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Wholesale tariffs (slides 1-10)

Slide 1 (Contents)

In this session we will explain how we devised wholesale tariffs. We will begin with the background and some of the early development of wholesale tariffs, when we were gathering information and getting our initial insights, then talk about our modelling work, the eventual structure of wholesale tariffs, and what we did to check and communicate our answer.

Slide 2 (work that preceded wholesale charges)

Alan covered the retail – wholesale split at the first of these seminars so I do not propose to repeat that material here. Suffice it to say that in my view, in increasing order of effort we had a) the accounting separation of retail and wholesale activities, b) determining an appropriate retail margin, c) setting a wholesale revenue line and d) establishing wholesale charges. I will be talking about the last of these.

Early in 2006 we already had retail-wholesale separation. We had calculated an overall retail margin for each of the next 5 years. We had determined future wholesale revenue (at least indicatively). Business Stream would become separate in October, and the market would open in April 2008. But we had given little or no thought to wholesale charges.

Slide 3 (Parameters and constraints)

However, we were not working in a vacuum. We knew some of the parameters within which we had to work. In particular, the Scottish Government had said in its Principles of Charging that wholesale charges had to be cost reflective. This requirement proved to be something of a challenge, simply because of the very patchy understanding of costs in the water industry.

The extent to which the Scottish Government principles of charging were a live issue at the time cannot be overstated. As part of the 2005 Price Review, the Scottish Government had set principles of charging for the first time – and these were not without controversy as they touched on controversial subjects such as Rateable Value charging, cross subsidies and fixed charges. The Scottish Government had also committed to another consultation in 2006 covering the implementation of metering and surface drainage charging. So, one of the first things that we needed to do was to point out to the Scottish Government that its principles were now principles for wholesale (not retail) charges – this was a change for the Government that had been used to seeing changes imposed directly on customers.

We also knew that, whatever we did on wholesale charges, there could be ‘no detriment’ to Scottish Water’s core wholesale business. This was a requirement of the 2005 Water services etc (Scotland) Act, and seemed to us to be a sensible precaution, and one that would ultimately be in the interests of customers. We also

knew, from bitter previous experience, that incidence effects arising from any new wholesale charges were best avoided. And we knew that we had to provide retailers with an adequate commercial margin over all customer segments, in order to avoid a disorderly opening of the market. We thought that working within these last two parameters – no material incidence effects and adequate retail margins - would be a tough call, and in this at least we were not wrong.

As well as the general parameters within which we had to work, there were various complicating factors to consider. One was the Scottish Government's proposal – which we endorsed – to extend metering to all non-household customers. This was to be achieved before the market opened in April 2008. Another was the existence of dozens of special deals, known as Schedule 3 Agreements, through which some customers, mainly large users, received services at highly discounted prices, or in some cases for only a nominal charge. Some of these agreements were historic and had been inherited by Scottish Water; others were fresh.

There is an important technical point that is worth drawing out here. Prior to 2006, Scottish Water had been required to have a charges scheme, but was not required to charge at those scheme rates. The change in legislation meant that it would now be required to charge at charges scheme rates to all customers unless the Commission approved a separate special agreement (and, frankly, that was unlikely!). So, this increased the importance of the charges scheme as it would be the basis of charging for some customers for the first time.

Then there was a likelihood, we believed, that trade effluent charges were well below economic cost.

Slide 4 (Contents)

Slide 5 (ideas about questions)

I have just set the scene for our work on wholesale charges with the great benefit of hindsight. At the time, it seemed very difficult to tease out the issues that mattered. It was not at all clear what the important questions that we had to tackle really were. For example, on the first occasion that the Commission discussed wholesale charges, in February 2006, it considered the following questions:

- What was an appropriate balance of charges between simplicity and service cost recovery (seasonal and peak use)?
- How could or should charges distinguish base load of demand against periodic higher usage?
- Should or could charges reflect the geographic disaggregation of larger users or of those users that determine asset configurations?
- Development of volume/transport driven costs.
- At what prices should supply/demand imbalances be settled between market participants?
- What about the relationship between wholesale and retail charges: should retail determine wholesale? Could or should we rely on markets to determine appropriate retail tariffs?
- Does what we do at wholesale potentially limit retail market development? If so, how do we minimise such impact?
- How important is the customer portfolio and does this really limit risk to the retailer or are retail charges always likely to be a straight cost pass through?
- How do we ensure undue discrimination is avoided? Should larger retailers be able to get reduced prices?

- Does what we do with wholesale charges affect the structure of retail tariffs for households? What about metered households?
- What happens if standing charges on meters are reduced?

These questions seemed relevant at the beginning of 2006, but with hindsight many were either red herrings or ‘too difficult’. So, as you can appreciate, for us the reality was much less structured and more confusing than my introductory remarks would suggest. Looking back, I think these red herrings and ‘too difficult’ questions preoccupied our grey matter for some time.

