Regulating Energy Networks for the Future: RPI-X@20 Recommendations

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1. Summary of Comments and Recommendations for Improvement

1.1 The comments in this note focus on the recommendation of the recommended shift to the use of explicit *outputs* as the focus for regulation. There is much to welcome in the Ofgem recommendations (as I set out in the next section), but the key new issue and my major concerns relate to the proposed use of a set of extensive output measures (primary and secondary) as the basis of regulation and price controls in the years ahead.

1.2 In some places, the Recommendations present the shift in focus to output measures as a relatively minor step which consolidates existing practice. I would argue that it is a much more fundamental shift towards a planning-style model but trying to retain major elements of a market-oriented model that is responsive to consumers. In consequence, this suggested shift raises some much more serious issues which might result in a significant increase in regulatory creep and intrusiveness, micro-management and regulatory uncertainty. At some points, the Ofgem document appears to recognize some of these risks. However, it is very noticeable that the Frontier Economics report for Ofgem on designing output measures and the CEPA paper on rail and water appear to be a lot more cautious and much more concerned about the possibility of these adverse effects than the Ofgem paper.

1.3 I will set out my concerns in more detail in later sections. These include both theoretical issues but, more importantly, I provide some examples of where output targets and a planned market approach have created very serious problems. I discuss examples from other regulated contexts and also discuss the wider planning literature on the relationship between planning and markets. I also provide one UK example – NHS waiting list targets - where output targets appear (controversially) to have been quite successful.

1.4 It is worth noting that, not only had the previous Labour Government substantially reduced its reliance on output targets having initially increased them very considerably, but that the current Coalition Government has decided to abolish a number of targets – including the NHS waiting list target. It may be that there are different concerns facing energy network development and regulation in a world where climate change concerns have a much higher weight relative to prices, costs and efficiency than in the past, particularly where these are supplemented by the renewables obligation intermediate targets. However, this is not argued in the document – nor in the supporting Ofgem implementation paper

1.5 My concerns regarding output measures for network regulation may or may not advise against their implementation but it is very worrying that both (a) the main Recommendations Document (b) the Implementation Document and (c) the Frontier Economics Report lack:

(i) a clear statement of the purpose and objectives of output based regulation for the network energy industries;

(ii) any mention or discussion of the pros and cons of such methods as discussed in the theoretical economics literature;

(iii) any discussion of experience with using output based regulation (or indicative planning and targets) in other industries and contexts; and

(iv) any empirical, statistically based analysis - or any case studies - of experience with the use of output targets.

I recognize that some of the Review background papers do discuss some of these issues, including experience with output measures in other regulated industries, but there is no explicit reference to that material in the current Ofgem Recommendations papers.

1.6 My purpose in the comments below is to raise concerns from economic analysis and from experience in other relevant contexts. At the least, my comments should help identify significant risks. If Ofgem is to press on with the implementation of output measures as the corner-stone of energy network regulation then it needs to be able to demonstrate that the concerns and risks can be adequately handled in this context. Maybe this can be demonstrated. However, none of the existing documents currently presented actually do so.

1.7 The July 2010 Ofgem Recommendation documents require us to take a great deal on trust regarding the claimed effectiveness of output measures and the absence of major downside costs. *Hence, the key recommendation of my comments is that Ofgem should carry out and report the results of (i) – (iv) above so that they can reasonably test and report the robustness of their Recommendations in this critical area.*

2. Areas where the Ofgem Recommendations are Welcomed

2.1 The Recommendations Paper covers a wide area and a sizeable array of issues. I do not intend to comment on many of those but I would like to highlight three where I think that Ofgem's recommendations are to be welcomed both in their own right and because they are based on sound analysis. These three issues are:

(i) The recommendation to adopt a more proportionate assessment of companies and business plans;

(ii) The recommendation not just to keep the IQI (Information Quality Incentive) scheme but to extend it to all electricity and gas networks; and

(iii) Moving towards a less formal and more flexible approach regarding efficiency benchmarking.

I also think that the Paper is right on balance to recommend maintaining the existing structure of the industry and of the network industry components. The Paper well recognizes that this may change in the future. However, the Paper's conclusion that no structural changes are currently necessary is one that I would endorse. Given all the other major changes occurring in the industry and in regulation, it seems sensible not also to add structural change for the next few years unless absolutely necessary.

2.2 The Recommendations Paper proposes an extension of the Price Review period from 5 years to 8 years. I think that this change is justified but this recommendation also demonstrates the trade-offs between regulatory flexibility and increased regulatory uncertainty.

