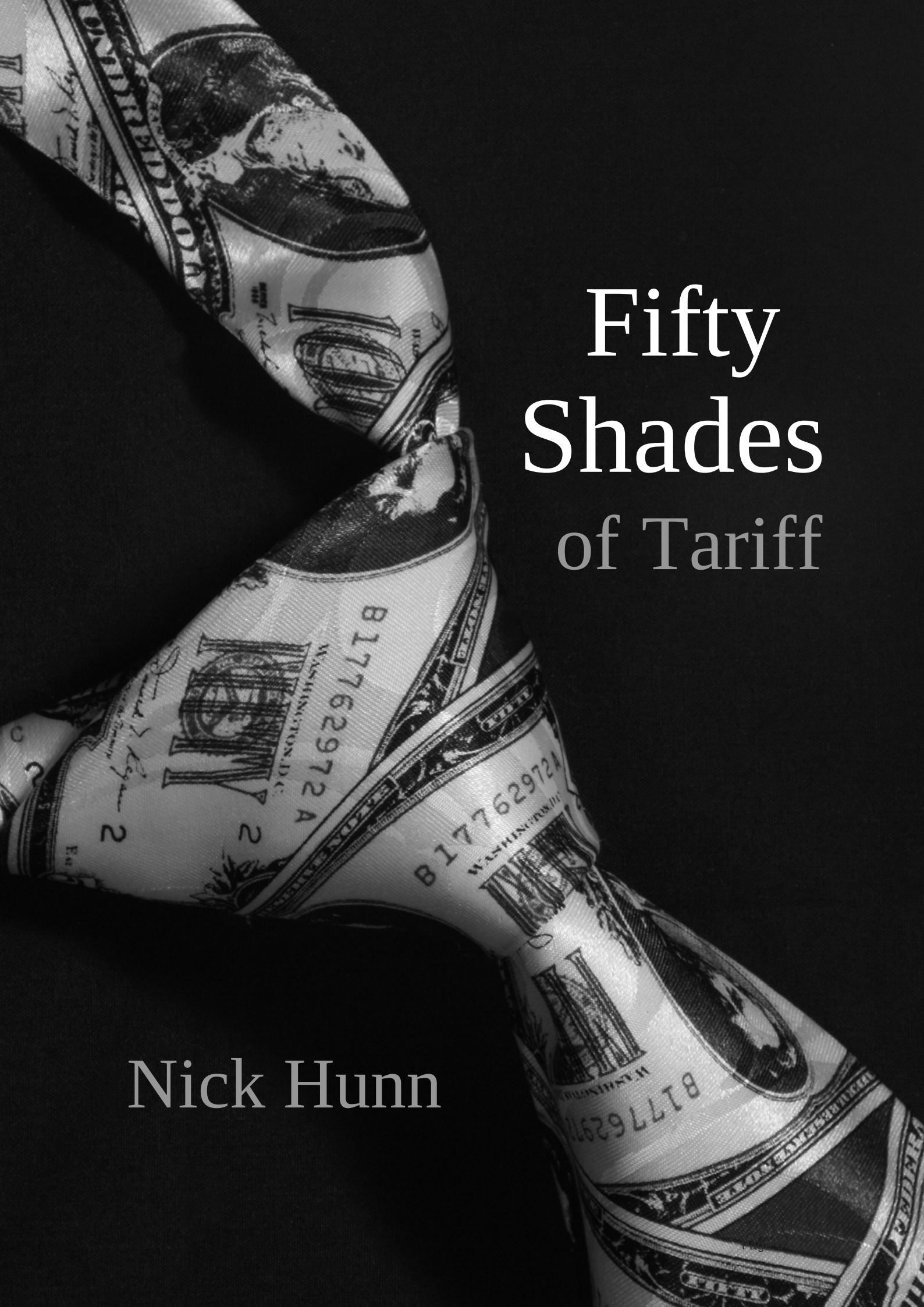

Fifty Shades of Tariff

Nick Hunn

Fifty Shades of Tariff

There's nothing that better illustrates the sado-masochistic relationship between energy suppliers and their customers than Tariffs. They've evolved to be the whip that utilities deploy to beat their users into "correcting" their behaviour. That form of correction may be trying to limit the total amount of energy you use, or changing when you use it. But there's a clear message coming through – energy suppliers want to be in control of the relationship.

It's a concept that consumers have a problem with. Survey after survey reports the message that consumers don't understand tariffs[1]. They don't even understand the word. And regulators are often less than happy with multiple or complex tariffs, because they're aware how much they confuse people. That was highlighted in the UK earlier this year when the regulator OFGEM took the paddle[2] to the utilities to persuade them to reduce the hundreds of tariffs in the UK to a few simple ones. But that doesn't stop utilities fantasising about a future where they can run riot with tariffs. The most extreme example is now being constructed in the UK as part of the British smart metering specifications. These allow a level of complexity that makes the most diabolic tortures devised by the Inquisition look simple. Fighting the consumer interest corner is our Energy regulator – OFGEM, which is about to give up on persuasion and start meting out some punishment itself.

There are some valid reasons for considering complex tariffs, but these need to include consumer engagement as a fundamental feature of their development. What is happening instead, particularly in the UK, is that tariffing structures are being developed as a technical exercise. They are now so complex that they threaten the interoperability, cost and usability of the British smart metering roll-outs, setting smart metering up to be the next major UK Government IT disaster. This white paper discusses the principles behind them and highlights both the disastrous route they're taking and the damage they will do to the industry.

Once upon a time, energy tariffs were simple. They were a fixed price for each unit of energy you used. That might vary slightly depending on where you lived, but it was a simple linear relationship between usage and cost. Now the fashion is for complexity. If you attend industry conferences on tariffing you'll hear the phrase "reward and punishment" come up quite often in presentations about tariffs. I'd like to show you why.

To start, we'll look at the two basics types of tariff – Time of Use and Block Tariffs. After that we'll see how the industry is trying to combine them, leading to a level of complexity that is beyond anything a regulator would allow. Finally we'll investigate the dangers of this level of unnecessary functionality.

There are many reasons that utilities like tariffs. The most basic one is that they're a useful way of confusing customers. By deliberately making their pricing complicated, it's easier to missell, or make comparisons difficult. Both strategies tend to mean that customers disengage and end up on an old, out-of-date, expensive tariff which is poor value. It's the same strategy that banks use to attract customers by offering a good initial interest rate, then reducing it and hoping the customer never notices that their money is just sitting there earning 0.1% APR.

