively engaged and supported throughout their smart meter journey. A smart water meter and suitable in-home display would make consumption information more visible, potentially allowing customers to make real-time decisions about where to save water. However, increased visibility could also have a detrimental impact, as customers choose to further ration their water use in an attempt to save money, in extreme cases effectively 'self-disconnecting' their own water supply.
- Now the energy smart meter roll-out has been extended, it may be feasible for water efficiency measures to play a larger part in the energy smart meter roll-out, and NEA encourage Defra and BEIS to explore this opportunity further, potentially also considering how the delivery of low-cost energy and water saving improvements alongside the smart meter roll-out could be beneficial to customers.

Incentives:

- Incentives can be a useful mechanism to encourage behaviour change, however a financial incentive to a low-income household could drive negative behaviours, encouraging dangerous levels of consumption due to the, much-needed, financial reward the household could receive. If incentives are to be used, NEA therefore recommend those which do not provide a guaranteed financial reward for risk of driving the wrong behaviours.

Rainwater harvesting and water reuse:

- NEA are supportive of rainwater harvesting (RWH) at both individual and community scale as method of both saving water and money. We recognise the additional benefits of a community scale RWH scheme in relation to the reduction of surface water flooding.

Supply pipe leakage:

- NEA would be concerned if the transfer of supply pipes caused significant increase to customer bills, and would encourage, that wherever possible, any associated costs be off-set against the savings made from leakage reductions to mitigate potential bill increases.
- If ownership of supply pipes is not transferred to water companies, NEA feel it would be valuable for a mandatory requirements to be placed on water companies to inform the customer responsible for maintenance of the supply pipe of any potential leaks identified through spikes in consumption data, which would be supported through smart water metering.

Communications and behaviour change:

- NEA recommend there be a national, jointly funded, collaborative campaign including all invested parties, to raise awareness of the need to save water and the benefits it can bring.
- NEA recommend a special body be set up, similar to Smart Energy GB, to help raise aid this campaign.
- NEA believe any campaign should link water efficiency messaging with energy efficiency, aligning well to the 'whole house' approach to retrofit, and minimising barriers to trust.

Our response to this consultation

Question 1 - Do you consider that the current approach in Building Regulations (i.e. a mandatory minimum standard for new homes but with local authorities in water stressed areas having discretion to ask for a higher standard through a Building Regulations Optional Requirement) is effective?

a. Yes

b. No

c. No view

Please give reasons to support your answer.

The current regime only applies to new build homes and therefore does not address standards in 80% of homes which are still likely to be in use by 2050¹³. In addition, having multiple standards for water consumption does not place a strong enough emphasis on the *need* to consume water sustainably, and a single standard should be enforced, recognising that everyone has a part to play in regard to conservation of this natural, vital resource. This is especially true in the current environmental and political climate, with Government declaring a climate emergency, and senior officials of organisations such as the Environment Agency stressing the potential of significant water shortages in the UK in the next 25 years. It is clear that we need to be doing as much as possible to mitigate the impacts of climate change and to meet the 2050 commitment to net-zero carbon.

As noted in the introduction, NEA estimate that c.70% of total domestic energy consumption involves heating water for space heating, washing and cooking. The Energy Saving Trust have also estimated the cost of heating water alone to be on average £135 per year, or 20% of a typical gas bill¹⁴, therefore smarter water use can lead to reductions in energy use, resulting in both lower carbon emissions and direct cost savings for customers. NEA therefore recognises the links between water and energy use and has commenced a new work programme to support 'People Living in Water Poverty and Fuel Poverty'. We believe that only a large-scale approach to water reduction, and the corresponding reduction in energy in existing homes, can play a significant part in reaching the net-zero carbon target and at the same time help reduce fuel poverty.

Question 2 - Do you consider that the current minimum standard of 125 litres per person per day and optional requirement of 110 litres per person per day should be changed, and, if so, what might be an appropriate new standard?

a. Yes

b. No

c. No view

Please give reasons to support your answer.

The current Part G regulations provide two tables (seen Figure 1 below) which outline how the current 125 litre standard and the option 110 litre standard can be met. Given the potential environmental and social benefits of reducing water consumption, and the risks to UK water supply if we don't, NEA feel that if the lower standard of 110 litres has no detrimental impact on customers it should become the minimum standard for all areas of the UK, regardless of water scarcity. This promotes the right behaviours with customers, enforcing the importance of what measures like this are trying to achieve.

Table 2.1 Maximum fittings consumption	
Water fitting	Maximum consumption
WC	6/4 litres dual flush or 4.5 litres single flush
Shower	10 l/min
Bath	185 litres
Basin taps	6 l/min
Sink taps	8 l/min
Dishwasher	1.25 l/place setting
Washing machine	8.17 l/kilogram

Table 2.2 Maximum fittings consumption optional requirement level	
Water fitting	Maximum consumption
WC	4/2.6 litres dual flush
Shower	8 l/min
Bath	170 litres
Basin taps	5 l/min
Sink taps	6 l/min
Dishwasher	1.25 l/place setting
Washing machine	8.17 l/kilogram

Figure 1: Maximum fittings consumption - Building Regulations Part G

NEA would also encourage Defra to consider the timescale at which a standard such as this is appropriate. It may be suitable to consider a series of staged milestone targets, reducing over time to reach the most suitable end-goal. This end-goal could be aligned to the 'Target 100' campaign by Southern Water, who believe all new homes should be built to a minimum standard of 100 litres per person per day¹⁵,

though NEA also agree that “it’s important these regulations are not static. They should be regularly reviewed and updated to reflect innovation and changing demand”.

