PROGRESS WITH ENERGY MARKETS IN EUROPE

A critical appraisal of the European Commission Communication 'Making the internal energy market work' (2012) 367 final.

Professor Steve Thomas
PSIRU, University of Greenwich

May 2013

EPSU
FSESP
EGÖD

PUBLIC UTILITIES

Contents

EPSU FSESP EGÖD

Preface

Such is the dogma that the EU needs an internal market for electricity and gas, that it is extremely difficult to find critical appraisals of its impact and how to go forward. Almost every European Council and Council of Ministers meeting, as well as positions of BusinessEurope and the conservative dominated European Parliament on energy, on the internal market and on the European economy repeat that we have to complete the internal market for electricity and gas. All this would help the EU to improve its competitiveness.

This has become a mantra and my experience is that without exception all Ministers I have met to discuss the problematic nature of the internal market have a Pavlovian reaction with the words competition, consumer benefits, employment creation dripping like saliva from their mouths.

We asked Steve Thomas, Professor of Energy policy at the University of Greenwich to consider the state of affairs and have a critical look at the recent Communication of the Commission on the internal market also considering the experience of the first "open" markets: the UK. Professor Thomas has done work for EPSU in the past and pointed at fundamental flaws in the conception of the internal amrket which would hound the EU's energy policy.

Over 15 years have passed since the European Union embarked on the creation of an internal market for electricity and gas. The assumption was that this would provide positive benefits for Europe's citizens leading to lower prices and provide more security of supply as companies would be able to buy electricity and gas in other countries. The opening of the EU electricity and gas markets is built on the belief that markets will provide adequate signals to investors and electricity and gas companies to build new capacity and infrastructure if required.

EPSU has always questioned these assumptions. We consider that the provision of gas and especially of electricity is a public good. Modern European society cannot do without electricity. It would grind to a halt immediately with serious consequences for the economy, human welfare and personal security. Leaving the provision to markets is therefore a dangerous experiment certainly considering that the build up of our prospering economies until 2000 have benefitted from public investment in public infrastructure and what were predominantely publicly owned companies.

Professor Thomas' study reveals how shaky the project of the internal market is, remaining an experiment which now hinders the development of policies that do really protect the user and ensure investment in those technologies people now want to address climate change. We hope the study assists in critical reflection. The utter failure of the deregulated banking sector which threw the EU and US in an economic and financial crisis, and which was addressed with another failed policy of austerity that sinks many countries of the EU in a deepening social crisis with record levels of unemployment, ultimately calls for critical thinking and addressing fundamental issues. There are alternatives to the extreme corporate and free market orientated appraoches.

Jan Willem Goudriaan
EPSU Deputy General Secretary

1. Introduction

It is 15 years since the European Commission's electricity liberalisation Directive came into force quickly followed by a similar gas Directive. At the heart of the policy was a belief that the monopoly electricity and gas industries could be transformed into competitive industries with significant benefits to consumers. This paper examines the European Commission's review published November 2012 of progress towards competitive energy markets.[1] It examines four aspects of the markets:

- Wholesale energy markets;
- Retail energy markets;
- Corporate structure;
- Impact of smart meters on competition.

It concludes by reviewing the Commission's recommendations for action to improve the situation. It also reviews the changes proposed to UK energy markets in the government's Energy Bill also published in November 2012. The UK privatisation of gas in 1986 and electricity in 1990 formed the model for the Commission's Energy Directives and any changes to the UK model brought about by perceived failings of the original model are of relevance to the EU. We mostly focus on electricity in this paper although the arguments concerning gas are usually similar.

Much of the Commission's efforts have been directed at 'unbundling' the networks: high-pressure gas transmission, high voltage electricity transmission, low pressure gas distribution and low-voltage electricity distribution. These will remain regulated monopolies for the foreseeable future and as a condition for competition; access to these networks should be available to all competing companies, producers and consumers, on equal non-discriminatory terms. There has been considerable debate about how far the owners of the network should be distanced from the competing companies. The Commission has moved progressively towards full ownership unbundling or at least legal unbundling. In the former case, the networks should not be owned by a company with any connection to companies competing in the energy markets, while in the latter, they must be owned by a legally separate company. Whilst third party access might be a necessary condition for competition, it is far from being sufficient. The UK has met all the conditions for unbundling network companies but, as described below, this has been far from sufficient to ensure efficient markets. Unbundling only might make sense if there is a proposal to introduce wholesale and retail energy markets. It is therefore no more than an enabling reform and is not discussed further in this paper.

1.1 Wholesale energy markets

The creation of competitive wholesale electricity markets is at the heart of the liberalisation policy. If an efficient wholesale market is not created, the other measures – notably retail competition and unbundling – make no sense. An efficient wholesale electricity market will

[1] European Commission (2012) 'Making the internal energy market work' Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions' SWD(2012) 367 final.
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52012DC0663:EN:NOT

set the wholesale electricity price at a level that reflects costs. This can be either through direct use of the market to buy and sell power or via contracts indexed to the spot price. An efficient market will provide low barriers to entry for new entrant generators and retailers who will be confident they can buy their power needs or sell their output at a fair price. This will put them on a level playing field with their competitors. To ensure barriers to entry are low, the proportion of power being sold via contracts should not dominate and these contracts should be relatively short-term, not life of plant contracts. In the longer term, the price signals should provide investment signals. If the power market becomes 'tight', prices should rise giving an incentive for new investment to take advantage of these high prices. Equally, if there are new technologies or options that are cheaper than existing options, a 'liquid' wholesale market will encourage investment in these options and inefficient options will be forced out of the market.

1.2 Retail energy markets

The rationale for retail competition is that consumers have the option to switch to another supplier if their existing supplier is not competitive or does not offer a good service forcing suppliers to be efficient and offer good service. In terms of service, all that is required of a retail energy supplier is that it obtains a meter reading and sends out a bill efficiently. This would appear to be a very simple requirement and if companies are not capable of meeting that, it is questionable whether they should be licensed to operate. Given that electricity is an entirely standard product and the service requirement is so basic, consumers should logically be choosing purely on price. In a well-functioning market, the possibility that consumers can switch (a so-called 'contestable' market) should be sufficient to ensure that all companies match the lowest price on offer, because if they do not, they will lose their consumers.