Confusing the customer's not the only reason for complex tariffs, particularly for electricity suppliers, as they do have a valid reason for variable pricing, which is to reflect the cost of generating electricity. If they could be used to effect a change in consumer behaviour, they would be a useful tool to deploy to try and balance electricity generation and demand. The problem that suppliers have is that we don't use energy evenly throughout the day. Whereas we can turn on heating, air conditioning or high consumption appliances as the whim takes us, it can take hours to fire up a power station to increase the amount of electricity being fed into the grid to cope with these sudden changes in demand. Unlike gas, you can't easily store large amounts of electricity, and ways of generating electricity for a quick response are expensive. That can range from special gas fired plants, or pumping water up mountains during periods of low demand and then running it back through turbines. The resulting power is very expensive and suppliers need to pay a substantial premium for this "peak" power. The differentials are so high, that if they get it wrong, it can make a significant hole in their profitability. Equally, if they can persuade us to even out our usage it saves them money. That may be because they need to buy less expensive electricity at times of peak demand, or, in cases where suppliers generate their own power, they may be able to delay or even put off building a new power station.

Because of this, there's a lot of effort put into predicting domestic energy requirements and trying to make sure they can be met. However, as we pension off nuclear and coal fired plants, and increase the percentage of renewable generation, which is less predictable in terms of when it's available, this ability to predict generating capacity becomes more difficult. There's an associated question of whether the rush to renewables, enshrined in the recently released UK Energy Policy makes any sense? I'd recommend Dieter Helm's excellent book "The Carbon Crunch[3]" to anyone interested in that question, especially if they're a policy maker. But given the course we're being steered in that's a diversion – utilities want to deploy the tariff stick. Which brings us to the first "complex" tariff – Time of Use or ToU.

Time of Use Tariffs

Time of Use tariffs aren't new. In the UK, around 11% of homes use electric storage heaters as their primary form of heating. These are simple devices, which heat up thermal bricks during the night when electricity is cheap, then let out the stored heat gradually during the day. To make them a cost effective form of heating, UK utilities have developed Economy tariffs. These usually include a separate meter and switch which provides cheaper electricity for either seven hours at night (Economy 7), or five hours at night, three hours low peak in the early afternoon and another two late in the evening (Economy 10). Economy 10 is better for users who may need to top up their heating or hot water during the course of the day, although it may not be clear which of the two schemes is better for them when they sign up. In return, users can generally access the lower rate for any appliances they run during these periods. But to compensate, daytime rates on these Economy tariffs are usually higher than a flat rate, so these are not necessarily as good a deal as they might appear. However, they've been around for almost 35 years, so they're moderately well understood by consumers.

Figure 1 shows a typical example of a Time of Use tariff from the UK. It encourages users to consume electricity at night, when the base load generating stations are running and commercial and industrial demand is low.

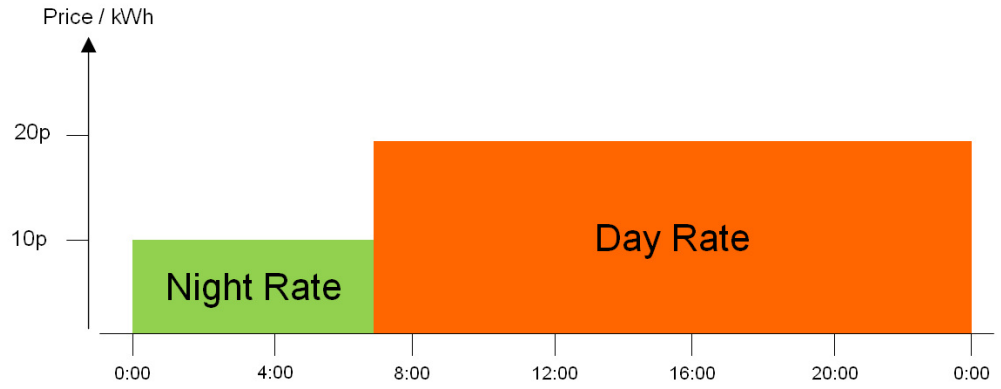

Figure 1. Simple Time of Use (ToU) Tariff

This works quite well for UK users with electric storage heating. However, because the day rate may be more expensive than a flat rate tariff it may not always be cost effective. If they have an electric shower which they use during the evening, or other high use appliances which are used during the day, they may be worse off on an Economy tariff. And if they replace their overnight electric storage heaters with gas central heating and forget to change their tariff, they'll definitely lose out. But when that happens, it's very unlikely that their energy supplier will tell them they should be on another tariff.

Of course, actual consumption isn't evenly divided throughout the day. It's different for different families and different countries. The following chart shows the average UK household usage, taken across multiple households across the year. Along with the next few figures, it is taken from the excellent Household electricity – user habits revealed survey which was published earlier this year.

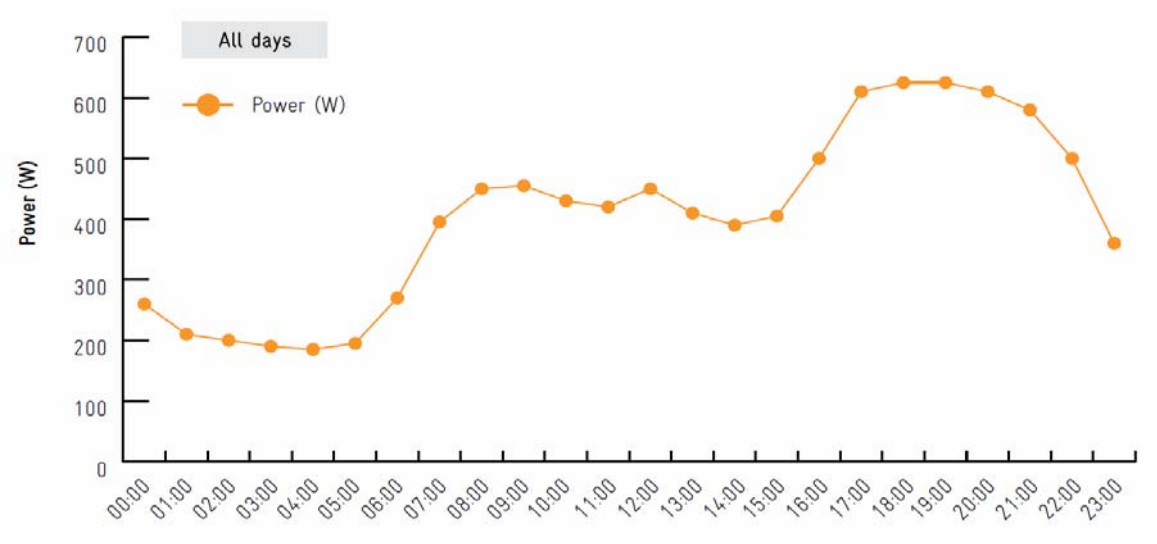

Figure 2. Average UK household electricity consumption

As with all averages, it's not necessarily representative of individual circumstances. The same report breaks the figures down into average annual consumption for households without electric heating, with supplementary electric heating and with night storage heaters. When added together they produce the graph above. Taken individually, they paint a very diverse picture of usage. The

differences between them, signifying varying user behaviour and appliance usage, is marked.

