

DOMESTIC WATER METERING – IS THE LAW ADEQUATE?

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Introduction

Most domestic properties in England and Wales currently have their water and wastewater charges billed in one of two ways - either as an unmetered charge, based on the property, usually its former rateable value; or as a metered (volumetric) charge, based on a water meter reading. As a general rule, whether an unmetered or metered charging basis would result in a lower bill for a specific customer depends on how much that customer currently pays, the number of occupiers, and how much water is used.

Before 1973, water services were provided by a mixture of local authority and private undertakers; the Water Services Act 1973 created the structure¹ that survived until privatisation.

The Water Act of 1989 brought about the privatisation of the water industry in England and Wales; it created 10 major regional water and sewerage companies and retained 29 smaller water-only companies.

The idea that the private sector should be more involved in funding water projects dates back to the time of the Thatcher Government. Former Conservative Prime Minister, Margaret Thatcher, argued that public borrowing was not the best way to fund expensive water projects, leaving private capital as the only source of funds. Thus, the water industry in England and Wales was floated on the stock market in 1989. The Director General of Water Services was appointed to be the economic regulator of the industry, with duties which included setting price limits to control the revenue companies can collect from their customers in bills, and protecting customers. The Director General set up 10 regional Customer Service Committees (now known as the Consumer Council for Water), which are independent of the water industry, to represent customers. The water-only companies were brought under the same regulatory control. To meet European water quality and

¹ The Act created the ten water authorities that were later privatised. They took over from the local authorities and water boards and their role was 'to plan and control all users of water in each river catchment area'. They had responsibilities for water conservation, controlling pollution of inland and tidal waters, land drainage and flood control, fisheries, and the supply of water and sewerage services. The ten water authorities were subject to government targets and financial control like nationalised industries. Customers' bills continued to be calculated on the basis of rateable values. [Ofwat, May 2002. Privatisation and the history of the water industry. Internet document accessed on 15 January 2006: <http://www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/Content/privatisationhistory>]

environmental standards the government wrote off £5 billion of the industry's debts and gave it a £1.6 billion cash injection (the so-called 'green dowry').

As part of the privatisation, the companies were required to find alternative charging methods for all newly-built properties and, as a result, the 1989 Act marked the start of widespread domestic metering.

The Government created an industry regulator, the Office of Water Services (Ofwat) to oversee the activities of the privatised companies². Ofwat regards metering as the fairest option, and has clearly indicated that water meters are its preferred basis for charging for water in the long term.

Initial post-privatisation developments

At the time of privatisation in 1989 nearly all domestic properties in England and Wales were billed for water and wastewater as a proportion of the property value of the house. In broad terms, the rateable value was based on the open-market annual rental value of the property, and the system was administered by local authorities. To highlight the low level of domestic metering at the time of privatisation, fewer than 1 per cent of domestic properties in the Thames Water area had a meter installed in 1989 and this was fairly typical for England and Wales. Water meter penetration was also very low in comparison to many other developed countries³.

Government policy in 1990 was to remove all customers from charges based on rateable value by the year 2000. In retrospect, this policy appears to have been established without the alternatives having been carefully considered beforehand; as a result it has since been rescinded as impractical. In practice, the domestic rating system came to an end in 1990 when domestic rates were abolished and replaced by the community charge (poll tax). This meant that new homes were no longer allocated a rateable value by the local authorities and the water companies were forced to find alternative method(s) of charging for new properties.

Apart from metering, the alternative methods for domestic billing that the government and regulator could, and should, have considered include extending the use of rateable values, use of council tax band values, water service 'factors' (eg the use of gross floor area, standard

² As of 01 April 2006, 'Ofwat' became the Water Services Regulation Authority. The Authority was established under the Water Act 2003 and replaced the office of the Director General of Water Services, which had been the regulator under the Water Industry Act 1991. However 'Ofwat' is still generally used.

³ R.Franklin (Field Operations Manager, Thames Water) 'A Review of Revenue Water Metering in the UK' [February 2003]. Metering International Issue 2 http://www.metering.com/archive/032/42_1.htm (12 January 2006).

spacing between properties, garden area, and roof and car-parking areas), licence fees and household size and appliance counts⁴.

