REGULATORY PERFORMANCE VS. INDEPENDENCE – THE EUROPEAN EXPERIENCE

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1 INTRODUCTION

Regulators need to balance a set of conflicting objectives. On the one hand, regulated firms should remain financially sustainable and capital providers should receive an adequate return on their investment. On the other hand, firms should operate efficiently so that prices remain low while consumers still demand high quality. The presence of conflicting objectives requires an optimal trade off between them – this is at the core of the regulatory problem. Both firms and customers need assurance that the trade-off properly made by a competent and trustworthy authority. Regulatory independence thus goes hand in hand with authority - the assumption that the regulator is 'just' and error-free in carrying out this complex task successfully.

The point we make in this paper is that independence is easier to lose than to obtain. Regulatory failure can easily lead to question independence. The more complex the regulatory task, the higher the risk of failure. The complexity of the regulatory problem becomes very visible in case of changes in regulatory policy. A well-known example is the transition from rate-of-return to price-caps. Implementing a price-cap system presents some difficult problems – most notably, the way the X-factor is set. Such problems can be overcome if there is a thorough understanding of the issues at stake, as well as solutions and risks. This, indeed, is a precondition to remain unquestioned and independent. Learning from the experiences of other regulators can help in this regard.

In this paper, we review some of the recent experience with independence problems resulting from problems in establishing price-cap controls for regulated monopolies. More specifically, we look at the experiences in the Netherlands and Slovenia (respectively, chapters 2 and 3). In these countries, problems during the implementation of the price-cap system led to a reduction in regulatory independence and increase in political control. In chapter 4, we draw some conclusions and indicate some lessons that Caribbean regulators may draw from the European experience.

2 THE NETHERLANDS

2.1 Background

In 1991, the European Communities adopted the European Energy Charter, which promoted competitive markets in the energy sectors. Around the same time, discussions about liberalizing the European electricity markets began, which led to Directive 96/92/EC. The Netherlands implemented the directive in the Elektriciteitswet (Electricity Act) of 1998. This act deregulated the generation of electricity as well as the supply to end-users. The Dutch electricity market is opened in three tiers, the last of which – affecting small consumers – has recently been implemented in the middle of 2004. The Electricity Act requires that management of the networks, which remain monopolistic, should be legally unbundled from

competitive business areas, such as generation and retail. This requirement caused a fundamental reorganization of the previously vertically integrated sector, and resulted in the establishment of two tiers of network companies: the national transmission system operator (TenneT) and about 15 regional distribution companies. The distribution networks are owned and managed by the successor companies of the former integrated electricity companies. Unbundling of the distribution networks has taken place at the management level. This means that the network and commercial functions can remain within the same holding company, but with strict divisions ("Chinese Walls") between them.

The Dutch Office for Energy Regulation (DTe) is responsible for implementing the Electricity Act of 1998. As the electricity market is fully liberalized, only the remaining network monopolies are subject to direct regulatory supervision. DTe's main legal rights and duties are contained in the Electricity Act. Within this framework, DTe is specifically responsible for the following tasks:

- issuing supply licenses for the supply of electricity and gas to captive customers;
- issuing an exemption from the obligation to appoint an electricity grid manager;
- determining the tariff structures and conditions for the transmission of electricity;
- determining guidelines for tariffs and conditions with regard to access to gas transmission pipelines and gas storage installations and, if necessary, issuing binding instructions;
- determining connection, transmission and supply tariffs for electricity and gas, including the discount (price-cap) aimed at promoting the efficient operation of the electricity grid and gas network managers;
- once every two years, assessing whether the electricity grid managers and the gas network managers have met the need for transmission capacity adequately and efficiently on the basis of estimates of the need for transmission capacity submitted by the electricity grid managers and the gas network managers;
- once every two years, assessing whether the license holders are adequately and efficiently able to meet the captive customers' need for electricity on the basis of estimates of the total requirement for the supply of electricity to captive customers submitted by the license holders;
- advising the Minister of Economic Affairs on applications for approval of the appointment of electricity grid managers and gas network managers.