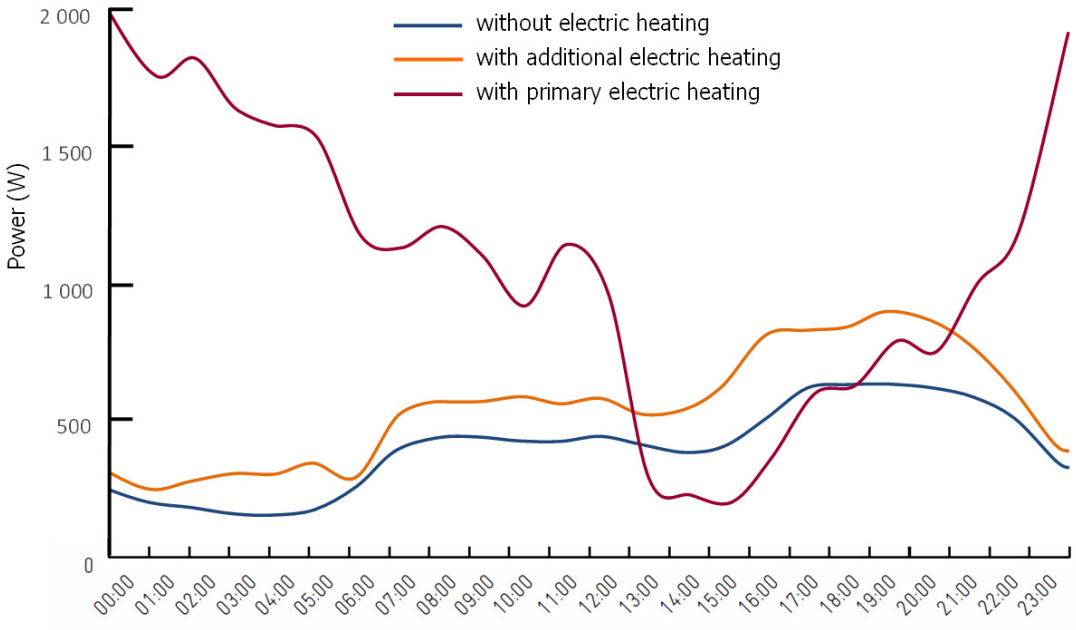

Figure 3. The effect of electric heating on average UK consumption

That picture shows that there is no obvious ToU tariff which is best for all. Any tariff design needs to understand the variability in household consumption. Nor is the usage consistent across the Great Britain. The map below from a DECC survey[5] shows the average annual household consumption across the country.

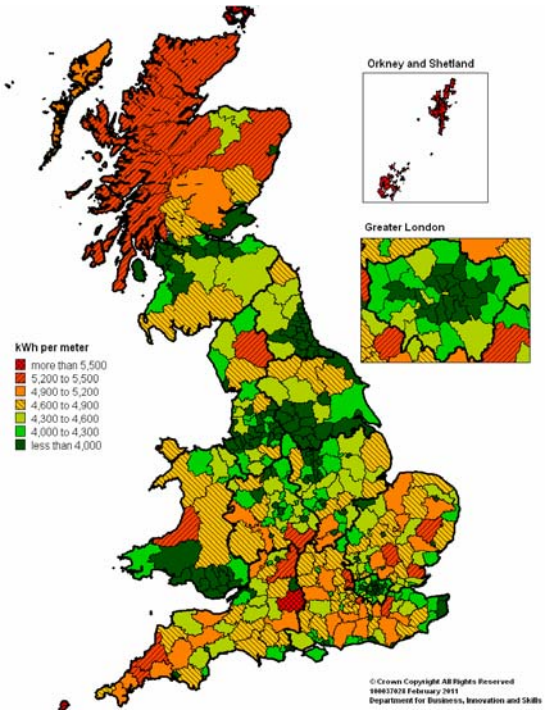

Figure 4. Average annual household consumption in Britain

As a general rule, the greater the density of population, the less power each household uses. That's not surprising, as cities are likely to have smaller properties, but it shows that imposing the same tariffs nationwide may inflict different levels of pain depending on where you live, even for a country as small as Great Britain.

The simple concept of using energy at night for background storage heating is largely a UK phenomenon, driven by and supporting a market for night storage heaters. The UK probably has the least problem with peak demand of any country in the world, as the climate never gets that hot or cold. The standard example given of peak demand in the UK is that of the population all putting their kettles on at the end of Coronation Street – one of the most watched TV soap operas. That's a problem which has been reduced in severity over the past few years, not by the energy industry, but by the widespread advent of set top boxes with a pause facility, along with a move to watch time shifted programs on the UK's iPlayer services. It is an unrelated introduction of technology that has had a significant effect on smearing out the short term evening peaks. It also highlights an important point, which is that the technology in what are traditionally seen as high consumption, consumer electronic devices is evolving in its own right, not only making them more energy efficient, but also changing patterns of usage behaviour which impact on other household appliance use. Most of those involved in energy policy miss this trend, but it is marked. You can already buy a 42" TV that consumes just 40W – less than many halogen down-lighters. A recent EU report[6] suggests that the power consumption of TVs will continue to fall. The same has happened with fridges and freezers and the trend is accelerating with other appliances. Yet this evolution is largely unnoticed by the utilities, so they carry on their tariff planning with mindsets largely fixed in the 1960s.

Outside the UK, peak demand is rather more serious, particularly in countries with more extreme weather. The chart below gives an example of household usage in a property in Texas with Air Conditioning. It's taken from e5 and CenterPoint Energy's white paper[7] on their Demand Response Program Pilot. As you can see, a large percentage of consumption comes from the air conditioning.