These alternative methods were never seriously considered or adequately trialled at the time and, from 1990 onwards, the regulator encouraged meter installation at existing properties, either as a customer service requirement or as a demand management tool.

Current status

Metering has been adopted with varying degrees of enthusiasm by the individual water companies, depending on their circumstances. As recently as 1999, low consumption households wishing to reduce their bill could expect to pay hundreds of pounds to have a meter installed. Experience has shown that large numbers of customers have switched to meters only if they are available free of charge. Ofwat now requires all water companies to offer a water meter at zero cost to the customer, provided it is not impracticable for the company to do so. For the company this invariably reduces revenue and increases operational costs⁵.

Meter penetration is highest in the resource-scarce areas of England and Wales (particularly the south and south-east); currently over 60 per cent in some cases⁶. This has been achieved by a mixture of optional metering and selective metering, eg fitting meters to unmeasured properties whenever a change of occupancy occurs or installing meters in properties where there is likely to be high water use (see Box 1). Not surprisingly, meter penetration across the 10 water and sewerage companies is lowest in the Northumbrian Water region (13 per cent) where the problem of water scarcity is small.

⁴ Joseph Rowntree Foundation (June 1997), Social Policy Research 115 - Paying for household water services. Internet document accessed on 17 January 2006:
<http://www.jrf.org.uk/knowledge/findings/socialpolicy/SP115.asp>

⁵ Metering International Issue 2 (n 3)

⁶ Ofwat (2005), Tariff structure and charges 2005-06 report. Birmingham: Office of Water Services

Box 1: New customer rights from 1 April 2000

From 1 April 2000 domestic customers had new rights over how they were charged for water. Domestic customers in England and Wales have the right to continue paying an unmetered charge provided that they meet the following conditions:⁷

- they are already paying an unmetered charge
- the charge is for their home
- their home is not a minor part of a building with another use (such as a business)
- they carry on living at the same address
- they are not using water from the mains for any of the following purposes:
 - watering a garden (unless watering by hand, such as by a watering can or a hand-held hose)
 - filling a pond or swimming pool >10,000 litres with an automatic refill
 - filling an extra-large bath (>230 litres - a normal bath is only 80 litres)
 - a power shower
 - a water softener using reverse osmosis.
- they are not in an area declared as water scarce.

If domestic customers do not meet all the above criteria they will not necessarily have to pay a metered charge. However, the water company could decide that they should.

If a customer does have the right to an unmetered charge, it does not prevent water companies fitting meters or require them to take out existing meters. But it means they cannot set the charge according to a meter reading.

Before April 2000 some companies fitted meters to properties that had been altered or extended. From 1 April 2000 companies could no longer impose a meter on a customer in these circumstances. Some companies do, however, charge customers in altered properties, on the basis of a notional rateable value or an assessed charge⁸. Depending on the company, the assessed charge may be based on the number of occupants, the type of property (flat/maisonette, semi-detached or detached), the number of bedrooms, or the average household charge.

Remarkably, the majority of households are still paying for water services based on a 33-year-old rateable value, ie a proportion of the value of the house as it was calculated during the last general re-valuation in 1973. Although this might be seen as an indication of the public's general resistance to metering, the proportion of billed households with meters has,

⁷ Defra (21 November 2000), Water Metering: Your New Rights. Internet document accessed on 13 January 2006: http://www.defra.gov.uk/environment/water/industry/water_metering/rights.htm

⁸ Ofwat (April 2004), Opting for a water meter. Internet document accessed on 13 January 2006: <http://www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/Content/infonote46>

in fact, steadily increased from 1989 and now stands at 26 per cent (2004-05), with the greatest proportion of metered customers in the Tendring Hundred area of north-east Essex (61 per cent of billed households), Cambridge (54 per cent) and Anglian (54 per cent)⁹.

Table 1 shows the increase in household meter penetration from 1996-97 to 2004-05, together with forecast data for the 2005-6 reporting year.

