

**Towards a regulatory framework for
the utility sector of Curaçao:
Lessons from international
experiences**

Speech by Dr. E. Tromp on the occasion of the follow-up
energy symposium with the theme

A regulatory framework, making it good for everybody

May 18, 2011

Ladies and gentlemen good afternoon,

It was with a great deal of pleasure that I have accepted the invitation to address you this afternoon on the topic of utility regulation. Aside from the fact that this topic has been on the forefront of the National Agenda for some times now, it has been my passion since my academic years. Indeed, the topic of my doctoral dissertation in 1985 was: "The Impact of Regulation on Electric Utility Pricing: An Econometric Test of Ramsey Pricing."

I developed and applied an econometric model capable of estimating the extent to which prices deviate from marginal cost pricing in the electric utility industry. This allowed me to estimate the magnitude of the potential efficiency gain to be derived by moving to the optimal set of prices. It has subsequently been extended to examine the pattern of inefficiency observed in different regulatory environments.

<Sheet Outline of presentation> Ladies and gentlemen, I have not been asked though to elaborate on my model but to review with you recent economic developments and their implications for the topic at hand. I will however, expand on the issue of utility pricing given the importance of prices in a market economy to guide the allocation of resources among alternative uses to achieve economic efficiency. Thus, the issue of regulation as a substitute for market forces is critical for economic development and hence economic growth.

Ladies and gentlemen, recent economic developments in Curaçao cannot be seen in isolation. Given the openness and size of our economy, our economic developments are largely a reflection of economic developments in our main trading partners. As the global economy is estimated to expand in the aftermath of the 2008 great recession, the outlook for growth in our region is projected to improve.

<Sheet Economic growth and inflation> While Curaçao fared relatively well during the international financial and economic crisis owing to the debt relief in the context of the constitutional arrangements, it did record a contraction in 2009. In 2010, economic growth is estimated to be a mere 0.2 percent.

Growth in 2010 can be attributed to an upturn in the wholesale & retail trade and financial services sector and the public sector. The expansion in the public sector was due mainly to more outlays on wages & salaries and goods & services. Activities in the wholesale & retail trade sector rose, reflecting gains in domestic and tourist spending. By contrast, decreases in the manufacturing, construction, and transport, storage & communication sectors mitigated the upturn in the wholesale & retail trade and financial services sectors. The unfavorable development in manufacturing was due mainly to a drop in value added by the Isla refinery due to the prolonged shutdown of the refinery. Also, activities in the ship repair industry shrank. Construction investment activities also were down in 2010, but less than in 2009.

Meanwhile, Curaçao's real GDP is projected to reach 0.3% in 2011. The 2011 growth will be backed by domestic demand, owing to gains in private demand and public investment. However, the decline in net foreign demand will moderate somewhat the increase in domestic spending.

Inflationary pressures were however led by developments in international oil and food prices. It is estimated that headline inflation will remain high by historical standards as a consequence of commodity price increases and increases in demand by countries such as China and India. To insulate our economy from those effects, it is important that we put in place a program to look for alternative energy sources. Given the topic of this conference, I think it is propitious to underscore this subject.

<Sheet Public finances>Ladies and gentlemen, during the last two decades, public finances in the Netherlands Antilles have been characterized by structural deficits and the consequent build up of public debt. Various attempts to implement structural adjustments programs to achieve fiscal consolidation derailed and led to a debt-to-GDP ratio of over 80%. To address this imbalance and to give the newly formed country a good starting position, the Netherlands agreed to pay off 70% of the outstanding public debt. As a consequence, our debt-to-GDP ratio has been reduced to 35%. Given the debt relief, which was coupled with budgetary rules and norms to ensure balanced budgets, the fiscal situation in Curaçao can be characterized as sound. The overall balance of the Curaçao budget was a surplus of NAf.323.3 million in 2010 and is estimated to record a surplus of NAf.3.2 million in 2011.