1.3 Corporate structure

Without a competitive field of companies, neither of the markets outlined above can be expected to operate. Under normal measures of market competitiveness, such as the Hirschmann-Herfindahl index, this means any market must have at least six companies with a significant market share. In addition, integration of generation and retail supply should not dominate. If generators sell their output to their retail arms without using the market, this will damage the liquidity of the market and raise barriers to entry. From the point of view of the companies, such integration is desirable because it minimises the market price and volume risk. Without regulatory intervention to prevent integration of generation of generation and retail, and to break up already integrated companies, the market would quickly become integrated and a competitive wholesale electricity market would be impossible.

1.4 Smart meters

Under European Union legislation, member states are required to have installed smart electricity meters with 80 per cent of consumers by 2020. The installation of smart gas meters is also encouraged although there are no specific requirements for installation set. The rationale for smart electricity meters is that because electricity cannot effectively be stored and supply and demand must exactly match all the time, it is very expensive to meet peak demands. A power station might be required for no more than a few hours per year to ensure demand can be met and for daily peaks, power stations must be available hot and

ready to generate at seconds' notice to meet daily peaks, again at high cost. If consumers are exposed to these high costs, it is assumed they will reduce their consumption at peak times and reduce these high costs of meeting peaks. For the future, as electricity systems become more dependent on intermittent sources such as solar and wind, intuitively, it would seem the benefits of being able to make demand more flexible would be greater. Given that gas can be stored and that allowing the pressure in the mains to fluctuate a little to accommodate peaks, it would seem the case for smart meters for gas is not so strong.

2. Experience with wholesale electricity markets

The model of a liquid wholesale electricity market is intuitively attractive. As described above, it would be: the arena to set wholesale prices; provide investment signals; ensure new entrant generators and retail suppliers have an arena where they can be confident that they can buy or sell energy at similar prices and conditions to their competitors (low entry barriers). In practice, this ideal has never been achieved and in most cases, the national wholesale markets are far from meeting this requirement despite, in some cases, more than 20 years of experience with these markets.

The set of requirements noted above might be reasonable for many products and commodities but there are a number of factors that raise doubts about whether the ideal of a 'liquid' wholesale electricity market is achievable. These include:

- The need for supply and demand to balance at all times. A key element of other commodity markets is the availability of storage, which allows buyers and sellers a hedge against volatility in the market so if the price collapses sellers can store their product until the price rises and if the price escalates, buyers can use their stocks to smooth prices;
- Electricity is a vital purchase with no ready substitutes. This means that if there is a potential shortage, the price will sky-rocket because consumers cannot easily change their demand and because there are no ready substitutes;
- Price volatility. Because demand can vary by a factor of two or more during the day, costs will also be highly variable during the same day with the most expensive power plants on the system being required for peak times. Their cost per kWh could be several times that of the cheapest plants. There will also be large seasonal variation.
- The long investment cycle. For a typical power plant, the lead time from start of planning to entry into service could be a decade or more. It is not realistic to expect price signals to emerge a decade before the capacity is needed;
- Capital intensity. Power plants are one of the most capital intensive technologies, typically costing €1500-7000/MW of installed capacity so that a typical large power plant would cost in billions of Euro. If such investments are to financeable, it does not seem realistic to expect financiers to provide finance for a project for which the price and volume of sales will be determined by an unpredictable and volatile market;
- Standard product. Because electricity is an entirely standard product, producers cannot reduce their exposure to markets by product differentiation, e.g., offering a better quality product that consumers will be willing to pay a premium price for.

There appears to be no acknowledgement within the Commission that the problems encountered so far might not be soluble with better market design and further efforts integrate national energy markets. Until the Commission acknowledges the serious issues noted above, it will not be able to specify electricity supply systems that provide the affordability, reliability and environmental performance that consumers want. There is no evidence consumers want competition just for the sake of competition, they want competition only if it will be the most efficient way of meeting goals of affordability, reliability and cleanliness.

For the future, as the requirements to reduce greenhouse gas emissions come to dominate technology choices, it will, as argued below, be increasingly difficult to achieve an 'efficient' free-market wholesale market of the type envisaged by the Commission. There are two main issues: first in the short- to medium-term, there appears to be little prospect that low–Carbon power sources, notably renewables, but possibly nuclear power will be the lowest cost in terms of kWh generated; and second, most low-Carbon power sources have low or negligible running costs which will be hard to reconcile with a market that pays only for kWh generated.

2.1 New plant orders

If utilities are unable to choose the lowest cost option in a market, there will have to be mechanisms to encourage or force them to choose low-Carbon options. These include; 'Feed-in Tariffs' (FiTs), e.g. in Germany, that guarantee that all output produced will be purchased under long-term contracts at a predictable and guaranteed price independent of any market price; Renewables Obligations, e.g. in the UK, under which electricity retailers are required to source a given percentage, increasing over time, of their output from low-Carbon sources; capacity auctions, e.g. in UK from 1990-96, under which a given amount of capacity is auctioned to the lowest bidder and successful bidders are given a long-term contract at non-market prices.

The Commission introduced a market for 'Carbon', the European Union Emissions Trading Scheme (EU ETS) in 2005. Under this, the total amount of Carbon emissions would be capped. Emitters would be given an allocation of the amount of Carbon they were allowed to emit. If they emitted less, they could sell their unused allowance to those who emitted more. In theory, the Carbon price should reflect the additional cost of generating using low-Carbon sources compared to fossil fuel sources and should provide market incentives to reduce the cost of low-Carbon sources.[2] This should mean that generation companies would be able to choose low-Carbon sources with no financial penalty,

In practice, the Carbon price has never reflected this cost difference and by the start of 2013 had fallen to about €5/tonne of Carbon emitted, a small fraction of the actual additional cost. There is little expectation that the Carbon market will begin to function as it should. Reflecting this lack of confidence, in 2001 the UK government announced it would place a 'floor' on the carbon price starting in 2013 at £16/tonne rising in 2020 to £30/tonne (in 2011 prices).[3] In practice, a Climate Change Levy (CCL) has been created which is a tax on the use of fossil fuels and this will pay the difference between the market price and the

[2] https://www.gov.uk/participating-in-the-eu-ets
[3] www.parliament.uk/briefing-papers/sn05927.pdf

government's carbon floor. Whether this will, as the UK government claims, give more certainty to investments on low-carbon technology remains to be seen but it is clearly a 'second-best' solution to a properly functioning market.