2.3 The Recommendations paper and the supporting Implementation paper both recognize that the longer the period between price reviews, the greater the potential need for review/re-opener mechanisms. However, the need for these seems to be much greater where output measures become a major foundation of regulation – particularly (a) when there are a sizeable number of primary output measures and (b) when the strength of the obligations varies by company (presumably affecting distribution company relativities). Paras 6.43 – 6.48 of the Recommendations Paper show some awareness of this issue which is discussed in a lot more detail in the Implementation Paper.

2.4 Paras 9.11- 9.21 of the Implementation Paper discuss the general problem of incentivizing output delivery and the likely need for discretionary potential intervention by Ofgem. Paras 11.17-11.21 discuss this in the context of mid-term reviews. The impression that I take from these paragraphs is that the welcome recommended increase in the Price Review Period from 5 to 8 years could create significant problems of potential regulatory creep and regulatory uncertainty, increasing the greater is the reliance on output measures. The possible degree of intervention by Ofgem in network companies' investment planning indicated in the Implementation Document could be very sizeable. It may be that this is not intended but, as I will discuss in the next two sections, this is the way that 'guided' market systems (i.e. combinations of plan and market) tend in practice to evolve. If a discretionary interventionist approach is not intended then these Ofgem Recommendation papers need to be much clearer on how it would be avoided.

3. Output Planning Indicative Planning and Infrastructure Industry Regulation

3.1 Substantive centralized planning (i.e.output commissioning by central specification of quantities to be supplied) is most associated with the Soviet Union and other Comecon countries. However, it was also prevalent in the UK and other West European countries from 1940 through into the mid to late 1950s. This applied not just at the aggregate economic level but also for individual industries – particularly the electricity industry[1].

3.2 Economists had long been aware of the very sizeable static and dynamic efficiency losses and other costs associated with centralized planning, so that economists' attempts at

[1] See Martin Chick (2007) "Electricity and Energy Policy in Britain, France and the United States since 1945", Edward Elgar.

reconciling plans with markets have been common for over 70 years. These started with Lange and Lerner in the 1930s and continued through the post-1945 period into the 1970s. In Western Europe, the focus turned to indicative planning on which economists like Malinvaud and others put forward theoretical models. In CEE (Central and East European) countries, various economists (e.g. Sik and others) proposed models that attempting to reconcile central planning with markets. None of these attempts has been successful in economic theory or in practice (let alone in political terms) – and nor was the search for a "Third Way" in CEE countries before and immediately after the collapse of Communism.

3.3 The sole continuing and current mainstream economic attempt to continue the planning plus market line of policy has been in development economics (e.g. the "Asian development model"). Here, Rodrik and others argue for an activist government-led industrial policy that has much in common with some of the arguments that people with a pro-planning approach use for UK energy and for network planning. However, even here the focus of Rodrik and those who argue similarly for an activist industrial and export policy is very different from the classic planning literature – although not dissimilar from the Ofgem specific target approach to output measures.

3.4 These arguments may seem somewhat distant from the Ofgem Review of RPI-X@20 but they are not. Indeed, the discussion in Working Paper No 9 of July 2009 greatly echoes the points at issue in the debate outlined above. The paper identifies 3 models:

(i) a central government led model - which is effectively a central planning model, at least for investment;

(ii) a joint industry determination model - which approximates to a corporatist indicative planning model; and

(iii) an adapted regulatory framework which is an attempt to bring more planning (particularly of investment) into the current energy network regulatory framework while preserving efficiency incentives and a customer focus.

3.5 Model (ii) looks very unattractive (except for corporatists and advocates of cartels) and appears to have gained little support. Hence, the effective choice for the Review was between models (i) and (iii). Not surprisingly, model (iii) with output measures won as it retains much of the structure and virtues of the current regulatory system. In particular, it retains the focus on consumer choice which is very greatly weakened in the other models. But, is the model coherent and will it work?

3.6 Elsewhere and previously in Britain, the 1960s aggregate economic plan plus market approaches have failed – including for the electricity industry[2] - and activist industrial policy have also not been distinguished by their success. A critical issue is whether regulation – particularly investment related regulation – can be subject to a much more

[2] See Chick op cit and many others. The main UK legacy was a generation margin in excess of 25%.

directive regulatory stance while maintaining customer choice for network users and final consumers.

3.7 Returning to infrastructure regulation, Ofgem commissioned a report from CEPA on the regulatory models in UK rail and water which focused on the ORR and Ofwat use of output measures[3]. This April 2009 CEPA report was very cautious about how far the rail and water examples could be transferred to energy networks. UK rail and water make considerable use of centrally determined output measures (largely determined by government and environmental regulators. In particular, the CEPA report pointed to the problem of reconciling network planning by output targets with any substantial degree of competition between network users and, at least as far as networks are concerned, affecting final consumers. CEPA explicitly expressed its concern about "potential distortions of competition among network users and the role of consumers"[4] from applying a much more centralized approach to network outputs and investment.