It is probably worth drawing out what turned out to be a key debate for us – and one that I am not sure there is an answer to. The debate was the extent to which there should be fixed charges for metered customers. With our support, Scottish Water had introduced relatively high (by UK standards) fixed charges in 2003 – these had proven very unpopular with business customers and politicians. However, in a substantially fixed cost business, it is not clear that having a more volumetric charge is reflective of costs. Nevertheless, if you take incentivising reduced volume use as a starting point, fixed charges are not effective and you would load up the volumetric base. There is almost religious adherence to both points of view in the water industry – and this is something that we grappled with throughout our work.

Again, with the benefit of hindsight, it is clear that we had only a very crude understanding of the factors driving costs in the wholesale business. We thought that we understood – at some level of abstraction – the economics of the wholesale business. After all, we are the economic regulator. For example, we were able to list a number of potential cost drivers for the water service, such as – whether a customer segment uses the distribution system or not, for example the pattern of demand by customer groups - seasonal , peak, daytime versus night time. And of course we had the well loved Mogden formula to help us on the wastewater side. Fortunately we recognised early on in our work that our understanding of the factors driving costs was just not up to the mark for the purpose of designing wholesale tariffs.

We may have known what the various actual costs were in the wholesale business, thanks to Scottish Water’s activity based costing system, but I think Scottish Water would agree that cost drivers were not well understood. Without such insight, how could we hope to arrive at cost reflective charges? We needed information, and we needed a way to use it to practical ends. So we embarked on a large piece of work – with Scottish Water – that occupied the rest of 2006.

I want to describe what this work entailed and the learning points that we took from it. There were two principal streams – gathering intelligence about cost drivers, and working towards an implementable structure for wholesale tariffs. These two workstreams fed off one another as the months went by. I’ll start with the first one, the intelligence gathering.

We began by, in effect, asking Scottish Water what it knew – or thought it knew. What did it know about customer numbers and segments? What did it know about water volumes and sewage loads? What did it know about the actual level of costs in relation to those customer segments? What did it know about the assets, processes and their cost drivers for the various customer segments?

Slide 6 (availability, quality etc of information)

We took this in stages, starting with a simple check box data request. We set out a grading scheme for data using the letters A to D, and asked Scottish Water to assess the availability, quality and accessibility of data according to this A to D scheme. For example, a C in each of these criteria meant that

- Data was available for less than 50% of Scottish Water's area, or could only be obtained with significant effort;
- it had significant deficiencies in quality
- local electronic records existed, but the data was not on Scottish Water's corporate systems

We asked Scottish Water to assess its information about consumption and assets used for over 30 separate customer segments. For example, we asked it to assess its data for water customers with a 150mm meter, in relation to their monthly consumption, ratio to peak week to average, ratio of peak day to average, and the size of the main to which the communication pipe is connected. As another example, we asked Scottish Water to assess what data it had relating the number of 150mm tariff meters to the principal treatment works that supplies them, broken down by treatment works size band.

We also asked about cost information: operating costs (direct and overhead), net book values, MEAVs, depreciation and IRC, in relation to the assets being used. For example, to what extent was Scottish Water able to break down waste water net book values into collection, bulk and local conveyance, various treatment routes (eg large tertiary works) and sludge disposal.

We called this the 'Data Availability Assessment Return'. Our request went out in May 2006, asking for a submission in June, together with a commentary, and this was delivered.

Slide 7 (key principles submission)

In parallel with our check box grading exercise we asked Scottish Water to tell us what it understood about the factors driving wholesale cost. This took the form of a structured essay, called the 'Key Principles Return'. It proved to be a challenging piece of work for Scottish Water. We asked for it to be completed in draft by June (which was delivered), and a final version in August (in the event, this was delivered in September). It proved to be a key document for designing wholesale charges.

It is perhaps worth pausing to explain what we were aiming to achieve through this process. Part of the rationale was to get a better understanding of the data that Scottish Water had, but another part of the process was to document exactly why we were taking decisions about the structure of wholesale charges. We were potentially open to judicial review or challenge from new entrants on this process and so, if we rejected a particular structure because the information wouldn't support it, we wanted to document why.

Armed by June 2006 with the check box and draft essay, we found ourselves on a steep learning curve. Getting to grips with the material we had collected was not easy, but we found that we were able to prioritise the most relevant – and hopefully available - information to collect in detail. It was very important to be practical about this, and there was a real danger of 'paralysis through analysis'. So we drew on our second workstream looking at structure, and we narrowed down our priorities to concentrate on information about cost drivers that could realistically be reflected in wholesale tariffs in the short term. The result was our snappily titled 'Data Return', which we issued in July, for submission in August. In the event, a final submission was provided in September, with some corrections in October.

