ECONOMIC INCENTIVES FOR ENERGY CONSERVATION

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PREFACE

The last decade has witnessed a dramatic transformation in the development of modern society. Gone, perhaps forever, is the era of inexpensive energy, the prime mover of our industrial economic systems. On the whole, governmental policy responses to increasing world energy prices and uncertain supply have been weak and diffuse. Of particular note have been regulatory mechanisms which have impeded the efficient allocation processes of the free market. Even in the presence of market failure, where externalities, high transaction costs, and information deficiencies mandate some form of governmental presence, the response has frequently been ill conceived or counterproductive.

Only recently has a more concerted effort been undertaken systematically to apply appropriate economic mechanisms, such as incentives, to the resolution of the significant allocative and distributional questions associated with the production and use of energy.

This book has essentially two goals: first, to examine some recent experience with the innovative use of economic incentives for influencing energy demand; second, to utilize this information to devise functional and effective prescriptions for the development of future energy policy. Much more research remains to be undertaken, as this area entails complex and interdependent economic, political, and social issues. It is our hope that this manuscript will provide an appropriate framework that will facilitate the continuing process of policy formation and execution.

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FOREWORD

The period 1973–1983 represents a watershed in North American energy policy and policy analysis. Literally hundreds of measures were implemented by the public and private sectors in response to the events triggered by the Arab oil embargo of 1973–1974. The policies adopted ranged from purely economic ones acting through the pricing mechanism to policies that prohibited energy use for certain purposes. Also, policies that mandated a minimal level of energy efficiency regardless of the cost.

Some of these policies were adopted after careful consideration of alternatives, while others reflected a rush to action in response to public pressure.

Despite the hundreds of millions of dollars invested in these projects, there has been remarkably little analysis of the goals and accomplishments of often disparate policies that were put into effect during this period. Nemetz and Hankey perform a valuable service in drawing across the set of policies that involve cost analysis, pricing policy, investment incentives, and mandatory standards. It is an ambitious charter, and all the more valuable by its very breadth of scope. After all, a policy to reform the structure of electricity rates (e.g., incorporating information about the marginal costs of supply at different times of the day or year) *should* be evaluated in comparison with a policy to encourage more efficient investments in energy-using appliances (e.g., storage electric heaters that could take advantage of electricity produced in less expensive offpeak periods). Yet, remarkably few studies have attempted the comparison.

The evaluation of a diverse set of energy policies includes consideration of economic efficiency, distribution of the consequences across dif-

ferent customers, and the feasibility and acceptability of alternative policies that require governmental, utility, and customer involvement.

Nemetz and Hankey begin their task with a survey of the underlying cost structure of one of the most important sources of energy—the electric supply system. Their choice is a good one because electricity is an important consumer of primary fossil fuels: since almost every business and residential customer uses electricity and electric utility costs and rates are an established matter of public policymaking. Substantial advances in cost analysis and rate setting practices occurred during the 1970s for North American electric utilities. By the early 1980s, almost every electric utility regulatory body had at least begun the process of considering seasonal and hourly variation in average and marginal costs for the major utility systems under their jurisdiction. The authors set the stage by explaining the traditional method of cost analysis, which is bedded in accounting costs, and then move to the marginal cost and peak load considerations—requiring economic and engineering analysis—that constitute the major advance in analysis over this period.

The step from costs to rate policy is an important one involving a number of considerations. Prominent among them are the changes that occur in prices that customers face and the degree of price responsiveness that they display in response to these changes. Nemetz and Hankey draw upon detailed econometric studies from North America and, to a lesser extent, European utilities to identify probable short- and long-run response. They include many first-rate Canadian studies in their review, which enriches the empirical insight considerably.

Having set the background in allocative and efficiency considerations, the authors turn to a review of a whole set of energy policies presented in the form of case studies from states that have been innovative in energy policy matters. To my way of thinking, this is one of the most important contributions of the book. Here the authors juxtapose pricing policies, purchase incentive policies, and policies which mandate certain performance standards. In three case studies they provide a catalog of significant policy developments for California, Oregon, and Wisconsin. They include some of the policies that failed as well as ones that were successful and marshal available evidence of their effects. Many of the policies reviewed in the case studies were good ones—achieving their objectives with relatively low administrative costs and high acceptability by participants; others were notable failures, addressing goals that had never been identified or articulated and carrying significant burdens compared to any benefits achieved. Clearly we need to merge the lessons from this broad experience if we are to make proper use of incentives and performance standards if another energy crisis erupts and policy action is needed in the atmosphere of political crisis.

Nemetz and Hankey conclude on a provocative note and show their interests as policy analysts in the broad sense, not only as economists.

They identify combinations of policies that, taken together, were necessary in order to ensure the success of any one of the policies or in order to enhance the effectiveness of one another. Clearly this is an important direction for further attention in economic and policy analysis, where we often judge policies one at a time. By identifying policies that are synergistic, Nemetz and Hankey not only find several good energy conservation policies, they also contribute to the advancement of policy science.

JAN PAUL ACTON

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