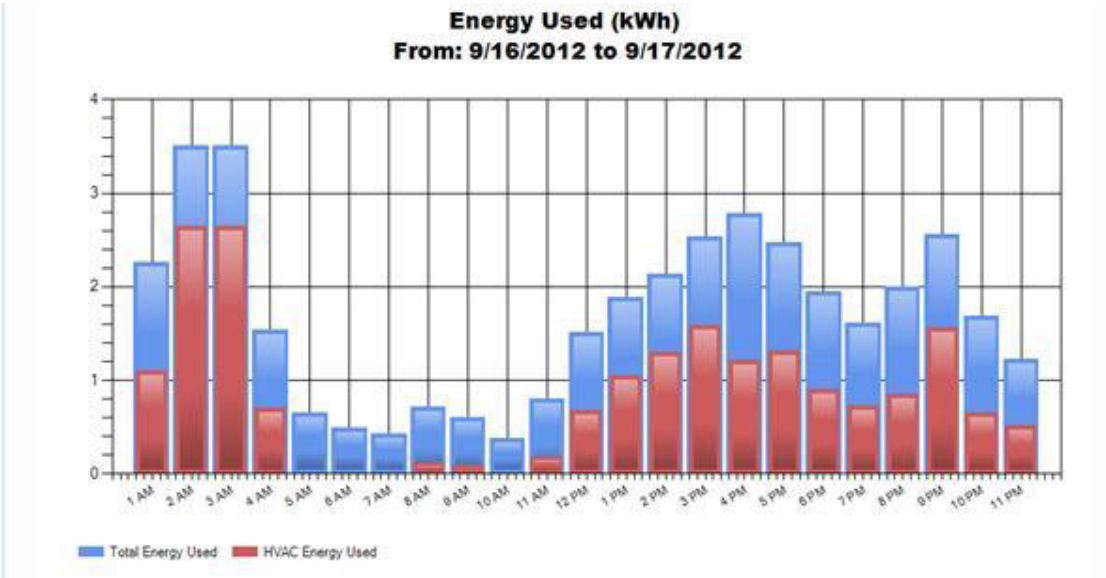

Figure 5. Energy Usage for a Texas home with Air conditioning

Figure 6 splits this out to show the total usage, the underlying usage without HVAC and the corresponding UK average demand, which we've already seen above. The shape of the underlying (non-aircon) use in Texas is not dissimilar to that of the UK. There's just more of it, presumably because everything's bigger in Texas. But add in the aircon usage and it illustrates the problem facing energy suppliers in hot countries. In contrast the UK usage is comparatively flat. We do not have the scale of peak problem that plagues much of the rest of the world. Yet we're designing the most complex and draconian tariffs. And it's very difficult to understand why?

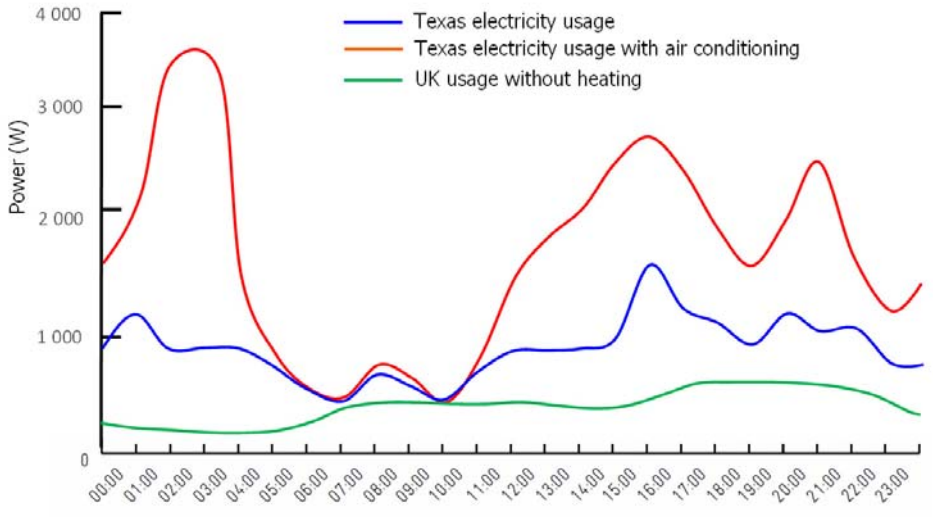

Figure 6. UK usage compared with Texas

The peak demands in these countries really hurt utilities, which is why you hear so much about demand response and peak shifting programs when you venture outside the UK. These attempt to remotely control domestic HVAC (Heating, Ventilation and Air Conditioning) equipment. Where that fails, typically because users don't trust utilities to directly control items within their home, they fall back to ToU tariffs, but with an attempt to price users away from consuming power at peak periods.

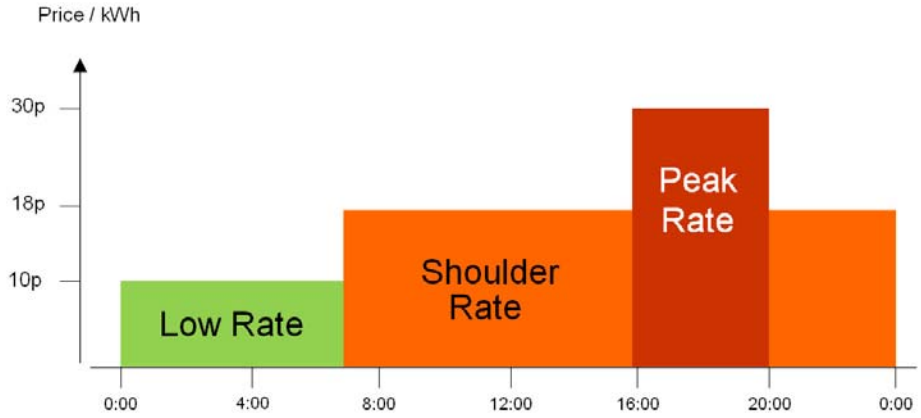

Figure 7. Time of Use with a peak rate

This changes the ToU tariff profile. The low night or off-peak rate remains, but the higher rate becomes a "shoulder" period, with a significantly higher Peak rate covering the few hours around the peak demand. This is where we start to see

the power politics between suppliers and regulators come into play. To persuade users to change behaviour, the peak rate needs to be significantly more expensive, potentially draconian. But regulators are unlikely to permit that, resulting in a peak price that penalises customers, but not enough to persuade many of them to change behaviour. There have been numerous studies performed to see whether this works. A recent survey of these studies[8] by EPRI –the Electric Power Research Institute comes to the conclusion that there's no clear evidence that it does. They suggest that the multiplier needed for peak tariffs to have any effect in persuading a significant number of people to turn appliances off may need to be as much as a factor of fifteen, which is a figure that no regulator is likely to allow.

Peak rate ToU tariffs do provide an incentive for behaviour change and it can be an immediate one, as consumers can make a conscious decision about whether to use an appliance at that time. It's also amenable to simple feedback to remind consumers to help reinforce behaviour, which is an aspect which is too often forgotten. A good example of how to make it simple is that of the energy dials given out in some Irish trials. Like most good "nudges", they have the advantage of being simple, being sent through the post in the form of fridge magnets.

In countries with great extremes of temperature, specifically in summer with very hot days, the peak demand problem is typically worst on a limited number of days throughout the summer. To try and target behaviour change on these, the industry had come up with the concept of CPP and CPR. The CP does not stand for Corporal Punishment, although you get the feeling that might have been in the minds of those who devised it. These are Critical Peak Pricing and Critical Peak Rebates.

CPP is a pack whereby the peak tariff is set much higher for a limited number of days during the year, which the utility can determine. Customers are encouraged to turn off their air conditioning during peak periods on these days. Because of the draconian rates applied, customers are individually notified of a Critical day, normally the day before it occurs. Some utilities have suggested that customers go out to the cinema or go shopping on these days to avail themselves of someone else's air conditioning for the duration of the peak event.

CPR is the less common carrot approach, where customers get a rebate if their usage decreases during a peak period.