This submission consisted of the following:

- cascading profit and loss accounts, split by activity and sub-activity (we called them 'cascading' in the sense that we began at group level then progressively subdivided activities, forcing full reconciliation);

- information about key cost drivers. For example for the water service this comprised tables showing the number of meters broken down by annual volume band and by meter size, and by network location and by treatment works size, and similar tables showing these splits for volumes delivered and for the number of connected properties;
- a commentary.

During all this activity between May and September 2006, we held a series of hands-on workshops with Scottish Water, significantly reducing the scope for mutual misunderstanding.

We also recognised, and were only too aware from the check box exercise, that there would inevitably be gaps, perhaps major ones. We considered that these would have to be addressed as they emerged, and that we would do this by looking at other water and sewerage companies (for example information emerging from UK competition cases in the water sector) and by looking at other sectors.

Despite our efforts at narrowing down the data that we needed, specifying it proved to be a major exercise for us, and gathering it an even bigger exercise for Scottish Water, taking several months to complete. We had the resulting 'Data return' technically audited, along the lines of the Reporter audit of the annual return.

This auditing process was, in fact, fairly central to our information. We had used the same group of Reporters to help us think through the information in the first place, to support Scottish Water in thinking about data availability, discussing how other companies might be able to find information and then auditing the results. This process meant, for example, that Scottish Water used an ONS tracking system to link its billing records to assets for the first time.

By the autumn of 2006 we knew all that we were going to know about wholesale costs and their drivers in Scotland.

Slide 8 (interesting insights)

What had we learned? I will list a few outcomes from our exercise with Scottish Water. I must stress however that our specific conclusions relate only to Scotland.

First, some general outcomes:

- we understood more about the balance of fixed and variable costs (we'll come back to this and some others later);
- practical groupings of customer segments were starting to emerge;
- we found material mismatches between costs and revenues.

As to Scotland specifics, we were able to conclude, at least provisionally, that:

- water distribution costs are materially affected by the need to provide firefighting capacity
- the size of treatment works does not cause significant cost differences between customer groups
- there was limited evidence to support large water user discounts, particularly to customers using less than 1000 megalitres a year (however, evidence emerged later)
- we could find nothing to undermine the Mogden formula
- We could find no practical evidence base for seasonal, peak or time of day charges.

Let me now return to our second workstream, looking at the structure of wholesale charges. Winding back to the spring of 2006, at the same time as we were beginning to gather information about customer segments, cost drivers and so forth, we had to turn our minds seriously to the more general problem of structure. What would wholesale charges have to look like?

Slide 9 (principles used to set charges)

We began around April 2006 by considering the criteria that we thought, or hoped, would guide us in the design of that structure. These were that tariffs should:

- Reflect material impacts on costs
- Be consistent with competition law
- Provide incentives for rational customer behaviour
- Be practical and measurable
- Be simple
- Be proportionate, meaning that they should relate to a reasonably large number of actual customers
- Be consistent with our 2005 final determination of future wholesale revenue
- Be consistent with the Scottish Government's Principles of Charging

Some of these criteria were possibly mutually incompatible, particularly the one about being simple. They were also perhaps rather idealistic. Indeed, at this early stage we deliberately omitted criteria about incidence effects and about whether and how to phase in any material impacts that might emerge.

As well as the criteria that I have just listed, we also began to consider what factors might affect the structure of wholesale charges. We expected that on the water side connection size, volume, and perhaps peak demand would be relevant, whilst on waste water we expected that volume would be relevant for foul charges, surface area would be relevant for drainage, and good old Mogden would be at least a starting point for trade effluent.

There was however a further structural complication to consider – that of fixed versus variable charges, and in May 2006 we wrote to Scottish Water to share the problem. After all, a problem shared is a problem halved. I'll read a couple of extracts from our letter:

The first reads: "The Commission believes that the wholesale cost of supplying customers with a very low volume may not be easily recoverable using a wholly volumetric approach. At the same time, it recognises that much of the fixed cost that is incurred in serving smaller customers is likely to relate to customer facing activities, in particular billing and collection."

The second extract reads: "In general, the Commission is keen that the wholesale charges framework does not create any disincentive for Scottish Water to connect new non-household properties. As such, it is likely to be important to ensure that new lower volume customers face broadly cost-reflective charges."

So by May 2006 we had perhaps dispelled some of our earlier confusion about what the right questions were, but the problem seemed just as intractable as before. It was just as well that by then we had secured Scottish Water's agreement to work with us on wholesale charges, and indeed to share the costs of external advice.

We began to turn our attention to modelling costs in relation to customer segments, assets, volumes and so forth. I think at this point we almost lost the plot, as our modelling, interesting though it was, was far too detailed to be useful. We spent too much time diagnosing technical modelling problems and coming up with fixes, which diverted us from the important, but still technical issues. But we got there in the end.

Slide 10 (Contents)