FiTs and capacity auctions are clearly 'state aid' and if, as seems likely, they do distort markets, they would in normal circumstances be illegal under EU legislation. However, renewable technologies are categorised as 'infant industries' and state aid is allowed in this case. In 2013, the EU rules on state for energy are being reviewed.[4] There is a strong lobby for the nuclear industry to be categorised as an 'infant industry' and therefore eligible for state aid.[5]

2.2 Market prices

Another issue with market prices is that in all markets, except when capacity is tight, the marginal bidders will be forced down to their marginal prices. For example, with a fossil fuel plant, the marginal cost will largely be the cost of buying fuel. It makes sense to bid down to this level because as long as the income more than covers the marginal cost, it will be economically more advantageous than not bidding. Fixed costs, such as repaying the construction cost will not be fully covered. However, in a fossil fuel dominated system, there will be a range of costs depending on the specific cost of the fuel the plant has to buy and the plant efficiency. So, while many of the plants might not always cover their costs fully, at other times, they will be recovering more than their full costs and, overall, the plant might be profitable enough to justify its continued existence. The least cost-effective plants will be forced out of business but that is a key element of how markets are meant to operate.

However, low-carbon options generally have relatively low marginal costs (nuclear power), or negligible marginal costs (wind, solar, hydro-electric). As such sources make up an increasing proportion of the market at times of relatively low demand, the market price will be driven to very low levels. This leads to the paradox that introducing relatively high price low-carbon sources will tend to collapse the kWh market price and this has already been seen in Germany. Maintaining fossil fuel plants on the system – these will be needed to provide the flexible capacity needed to meet peaks and troughs in demand at least until more efficient methods of storing power are available – will be very difficult because for most of the year, the prices they receive will be far below full cost. Renewables will also tend to be unprofitable. This has led to a perceived need for 'capacity payments'. These will cover the fixed costs of generation plants leaving the kWh market to cover marginal costs. It is hoped this will ensure that sufficient plant to ensure peak demands are met reliably will be profitable enough to ensure they remain on line. There is increasing debate on capacity markets but little consensus yet on what the form of capacity markets would be appropriate.[6]

[4] http://www.out-law.com/en/articles/2012/february/european-commission-to-propose-changes-to-state-aid-rules-by-summer/

[5] Nucleonics Week 'EDF Energy nuclear loan guarantee would set key EU precedent' February 14, 2013, p 1

[6] See for example, U Leprich & K Grashof (2013) 'Green paper on the further development of the European internal electricity market with renewable energy sources as the cornerstones of the future system' Saarbrucken; Agora Energiewende (2013) '12 insights on Germany's Energiewende' Agora Energiewende, Berlin; ACER (2013) ' Opinion of the Agency for the Cooperation of energy regulators on capacity markets' ACER

2.3 UK Electricity Market Reform

In February 2010, the British energy regulator, OFGEM and the Energy Minister both announced independently that the UK wholesale electricity market was not working and without substantial reform would not allow the UK's targets on greenhouse gas emissions reductions to be met and might jeopardise security of supply.

The British Energy Minister, Ed Miliband (in Gordon Brown's Labour government) told the Times[7]: 'The Neta system [the British wholesale market], in which electricity is traded via contracts between buyers and sellers or power exchanges, does not give sufficient guarantees to developers of wind turbines and nuclear plants. He said that one alternative would be a return to ''capacity payments'' in which power station operators would be paid for the electricity they generate and also for capacity made available. The idea of such payments is to give greater certainty to investors in renewable and nuclear energy.' A day later, OFGEM stated[8]: 'The unprecedented combination of the global financial crisis, tough environmental targets, increasing gas import dependency and the closure of ageing power stations has combined to cast reasonable doubt over whether the current energy arrangements will deliver secure and sustainable energy supplies.' And 'There is an increasing consensus that leaving the present system of market arrangements and other incentives unchanged is not an option.'

These statements led to a policy review process, carried on by the succeeding Coalition government known as Electricity Market Reform (EMR)[9] that culminated in the publication in November 2012 of a new energy law, the Energy Bill[10], which, in April 2013, was being reviewed in Parliament.

The main provisions of this bill were that new low-carbon generation plant would be given long-term power purchase agreements that guaranteed the volume and price of sales at non-market prices via so-called Contracts for Differences (CfD).[11] As low carbon sources came to dominate the market, the market left for fossil fuels would wither away and it is likely the prices would be so unreliable that new fossil fuel plants would also need to be given the protection of CfDs. Contracts would be signed by a government body known as the 'counterparty body' that is not expected to be set up before the next UK general election in 2015. This counterparty body would essentially be a 'single buyer', as envisaged in the first Electricity Directive of 1996 (EC/96/92) which defined a Single Buyer as [emphasis added]: '[The single buyer] is responsible for the unified management of the transmission system **and/or for centralised electricity purchasing and selling**.' The Single Buyer option was withdrawn when the Directive was revised in 2003 under 2003/EC/54 and is no longer an option.

[7] The Times (2010) 'Labour prepares to tear up 12 years of energy policy' February 1, 2010
[8] Ofgem, 2010. Action needed to ensure Britain's energy supplies remain secure. Press release, February 2010.
[9] https://www.gov.uk/government/policies/maintaining-uk-energy-security--2/supporting-pages/electricity-market-reform
[10] http://services.parliament.uk/bills/2012-13/energy.html
[11] Under these contracts, power would be bought and sold initially at market prices but the difference between the market price and the contract price would be settled bilaterally. So, if the contract price was above the market price, the generator would receive the market price from the market and the difference between the market and the contract price would be settled by the buyer paying the seller the 'difference'.