Question 3 - Are there any other issues relevant to using Building Regulations to set water efficiency standards that the government should consider?

At the point of building, a person purchasing a new home will, and should, have the ability to choose their own fittings, including water fittings. The options presented for water fittings should all meet the minimum efficiency standards but where possible exceed these standards without impacting on price. Cost is, and will remain to be, a considerable factor in choosing fittings for the majority of people. Customers on lower, or limited, incomes, are the group most likely to benefit from a more water and energy efficient home, and yet are also the most likely to have to use inefficient products as they are often cheaper to purchase.

All homes, built, sold or rented in the UK, must have an Energy Performance Certificate (EPC). The EPC contains “information about a property’s energy use and typical energy costs, and recommendations about how to reduce energy use and save money”¹⁶. NEA suggest a similar scheme is introduced to provide information on how water efficient a home is, along with advice to reduce water consumption and save money. Clearer, more readily available, information allows customers to make informed choices, and can result in significant environmental and financial benefits. This should be supported by a wider awareness raising campaign which shows how water and low-cost energy saving measures can complement each other (see Question 8).

Question 4 - To what extent do you agree or disagree that Government should work with water companies and local authorities to run partnership retrofit and behaviour change programmes in existing homes?

- a. Strongly agree
- b. Slightly agree
- c. Neither agree nor disagree
- d. Slightly disagree
- e. Strongly disagree
- f. Don’t know

Please explain your answer

The work of NEA encompasses all aspects of fuel poverty, but in particular emphasises the importance of greater investment in domestic energy efficiency¹⁷. We recently administered a £26.2million programme of work, the Health and Innovation Programme (HIP), comprising of three funds which provided heating, insulation and energy efficiency measures in fuel poor homes, investigated the impact of new technologies on fuel poverty, and provided income maximisation services, training and direct advice to households in fuel poverty and their representatives. The programme installed over 10,000 measures in over 8,700 homes, securing over £5million in additional income, and demonstrated significant improvements in residents’ comfort, wellbeing and energy affordability¹⁸. The insights of this programme corroborate our view that retrofit, and behaviour change projects can deliver substantial benefits for vulnerable households.

When considering the introduction of retrofit programmes, it is necessary to also consider the *scale* of the retrofit. The current BEIS tender, Demonstration of Energy Efficiency Potential (DEEP) has been released to “investigate taking a system-level approach to retrofit, considering the entire dwelling rather than the performance of individual measures... typically defined as a ‘whole house’ approach¹⁹”. NEA suggest that in addition to Government working with water companies and local authorities, any retrofit and behaviour change programmes should also be delivered in partnership with energy networks, suppliers, installers and participants. The “whole house approach” should consider all aspects of a household, including delivery of water efficiency measures.

Regardless of the scale of the retrofit and behaviour change programmes, there is no other option than to work with either, or both, of the aforementioned parties, as they share the customer relationship. If local authorities have the responsibility for retrofit, then they will need funding to do so. Equally, if it is expected of the water companies this must be properly funded and regulated through price control. Schemes should be designed in a way that meets certain criteria, which NEA would suggest are aligned to the fuel poverty principles²⁰ for consistency:

- prioritisation of the most severely fuel poor, i.e. helping the worst first;
- supporting the fuel poor with cost-effective policies;
- reflecting vulnerability in policy decisions; and
- designing sustainability fuel poverty policies.

NEA believe that recovering costs through increasing bills is regressive, and the fairest way to cover the costs would be through Treasury spend. However, if this is the only way of funding, then companies should ensure those on social tariffs do not pay for this programme of work.

While NEA recognise that retrofit focused on water efficiency is about more than reducing water bills, it is important to acknowledge that there are millions of households in England and Wales struggling to afford their water bills who could benefit greatly from water efficiency measures in their homes. NEA therefore again highlight the recommendation previously mentioned, that the introduction of any retrofit or behaviour change programmes and funding be targeted at the most vulnerable households first, ensuring that, as well as environmental benefits, social and financial benefits can also be made. Retrofit is key to a large-scale impact and could be quicker to implement than changes to Building Regulations for new build homes due to the length of time legislation can take to deliver. Climate change and water stress are real and happening now, as are affordability issues. Retrofit can help resolve/improve all of these but we must ensure that the most vulnerable are served first.

Question 5 - To what extent do you agree or disagree that information on water efficiency should be displayed on water using products?

- a. Strongly agree
- b. Slightly agree
- c. Neither agree nor disagree
- d. Slightly disagree
- e. Strongly disagree

f. Don't know

Please explain your answer

NEA agree with the Waterwise view on mandatory water labelling and the findings of the Defra commissioned report from the Water Efficiency Collaborative Fund, Waterwise and the Energy Saving Trust²¹. Water labelling would allow customers to make an informed decision about the appliance they are purchasing, in the same way they can currently make their decision based on the energy efficiency rating. NEA has no view on whether this should be a separate label, or incorporated into the current energy efficiency labelling, *providing* the information provided is clear, concise and can be understood easily by *all* customers regardless of vulnerability or need.

Question 6 - To what extent do you agree or disagree that providing information about products' water efficiency changes peoples' purchasing behaviour and reduces their use of water?

a. Strongly agree

b. Slightly agree

c. Neither agree nor disagree

d. Slightly disagree

e. Strongly disagree

f. Don't know

Please explain your answer

While we acknowledge that the introduction of a water efficiency label can't change the behaviour of everyone, reflecting on the trends since the introduction of the energy efficiency label shows significant positive change – "Since 1995, the EU energy label has proven to be a success: 85% of European consumers recognise and use it when purchasing. It has also driven innovative industry developments and competition, with new products placed on the market progressively moving up in energy classes."²²

The Water Efficiency Labelling and Standards (WELS)²³ scheme in Australia launched in 2005 and is independently reviewed every five years. The 2015 review found that "87% of consumers recognised the water label and over half said they used the information in their decision-making process". The environmental and economic impact review estimated that by 2017 the scheme had saved 112 billion litres of water, saved consumers over \$1billion AUD on their utility bills, and reduced greenhouse gases by 1.9 million tonnes. NEA recommend the introduction of a water label to be directly linked to the environmental and economic impacts in order to gain customer buy-in, and that these messages should be clear and concise in delivery.