3.8 CEPA's concerns about output measure based investment determination were more about distribution than transmission where they saw greater continuity with existing regulation. However, it is worth quoting in full a major conclusion as it demonstrates well the potential conflict between output measure based investment regulation and competition "…compared to the energy sector, and particularly transmission networks, the ability of end consumers to directly influence the outputs to be delivered and the investments to be undertaken [in the UK rail and water industries] is quite limited given the statutory frameworks that are in place. The contrast is greatest with elements of the energy sector, such as gas entry capacity, where final and intermediate customers can ensure certain investments occur providing they make financial commitments"[5].

3.9 The CEPA conclusions feed back into the planning literature. Planning and consumer choice do not go well together. This is most obvious with directive quantity planning but is also true of indicative planning French style and of East Asian style development planning. Meeting the preferences of domestic consumers in all these cases is subsidiary to growth targets, export promotion, etc. Maintaining real competition among network users and final energy consumers may be difficult in a world of extensive output measures.

3.10 Plans – and the use of output measures for investment regulation – intimately link with the problem of the number and type of targets which is the topic of the next section.

4 The Use of Targets and Output Measures as Targets

4.1 The use of targets is intimately related with planning – particularly centralized quantity planning. Plans rely on targets and targets inevitably distort behaviour – indeed they are intended and designed to distort behaviour to achieve particular policy goals. Hence,

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[3] I should declare an interest. I am a part-time Senior Advisor at CEPA but I was not involved with this 2009 report in any way. Indeed I have only become aware of this report in the last few days.

[4] CEPA Report for Ofgem "A Review of the Rail and Water Sector Regulatory Models: Lessons to Learn for the Energy Sector", April 2009, p.7.

[5] CEPA op cit, p.6.

setting quantity targets (outcome or final output targets) is the quantity analogue for internalizing claimed externalities of altering prices by taxes or charges. However, quantity targets change behaviour in much more discriminatory ways than price targets.

4.2 Planning targets were taken to their extreme under Soviet planning. There is a classic cartoon from Krokodil which shows a crane holding one, multi-tonne nail. The manager of the plant says to another man: "Look! This month's output!" – the Gosplan target for the supply of nails had been set in terms of weight[6]. The typical response to this problem is to increase the number of targets. *But*, as policy-makers and regulators well know, the more targets there are, the more difficult is regulation because companies (and policy-makers/regulators) trade off between targets.

4.3 The Ofgem Recommendations Paper well recognizes this trade-off but it provides no evidence on its likely impact in the context of energy network output measures, nor any evidence from other industries where targets have been used. However, the number of targets being proposed is not trivial. Table 3 in Chapter 6 of the Implementation Report suggests 10 primary outputs for electricity distribution companies, 8 for gas distribution companies and 9 for both electricity and gas distribution companies[7]. However, to these must be added the secondary outcome measure targets which may be less important, but presumably carry some positive weight. In practice, based on other experience with the use of targets and outcome measures, it is much more likely that the number of primary and total outcome measures will increase rather than diminish.

4.4 Ofgem's awareness of the problem is most apparent in Chapter 9 of the Implementation Paper which discusses how to incentivize outcome delivery, particularly in Paras 9.5, 9.21 and 9.29-9.31. The same awareness is present in the discussion in Paras11.16 - 11.20 of whether and how to change output targets within the 8 year review period. Ofgem's awareness of the problems is clear both in terms of the arguments presented and in the exposition which, in these parts, is dense, ambiguous and very non-committal[8]. The Frontier Report on outcome measures is also very well aware of the problem and makes a number of cautionary remarks.

4.5 Ofgem's caution is very understandable but it does give rise to concerns about gaming both by companies and regulators. Ofgem, understandably, want to retain flexibility in terms of (a) setting levels and targets for outcomes where penalties might be due; and (b) achieving policy goals. Allowing such flexibility should enable benefits for consumers and in achieving policy objectives. *But*, the consequence is much greater regulatory discretion which, in turn, significantly increases regulatory uncertainty. Whatever process protection is given to network companies regarding such changes, it is clear that the *scope*

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6 I remember another variant of this which talked about planning targets for Soviet bed manufacturers. Initially, the target was set in terms of the *number* of beds. That is supposed to have resulted in the supply of large numbers of very flimsy beds that collapsed after a few moths or if a seriously overweight person lay on them. To rectify that, the target was set in terms of the *weight* of beds – which resulted in a small number of extremely heavy beds being produced. These super-heavy weight beds tended to collapse through ceilings into the apartments below.