The Energy Bill also contains provisions for the introduction of capacity markets but no details of the form of the markets had been specified by April 2013.

The logical conclusion of the EMR proposals would be that all or virtually all wholesale power purchases would be made by a central agency, effectively a single buyer, which would in turn sell the power on to retail suppliers at identical costs. At present the basis for retail companies to compete on price is weak because the components of the final price are either regulated prices or prices set in the wholesale commodity market which should, if the market is efficient, be very similar to all participants (see below). The suppliers' own costs represent too small a proportion of the bill to give much scope for price differentiation. If there is much scope for a wide range of prices between suppliers, it can only be because of imperfections in the market. If the wholesale market withers away and is replaced by a central purchasing authority, the basis for competition will disappear almost entirely and the costs of competition – marketing, switching costs, etc. – will far outweigh an conceivable benefits from competition.

It seems unlikely that EMR and the Energy Bill being discussed in the UK Parliament in spring 2013 would be compatible with the Third Energy Package Directives. Most of the focus at that time was on whether the nuclear CfDs being negotiated at that time between EDF and the British government contravened EU State Aid legislation. However, the measures incorporated in the Energy Bill appear to be in contravention of the Package on a much large range of issues than this, for example, the creation of a Single Buyer. Commissioner Oettinger was reported as characterising the UK's plans for nuclear CfDs as 'Soviet'.[12]

2.4 The European Commission position[13]

The European Commission's position on wholesale markets seems to have changed very little from the original Directive of 1996 and still reflects a very strong belief in the efficacy of a free-market philosophy for the electricity wholesale market.

The belief that investment should be driven by price signals from the wholesale market is reiterated (p 3) 'In a well-functioning energy market, ideally addressing costs of externalities, investments in generation should be driven by market considerations rather than subsidies.' And (p 13) 'In short, properly functioning long-term and short-term wholesale markets (in particular, day-ahead, intraday, balancing and ancillary services markets), which reflect the economic value of power at each point in time in each area can steer investments to where they are most efficient.'

The creation of a Single Buyer in the UK seems to be discouraged (p 12): 'Public intervention that discourages private investments and undermines the internal market must be avoided.'

Continued belief that the EU ETS can be made to work effectively is stated (p 13): 'From 2013 on, also the carbon market design is fully 'europeanised', thus enabling the internal energy market to facilitate the transition towards sustainable, low carbon and efficient energy

[12] Guardian 'UK nuclear power plans are 'Soviet', says EU energy commissioner' May 1, 2013

[13] All references in this section are from European Commission (2012) 'Making the internal energy market work' Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions' SWD(2012) 367 final. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52012DC0663:EN:NOT

systems by rewarding low-carbon investments [including Carbon Capture and Storage] and low-carbon fuels over carbon-intensive ones.'

On security of supply, the Commission is ambiguous. It states (p 5): 'The increased liquidity of wholesale markets has also enhanced security of supply in the EU.' And it acknowledges that in a free market, security of supply cannot be the responsibility of one party (p 12): 'With the development of a competitive market with multiple producers and unbundled network operators, no single entity can on its own ensure the reliability of the electricity system.' But it seeks to place the responsibility for security of supply on member states and increasingly on cooperation between member states (p): 'Security of supply requires coordination among Member States that can deliver short-term crisis response and long-term solutions to security of supply challenges. As our energy systems become more integrated, we shall need more coordination and cooperation across borders to identify and address risks, and to ensure proper crisis response.'

The apparent failings of the existing markets are blamed on poor implementation (p 2-3): 'Not only are Member States slow in adjusting their national legislation and creating fully competitive markets with consumers' involvement, they also need to move away from, and resist the calls for, inward-looking or nationally inspired policies. These tendencies are preventing the internal market from working effectively.'

On capacity markets, while the Commission does not state outright opposition, it clearly has strong reservations (p 15): 'However, the Commission is of the view that if capacity mechanisms are not well designed and/or are introduced prematurely or without proper co-ordination at EU level, they risk being counterproductive. Capacity mechanisms distort the EU-wide price signal and are also likely to favour fossil fuel generation sources over more variable renewable sources (beyond levels necessary for maintaining power systems in balance) and may therefore run counter to EU decarbonisation and resource efficiency objectives.' And (p 15) 'Far from ensuring generation adequacy or security of supply, poorly designed capacity mechanisms will tend to distort investment signals.'

3. Experience with retail electricity markets

The case for retail markets is, despite the rhetoric of the Commission, more symbolic than substantial. If the wholesale market is operating efficiently there should be very little for suppliers to compete over. The wholesale electricity price is the largest element of a bill and in a well-functioning market, this price will be the same for all buyers. The other large elements of the total electricity price are the network charges. These are standard charges that will be the same for all companies. Suppliers should therefore be able to compete only on their own costs – metering billing etc. – which represent only a few per cent of the cost of electricity and cannot provide scope for competition.

The Commission makes much of the 'switching rate', in other words, the percentage of consumers that have changed supplier. The Commission states (p 9): 'To make the most of the benefits the internal market brings, consumers, including individual citizens and small businesses, must be enabled, and feel incentivised, to play an active role in the market.' In a properly functioning market, suppliers would have to match the lowest prices on offer

otherwise they will lose their market. So, in theory, if the market is functioning well, consumers should not have to switch to get the best deal, their existing supplier will feel obliged to match the best offer

In most markets in Europe, switching rates for small consumers are low. The Commission states (p 6): 'Estimates indicate that already today EU consumers could save up to €13 billion per year if they switched to the cheapest electricity tariff available. This potential is currently largely untapped as many people are still not fully aware or able to make full use of the opportunities created by the market. It blames (p 9): 'inefficient consumer protection or lack of transparency or consumer-friendly information, which all engender low consumer satisfaction and trust.'