Question 7 - To what extent do you agree or disagree that water efficiency labels should be linked to building standards and minimum standards?

a. Strongly agree

b. Slightly agree

c. Neither agree nor disagree

d. Slightly disagree

e. Strongly disagree

f. Don't know

Please explain your answer

NEA agree with the recommendations highlighted by Waterwise in their 2019 'Water Labelling Summary Report'²⁴. If a water label is introduced it should be directly linked to building standards and minimum standards, with only products meeting a minimum water efficiency rating being fitted in new build properties. Customers can still be offered a choice on their fittings, but only from a list meeting these standards. The cost benefit analysis undertaken by Waterwise shows that linking water efficiency labelling to building standards and minimum standards has the biggest potential for water saving in litres per person per day at the cheapest cost per million litres saved, providing a cost: benefit ratio of 1:200 (see Figure 2 below).

Results	Units	Scenarios							
		1	2	4	5	6	7	8	
Cost per Million Litres Saved	£/Ml	£594	£380	£971	£418	£1,369	£1,384	£840	
Average Incremental Social Cost (AISC)	p/m ³	-74.7	-75.5	-35.7	-53.6	-35.5	-54.3	-58.3	
Water Saved per Person (10 years)	l/capita/day	1.5	6.3	0.5	2.2	0.3	0.6	0.7	
Water Saved per Person (25 years)	l/capita/day	13.0	31.4	2.4	9.3	1.3	2.4	2.9	
Cost: Benefit Ratio	Ratio	1:127	1:200	1:38	1:129	1:27	1:40	1:70	

Figure 2: Key cost benefit analysis metrics - Waterwise 2019

Question 8 - How else could government or water companies encourage people to use more water efficient devices/appliances at home?

NEA believe that consumer messaging is key and therefore a national campaign to save water should be introduced and directly linked to current climate and environmental discussions to help consumers understand why this is important and what they are able to do to make a difference. As previously noted, NEA stresses the opportunity for delivering these targeted messages alongside low-cost energy and water saving improvements as part of the smart meter rollout (see our response to Questions 4, 22 and 23).

NEA also believe that consumers should not have to pay a premium in order to purchase water efficient products. The costs associated with efficiency testing and labelling should not be passed to the end-consumer. Households on lower-incomes who could significantly benefit from the cost savings associated with more efficient products could be effectively restricted from entering this market if the product costs are too high, in essence being forced to purchase less efficient products based on cost only. Housing associations and social housing providers should also be encouraged to install efficient products on this basis, given the social-demographics of the majority of their tenants. There would, however, still be a gap for low-income owner occupiers. This gap could be addressed by introducing a scrappage scheme for water-inefficient appliances and white goods. It could take the form of the Mayor of London's previous Better Boiler Scheme where a fund was set aside to replace or repair inefficient or broken boilers in the capital with A-rated ultra-low emission appliances. The Greater London Authority (GLA) estimated that this would reduce annual energy bills by an average of around £150 per household²⁵. The scheme aimed to reduce cold-related ill health and winter deaths, lower NOx emissions to help improve air quality, avoid

acute risks such as carbon monoxide poisoning and save up to 310 tonnes of carbon emissions a year.

Despite the overall small scale of the fund (£1m), the critical aspect of the voucher scheme, administered by the Energy Saving Trust (EST) on behalf of the Mayor of London, is that it covered the full capital cost of boiler repairs or replacements for eligible low-income households. This compliments the Warmer Homes scheme²⁶ for able-to-pay households which can provide a voucher of up to £400 towards the cost of a new boiler to support environmental priorities. NEA notes the UK Government could quickly establish this dual form of support nationally, however the priority should always be to support those most in need, reflecting the principles outlined in the current Fuel Poverty Strategy for England. NEA also notes that if smart water metering was rolled out nationally, water suppliers or their contractors as part of the meter installation process, may have to condemn old, unsafe or highly inefficient water using appliances. Whilst this would help identify appliances that need to be replaced, it would also be much more important for there to be a consistent national scheme to help low-income customers fund alternative appliances.

Question 9 - To what extent do you agree or disagree that people should pay for water according to how much they use?

a. Strongly agree

b. Slightly agree

c. Neither agree nor disagree

d. Slightly disagree

e. Strongly disagree

f. Don't know

Please explain why

In 2012, the European Commission²⁷ stated "setting the price of water is a key tool used to support water management decisions; water that is under-priced may lead to its unsustainable use. In the EU, member states... are required, among other measures, to recover the cost of water services as a means of promoting sustainable and efficient water use."

While NEA agree that the cost of water can be deemed indicative of the *value* of water, we would encourage the consideration of other factors in any decision to increase costs or use cost as a management tool for sustainability and would be concerned for customers who already struggle to pay their water bills. Personal characteristics such as health issues and family size can significantly impact the rate water is consumed within a household and may pose challenges to customers financially if they were expected to pay for everything they use when reducing consumption may be challenging or even impossible. If price is used as a management tool, then water companies must be better placed to support customers through social tariffs, other financial support mechanisms and efficiency improvements, the cost of which should not be passed back to customers by billing but funded by alternative means. Without heeding this advice, poorer households will pay a higher share of their disposable income to cover the increasing cost of water, despite making a lower contribution to overall water stresses. This would therefore rightly be judged to be a regressive approach and would be politically unjustifiable given the option for a much more progressive, positive outcome for all customers, especially the poorest customers.