Table 1: Household metering

Billing year	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
% of billed households metered	8	11	14	17	19	21	22	24	26	28*

(See note 7)

* Based on forecast data

Ofwat now has great influence in the area of domestic metering; its final determinations for the period 2005-10 allowed water companies to use all options available to them to increase the use of water meters. This also included a substantial increase in the rate of selective metering for 2005-10, by comparison with 2000-05¹⁰.

Significantly, until 1st April 2000 water companies in England and Wales were not able to say whether a domestic customer must have a water meter installed or not. Since this date, and as a result of the Water Industry Act 1999¹¹, the water companies have been able to decide to install a meter, under certain conditions. Also, if customers who do not currently have a water meter decide to opt for one, then the water company is obliged to install the meter free of charge, as long as the installation is practical and not unreasonably expensive.

⁹ Ofwat (October 2005), Security of supply, leakage and the efficient use of water 2004-05 report. Birmingham: Office of Water Services

¹⁰ see note 8

¹¹ The **Water Industry Act 1999** removed the companies' ability to disconnect household customers for non-payment of charges. It outlawed the use of budget payment units (prepayment meters) that cut off customers' water supplies where customers had insufficient credit on their payment cards. It also limited the circumstances in which companies can compulsorily meter customers. It gave the Director General of Water Services the task of approving companies' charges schemes. It also allowed the Secretary of State to issue regulations setting out requirements that should be included in companies' charges schemes. This legislation also secured that companies were able to continue to charge customers on the basis of rateable value. The Act also allowed the Secretary of State to provide guidance to Ofwat on the treatment of vulnerable customers.

Water Industry (Charges) Vulnerable Groups Regulations 1999 - apply to charges schemes that came into force on and since 1 April 2000. They state the nature of the assistance to be provided to a prescribed class of persons (vulnerable groups) who are eligible to apply for financial assistance with water and sewerage charges in the form of a capped bill. The regulations apply only to companies in England. [Ofwat, October 2005. Understanding Ofwat: A glossary of the most commonly used Ofwat terms. Birmingham: Office of Water Services]

Water Industry (Prescribed Conditions) Regulations 1999 - set out the conditions under which an appointed water company can impose a metered charge on a domestic customer. [Ofwat, October 2005. Understanding Ofwat: A glossary of the most commonly used Ofwat terms. Birmingham: Office of Water Services]

Metering by stealth?

Water companies are also now entitled to install a water meter in a property when there is a change in occupancy, as long as they have not yet issued a bill to the new occupier. They can then charge the new occupiers for water and wastewater services on a measured basis¹². This is set out in section 144B of the Water Industry Act 1991, which was inserted by the Water Industry Act 1999. Domestic customers cannot, therefore, object to having a water meter installed when they change occupancy. Similarly, under the same section of the Act, customers moving into properties with an existing water meter cannot have the meter removed and must pay for their water on a measured basis. So in these cases, customers who do not want a water meter have no legal protection against compulsory metering. For this reason the current system still seems to contain areas that are inequitable and could benefit from further legislative reform.

As can be seen from the percentages in Table 1, water metering is being introduced slowly and surely. Arguably, this is because governments do not want a public argument; they appear to be happy for the appointed water companies and owners of domestic properties to move, little by little, along the water metering path, and trust that no one notices.

Water Framework Directive – a future driver for increased domestic metering?

The Water Framework Directive (WFD) is widely regarded as the most significant piece of European environmental legislation ever passed¹³. It requires rivers, lakes, and estuaries to reach ‘good ecological status’ by 2015. The WFD represents a unique opportunity to introduce a modern approach to the management of waters in England and Wales, and address the pressures facing the water environment in an integrated, strategic way.

The WFD recognises the importance of incentive pricing, and the role that it can play in curbing water usage in order to ensure water resources are used in a sustainable manner. It requires water pricing policies to perform the following functions by December 2010¹⁴:

- take account of the principle of the recovery of costs of water services, including environmental and resource costs.
- embody the ‘polluter pays’ principle.

