

Chapter 1

Introduction

Our economy runs principally on fossil fuel energy: coal, oil, and natural gas. Very roughly each provides about 30% of the world's energy, with the final 10% coming from all other sources—nuclear, hydro, wind, solar thermal, photovoltaics, geothermal, biomass, and so forth. The 30% of oil energy is of particular importance because oil is the primary power source for transportation; the economy depends on transportation to move raw materials, finished goods, people, and even information from one place to another. If we run out of oil the global economy is in serious trouble.

Providing enough oil for the economy is a commercial undertaking, albeit with major government involvement over the years. The finding, producing,¹ refining, and selling of oil is a major global industry, dependent on the massive financial investments required to support all aspects of the petroleum industry. The oil price is part of the daily financial news, affecting everyone from the chairman of ExxonMobil to a villager in the Mekong Delta. Oil companies, whether publicly owned by many shareholders, state owned, or privately held, invest billions of dollars each year in keeping the economy fuelled and lubricated; a large number of specialized service companies support this operation, providing combined employment for millions of people.

Government involvement in the oil industry is significant. While the image of “big oil” generally is of companies such as ExxonMobil or Chevron, which are publicly owned by shareholders, approximately three-quarters of world oil production is actually under the control of companies whose majority owner, if not sole shareholder, is a national government (Helman 2014). Major oil-producing countries such as Saudi Arabia, Norway, Nigeria, Russia, and Venezuela derive much of their national income from the production of oil. For many other countries, the USA is an example, the cost of importing oil is a major component of their foreign

¹“Producing” is the term generally used in the oil industry. Others prefer the terms “extracting” or “exploiting.”

exchange balance. Thus oil trade arrangements and the price of oil become important factors both for national policy and in international relationships.

Oil is bulky and storage is thus expensive; this means that disruptions in oil supply at any point between the oil well and the final user can cause economic havoc. The politically-based oil supply disruptions of the 1970s influenced between 20 and 25% of the global supply for only a few months, but the result was a global pause in economic growth (BP Statistics 2014). From 1961 to 1973 world GDP growth was over 4.0% every year but fell to close to 0% in 1974 and 1975; after recovering in the late 1970s, growth again plummeted in 1980 when the fall of the Shah of Iran caused a second supply disruption.² In each of these two instances, the USA was actually pushed into economic recession. Government involvement extends beyond just the production of oil; taxes, subsidies, and regulations at every stage of the industry have a major influence, generally designed to ensure a reliable supply of the energy provided by oil.

Oil economics means various things to various people. For some it is primarily a question of whether a particular company will be profitable over the coming quarters or years; or the concern may be what the impact of gasoline pump prices will be on the overall economy. For others, oil economics may represent the power that the oil industry has within the political process. Still others may see oil economics in the context of the environment, where it provides the current framework against which alternative energy supplies must be measured. Strategic planners in all areas, including the oil industry, ponder the continued availability of this valuable resource on a finite earth.

Oil economics is tightly linked to natural gas economics. From the geology in which oil and gas are formed, through the drilling methods used to find and extract them, to the engines and turbines that convert their energy into the form in which we use it, these two fuels are closely linked. While the focus here is on oil, the overlap of the two energy sources in both technologies and companies means that this book will often encompass the economics of natural gas as well. We will start with an examination of the immediate profitability of oil extraction and then broaden our outlook to cover many other aspects of oil economics.

²GDP statistics taken from the World Bank online database (<http://databank.worldbank.org> accessed: 2014-12-17).