It suggests that regulators should encourage (p 10): 'attractive services and tailor-made and dynamic pricing schemes.' And: 'In competitive markets, consumers are offered a diversified choice as suppliers endeavour to cater to consumers' diverse needs and preferences. Some suppliers target price-conscious customers by competing on cost while others base their offer on high service quality or added value and ancillary services, or even bundle energy services with other services (e.g. telecoms).' It appears to commend the UK as one of the examples other countries should emulate (p 3): 'An insight in what can be gained from changing suppliers has led to high switching rates in a number of Member States, from Sweden to the UK, to Ireland, Belgium or the Czech Republic.

3.1 Experience in the UK

This appears to be a serious misrepresentation of the situation in the UK. Switching rates in the UK have consistently been the highest in the EU but there is little evidence they benefit consumers. Research in the UK found that in a representative sample, only 26-39 per cent of consumers who switched with the primary purpose of saving money actually saved as much as they could have done and a significant proportion actually switched to a worse deal.[14]

This is only part of the problem. This research analysed the quality of consumers' decisions on the day they switched. However, unless the consumer is prepared to switch whenever the prices of any of the competing companies change, any gains could be short-lived if the company the consumer puts up its prices, as frequently happens.

There is also a misunderstanding of how competitive the UK market is in terms of market shares. The British market is widely known as being dminated by the 'big six' companies[15] all of whom have reasonably comparable makret shares of the residential market in Britain. Whilst having only six companies is not ideal from a competition point of view, it is apparently a far more competitive situation than in most other European countries. However, the reality is the market is composed of 14 duopolies corresponding to the 14 monopoly regions Britain was divided up into before liberalisation. Five of the big six have built their retail market share by taking over two or more of the regional retail companies. The sixth company, Centrica is the former national gas monopoly company that has diversified into electricity and has a market share of about 25 per cent of the residential electricity market nationally. In each region, the company owning the former incumbent has

[14] C Wilson & C Price (2006) 'Do Consumers Switch to the Best Supplier?' University of East Anglia. http://else.econ.ucl.ac.uk/conferences/consumer-behaviour/wilson.pdf

[15] EDF, RWE, Eon, Iberdrola, SSE and Centrica

about 64-85 per cent of the market with nearly all of the rest of the market taken by Centrica, the other four companies having a negligible market share.[16] For gas, Centrica still has about 60 per cent of the market nationally. The rest of the market is held largely by the encumbent electricity company in that region through a 'dual fuel' offer.

There is substantial disillusionment with the process of switching in the UK. The annual rate of switching is declining falling from 20 per cent in 2008 to 15 per cent in 2011.[17] In April 2013, OFGEM imposed the largest fine yet, £10.5m, on an energy company, Scottish & Southern Energy (SSE) for misseling to residential consumers. OFGEM found: 'SSE failures at every stage of the sales process. SSE management failures led to prolonged and extensive misspelling.'[18] It seems that despite 15 years' experience of retail competition for electricity and gas for residential consumers, the problems of poor selling practices still persist in the UK.

The extent of public dissatisfaction with retail competition led the government to attempt to impose restrictions and requirements on electricity retailers. These include a proposal to require companies to switch consumers to the cheapest deal on offer. In October 2012, the Daily Telegraph reported[19]: 'Speaking in the House of Commons, the Prime Minister said: "I can announce that we will be legislating so that energy companies have to give the lowest tariff to their customers." His official spokesman later said the new laws are needed as energy companies have failed to reform in the 12 months since the Prime Minister ordered them to clean up their "bewildering array" of tariffs. "We have asked energy companies to take action themselves and make clear what the lowest available deals are," the spokesman said. "The point is, in practice this market is not operating for everyone. A small minority of people are actually switching deals, therefore we need to push some of this responsibility on to the energy companies."

In practice, these ambitions proved unrealistic. Asking companies to switch their consumers to other companies is not a plausible option so the impact can only be to switch consumers to a different tariff within the same company. However, most tariffs are differentiated by the payment method and, for example, consumers choosing pre-payment meters, known to be by far the most expensive tariff compared to direct debit tariffs, do so because of the budgetary control pre-payment gives them so switching them to direct debit (assuming they have a bank account capable of supporting a direct debit) would not be welcomed by the consumer. One concrete result was to require companies to simplify and standardise their tariffs so that companies could offer no more than four tariffs.[20]

It appears therefore that the UK is far from being the 'poster child' for retail energy competition the Commission holds it up to be. What the Commission sees as innovative and dynamic pricing schemes are seen in the UK as ways for the energy companies to present their prices in a confusing way that makes it very difficult for consumers to compare prices.

[16] Independent on Sunday 'IoS investigation: The great British energy rip-off; Three decades after privatisation, monopoly power is still king' October 21, 2012
[17] http://www.consumerfocus.org.uk/publications/switched-on-consumer-experiences-of-energy-switching
[18] http://www.ofgem.gov.uk/Media/PressRel/Documents1/SSE%20Press%20Release.pdf
[19] Daily Telegraph 'Millions to see energy bills fall after David Cameron promises tariff reform' October 18, 2012.
[20] Mail Online 'Energy bills to tell customers if they can get a better deal - but households must still switch if they want to pay the lowest price' February 21, 2013.

3.2 Regulated tariffs

In other countries, regulated tariffs have been retained especially for residential consumers, a position that the Commission is highly critical of, and in some cases, the Commission is taking enforcement action against such countries. It states (p 10-11): 'Member States should seek to cease regulating electricity and gas prices for all consumers, including households and SMEs, taking into account universal service obligation and effective protection of vulnerable customers.' And 'The Commission will continue to insist on phase-out timetables for regulated prices being part of Member States' structural reforms.'

It states (p 10): 'However, at present, price regulation in many Member States prevents suppliers from offering attractive services and tailor-made and dynamic pricing schemes.' And 'Even if regulated prices allow the cost of operations to be covered, they do not send the right price signals needed to secure efficient investment.' There appears to be inconsistency here. If consumers were as keen to be given choice of energy supplier as the Commission often implies and competitively set prices were more attractive than regulated prices that allowed cost recovery, the regulated prices would quickly wither away as consumers opted for more attractive competitively set prices. It is also inconsistent to advocate choice for consumers but to deny consumers the option of choosing a regulated tariff.