Before liberalization, electricity tariffs in the Netherlands were set by a system that closely resembles cost-plus. Under this system, tariffs were primarily based on observed costs, plus a reasonable rate of return. Although much less legalistic and explicit than in the US, the generally observed weaknesses of the traditional RoR regulatory approach also applied to the Netherlands. The 1998 Electricity Act introduced a completely new approach towards price regulation. Currently, tariffs for distribution network use are regulated on the basis of a price-cap system. Tariff levels are annually adjusted by CPI – X, in which CPI is the consumer price index and the so-called X-factor is the regulator's estimate of future efficiency improvements.

DTe's price regulation is characterized by an ex ante approach. That is, tariffs are set beforehand based on a regulatory judgment of future productivity improvements. This is reflected in the X-factor. For both electricity and gas network monopolies, price-cap systems have been used as a basis for setting tariffs. For the first regulatory period from 2001 to 2003, DTe's strategy for setting the X-factors was to drive companies towards similar efficiency levels. This was done to create a level playing field, so that yardstick competition could be introduced in the second regulation period. X-factors were established by means of economic benchmarking based on Data Envelopment Analysis (DEA).

2.2 Price-Cap Approach

DTe published its first decision on the X-factors for electricity transmission and distribution networks in September 2000. These X-factors were strongly driven by the results of a DEA benchmark report. Three separate DEA benchmarks were carried out: one for the national transmission grid (TenneT), one for a regional transmission grid (TZH), and one for the regional network companies. The DEA benchmarks for TenneT and TZH were later discarded by DTe. In the remainder of this paper, we will focus on the DEA benchmark for the regional networks.

The DEA benchmark was applied to the sample of 20 Dutch local network companies.[1] DTe used a single input factor, which was the total cost of each network company. This total cost was the sum of operating expenditure, depreciation, and a standard return on assets. Certain cost elements, which were considered to be uncontrollable by the network company, were not included in the benchmark analysis and were remunerated separately on the basis of actual costs. A peculiar feature of DTe's model is its total cost approach. Operating expenditure is associated with personnel, maintenance, etc., while capital expenditure is made up of depreciation plus a fair rate of return on investment. As far as known to the authors, no other regulator directly includes capital costs in the efficiency analysis. In other regulatory cases, the calculation of the X-factor also includes capital costs but these are not directly benchmarked. Benchmarking analysis is restricted to operating costs whilst (scrutinized) capital costs are simply added on a cost-plus basis when setting the tariffs.

DTe's motivation for the total cost approach was that it is the company's responsibility to trade-off between short and long-term costs. Insofar as this trade-off had any effect on the overall efficiency of the company, it should be reflected in the efficiency analysis. By simultaneously considering operating and capital expenditure in the efficiency analysis, DTe bypassed the regulatory problem of investment appraisal. Experience shows that this is one of the main difficulties faced by regulators. Under a total cost model, this problem was simply bypassed, as there was no explicit requirement anymore to consider CAPEX projections in the X-factor calculations. In principle, a total cost approach is therefore preferable because it creates incentives to improve efficiency in the short as well as the long term. Given that capital forms a significant portion of total cost, the effectiveness of regulation can be greatly enhanced.

However, benchmarking capital costs is extremely difficult due to data problems. Capital costs reflect the investment process and exhibit long- term characteristics that imply multi-period determinations of depreciation and of the return on assets. For instance, different companies may use different depreciation profiles (asset valuation, asset life, depreciation path) as allowed by national accounting rules. DTe aimed to eliminate such monetary effects resulting from bookkeeping practice by performing a backward calculation of book and depreciation values. In doing so, however, a number of assumptions and approximations had to be made. Due to the lack of detailed data, the standardization was performed on an aggregate basis, thereby ignoring the differences in lifetime and age across asset categories. Also, as historical investment profiles were not available, a virtual annual investment profile was assumed when recalculating the asset and depreciation values.

DTe used three types of outputs, namely energy delivered, number of customers, and peak load. For the latter two outputs, a distinction was made between distribution and transmission. While some companies had only distribution activities, others had a mix of transmission and distribution. To accommodate these differences, the data on customers and peak load was split between distribution and transmission. In addition to the total of five output factors, DTe included two environmental factors in the benchmark. Network route length was used as a proxy for the size of the network, while the number of transformers acted as a proxy for complexity.

