

TABLE OF CONTENTS

Executive Summary	13
Introduction	19
Chapter 1. Setting the Scene	23
Demand for oil and gas	23
Resources and reserves	24
Geographical distribution	29
Oil and gas transport	31
Structure of the oil and gas industry	31
Research and development	33
The role of technology	35
Chapter 2. “Conventional” Oil and Gas	41
OPEC Middle East	43
Other regions	45
Improved recovery	51
What is recovery?	51
Trends	51
<i>By-passed oil</i>	53
<i>Residual oil</i>	58
Recovery in carbonate reservoirs	61
Summary on improved oil recovery	62
New conventional resources: deepwater, Arctic, deep reservoirs	65
Deepwater	66
Arctic	71
Super-deep reservoirs	73
Chapter 3. Non-Conventional Oil Resources: Heavy Oil, Bitumen, Oil Sands, Oil Shales	75
Heavy oil, bitumen and oil sands	75
Oil shales	82
Chapter 4. Non-Conventional Gas Resources and Methane Hydrates	85
Non-conventional gas	85
Coal bed methane	85
Tight gas	88
Methane hydrates: resources for the long-term future?	89

Chapter 5.	Transportation	93
	Gas transportation	93
	Traditional transport chains: pipelines and liquefied natural gas	93
	Emerging options	96
	Oil and gas shipping bottlenecks	101
Chapter 6.	Environment and Safety	103
	Environmental footprint	103
	CO₂ and climate change	108
	Security and safety	108
Chapter 7.	Getting on Track	109
	Modelling future technology trends	109
	Impact of technology on future supply	110
	The role of governments	117
	Key conclusions	118
References	121