7 These numbers assume that each of the four groups is given one obligation relating to social obligations and PSOs.

8 I note the serial use of that classic verbal hedging tactic – "it would/may be *appropriate* to ….", particularly in para 9.5 and its bullet points.

of regulatory uncertainty has been increased. In addition, the Report seems to half-recognise the issue that, with financial penalties varying by type, any gaming by companies is likely to focus primarily on minimizing expected financial costs – including Ofgem penalties.

4.6 In developing the proposals, Ofgem needs to look more directly and clearly at these issues, drawing on experience from other sectors. Currently, the Recommendations Report and the Implementation Report show some awareness of the issues in a very general way but do not really get to grips with how they might be tackled. The Frontier Report seems much more explicit at least in its awareness of the potential problems and their dimensions.

4.7 There is, of course, recent experience with outcome targets in the UK, most obviously in health and education. The impact of the NHS targets, which were prevalent under the Labour Government, have been extensively discussed. Moreover, there is a natural experiment in place to test the impact of the targets, since Wales and Scotland decided not to implement the reforms for England and hence did not implement the associated outcome targets for hospitals. By 2003, there were 35 performance indicators for English acute hospitals, which were aggregated into a four-level star ranking system[9]. However, after 2003, health policy in England increasingly focused on the waiting list targets.

4.8 Propper et al (2008) demonstrate in a much cited cited paper that waiting list targets did have a significant and positive impact on hospital and patient health outcomes and with few offsetting gaming costs[10]. However, this appears to be because the waiting list target was used as a 'mission' by which to motivate hospital staff in a number of ways so that it was the action *around* the outcome target that was important rather than the target per se[11]. The Ofgem Recommendations Report does not seem to envisage the use of outcome measures as a mission creation objective – certainly not one over-riding target.

4.9 Of course, outcome measures in UK health and education and the associated incentive effects are likely to be rather different from their impact on energy network companies. This is not least because the network companies are privately owned and operate in an environment with significant market and competition elements; conversely, the schools and hospitals subject to performance targets were publicly owned and in an environment with limited and controlled market and competition elements. However, the waiting list target was used in a semi-commercial manner to incentivize the behaviour of managers and doctors in a world where patient retail choice was being deliberately expanded. Hence, the differences are not enormous. In view of the relative similarities, it would seem sensible for Ofgem to review the experience of the recent UK health and other outcome measures so as to draw relevant lessons for their design of outcome measures.

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9 See Carol Propper and Deborah Wilson (2003) "The Use and Usefulness of Performance Measures in the Public Sector". This paper contains an excellent discussion of the scope and effectiveness of such measures in UK and US health and education.

10 C Propper, M Sutton, C Whitnall and F Windmeijer (2008) "Incentives and Targets in Hospital Care: Evidence from a Natural Experiment".

11 There have, however, been suggestions that the waiting list targets may well have been a significant factor in the distortion of managerial focus in the Stafford Hospital mortality scandal.

5 Concluding Comments

The paper and its recommendations have been summarized in Section 1 and do not need repetition here. It may be that outcome measures are unavoidable given not just the increased focus on (i) climate change and greenhouse gas emissions but also (ii) on intermediate (renewables) targets. These are legitimate policy concerns of government and the UK government has signed up to the EU targets on both of these. However, they make regulation much more complicated.

For network industry regulation, the UK and EU renewables targets for 2020 and beyond are probably the more important. Whatever one's views on the merits or demerits of the climate change amd renewables targets[12], it may be that they are the essential driver for the outcome measures. However, if Ofgem is going to pursue the route of outcome measures, there is an obligation: firstly, to demonstrate the necessity for them; and, secondly, to show that the Ofgem proposals draw on best practice – or at least avoid as many problems as possible – in their design and implementation.

The current Recommendations documents do not do this. They assume that the case has been made and do not discuss at all explicitly the incentive and regulatory problems that are likely to arise and, probably most importantly do not reference or discuss experience in other industries or countries. These omissions need to be remedied in future work of the RPI-X@20 team.

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[12] I support an active policy with targets to reduce greenhouse gas emissions but I am very critical of the weight given to the renewables targets and the potential damage that they may do. This was outlined in my slides for the Ofgem Academic Panel Meeting of March 2010 which commented on the RPI-X@20 Emerging Thinking Paper and also in my earlier comments on the Project Discover y Consultation. However, I also recognise that this is an issue where, for better or worse, government policy objective will - and should - prevail.