Question 10 - To what extent do you agree or disagree that the amount of households charged by metered volume should be increased beyond and/or faster than what is already planned by water companies?

a. Strongly agree

b. Slightly agree

c. Neither agree nor disagree

d. Slightly disagree

e. Strongly disagree

f. Don't know

Please explain why

Water meters have been shown to “help reduce demand and make it easier for water companies to detect leaks”²⁸ – two factors of considerable importance in the management of water use in the UK. They have also been shown to reduce bills for some customers, but not for all.

NEA currently estimate there to be over 5 million households (21.9% of household population) in water poverty in England and Wales, based on a 3% measure (after housing costs)²⁹. This increases to 41% of lone parent families based on the same measure. The 2018 Joseph Rowntree Foundation report on UK Poverty showed that the most common type of debt for households with low incomes is water³⁰ (as shown in Figure 3 below). Any compulsory roll-out of water meters must look to mitigate significant bill increases for households struggling to pay their bills to avoid worsening the debt and water poverty situation.

Although NEA welcomed the reductions in bills proposed by Ofwat in their recent draft determinations³¹ to cover the AMP7 period, and we acknowledge that those same draft determinations have a provision for the water meter and smart meter roll-out, we feel it necessary to express our concern at the costs associated with any increases to the current plans for roll-out. Additional provision must be made for water companies if they are expected to increase the roll-out of water metering and smart-metering to avoid the impact being felt by customers, both directly and indirectly.

Adults in a household behind with a bill: by household income quintile (2014–16)

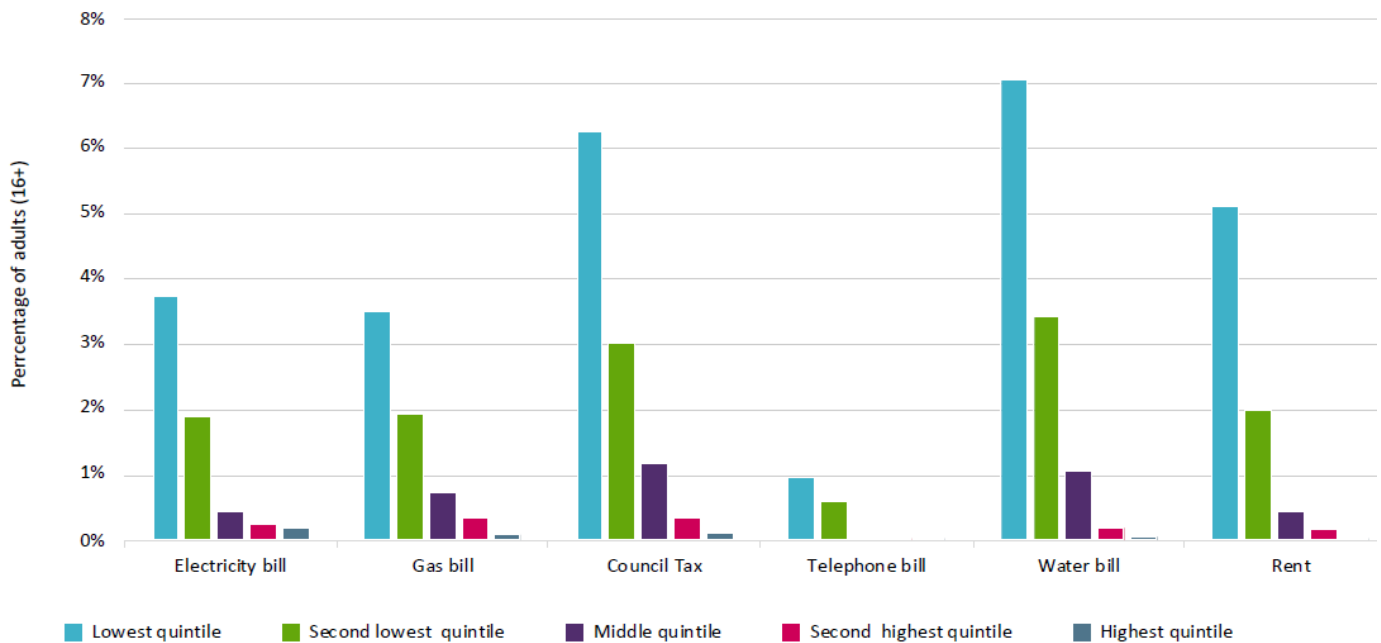


Figure 3: Source: Wealth and Assets Survey (JRF analysis)

NEA therefore agree with the caution from Tony Smith, Consumer Council for Water that “we support metering as long as it’s handled sensitively, as people recognise that it is the fairest way to pay for the water they use. Some customers – particularly larger households – may see their bills rise, so it’s critical for water companies to have the right amount of financial support already in place. We think it makes sense for metering to be phased to spread the cost for all customers.”³² In the meantime, NEA are encouraging water companies to consider developing new tariffs or support mechanisms for those households in vulnerable circumstances to safeguard them financially when using the water they vitally require for management of their respective health conditions.

Question 11 - If you agree that the amount of households charged by metered volume should be increased, what do you think would be the best or most appropriate approach? Do you have suggestions for increasing metering other than what is mentioned above?