¹² Ofwat (2005), Frequently Asked Questions (FAQs) – Metering. Internet document accessed on 13 January 2006: http://www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/Content/i_have_moved_into_a_new_home

¹³ The United Kingdom Parliament, Select Committee on Science and Technology, Minutes of evidence (October 2005). Internet document accessed on 04 July 2006: <http://www.publications.parliament.uk/pa/ld200506/ldselect/ldsctech/191/6011706.htm>

¹⁴ Defra and Welsh Assembly Government (August 2003). Third consultation paper on the implementation of the EC Water Framework Directive (2000/60/EC).

- provide adequate incentives to use water resources efficiently.
- ensure that water use groups (Article 9 requires that these are separated into at least industry, households and agriculture) make an adequate contribution to the recovery of the costs of water services.

Article 11 of the WFD requires Member States to introduce measures to conserve water quantity as an essential component of environmental protection. On the surface, this could be seen as a major driver to universal metering. However, in response to the ‘Third consultation paper on the implementation of the EC Water Framework Directive’¹⁵ issued by Defra and the Welsh Assembly Government, areas identified by consultees for action to improve efficient and sustainable water use include, in order of frequency:

- planning and building regulations
- agricultural use of water for irrigation and hygiene
- efficiency of fittings and appliances
- charging
- education and advice
- water company leakage reduction.

Although the specific measures suggested by consultees did include universal metering, they also included more use of rising block tariffs, encouraging grey water recycling and rainwater harvesting, economic instruments and/or other means to encourage the development and uptake of domestic water efficient technologies, education and adjustment of the formula for calculating the economic level of leakage (environmental costs are included in these calculations).

In the consultation paper, the government stated that it will continue to use a twin track approach of demand management and development of resources to achieve sustainable management of water resources. It also stated that it is content that existing measures are sufficient to promote efficient and sustainable water use, and therefore fulfil the obligations of Article 11(3)(c).

Article 9 (para 1) requires that ‘Member States shall take account of the principle of recovery of the costs of water services’. The second sentence of the same paragraph goes on to state that Member States shall ensure by 2010 ‘that water-pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives’. However, paragraph 4 of Article 9 says that ‘Member States shall not be in breach of this Directive if they decide in accordance with established practices not to apply the provisions of paragraph 1, second sentence’. Clearly, this allows for wide

¹⁵ *ibid.* www.defra.gov.uk/corporate/consult/waterframe3/consult-chapters.pdf

interpretation and, in any case, appears not to go as far as to impose specific requirements on the use of metering to comply with the policies.

The government maintains the view that there is no need at present to alter charging policies to meet WFD requirements; the present arrangements deliver a system that recovers the costs of the services, both overall and by customer. So, in the short-term at least, the Water Framework Directive is unlikely to be a key driver in a move to more widespread domestic metering in England and Wales.

Recent developments and possible drivers for the future

The Water Act of 2003 included a stronger focus on conservation and changes relating to water efficiency¹⁶. The implication of this is that a balance needs to be struck between meeting demand (including the need for sustainable natural habitats), and limiting demand through conservation, whether by better control of leakage by the companies or the more efficient use of water. For those who embrace the ‘if you can’t measure it, you can’t manage it’ philosophy, then metering makes sense when considering conservation and efficiency in water-stressed areas.

Recent water shortages in England led to talks between the water companies and the Office of the Deputy Prime Minister (ODPM) over John Prescott's sustainable housing policies for the south-east. Up to one million new homes in the south-east will seriously overstretch existing water supplies and, unless measures are taken to conserve water, the industry has warned that supplies are not sustainable. WaterVoice (now the Consumer Council for Water) has agreed with this view, saying ‘a move towards universal metering in the medium term would make most sense in the South and East of England, where water resources are most stretched: companies could expand selective metering, for example through metering on change of occupancy of properties or through designation (by the Secretary of State) of water-scarce areas’.¹⁷