[1] Since then, the number of companies has decreased as a result of mergers.

The September 2000 decisions on the X-factors led to a wave of protest and formal appeals by the industry. Their main critique was aimed at the use of benchmarking as a way to set tariffs: efficiency scores from the DEA analysis were mechanically translated into X-factors. The result of this was that flawed data – in particular, the standardization of capital costs – could lead to wrong efficiency scores and in turn, to wrong X-factors. As the efficiency score of each company was in principle linked to that of the others, so were the X-factors and thus, regulated price levels.

Obviously, companies were not comfortable with the idea that their X-factor and thus allowed income would be driven by data errors. There was a strong belief that the efficiency scores were wrong – not only within the industry, but also outside there was a strong critique of the way in which DTE (and its consultants) carried out its benchmarking analysis.

Additionally, the fact that DTe widely published the benchmarking results did not help in this regard. As a result, the relationship between regulator and industry became increasingly hostile: on the one hand, DTe confirmed its decisions; on the other hand, the network companies refused to accept the – in their eyes unjust and erroneous – X-factor decisions. At some point however, DTe had to revise its initial decisions in September 2001; the main difference with the initial decisions was an increase in the quality of data. An independent audit was performed to verify and improve the output factor data, while the CAPEX standardization was refined by considering each individual asset and the actual historical investment profile. The data improvements led to higher efficiency scores and to lower X-factors. However, the companies' main critique points were still not thoroughly met, and there still remained problems with the data. DTe responded to this by initiating a special project with the objective to remove any remaining data problems. As a result, a second revision of the benchmark analysis and X-factors was published in August 2002, but this did not prevent the network companies from confirming their appeals, as they did not consider DTe's corrections to be sufficient. Eventually, in October 2002, the Courts overruled the X-factor decisions. However, this was just a legally motivated decision. It was taken not (only) on the basis of the benchmark analysis, but mainly because, according to the Dutch Electricity Act, DTe should have applied a uniform X-factor (instead of an individual X-factor for each company) in the first place.

2.3 Independence Problems

The direct translation of efficiency scores into X-factors made the Dutch price-cap system extremely sensitive to data errors. This was exploited well by the regulated industry. Not only did they bring this as an argument in their legal case against DTe, but they also took the opportunity, where possible, to strategically manipulate the results of the analysis in their favour. Overall, this resulted in an instable price regulation system.

A regulator who continually resets prices for reasons of data corrections tends to lose credibility. This loss of credibility became an important argument for the Ministry of Economic Affairs, under which DTe falls, to gradually shift more and more responsibilities from DTe to itself. Another trend that accelerated this process was the change in the political mood on issues such as energy market liberalization. More and more, a line of thinking developed that the benefits of liberalization may not have been as large as initially anticipated and that potential problems, such as a reduction in the security of supply, may have been underestimated. One would expect such issues to be handled by the regulator. Instead, however, the Ministry took a leading role in this regard while DTe only played a minor role in such energy policy issues. Fairly, the reverse should have been expected.

DTe still remains an independent authority, but this independence has been reduced in the last few years. Legally, DTe's independence cannot be challenged as this stems from primary legislation (the Energy Act). However, the trend is that independence is now being reduced to a minimum. The Ministry is playing a more active role in regulatory issues, although the main idea of establishing the regulator was to create an institution where specific regulatory and industry knowledge would be concentrated. Previously, in addition to the powers contained in the Act, DTe had been mandated with regulatory tasks that formally fall under the duty of the Ministry of Economic Affairs. The scope of this mandate is, however, greatly reduced now, reflecting the trend towards a more active political control on the regulator.

3 SLOVENIA

3.1 Background

In October 1999, Slovenia adopted the new Energy Act that replaced secondary state laws dating back to 1981. The Energy Act established such industry and market structures as to comply with EC Directive 96/92/EC. The new Energy Act required unbundling of network activities and stipulated public service obligation functions for electricity transmission, electricity distribution, retail supply to "tariff" (non-eligible) customers and, more generally, the organization and design of the wholesale electricity market. The Slovenian Energy Agency (AERS) is responsible for the sector's regulation.