<Sheet Balance of payments> The deficit on the current account of our balance of payments widened in 2010 compared to 2009 due mainly to a decline in net exports of goods and services. The latter was related to an increase in imports combined with a decline in exports. The increase in imports can be ascribed to higher international average oil and food prices. Meanwhile, exports dropped, as a result of among other things, a decline in re-exports by the freezone companies to particularly Venezuela. Also, the fee for refining operations in Curaçao dropped significantly in 2010 because of the temporary shut-down of the refinery. Furthermore, oil storage fees received from abroad contracted as a result of a decline in oil storage activities. In contrast, foreign exchange revenues from the tourism industry rose.

It should be noted that over the past couple of years, the deficit on the current account of the balance of payments has been increasing rapidly. This situation has however been masked recently by the implementation of the debt relief program that resulted in increased net current transfers from abroad. Without the debt relief program, the situation on the current account would have been worse at this moment.

Given the importance of the utility sector for the economic performance of Curaçao, it is important that the price setting mechanism adopted by the government provides the necessary incentive structure to maximize allocative efficiency. Therefore, before elaborating on the regulatory framework, it is important to understand the importance of the signaling function of prices in our market economy as it applies to the complexity of a natural monopoly.

Ladies and gentlemen, a major function of prices in a market economy is to guide the allocation of resources among alternative uses to achieve economic efficiency. In general, an efficient outcome is one where, by reallocating the available resources, no one can be made better off in terms of his preferences without making someone else worse off in terms of his preferences.

Under certain conditions, perfectly competitive markets throughout the economy can achieve an efficient allocation of resources. Situations however do exist where competitive market forces are not likely to allocate resources efficiently. For example, if a product is produced under technical conditions that give rise to extensive scale economies relative to the size of the market, perfect competition will not result in a socially optimal allocation of resources. The natural outcome of competitive market forces under these conditions is a single firm dominating the market. That is, competitors are not naturally attracted to such a market and are incapable of survival even if the incumbent firm does not resort to predatory measures. This condition is referred to as a natural monopoly. In sum, extensive scale economies lead to market failure. This provides the “economic logic” that motivates government intervention in the marketplace and, in particular, regulation of prices in the utility industry. In addition, freedom of entry carries the risk of excessive duplication of facilities and only temporary competition at best, because any firm that increases its scale will have lower average costs than its rivals and will ultimately “price them out of the market”. The existence of one firm, left unregulated, will then lead to monopoly prices. To avoid the “twin evils” of wasteful competition and market prices which exceed minimum long-run average cost, public regulation is often used instead of market competition.

A possible flaw in the economic rationale for government regulation is the notion that a natural monopoly provides a logical basis for monopoly prices. Even though efficiency considerations dictate that only one firm exists in a natural monopoly industry, the use of some form of competitive bidding will force the unregulated firm to charge a competitive price. The co-existence of monopoly power and monopoly structure is possible only if the costs of negotiating are differentially positive for potential rivals and if the rivals do not have the same access to the necessary inputs at market prices. Franchise bidding for public utility services, however, are likely to encounter the same problem associated with regulation. First, given the long run nature of the assets employed by public utilities, long run considerations are important in franchise bidding. Writing contracts that ensure reasonable performance over the contract life would be very costly. Second, since it is not possible to incorporate every single detail explicitly in a contract, renegotiation over time is necessary. The necessity for contract renegotiation implies that franchise bidding would come to resemble conventional regulation.

Thus, extensive scale economies relative to the size of the market make a monopoly the natural outcome of competitive market forces—a case of market failure due to economies of scale. Because of market failure, the price system no longer conveys the necessary information to ensure efficiency. Given this assumption, an unfettered market cannot be relied upon to produce an outcome with any particular optimality properties. The alternatives are for the government to either regulate the industry (public regulation) or nationalize the industry (public monopoly) or do nothing (*laissez-*

faire). The usual normative prescription has been government regulation. Substituting a regulatory agency for the free market is premised in part on the belief that a regulatory agency can, at a relatively low cost, determine an efficient set of prices. Hence, optimal pricing is an integral part of any discussion of the role of government regulation.