3.3 Taxation

The Commission is ambiguous about taxation on energy. It states (p 4): 'However, the energy bill paid by consumers consists of more than just its energy component, which makes this price effect less visible. Transmission and distribution networks charges make up a substantial part of the total bill, as do taxes and levies. These charges, taxes and levies are not always spread evenly over all customer groups, burdening household consumer bills in particular. They are all determined at Member States level and subject to national policies. In some Member States taxes and levies constitute around 50% of final energy bill. In the EU-15, taxes in the final bill for domestic customers increased on average from 22% in 1998 to 28% in 2010.' The implication is that taxes should be reduced apparently on the basis that it would make it easier to impose competition on the sector. Consideration of the level, distribution and targeting of taxation is a far broader topic than what factors make imposing competition easiest. If member states choose to raise their taxes from energy consumption and particularly small consumers, perhaps to encourage energy efficiency whilst still ensuring their industry is competitive, this is a perfectly logical choice that Member States should be free to make.

4. Corporate structure

The Commission is highly critical of countries that have not taken active steps to open up their markets. It states (p 3): 'In eight Member States more than 80% of power generation is still controlled by the historic incumbent.' [21]

[21] It should of course be borne in mind that a significant number of member states have very small populations (Cyprus, Malta, the Baltic states, Luxembourg). Whether it makes any sense to try to create a competitive field for such small countries is far from clear.

The position of the Commission on concentration is ambiguous. Its rhetoric is for atomistic fields of competing suppliers and it is strongly against the former national monopoly, publicly owned companies, yet it has presided over a massive concentration in the sector. Ten years ago, Thomas[22] wrote of the 'Seven Brothers' that were emerging as transnational companies increasingly dominating European markets. Ten years on, the market is even more concentrated with just five companies dominant: EDF, RWE, EOn, GDF Suez and ENEL.[23] Each of these companies has a significant presence in several European countries and each is more than twice the size of the next largest companies. The Commission has done nothing to discourage this concentration and the apparent philosophy of the Commission is that it is more comfortable with an oligopoly than a competitive market: 'Many products are supplied by oligopolies, we know how to deal with oligopolies'

The Commission has also failed utterly to deal with the most important form of corporate integration: integration of wholesale and retail supply. It has made great efforts to ensure unbundling of networks enforcing ownership unbundling for transmission networks and legal unbundling for distribution networks. Whether the amount of effort expended was justified is debateable, but is not pursued further here.[24] The form of integration that undeniably damages competition is integration of generation for electricity and production/import for gas with retail supply. This form of integration gives the companies a strong incentive not to participate in wholesale markets and even to ensure the price signals are unreliable for new entrants to enter the market.

This situation is well-illustrated in Britain where the 'big 6' control almost all generation either by ownership or long-term contract and which almost entirely control the retail market. So what appears, by the standards of other European countries, a relatively competitive structure is one that offers very high barriers to entry for new entrants in either generation or retail. It is worth noting that in 2002 when about 40 per cent of generation was owned by independent power producers (IPP), a fall in wholesale price bankrupted the entire IPP sector because their income fell below their costs. The integrated companies were not affected because they generated their power from their own sources and did not pass the fall in wholesale prices on to consumers. The IPP plant involved was subsequently nearly all bought by the Big 6 integrated companies. This experience remains a powerful warning to any company seeking to enter the UK market.

The Commission has acknowledged this problem in the past in the Competition Directorate but not the Energy Directorate and has never taken any action to deal with the issue and it does not appear to be a priority at the moment. In 2007, the DG Competition wrote:[25]

> 'Another form of vertical foreclosure [apart from integration of networks and retail/wholesale] was found to exist by way of the integration of generation/imports and supply interests within the same group. This form of vertical integration reduces the incentives for incumbents to trade on wholesale markets and leads to sub-optimal levels

[22] S Thomas. The seven brothers. Energy Policy 2003; 31(5): 393-403
[23] S Thomas (2010) 'An analysis of the company developments and corporate policies in the European energy sector' PSIRU, London. www.psiru.org
[24] S Thomas (2007) 'A critique of the European Commission's evidence of the need for ownership unbundling of energy networks' PSIRU, London. www.psiru.org
[25] European Commission (2007) 'Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (Final Report)' {SEC(2006) 1724}, Brussels. p 6.

of liquidity in these markets. In particular, the prevalence of long-term supply contracts between gas producers and incumbent importers makes it very difficult for new entrants to access gas on the upstream markets. Similarly, electricity generation assets are in the hand of a few incumbent suppliers or are indirectly controlled by them on the basis of long-term power purchase agreements (PPAs) giving the incumbents control over the essential inputs into the wholesale markets. Low levels of liquidity are an entry barrier to both gas and electricity markets.'

However, no action was recommended to combat this problem and the impact assessment is silent on this issue. However, Kroes, the then Competition Commissioner did refer to this problem again in a speech in September 2007. She said[26]: 'New players face considerable problems when trying to enter the markets – not least because markets lack liquidity. Such foreclosure effects can be aggravated by vertical integration of generation and supply and by long-term contracts. Both reduce trade on wholesale markets.' But again, the issue is not taken up and Kroes had nothing to say on what steps the Commission is going to take to remedy this problem.

While this form of vertical integration will tend to inhibit competition, it may have the advantage of improving security of supply. A fully de-integrated market gives generation companies a positive incentive not to invest: the tighter the market, the higher the prices. This was amply demonstrated in California in 2000/01 when de-integrated generators manufactured power shortages to force prices up to increase their profits. So allowing vertical integration may be a 'Faustian bargain' allowing greater security of supply at the expense of loss of competition.

5. Smart Meters

There is a strong economic case for increasing the demand side response to high cost and as renewable sources play an increasing role in electricity systems, the strength of the case will grow. However, this does not mean the case for smart meters in the form and context envisaged is not made.