The problem with critical peak pricing is that many users do not have much choice about their peak usage. If it coincides with feeding the family and washing clothes for the next school day then they are condemned to pay for that necessity. It's consumers with more time flexibility, or the money to buy more efficient appliances who are most likely to benefit from critical peak plans. In other words, the rich can buy their way around it, while the poor get poorer – a tricky political story for a Government to sell.

The complexity of Time of Use doesn't stop there. To make them feel more friendly, or as a cynical move to justify higher rates, utilities are beginning to design ToU tariffs which have lower rates for weekends and public holidays. There have even been a few cases of utilities offering free electricity at weekends to try and persuade users to do their cooking and laundry at weekends. That feels a rather overoptimistic vision of behaviour change – salads and cold meals during the week, but balanced by the enticing prospect of a Sunday roast whilst surrounded by the weekly wash.

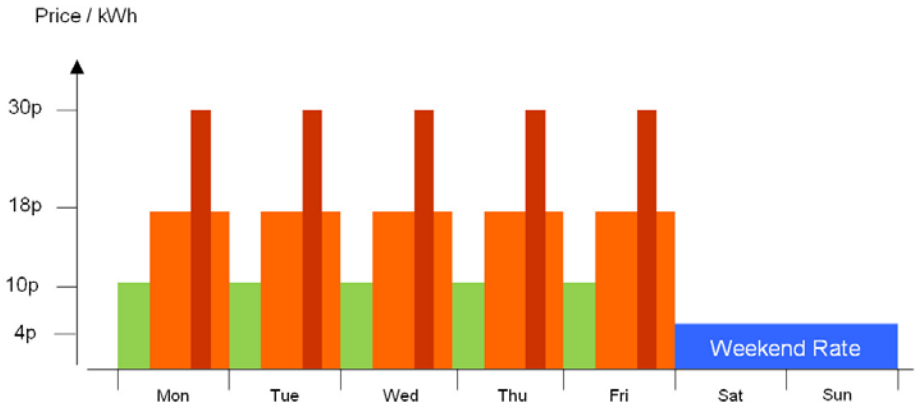

Figure 8. Making Time of Use specific to certain days

If you're a utility and want to offer a Time of Use tariff, there is no shortage of academic research to draw on. I'd suggest starting by having a look at the paper by Peng Yang[9], which is one I like. And once you've assimilated that, give it to your marketing department and ask them to convert it into a single page that an average user will understand.

We started off with ToU as it's the oldest form of tariff and the easiest one to understand. Now we've mastered that, it's time to buckle on the serious bondage gear and investigate block pricing.

Block Pricing

Block pricing starts out with a simple theory, which is that you pay more the more profligate your energy use is. That's the opposite of the general capitalist principle, which is that things get cheaper if you buy more – it's more akin to a tax regime where the tax rate rises with your earnings. The industry calls these rising or inclined blocks.

In a few cases block pricing works the other way around, with the initial usage being more expensive. These are termed declining blocks. Where they are used, it's generally because there is a standing charge which has been lumped into the price. Once this is paid off, then the costs per unit may decrease. And they can be combined, so that as you use more, it gets more expensive again. But they are the exception rather than the rule.

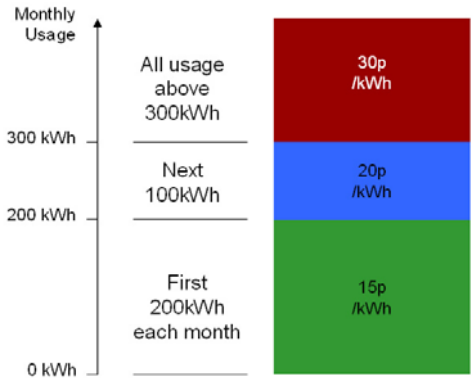

Figure 9. Basic Block Pricing

The basic principle is that the cost of energy is split into cumulative consumption bands across a set time, called the billing period. The billing period is typically a month or a quarter, but can be any time period the supplier decides on. Within that period, the first chunk of electricity you use is priced at a standard, cheap rate. When you've used that, the next chunk you use costs more, and so on as you consume more energy.

It seems a very egalitarian scheme, but it has a big drawback, which is that it's surprisingly difficult for a user to understand where they are with their usage within any billing period. As the figure below shows, the actual cost over the course of the month starts to accelerate away from the straight line usage which is what most users understand. The earlier in the month that you cross each charging boundary, the more frightening the ultimate bill will be.

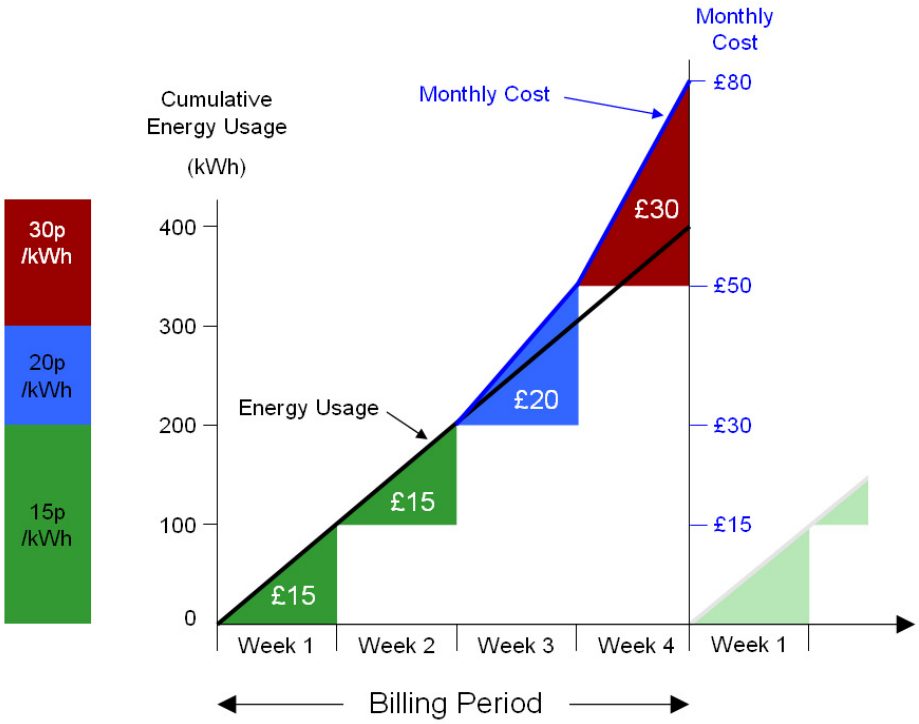

Figure 10. The effect of block pricing on bills

If you're a low consumption user, who never exceeds the amount available within the cheapest rate, then it's probably a good deal. The problem arises when you start to use more energy. Unless the energy supplier informs you when you are approaching and crossing each price boundary (and many of them don't), you have no idea what you bill is likely to look like until it arrives. As the arrival of the bill will be several weeks after you've used the electricity it's difficult for a user to relate it to what they've used, so there's no strong link to provide feedback between usage and cost to change their behaviour.