NEA agree that being able to demonstrate customer savings using their actual data will be more effective than estimated savings, and so agree with the systematic approach to metering but not switching over to a metered tariff until the customer agrees. We make three suggestions to ensure the strength of this process:

- At the point of planning, water companies should write out to customers within the targeted area informing them of their plans. This gives customers the opportunity to decide to move to a metered tariff there and then, removing the need for duplicate bills and future correspondence. This also minimises the risk of complaints from customers feeling the decision is being made for them, or from the water company carrying out work without the customer being informed;
- After fitting the meter, rather than sending two bills, the water company should make contact with the customer in another format, either through

telephone contact or a separate letter. A customer in a financially vulnerable situation may assume both bills are a demand for payment which could cause them unnecessary stress. Water companies must also ensure that this contact is not digital, as the risk of customers missing a digital communication is quite substantial; and

- Water companies must ensure they make the most of these communication points to highlight other ways of saving water through efficiency information and water saving measures, as well as using this opportunity to outline their social tariffs and other support mechanisms for those who are struggling to pay but may not realise what support is available. Failure to do this could result in customers staying on rateable billing, continue to use water unsustainably and not saving as much money as they could or need to.

Question 12 - Are there any other issues we need to consider with regard to increasing metering?

Our main concern is the safeguarding vulnerable customers in relation to the price they pay for water to reduce the occurrence of water poverty and the associated potential detrimental impact as a result of increased metering. See our answer to Question 10 for further detail.

In addition, we would urge Defra to consider the importance of an awareness-raising and communications campaign (see our response to Question 23) which should demonstrate the links between, and the benefits of a joint efficiency approach to, water and energy (see our response to Question 13).

Question 13 - To what extent do you support or oppose use of smart water meters instead of manual meters?

- a. Strongly support
 - b. Slightly support**
 - c. Neither support nor oppose
 - d. Slightly oppose
 - e. Strongly oppose
- Please explain why.

NEA believe that smart metering has the potential to provide real benefits for vulnerable and low-income householders, but only if these individuals are effectively engaged and supported throughout their smart meter journey³³. 80% of customers with an energy smart meter say they have a better idea of what they're spending, 68% are more conscious about the energy they use and 60% think twice about using high energy appliances³⁴, with 73% reporting they have done more of at least one energy-saving activity since having their smart meter installed³⁵.

Water meters are currently invisible to households, who only see their consumption information on their six-monthly bill. A smart water meter and suitable in-home display would make consumption information more visible, potentially allowing customers to make real-time decisions about where to save water. However, increased visibility could also have a detrimental impact, as customers choose to

further ration their water use in an attempt to save money, in extreme cases effectively 'self-disconnecting' their own water supply. The risk of detrimental impact can be mitigated, and the positive impacts of smart metering realised quicker, if the roll-out is accompanied by low-cost water saving measures (see below) and a strong awareness-raising and communications campaign (see our response to Question 23) and if the fitting of the meter is not the last point of contact with the customer (see our response to Question 24). If water meters are being fitted, NEA believes these should be smart meters to avoid a future visit to change the type of meter installed. This will reduce the roll-out costs which are inevitably passed back to the end-consumer.

It is important that any roll-out of smart water meters is managed centrally and learns from the energy smart meter journey. A significant benefit of the water industry in comparison to energy is that it is regional monopoly led – this will avoid the issues experienced when households switch energy supplier, and with national suppliers having to fit meters across the country rather than in one geographical area. NEA wish to see a smart water metering consultation issued, to gather wide evidence of what has and hasn't worked in the energy roll-out, in particular learning lessons from the supplier-led roll-out compared to regional monopoly delivery. This consultation should include ways to maximise touch points for water companies with the most disadvantaged customers in their operating area, and the benefits of both water and energy efficiency measures alongside the in-home display (IHD).

"Saving water can reduce your water bill (if you're on a water meter), reduce your energy use and bills, reduce the impact on your local environment, and reduce carbon dioxide emissions by using less energy to pump, heat and treat the water... When we use water, we are using energy, mostly to heat the water. Generating energy produces carbon dioxide emissions which is one of the main greenhouse gases causing climate change. Heating water for use in our homes makes up about 4% the UK's total carbon dioxide emissions."³⁶

NEA has previously undertaken primary analysis to investigate the potential for delivering low-cost energy and water saving improvements alongside the energy smart meter rollout³⁷ which we feel could be of use to Defra when considering the smart metering roll-out for water. This research concluded that, at a cost of less than £20 per measure, with installation taking less than one hour and requiring only very basic to medium skills to install each measure using only simple tools (for example an Allen Key or screwdriver), there are potential mean cost and carbon savings of £100-£300 and from 300-1,000kg CO₂ per annum. This suggests both economic and environmental benefits in the form of reduced energy bills for vulnerable fuel poor/water poor customers and reduced carbon emissions. Now the energy smart meter roll-out has been extended, it may be feasible for water efficiency measures to play a larger part in the energy smart meter roll-out, and NEA encourage Defra and BEIS to explore this opportunity further.

Question 14 - To what extent do you support or oppose use of incentives to encourage customers to use less water?

- a. Strongly support
- b. Slightly support
- c. Neither support nor oppose
- d. Slightly oppose

e. Strongly oppose
Please explain why

Incentives can be a useful mechanism to encourage behaviour change. NEA find incentives useful in engaging households for research projects, and usually advocate a prize draw. We also sometimes offer shopping vouchers as a 'thank you' for participation (not promoted until after the household has taken part in our study), recognising the value this can provide to a low-income household.

