Chapter 4

OPERATIONALIZING EFFICIENCY CRITERIA IN ENERGY PRICING POLICY

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INTRODUCTION

This chapter addresses the question of how the basic economic efficiency rules of energy pricing can be translated into actual market prices, given that there exist important noneconomic objectives as well as practical implementation difficulties. First, it reviews the basic objectives of pricing and discusses the various trade-offs that may be necessary among them. Second, it discusses the problems related to short-run versus long-run marginal cost pricing. Third, it addresses the question of determining long-run marginal supply costs under conditions of economies of scale when potential market sizes differ. This is an issue of considerable practical importance in many developing countries. Fourth, it looks at the related issues of discriminatory and promotional pricing. Fifth, it analyses in some detail the practical questions involved in estimating depletion costs and the importance of the latter for determining minimum economic costs. Sixth, it looks at some of the problems of determining appropriate pricing for petroleum fuels. Seventh, it addresses some special questions related to the opportunity costs of funds which, in turn, determine part of the long-run cost of supply. Eighth, it looks at the reconciliation of economic and financial objectives and, finally, at the problem of dealing with inflation and relative price changes. Two appendixes round out the discussion, one analysing the opportunity costs of oil used domestically under restrictive export quotas, and the other illustrating some of the potential consequences of inappropriately low power prices.

Given the many issues related to the overall topic, the discussion is necessarily selective. In particular, because of the availability of substantive
literature on the subject, no attempt has been made to address in any detail the issues of determining the marginal costs of electricity supply systems and setting power tariffs. For illustrative purposes, emphasis has been placed on the pricing of natural gas, an important new fuel for many developing countries.

PRICING, A TOOL OF DEMAND MANAGEMENT

Energy pricing has to be seen in the context of wider energy demand management policies. The overall objectives of the latter are to change demand from patterns that would evolve without management to one that is considered superior on the basis of given policy criteria. Apart from pricing, the major policy instruments are: (1) laws, regulations, and rationing; (2) education and information; (3) policies and regulations affecting the utilization patterns of energy-using equipment and appliances; and (4) direct or indirect subsidies to energy-producing or energy-using activities. The various policy instruments under these four headings can be applied directly to a given energy resource, or indirectly by affecting the cost levels, availabilities, and utilization of energy-using systems, appliances, and machinery. Since these policy instruments are interrelated, their use should be closely co-ordinated for maximum effect.

Among all of them, pricing is a particularly powerful and versatile tool for affecting demand in the long run. In the short run, even sharp changes in prices may have only limited effects on demand but major effects on energy revenue flows instead. Pricing can be applied directly to a given energy source by changing the final price to users. However, it can also be applied indirectly by affecting the prices, costs, or availabilities of energy-using appliances, either through taxes, price controls, direct subsidies, or indirect subsidies provided to energy-producing activities such as tree planting, coal mining, or transportation, or through import controls. Another important means of influencing prices consists of intersectoral cross-subsidies through, for example, lifeline rates for electricity that are compensated for by higher prices to large users, or low-cost pricing for diesel fuel as against high-cost pricing for gasoline. Another form of cross-subsidy consists of country- or region-wide uniform pricing schedules regardless of the specific regional energy delivery costs.

BASIC PRICING OBJECTIVES

The basic objectives that must be considered in energy pricing are (1) economic efficiency, (2) social equity, and (3) financial viability. The efficiency principle seeks to ensure the regulation of prices in such a manner that the allocation of the society's resources to the energy sector fully reflects their values in alternative uses. The equity principle relates to welfare