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HOUSTON OF ASIA
THE SINGAPORE PETROLEUM INDUSTRY

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**THE
SINGAPORE
PETROLEUM
INDUSTRY**

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PREFACE

In February 1988 the Energy Program of the East-West Center in Honolulu and the Institute of Southeast Asian Studies (ISEAS) in Singapore agreed to undertake a joint research project. The goals of the Joint ISEAS and East-West Center Energy Project are to develop a data base and conduct analyses on key aspects of the energy economies of the Asia-Pacific region and its major constituent nations. A further purpose of the Project is to utilize the expertise of the Energy Program at the East-West Center for the development of a research capability within ISEAS with respect to major aspects of energy supply and demand of the region.

It is fitting that one of the first outcomes of the Joint Energy Project is the publication of *Houston of Asia: The Singapore Petroleum Industry* by Tilak Doshi. The "Houston of Asia" is an apt metaphor that captures Singapore's dominating regional role as provider of petroleum refining, blending, and storage services, exporter of petroleum products, port of call for bunker and jet fuels, and spot market for the Asia-Pacific petroleum trade. Singapore, in short, is at the very heart of the web of linkages that constitute the Pacific Basin's oil economy.

As the author points out in his introduction to the monograph, the industry has received scant academic attention despite the scale

and importance of its activities. To be sure, the subject is both prominent within and well covered by trade and business journals catering to the "East of Suez" information needs of the world petroleum industry. Yet the Singapore petroleum industry has remained an almost mythical creature, the detailed understanding of which it seems is the special province of an élite of expatriate oilmen "who deal in the stuff" and some senior officials in government.

The author, a Singapore national who is sponsored by ISEAS and currently pursuing his research interests with the Energy Program at the East-West Center, is appropriately a young economist associated with neither industry nor government. This study represents the first attempt at a comprehensive survey of the Singapore petroleum industry. It constitutes an initial step in what we hope to be a continuing and independent research interest on one of the region's most strategic industries.

Given the serious lack of official data on most aspects of Singapore's energy economy (a state of affairs not shared by most other countries at a comparable stage of development), this monograph is a spirited attempt to fill a gap in both description and analysis. It is hoped that with a wider and more mature understanding of the needs of the Singapore oil industry, a process in which this book may play a modest part, a more open approach to information dissemination will be pursued by both government and industry with regard to the country's energy economy.

February 1989

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INTRODUCTION

Singapore may deservedly be called the "Houston of Asia" in that its petroleum-related activities have placed the country at the heart of the Pacific Basin's energy economy. Singapore's refineries collectively constitute the world's third largest refining centre, after Rotterdam and Houston. The country's oil trading links extend from the Persian Gulf across to Northeast Asia, and from Australia to the U.S. West Coast. The Singapore spot market, focal point of oil trade in the Asia-Pacific time zone, has made Singapore-quoted prices the bench-mark for the region's petroleum transactions. In February 1989, the Singapore International Monetary Exchange (SIMEX) will have launched its High Sulphur Fuel Oil contract, the first petroleum futures instrument east of Suez.

Singapore, the world's busiest port of call, also ranks as the world's largest fuel oil bunkering centre. It is one of the largest builders of offshore drilling rigs and the region's most comprehensive and competitive base for repair, maintenance, and logistics services for the offshore oil and gas industry. The country's petrochemical complex, although modest in scale by world standards, is an important exporter of ethylene-based products in the region. Other petroleum-related activities include independent petroleum storage and blending, brokerage of shipping services and marine insurance,

warehousing of equipment and supplies, and the manufacture of parts and components for the petroleum sector.

The Singapore petroleum industry has received little academic attention despite its scale and importance with respect to both the domestic and regional economies. To date, there has not been a single comprehensive study published on the subject. The lack of industry-specific data and the confidential nature of many of the details of industry operations are undoubtedly part of the explanation. Description and analysis of various aspects of the Singapore petroleum sector are confined to trade and industry journals and the odd essay by observers in business publications. Consultants' reports and in-house studies conducted by large multinational oil companies and other industry participants, usually the best sources of oil industry data in Singapore, are naturally restricted to clients and proprietary parties. While much of the publically available information is journalistic and piecemeal, official statistics are seriously inadequate and yield only the barest outlines of an industry that is at once complex and undergoing rapid changes.

This book is conceived of as an initial step in an ongoing research programme on one of the region's most dynamic and strategic industries. It is hoped that the efforts of this study go some way in filling the research gap on the subject, although the paucity of authoritative data seriously limits the depth and coverage of this study and necessarily makes any analytical contribution a modest one. Considerable effort has been expended in data collection. Much of the data has been estimated on the basis of industry sources, either published in the various specialized trade journals or communicated by Singapore-based industry participants to the Energy Program at the East-West Center. Given the scattered and unco-ordinated nature of the available data, conflicting and inconsistent figures are not uncommon. Hence a certain margin of error is unavoidable and estimated figures should be treated with caution (see Appendix 1).

Chapter 1 presents an interpretative look at economic growth and structural change in Singapore with a view to setting the wider context of the Singapore petroleum industry. Chapter 2 surveys the country's energy economy with an overview on four broad aspects,

namely (i) the growth and configuration of domestic energy demand; (ii) the petroleum industry as producer and supplier of energy and energy-related materials and services; (iii) the impact of falling oil prices on the Singapore economy; and (iv) the government's policies in energy demand and supply. Chapters 3 and 4 focus on the primary concern of this study, the downstream sector of the Singapore petroleum industry. Chapter 3 covers (i) oil trade and the Singapore spot market; (ii) the planned introduction of a petroleum futures contract; (iii) fuel oil bunkering; (iv) the independent storage of crude oil and refined products; and (v) the manufacture of petrochemicals. Chapter 4 follows with a detailed look at refining, the heart of the Singapore petroleum industry. Concluding remarks on the downstream sector of the petroleum industry are presented in Chapter 5.