The Energy Act allowed competition in the energy market according to non-discriminatory and transparency principles, and under consideration of system security issues. Competition was allowed in the area of electricity production and supply. The Government was directly responsible for the retail price control (final consumer prices for non-eligible consumers). The liberalization of import (cross-border) transactions has been implemented on 1 January 2003. Prior to this date, the Government (via its fully-owned Transmission System Operator) controlled the degree of opening by means of annual import quotas. The Transmission System Operator may no longer trade electricity on its own behalf, and distribution companies must separate their wires businesses from retail supply.

3.2 Price-Cap Approach

In 2002, AERS decided to introduce incentive regulation over network activities, namely for the application of price-cap regulation. By weakening the relationship between actual costs and regulated charges, price-cap regulation allows that only efficient costs are included in the regulatory base and so it eliminates, or - at least – it improves upon, the deficiencies of rate of return regulation.

When setting price-caps, AERS had considered that the cap level should be sufficient to cover the efficiently incurred O&M costs and an adequate return on both inherited capital and new investment. As incentive regulation was being introduced for the first time in Slovenia, AERS decided to start with a regulatory period of three years (2003-2005 inclusive). The efficiency position of the companies was assessed by using non-parametric (DEA) and econometric (Corrected Ordinary Least Squares, Stochastic Frontier) analysis. The efficiencies scores were applied based on controllable O&M costs only.

Relative inefficiency (i.e., the distance between Slovenian and frontier companies) had to be eliminated gradually. AERS decided to impose an average of 80% of the entire efficiency improvement gap during the first regulatory period. Thus the regulated service providers in Slovenia were required to decrease their annual controllable O&M costs by a percentage ranging from 4 to 9%.

In the past, electricity prices in Slovenia were entirely controlled by the Government. Generally, the pricing policy was not built on the economic rules of cost coverage and real efficiency. For several years, growth in electricity prices was kept below the inflation rate, so that they could decrease in real terms. In 2000, the new network pricing design was developed. For this exercise, the network (transmission and distribution) revenue requirements were quantified on the basis of the prevailing level of sector revenue.

The main concern was associated with the discrepancy between the current level of revenue collected from network charges, and the required level of revenue requirements according to the new principles of economic regulation in Slovenia. In the consultation process, the AERS raised the issue that the operation of networks at charges lower than the cost-reflective level would endanger sound maintenance and investment policies. Moreover, keeping non-cost reflective charges would have had a negative impact upon the planned privatization process. Finally, non-cost reflective charges would induce distortions in the price signals that are not desirable and may conflict with the objectives of open access and fair competition.

For macroeconomic (but also political and social) reasons, it was impossible to go through a "shock" price correction. The major argument for a non-shock correction was the control over inflation in the country, as well as the requirements to comply with EU macroeconomic stability criteria in view of Slovenia's forecast accession. On the other hand, if the regulated network service providers are allowed to impose cost-reflective charges but the regulated retail supply business continue to operate under "frozen" charges for tariff consumers, risk will just be re-allocated to retail supply businesses. Based on the reasons discussed above and in coordination with the Slovenian Government, AERS decided to follow a gradual approach to eliminate price disparities. Accordingly, the price level for the year 2002 was gradually adjusted towards the efficient cost-reflective level.

Following the new price-cap regulation and taking into consideration the revenue requirements for 2003-2005, the calculated use-of-network charges for transmission and distribution networks resulted in a 15.03% real increase per year. At a first glance, it may seem unusual that the new price control scheme in Slovenia led to a price *increase*. The main reason for this effect was the low initial level of network charges, so that - even accounting for the required convergence towards efficient cost levels - the net effect would still be one of increasing prices. This is due to the fact that the price adjustment (increase) needed to approach cost reflective levels prevailed over the cost reduction targets resulting from efficiency analysis.

3.3 Independence Problems

With EU accession, the pressure to keep low inflation in the country increased. Electricity price levels were considered essential for inflation control in Slovenia. It was understandable that the normative regulatory principles had to be somewhat reconciled with the political reality in the country and with the macroeconomic requirements (inflation control) resulting from EU accession. Given the autonomy of the regulatory decisions granted to AERS by energy legislation, the right (but also the only possible) way to reconcile macroeconomic objectives with the required price increases was to use a coordinated approach and to find a compromise supported by AERS, the Government, and the industry.