And even if users are informed that they're about to move into a more expensive band, what do they do? If they've still got a week left in the month, they can't go back in time to reduce their consumption. And they can't stop using energy, or go round to a neighbour to borrow some of theirs.

Time of Use and Block tariffs are not dissimilar to the tariffs that mobile phone operators used to charge. They learnt the lesson that users don't like them much and have simplified their charges with "as much as you can eat" tariffs. Although

many energy suppliers like to think of themselves as emulating their more dynamic mobile cousins, I'm still waiting to see my first such electricity tariff.

There is a misguided view by some parts of the industry that still likens block energy tariffs to mobile phone tariffs, ignoring the fact that they have very different impacts on consumer lifestyles. For many homes, energy consumption is not discretionary and has a family-wide impact. In contrast mobile phone use is far more discretionary and only impinges on a single individual. Understanding that difference is vital if you are attempting to use price to affect behaviour.

There's an interesting viewpoint on this in EPRI's workshop on pricing structures[10], where one speaker highlighted the fact that "in the telecom voice industry, consumers clearly demonstrated a strong preference for pricing that provides a high degree of cost certainty and low levels of complexity". The underlining is their emphasis, but I'd concur with that observation. Telcos have through this learning process and evolved their tariffs and business models as a result. EPRI's workshop failed to suggest how energy retailers might find a model which would suit both consumers and suppliers, but those two observations need to be remembered. They are just as true for energy as they are for mobile telephony.

Another recent study reinforces the problem in a slightly different way. The Shelton Group's annual survey of residential electricity consumers[11] asks how to motivate the apathetic consumer and has come up with the epithet of "Learned Helplessness". In other words, electricity customers know they're going to be screwed, so why bother? They point out that consumers no longer believe most of the money saving and energy consciousness messages that they're fed. The corollary is that any attempt by utilities to engage with their customers is therefore not starting with a clean sheet of paper. It will first have to undo the damage that has already been done. That makes it even more difficult to see how complex tariffs could work.

Complex Tariffs

That was the easy stuff. The advent of smart meters which include microprocessors capable of calculating usage every second has led the industry to start thinking about ways to combine ToU and Block tariffs to further micromanage the amount that consumers need to pay. It's resulted in an unholy alliance of utility consultants and meter manufacturers engaging in a tariffing arms race to enable complexity for complexity's sake, just because the technology allows it. Customer engagement and common sense have largely gone out of the window (other than in their PR and marketing), as they've concentrated on seeing just how much pain they can inflict on the consumer.

The result is a range of tariffs which split the day into Time of Use Bands, but then impose block rates within each of those bands. So at each point of the day you are crossing consumption block thresholds, which may change depending on the time of day.

There are two ways of charging people using this more complex approach, and for clarity I'll use the words in the specifications which define them. The first is:

> Consumption in the block period associated with all the price tiers specified in the pricing matrix is summed and the result compared to the thresholds to determine the active block and price.

As opposed to:

> Consumption in the block period associated with each price tier specified in the pricing matrix is compared separately to the thresholds to determine the active block in that price tier.

I hope that's clear.

As I suspect it's not, let's look at what those words really mean. We'll start with the first, as it's a little bit easier to understand and not so painful on the pocket.

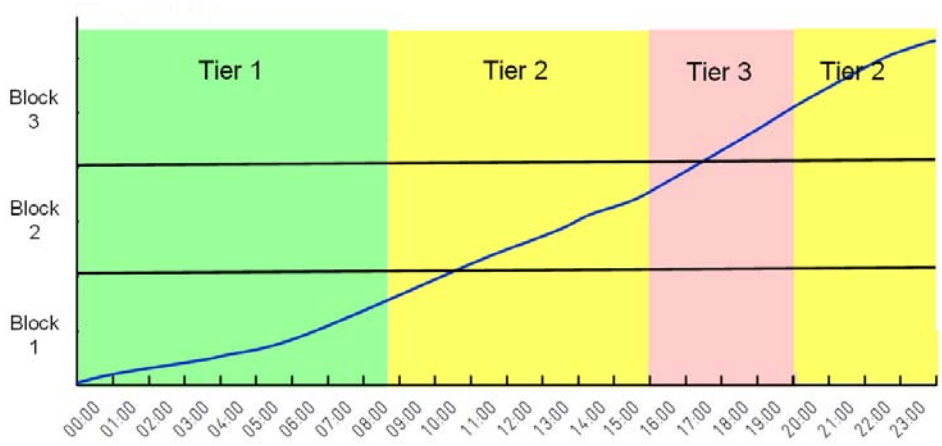

Figure 11. A "simple" complex tariff structure

The first thing that happens is that you not only define Time of Use bands or Tiers across the course of day, but also superimpose blocks across the top of them, as shown above in Figure 11. For the purpose of explaining how it works, I've made a couple of simplifications. The first is to show three different ToU tiers, represented by three different colours. In reality the 20:00 – 00:00 would be defined as a fourth ToU tier, but we'll come to that later. The second is that the block thresholds are the same across all of the ToU bands. In practice they won't be, but we'll also deal with that later.

The blue line shows the consumption across the day. It's exactly the same consumption per half hour as the UK average that we started with in Figure 2, but charted as a cumulative figure – essentially the same as your meter dial reading.

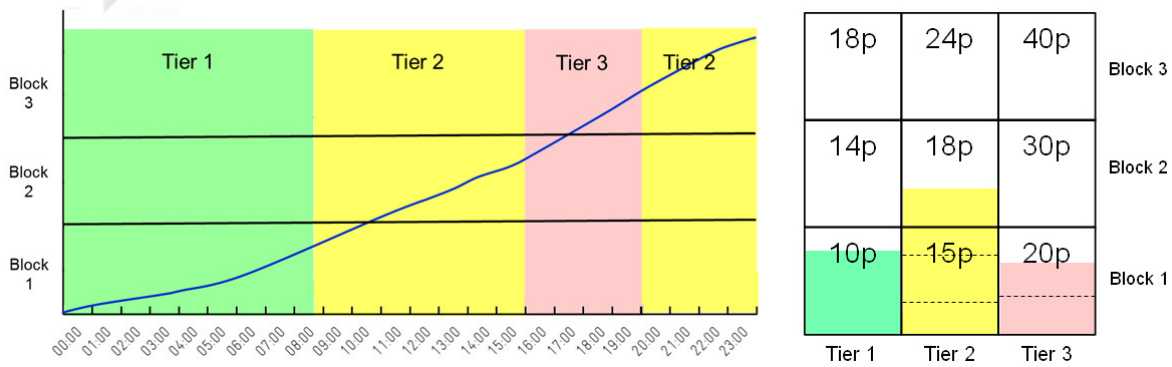

Figure 12. Price Matrix for cumulative use

At this point we introduce the concept of the price matrix, which defines a price per kWh of energy consumption for each block and each ToU period. That's shown in Figure 12. You start at the beginning of the day and count up the amount of energy consumed in each ToU period, filling up the appropriate Tier cells of the matrix. In this model you treat these tiers as if they're jugs, so you pour your usage into each one and watch it fill up. Each of these tiers has block thresholds with different, associated prices. Hence the amount you pay reflects both the time of day and the TOTAL level of consumption. To find out how much your bill is, you see how much is in each cell of the matrix, multiply it by the cell price and add all of these values together.