The Commission's paper makes constant references to the importance of smart meters. These include: 'Smart metering systems both facilitate micro-generation by consumers and can help reduce household energy consumption. Moreover, smart metering systems allow adjusting electricity consumption in real time in response to market price fluctuations.' (p 6); 'Timely deployment of smart meters as set out in the EU acquis can trigger demand-response and other innovative and smart services. For example, consumers can be given the possibility to take advantage of lower prices in periods of weak demand while avoiding energy consumption in peak periods.' (p 10); 'Retailers will be able to offer innovative price plans to consumers interested in benefitting from flexible supply contracts, which will allow them to optimise their energy costs by using smart metering systems and appliances to focus their consumption on periods of low prices.' (p 13). Its recommendation is (p 18): 'The

[26] N Kroes (2007) 'Building a competitive European energy market' Speech to the Madrid Energy conference (in homage to former Commission Vice-President De Palacio) Madrid, 1st October 2007. http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/07/582&format=HTML&aged=0&language=EN&guiLanguage=en

Commission calls on Member States to adopt ambitious strategies for the roll-out of smart metering systems and to ensure that they meet the interests of energy suppliers, distributors and consumers alike.'

The issues raised by smart meters are discussed in detail by Thomas.[27] The main issues raised are: Cost; Welfare for vulnerable and low-income households; Basis for time-of-day pricing; and Implications for retail competition.

5.1 Cost

The requirement for member states to install smart meters is contingent on the completion of a favourable cost benefit analysis. In the UK, the costs are estimated as £11.3bn to install smart gas to be paid entirely by consumers and electricity meters and these costs will be incurred in the period 2013-18. The benefits are estimated as about £18.6bn, but these accrue over 40 years and only £8.8bn of these benefits go to consumers, the rest going to the companies. Given the history of large scale IT systems in the British electricity system coming in at typically 4-5 times the forecast cost (for example, the systems for retail competition and the wholesale market), costs inevitably all passed on to consumers; the distribution of benefits between companies and consumers; and the very long period before which the benefits pay for the costs; the cost benefit case looks very weak and extremely risky for consumers.

5.2 Time of day pricing

In a free-market, consumers should be charged prices that reflect the actual cost of supply so if it is very expensive to supply at peak times, prices should be correspondingly high. If consumers can receive advance notice, say an hour or two ahead, that prices will be high, they can adjust their demand and the result will be that demand will be reduced and the actual cost of supply will be correspondingly lower. In theory then, prices charged should therefore reflect the wholesale electricity price at each period of the day. There are two problems with doing this. First, as is widely acknowledged, perhaps only the Nordic market is liquid enough to provide prices that can be seen as reliable indicators of cost. Clearly the companies themselves cannot be left to determine what price to charge consumers on a half hourly basis. So there is a serious problem of knowing what basis to use to determine time-of-day prices. The other major problem is that prices can be very volatile and at times of peak demand, prices can increase many-fold as the most expensive sources have to be bought on-line to meet the peak. This means wholesale prices could vary on the same day by perhaps a factor of 100. However, what is being attempted is to shift just enough demand to the nearest trough in demand, perhaps a couple of hours later, to 'shave' off the peak and 'fill' the trough. If the price signal is too strong, the peak will become a trough and the trough a new peak and there will be no benefit to consumers. So the price signal needed should be just enough to shave the peak. This might be a very different price to the market price.

5.3 Welfare

There is considerable misinformation about what the real purpose of smart meters is. The British government in its publicity talks about removing the need for estimated bills and household visits to read meters and giving consumers more information on their

[27] S Thomas (2013) 'Not too smart an innovation: Britain's plans to switch consumers to smart electricity and gas meters' Energy & Environment, vol 23, 6-7, 1057-1074

consumption patterns. However, these benefits do not feature in the cost benefit analysis. The real potential benefits smart meters offer is the possibility of time-of-day pricing. Under this, the price of electricity would vary from half hour to half hour according to the prices in the wholesale market. When prices were high, consumers would have incentives to reduce their consumption and shift consumption to times when prices were low. It is debateable how far demand can be 'shifted'. The obvious and constantly quoted example is washing clothes or dishes in the middle of the night. In other cases, such as lighting, television, demand will simply be destroyed and consumers will lose the utility of these applications. Prices cannot be predictable in advance or this will create new peaks at times when it is known power will be cheap.

The problem for welfare is that prices will be highest at times of peak demand, in other words, when consumers need energy most, usually in early evening on the coldest day of the year. To give incentives to consumers to change their demand, the price signals would have to be large – would many consumers turn off their favourite television programme just to save a couple of 'c'? Vulnerable and low-income consumers, seeing a very high price, perhaps more than €1/kWh might panic, turning off heating, lighting or not cooking food with potentially serious health impacts.

5.4 Retail competition

The basis for retail competition is that consumers compare the prices of the various suppliers and choose the cheapest. If prices are set on the day, inevitably at levels that cannot be predicted in advance, consumers will have no basis to make price comparisons and choice of supplier on cost grounds will be impossible.

6. The Commission's recommendations

In Table 1, the key recommendations from the Commission's review are identified and examined.

7. Conclusions

The faith of the European Commission that as free a market as is possible is always the best option for organising the electricity industry remains unshakeable despite the failure after 15 years of effort to create anything that looks remotely like an efficient market either in wholesale or retail. Many of the conditions that Keynes argued (see Annex). These include: efficient units of production are large relatively to the units of consumption; overhead costs exist; internal economies tend to the aggregation of production; time required for adjustments is long; ignorance prevails over knowledge; and monopolies and combinations interfere with equality in bargaining.

It is not clear whether the unconstrained free-market model for the electricity industry as envisaged in the Electricity Directives, at the centre of which is a wholesale commodity market would have been viable. There are no examples anywhere in the world of such a model operating in the way envisaged, that is setting prices, minimising entry barriers and providing investment signals.

It is now clear, and probably was when the Electricity Directive was first passed in 1996, that climate change measures will mean that an unconstrained model is not feasible because the cheapest options, fossil-fuel plant must be discouraged in order for greenhouse gas emission targets to be met.