Obviously, the agreed 15.03% price increase was politically hardly feasible. Without a lot of coordination, the Government simply overruled the decision of AERS and forced the regulator to reopen the price control to arrive at lower price increases. The new target level of the feasible price increase was determined politically, and the computation efforts following the price control reopening were solely directed to "justify" the new "artificial" revenue targets. It is understandable and logical that such earlier and unexpected price review triggered by political reasons did not have any positive effect on the credibility of AERS. Moreover, the interim regulatory review did not lean to any solid economic basis as AERS was forced to justify by all possible methods the externally-imposed lower revenue requirements.

It remains unclear whether this early regulatory review of network charges would have been necessary at all if there had been a previously coordinated policy on generation and network pricing. In 2003, the largest generation company owned by the Government (HSE) was allowed to increase wholesale prices by approximately 20%. Unsurprisingly, there was no reaction by the distribution companies against this decision, as the distribution companies are themselves still owned by the Government. Finally, any issues regarding the implication of these price increases on final retail prices were not deemed to be a serious problem as the Government is in charge of *retail* price controls, and not AERS. The substantial and uncoordinated generation price increase[2] hindered any further increase in electricity prices elsewhere in the industry (networks).

[2] We do not discuss the competitive aspects of the generation price increase in Slovenia. Indeed, generation companies normally have the freedom to price their own output. In this case, however, the holding company in question had a nation-wide market share close to 70%, and could clearly dominate the Slovenian wholesale electricity market most of the time.

AERS's view that the regulator needs independence and autonomy to decide was not appreciated by the Government, and led to an increasing tension and deterioration of the relationships between the two institutions. In 2004, AERS's independence was even legally restricted by amending the Energy Act. The amended Act set out the establishment of a new body, called the Regulatory Council. The Regulatory Council is composed of five external senior officials and will control the decisions of AERS. Not unexpectedly, the Regulatory Council includes also governmental officials, effectively leading to a take-over of AERS by the Ministry. The independence of regulatory decisions in Slovenia – starting from the process of appointing a new Chairman – thus became an illusion.

4 CONCLUSIONS

The regulatory framework, as well as the historical background, in the Netherlands and Slovenia is very removed from that of the Caribbean. Still, Caribbean regulators may learn valuable lessons from these two experiences. They show that regulatory independence may always be challenged, and especially so if regulatory performance is perceived to be either just low or politically unpalatable.

In the Dutch case, the problem was the direct link between the results from the benchmarking analysis and the X-factors. This 'linked' approach made the regulatory process extremely sensitive to data errors. A change in the data for a single company might have potentially led to a change in efficiency scores for the whole sample, and thus have resulted in an instable regulatory system. Given the large degree of uncertainty in the results of a benchmarking study, its outcomes should be used with a grain of salt. Rather than feeding directly into the X-factor process, they should be considered as precious pieces of information to strengthen the regulator's position in the discussions with network operators.

In Slovenia, EU accession requirements pushed the Government to initially hijack, and subsequently to take more or less full control of the regulator's decisions. Although the Slovenian regulator's performance was not supposed to be perceived as low or otherwise unsatisfactory, political implications led this Regulator to be *de facto* neutralized by the Government. The lesson to be learned from Slovenia is that macroeconomic considerations should never interfere with microeconomic regulation of public utility sectors. Every time this happens, it will normally coincide with a harsh defeat for microeconomic efficiency theory and, in practice and more interestingly for consumers, with a high distortion in the prospective, long run decision-making process, prices, and quality levels in the industries concerned. This will pretty strongly touch upon consumer satisfaction at some time in the future, thus amounting to an inter-generational market failure.

In conclusion, this paper has attempted to highlight some of the recent experiences in Europe in developing and implementing new price controls and related problems. Price-caps are believed to generate higher efficiency and lower prices. But, in order for them to be effective, they need to be implemented carefully and possible problems need to be dealt with properly. Not doing so may decrease regulatory performance and in turn, jeopardize regulatory independence and industry health in the medium to long run. The Dutch and Slovenian cases shed light on the problems faced in guarding regulatory independence, and should provide valuable lessons for Caribbean regulators - as well as for regulators elsewhere in the world.