In the example above, the matrix is arranged to cover a single day. That's the easiest way to do it, but there's no reason why it can't cover a longer period – you'd just need to set the block thresholds to suit that longer period. The advantage of a matrix that is one day long is that you can more easily have different matrices with different pricings for weekends and public holidays. And a daily matrix makes it marginally easier for a customer to keep track of what's going on.

Now let's look at the second approach, where usage is entered into the cell corresponding to the block threshold:

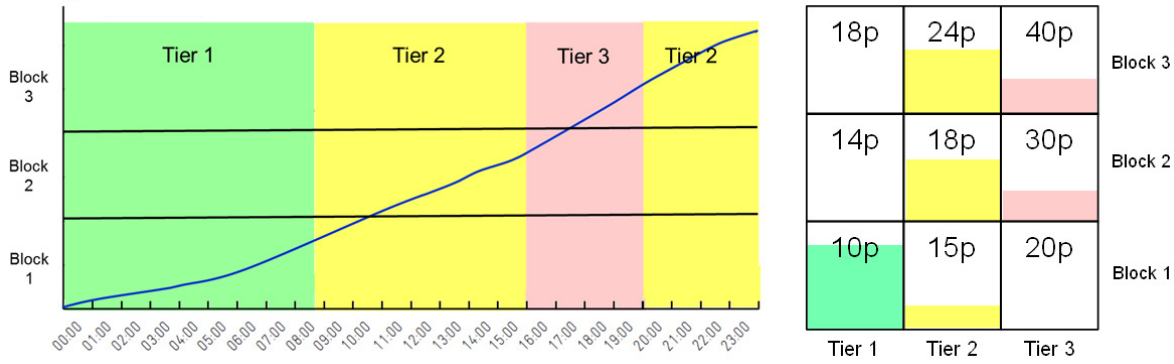

Figure 13. Price matrix for threshold based pricing

The difference is subtle, but potentially painful. Rather than filling up the tiers, so that you only pay the higher price when you've completely filled the preceding, cheaper block, you jump to the next threshold based on your cumulative consumption. If we compare the resulting matrices side by side, you'll see what effect that can have:

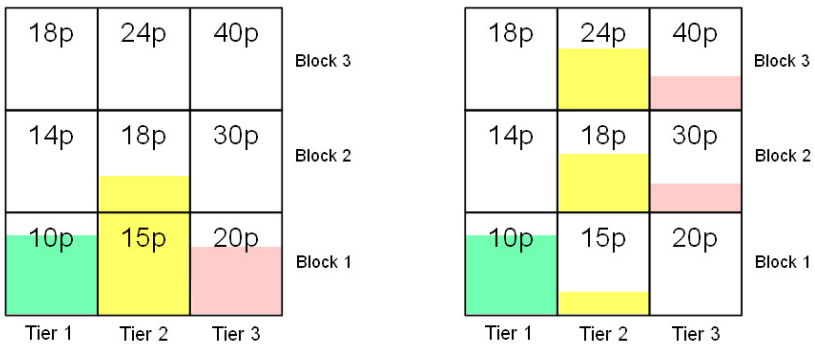

Figure 14. Comparison of pricing matrices

The second approach can lead to far more aggressive punishment as you move through the billing period. It's unlikely that the pricing per cell would be the same for both schemes, as regulators would want to ensure that the average bill for both is similar. However, I fail to see how most consumers would have any idea of their actual energy spend under either of these regimes.

Which brings me back to the simplification I skipped over at the start of this section. In practice, the 20:00 to 00:00 Tier would be a separate one – it would be Tier 4. In our example it was priced the same as Tier 2, but there is no reason why it needs to be. And the other complexity we missed out is that the block thresholds can be different within each ToU band, which means that the price matrix for our example in Figure 11 could look like this:

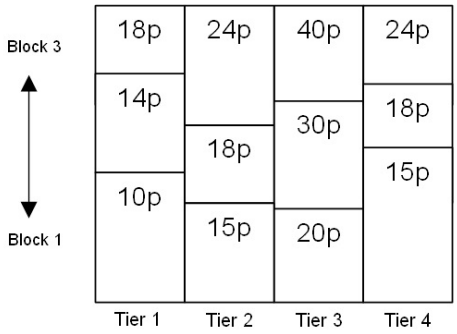

Figure 15. A representative 3 x 4 matrix

If you think that's going beyond the bounds of sense and consumer engagement, you've not seen anything yet. The UK Smart Metering Equipment Technical Specification (SMETS) requires every electricity meter and In Home Display to be capable of dealing with an 8x8 matrix, such as the one below.

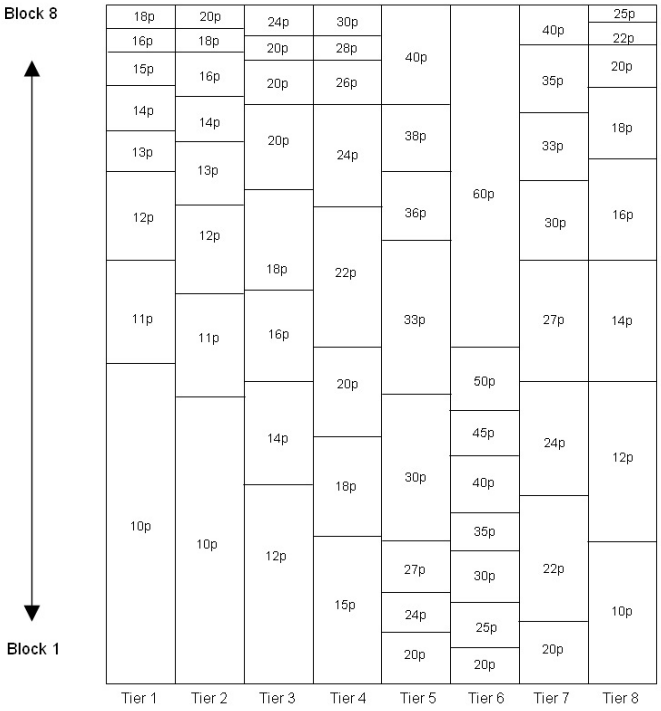

Figure 16. An example of the DECC mandated pricing matrix

There can be a different one of these matrices for every day of the year. As a consumer engagement strategy it's ridiculous. It is purely an exercise in technical specification writing.