The carbon trading scheme, the EU ETS, that was meant to provide a market solution to incentivising low-carbon generation sources, has failed badly after 8 years of experience with prices at a small fraction of the real additional cost of reducing carbon emissions. There is little confidence that the scheme can be salvaged. This has led governments, especially the UK, to consider going back to centrally administered investment decisions under something akin to the Single Buyer that was in the first version if the Electricity Directive but was abandoned for its successors.

The basis for retail competition was always weak, especially for residential consumers and UK experience, often portrayed as the example other Member States should follow, is now suffering from severe problems of lack of trust because of the complexity of tariffs, continued problems of mis-selling by retail companies and because of the intrinsic difficulty of making an informed choice as to which company will prove to be the cheapest supplier for, say, the next year or two.

One of the fundamental problems preventing the creation of more efficient markets has been the failure to prevent corporate concentration in the sector and to prevent vertical integration of wholesale and retail activities. This destroys competition in the wholesale market but successive Energy Directorates have failed to acknowledge this as a problem, much less do something about it.

Smart meters are seen as a major opportunity to reduce costs and allow intermittent sources to be integrated into the supply system without compromising security of supply. The case for better demand responsiveness is strong, but the proposals are ill-thought out. The costs appear much higher than the benefits; the welfare risks to vulnerable and low-income consumers have not been recognised; and there are practical issues, such as what basis should be used to set variable prices and how would time-of-day pricing be reconciled with retail competition that have yet to be considered.

Annex Keynes' views on why competition might not emerge

"The beauty and the simplicity of such a theory [competition producing economic efficiency] are so great that it is easy to forget that it follows not from the actual facts, but from an incomplete hypothesis introduced for the sake of simplicity. Apart from other objections to be mentioned later, the conclusion that individuals acting independently for their own advantage will produce the greatest aggregate of wealth, depends on a variety of unreal assumptions to the effect that the processes of production and consumption are in no way organic, that there exists a sufficient foreknowledge of conditions and requirements, and that there are adequate opportunities of obtaining this foreknowledge. For economists generally reserve for a later stage of their arguments the complications which arise -- (1) when the efficient units of production are large relatively to the units of consumption, (2) when overhead costs or joint costs are present, (3) when internal economies tend to the aggregation of production, (4) when the time required for adjustments is long, (5) when ignorance prevails over knowledge, and (6) when monopolies and combinations interfere with equality in bargaining -- they reserve, that is to say, for a later stage their analysis of the actual facts. Moreover, many of those who recognise that the simplified hypothesis does not accurately correspond to fact conclude nevertheless that it does represent what is 'natural' and therefore ideal. They regard the simplified hypothesis as health, and the further complications as disease." (Keynes, 1972)

Keynes, J. M. "The End of Laissez-faire" in The Collected Writings of John Maynard Keynes, Vol. 9, Essays in Persuasion, London, The Macmillan Press, 1972.

Table 1 Key recommendations and comments

Recommendation	Comment
The Commission is pursuing, as a matter of priority, infringement procedures against those Member States that have not yet fully transposed the Third energy package Directives or have failed to do so correctly (p 8)	This recommendation clearly only makes sense if the Commission's Directives are against the interests of consumers, punishing Member States that seek to protect their citizens makes no sense
The Commission, with support from CEER, will facilitate Member States' exchange of best practices on key consumer-related issues, including price comparison tools, transparent pricing and billing, and elaborating the concept of vulnerable consumers (p 8)	Experience from the UK suggests that even with wide availability of price comparison tools, consumers do not profit from retail competition. The Commission's promotion of 'innovative and dynamic pricing schemes' is likely to make pricing less transparent, not more.
Member States should seek to cease regulating electricity and gas prices for all consumers, including households and SMEs. The Commission will continue to insist on phase-out timetables for regulated prices being part of Member States' structural reforms. The Commission will continue to promote market-based price formation in retail markets, including through infringement cases against those Member States maintaining price regulation (p 11)	If there is still a public wish for regulated tariffs, perhaps reflecting a distrust of the fairness of the market, it is premature to require countries to phase out regulated tariffs. If competition is trusted and seen to be effective, consumers will choose competitive tariffs and regulated tariffs will wither away naturally
Member States should provide targeted assistance to vulnerable consumers in order to address their economic vulnerability and to help them make informed choices in the increasingly complex retail markets. (p 11)	Experience from UK shows it is all small consumers that struggle to make informed choices in increasingly complex retail markets. The UK response is to require the companies to simplify their tariffs while the Commission want to promote 'innovative and dynamic pricing schemes'
Member States should carry out a full analysis of whether there is a lack of investment in generation, and why. They should seek cross-border solutions to any problems they find before planning to intervene. Any capacity mechanism needs to take into account any impact the intervention will have on neighbouring Member States and on the internal energy market. Fragmentation of the internal energy market must be avoided. (p 15)	The Commission places the responsibility for ensuring security of supply on Member States but does not allow them any of the policy levers necessary to fulfil this requirement. The Commission insists that: 'investments in generation should be driven by market considerations rather than subsidies'.
The Commission calls on Member States to adopt ambitious strategies for the roll-out of smart metering systems and to ensure that they meet the interests of energy suppliers, distributors and consumers alike. (p 18)	The only respectable rationale for Smart Meters is if they allow the introduction of time-of-day pricing. This would raise serious issues about the reference point for time-of-day prices and how retail competition could continue if prices were not known in advance. The Commission does not acknowledge and perhaps is not aware of the welfare issues that Smart Meters raise because prices would have to be very and perhaps prohibitively high at the times when consumers need energy most for their welfare.

EPSU is the European Federation of Public Service Unions. It is the largest federation of the ETUC and comprises 8 million public service workers from over 265 trade unions; EPSU organises workers in the energy, water and waste sectors, health and social services and local and national administration, in all European countries including in the EU's Eastern Neighborhood. EPSU is the recognized regional organization of Public Services International (PSI).

For more information on EPSU
and our work please go to:

www.epsu.org

EUROPEAN FEDERATION
OF PUBLIC SERVICE UNIONS
40 rue Joseph II, Box 5- 1000 Brussels