However, incentives can also bear significant risks. A financial incentive to a low-income household could drive negative behaviours, encouraging dangerous levels of consumption due to the, much-needed, financial reward the household could receive. The costs associated with the delivery of an incentive scheme can also be significant and could be passed back to the end-user which may be a household in financial difficulty. NEA would prefer to see this money spent to increase the levels of support available to customers through company social tariffs and other financial support mechanisms.

Question 15 - What incentives could water companies use to reduce customer use of water?

If incentives are to be used, NEA recommend those which do not provide a guaranteed financial reward for risk of driving the wrong behaviours (see response to Question 14).

Gamification has been used by electricity networks for Demand Side Response (DSR), and has been seen to have a significant impact – "The fundamental factor behind the novelty of the DSR proposition... is its linking of gamification and serious games to the field of domestic DSR... consumer engagement is modified into a function of both interest in demand response and in gaming, with one potentially providing mutual support to the other... By aggregating the potential monetary rewards for one consumer and turning DSR into a lottery style opportunity, there is the potential to remove the potentially small direct reward for consumers and turn the reward on offer into an attractive one with an additionally competitive element to appeal to those who find this aspect of interest."³⁸ Any application of gamification, or game theory, should consider those customers who are digitally excluded; "in the UK, 1 in 10 adults have never used the internet and 1 in 5 lack basic digital skills."³⁹ Therefore, where gamification is used, it should be used as part of a suite of incentives to engage as many end-users as possible.

NEA have also seen increased levels of participation through running a prize draw; a larger prize often seems more appealing to customers, even though their chances of winning may be lower. Incentives such as these can be linked to other activities, such as gamification, and can be offered on varying levels of scale.

Any incentives should be structured to ensure they are simple to understand, and do not increase the risk of negative behaviours. The Behavioural Insights Team offer a good model to follow – EAST – where incentives to change should be Easy, Attractive, Simple and Timely⁴⁰.

Question 16 - To what extent do you support or oppose the use of RWH and GWR schemes at individual level?

a. Strongly support

b. Slightly support

c. Neither support nor oppose

d. Slightly oppose

e. Strongly oppose

Please explain why

While NEA are not RWH or GWR specialists, our research has drawn us to being supportive of RWH schemes at individual level. A home and garden RWH system, with a direct feed and mains top-up is an economical, sustainable way of making use the non-treated rainwater falling onto the roof of a property. The costs of installation are relatively low, and the potential for returns are significant with an estimated 50+% of domestic water use being for toilets and clothes washing⁴¹. These non-potable uses of water could provide significant, ongoing, cost-savings for customers without any detrimental effect on the quality of water used for drinking and bathing. Systems such as these, fitted at the point of build, especially for social housing or homes in the private rented sector, would offer a more affordable way of living for residents and tenants.

NEA are not confident that GWR schemes could offer the same returns and has been led to believe that the return on investment for products such as these can ever be achieved with the limited savings⁴². GWR is more likely to have a greater ROI when used in commercial premises, such as hotels. We therefore would suggest that a focus on RWH takes priority.

Question 17 - To what extent do you support or oppose the use of RWH and GWR schemes at community scale?

a. Strongly support

b. Slightly support

c. Neither support nor oppose

d. Slightly oppose

e. Strongly oppose

Please explain why

NEA believe the use of RWH systems at a community scale could deliver significant benefits to the local area and environment. Collective use of systems such as these, and the pride in partaking in sustainable water use could encourage others to partake, and encourage residents of that community to find other ways to consume water sustainably. From an environmental perspective, the use of RWH on a larger scale (such as a new-build housing estate) could reduce the occurrence of surface flooding, as less rainwater will flow into storm drains during periods of heavy rain, reducing the pressure on these already stressed systems.

The costs of community-scaled schemes must be considered, ensuring distribution of cost is fair if it is expected to be paid for by the residents of the community (i.e. it would be unfair for one resident to choose not to pay but still benefit from the system

once installed). NEA would like to see a system such as this made mandatory at the point of build in the same way that water meters are currently.

Question 18 - How can government or water companies most effectively encourage people to reuse water in their homes?

Communication of messaging is key when encouraging customers to change behaviour (see our response to Question 22 and 23). Government and Water Companies should take advantage of the current political environment, and, in a timely manner, link the sustainable use of water to our current climate change issues.

In addition to this, customers are likely to engage if they can see a direct benefit to themselves, often financial. Again, an awareness campaign can help to show someone the potential monetary savings made by reusing water is more likely to see engagement. Schemes offering to part fund the installation of systems such as these are also more likely to see increased levels of engagement.

Question 19 - Do you have any evidence/views/comments on the potential impacts on water bills for various customers and geographical regions should the management of supply pipes be transferred to water companies?

NEA do not have any evidence to contribute but would like to offer one comment.

We would be concerned if the transfer of supply pipes caused significant increases to customer bills, and would encourage, that wherever possible, any associated costs be off-set against the savings made from leakage reductions to mitigate potential bill increases.

Question 20 - Of the alternative options above, which is your preferred? Please explain why or if you have other ideas.

Increased use of metering and/or smart metering is our preferred option, as it would provide a number of benefits when tackling leaks at supply pipe level. Firstly, the fitting of the meter/smart meter provides the water company with an opportunity to inspect the pipe(s) and make any required repairs or advise the customer if more substantial repairs are required. Secondly, metering, and in particular smart metering, provides both companies and customers with the information required to identify any anomalies in regard to consumption levels, giving both sides the opportunity to taking mitigating action. Finally, smart metering reduces the need for physical meter readings to be taken, releasing resource, saving money and reducing carbon (associated with travel for visits). This released income could be reinvested by the water companies into managing leakages and/or other efficiency/affordability schemes.

Question 21 - What other options are available to reduce leakage from customer supply pipes?