Ladies and gentlemen, the critical issue in designing rate structures is to establish rate-making criteria that will lead to an efficient outcome. If the general criterion is marginal cost pricing, socially efficient consumption and production decisions will result because marginal cost is the correct measure of opportunity cost, that is, the value of society's forgone alternatives. Setting prices equal to marginal cost insures that, at the margin, the value of the resources used to produce a given commodity is the same as their value in the next-best alternative employment. However, it is not a rule to be followed absolutely and in all events. Marginal cost pricing, is "a principle to be followed (only to the extent that) it is compatible with other desirable objectives and from which deviations of greater or lesser magnitude are to be desired when conflicting objectives are considered". A conflict with the strict application of marginal cost pricing arises when the technological assumption of a well-behaved production is violated—for example, the existence of economies of scale. If there are economies of scale throughout the region of possible industry outputs, then marginal cost pricing will yield negative profits.

Subsidizing this loss from tax revenue generally will not help unless the tax leaves all marginal allocation decisions unchanged. Even then, subsidies may distort the subsidized firm's behavior leading to excessively high costs of production. Because of the problem created by economies of scale, rates must be guided by a set of principles that are broader than marginal cost pricing. In general, the "guiding principles" in designing a rate structure in the utility field are: (a) to allow utilities to meet their revenue requirement; (b) to allocate cost of service among customers; and (c) to provide incentives for efficient consumption and production. These first two principles are discussed next.

First, revenue requirement. Ladies and gentlemen, the revenue requirement is defined as the total number of guilders required to cover operating expenses, to service debt, and to provide reasonable contribution toward funds for expansion. Determination of the revenue requirement is usually the first step in the regulatory process of setting prices for utilities. A test year is first selected in order to examine a firm's existing revenues and costs. Until recently, the test year usually was the most recent year for which historic accounting records were available. Recent inflation, however, has forced regulators to give consumers price signals that place greater weight on current cost. Use of a future test year (that is, cost and revenue projections) in the regulatory process is now common. Once the test year has been selected, the firm's operating expenses, annual depreciation, annual taxes, and allowed profit are evaluated. The revenue requirement is determined by adding up these items.

The second guiding principle is cost allocation. Cost allocation refers to the distribution of costs among consumer classes. Utility service is produced for different customer classes using the same facilities. As a result, it is difficult to indentify separate marginal costs for each customer class because a large part of the costs are common or joint. However, utility is produced for different

customer classes in variable proportions, and separate marginal production costs can be identified as the increment to the total cost of the joint production process when output to one customer class is increased by one unit, holding the output of other customer classes fixed.

Various factors influence customer costs, including voltage differences, distances between generation points and consumption points, and customer-density. Recognition of these factors has led to the development of cost allocation formulas that approximate the actual costs for which each customer class is responsible. In addition to being simple, the use of cost allocation formulas may reflect a desire to favor certain groups in terms of the prices they have to pay. Cost allocation methods are broadly classified into two groups: (1) peak allocation methods and (2) energy allocation methods.

Peak allocations methods distribute cost responsibility to the various customer classes on the basis of their proportionate share in total demand placed on the system. Meanwhile, energy allocation methods distribute costs to the various customer classes on the bases of the amount of energy used to serve each class. In contrast to the peak allocation method, this method takes load factors into consideration and therefore benefits low-load factor customer.

As can be seen there are various ways and methodologies to price utility services. It is not an easy and clear cut as sometimes one may want it to appear. This issue is further complicated when one takes into considerations the various interest group that try to make the rates reflect their own objectives such as consumers advocate, environmentalists and industry lobbyists.

<Sheet Trends in regulation utility sectors> Ladies and gentlemen, before 1984 public ownership of utility companies was justified by the argument that these companies were natural monopolies. Governments owned utility companies because it was not possible to prevent the abuse of market power under private ownership, because of economies of scale, competition in these industries would result in the inefficient duplication of assets.