Then there is the added complexity of standing changes and discounts, but let's end our review of the principles of tariff structure and move on to see what the industry is trying to achieve with them.

Changing Consumer Behaviour

When the UK Government was developing its smart metering strategy it found it challenging to justify the cost of fitting meters in around 30 million homes. To make the sums balance, it ascribed large savings to the consumer behaviour changes that would result from educating users. That education was predicated on providing every household with an In Home Energy Display which would help them to learn about energy usage and change their behaviour. If you look at the most recent Impact Assessment from DECC[12], it predicts that the deployment will cost around £11bn. DECC believe that the resulting savings will more than balance that expenditure. However, over half of the forecast savings accrue from behaviour change and the knock-on consequences:

Savings from consumer behaviour change	£4.4bn
Reduced site visits to read meters	£3.1bn
Reduced need for customer support	£1.2bn
Associated carbon savings	£1.2bn
Generation and Grid efficiency benefits	£0.7bn

Groups, such as Consumer Focus, have always argued that these savings will only be achieved if we succeed in educating customers about their energy behaviour. In contrast the utilities and meter vendors appear to have taken the opposing view and assumed that the only way to get change is by applying punitive tariffs. As a result, vast sums of money have been spent on developing ever more complex tariffing schemes (as discussed above), which DECC have mandated must be included in meters and displays. The complexity that has been specified not only increases the cost of meters and displays, but it potentially makes them less usable because of how much data they need to show. That in turn reduces the chance of any consumer engagement and behaviour change. Which puts most of these projected savings at risk.

There's little rationale for the amount of money and time that has gone into developing these complex tariffs and the technical specifications to accomplish and deploy them. Nor for the corresponding paucity of time and debate devoted to effective education and behavioural change. Despite that, this time and resource investment has been made, regardless of any evidence that complex tariffs work. The cost and extent of that work now hangs, like a sword of Damocles, over the whole program.

As we have seen above, ToU tariffs take the "I'm going to hit you now" approach. They at least let the consumer make a decision about turning something on. And

there is some evidence that works. If a display shows the change in tariff and the current cost of consumption there is an immediate feedback loop.

Block tariffs are more insidious in that they hit you at the end, after you've done something. It's the "you've been a bad boy, so now you'll get your punishment" approach. Whilst that may have advocates in some areas of human behaviour, psychologists would point out that it is the least effective method of behavioural change, as the feedback loop is too divorced from the point of action. Anyone who has trained an animal knows the effectiveness of immediate, positive reinforcement.

Fundamental to any behaviour change scheme is education of the customer, which means explaining the tariff – a point which seems to have been conveniently forgotten. Devices like the simple rate clock[13] trialled in Ireland aren't bad at doing that for basic ToU tariffs, as they show you what's coming, and they do it in a format that is already familiar to the customer. Energy suppliers can even give them away as fridge magnets – it's a cheap and effective way of engaging customers and showing them what's coming.

Fig 17. Simple Rate Clock

Surprisingly, the DECC mandate for displays doesn't require any information on a forthcoming tariff rate to be shown – it only mandates that the display shows the current price, which again shows a wide gulf between the concentration on complex technology for technology's sake and any understanding of customer engagement.

In fact, most aspects of consumer feedback have been forgotten or destroyed by obscuring layers of technical complexity. The display in the home has morphed from a simple device to help educate users, into what is essentially a piece of electronic test equipment, conveying so much information that it is unlikely to be used. That means that not only does the UK lose the projected savings for its smart meter deployment, it also wastes the cost of supplying each home with the display that was meant to be the means of achieving them. It's a double whammy of complexity that forgets the original purpose of the program.

OFGEM's Retail Market Review

There is a shred of hope on the horizon. In parallel to the industry's largely unquestioned rush towards complexity, OFGEM, the UK regulator, has been waging a campaign about the proliferation, complexity and obscurity of tariffs. Over the last year it has started to force utilities to simplify their tariff schemes, but with limited success. So it's about to apply a much bigger stick to enforce some discipline.

Despite the industry making public statement about simplifying tariffs, OFGEM points out that since 2008 the number of tariffs on offer has increased by 70% to around 400 tariffs in 2011, and that's just tariffs available on Internet switching sites. When specifically asked in September 2012, the suppliers admitted that there were actually around 900 tariffs in the market, which comes as a bit of a surprise, considering their numerous public statements about simplifying their tariffs.

Frustrated by this lack of progress, OFGEM is now proposing that it takes a tougher stance on tariffs, not only limiting the number that a utility can offer, but also their complexity. This is outlined in their consultation document - the Retail Market Review[14]. It appears to be the first attempt to restore some sanity into the GB Smart Metering plans.

The consultation draws on a large portfolio of research to restate the basic fact that time and again consumers confirm that they are confused by the large number of complex tariffs, which both deter them from engaging in the market and make it harder for them to choose when they do. To address this, OFGEM is proposing that a cap be placed on the total number of tariffs, and that new rules are introduced to make them simpler. They propose that each supplier is allowed to offer to any customer at any time only four tariffs per fuel. Their simplification rules include the requirement that:

- all tariffs are to have a simple two part structure (no multi-tier tariffs - Time of use tariffs will be permitted as long as there is only one unit rate applicable for any particular time period.)

In other words, they want to scrap most of what the industry is proposing to do.

Semiotics and language experts commissioned by OFGEM also concluded that a lack of standardised language across the energy industry is further compounding the belief among consumers that the energy market is confusing. Their report states that in general terms communications from suppliers are not consumer-friendly, and consumers cannot be relied upon to know the meaning of kWh, unit rate, standing charge, or any other energy-related terminology that is not part of their day-to-day vocabulary. This echoes findings from independent qualitative research, in which many respondents were unsure, or only had a limited understanding of how their energy bills were made up.

Consumers have consistently told OFGEM they want fewer tariffs and less complex offerings. It looks as if that voice is finally being heard. This consultation could not be better timed. The UK program is gathering momentum, but in the wrong direction and it needs to be challenged. The rush for tariffs dates back to British Gas' original technical specification for smart metering[15] in March 2010. But that was born out of an earlier age, where doorstep misselling was rife and complex tariffs offered the prospect of personalised tariffs which could be deployed to missell even more effectively. That is now all illegal, yet we have built a tower of Babel on those faulty foundations.

I believe that the possibility exists to engage customers and differentiate a service by using tariffs intelligently, but the industry needs to start from a different place if it is going to get there. That requires a conversation about consumer engagement which involves consumers, OFGEM and the consumer focus lobby, not an approach based on technology developed for its own sake by geeks in dark rooms.

Please read the OFGEM consultation and let them have your comments. If tariffing is to help as part of an energy policy it needs far more thought than it is getting at the moment. There is probably no better comment on the current approach than that of Microsoft's spell checker, which suggests that tariffing should be replaced by terrifying.

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