Linked to our response to Question 20, NEA feel it would be valuable for a mandatory requirement to be placed on water companies to inform the customer responsible for maintenance of the supply pipe of any potential leaks identified through spikes in consumption data. Alongside this, income assessments should be undertaken, similarly to assessment for social tariffs, to provide financial assistance to customers unable to afford the repairs, or for the work to be undertaken free-of-charge by the water company given the mutual benefits associated with the work being completed.

One additional option could be the introduction of the requirement for supply pipe servicing, similar to the requirement to have a boiler serviced though not completed as frequently (perhaps on a 5- or 10-year basis). If completed prior to house sale, or change of tenancy on rental agreements, then issues could be rectified prior to change of responsibility. This could be completed alongside water efficiency checks, or in a similar manner to the current EPC process.

Question 22 - What are the main barriers to changing behaviours to reduce personal water use? Please rank your top three options by order of importance:

- a. Insufficient access to support and advice
 - b. Insufficient information about personal water usage
 - c. Insufficient information about water scarcity
 - d. Lack of financial incentive
 - e. Investment in more water efficient equipment is prohibitively expensive (2)
 - f. Difficulty in changing habits
 - g. People feel they are already doing all they can to reduce water use (3)
 - h. Hygiene reasons
 - i. Other (please specify)
- } (1)

Of the options outlined, we feel the first three should be treated as one – ‘insufficient knowledge’. This is often the most important aspect for customers; if someone does not have enough knowledge or understanding of their water usage, water stress in their area, the reasons we need to use water more efficiently, *how* to save water or where to get advice, then they are unlikely to be able to act. Knowledge, and communication of knowledge, is therefore one of the most important barriers to overcome in order to make behaviour changes.

Knowledge, or the lack of knowledge, also influences peoples’ own perception of their water use – if they do not have the required knowledge then they will not be able to quantify their own usage and see where they can make savings. It is worth noting that the lack of knowledge of assistance can have a financially detrimental impact on low-income customers, particularly as they will be unknowingly paying for others to benefit from assistance when they are in need of support themselves.

Cost, or perception of cost, is, and will always remain, a significant barrier to customers engaging with messaging. However, cost as an incentive can also be a motivator. If customer contribution is low, or non-existent, and cost savings are potentially high, then it is more likely that customers will engage.

Although the question only asks for three barriers, NEA feel it would be helpful to take this opportunity to provide the full list of barriers outlined in our course “Changing Energy-Related Behaviour”, provided in no particular order:

- Cost
 - Efficiency measures can be, or are perceived to be, relatively expensive and will take time to recover the costs. Many are doubtful that the savings would ever match their initial investment.
- Attention deficit
 - If the subject isn't interesting to a person, they will choose to focus on other things which *do* interest them. Often this is the case for energy efficiency and would likely apply to water.
- Other priorities
 - Householders often have higher, more visible or cosmetic home improvements which they choose to prioritise.
- Social norms
 - What other people are doing around a person can influence their behaviour, which could prevent them from adopting a new behaviour or efficiency measure. This can also flow from cultural norms or sheer habit whereby people place a high priority on their home comforts.
- Consumers' own life circumstance
 - Issues such as living on low-incomes, living in poor quality housing, relationship breakdown or being involved in landlord disputes have often taken precedence over acting on advice someone received to be more energy efficient. Housing tenure also played a role in a consumers' ability to act, whereby they were uncertain about whether or not they could make changes to the property, or felt it was the landlord's responsibility to make the changes.
- Hassle/friction costs
 - Specific aspects of hassle have been identified: finding a trusted sales person, waiting in for the appointment, finding a trusted installer, the need to clear out their loft (for example) prior to installation of measures etc.
- Aesthetics
 - People are concerned about the attractiveness of efficiency measures. Strong attachments to particular aspects of their homes (particularly period features) creates an attitude-derived barrier to replacement or addition of certain features.
- Lack of faith/trust
 - There is a lack of confidence in identifying reliable installers or contractors and the promised savings from suppliers bearing energy saving deals sometimes do not materialise.
- Lack of knowledge and understanding of energy saving behaviour and measures available
 - There is a lack of clear understanding either of what can be done to their home, or what the benefits would be in terms of efficiency savings and/or improved comfort. People can find themselves 'locked-in' to consumption patterns they do not know how to, or feel they can, change.
- Low prominence of energy efficiency
 - Some people feel that efficiency measures lack a tangible benefit, and do not add value to their home in the way that other enhancements do.

Question 23 - Which organisation(s) (if any) should communicate about how to reduce personal water use? Please select all that apply.

a. Water companies

b. Government

c. Local government

d. Environmental non-governmental organisations, for example environmental charities

e. Other – please specify

Please explain your answer

NEA feel there should be a national, jointly funded, collaborative campaign including all invested parties, to raise awareness of the need to save water and the benefits it can bring. Messages should be clear, concise, and easy for customers to understand and follow. Messaging should be delivered by a variety of methods, to allow for ample opportunity for customers to engage in the method most suited to them.

The energy smart meter roll-out has seen significant engagement as a result of the campaigns led by Smart Energy GB (SEGB). Research shows that 94% of the population in Great Britain has heard of smart meters⁴³ with previous SEGB campaigns seeing more than 3 million people engaging via social media, and a 600% increase in online conversations about energy wasting behaviour⁴⁴. NEA recommend a special body to be set-up, similar to SEGB, to help raise awareness of the benefits of smart water metering, and the associated efficiency savings.

NEA also believe there is an opportunity to link water efficiency messaging with energy efficiency, given the direct links between the two. A holistic and consistent messaging approach, and the associated interventions, would align well with the 'whole house' approach to retrofit (see response to Question 4) and would see more customers in vulnerable situations willing to engage as barriers to trust will be smaller.