In the mid 1980s. a changes occurred in this view. The focus became more on increasing efficiency in the utility companies. In addition, there was a growing realization that while a considerable part of the activities carried out by the utility companies had monopolistic characteristics, certain activities did not. The latter could in fact be provided in a competitive environment. Hence, the utility industry or parts of it were liberalized by allowing competition. In addition, the ownership of certain companies was transferred from public to private hands. Regulation was now aimed at facilitating the introduction of competition or “creating a level playing field”.

The privatization of the UK energy sector in the 1980s triggered a wave of privatization attempts in other countries. Although many countries opted to customize the UK’s privatization principles to fit their own specific circumstances, the common denominator in these approaches was the separation of the transmission and distribution of electricity from the production and retail sale thereof.

<Sheet Trends in regulation utility sectors continued> However, the liberalization of energy markets has not always led to lower consumer prices, as expected. According to certain studies,

prices might have only shifted *between* market segments, or even increased compared to prior to the liberalization. Some studies indicate that energy prices dropped after the liberalization of the energy market, but only for businesses. Private consumers, in contrast, ended up spending relatively more on their energy bill. In California, consumer prices rose following the liberalization of the energy market, while the number of power outages increased substantially. According to some energy market experts, liberalization on its own does not guarantee lower consumer prices. If private suppliers retain the possibility to ration their production and as such cause shortages, they can influence the price of electricity in their favor anyway. Hence, they retain certain monopolistic powers, despite the liberalization of the market.

These developments have slowed down the trend towards liberalization in recent years, and even spurred calls for the re-regulation of some liberalized energy markets including: (1) The prevention of market abuse in case of a monopoly and (2) The establishment and regulation of structures to facilitate competition in potentially competitive sectors. Furthermore, independent regulatory agencies were established to execute these tasks.

<Sheet Regulation of utility sector in Curaçao> As a monopoly service provider, Aqualectra until now has not been subject to economic regulation as there is not a body which has responsibility for regulating competition, controlling prices and protecting consumers in the water and electricity supply industry.

In the past, the department of economic affairs used to advise the government on the tariffs of water and electricity. This task is now being fulfilled by the bureau of Telecommunications and Post (BT&P).

<Sheet Recommendations for regulatory framework for utility sector of Curaçao> Ladies and gentlemen, I would like to turn now to the best practices that have evolved during the last several years. For effectively regulating the water and energy infrastructure services some form of regulation is needed. Best practices in recent years point at the creation of autonomous and independent institutions. This is only possible if there is a political commitment to facilitate this development as the regulatory decision making powers are transferred from the government (Minister) to an independent regulator, sourced out through a regulatory contract or to an expert panel. The commitment of the government should be shaped in a constitutional and legislative framework.

<Sheet Recommendations for regulatory framework for utility sector of Curaçao continued>The aim of establishing an independent regulatory board is to encourage efficient, low-cost, reliable service provision, to ensure financial viability and to facilitate new investments. Furthermore, it will insulate tariff setting from political opportunism and make decisions more transparent and predictable.

<Sheet Comparison regulatory frameworks selected Caribbean countries> One of the constraints of setting up independent regulatory agencies is the institutional capacity. It is often difficult to find a competent institution and staff. In this and next sheet, I will give an overview of

the status of energy policies in selected Caribbean countries. A number of Caribbean islands already have depoliticized the decision making process and instituted regulators.

In Barbados - we often mirror ourselves against this Caribbean island - a regulatory body exists since the middle of last century. From 1955 till 2001 the Public Utilities Board was responsible for regulation. On January 2nd, 2001, the Fair Trading Commission was established with a much broader mandate than its predecessor. Its duties include among other things: determining principles, rates and standards of service for regulated service providers; monitoring general business conduct; investigating possible breaches of the acts that it administers; educating and informing businesses and consumers about the requirements of these acts; and taking enforcement action when needed.

<Sheet Thank You> Ladies and gentlemen, choosing a regulatory framework for Curaçao's energy and water sector is not an easy task. However, we can draw upon international best practices and the experiences of our neighboring Caribbean islands to help us making the right decisions. We must keep in mind though that best practices do not mean that we should simply apply these concepts to our environment. We have to adapt them to our own specific circumstances.

Thank you for your attention.