On 1 March 2006, the use of compulsory water metering in the Folkstone & Dover Water Services (FDWS) area was approved by the government. This was the first appointed water company in England and Wales to gain such approval; future applications from other water

¹⁶ The Act introduced a new statutory framework for extending competition in the supply of water in England and Wales. In addition, Section 81 of the Act establishes duties on the Secretary of State for the Environment and Welsh Assembly to encourage water conservation. Sections 82 and 83 introduce duties on water undertakers and public authorities to conserve water. [Environment Agency, June 2004. Water conservation in force. Demand Management Bulletin, Issue 65]

¹⁷ Ofwat (June 2005), Expansion of metering is crucial part of solving water resources problems (Press Notice WV 14/05, dated 17 June 2005). Internet document accessed on 15 January 2006: <http://www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/Content/wv1405>

companies will be judged on a case-by-case basis. FDWS were granted permission to instal meters as Defra gave the region special status as an ‘area of water scarcity’. The decision affects only a small area in the south-east of England (up to 65,000 homes), but other water companies are expected to follow suit, as concern continues to grow over long-term water shortages¹⁸. FDWS expects to increase the number of households metered in its area from the present 40 per cent to 90 per cent over the next 10 years. The company estimates that metering these households can reduce their water use by 10-15 per cent. The Environment Agency’s view is that an increase in metering could provide about half the margin of supply over demand that FDWS needs by 2015. It stated that metering should be viewed as only part of the solution; the company would also be expected to follow other measures, including exploring new sources, minimising leakage and encouraging water efficiency¹⁹.

In terms of financial benefits for the water companies it could be argued that, even in the south-east of England, measures to reduce leakage or develop new resources, such as reservoirs, are more cost-effective than the mass-metering of domestic properties. It would be more sensible to consider the key advantage of metering as a means of meeting or maintaining the supply/demand balance.

The water price increases determined by Ofwat for the 2005-10 period were a definite impetus for metering and demand management, particularly after the relative fall in prices over the previous five years²⁰. Nationally the price limits for the 2005-10 period average 4.2 per cent a year above inflation (see Table 2)²¹

Table 2: Price limits (%)

	2004-05		2005-06	2006-07	2007-08	2008-09	2009-10	Average
Ofwat’s final determinations	3.4		9.6	3.9	3.2	2.5	2.0	4.2

However, it could be argued that water metering is inequitable because most of the industry costs are fixed. Opponents make the case that most of these costs are not dependent on the quantity of water used, so charging on the basis of use is irrelevant. However, the quantity of water used does have an impact on cost. The social costs of additional marginal use of water

¹⁸ Politics.co.uk (02 March 2006), Water metering. Internet document accessed on 04 July 2006: [http://www.politics.co.uk/issueoftheday/public-services/utilities/water/water-metering-\\$367188\\$367188.htm](http://www.politics.co.uk/issueoftheday/public-services/utilities/water/water-metering-$367188$367188.htm)

¹⁹ Defra (01 March 2006), News Release: Delivering a sustainable water supply: government gives company wider powers to meter (Ref: 89/06). Internet document accessed on 04 July 2006: <http://www.defra.gov.uk/news/2006/060301c.htm>

²⁰ Environment Agency (February 2005), Affordability - more research necessary. Demand Management Bulletin, Issue 69

²¹ Ofwat (December 2004), Future water and sewerage charges 2005-10: Final determinations. Periodic Review 2004. Birmingham: Office of Water Services

are high, particularly in regions of the country where there is an unsustainable rate of abstraction.

The charging scheme in relation to low-income households is another hurdle to be cleared before moving to more widespread metering. No one should be denied essential water use, and affordability is seen by many as a major barrier to more extensive metering. In an initial move to ensure that there are appropriate social safeguards, financial relief for the most extreme cases is now available through Vulnerable Group Regulations (DETR²² laid the regulations to protect vulnerable groups in December 1999). Some domestic customers who have a meter can receive a capped bill if they receive specific benefits or tax credits, and cannot avoid using a lot of water because they have three or more dependent children. This also applies to customers with certain medical conditions specified by the government.