In communicating the need for customers to do more, it should also be clear what water companies are doing to be more sustainable too. With stories in the media relating to leakages and pollution incidents, some customers may be unwilling to engage because they feel the water companies aren't taking the issue seriously themselves. Water companies should make public commitments to resolving leakages and pollution incidents, the results of which should be published and made visible to their customers with adequate fines imposed by the regulator for failure.

Question 24 - If there are any further matters that you would like to raise or any further information that you would like to provide in relation to measures to reduce personal water use, please give details here.

We would like to reinforce our view that water efficiency can be linked directly to water poverty. The application of efficiency measures, such as retrofitting Rain Water Harvesting systems, can have a significant impact on the cost of water and the bills customers incur. There are approximately 3 million households in England and Wales who struggle to pay their water bill, some of whom have medical conditions requiring large volumes of water. With this in mind, we feel it important to ensure that the 'worst are served first' and that any efficiency programmes consider customers in vulnerable circumstances to ensure they are not left behind.

We would also like to share an insight from our various projects on changing behaviours for energy efficiency. Having undertaken multiple projects providing

energy advice, we find that, when engaging vulnerable households, multiple contacts repeating tailored advice and information are far more effective and more likely to encourage a change in behaviours than a single one-off contact point. "Frontline workers looking to effectively deliver advice... to vulnerable households should look to provide advice in multiple formats and to tailor it to the particular needs and requirements of the household in question." Our report on SMART-UP⁴⁵, a project to understand the impact that tailored energy advice can have on the active use of a smart meter and in-home display to manage energy consumption in vulnerable households, provides further information and some analysis that could be applied to water efficiency measures also.

Question 25 - Please provide evidence regarding what reduction in personal water use could be made by 2050 by using the following measures, plus any others you believe to be relevant:

a. More ambitious water efficiency standards in building regulations for new homes.

The government is interested in understanding the impacts of any changes to standards, including on housing development, the costs of meeting the current standard and costs of meeting higher standards. Please provide any evidence which you have on impacts. Retrofitting existing homes. Defra is keen to understand what level of retrofitting would be needed should different levels of water efficiency standards in building regulations for new homes be implemented. We are also interested in views of how this could be achieved.

b. Introduction of a mandatory, government-led water efficiency label linked to building standards and fixtures and fittings.

c. Changing water fittings regulations to improve water efficiency of homes. Defra is keen to understand what changes would be required.

d. Options that deliver an increase in metering penetration.

e. More widespread rainwater harvesting and water reuse schemes.

f. The use of water company incentives.

g. Information provision to customers about water saving measures they can undertake and change to a water-saving culture.

NEA do not have any evidence to contribute.

¹ For more information visit: www.nea.org.uk.

² NEA also work alongside our sister charity Energy Action Scotland (EAS) to ensure we collectively have a UK wider reach.

³ CCC (2017) *Energy Prices and Bills – impacts of meeting carbon budgets*. Comparison with what household energy consumption and bills would have been without energy efficiency measures adopted in homes since 2004.

⁴ Fuel poverty strategy -

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/408644/cutting_the_cost_of_keeping_warm.pdf

⁵ Clean Growth Strategy pg. 43 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf

⁶ Conservative Manifesto 2017 pg. 66 <https://www.conservatives.com/manifesto>

⁷ NEA has warmly welcomed the publication of the National Infrastructure Commission's (NIC) National Infrastructure Assessment (NIA). The NIA rightly identifies the need to urgently address the energy wastage in UK homes and states dramatically enhancing energy efficiency must be a key national infrastructure priority. NEA is also an active member of the Energy Efficiency Infrastructure Group who strongly support this approach and have set how this can be achieved. This approach is also currently supported by a growing number of Non-Departmental Public Bodies, academics, industry and NGOs.

⁸ <https://www.theccc.org.uk/publication/progress-in-preparing-for-climate-change-2019-progress-report-to-parliament/>

⁹ Earlier this year, the Government legislated for a 2050 net-zero carbon target. The Committee on Climate Change (CCC) warned an additional 2.4 million households could be pushed into fuel poverty across the UK by 2030. For more information see <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>. It is therefore more important than ever to ensure that the transition to a low-carbon economy is fair and equitable, and as noted by the CCC when they issued their advice to the UK Government; addressing fuel poverty is a crucial part of meeting the new stretching carbon targets.

¹⁰ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/604317/Domestic_energy_bills_in_2016_-_the_impact_of_variable_consumption.pdf

¹¹ These principles are set out in the Standards of Conduct (SLC 0 and SLC 0A). These are enforceable overarching rules aimed at ensuring licensees, and their representatives in the case of domestic suppliers, treat each domestic and microbusiness customer fairly. These broad principles relate to how suppliers behave, provide information, and carry out customer service processes. In the case of domestic consumers, the Standards also relate to how suppliers seek to identify each consumer in a vulnerable situation and respond to their needs.

¹² A Price Control for Everyone - A collection of individually authored essays on how RII0-2 can deliver improved support for people in vulnerable circumstances, Citizens Advice, December 2018.

¹³ Depending on assumptions about how many new homes are built, around 80% of existing homes will still be in use by 2050.

¹⁴ <https://www.energysavingtrust.org.uk/home-energy-efficiency/saving-water>

¹⁵ https://www.southernwater.co.uk/media/2227/t100_acttoday.pdf

¹⁶ <https://www.gov.uk/buy-sell-your-home/energy-performance-certificates>

¹⁷ <https://www.nea.org.uk/about-us/>

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