There appears to be a strong need for water companies, Ofwat and the consumer committees to work together in an attempt to build a legal framework that would move further towards cost-reflective charging. This would entail considering alternative water pricing mechanisms that relate the costs of usage more directly to the consumer. Assuming data of the right quality and quantity is available to do this, it would make sense to initially rebalance tariffs where the evidence of cross-subsidy is greatest. This is likely to mean examining the charges between different types of unmetered customers first, between unmetered and metered households next, then between water and sewerage services, and finally between charges for domestic and commercial customers.

Finally, the government has concluded that the market is not ready to introduce competition for domestic and small business customers. Limited additional competition has recently been introduced for larger businesses, whereby companies can now compete in the water industry under the framework of Water Supply Licensing. This will undoubtedly have a marked effect on the perception of meters, by domestic as well as commercial customers, as intelligent data collectors rather than simple 'cash registers'²³. The collection of information can provide utilities with valuable data, allowing them to provide better levels of service and improved efficiency. Regular data allows utilities to build up profiles of customers and compare consumption patterns; they are then in a position to advise customers on conservation and optimising water usage.

Summary and conclusion

²² The Department of the Environment, Transport and the Regions (DETR) was replaced in June 2001 by the Department of Transport, Local Government and the Regions (DTLR) and the Department of Environment, Food and Rural Affairs (DEFRA)

²³ Metering International Issue 2 (n 3)

Since 1989, a wide range of government legislation has had direct consequences for household water charging arrangements and systems, particularly in relation to the metering of domestic customers.

Key drivers on metering activity within England and Wales have been the privatisation of the water industry and also the requirements of the regulator. Ofwat's influence is particularly obvious when the pressure to control water demand and, to a lesser extent, open up the industry to competition is considered. As a result of this push for metering in the domestic sector, there still appears to be considerable scope for growth in meter numbers.

Water availability depends critically on where you happen to live. Quite correctly, there is a general acceptance by the water industry, government, regulator, customer service committees and organisations such as CIWEM²⁴, that household metering should be made compulsory in regions where resources are under stress to assist in water conservation. The water companies should retain the ability to apply to Defra for water-stressed area status and, if this is granted, meter all properties where practicable.

The general public is slowly becoming more accepting of metering legislation. An indication that the public's previous resistance to metering had changed significantly came in July 2005 with the release of a poll from the office of London's mayor, Ken Livingstone, which said 60 per cent would be in favour of a meter in every household. Only 31 per cent opposed or strongly opposed the idea; and the principle that consumers should be 'actively encouraged' to conserve water was accepted by 93 per cent.²⁵

However, in order to move towards a more widespread use of domestic metering, a number of key issues must still be addressed within the established legal, institutional and regulatory framework. The most important of these is the way in which measured and unmeasured customers are billed. To ensure that meter charges relate directly to real costs, more sophisticated solutions will need to be considered and the options for these reviewed by the government. Ofwat should ensure that tariffs are truly cost-reflective, and metered charges should identify the key cost components in the bill for each service: customer billing and contact; network and availability; volume of use; peak load. Apart from tariff-related issues, there are also practical and operational issues to consider; meter location, difficulties in installation and meter reading, customers' responsibility for supply pipes, leaks and repairs.

Water is an economic resource and it is essential that, where appropriate, the government and regulator use the legal and regulatory framework to put a proper 'price tag' on metered water so that we are able to save it from being wasted. In the water-stressed areas of the country

²⁴ The Chartered Institution of Water and Environmental Management (website: www.ciwem.org)

²⁵ The Guardian (Tuesday 05 July 2005), *Water restrictions loom closer as aquifer tapped*. Internet document accessed on 17 January 2006: <http://www.guardian.co.uk/water/story/0,13790,1521375,00.html>

water meters can, and should, be used as a legislative lever to ensure fairer play in a drought. Metering has the capacity to ration by price and match cost to consumption. However, it should not be considered as an all-or-nothing system, and more consideration should be given to increasing customer choice and alternative methods of charging that might be more suitable for other areas and/or groups of customers.